University of Utah Environmental Assessment

Utah Anchors: A Community Broadband Project

Broadband Technology Opportunities Program
National Telecommunications Information Administration

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Prepared for:
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# NEPA and NHPA Assessment

**Utah Anchors Community Broadband Project**  
**Environmental Assessment Legend**

- **Green** = Evaluated, no additional assessment required
- **Purple** = Historical and Cultural Archeological Class III Survey
- **Brown** = Selective Historic Reconnaissance Level Architectural Survey  
  National Historic Registry Eligible and Listed
- **Yellow** = Flood Plain. No additional assessment required.

Key: References below refer to the Appendices and page number

For example:  
C-1 refers to Appendix C, page 1.  
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<td>Westvale Elementary</td>
<td>p 16</td>
<td>C-1</td>
<td>D-107</td>
<td>E-103</td>
<td>F2-10</td>
<td>G-1</td>
<td>H-63</td>
<td>Ch 3 –pgs 22-23, Appx J</td>
<td>Appx J</td>
</tr>
<tr>
<td>Willard Elementary</td>
<td>p 16</td>
<td>C-1</td>
<td>D-108</td>
<td>E-104</td>
<td>F2-10</td>
<td>G-1</td>
<td>H-64</td>
<td>Ch 3 –pgs 22-23, Appx J</td>
<td>Appx J</td>
</tr>
</tbody>
</table>
List of Acronyms

APE    Area of Potential Effect
ARRA   American Recovery and Reinvestment Act of 2009
BTOP   Broadband Technology Opportunities Program
CAI    Community Anchor Institution
CO     Central Office
DEQ    Utah Department of Environmental Quality
DMARC  Point of demarcation
DO     District Office
DTS    Utah Department of Technology Services
DWDM   Dense Wave Division Multiplex
EA     Environmental Assessment
EPA    Environmental Protection Agency
FCC    Federal Communications Commission
FDP    Fiber Distribution Panel
FEMA   Federal Emergency Management Administration
FONSI  Finding of No Significant Impact
GB/s   Gigabit per second
IVC    Interactive Video Conferencing
MB/s   Megabit per second
MBR    Migratory Bird Refuge
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEPA</td>
<td>National Environmental Protection Act</td>
</tr>
<tr>
<td>NHPA</td>
<td>National Historic Preservation Act</td>
</tr>
<tr>
<td>NOFA</td>
<td>Notice of Funds Availability</td>
</tr>
<tr>
<td>NRHP</td>
<td>National Register of Historic Places</td>
</tr>
<tr>
<td>NWR</td>
<td>National Wildlife Refuge</td>
</tr>
<tr>
<td>RFP</td>
<td>Request for Proposal</td>
</tr>
<tr>
<td>PFSA</td>
<td>Proposed Funded Service Area</td>
</tr>
<tr>
<td>POP</td>
<td>Point-of-Presence</td>
</tr>
<tr>
<td>SAC</td>
<td>Special Award Condition</td>
</tr>
<tr>
<td>SHPO</td>
<td>State Historic Preservation Officer</td>
</tr>
<tr>
<td>THPO</td>
<td>Tribal Historic Preservation Officer</td>
</tr>
<tr>
<td>UDOT</td>
<td>Utah Department of Transportation</td>
</tr>
<tr>
<td>UEN</td>
<td>Utah Education Network</td>
</tr>
<tr>
<td>University</td>
<td>University of Utah</td>
</tr>
<tr>
<td>URTA</td>
<td>Utah Rural Telecommunications Association</td>
</tr>
<tr>
<td>USAC</td>
<td>Universal Services Administration Company</td>
</tr>
<tr>
<td>USDA</td>
<td>United States Department of Agriculture</td>
</tr>
<tr>
<td>USF</td>
<td>Universal Service Fund</td>
</tr>
<tr>
<td>USFWS</td>
<td>United States Fish and Wildlife Services</td>
</tr>
<tr>
<td>UTN</td>
<td>Utah Telehealth Network</td>
</tr>
<tr>
<td>WAN</td>
<td>Wide Area Network</td>
</tr>
</tbody>
</table>
### Glossary of Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Anchor</td>
<td>Public School, Public Library or Head Start Center</td>
</tr>
<tr>
<td>Contracted Services</td>
<td>End-to-end broadband Ethernet service. 1 GB or 100 MB service.</td>
</tr>
<tr>
<td>U of U/ UEN Hub/PoP</td>
<td>UEN Aggregation site. Typically a public School District Office, College or University.</td>
</tr>
<tr>
<td>Layer 2/3 Switch</td>
<td>Network switch provisioned to manage and route network traffic.</td>
</tr>
<tr>
<td>Right of Way</td>
<td>Right of Way (ROW) is an authorization to use a specific piece of public land for a certain project, such as roads, pipelines, transmission lines, and communication sites. A ROW grant authorizes rights and privileges for a specific use of the land for a specific period of time</td>
</tr>
<tr>
<td>Telecommunication Provider</td>
<td>Commercial/Private provider of telecommunication services to include telephone, network and Internet services. Services are delivered via copper, microwave radio and fiber optic based services.</td>
</tr>
<tr>
<td>Physical Activities</td>
<td>Specific activities required to implement the Middle Mile project.</td>
</tr>
</tbody>
</table>
Executive Summary

The Utah Anchors NTIA BTOP Round One Infrastructure project is a Middle Mile project that will directly connect 128 community anchor institutions in Utah to the statewide education backbone, utilizing contracted end-to-end broadband services provided from common carrier Utah telecommunication providers who own the equipment and infrastructure. These broadband improvements will also benefit 59 cities and towns that currently have underserved and unserved populations that lack basic access to high-speed broadband service in their local community.

The Utah Anchors project sites are presently served by traditional copper based facilities and as such are limited to very low speed and unreliable connectivity to WAN and Internet services. For this BTOP project, the University/UEN conducted competitive Request-For-Proposals (RFP) and finalized contract awards in February 2010. The University/UEN has contracts with eight (8) local telecommunication service providers for high-speed broadband services comprising a total of 1259.25 miles of fiber for this project. 1211.62 of the total project miles will utilize existing fiber within the service provider’s outside plant facilities. The contracted services will expand on existing and new Dense Wave Division Multiplexing (DWDM) technology, and other optical networking hardware. 46.96 miles of the project will require underground construction of conduit and fiber from the nearest manhole or interconnection facility to the community anchor institution (CAI) site. Less than one mile of fiber (3,533 feet or .67 miles) will be aerial installation using existing utility poles and interconnections to connect the CAI site. New fiber will be fusion spliced to the service providers’ existing network facilities and cross-connections made in Central Offices. Optical transport and network hardware will be installed and provisioned to complete the broadband connection back to the school district office or UEN’s nearest Point-of-Presence (PoP). This will enable the CAI site to connect into the UEN backbone network.

The work discussed in this environmental assessment includes all of the physical activity required to complete these “Middle Mile” improvements to include activities required for conduit and fiber installation, fusion fiber splicing, cross-connects, optical network equipment installation including DWDM, fiber optic patch panels, and layer 2/3 optical network switches. No new construction of buildings or structures will be required for this project.

This assessment focuses on the 47.63 miles of underground and aerial fiber installation and equipment installation required to implement the middle mile broadband services to the CAI end sites. This assessment does not address the contracted fiber facilities within the service provider’s existing outside plant facilities (the 1211.62 miles of contracted services.)
The maps and network diagrams included in this Environmental Assessment include the routes and distances for installation of new conduit and fiber, and locations including street address and coordinates for all existing manholes, Central Offices, School District Offices and UEN Points-of-Presence (PoPs) where physical activity for this project will occur. In working to comply with the NTIA Special Awards Condition placed on this project, the following are addressed in this assessment:

1. Full compliance with the National Environmental Protection Act (NEPA) and the National Historic Preservation Act (NHPA)

2. A Class I cultural resource investigation performed by SWCA Environmental Consultants. The investigation determined that 14 of the 128 CAI project locations fall within 500 feet within previously documented archaeological sites located within 500 feet of the University/UEN Areas of Potential Effect (APEs). After further review, SWCA conducted an intensive cultural resource assessment that included six (6) project areas which required a Class III on-site assessment by a professional archaeologist. The Class III assessment was completed, including locations within the National Registry of Historic Places. SWCA concluded that all construction associated with this project will avoid all cultural resource sites within the APEs.

3. It is important to note that one area identified by SWCA Environmental Consultants in the Class 1 search as “undeveloped UDOT Right of Way” was surveyed by SWCA as part of a class 3 onsite survey and the area has been bladed (developed) by UDOT. SWCA also determined as part of this survey that no cultural resource areas are within the project Area of Potential Effect (APE).

4. SWCA’s surveys and findings were provided to the Utah State Historic Preservation Office (SHPO) in their evaluation of the potential effect to historical resources. The SHPO office provided a letter concurring No Historic Properties affected for this project. In addition, the SHPO office has completed their evaluation regarding historic structures and buildings and determined no adverse affects for the proposed undertaking.

5. Consultation with the United States Fish and Wildlife Services (USFWS) has been completed and a letter confirming “no significant impact to critical habitat” has been received and a copy of the letter has been included in this Environmental Assessment.
6. No new buildings, fiber huts, or broadband facility structures will be erected as part of this project.

7. Construction will take place on established public utility Right of Way in previously developed municipal areas utilizing existing service provider facilities; one previous area that was undeveloped was recently bladed by UDOT (Diamond Valley Elementary) and evaluated by SWCA Environmental Consultants and determined to have no cultural resource areas within the project Area of Potential Effect (APE).

8. Consultation with the U.S. Army Corp of Engineers has been completed and a letter of concurrence is included in this Environmental Assessment.

**Environmental Alternatives Considered**

The University/UEN selected eight of Utah’s telecommunication providers for this important BTOP project based on two competitive broadband Ethernet Requests for Proposals issued in fall 2008 and 2009. Evaluations for contracts awarded for Utah Anchors focused on the most responsive and cost effective proposals for the technical and functional requirements of the project. The financial evaluation centered on proposals that presented sustainable Middle Mile infrastructure with UEN as the anchor tenant connecting CAIs which could be extended to communities for residential and commercial use. Existing UEN leased Wide-Area-Network infrastructure from telecommunication providers was utilized to maximize available network resources and minimize costs.
<table>
<thead>
<tr>
<th>Resource Area</th>
<th>Preferred Alternative Contracted Serviced All Fiber Buried</th>
<th>Alternative Considered Contracted Services All Fiber Aerial</th>
<th>No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infrastructure</strong></td>
<td>+ Leverage Existing Infrastructure from Carriers + No overbuilding + Reduced Implementation Time - Trenching and Boring + Highest Reliability</td>
<td>- Insufficient Right of Way - More utility infrastructure being placed underground/pole elimination + No Trenching or Boring - Weather and outdoor exposure + Moderate to High Reliability</td>
<td>No improvement to Community Anchor schools and libraries</td>
</tr>
<tr>
<td>+ = Pro</td>
<td>+ Provides long-term broadband and Internet services to underserved and underserved populations + Economic Development in lower-income areas + Business access to new infrastructure installed by this project + New distance learning and content provided to students and library patrons</td>
<td>+ Provides long-term broadband and Internet services to underserved and underserved populations + Economic Development in lower-income areas + Business access to new infrastructure installed by this project + New distance learning and content provided to students and library patrons</td>
<td>Lack basic broadband high-speed access for educational services and applications</td>
</tr>
<tr>
<td>- = Con</td>
<td></td>
<td></td>
<td>+ Impact on traffic and pedestrian safety during construction</td>
</tr>
<tr>
<td><strong>Human Health and Safety</strong></td>
<td>- Impact on traffic and pedestrian safety during construction</td>
<td>- Impact on traffic and pedestrian safety during installation</td>
<td>No impact.</td>
</tr>
<tr>
<td><strong>Aesthetics</strong></td>
<td>+ Less visible and exposed infrastructure</td>
<td>- More visible and exposed infrastructure</td>
<td>No impact.</td>
</tr>
</tbody>
</table>

Table 1. Potential Impacts of the Preferred Buried Cable, Aerial, and No Action Alternative
<table>
<thead>
<tr>
<th>Resource Area</th>
<th>Preferred Alternative Contracted Serviced All Fiber Buried</th>
<th>Alternative Considered Contracted Services All Fiber Aerial</th>
<th>No Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Geology and Soils</strong></td>
<td>+ Existing roadways with previously disturbed Right-of-Way</td>
<td>+ Existing overhead utility poles utilized</td>
<td>No impact.</td>
</tr>
<tr>
<td></td>
<td>+ Best Management Practices (BMPs) to prevent soil erosion and sedimentation</td>
<td>+ No ground disturbance required + BMPs used for any pole replacements required</td>
<td></td>
</tr>
<tr>
<td><strong>Biological Resources</strong></td>
<td>+ No impacts to rivers or streams</td>
<td>+ No impacts to rivers or streams</td>
<td>No impact.</td>
</tr>
<tr>
<td></td>
<td>+ No excavation required in wetland areas</td>
<td>+ No excavation required in wetland areas + Not likely to impact endangered species or protected habitats</td>
<td></td>
</tr>
<tr>
<td><strong>Water Resources</strong></td>
<td>+ BMPs followed to protect any water resources</td>
<td>+ No excavation required in wetland areas</td>
<td>No impact.</td>
</tr>
<tr>
<td></td>
<td>+ No excavation required in wetland areas</td>
<td>+ No impacts to rivers or streams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ No impacts to rivers or streams</td>
<td>+ Existing footprints utilized</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 1 - Purpose and Need

1.0 Purpose and Need

1.1 Purpose

As a public K-20 education network, the University/UEN overall vision for the Utah Anchors BTOP project is to leverage the existing UEN contracted backbone and last mile network resources to build fiber infrastructure to public schools including charter schools, Early Childhood Development Programs (Head Start), and public city and county libraries. The expansion of these fiber based services will provide future broadband resources for other community anchor facilities as the need arises.

UEN serving as Utah’s state education network, is the primary recipient of the NTIA BTOP Round One infrastructure middle mile project. This middle mile project will immediately create new jobs and sustainable fiber infrastructure that will provide the basis for improving education and reducing the digital divide. This infrastructure will also help communities, businesses and employers compete in today’s global economy. The benefits of this middle mile project will extend into many neighborhoods and communities allowing residential access to areas underserved or unserved with broadband access.

1.2 Need

The sites identified in the Utah Anchors project are presently served by traditional copper based facilities and as such are limited to very low speed and unreliable connectivity to WAN and Internet services. It is imperative that schools, libraries, and Head Start programs have sufficient broadband connectivity to gain access to essential applications and services. Equally critical is the need to deliver these services with a high degree of reliability. The investment into technology will only occur if we can ensure our users that the information will be there when they need it. To that end, funds from this grant will be used to install optical based facilities allowing reliable and scalable contracted broadband services. More specifically, elementary schools in this project will be connected with 1000MB/Gigabit fiber based end-to-end Ethernet service. Public charter schools and libraries will receive at a minimum 100MB fiber based broadband contracted Ethernet services. Head Start centers, depending on technical requirements will receive 10MB to 100MB fiber based contracted broadband connections. Many of the communities and businesses in the project areas will benefit from the new fiber infrastructure installed in their local community, since many of these areas lack high-speed broadband service offerings. This will in turn help communities and businesses in the project areas to compete in today’s world economy and result in
economic development for the 59 cities and towns served by this project. Below is a table representing some of the critical Internet applications that the Community Anchor Institutions require to perform their current missions:

<table>
<thead>
<tr>
<th>Internet-based Application</th>
<th>Schools</th>
<th>Libraries</th>
<th>Head Start</th>
<th>Community Anchor</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-Speed Internet</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>IP based Interactive Video Conferencing for Distance Learning</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Streaming Video Content</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Professional Development Instruction</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Federal Program Resources</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Virtual Job Fairs</td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Access to Centralized Databases</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Continuing Education Resources</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

2.0 Proposed Action

2.1 Project Description

The Utah Anchors project is a “Middle Mile” project designed to improve inadequate or non-existent broadband connections at 128 of Utah’s elementary and charter schools, public libraries, and Head Start centers in underserved and unserved areas throughout Utah. The University/UEN has continued with its philosophy of contracting with Utah’s common carrier telecommunication service providers, both rural and urban, in the design and rollout of this project. This approach, consistent with the goals of NTIA eliminates overbuild of fiber facilities, capitalizes on the service providers’ existing networks, and reduces the impact to the surrounding environment.

The physical activities described in this project description are specific to the work required to provide community anchors with end-to-end fiber optic based Ethernet Services. The following physical activities break down into three distinct work categories:
1. Existing contracted facilities and services: By University/UEN definition, physical activities related to existing contracted services will be restricted to work within Central Offices, manhole/vaults, school district offices and UEN hubs/Points-of-Presence.

2. New conduit and fiber: Activities required for new conduit and new fiber will occur primarily outside and include the work and equipment associated with the installation of buried and, in limited cases, aerial fiber. This work is detailed in PURPLE color on all attached maps (see page 19 and 20) and diagrams.

3. CAI related activities: These activities include mounting a fiber distribution panel (FDP), a network layer 2/3 switch device, the installation of a 20 AMP circuit and inside conduit if necessary.

2.1.1 Existing Contracted Facilities and Services

The majority of the Utah Anchors projects occur in areas that can, for the purpose of this document, be considered existing carrier facilities. As stated above, areas within existing contracted facilities and services will include main distribution computer rooms, building demarcations, Telecommunication Provider’s Central Offices (CO), and manholes/vaults. The activities that take place in these areas will include:

- Installing new fiber in existing conduit
- Fusion fiber splicing
- Labeling
- Installation of Racks and Raceway
- Fiber Characterization
- Installation of Dense Wave Division Multiplexing (DWDM) Equipment
- Installation of Optical Layer 2 and 3 Network Equipment
- Installation of Fiber Patch Panels and Cross Connect Cables

Equipment required to complete these physical activities will include:

- ½ and ¾ Ton Trucks and Vans
- Transport Trailers
University of Utah

NEPA and NHPA Assessment

Utah Education Network
BTOP Round 1 Wide Area Network
Qwest OMoE Sites

Existing UEN Wide Area Network
- 1000 Mbs Ethernet (Existing)
- 1000 Mbs Backbone (Existing)
- 16 Gbs Backbone (Existing)

BTOP CCI Round 1 Proposed Fiber
- 100 Mbs QMoE Service (Leased Fiber)
- New construction (Buried or Aerial)
- Qwest Metro over Ethernet (QMoE) Network
  - Proposed Site
  - Existing Manhole

(Map Not To Scale)
2.1.2 Physical Activities related to the Installation of Conduit and Fiber Optic Cabling

The construction schedule is based on a 30 month implementation. Activity on the project may proceed year round; however, permits for construction involving Utah’s roadways are typically not issued during construction moratorium periods that begin October 15th extending through April 15th. Work will be conducted between the hours of 7:00am and 5:00pm.

*Construction Methods* - Construction will consist primarily of plowing and directional boring. Plowing is done with 2 to 6 inch blades to minimize the impact to the environment. Depths of 36 inches are common in the installation of the conduit infrastructure used to protect the fiber optics. Boring will be used to minimize the impact to finished surfaces such as roads and driveways. Service hand-holes will be placed every 1500 feet and at the property line which will be used to terminate the Service Provider’s conduit. A 1¼” Pest Duct or 4” conduit will then be extended by the contractor into the building where the service will be delivered.

- **Total Length of Buried and Aerial Network Build** - the total length of buried fiber facilities that will be installed as part of this project is 46.96 miles. The total length of aerial network build is 3,533 feet. Total of buried and aerial fiber is 47.63 miles.

- **Installation Rates** – Due to the short distance for the majority of the significant impact work, the time required for crews to complete this work will be kept to a minimum with 90 days being the maximum time required from end-to-end for all trenching, boring, conduit placement, hand-hole placement and fiber installation.

- **Traffic Alteration** – The U of U/UEN, its contracted Telecommunication Providers and their sub-contractors will be required to submit a full detail of all construction related impacts to the Utah Department of Transportation (UDOT), cities, and county entities upon filing for construction permits. These plans will be reviewed by UDOT and local and county governmental entities and permits will only be issued when all concerns have been addressed.

- **Impacts on Patrons and Public Pedestrian Traffic** – During the construction process, contractors will be responsible for providing necessary improvements and modifications, e.g. walkways, steel cover plates, etc. to ensure convenient alternatives to normal traffic flow. Additionally, contractors will provide signs, cones and construction tape to warn pedestrian traffic of construction related hazards.
• **Allowable Working Hours** - The construction schedule in Utah’s urban locations will vary depending on location, the required permits and the U of U/UEN project schedule. Washington County, located in the southwest corner of Utah is at a lower elevation and may accommodate a year round outdoor construction schedule but the remainder of the state will experience Utah Department of Transportation (UDOT) construction moratoriums beginning October 15th and extend through April 15th. Work will occur during the hours of 7:00am to 5:00pm.

• **Maximum Permissible Sound Levels (Noise)** – The University/UEN, its contracted telecommunication providers, and their subcontractors will adhere to all municipal noise restrictions. Below are restrictions that will apply. It shall be a violation of these rules and regulations for any person to exceed the limits set forth for the following receiving land use districts when measured at the boundary or at any point within the property affected by the noise: Use District 10PM–7AM and 7AM–10 PM.

• **Project Duration** – Each of the 128 sites listed in this application will have their own unique construction challenges and timelines. It is anticipated that the average time of completion on a per site basis will be less than 90 days. We anticipate working on a minimum of 15 projects concurrently, making the total duration of the entire project to be 27 months.

• **Underground Resources** – contractors will be required to contact Blue Stakes prior to any construction activity. (Blue Stakes helps to identify any underground pipes or cabling or public works infrastructure.) The method of “pot holing” will be implemented to identify the existence of underground resources where Blue Stakes records may not exist.

• **Key Site Conditions** – The U of U/UEN project will be implemented utilizing primarily existing city, county and state road right-of-way. Work that impacts sensitive areas has been avoided.

UEN, the contracted telecommunication providers, and the telecom subcontractors are responsible for all facets of the project e.g. design, engineering, permits, insurance, installation, etc. Telecommunication Providers, being governed by State Utility Commissions must adhere to all state and local guidelines associated with the installation of cabling, cabling infrastructure, permits, easements and right-of-way. See Appendix A and Appendix B - Area of Construction and City Topography maps.

**Transport and Access Services** – All Transport and Access services associated with this grant request are provided either by, or in conjunction with, a service provider who is registered with the FCC as an eligible telecommunications provider. All services have
been designed and contracted as an end-to-end finished service, consistent with the FCC’s E-rate program.

2.1.3 CAI Related Activities

All below CAI activities occur within existing CAI building and structures.
- Installation of horizontal and vertical conduit with fiber
- Installation of 20 AMP circuit (if deemed necessary)
- Installation of 19” ½ size floor or wall mount rack
- Installation of fiber distribution panel (FDP)
- Installation of Layer 2/3 switch device

2.2 Alternatives

The University/UEN considered the three following alternatives in its environmental assessment, direct-buried fiber, aerial fiber and no-action

2.2.1 No Action Alternative – No Action

This action will result in no broadband infrastructure installation and improvements in underserved and unserved cities and communities in Utah with 128 Community Anchor Institutions lacking high-speed broadband access and having no foreseeable solution to improve their broadband access for educational purposes.

2.2.2 Preferred Alternative

UEN’s preferred alternative for its “Middle Mile” project is a Dense Wave Division Multiplex (DWDM) and Optical Ethernet solution that utilizes single-mode fiber optic cabling. The fiber cable is primarily direct-buried fiber with aerial fiber implemented in limited (less than 1%) circumstances where access can more easily be provided utilizing existing telecommunication provider pole agreements.

This project will construct a total of 47.63 miles of new conduit and fiber optic cabling that will be connected to approximately 1168 miles of existing, unlit fiber optic facilities provided by eight of Utah’s telecommunication providers, thereby creating a digital and optical path from the Community Anchor to the nearest Telecommunication Provider’s Central Office. Once this fiber path is established, connectivity to UEN’s DWDM backbone can occur within the Telecommunication Provider’s Central Office where an optical path, via DWDM or Optical Ethernet will be used to connect the end site to a regional U of U-UEN’s hub site/POP or school District Office. All conduit and fiber
cabling will be installed by the service provider into existing right-of-way, along previously disturbed road way ditches and utility corridors and will likely be paralleling existing utility lines.

2.2.3 Alternatives Considered but Eliminated From Further Discussion

A. Copper Based Facilities – Copper based services are a favorable option because, in most cases, copper facilities already exist in business and residential locations. Copper based Broadband is generally offered as either an ATM based service, e.g. DSL, or an Ethernet offering using a complex multiplexing scheme to bond multiple pairs of copper facilities together, thus allowing the transmission of Ethernet packets from the service provider’s Central Office to the desired location. The University/UEN’s analysis has determined that the speeds available with DSL (1.5Mb/s – 20 Mb/s) are insufficient to accommodate the needs of a middle mile application and its CAIs. Similarly, a copper based Ethernet offering is limited to a best case 30Mb/s and is subject to several restrictions, such as available pairs, distance, conditioning, etc. For these reasons stated above, copper based facilities are not a viable alternative to the Preferred Solution.

B. Licensed Microwave – Microwave solutions, while viable for some long haul applications, tend to be impractical and inefficient in community type environment. The proximity and availability of terrestrial based solutions (copper and fiber), makes it is more financially viable to extend these existing investments.

C. Wireless (licensed and unlicensed short haul) - The availability and ever increasing capability of wireless broadband is an attractive alternative to the costly installation of copper and fiber facilities. However, the range of wireless limits this solution to a campus or small community solution rather than a scalable long term middle mile application.
Chapter 3 - Existing Environment

Resource Areas

3.1  Noise

The proposed project will be located throughout Utah. In some cases, the project would pass areas of higher population and development. The project will also bring new access to rural areas in Utah.

In general, ambient noise for the vast majority of the proposed project area is currently related to traffic noise as the proposed location for the cable is primarily along existing road ROWs. According to a baseline model for traffic noise developed as part of a National Parks study, the noise emitted by traffic is dependent upon speed and type of vehicle, with heavy trucks emitting the most noise, and cars the least (Roof et al., 2002). The speed limit for roads in the affected environment does not exceed 55 miles per hour (mph) and consists of single lane roads. In the largely rural areas, where other noise sources are minimal, a passing truck may emit 85 decibel (dBA) at 55 mph and a car 74 (dBA). However, the total current ambient noise level on roads is dependent on traffic density and other ambient sources. Wind, interacting with overhead utility lines, also generates very minor levels of noise.

3.2  Air Quality

The U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) for air pollutants that are harmful to public health and the environment. The USEPA has established ambient air quality standards for six “criteria” pollutants: carbon monoxide, lead, nitrogen oxide, particulate matter, ozone and sulfur dioxide.

Air Quality Management Districts

On January 22, 2010, EPA strengthened the health-based NAAQS for nitrogen dioxide (NO2). The new standard will protect public health, including the health of sensitive populations – people with asthma, children and the elderly. The Environmental Protection Agency (EPA) is setting a new 1-hour NO2 standard at the level of 100 parts per billion (ppb). This level defines the maximum allowable concentration anywhere in an area. In addition to establishing an averaging time and level, EPA also is setting a new “form” for the standard. The form is the air quality statistic used to determine if an area meets the standard. The form for the 1-hour NO2 standard is the 3-year average of the 98th percentile of the annual distribution of daily maximum 1-hour average concentrations. EPA also is retaining, with no change, the current annual average NO2
standard of 53 ppb, which Utah has never exceeded. The diagram on the next page demonstrates where Utah stands with the new NO2 Standard.

Table 3.2.1: Annual NO₂ Utah vs National Standard

<table>
<thead>
<tr>
<th>Year</th>
<th>BV</th>
<th>CW</th>
<th>HW</th>
<th>NP</th>
<th>L4</th>
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<tr>
<td>Yearly 98%</td>
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<td>72</td>
<td>70</td>
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<td>2008</td>
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<td>63</td>
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<td>57</td>
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</tr>
<tr>
<td>2009</td>
<td>62</td>
<td>57</td>
<td>56</td>
<td>56</td>
<td>46</td>
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<tr>
<td>Daily Max</td>
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<td>1-Hr NO₂</td>
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<tr>
<td>Concentrations</td>
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<td>3-yr Average</td>
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<td>2006-2008</td>
<td>66</td>
<td>63</td>
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<tr>
<td>2007-2009</td>
<td>66</td>
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<td>Standard</td>
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<td>2009 Annual Average NO₂ (Standard = 53 ppb)</td>
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<td>N/A</td>
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<td>22</td>
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</table>

The proposed project has cable routes being installed along existing highways or located in towns or urban areas. These areas experience air pollution from automobiles and other modes of transportation and agricultural related activities on a regular basis. View Appendix C - National Ambient Air Quality Standards (NAAQS) requirements for air quality - Utah Green House reduction Goal

### 3.3 Geology and Soils

**Geology**

Based on characteristic landforms, geologists and geographers have subdivided the United States into areas called physiographic provinces. Features that distinguish each province result from the area’s unique geology, including prominent rock types, history and type of deformation (including crustal-scale forces of compression and extension), and erosional characteristics.

Utah contains parts of three major physiographic provinces: the Colorado Plateau, Basin and Range, and Middle Rocky Mountains.

The three provinces meet near the center of the state, with the Basin and Range Province extending across western Utah, the Colorado Plateau across southeastern Utah, and the Middle Rocky Mountains across northeastern Utah.
Where to draw the line between the Colorado Plateau and Basin and Range is subject to debate. Between the two provinces lies an area that displays characteristics of both, and some geologists would make this area a distinct, fourth physiographic province called the Basin and Range - Colorado Plateau Transition. The same holds true for the area between the Middle Rocky Mountains and Basin and Range provinces. Additionally, each major province can be further divided into sub-provinces.

**Basin and Range Province**
Steep, narrow, north-trending mountain ranges separated by wide, flat, sediment-filled valleys characterize the topography of the Basin and Range Province. The ranges started taking shape when the previously deformed Precambrian (over 570 million years old) and Paleozoic (570 to 240 million years old) rocks were slowly uplifted and broken into huge fault blocks by extensional stresses that continue to stretch the earth’s crust. Sediments shed from the ranges are slowly filling the intervening wide, flat basins. Many of the basins have been further modified by shorelines and sediments of lakes that intermittently cover the valley floors. The most notable of these was Lake Bonneville, which reached its deepest level about 15,000 years ago when it flooded basins across western Utah.

**Colorado Plateau Province**
In contrast with the Basin and Range Province, a thick sequence of largely undeformed, nearly flat-lying sedimentary rocks characterize the Colorado Plateau province. Erosion sculpts the flat-lying layers into picturesque buttes, mesas, and deep, narrow canyons. For hundreds of millions of years sediments have intermittently accumulated in and around seas, rivers, swamps, and deserts that once covered parts of what is now the Colorado Plateau. Starting about 10 million years ago the entire Colorado Plateau slowly but persistently began to rise, in places reaching elevations of more than 10,000 feet (3,000 meters) above sea level. Miraculously it did so with very little deformation of its rock layers. With uplift, the erosive power of water took over to sculpt the buttes, mesas, and deep canyons that expose and dissect this “layer cake” of sedimentary rock. Of course, exceptions to this layercake geology do exist. For example, igneous rocks that cooled from once rising magma form the core of the Henry, La Sal, and Abajo Mountains, and several wrinkles or folds, such as the San Rafael Swell and Waterpocket Fold, can also be found as exceptions to the rule of flat-lying beds.

**Middle Rocky Mountains Province**
High mountains carved by streams and glaciers characterize the topography of the Middle Rocky Mountains province. The Utah portion of this province includes two major mountain ranges, the north-south-trending Wasatch and east-west-trending Uintas. Both ranges have cores of very old Precambrian rocks, some over 2.6 billion years old, that have been altered by multiple cycles of mountain building and burial.
Uplift of the modern Wasatch Range only began within the past 12 to 17 million years. However, during the Cretaceous Period (138 to 66 million years ago), compressional forces in the earth’s crust began to form mountains by stacking or thrusting up large sheets of rock in an area that included what is now the northeasternmost part of Utah, including the northern Wasatch Range. This thrust belt was then heavily eroded. About 38 to 24 million years ago large bodies of magma intruded parts of what is now the Wasatch Range. These granitic intrusions, eroded thrust sheets, and the older sedimentary rocks form the uplifted Wasatch Range as it is seen today.

The Uinta Mountains were first uplifted approximately 60 to 65 million years ago when compressional forces created a buckle in the earth’s crust, called an anticline. The mountains formed by this east-west-trending anticline were subsequently eroded back down, but began to rise again about 15 million years ago to their present elevations of over 13,000 feet above sea level.

The Middle Rocky Mountains province is further characterized by sharp ridge lines, U-shaped valleys, glacial lakes, and piles of debris (called moraines) created during the Pleistocene (within the last 1.6 million years) by mountain glaciers. This is, of course, a most cursory overview of the geologic events that formed the topography of Utah’s three physiographic provinces. Numerous anomalies and variations give color and detail to the big picture outlined here. (Utah Geological Survey)

Soils
The proposed project has cable routes being installed along existing highways or located in towns or urban areas. All 128 sites are located in different parts of the State of Utah. Each site has its own specific soil classification. Please view Appendix D for Site specific soils.

3.4 Water Resources

Surface water
Water is classified to have one of two sources of Origin. Water comes from either surface sources – lakes, rivers and streams or from ground sources – springs and wells. In Utah, 78.6% of total water withdrawals from surface sources. (U.S. Geological Survey) However, for public drinking water supplies, 57.1% comes from ground water sources. Ground water tends to be of a higher quality and requires less treatment to reach drinking water quality. Utah 57.1% ranks the state 10th in the nation for the percentage of public drinking that originates from ground sources. (U.S. Geological Survey)

The shift to a greater reliance on ground water can, in part, be attributed to concerns over surface water quality. The U.S. Environmental Protection Agency provides analysis of surface water quality for states. The quality assessments go beyond whether or not
surface water can be used in drinking water to include considerations like fish and wildlife protection, recreational use, navigation and agriculture use. Assessments are performed on all types of surface water including lakes, rivers, and reservoirs. Utah’s water quality rates fairly well, ranking 8th on river quality and 7th for lake/reservoir quality. (U.S. Environmental Protection Agency, compiled from states’ individual 305(b) reports.) The Intermountain West has overall good rankings due in large part to geography and demographics. Many of the nation’s rivers have their genesis in the Rocky Mountains and the low population density of these areas means that waters exiting the intermountain states are relatively clean.

**Ground water**
Water is classified to have one of two sources of Origin. Water comes from either surface sources – lakes, rivers and streams or from ground sources – springs and wells. In Utah, 78.6% of total water withdrawals from surface sources. (U.S. Geological Survey) However, for public drinking water supplies, 57.1% comes from ground water sources. Ground water tends to be of a higher quality and requires less treatment to reach drinking water quality. Utah 57.1% ranks the state 10th in the nation for the percentage of public drinking that originates from ground sources. According to the 2000 data, Utahns used 4.76 billion gallons of water per day. A going concern about ground water usage is that the water is not as readily replenished as surface water and the over-usage of this resource will dry up deep aquifers, some of which are the source of surface waters. (U.S. Geological Survey)

**Wetlands**
Utah has lost approximately 30% of its original wetlands. Today, less than 1% of Utah’s land area is considered to be wetlands. Much of the area surrounding the Great Salt Lake has been classified as wetlands. The wetlands adjacent to the Great Salt Lake account for approximately 50% of the state’s total. 75% of all Utah’s wetlands, approximately 400,000 acres, are part of the Greater Great Salt Lake Ecosystem (GGSLE). This ecosystem includes the Great Salt Lake and the wetlands that lie adjacent to it as well as the three rivers that drain into the lake (i.e., the Bear, Weber and Jordan Rivers), their associated tributaries and the wetlands contained in their watersheds. This ecosystem provides many important environmental services for Utah citizens. These services include water quality enhancement and wastewater treatment, flood control and water retention, habitat for resident and migratory wildlife, food web/life support, economic and cultural values, education, and recreation. (Utah Division of Wild resources)

**Coastal Areas:**
The proposed project is not located within the boundaries of a Coastal Zone Management Area “CZMA.”
Flood plains:
Federal Emergency Management Agency (FEMA) Maps were reviewed for all 128 site locations. All but three sites were located within a Non Flood Hazard Zone C, D, & X. Cedar City Public Library is located in a Flood Hazard Zone AO, Gaudalupe School K-3 is located in a Flood Hazard Zone AE, and Park City Library is located in Flood Hazard Zone AO.

See Appendix E for all wetlands and FEMA flood maps.

Wild and Scenic Act:
The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection.

Rivers may be designated by Congress or, if certain requirements are met, the Secretary of the Interior. Each river is administered by either a federal or state agency. Designated segments need not include the entire river and may include tributaries. For federally administered rivers, the designated boundaries generally average one-quarter mile on either bank in the lower 48 states and one-half mile on rivers outside national parks in Alaska in order to protect river-related values.

Rivers are classified as wild, scenic, or recreational.

- **Wild river areas** - Rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
- **Scenic river areas** - Rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- **Recreational river areas** - Rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Regardless of classification, each river in the National System is administered with the goal of protecting and enhancing the values that caused it to be designated. Designation neither prohibits development nor gives the federal government control over private property. Recreation, agricultural practices, residential development, and other uses may continue. Protection of the river is provided through voluntary stewardship by landowners and river users and through regulation and programs of federal, state, local, or tribal governments. In most cases not all land within boundaries is, or will be, publicly
owned, and the Act limits how much land the federal government is allowed to acquire from willing sellers. Visitors to these rivers are cautioned to be aware of and respect private property rights.

The Act purposefully strives to balance dam and other construction at appropriate sections of rivers with permanent protection for some of the country’s most outstanding free-flowing rivers. To accomplish this, it prohibits federal support for actions such as the construction of dams or other in-stream activities that would harm the river's free-flowing condition, water quality, or outstanding resource values. However, designation does not affect existing water rights or the existing jurisdiction of states and the federal government over waters as determined by established principles of law.

As of 2008, the 40th anniversary of the Act, the National System protects more than 11,000 miles of 166 rivers in 38 states and the Commonwealth of Puerto Rico; this is a little more than one-quarter of one percent of the nation's rivers. By comparison, more than 75,000 large dams across the country have modified at least 600,000 miles, or about 17%, of American rivers. Wild and Scenic Rivers are outside the proposed route for the Utah Anchors: A Community Broadband project.

3.5 Biological Resources

The proposed Utah Anchors: A Community Broadband Project lies within four Eco-regions as defined by USEPA (USEPA 2000). The project falls within the Central Basin and Range, Wasatch & Uinta Mountains, Colorado Plateaus, and Mojave Basin and Range.

The Central Basin and Range is composed of northerly trending, fault-block ranges and intervening, drier basins. Valleys, slopes, and alluvial fans are either shrub and grass-covered, shrub-covered, or barren. Woodland, mountain brush and scattered open forests are found at higher elevations on mountain slopes. The potential natural vegetation is, in order of increasing elevation and ruggedness, saltbush-greasewood, Great Basin sagebrush, juniper-pinyon woodland, and scattered western spruce-fir forest. In addition, tule marshes occur locally, especially along the Great Salt Lake Shoreline.

The Mojave Basin and Range is composed of basins and scattered mountains that are generally lower, warmer, and drier than those of the Central Basin and Range. The potential natural vegetation is mapped as creosote bush and is distinct from the saltbush-greasewood, Great Basin sagebrush, sagebrush steppe, and juniper-pinyon woodlands that occur to the north in the Central Basin and Range and Northern Basin and Range; it is also distinct from the creosote bush-bur sage and the Palo Verde-cactus shrub that occur in the Sonoran Basin and Range to the south. Soils are mostly Entisols and Ardisols and have a thermic temperature regime; they are warmer that the soils of
the Central Basin and Range. Most of eco-region is federally-owned and there is relatively little grazing activity because of the lack of water and forage for livestock. Heavy use of off-road vehicles and motorcycles in some areas has caused severe wind and water erosion problems.

The Wasatch & Uinta Mountain is composed of high, glaciated mountains, dissected plateaus, foothills and intervening valleys. It includes the extensively glaciated Uinta Mountains, the Wasatch Range, and the Wasatch Plateau. Agricultural valleys occur especially in the eastern part of the Wasatch Range. The Wasatch Front is steeper, more rugged, and wetter than more easterly parts of the Wasatch Range. Alkaline dust from the Great Basin does not buffer high elevation surface waters against acidification. Streams draining the quartzite-dominated Uinta Mountains and portions of the Wasatch Front that are underlain by acidic intrusive volcanic tend to be non-alkaline, low in nutrients, and low in total dissolved solids. At the 5,000 to 8,000 feet elevation, juniper-pinyon woodland and mountain mahogany-oak scrub communities occur, with the latter more prevalent in the north than in the south. The eco-region is used for logging, recreation, homes, and summer grazing.

The Colorado Plateaus is an uplifted, eroded, and deeply dissected tableland. Its benches, mesas, buttes, salt valleys, cliffs, and canyons are formed in and underlain by thick layers of sedimentary rock, Juniper-pinyon woodland dominates higher elevations and is far more extensive than in the Wyoming Basin. Saltbush-greasewood and blackbrush communities are common at lower elevations but are generally absent from the higher Arizona/New Mexico Plateau. Summer moisture from thunderstorms supports warm season grasses not found in the Central Basin and Range. Many endemic plants occur and species diversity is greater than in the Central Basin and Range. Several national parks are located in this ecoregion and attract many visitors to view their arches, spires, and canyons. Major gas and oil fields are found in the Uinta Basin. View the figure below for all ecoregions in Utah. For an Ecoregion map of Utah, please see Appendix J.
Federally endangered and threatened species in Utah

United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
UTAH FIELD OFFICE
2369 West Otton Circle, Suite 50
West Valley City, Utah 84119
Phone 801-975-3330

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
UTAH COUNTIES

October 2009

SYMBOLS:
* - Nests in this county of Utah
© - There is designated critical habitat for the species within the county
û - Migrates through Utah, no resident populations
► - Wintering populations, only eight known nesting pairs in Utah
▼ - Critical habitat proposed in this county
▲ - Historical range
▲ - Experimental non-essential population
# - Introduced, refugia population
Ж - “Western” Yellow-billed Cuckoo = distinct population segment in Utah
± - Water depletions from any portion of the occupied drainage basin are considered to adversely affect or adversely modify the critical habitat of the endangered fish species, and must be evaluated with regard to the criteria described in the pertinent fish recovery populations

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<tr>
<th>Species</th>
<th>Scientific Name</th>
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<tr>
<td>California Condor ▲</td>
<td>Gymnogyps californianus</td>
<td>E</td>
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<tr>
<td>Utah Prairie Dog</td>
<td>Cynomys variegatus</td>
<td>T</td>
</tr>
<tr>
<td>Yellow-billed Cuckoo Ж</td>
<td>Coeocyclus americanus</td>
<td>C</td>
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<td>BOX ELDER</td>
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<td>Fat-whorled Pondsmail</td>
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<td>June Sucker #</td>
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<td>Mexican spotted owl</td>
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<td>(suitable habitat occurs in Southern Duchesne County, including Nine-Mile &amp; Argyle Canyon)</td>
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**BTOP Award #NT10BIX5570024**
| Mexican Spotted Owl | Strix occidentalis | T |
| Razorback Sucker | Xyrncaen texanus | E |
| San Rafael Cactus | Pediocactus despainii | E |
| Southwestern Willow Flycatcher | Empidona truitili extius | E |
| Winkler Cactus | Pediocactus winkleri | T |
| Wright Fishhook Cactus | Sclerocactus wrightiae | E |
| Yellow-billed Cuckoo | Coccyza americana | C |

**GARFIELD**

| Autumn Buttercup | Ranuncula aestivalis | E |
| Bonytail | Gila elegans | E |
| California Condor | Gynnogyps californianus | E |
| Colorado Pikeminnow | Ptychocheilus lucius | E |
| Humpback Chub | Gila cypha | E |
| Jones Cycladenia | Cycladenia humilis var. jonasti | T |
| Maguire Daisy | Ergorion maguirei | T |
| Mexican Spotted Owl | Strix occidentals | T |
| Razorback Sucker | Xyrncaen texanus | E |
| Southwestern Willow Flycatcher | Empidona truitili extius | E |
| Utah Prairie Dog | Cypanys parvidens | T |
| Ute Ladies-tresses | Spiranthus diluiatias | T |
| Yellow-billed Cuckoo | Coccyza americana | C |

**GRAND**

| Black-footed Ferret | Mustela nigripes | E |
| Bonytail | Gila elegans | E |
| California Condor | Gynnogyps californianus | E |
| Colorado Pikeminnow | Ptychocheilus lucius | E |
| Humpback Chub | Gila cypha | E |
| Jones Cycladenia | Cycladenia humilis var. jansit | T |
| Mexican Spotted Owl | Strix occidentals | T |
| Razorback Sucker | Xyrncaen texanus | E |
| Southwestern Willow Flycatcher | Empidona truitili extius | E |
| Yellow-billed Cuckoo | Coccyza americana | C |

**IRON**

| California Condor | Gynnogyps californianus | E |
| Mexican Spotted Owl | Strix occidentals | E |
| Southwestern Willow Flycatcher | Empidona truitili extius | E |
| Utah Prairie Dog | Cypanys parvidens | E |
| Yellow-billed Cuckoo | Coccyza americana | E |

**JUAB**

| Ute Ladies-tresses | Spiranthus diluiatias | T |
| Yellow-billed Cuckoo | Coccyza americana | C |

**KANE**

<p>| Bonytail | Gila elegans | E |
| California Condor | Gynnogyps californianus | E |
| Colorado Pikeminnow | Ptychocheilus lucius | E |
| Cora Pink Sand Dunes Tiger Beetle | Cincindela limbota albissima | C |</p>
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<td><strong>WAYNE</strong></td>
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<tr>
<td>Barneys Reed-mustard</td>
<td>Schoenocrambe barneyi</td>
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<tr>
<td>Bontail ♀♂</td>
<td>Gilia elegans</td>
<td>E</td>
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<tr>
<td>California Condor ♀</td>
<td>Gymnogyps californianus</td>
<td>E</td>
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<tr>
<td>Colorado Pikeminnow ♀♂</td>
<td>Psychotria lucida</td>
<td>E</td>
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<tr>
<td>Humpback Chub ♀♂</td>
<td>Gilia cypha</td>
<td>E</td>
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<tr>
<td>Last Chance Townsendia</td>
<td>Townsendia aprica</td>
<td>T</td>
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<tr>
<td>Maguire Daisy</td>
<td>Erigeron maguarei</td>
<td>T</td>
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<tr>
<td>Mexican Spotted Owl ♀♂</td>
<td>Seris occidentalis</td>
<td>T</td>
<td></td>
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<tr>
<td>Razorback Sucker ♀♂</td>
<td>Xyrauchen texanus</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>San Rafael Cactus</td>
<td>Pediocactus despainii</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>Southwestern Willow Flycatcher</td>
<td>Empidonia trilii eximia</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>Utah Prairie Dog</td>
<td>Cymonym parvidentes</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>Ute Ladies'-tresses</td>
<td>Spiranthes diluvialis</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>Winkler Cactus</td>
<td>Pediocactus winkleri</td>
<td>T</td>
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</table>
Migratory Bird Flyway

In the United States, the Central Flyway merges toward the east with the Mississippi Flyway and bounded in that direction by the Missouri River. In the south on this side, it runs through western Missouri, Arkansas and Louisiana, and then follows the Gulf coast of Mexico southward. On the northwest Arctic coast, where this great flyway has its beginning, the same territory involved that also sends hosts of migrants down the Mississippi Flyway, but farther south, in Canada the western boundary follows closely the eastern base of the Rocky Mountains. In western Montana, however, the continental divide is crossed and the line passes through the Great Salt Lake Valley and then somewhat east of south across the tableland of Mexico. It may be called “the flyway of the Great Plains” as it encompasses all of the vast region lying between the valley of the Mississippi River and the Rocky Mountains, the principal wheat-growing region of both Canada and the United States.
On its western boundary is an important breeding area for waterfowl at the northern end of Great Salt Lake, Utah. The Central Flyway is relatively simple, as the majority of the birds that use it make direct north and south journeys from breeding grounds in the North to winter quarters in the South. (Birdnature.com)

Pacific Flyway:

The Pacific Flyway includes the Arctic archipelago as Melville, Banks and Victoria islands from which region the eastern boundary tends to the southwest between Great Bear and Great Slave lakes to the western boundary of the Central Flyway along the eastern base of the Rocky Mountains in Canada. The territory of this flyway, comprises the western Arctic, including Alaska and the Aleutian Islands and the Rocky Mountain and Pacific coast regions of Canada, the United States and Mexico, south to where it becomes blended with other flyways in Central and South America.

The passage of gulls, ducks and other water birds at Point Barrow, Alaska and at other points on the Arctic coast may be the best defined Arctic route in North America. This route across the Alaska Peninsula and the Gulf of Alaska and parallels the coast line of British Columbia, Washington, Oregon and California. The Pacific oceanic route is used by the Arctic Terns that breed in Alaska and those from the more western tern colonies of Canada. The vast delta region of the Yukon River in Alaska is a breeding ground for many species of waterfowl and this area marks the northern terminus for some of those that use the coastal route for most of all of their migratory flights.

The longest and important route of the Pacific Flyway is that originating in northeastern Alaska and passing for most, if not all, of its length through the interior. Most of the waterfowl that travel the United States section of this route come from Alaska and the Mackenzie Valley and other interior areas. Starting in Alaska, Yukon and Mackenzie, this route runs southward through western Alberta. The Pacific Flyway element apparently closely parallels the eastern foothills of the Rocky Mountains. Near the international border, the route branches and while large flights continue southeastward into the Central and Mississippi flyways, others turn southwestward across northwestern Montana and the panhandle of Idaho, follow along the Snake and Columbia River valleys and then turn southward across central Oregon to the interior valleys of California. Suitable winter quarters for birds are found in California from the Sacramento Valley south to Salton Sea and in the tidal marshes near San Francisco Bay.

The southward route of migratory land birds of the Pacific Flyway that in winter leave the United States extends through the interior of California to the mouth of the Colorado River and on to the winter quarters that are principally in western Mexico. (Birdnature.com)
Utah Wildlife Refuges

Opportunities abound in Utah for the public to observe, appreciate and understand wildlife and people's role in the environment. In 1998, 39,500 people visited National Wildlife Refuges in Utah. The Refuges themselves are diverse, both in location and in their approach to wildlife and habitat management.

**Bear River Migratory Bird Refuge**

Bear River Migratory Bird Refuge is located on the north shore of the Great Salt Lake which is west of Brigham City, UT. The Bear River MBR is located approximately 2.8 miles to the closest UEN project. The Bear River Delta has long been considered one of the most valuable water bird and wetland areas of the Intermountain West. In 1991, the Refuge was designated as a Western Hemisphere Shorebird Reserve.

**Fish Springs NWR**

Established in 1959, Fish Springs NWR National Wildlife Refuge was named for the native fish, the Utah chub. The lush habitat of the Refuge, surrounded by miles of Great Basin Desert, is a true oasis for wildlife. The Fish Springs NWR is located in the Dugway area, which on the west side of Utah. It is located approximately 75 miles to the closest UEN project.

**Ouray NWR**

Ouray NWR National Wildlife Refuge lies along the Green River and includes desert uplands, wetlands, and riverine and cottonwood forest. The Refuge includes critical habitat for the endangered Colorado pike minnow and razorback sucker. The Ouray NWR is located 23 miles south of the closest UEN project.
3.6  **Historic and Cultural Resources**

Human habitation of Utah began about 12,000 years ago. The inhabitant used lots of different strategies to stay alive and thrive. They lived in families and were hunter-gatherers. They were diverse, flexible, and adaptable. Utah has many archaeological resources.

Laws have been established to protect old historical sites. The State Historic Preservation office (SHPO) provides guidance to agencies and governments who are affected by these Laws. Each month (SHPO) reviews about 200 development projects and their potential effects on archaeological and historical sites.

The University of Utah/Utah Education Network’s (UEN) hired SWCA Environmental Consultants to perform a Cultural Resources Record Search and Assessment Report. An intensive-level cultural resources assessment was completed by SWCA. A Class I Cultural Survey Assessment was completed on all 128 sites. Refer to Appendix G for the Class I and Class III Surveys completed by SWCA Environmental Consultants. SWCA also completed a Selective Historic Reconnaissance Level Architectural Survey identifying 26 buildings and structures that were eligible for listing on the National Historic Register (3 of which are currently listed, and 23 of which are eligible as A or B eligible on the National Historic Register) Please refer to Appendix G-2 for this information.

3.7  **Aesthetic and Visual Resources**

Utah offers a unique combination of these recreational adventures, cultural attractions and, most of all, widely varied landscapes. The state's wild beauty ranges from rugged mountains and forests in northern Utah and the stark vistas of the Great Salt Lake Desert to the dramatic sprawl of southern Utah's red rock canyons.

Utah’s visual resources are an important component of the state’s tourism industry and of the quality of life enjoyed by many of the state’s residents. Utah has many National Parks, State Parks and Recreation, and State and National Scenic Byways. The maps below show the many different resources available to Utah.
Figure 3.6.1 – National Parks in Utah
The best way to fully experience the state is to get off the interstate highways and explore the myriad of excellent primary and secondary roads. Utah’s scenic byways are a system of 27 routes statewide that offer outstanding beauty. These scenic byways are all major roads, which are regularly traveled. Some routes feature sharp curves and steep grades. Actual travel speeds are generally less than the 55 mile-an-hour speed limit. The proposed project is located in cities and towns in Utah. National Parks, State Parks and Recreation, and State and National Scenic byways will not be effect by the proposed project.
The proposed anchor project will consist of installing fiber optic cable primarily along major and local roadways. The major part of the project will consist of buried cable in existing right-of-way. However, where buried entrance facilities become impractical, and aerial fiber entrance is an option, the project will require all aerial entrance to be installed with all National Electric Service Code (NESC) guidelines including but not limited to anchor and guy specifications and clearance requirements. Aerial construction will affect the surrounding area with additional poles, guywires, and equipment cabinets in the area of construction.

3.8 Land Use

The existing land use in the construction corridor consists of previously disturbed utility corridors and public right-of-way. All 128 sites have been evaluated and have been determined to fall within the appropriate land use determined by each city and county.

*View Appendix H for City Zoning Information.*

3.9 Infrastructure

This project will construct a total of 47.63 miles of new conduit and fiber optic cabling that will be connected to approximately 1168 miles of existing, unlit fiber optic facilities provided by eight of Utah’s telecommunication providers, thereby creating a digital and optical path from the Community Anchor to the nearest Telecommunication Provider’s Central Office. Once this fiber path is established, connectivity to UEN’s DWDM backbone can occur within the Telecommunication Provider’s Central Office where an optical path, via DWDM or Optical Ethernet will be used to connect the end site to a regional University/UEN’s hub site/POP or school District Office.

All of the 128 sites are located in an area that has access to many existing utilities. These services are provided by the city in which these projects are located. Typical infrastructure involves a range of services including:

1. Communication (cell phone, land line, and internet services)
2. Travel services such as restaurant, hotel, fuel, rest room/rest area, and financial.
3. Waste disposal services (construction clean-up)
4. Roadways, from highway to rural roads.

*Communication*

Utah has a good network established for communication. The major of the project is located in areas that have good cell and internet services. However, there are a few locations were coverage is limited. In these locations land lines or other methods have communications may be required.
Travel services
Travel services will be available throughout the entire project. The majority of the project is located along a well-established network of services for travelers and residents.

Waste Disposal Services
Waste disposal services are located throughout the state of Utah. These include landfills or recycling centers.

Roadways
The majority of the project lies within several miles of Interstate 15. Interstate 15 travels north and south through the entire state of Utah. Those areas that are located off of the interstate are located near State roads and highways that provides easy access to all construction sites.

3.10 Socioeconomic Resources

Low Income Profile
As the proposed project will provide high-speed broadband services to 128 Community Anchor institutions, this project will impact an estimated 963,900 Utah residents. Broadband infrastructure will be extended to 62 elementary and 26 charter schools of which 38 qualify as Title 1 schools. To qualify as a Title I school, a school typically has around 40% or more of its students that come from families that qualify under the U.S. Census definitions as low-income, according to the U.S. Department of Education.

Ethnic Minority Populations
Of the projected 51,237 elementary and charter school students, about 20% of the students served by this project are ethnic minorities. For example, the Thomas O. Elementary Smith has 80% minority enrollment, the majority of the 508 students are Hispanic. According to the BTOP NOFA, the service area qualifies as an underserved area for broadband access. We have included in Appendix I a table of minority students by community anchor institution served by this project with a corresponding status of unserved, underserved, or served by project service area. This project will have a large benefit to the over 6,000 minority students who attend institutions in an underserved or unserved community that lacks basic high-speed broadband in their school or library.

Utah’s Head Start Programs
This project will facilitate greater use of broadband services by extending critical access into areas with vulnerable populations, including low-income families and children. It will serve seven Head Start programs, including one on the Ute Indian Tribe reservation
in Fort Duchesne. Utah’s Head Start programs work with families and children to help them become self-sufficient, learning and working their way out of poverty. With BTOP funding, the University/UEN will provide broadband services to minority and low-income populations which can change thousands of lives as they access and use high quality educational resources which require Internet broadband. For example, over 5,000 students in the head start programs as well as their families will be served by this project. 90% of the families served by head start programs have an income at or below the U.S. Poverty Income Guidelines.

**Public Libraries**

This project will involve extending high-speed bandwidth services to 35 public libraries. Because the libraries serve a large population in their communities, the income and poverty guidelines generally fall within the demographics of a particular county, we have included that information in Appendix I. The total projected populated served in the public libraries with this project is estimated at 907,108 (from the 2000 U.S. Census)

<table>
<thead>
<tr>
<th>Public Library</th>
<th>City</th>
<th>Service Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beaver City Library</td>
<td>Beaver</td>
<td>2,597</td>
</tr>
<tr>
<td>Bountiful Library</td>
<td>Bountiful</td>
<td>42,190</td>
</tr>
<tr>
<td>Brigham City Carnegie Library</td>
<td>Brigham City</td>
<td>18,709</td>
</tr>
<tr>
<td>Cedar City Public Lib. in the Park</td>
<td>Cedar City</td>
<td>26,667</td>
</tr>
<tr>
<td>Centerville Library</td>
<td>Centerville</td>
<td>42,190</td>
</tr>
<tr>
<td>Clearfield Library</td>
<td>Clearfield</td>
<td>42,190</td>
</tr>
<tr>
<td>Davis County Library - Farmington</td>
<td>Farmington</td>
<td>42,190</td>
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<tr>
<td>Delta City Library</td>
<td>Delta</td>
<td>5,286</td>
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<tr>
<td>Highland City Library</td>
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<tr>
<td>Hurricane Library</td>
<td>Hurricane</td>
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<tr>
<td>Hyrum Library</td>
<td>Hyrum</td>
<td>17,130</td>
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<tr>
<td>Iron County Bookmobile Repository Library</td>
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<tr>
<td>Kaysville Library</td>
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</tr>
<tr>
<td>Layton Library</td>
<td>Layton</td>
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<tr>
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<td>Logan Library</td>
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<td>Monticello Library</td>
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<td>Orem Public Library</td>
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<td>7,980</td>
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<td>Parowan Public Library</td>
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<td>Payson City Library</td>
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<td>Pleasant Grove Library</td>
<td>Pleasant Grove</td>
<td>33,798</td>
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<td>President Millard Fillmore Library</td>
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<td>Richfield Public Library</td>
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<td>Salina Public Library</td>
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<td>Blanding (San Juan County Bookmobile Repository Library)</td>
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<td>Springdale Library</td>
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<tr>
<td>Syracuse Library</td>
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<td>Tooele City Public Library</td>
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<td>Wasatch County Library</td>
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<tr>
<td>Washington Library</td>
<td>Washington</td>
<td>27,517</td>
</tr>
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</table>
3.11 Human Health and Safety

Superfund sites are designated on the National Priorities List (NPL) through the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), which requires the clean up and remediation of sites contaminated by hazardous waste. CERLA and other federal regulations provide broad federal authority to clean up releases or threatened releases of hazardous substances that may endanger public health or the environment. Furthermore the Utah Department of Environmental Quality (UDEQ) regulates and oversees the cleanup and remediation of many sites. There are a total of 22 sites in Utah involved in waste cleanup and reuse as listed by the EPA. Of these, 16 are on the NPL within the Superfund program. The remaining are within programs such as brownfields and corrective actions though the Resource Conservation and Recovery Act (RCRA). The UDEQ designates sites as Voluntary Response Action Program (VRAP), Uncontrolled Sites (state superfund program), and landfill closures. The UDEQ currently oversees 22 Superfund sites for cleanup and has investigated nearly 370 waste site areas. Most of the Superfund contamination in Utah is the result of years of mining-related activities, industrial manufacturing, landfills, and military facilities where hazardous wastes were produced, used, stored, or disposed.

Of the 16 NPL Superfund sites in Utah, ten of these are within the general region of the proposed Utah Anchors broadband project. These ten sites appear to be in the immediate vicinity (i.e., less than five miles) of the project. The Intermountain waste Oil Refinery site, Monticello Mill Tailings (USDOE), and Five Points PCE Plume are located less than one mile from the utility line where the fiber optic line is expected to pass the proposed project location. The following provides a summary of each of the three sites.

The Intermountain Waste Oil Refinery (IWOR) Site (the "Site") covers about two acres at 955 South 500 West in a residential/commercial area of Bountiful, Utah. Contaminants, such as solvents, have been found on the Site and have contaminated the groundwater underlying the Site. Drinking water has not been affected by this contamination.

A number of different reported operations have occurred at the Site including:

- The Site was originally part of a brick manufacturing facility, encompassing about 20 acres;
- Handling and refining of waste oil at the Site began in 1957 and continued for approximately 35 years before closing in May 1993;
- In the 1950s, an asphalt business was operating on the Site;
- The Intermountain Oil Company (the "IOC") operation was originally a trucking business that hauled various petroleum products to customers from the Site;
- The oil blending business commenced in the 1970s.
At the start of the oil blending business, green bottoms (a fraction of crude oil) were blended with diesel fuel and sold for dust control at coal mines. Over subsequent years, used oil replaced the green bottoms and the end product was sold to cement kilns for use as fuel. The used oil was collected from facilities in Utah, Nevada, Idaho, and Wyoming. Waste sludge was reportedly disposed of in an off-site landfill and wastewater that may have remained after the treatment process was boiled off at the Site. Above ground tanks used by IOC were located in an unpaved area surrounded by a soil berm.

The business was cited a number of times by the Davis County Health Department and the State of Utah. Neighbors of the Site complained of odors and health problems, which they believed were associated with the wastes at the Site. The owners took steps to resolve some of these problems. The company forfeited its permit to operate on May 3, 1993.

In 1993, the owners dismantled the refinery and consolidated some wastes into a pile, then covered some of the area with several inches of gravel.

**The Monticello Mill Tailings** site, a former U.S. Department of Energy (DOE) processing facility, lies in the Montezuma Creek Valley, east of the Abajo Mountains in southeastern Utah. The former mill site, on 78 acres of land, is bordered by the City of Monticello.

The mill was constructed by the Vanadium Corporation of America in 1942. In 1944 the mill began production of uranium/vanadium sludge for the Manhattan Engineering District. In 1948, the US federal government bought the site. Mill operations stopped and tailings were stabilized in 1960. In 1964, the mill was dismantled.

**The Five Points PCE Plume Site** (Five Points) is an area of groundwater contamination that exists below ground level. The groundwater plume is located approximately at the intersection of 1500 South and State Highway 106, extending to the west-northwest. The location of the plume, based on current information, lies primarily under the city of Woods Cross.

The site consists of a groundwater plume of tetrachloroethylene (PCE) -- sometimes called perchloroethylene (PERC) -- that is used as a dry cleaning agent or metal degreaser. Woods Cross has four municipal water wells that provide drinking water to the community of 9,795 people. Two of these four wells are contaminated with PCE. One of the wells consistently shows PCE levels exceeding the safe drinking water standard of 5 parts per billion (ppb). This well provides over 33% of Wood Cross city's water supply and has been shut down since February 1999 because of PCE contamination. The other affected well containing PCE shows levels below the safe drinking water standard.
Traffic safety

As previously stated the project will take place along existing highways, towns and urban areas. Traffic will vary depending on the location of the project. Along major highways and collector roads traffic will be high with a greater chance of accidents. The project has targeted anchor institutions (e.g., schools and day care centers), these specific locations have a unique vehicular and pedestrian traffic patterns that must be accommodated throughout the construction phase. Permits will be obtained for any construction on UDOT right-of-way and in most cities.
Chapter 4 – Environmental Consequences

4.1   Noise

4.1.1 Preferred Alternatives

Buried Fiber Cable

The Proposed Action to bury the cable underground would require the use of large machinery (i.e., dump trucks and excavators). As a result, ambient noise levels would temporarily increase. However, the increase in ambient noise would be temporary and localized in nature, related to short-term construction that may create minor disturbances in residential and commercial areas. Noise levels in the immediate area of construction consist of vehicle traffic. It may temporarily (during construction) increase slightly as a result of machinery and equipment. This temporary and intermittent increase in noise levels would be similar to what currently occurs on the existing roads. Once construction is complete, the proposed area will not be affected by the proposed project.

Below are several recommendations that will be used during the construction phase to help limit that amount of noise.

- Construction Work- Operating or causing to be operated by equipment used in construction, repair, alteration or demolition work on buildings, structures, streets, alleys or appurtenances thereto:

  o In residential or commercial land use districts between the hours of 10 p.m. to 7 a.m.
  o In any land use district where such operation exceeds the sound level

Maximum Permissible Sound Levels

  o It shall be a violation of these rules and regulations for any person to exceed the limits set forth for the following receiving land use districts when measured at the boundary or at any point within the property affected by the noise: Use District 10 p.m. - 7 a.m. 7 a.m. - 10 p.m. Residential 50 dB(A) 55 dB(A) Commercial-Agricultural 55 dB(A) 60 dB(A) Industrial 75 dB(A) 80 dB(A)
  o When a noise source can be identified and measured in more than one land use category, the limits of the most restrictive use shall apply at the boundaries between different land use categories.
4.1.2 Preferred Alternatives

Aerial Cable

The second alternative, attaching fiber optic cable on existing utility poles would also require the use of larger machinery (i.e., dump trucks and excavators). As a result, ambient noise levels would temporarily increase as well. However, due to a slight increase in ambient noise over the long term because of noise related to wind traveling over overhead cable, this is not the preferred alternative with respect to noise.

4.1.3 No Action Alternative

The No Action Alternative would not have an effect on noise levels.

4.2 Air Quality

4.2.1 Preferred Alternative

Construction activities would have a potential of increasing emissions throughout project areas. These activities would include the installation of buried fiber cable and travel.

Construction activities always generate dust issues. These issues would vary from day to day, depending on level of activity and weather conditions. Dust control would be necessary in urban areas.

Heavy equipment would result in temporarily increased levels of air pollutants associated with diesel combustion (nitrogen oxides, carbon monoxide, sulfur oxides, particulate matter, and reactive organic gasses from the fuel). These increases would be no different than the day to day activities generated by passing vehicles in the area.

Construction would be temporary and the increased of emissions and dust issues would be temporary. No significant air impacts are expected from ongoing operation and maintenance of the proposed project. Given the temporary nature of installation and the limited impacts during operation, no significant effects to air quality would be associated with the Utah Anchors broadband project.

The project would use Best Management Practices (BMP) for construction and activities, and would train work crews in those measure before beginning work. The following BMPs would be used to help the proposed project with Air Quality.

- Reestablish ground cover on construction site through seeding, as required for erosion control.
- Maintain truck and equipment engines in good running condition.
• Clean equipment daily or as needs to reduce tracking of soil onto adjacent roads.
• Limit maximum speed to 15 miles per hour on unpaved roads.

The implementation of the identified measures described above would likely help the proposed project to comply with all air quality standards. Therefore, installation of the propose fiber cable would not conflict with or obstruct any air quality plan nor violate any air quality standard.

4.2.2 Aerial Cable Alternative

The Aerial Cable Alternative would have similar air quality effects as the Preferred Alternative. Effects would extend to criteria pollutants including particulate matter and those associated with diesel combustion, as well as odors from vehicle emissions. Similar to the Preferred Alternative, these effects would be temporary, stopping upon completion of the work.

Similar to the Proposed Action, the project would use Best Management Practices during construction. This should help maintain and comply with all air quality standards.

4.2.3 No Action Alternative

The No Action Alternative would not impact air quality.

4.3 Geology and Soils

4.3.1 Preferred Alternative
Buried Fiber Cable

The placement of fiber optic cables will be constructing along existing right-of-ways. Buried cable would require excavation of existing soils followed by backfilling of materials to bury the cable. As stated, construction would occur along existing roadways in areas of previously disturbed soil. The longer term impact on the existing soils would be minimal. Once the cable has been installed, the trench would be filled and compacted and restored to its natural state. In several locations the project will rely on existing infrastructure, with no ground disturbance planned.

During construction appropriate BMPs, also called Best Management Practices, would be used to prevent soil erosion and sedimentation throughout the excavation. The specific BMPs used during construction would depend on site-specific conditions. An appropriate erosion and sediment control strategy would be developed that matches the need of each site. This may include silt fences around the construction area and sediment controlled devices around storm drain outlets.
4.3.2 Preferred Alternative

**Aerial Cable**

Aerial Cable Alternative would result in minimal disturbance to soils and geologic resources because existing utility poles would be used. In the event that utility poles are required, the new pole would be placed immediately adjacent to, or as near as possible to the existing location and therefore additional cut/fill would be limited. Generally, replacement poles are installed using a drilling machine and the excess soil either removed or mounded at the base. Therefore, all pole replacements would be within the footprint of previous installations, and there would be limited disturbance to previously undisturbed, native soil profiles. Appropriate BMPs would be used to prevent erosion and sedimentation for any pole replacements similar to the preferred method.

4.3.3 No Action Alternative

The No Action Alternative would not impact soils or geologic resources.

As state above, the proposed project will be located along existing right-of-ways of previously disturbed areas. It was mentioned in the historic and cultural resources findings that the Diamond Valley Elementary project area crossed an undeveloped Utah Department of Transportation (UDOT) right-of-way. Victor Villagran of SWCA conducted a pedestrian inventory for cultural resources in the Diamond Valley Elementary APE on May 20, 2010. He discovered that the UDOT right-of-way had been recently bladed and that the entire survey area along Diamond Valley Road was paved with bladed shoulders. Therefore, the area had been disturbed and the proposed project will not have any additional impact on the surrounding area.

Please view Appendix G for the letter provided by SWCA.

4.4 Water Resources

4.4.1 Preferred Alternative

The placement of fiber optic cables will be constructing along existing right-of-way. Buried cable would require excavation of existing soils followed by backfilling of materials to bury the cable. As stated, construction would occur along existing roadways in areas of previously disturbed soil. The impact to existing water resources would be minimal.

During construction appropriate BMPs, also called Best Management Practices, would be used to prevent soil erosion and sedimentation throughout the excavation. The
following BMPs would be used to help minimize the impact on the existing water resources in the State of Utah.

- Silt Fence (SF) - A temporary sediment barrier consisting of entrenched filter fabric stretched across and secured to supporting posts.
- Inlet Protection – Silt fence or Straw Bale (IPS) – Sediment barrier erected around storm drain inlet.
- Spill Clean-Up (SCU) – Practices to clean up leakage/spillage of on-site material that may be harmful to receiving waters.
- BMP Inspection and Maintenance (BMPIM) – Inspect and maintain all structural BMP’s (both existing and new) on a routine basis to remove pollutants from entering storm drain inlets. This includes the establishment of a schedule for inspections and maintenance.
- Contaminated or Erodible Surface Areas (CESA) – Prevent or reduce the discharge of pollutants to storm water from contaminated or erodible surface areas by leaving as much vegetation on site as possible, minimizing soil exposure time, stabilizing exposed soils, and preventing storm water runon and runoff.
- Sediment Control on Small Construction Sites (SCSCS) – Control the perimeter, vehicular access, and the delivery of materials to small construction sites so that sediment, landscaping materials and other construction debris is not in the street. This BMP is intended to be applied to residential construction sites and small nonresidential sites.

4.4.2 Aerial Cable Alternative

Aerial Cable Alternative would result in minimal disturbance to water resources because existing utility poles would be used. In the event that utility poles are required, the new pole would be placed immediately adjacent to, or as near as possible to the existing location and therefore additional cut/fill would be limited. Generally, replacement poles are installed using a drilling machine and the excess soil either removed or mounded at the base. Therefore, all pole replacements would be within the footprint of previous installations, and there would be limited disturbance to previously undisturbed, native soil profiles. Following the appropriate BMPs that were stated in the preferred alternative would be used to prevent debris from entering into existing waters.

4.4.3 No Action Alternative

The No Action Alternative would not impact water resources

Federal Emergency Management Agency (FEMA) Maps were reviewed for all 128 site locations. All but three sites were located within a Non Flood Hazard Zone C, D, & X. Cedar City Public Library is located in a Flood Hazard Zone AO, Guadalupe School K-3 is located in a Flood Hazard Zone AE, and Park City Library is located in Flood Hazard Zone
AO. Appropriate BMPs will be used to protect all sites within the project area. The three sites that are located within a flood zone have been developed and existing procedures are in place for construction in these areas. BMPs will be used to reduce any major impact in these areas.

All 128 sites have been reviewed for potential encroachment onto existing wetlands in the State of Utah. It is apparent that the proposed project will not encroach onto existing wetlands. We are working to get comments from the U.S. Army Corps of Engineers regarding the project and are in consultation with them.

4.5 Biological Resources

4.5.1 Preferred Alternatives

Direct Buried Cable

The placement of fiber optic cables will be constructing along existing right-of-way. Buried cable would require excavation of existing soils followed by backfilling of materials to bury the cable. As stated, construction would occur along existing roadways in areas of previously disturbed soil. Once the cable has been installed, the trench would be filled and compacted and restored to its natural state. In several locations the project will rely on existing infrastructure, with no ground disturbance planned. The proposed construction area will not impact any river or stream. Excavating will not take place in wetlands or any other sensitive areas. This will reduce the amount of impact associated with this project.

Aerial Cable

In a few instances aerial cable is the preferred alternative for connectivity to AIs. As mentioned in the Executive Summary 3,533 feet or .67 miles of aerial fiber is required for this project.

Aerial Cable Alternative would result in minimal disturbance to biological resources because existing utility poles would be used. In the event that utility poles are required, the new pole would be placed immediately adjacent to, or as near as possible to the existing location and therefore additional cut/fill would be limited. Generally, replacement poles are installed using a drilling machine and the excess soil either removed or mounded at the base. Therefore, all pole replacements would be within the footprint of previous installations, and there would be limited disturbance to previously undisturbed, native soil profiles. Following the appropriate BMPs that were stated in the preferred alternative would be used to prevent any potential impact. The U.S. Fish and Wildlife Service’s letter dated April 19, 2010 reviewed the impact from this alternative and determined no additional impact would be occur, similar to the preferred alternative.
According with section 7(c) of the Endangered Species Act, as amended, 16 U.S.C. 1531 et seq., UEN/University has obtained, from the U.S. Fish and Wildlife Service a letter dated April 19, 2010 regarding the impact this project will have on Fish and Wildlife resources. The letter indicated that the U.S. Fish and Wildlife Service has determined that the project is not likely to adversely affect threatened and endangered species and critical habitat. In addition, U.S. Fish and Wildlife service is not aware of any impacts to migratory birds due to the proposed project.

To insure the U.S. Fish and Wildlife service was provided full detail of this project and made an informed decision the University of Utah provided the USFWS with complete red-line drawings for this project. These drawings provide detail on buried and aerial fiber and the routes required to install cabling to each of the 128 locations reviewed in this Environmental Assessment. Please see Appendix (?) for copies of U of U/USFWS correspondence and Appendix (?) for all red-line documentation.

U.S. Fish and Wildlife Service did not give any recommendations or any mitigation to be implemented during the project. However, best management practices (BMPs) will be implemented to minimize any potential impacts in the surrounding areas. Please view the entire letter from U.S. Fish and Wildlife Service in Appendix F-2.

4.5.3 No Action Alternative

The No Action Alternative would not impact biological resources

4.6 Historic and Cultural Resources

4.6.1 Preferred Alternative

Buried Fiber Cable

The placement of fiber optic cables will be constructing along existing right-of-ways. Buried cable would require excavation of existing soils followed by backfilling of materials to bury the cable. As stated, construction would occur along existing roadways in areas of previously disturbed soil. A letter was provided by SWCA Environmental Consultants (SWCA) regarding an intensive-level cultural resource assessment. Information on the Selective Historic Reconnaissance Level Architectural Survey completed by SWCA was also sent to the SHPO’s office. The SHPO office has concurred with SWCA’s determination of no adverse effect for the proposed undertaking.

4.6.2 Preferred Alternative

Aerial Cable

Aerial Cable Alternative will be similar to the preferred alternative. No impact will be made on historic and cultural resources.
4.6.3 *No Action Alternative*

The No Action Alternative would not impact historic and cultural resources

The University of Utah/Utah Education Network’s (UEN) hired SWCA Environmental Consultants to perform a Cultural Resources Record Search and Assessment Report. An intensive-level cultural resources assessment was completed by SWCA. A class-I assessment was completed on all 128 sites. It was determined that several sites needed more evaluation. A class-III assessment was also completed on those sites that needed more evaluation.

View Appendix G for the completed assessment from SWCA.

**Tribal Land** – No project activities will occur on tribal lands.

**Military Installations** - Does not apply – No military installations are affected by this project. No further discussion on Military installation will be provided in this report.

The following is a timeline of consultations with NTIA, SWCA Environmental Consultants, and the Utah State Historic Preservation Office on the Utah Anchors BTOP project:

- **April 8**  Letter to Frank Monteferrante, NTIA Environmental Compliance Specialist, with consultation package (with maps and drawings)
- **April 9**  Letter from Frank Monteferrante to Wilson Martin, Utah SHPO regarding consultation for University of Utah NTIA BTOP Round One project.
- **May 10**  SWCA Environmental Consultants letter to University of Utah – Utah Education Network regarding completion and findings of Class 1 survey.
- **June 4**  SWCA letter to University/UEN regarding completion of and findings of Class 3 survey.
- **June 7**  Follow up letter to Wilson Martin, Utah SHPO with University of Utah NTIA BTOP Round One project detail
- **June 10**  E-mail update to red line drawing for Red Mountain Elementary
- **July 12**  Utah SHPO “No Historic Properties Affected” letter to University of Utah – Utah Education Network for archeological resources
- **Sept 21**  Updated Letter from SWCA regarding corrections for Arrowhead Elementary and Diamond Valley Elementary in the APE
- **Nov 2**  SHPO’s office received completed SWCA Selective Historic Reconnaissance Level Architectural Survey for evaluation
- **Nov 9**  SHPO’s office concurs with SWCA’s findings of no adverse effects in the proposed undertaking to historic structures and buildings
A Class I cultural resource investigation performed by SWCA Environmental Consultants determined that of the 128 CAI project locations only 14 Areas within 500 feet of the Areas of Potential Effect (APEs) required a Class III cultural on-site assessment by a professional archaeologist due to potential impact. The Class III assessment was completed by an archaeologist, including locations within the National Registry of Historic Places. After the Class III assessment was completed, SWCA concluded that all construction associated with this project will avoid all cultural resource sites within the 14 APEs that required further assessment. SWCA’s surveys and findings were provided to the Utah State Historic Preservation Office (SHPO) in their evaluation of the potential effect to historical and cultural resources. See Appendix G for the completed assessments from SWCA. The letters of concurrence from the SHPO are below:
July 12, 2010

Jeff Egly  
Associate Director  
Technical Services  
Utah Education Network  
University of Utah  
101 Wasatch Drive, Room 215  
Salt Lake City UT  84112-1792

RE: Consultation for National Historic Preservation Act, Section 106, regarding Broadband Technology Opportunities Program (BTOP) Grant #362, University of Utah - Utah Education Network, Fiber Optic Network Infrastructure Project

In Reply Please Refer to Case No. 10-0517

Dear Mr. Egly:

The Utah State Historic Preservation Office received your request for our comment on the above-referenced project. From the information you provided, it appears that no cultural resources were located in the project Area of Potential Effects. We concur with your determination of No Historic Properties Affected for this project.

This letter serves as our comment on the determinations you have made, within the consultation process specified in 36CFR800.4. If you have questions, please contact me at 801-533-3555 or L.hunsaker@utah.gov or contact Jim Dykman at 801-533-3523 or Jdykman@utah.gov

Sincerely,

Lori Hunsaker  
Deputy State Historic Preservation Officer  
Archaeology
November 9, 2010

Jill A. Dowling
Federal Preservation Officer
U.S. Department of Commerce
H.C. Hoover Bldg., Room 1036
1401 Constitution Avenue, NW
Washington DC 20230

RE: University of Utah - Utah Education Network Broadband

In reply please refer to Case No. 10-0517

Dear Ms. Dowling:

Thank you for the submission of information regarding the above-referenced project. Based on the materials submitted to the Utah State Historic Preservation Office (USHPO) on 11/2/2010 from Jeff Egly, UEN, with additional correspondence via email from Jill Dowling, DOC, on 11/3/2010 the USHPO concurs with the determinations of eligibility and the finding of No Adverse Effect for the proposed undertaking.

This information is provided to assist with Section 106 responsibilities as per 36 CFR 800. If you have any questions, please contact me at chansen@utah.gov or (801) 533-3561.

Regards,

Chris Hansen
Preservation Planner
4.7  **Aesthetic and Visual Resources**

4.7.1  **Preferred Alternative**  
**Buried Fiber Cable**

Buried Cable, which involves trenching or boring, would result in short term impacts along roadsides as construction crews trench roadsides, lay cable, bury it and re-vegetate disturbed areas using BMPs. These short term impacts include the following: ¾ and 1 Ton trucks, transport trailer and tractor, cable reel trailers, backhoe with 6 inch and 12 inch buckets, 2 to 3 inch plow blades, horizontal directional boring machines, rubber tire vibratory plow, fiber optic splice trailer, and motor generator. These impacts would be temporary and virtually eliminated upon completion and regrowth. In the long term, this alternative would minimize the small incremental impact on the local aesthetics.

4.7.2  **Preferred Alternative**  
**Aerial Cable**

The aerial alternative would result in a single additional cable added to existing utility poles, additional poles, guywires, and equipment cabinets along Utah’s roadways, which may have a small incremental impact on the local aesthetics. The affect of viewing one additional cable on already existing utility poles or an additional pole is expected to be as small as to not be noticed by most people, and would assimilate into an already existing picture of development, even on rural road corridors.

4.7.3  **No Action Alternative**

The No Action Alternative would not impact aesthetic and visual resources

4.8  **Land Use**

4.8.1  **Preferred Alternative**

Buried cable would result in several miles of roadside construction during installation, but would have no long term effect on land use. Any disturbance associated with this alternative would meet local, state, and federal requirements to protect designated land uses. Permits will be required and obtained. Below is the Utah permits process that will be followed to begin construction.
Utah Permit Process

Telecommunications Service Providers have entire departments that are dedicated to the process of obtaining Right-of-Way, easements and the permits associated with the ongoing management of their copper and fiber optic cable plants. Service Providers are responsible for obtaining and complying with all permits associated with the implementation of this project.

There are typically two distinct permits that are required in conjunction with the management of a service provider’s cable plant:

1. Excavation Permit – Dealing primarily with the construction of water, gas sewer, storm drains, underground cables or pole lines
2. Traffic Control Permit – Dealing primarily with activities that may have an impact on the standard flow of roadway traffic.

Excavation Permits are required whenever the Telecommunication Service Provider conducts any activity where ground disturbance is required. The requirement of the excavation permit depends entirely on the description of work that is described by the Telecommunication Service Provider and more specifically where and how the activity is to be performed. Excavation permits are obtained only after the service provider has effectively met all the requirements by the agency managing the permit process.

Traffic Control Permits are required when the Telecommunication Service Provider is only accessing manholes or pole lines for minor modification to their cable plan.

Listed below is a list of Utah’s agencies that Telecommunication Service Providers are required to obtain permits from prior to any activity.

Northern Utah:
Bountiful, Box Elder County, Brigham City, Cache County, Centerville, Clarkston, Clearfield, Clinton, Corinne, Cornish, Davis County, Farmington, Farr West, Freeport Center, Fruit Heights, Harrisville, Hooper, Huntsville, Hyde Park, Hyrum, Kaysville, Layton, Lewiston, Logan, Mantua, Marriott/Slaterville, Mendon, Millville, Morgan, Morgan County, Newton, Nibley, North Logan, North Ogden, North Salt Lake, Ogden, Paradise, Perry, Plain City, Pleasant View, Providence, Richmond, Riverdale, River Heights, Roy, Smithfield, South Ogden, South Weber, Sunset, Syracuse, Trenton, Utah Department of Transportation Region #1, Uintah, Utah State University, Washington Terrace, Weber County, Wellsville, West Bountiful, West Haven, West Point, Willard, Woods Cross

Metropolitan Utah:
Airport Authority, Alta, Bluffdale, Charleston, Cottonwood Heights, Draper, Ft Douglas Army Reserve, Grantsville, Heber, Herriman, Holladay, Midvale, Midway, Murray, Park City, Riverton, Salt Lake City, Salt Lake County, Salt Lake Valley Health Dept (Noise Relief
Waiver), Sandy, South Jordan, South Salt Lake, Stockton, Summit County, Taylorsville, Tooele, Tooele County, University of Utah, Wallsburg, Wasatch County, West Jordan, West Valley, UDOT Region #1 & Region #3, Utah Transit Authority/TRAX (electric light rail) access

Central Utah:  
Alpine, American Fork, Annabella, Aurora, Cedar Hills, Central Valley, Eagle Mountain, Elk Ridge, Elsinore, Genola, Glenwood, Highland, Joseph, Juab County, Levan, Lehi, Lindon, Mapleton, Mona, Monroe, Nephi, Orem, Payson, Pleasant Grove, Provo, Redmond, Richfield, Rocky Ridge, Salem, Salina, Santaquin, Saratoga Springs, Sevier County, Spanish Fork, Utah Department of Transportation Region #3 & Region #4, Utah County, Vineyard, Woodland Hills

Southern Utah:  
Beaver, Beaver County, Brian Head, Cedar City, Enoch, Hurricane, Iron County, Ivins, Kanarraville, LaVerkin, Leeds, Mt Holly Ski Resort, New Harmony, Paragonah, Parowan, Prairie Dog Permit/DWR, Rockville, Santa Clara, Springdale, St George, Red Cliffs Tortoise Reserve, Toquerville, Utah Department of Transportation Region #4, Virgin, Washington, Washington County, St George Airport Operations

Complete State (Right-of-Way & Railroad):  
Canal companies, Salt Lake County Flood Control, Union Pacific Railroad, Denver & Rio Grand Railroad, Utah Transit Authority/TRAX (electric light rail) excavation

4.8.2 Aerial Alternative

The aerial alternative is expected to have no land use impacts. This alternative proposed to use pre-existing utility poles located along pre-existing transmission lines to install the fiber cables to develop broadband access across Utah.

4.8.3 No Action Alternative

The No Action Alternative would not impact land use.

4.9 Infrastructure

4.9.1 Preferred Alternative

As a public K-20 education network, the University/UEN overall vision for this BTOP project is to leverage existing University/UEN broadband backbone and last mile network resources to build fiber infrastructure to public schools including charter schools, Early Childhood Development Programs (Head Start), and public city and county
libraries. The expansion of these fiber facilities will provide future broadband resources for other community anchor facilities as the need arises.

The University/UEN serving as Utah’s state education network, is the applicant/recipient on the NTIA BTOP Round One infrastructure middle mile project. This middle mile project will immediately create new jobs and sustainable fiber infrastructure that will provide the basis for improving education and reducing the digital divide. This infrastructure will also help communities, businesses and employers compete in today’s global economy. The benefits of this middle mile project will extend into many neighborhoods and communities allowing residential access to areas underserved or unserved with broadband access.

Construction activities related to fiber installation would generate a certain amount of waste, including environmentally non-hazardous materials. Items such as cable trimmings, packaging materials, etc. would necessitate proper handling and disposal methods. The volume of waste generated is expected to be minimal for this project, and would contain no waste materials that are unable to be properly disposed of in one of the state’s landfills or recycling centers.

Construction would consist of buried cable throughout existing right-of-way. On occasion the project will encounter existing utility crossings. Blue stakes will be called to locate existing utilities. If the project is bored, the construction crew will work in advance of any boring activity to locate any utilities. These methods will reduce any potential adverse impact on utility crossings.

Construction work would be planned and scheduled such that the majority of construction occurs during fair weather seasons where transportation along the roads. Roadside work will not be hindered by seasonal conditions. The existing roadway infrastructure in the state is adequate for the types of vehicles and equipment that would be required to complete the project.

4.9.2 Aerial Alternative

This alternative would result in the same positive and negative impacts as described in the Preferred Alternative.

4.9.3 No Action Alternative

The No Action Alternative would not impact infrastructure negatively or positively.
4.10 Socioeconomic Resources

4.10.1 Preferred Alternative

Completing this project will have a positive impact to the communities involved in this project because new and/ or improved broadband services will be provided. The proposed project will not have the effect of "excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin". In addition, the project provides a greater level of funding to the rural areas of Utah, and will have a positive impact on the ability of small communities and schools to remain viable.

4.10.2 Aerial Alternative

This alternative would have the same positive effect on the communities involved as the preferred alternative. However, aerial construction will not have the same benefit has the preferred alternative for the existing economy.

4.10.3 No Action Alternative

The No Action Alternative would have no socioeconomic impact. Residents, business, schools and social services would continue to operate as is, without the benefit of enhanced broadband access.

4.11 Human Health and Safety

4.11.1 Preferred Alternative

Buried Fiber Cable

The proposed network will offer higher bandwidth connectivity to all 128 sites around Utah. Through this enhanced connectivity, schools and city libraries will be able to receive more information that will help all those involved. These improved capabilities will have a positive impact on the rural areas in which the project serves.

The construction activities proposed with the project will have no to minimal impact on this resource. Due to the construction activities taking place in approved easements and utility corridors along highways and roads, UEN and its contractors will not be located directly in the path of traffic. This also reduces the impact to vehicles traveling on the highways and roads since there is no need to close or re-route traffic lanes.
UEN and its contractors will comply with Federal Highway Administration (FHWA), Utah Department of Transportation (UDOT) requirements and the Manual on Uniform Traffic Control Devices to promote highway safety and efficiency by providing warning and guidance to elements of traffic. UEN and its contractors while working within the public right-of-way who are exposed either to traffic or to construction equipment within the work area shall wear high-visibility safety apparel intended to provide conspicuity during both daytime and nighttime usage, and meeting the Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2004 publication entitled “American National Standard for High-Visibility Safety Apparel and Headwear”.

As stated in Chapter 3, Utah has 16 NPL Superfund sites in Utah; ten of these are within the general region of the proposed Utah Anchors broadband project. These ten sites appear to be in the immediate vicinity (i.e., less than five miles) of the project. The Intermountain waste Oil Refinery site, Monticello Mill Tailings (USDOE), and Five Points PCE Plume are located less than one mile from the utility line where the fiber optic line is expected to pass the proposed project location. The proposed construction will not impact any Superfund or Brownfield sites.

4.11.2 Preferred Alternative

Aerial Cable

This alternative would result in the same positive and negative impacts as described in the Preferred Alternative.

4.11.3 No Action Alternative

The No Action Alternative would not impact Human Health and Safety.

Hazardous waste sites are located throughout the United States and the world. These sites contain a wide variety of materials, which are now recognized as posing a threat to humans, wildlife and the environment. The technologies used to cleanup these sites are as diverse as the hazardous materials that contaminate them.

In any hazardous waste site remediation operation, there is the potential for an incident that would require the aid of emergency responders such as emergency medical technicians, firemen, law enforcement officers, and emergency room personnel. If the emergency responders are not knowledgeable about the hazardous waste site and the technology used to remediate it, they could become victims also.

If any superfund site is encountered during the project the following will need to be followed.
Emergency Response References and Resources

Internet Resources

OSHA Provides access to a growing body of federal OSHA information including the Technical Manual, the FIRM and other compliance directives, regulations, interpretive letters and memos, sampling methods, memoranda of understanding, the SAVES, and case law.

www.osha.gov or www.osha-slc.gov

OSHA Federal OSHA’s HAZWOPER emergency response webpage. This site contains the ways to recognize, control, enforce, and train for emergency response. This site also contains fact sheets that can be downloaded.


National Response Center NRC is the sole federal point of contact for reporting oil and chemical spills. Web site offers information about reporting requirements and the source legislation, incident summaries, and an electronic copy of the reporting form.

www.nrc.uscg.mil/index.html

National Response Team (NRT) This site is specific to emergency response issues. Many of the links that come from this site are from developed from actual incidents and exercises. Some of the links include: Regional Response Teams, Publications, and Lessons Learned.

www.nrt.org

EPA Chemical Emergency Preparedness and Prevention Office Provides EPA information about accident preparedness and community right-to-know, emergency, response, accident histories and investigations, links to information about emergency response information for state, local, and tribal governments, and implementation guidance for EPA’s Risk Management Plan rule, 40 CFR 68.

www.epa.gov/swercrpp/EPA RCRA, Superfund, & EPCRA Hotline

This web page provides links to the EPA program areas supported by the hotline, hotline reports, regional and state contacts, and hotline training information.

www.epa.gov/epaoswer/hotlineLEPC/SERCNet

Local Emergency Planning Committee/State Emergency Response Commission on-line network. Provides information about LEPCs and SERCs, an LEPC newsletter, an
LEPC/SERC database, and other CSHOs in determining the local and state emergency response infrastructure and resources.

www.rtk.net/www/lepc/webpage/mosaic/html

**Provider Type of Resource Internet Address**

CHEMTREC (Chemical Transportation EmergencyCenter) CHEMTREC is a 24-hour public service of the chemical industry that provides immediate emergency response information and assistance during emergencies involving chemicals. The types of information provided include: spill control and firefighting, emergency medical treatment, manufacturer contact, and chemical information from a database of 1.5 million MSDSs. DHEMTREC also has a lending library of audiovisual training for emergency response personnel.

www.cmahq.com/chemtrac.html

University of Akron-Hazardous Chemical Database Oriented toward emergency response to releases of hazardous substances. Provides physical properties of almost 2,000 chemicals, incompatibilities, registry number, NFPA ratings, and the DOT safety guide for these chemicals. Within the DOT safety guides, you’ll find information on the health and safety hazards, public safety guidance, PPE requirements for emergency releases, evacuation guidance, and emergency response, spill response, and first aid procedures.

ull.chemistry.uakron.edu/erd

Agency for Toxic Substances and Disease Registry (ATSDR)

Hazardous Substance Release/Health Effects Database HazDat provides information on the release of hazardous substances form Superfund sites or from emergency events and on the effects of hazardous substances on the health of human populations. Some of the information in HazDat includes: site characteristics, activities and site events, contaminants found, contaminant media and maximum concentration levels, impact on population, community health concerns, exposure routes, and physical hazards. HazDat also contains substance-specific information such as the ATSDR Priority List of Hazardous Substances.


NIOSH home page and access to NIOSHtic, published health and safety articles. The four main categories and services, publications, news, and research. To reduce time looking for information on specific safety and health, use their search engine.

www.cdc.gov/niosh/homepage.html
Publications*

OSHA 202-219-4667 (available on-line)
OSHA Field Directive for 1910.120(q) CPL 2-2.59A
OSHA Post-Emergency Response Operations Directive (addresses oil spills) CPL 2-2.51
EPA EPA NRT One Plan Guidance, (800) 424-9346 (also available on-line through OSHA’s web site)
EMERGENCY PLANNING & COMMUNITY RIGHT-TO-KNOW (RTK) (800)553-0202
RTK Hazardous Materials Emergency Planning Guide NRT-1
RTK Criteria for Review of HAZMAT Emergency Plans NRT-1A
RTK Developing a HAZMAT Exercise Program, Handbook for State and Local Officials NRT-2
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 617-770-3000
NFPA Recommended Practice for Responding to HAZMAT Incidents, 97 Ed. ANSI/NFPA 471
NFPA Professional Competence of Responders to Hazardous Materials Incidents, 97 Ed. ANSI/NFPA 472
NFPA Competencies for EMS Personnel Responding to Hazardous Materials Incidents, 97 Ed. ANSI/NFPA 473
NFPA Standard on Industrial Fire Brigades, 96 Ed. ANSI/NFPA 600
NFPA Fire Department Occupational Safety and Health Program, 97 Ed. ANSI/NFPA 1500
NTIS 1 800-553-6847
EMI/NTIS Incident Command System overview, student manual AVA 17899 BB00
EMI/NTIS HAZMAT Initial Response Concept implementation, student manual AVA 19202 BB00
EPA/NTIS Catalog of Superfund PROGRAM Publications PB 95 173 290
EPA/NTIS Health and Safety Audit Guideline PB 90 204 157
EPA/NTIS An Overview of the Emergency Response Program EPA 540/8-91/015
NATIONAL PUBLICATIONS OFFICE (NPO) 1 800-490-9198
NPO National Publications Catalog 200 B 96-001
NIOSH Publications (800) 356-4674
NIOSH A Guide for Evaluating the Performance of CPC 900-109
NIOSH Health Hazard Evaluation Report-Exxon/Valdez Alaska Oil Spill 89-273-2111
DOE (202) 586-9642
DOE DOE Emergency Management Guide
DOE Emergency Response/Contingency Plan  
**CMA (202) 741-5000**  
CMA Site Emergency Response Planning  
**DOT (800) 752-6367**  
* Many of the above publications can be ordered on-line or downloaded from the Internet homepage of the originating Agency.

### Hazardous Materials and Emergency Response Hotlines

#### Hotline Contact Information Description

**OSHA HAZWOPER Emergency Response Compliance Hotline**
- 24-hour phone message capability.
- Staffed Monday through Friday from 7:30a.m.-5:30 p.m. Eastern Time 202-219-8036, ext.42
- Provides information about compliance with OSHA’s HAZWOPER emergency response requirements. Information provided is based on existing OSHA interpretations, although new interpretive information can be requested at this number.

**National Response Center (NRC) Hotline**
- (800) 424-8802
- (202) 426-2675 in the Washington DC area
- NRC is the sole federal point of contact for reporting oil and chemical spills. Operated by the U.S. Coast Guard, this hotline is available 24 hours a day, every day of the year.

**Emergency Planning and Community Right-To-Know Information Hotline**
- Operates Monday through Friday from 8:30 a.m. - 7:30 p.m. Eastern Time (800) 535-0202
- (202) 479-2449 in the Washington DC area
- Provides communities and individuals with help in preparing for accidental releases of toxic chemicals. This hotline, which complements the RCRA/Superfund Hotline, is maintained as an information resource rather than an emergency number.

**RCRA/CERCLA (Superfund) Hotline**
- Operates Monday through Friday from 8:30 a.m. - 7:30 p.m. Eastern Time.
- (800) 424-9346
- (202) 362-3000 in Washington DC area

**Toxic Substances Control Act (TSCA) Assistance Information Service**
Operates Monday through Friday from 8:30 a.m. - 5 p.m. Eastern Time.
(202) 554-1404 Washington DC.
Provides both general and technical information and publications about toxic substances, including asbestos. A variety of other services are also offered to help businesses comply with TSCA laws, including regulatory advice and aid publications, and audiovisual materials.

**Chemical Transportation Emergency Center (CHEMTREC)**
Non-emergency inquiries during regular business hours (EST)
(800) 262-8200
24-Hour Emergency Hotline
(800) 424-9300
CHEMTREC is a 24-hour public service of the chemical industry that provides immediate emergency response information and assistance during emergencies involving chemicals. CHEMTREC also has a lending library of audiovisual material for training emergency response personnel.

**Dockets**
Dockets are the official, legal files of rulemaking documents. They include: official statements of the Administrator’s position, represented by published rulemaking documents; information considered by the Agency during rulemaking; transcripts of hearings; litigation records, and comments received from persons outside the Agency. The Dockets are open to the public in accordance with the Freedom of Information Act.

**Type of Docket Contact Information**
Public Information Reference Unit EPA (PM-211D). Provides public access to regulatory information supporting the Agency’s actions under the Clean Air Act and the Clean Water Act.
Room 2904
401 M St., SW
Washington, DC 20460
(202) 382-5926
Air Docket (202) 382-7458
Drinking Water (202) 475-9595
4.12 Cumulative Impacts

The Utah Anchors: A Community Broadband project consists of trenching and burying cable along existing roadways. These actions are associated with few negative effects, and as such, the cumulative effects of the project are considered less than significant for most resources analyzed, and would therefore not incrementally result in any significant negative environmental consequences, when combined with other activities not related to this project (e.g., road maintenance or construction).

The potential increase in noise and air quality related to trucks and equipment would be minor and temporary. Trenching and burying cable will be located along existing roadways. Most areas have been disturbed previously. The long term impact of geology and soils will be minimal. Once construction has been completed, the construction area will be restored to its natural state. Trenching and burying cable may result in incidental erosion or sediment discharge into existing waters; however, with the use of good utility practices (or BMPs) for erosion and sediment control, this potential is minimized and does not represent a significant cumulative impact to soils or water resources. Effects to biological resources are also minimal due to the lack of wildlife habitat on the road Right-of-Way and the generally disturbed character of these areas. Any noise or air quality disturbance to wildlife or people due to equipment would be temporary. Cultural resources are generally not considered subject to cumulative effects, but are either individually affected in a way that changes the significance of the property or are not impacted in a way that changes the significance of the property. Aesthetic and visual resources will not be impacted once construction is completed. Trenching and burying of cable will hide the impact to this resource. Construction equipment and debris will be removed once the project is complete. As such, significant impacts to any of these resources would not result from the wider consideration of incremental effects of the proposed project when considered along with unrelated potential projects such as roadway improvements or commercial development.

There is a minor cumulative impact to infrastructure since the proposed project involves adding cable to existing Right-of-Way. This will add to the amount of utilities in an existing roadway. The proposed cable will need to be detected if any additional utilities are to be added in the future.
There is substantial positive cumulative impact of the project on socioeconomic resources. The proposed project will provide broadband access to numerous underserved and unserved communities, which will improve opportunities to engage in the global economic, provide increased education opportunities, and improved public safety through reliable and high speed communication.

Chapter 5 – Environmental Permits and Regulatory Requirements

_U.S. Fish and Wildlife Service_
In accordance with section 7(c) of the Endangered Species Act, as amended, 16 U.S.C. 1531 eq seq., UEN has obtained, from the U.S. Fish and Wildlife Service, a list of federally Threatened and Endangered Species that may be present within the project area. Based upon the response obtained from the commenting agency no significant effects were identified. All physical construction diagrams and work information was provided to USFWS found in Appendix A.

_U.S. Army Corps of Engineers_
The University/UEN is in current process of consulting with the U.S. Army Corps of Engineers to ensure that no wetlands, streams rivers, etc. are adversely impacted with this project. All physical construction diagrams and work information has been provided to the Corps found in Appendix A.

_Utah State Historic Preservation Office_
In accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended), Utah State Historic Preservation office (SHPO) has concurred with our findings within this report that the project would not have an adverse effect on archaeological and historical property sites within the proposed project.

_Local and State permits_
Telecommunications Service Providers have entire departments that are dedicated to the process of obtaining Right of Way, easements and the permits associated with the ongoing management of their copper and fiber optic cable plants. Service Providers are responsible for obtaining and complying with all permits associated with the implementation of this project.

There are typically two distinct permits that are required in conjunction with the management of a service provider’s cable plant:

1. Excavation Permit – Dealing primarily with the construction of water, gas sewer, storm drains, underground cables or pole lines
2. Traffic Control Permit – Dealing primarily with activities that may have an impact on the standard flow of roadway traffic.
Excavation Permits are required whenever the Telecommunication Service Provider conducts any activity where ground disturbance is required. The requirement of the excavation permit depends entirely on the description of work that is described by the Telecommunication Service Provider and more specifically where and how the activity is to be performed. Excavation permits are obtained only after the service provider has effectively met all the requirements by the agency managing the permit process.

Traffic Control Permits are required when the Telecommunication Service Provider is only accessing manholes or pole lines for minor modification to their cable plan.

Listed below is a list of Utah’s agencies that Telecommunication Service Providers are required to obtain permits from prior to any activity.

Northern Utah:
Bountiful, Box Elder County, Brigham City, Cache County, Centerville, Clarkston, Clearfield, Clinton, Corinne, Cornish, Davis County, Farmington, FarrWest, Freepoint Center, Fruit Heights, Harrisville, Hooper, Huntsville, Hyde Park, Hyrum, Kaysville, Layton, Lewiston, Logan, Mantua, Marriott/Slaterville, Mendon, Millville, Morgan, Morgan County, Newton, Nibley, No. Logan, No. Ogden, North Salt Lake, Ogden, Paradise, Perry, Plain City, Pleasant View, Providence, Richmond, Riverdale, River Heights, Roy, Smithfield, So. Ogden, So. Weber, Sunset, Syracuse, Trenton, Utah Dept. of Transportation Region #1, Uintah, Utah State University, Washington Terrace, Weber County, Wellsville, West Bountiful, West Haven, West Point, Willard, Woods Cross

Metropolitan Utah:
Airport Authority, Alta, Bluffdale, Charleston, Cottonwood Heights, Draper, Ft Douglas Army Reserve, Grantsville, Heber, Herriman, Holladay, Midvale, Midway, Murray, Park City, Riverton, Salt Lake City, Salt Lake County, Salt Lake Valley Health Dept (Noise Relief Waiver), Sandy, South Jordan, South Salt Lake, Stockton, Summit County, Taylorsville, Tooele, Tooele County, University of Utah, Wallsburg, Wasatch County, West Jordan, West Valley, Utah Department of Transportation Region #1 & Region #3, Utah Transit Authority/TRAX (public light rail) access

Central Utah:
Alpine, American Fork, Annabella, Aurora, Cedar Hills, Central Valley, Eagle Mountain, Elk Ridge, Elsinore, Genola, Glenwood, Highland, Joseph, Juab County, Levan, Lehi, Lindon, Mapleton, Mona, Monroe, Nephi, Orem, Payson, Pleasant Grove, Provo, Redmond, Richfield, Rocky Ridge, Salem, Salina, Santaquin, Saratoga Springs, Sevier County, Spanish Fork, Utah Department of Transportation Region #3 & Region #4, Utah County, Vineyard, Woodland Hills

Southern Utah:
Beaver, Beaver County, Brian Head, Cedar City, Enoch, Hurricane, Iron County, Ivins, Kanarraville, LaVerkin, Leeds, Mt Holly Ski Resort, New Harmony, Paragonah, Parowan,
Prairie Dog Permit/DWR, Rockville, Santa Clara, Springdale, St George, Red Cliffs
Tortoise Reserve, Toquerville, Utah Department of Transportation Region #4, Virgin,
Washington, Washington County, St George Airport Operations

State Permits (Right-of-Way & Railroad):
Canal companies, Salt Lake County Flood Control, Union Pacific Railroad, Denver & Rio
Grand Railroad, Utah Transit Authority/TRAX (public light rail) excavation.

Chapter 6 – List of Preparers

University of Utah - Utah Educational Network
101 Wasatch Drive, Salt Lake City, Utah 84112
  Jeff Egly, Associate Director, Technical Services
  Kevin Dutt, Project Manager, Technical Services
  Dennis Sampson, Associate Director, Administration

Ludlow Engineering and Land Surveying
645 North Main Street
Nephi, UT 84648
  Brett Ludlow, P.E.,
  Travis Ludlow, Civil Engineer

OneTel Corporation
343 West 400 South
Salt Lake City, Utah 84101
  Daniel Patterson, Account Manager

SWCA Environmental Consultants (Salt Lake City Office)
257 East 200 South, Suite 200
Salt Lake City, UT 84111
  Elisabeth Robinson, M.A., RPA (801) 322-4307

State and Federal Agencies Consulted
U.S. Fish and Wildlife, Department of the Interior
Utah State Historical Preservation Office
Chapter 7 – References

http://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1

http://www.birdnature.com/flyways.html

Utah Wildlife Refuges:

http://nrhp.focus.nps.gov

http://dagrc.utah.gov/DEQ/

www.nonoise.org

www.epa.gov/air/


www.epa.gov/water/

www.epa.gov/wed/pages/ecoregions.htm

www.fws.gov/endangered

Zoning Information was obtained from each City that was mentioned in the report. The information was obtained by the cities website or through actual contact with these cities.

U.S. Geological Survey

Utah Geological Survey

Utah Division of Wild resources
Appendix A

List of Sites – Area of Construction/Telcom Providers

**Area of Construction Map**

The maps provided below are a “red line” description created by each of the University/UEN’s eight contracted telecommunication providers. The maps represent a proposed route for the installation of new infrastructure necessary to accommodate placement of fiber optic cable to each of the projects 128 CAI locations.

All construction associated with this project will be implemented within the standard operating practices of each of these providers, and in strict compliance with the best practice requirements set forth by the Utah Department of Transportation (UDOT) and city and county municipalities as required. The telecommunication providers will, as a standard practice, obtain all necessary approvals, including but not limited to; easements, Right of Way, digging permits, etc.

In cases where only network and aggregation equipment is required and no new fiber and conduit is necessary a letter to this effect is provided by the telecommunications provider and including in this Appendix.
South Davis County Library –
725 South Main Street – Bountiful, UT

The Subject Property is located at 725 South Main Street Bountiful, UT. The property is located on Main Street which is located to the East of Interstate 15.

Qwest communication proposes to install 160 feet of cable along existing Right of Way. The project will tie into an existing location located at 607 South Main Street. Cable will be installed along Main Street until the South Davis County Library where a new hand hole will be installed.

Services: 42,190 People
Vicinity Map: USDA Topography Map of Bountiful, Utah
Adult Education Center –
76 South 1000 West – Tooele, Utah

The Subject Property is located at 76 South 1000 East – Tooele, Utah. The property is located off of 1000 East Street, which is located to the south of State Road 112.

Qwest communication proposes to install 5200 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 303 West Vine Street. Fiber cable will be installed along Vine Street and Tooele Blvd. Additional hand holes will be installed during the project.
American Prep Academy –
12892 South Pony Express - Draper, Utah

The Subject Property, located at 12892 South Pony Express, Draper, UT. The property is located on the corner of the Pony express road and 12950 South Street.

Qwest communication proposes to install 900 feet of cable along the west Right of Way line of the Pony Express Road. The project will tie into an existing manhole located at 12910 South Pony Express Road. Fiber will be installed along the Right of Way to a point 900 feet north of the existing manhole. At this point a handhole will be installed and the building will be connected to the network.
Arrowhead Elementary –  
545 Arrowhead trail – Santa Clara, Utah

The Subject Property is located at 545 Arrowhead Trail, Santa Clara, UT. The property is located on the corner of the Arrowhead trail and Malaga.

Qwest communication proposes to install 4700 feet of cable starting at 2395 West Santa Clara Street to the school. The project will tie into an existing manhole located at 2393 West Santa Clara Street. Fiber will be installed along the Right of Way of Santa Clara Street, North Lava Flow, Arrowhead Trail, Concord, Cynthia, and tying into the school on Malaga. Hand-holes will be installed and the building will be connected to the network.
Bear River Charter School –
75 South 400 West – Logan, UT 84321

The Subject Property is located at 75 South 400 West, Logan, UT. The property is located off of 400 West Street, which is located to the west of Highway 89.

Qwest communication proposes to install 2700 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 101 West Center Street. Fiber cable will be installed along center and 400 West Street. Additional hand holes will be installed and the building will be connected to the network.
Beaver City Library –
55 West Center Street – Beaver, Utah 84713

The Subject Property, located at 55 West Center Street, Beaver, UT. The property is located on Center Street (State Road 21) and west of Main Street in Beaver.

Qwest communication proposes to install 800 feet of cable along the Right of Way line of 100 West Street.
Beehive Science & Tech Academy –
1011 E Murray Holladay Road – Murray, Utah

April 2, 2010

Utah Education Network
Attn: Jeff Egly
101 S Wasatch Dr.
Salt Lake City, UT 84112

RE: Environment Assessment for Beehive Technical Academy

Jeff,

Upon completion of Qwest’s engineering design phase for Beehive Technical Academy, it has been determined that sufficient conduit exists to provide fiber optic connectivity to this location. Therefore, there will be no ground disturbance in the delivery of broadband connectivity to this location.

Sincerely,

Joni Robertson
Qwest Global Account Manager
Bloomington Elementary School –
425 West Man of War Road – St. George, UT

The Subject Property, located at 425 Man of War Road, St. George, UT. The property is located on Man of War Road which is located to the West of Interstate 15.

Qwest communication proposes to install 250 feet of cable along the property owned by the Washington School District. The project will tie into an existing manhole located at 401 West Man of War Road. Fiber will be installed through the property 250 feet and will connect to the existing school. A hand-hole will be installed and the building will be connected to the network.
Bluffdale Elementary –
14323 S 2700 W, Bluffdale, Utah

The Subject Property is located at 14323 South 2700 West, Bluffdale, UT. The property is located off of 2700 West Street, which is located to the South of State road 154.

Qwest communication proposes to install 150 feet of cable along the property owned by the School District. The project will tie into an existing manhole located on 2700 West Street. Fiber will be installed through the property 150 feet and will connect to the existing school.
Bonneville Elementary –
490 Gramercy Ave, Ogden, UT

The Subject Property located at 490 Gramercy Ave., Ogden, UT. The property is located off of Gramercy Ave., which is located to the East of Highway 89.

Qwest communication proposes to install 1255 feet of cable along existing Right of Way. The project will tie into an existing manhole located on at 915 East 700 South Street. Fiber cable will be installed along 600 East Street. A new hand-hole will be installed at the corner of Gramercy Ave and 600 East Street. The project will continue on Gramercy Ave, where an additional hand-hole will be installed. The school will then be tied to the network.
Bunderson Elementary –  
641 East 200 North - Brigham City Utah

The Subject Property located at 641 East 200 North - Brigham City Utah. The property is located off of 200 North Street, which is located to the East of Main Street (State Road 13.)

Qwest communication proposes to install 2970 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 298 North 100 East. Fiber cable will be installed along 300 North Street to 600 East Street. The project will continue south to 200 North then east to the school. The entire distance will be bored.
Canyon Rim Academy –
3005 South 2900 East – Salt Lake City, Utah

The Subject Property is located at 3005 South 2900 East – Salt Lake City, Utah. The property is located off of 2900 East Street, which is located to the West of Interstate 215.

Qwest communication proposes to install 1650 feet of cable along existing Right of Way. The project will tie into an existing manhole located on Louise Ave. Fiber cable will be installed 1100 feet east along Louise Ave to 2900 East Street. The project will continue south 550 feet along 2900 East to the school.
Cedar City Public Library –
303 North 100 East, Cedar City, UT

The Subject Property is located at 303 North 100 East – Cedar City, Utah. The property is located off of 100 East Street, which is located to the East of Interstate 15.

Qwest communication proposes to install 1800 feet of cable along existing Right of Way. The project will tie into an existing manhole located on 100 West. Fiber cable will be installed north along 100 West Street. The project will continue east along 200 North to the intersection of 100 East and 200 North. Then the fiber will continue north along 100 East to the Public library.
Davis County Library –
45 South 400 West – Centerville, UT

The Subject Property is located at 45 South 400 West Street Centerville, UT. The property is located on 400 West, which is located to the East of Interstate 15.

Qwest communication proposes to install 2200 feet of cable along existing Right of Way. The project will tie into an existing location located at 499 West Parrish Lane. Cable will be installed along Parrish Lane until the intersection of Parrish Lane and 400 West Street. The project will continue along 400 West Street to the Davis County Library where a new hand hole will be installed.
Davis County Library –
562 South 1000 East – Clearfield, UT

The Subject Property is located at 562 South 1000 East Street Clearfield, UT. The property is located at the corner of 1000 East Street and Hill Top Drive. The site is located west of Interstate 15.

Qwest communication proposes to install 1000 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 998 East 700 South Street. Fiber cable will be installed along 1000 East Street to the Davis County Library where a new hand hole will be installed.
Columbia Elementary –
3505 West 7800 South – West Jordan, Utah

The Subject Property is located at 3505 West 7800 South – West Jordan, Utah. The property is located on the corner of 7800 South Street and Bangerter Highway.

Qwest communication proposes to install 300 feet of cable. The project will tie into an existing manhole located on at 3515 West 7800 South.
Coral Canyon Elementary –
3435 Canyon Crest Ave. – Washington, Utah

The Subject Property is located at 3435 Canyon Crest Ave. – Washington, Utah. The property is located off Canyon Crest Ave. The project is located to Right of Way next to Interstate 15 and Highway 9.

Qwest communication proposes to install 1500 feet of cable. The project will tie into an existing manhole located on at 2076 North Coral Canyon Blvd. The project will install 1500 feet of cable along Canyon Crest Ave. A new hand hole will be installed at the corner of Canyon Crest Ave. and Sweet water springs.
Coral Cliffs Elementary School –
2040 West 2000 North – St. George, UT

The Subject Property is located at 2040 West 2000 North, St. George, UT. The property is located on 2000 North Street which is located to the West of State Road 18.

Qwest communication proposes to install 2000 feet of cable along existing Right of Way. The project will tie into an existing Hand hole located at 2205 West Snow Canyon Parkway. Cable will be installed on Snow Canyon Parkway to the intersection of Snow Canyon Parkway and 2000 North Street. Installation will continue along 2000 North Street until the Coral Cliff Elementary School where a new hand hole will be installed.
Corinne Early Learning Center –
2275 North 3900 West – Corinne, UT

The Subject Property is located at 2275 North 3900 West, Corinne, UT. The property is located on 3950 West Street which is located to the South of State Road 13.

Qwest communication proposes to install 990 feet of cable along existing Right of Way. The project will tie into an existing location located on 2350 North Street. Cable will be installed on 2350 North Street to the intersection of 2350 North and 3950 West Street. Installation will continue along 3950 West Street until the Corinne Early Learning Center where a new hand hole will be installed.
**Davis County Library – 38 South 100 East – Farmington, UT**

The Subject Property is located at 38 South 100 East Street Farmington, UT. The property is located on 100 East Street. The site is located east of Interstate 15.

Qwest communication proposes to install 910 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 140 South 200 East Street. Fiber cable will be installed along 100 South Street to the intersection of 100 South and 100 East Street. The project will continue on 100 East Street to Davis County Library where a new hand hole will be installed.
Dee Elementary –  
550 22nd Street, Ogden, UT

The Subject Property located at 550 22nd Street, Ogden, UT. The property is located off of 22nd Street, which is located to the East of Highway 89.

Qwest communication proposes to install 1350 feet of cable along existing Right of Way. The project will tie into an existing hand hole located at 600 East 21st Street. Fiber cable will be installed along Jefferson Ave. The project will continue on 22nd Street. A new hand-hole will be installed at 22nd Street. The school will then be tied to the network.
Diamond Valley Elementary School –
1411 Diamond Valley Dr. – St. George, UT

The Subject Property is located at 1411 Diamond Valley Dr., St. George, UT. The property is located on Diamond Valley, which is located to the east of State Road 18.

Qwest communication proposes to install 5280 feet of cable along existing Right of Way. The project will tie into an existing Hand hole located at 815 West State Road 18. Cable will be installed along Diamond Valley Drive to the Diamond Valley Elementary School, where a new hand hole will be installed.
Discovery Elementary –
820 North 500 West - Brigham City Utah

The Subject Property is located at 820 North 500 West - Brigham City Utah. The property is located off of 500 West Street, which is located to the South of State Road 13.

Qwest communication proposes to install 2250 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 636 West 1050 North. Fiber cable will be installed along 1050 North Street to 500 West Street. The project will continue south along 500 West Street to the school. The entire distance will be bored.
District Early Learning Center –
555 East Vine Street – Tooele, Utah

The Subject Property is located at 555 East Vine Street – Tooele, Utah. The property is located off of Vine Street, which is located to the east of State Road 36.

Qwest communication proposes to install 3700 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 20 North Garden Street. Fiber cable will be installed along Garden Street to Vine Street. The project will continue east along Vine Street to the school. Two additional hand holes and manhole will be installed during the project.
District Transportation Building –
1675 North 2000 West - Brigham City Utah

The Subject Property is located at 1675 North 2000 West - Brigham City Utah. The property is located off of 2000 West Street, which is located to the east of Interstate 15.

Qwest communication proposes to install 4488 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 1712 West Promontory Road.
Dixie Downs Elementary School –
1795 West 1230 North – St. George, UT

The Subject Property is located at 1795 West 1230 North, St. George, UT. The property is located on 1230 North Street, which is located to the West of State Road 18.

Qwest communication proposes to install 700 feet of cable along the property owned by the Washington School District. The project will tie into an existing manhole located at 1200 North Dixie Downs. Fiber will be installed through the property 600 feet and will connect to the existing school. A handhole will be installed and the building will be connected to the network.
Dual Immersion Academy K-6
1155 South Glendale Drive – Salt Lake City, Utah

The Subject Property is located at 1155 South Glendale Drive – Salt Lake City, Utah. The property is located off of Glendale Drive, which is located to the east of Interstate 215.

Qwest communication proposes to install 6300 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 1302 South 700 West. Fiber cable will be installed along California Ave to Glendale drive. The project will continue north along Glendale drive to the school. An additional hand hole will be installed.
East Elementary School –
135 South 7th Street – Tooele, Utah

The Subject Property is located at 135 South 7th Street – Tooele, Utah. The property is located off of 7th Street, which is located to the east of Main Street (State Road 36).

Qwest communication proposes to install 4100 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 202 South Garden Street. Fiber cable will be installed along Garden Street to 200 South Street. The project will continue east along 200 South Street to the school. Two additional hand holes will be installed during the project.
East Elementary School –
453 South 600 East – St. George, UT

The Subject Property is located at 453 South 600 East, St. George, UT. The property is located off of 600 East Street, which is located to the West of Interstate 15.

Qwest communication proposes to install 1800 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 203 South 700 East. Fiber will be installed along 700 East Street to the existing school. A hand-hole will be installed and the building will be connected to the network.
Elk Meadows Elementary School –
3448 West 9800 South – South Jordan, UT

The Subject Property is located at 3448 West 9800 South, South Jordan, UT. The property is located off of 9800 South Street, which is located to the east of Bangerter Highway.

Qwest communication proposes to install 848 feet of cable along the existing property. The project will tie to an existing manhole on either side of the existing school. Fiber cable has been installed along 9800 South Street. Therefore, the project will only need to tie Elk Meadows Elementary School to the network.
Excelsior Academy –
124 East Erda Way Road – Erda, UT

The Subject Property is located at 124 East Erda Way Road, Erda, UT. The property is located off of Erda Way Road, which is located to the west of State Road 36.

Qwest communication proposes to install 2500 feet of cable along an existing Right of Way. The project will tie to an existing hand-hole located at on State Road 36. Fiber cable will be installed along State Road 36. The project will then continue on Erda Way Road until it ties to the existing school.
Foothill Elementary –
820 North 100 East - Brigham City Utah

The Subject Property located at 820 North 100 East - Brigham City Utah. The property is located off of 100 East Street, which is located to the East of Main Street (State Road 13.)

Qwest communication proposes to install 1531 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 902 North Promontory Road. Fiber cable will be installed along 900 North Street to 100 East Street. The project will continue south to along 100 East to the school.
Freedom Academy K-7 –
1190 West 900 North - Provo Utah

The Subject Property located at 1190 West 900 North – Provo, Utah. The property is located off of 900 North Street, which is located to the East of Interstate 15.

Qwest communication proposes to install 1900 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 1600 West 820 North Street. Fiber cable will be installed along 820 North Street to 1250 West Street. The project will continue east along 900 North Street to the school. Additional hand hole will be installed to complete the project.
George Washington Academy –
2277 South 3000 East – St. George, UT

The Subject Property is located at 2277 South 3000 East, St. George, UT. The property is located on 3000 East Street which is located to the east of Interstate 15.

Qwest communication proposes to install 4412 feet of cable along an existing Right of Way. The project will tie into an existing manhole located at 3051 East 1580 South. Fiber will be installed along 3000 East Street and will connect to the existing school. A hand-hole will be installed and the building will be connected to the network.
Gramercy Elementary –
1270 Gramercy Ave, Ogden, UT

The Subject Property located at 1270 Gramercy Ave, Ogden, UT. The property is located off of Gramercy Ave., which is located to the west of Highway 89.

Qwest communication proposes to install 3300 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 1199 Gramercy Ave. Fiber cable will be installed along Gramercy Ave. Additional hand-holes will be installed along the Street. The school will then be tied to the network.
Guadalupe Schools K-3 –
340 South Goshen Street – Salt Lake City, Utah

The Subject Property is located at 340 South Goshen Street – Salt Lake City, Utah. The property is located off of Goshen Street, which is located to the west of Interstate 15.

Qwest communication proposes to install 450 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 1045 West 300 South. Fiber cable will be installed 450 feet south along Goshen Street. An additional hand hole will be installed during the construction.
Hawthorn Academy –
9062 South 2200 West – West Jordan, Utah

The Subject Property is located at 9062 South 2200 West – West Jordan, Utah. The property is located on the corner off of 2200 West Street, which is located west of Interstate 15.

Qwest communication proposes to install 150 feet of cable. The project will tie into an existing manhole located on at 9098 South 2200 West. The project will then run north along 2200 West to the new location of a new hand-hole.
Hayden Peak Elementary –  
5120 West Hayden Peak Dr. (7995 South) – West Jordan, Utah

The Subject Property is located at 5120 West Hayden Peak Dr. (7995 South) – West Jordan, Utah. The property is located off of Hayden Peak Dr., which is located north of State Road 48.

Qwest communication proposes to install 100 feet of cable.
Heritage Elementary School –
747 East Riverside Dr. – St. George, UT

The Subject Property is located at 747 East Riverside Dr., St. George, UT. The property is located on Riverside Dr., which is located to the east of Interstate 15.

Qwest communication proposes to install 3800 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 901 East 300 South Street. Fiber cable will be installed west along 300 South Street to the intersection of 300 South and 700 East Street. The project will continue south of 700 East Street to the intersection of 700 East and Riverside Drive. Fiber cable will then be installed east along Riverside Dr. to the existing school. A new hand hole will be installed at this location.
Herriman Elementary –
13170 South 6000 West – Herriman, Utah

The Subject Property is located at 13170 South 6000 West – Herriman, Utah. The property is located off of 6000 West Street, which is located to the West of State Road 71.

Qwest communication proposes to install 1690 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 6036 West 13100 South Street. Fiber cable will be installed west along 13100 South to the intersection of 13100 South and 6200 West Street. The project will continue south along 6200 West to the school. An additional hand-hole will be installed at this location.
The Subject Property is located at 5400 West Civic Center Dr. – Highland, Utah. The property is located off of Civic Center Drive, which is located to the South of State Road 92.

Qwest communication proposes to install 3000 feet of cable along existing Right of Way. The project will tie into an existing hand-hole located at 5555 West Highland Highway. Fiber cable will be installed east along Highland Highway, then south to Civic Center Drive. The project will tie into the library.
Hillcrest Elementary –
130 North Eccles Ave., Ogden, UT

The Subject Property located at 130 North Eccles Ave., Ogden, UT. The property is located off of Eccles Ave., which is located to the East of Highway 89.

Qwest communication proposes to install 5808 feet (1.1 miles) of cable along existing Right of Way. The project will tie into an existing manhole located on at 915 East 700 South Street. The path of construction will be along 600 South, Gramercy Ave, 200 South, and Eccles Ave. for a total of 1.1 miles. Three new hand holes will be installed. The school will then be tied to the network.
Horace Mann Elementary –
1300 East 9th Street, Ogden, UT

The Subject Property located at 1300 East 9th Street, Ogden, UT. The property is located off of 9th Street, which is located to the East of Highway 89.

Qwest communication proposes to install 2100 feet of cable along existing Right of Way. The project will tie into an existing manhole located on at 704 South Harrison Blvd. The project will be installing fiber cable along Harrison Blvd and 9th Street. Two new hand holes will be installed. The school will then be tied to the network.
Horizon Elementary –
1970 South Arabian Way – Washington, Utah

The Subject Property is located at 1970 South Arabian Way – Washington, Utah. The property is located off Arabian Way. The project is located east of Interstate 15.

Qwest communication proposes to install 2500 feet of cable. The project will tie into an existing manhole located on at 2146 South Washington Fields Road. The project will install 2500 feet of fiber cable along Silver Falls Drive and Arabian Way. A new hand hole will be installed at the final location next to the existing school.
Hurricane Library –
36 South 300 West – Hurricane, Utah

The Subject Property is located at 36 South 300 West – Hurricane, Utah. The property is located off 300 West Street. The project is located south of State Road 9.

Qwest communication proposes to install 750 feet of cable. The project will tie into an existing hand hole located on 300 West Street. The project will install 750 feet of fiber cable along 300 West Street. A new hand hole will be installed at the final location next to the existing school.
Hyrum Library –
50 West Main – Hyrum, UT

The Subject Property is located at 50 West Main, Hyrum, UT. The property is located off of Main Street which is State Road 101.

Qwest communication proposes to install 1535 feet of fiber cable. The project will tie into existing improvements. Fiber will be installed along Right of Way and existing easements. Hand-holes will be installed and the building will be connected to the network.
James Madison Elementary –
2563 Monroe Blvd, Ogden, UT

The Subject Property located at 2563 Monroe Blvd, Ogden, UT. The property is located off of Monroe Blvd, which is located to the east of Highway 89.

Qwest communication proposes to install 400 feet of cable along existing Right of Way. The project will tie into an existing manhole located on at 797 East 26th Street. Fiber cable will be installed along Monroe Blvd. A new hand-hole will be installed at the school location. The school will then be tied to the network.
John Hancock School K-8 –
125 North 100 East – Pleasant Grove, Utah

The Subject Property is located at 125 North 100 East – Pleasant Grove, Utah. The property is located off of 100 East Street (State Road 146), which is located to the East of Interstate 15.

Qwest communication proposes to install 100 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 151 North 100 East Street. Fiber cable will be installed along 100 North Street for 100 feet where an additional hand hole will be installed.
Jordan Valley School –
7559 South 1000 East – Midvale, Utah

April 2, 2010

Utah Education Network
Attn: Jeff Egly
101 S Wasatch Dr.
Salt Lake City, UT 84112

RE: Environment Assessment for Jordan Valley Elementary

Jeff,

Upon completion of Qwest’s engineering design phase for Jordan Valley Elementary, it has been determined that sufficient conduit exists to provide fiber optic connectivity to this location. Therefore, there will be no ground disturbance in the delivery of broadband connectivity to this location.

Sincerely,

Joni Robertson
Qwest Global Account Manager
Jordan Hills Elementary –
8892 South 4800 West – West Jordan, Utah

The Subject Property is located at 8892 South 4800 West – West Jordan, Utah. The property is located on 4800 West Street which is north of State Road 154.

Qwest communication proposes to install 4594 feet of cable. The project will tie into an existing manhole located at 4821 West New Bingham Highway. Fiber cable will then be installed south along 4800 West to the location of the existing school. Three hand holes will be installed along the construction path.
Davis County Library –
44 North Main Street – Kaysville, UT

The Subject Property is located at 44 North Main Street Kaysville, UT. The property is located on the corner of Highway 126 and Center Street. The site is located east of Interstate 15.

Qwest communication proposes two options for installation on the proposed project. Option A will be to install 300 feet of cable along Highway 126. Option B will be to install 590 feet of cable along Center Street and north along an existing property line. Both projects will tie into an existing manhole located at 200 South Center Street. Option A limits the quantity of cable; however, it is installed along a Highway. Both options will work.
Lakeview Elementary –
851 South 200 West - Brigham City Utah

The Subject Property located at 851 South 200 West - Brigham City Utah. The property is located off of 200 West Street, which is located to the west of Main Street (State Road 13.) and east of Interstate 15.

Qwest communication proposes to install 1980 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 701 South 100 East. Fiber cable will be installed west along 700 South Street to 200 West Street. The project will continue south along 200 West to the school. An additional hand hole will be installed.
Lakeview Academy –
527 West 400 North – Saratoga Springs, Utah

The Subject Property is located at 527 West 400 North – Saratoga Springs, Utah. The property is located off of 400 North Street, which is located to the west of State Road 68.

Qwest communication proposes to install 3200 feet of cable along existing Right of Way. The project will tie into an existing manhole located on State Road 68. Fiber cable will be installed along 400 North Street for 3200 feet where an additional hand hole will be installed.
LaVerkin Elementary –
51 West Center Street – LaVerkin, Utah

The Subject Property is located at 51 West Center – LaVerkin, Utah. The property is located off of Center Street, which is located east of State Road 9.

Qwest communication proposes to install 500 feet of cable. The project will tie into an existing manhole located on at 16 South 100 West. The project will install 500 feet of fiber cable along Center Street. A new hand hole will be installed at the final location next to the existing school.
Lehi City Public Library –
120 North Center Street - Lehi Utah

The Subject Property located at 120 North Center Street – Lehi, Utah. The property is located off of Center Street, which is located to the west of Interstate 15.

Qwest communication proposes to install 984 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 161 North 100 West. Fiber cable will be installed along 100 West, 200 North, and Center Street. Two additional handholes will be installed to complete the project.
Liberty Academy K-12 –
1195 South Elk Ridge Drive – Salem, Utah

The Subject Property located at 1195 South Elk Ridge Drive – Salem, Utah. The property is located off of Elk Ridge Drive, which is located to the South of State Road 198.

Qwest communication proposes to install 10,032 feet (1.9 miles) of cable along existing Right of Way. The project will tie into existing utilities located on 1000 East Street. Fiber cable will be installed along 1000 East Street, 10300 South Street, and 1600 West Street (Elk Ridge Drive). Additional hand holes will be installed to complete the project.
Lincoln Academy K-9 –  
1582 West 3300 North – Pleasant Grove, Utah

The Subject Property is located at 1582 West 3300 North – Pleasant Grove, Utah. The property is located off of 3200 North Street or 1100 North Street, which is located to the East of State Road 74.

Qwest communication proposes to install 4250 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 1314 North 900 East Street. Fiber cable will be installed along 900 East Street and 1100 North Street. Three additional hand holes will be installed.
Lincoln Elementary –
1235 North Canfield, Ogden, UT

The Subject Property located at 1235 North Canfield Drive, Ogden, UT. The property is located on the corner of Lockwood Dr. and Canfield Dr., which is located to the East of Highway 89.

Qwest communication proposes to install 1600 feet of cable along existing Right of Way. The project will tie into an existing manhole located on at 1320 North Washington Blvd. Fiber cable will be installed along Washington Blvd and Lockwood Dr. A new hand-hole will be installed at the final location on Lockwood Dr.
Logan Library –
255 North Main – Logan, UT 84321

The Subject Property is located at 255 North Main, Logan, UT. The property is located off of Main Street, which is Highway 89.

Qwest communication proposes to install 500 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 2 West 300 North. Fiber cable will be installed along Main Street (Highway 89). An additional hand hole will be installed and the building will be connected to the network.
Midas Creek Elementary –
11901 South Park Haven Lane (4510 West) – Riverton, Utah

The Subject Property is located at 11901 South Park Haven Lane (4510 West) – Riverton City, Utah. The property is located off of Park Haven Lane, which is located to the west of State Road 154.

Qwest communication proposes to install 1,954 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 4441 West 11000 South. Fiber cable will be installed along 11000 South and Park Haven Lane.
Monte Vista Elementary –  
11121 South 2700 West – South Jordan, UT

The Subject Property is located at 11121 South 2700 West, South Jordan, UT. The property is located off of 2700 West Street, which is located to the east of Bangerter Highway.

Qwest communication proposes to install 90 feet of cable along 2700 West Street and the existing property. The project will tie to an existing manhole.
Morgan County Library –
50 North 100 West – Morgan, Utah

The Subject Property is located at 50 North 100 West – Morgan, Utah. The property is located off of 100 West Street, which is located west of Highway 89.

Qwest communication proposes to install 1400 feet of cable. The project will tie into an existing manhole located on at 55 North 200 East. The project will install 1400 feet of fiber cable along 100 West Street. The property is located in the middle of Morgan, UT. Construction will take place along existing Right of Way reducing the amount of impacted on the city.
Mountain Shadows Elementary –
5255 West 7000 South – West Jordan, Utah

The Subject Property is located at 5255 West 7000 South – West Jordan, Utah. The property is located on 7000 South Street, which is north of State Road 48 (Bingham Highway.)

Qwest communication proposes to install 3100 feet of fiber cable. The project will tie into an existing manhole located on at 7031 South 4800 West. Fiber cable will be installed in existing Right of Way on 7000 South Street. Mountain Shadows Elementary is located in the middle of a residential area. The Right of Way have been developed. Therefore, the impact on the surrounding areas will be minimal.
Mountain View Elementary –
650 East 700 South - Brigham City Utah

The Subject Property located at 650 East 700 South - Brigham City Utah. The property is located off of 700 South Street, which is located to the north of Highway 89.

Qwest communication proposes to install 2125 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 701 South 100 East. Fiber cable will be installed along 700 South Street. The project will install an additional hand hole.
Mt. Green Elementary –  
6064 North Silver Leaf Dr – Mt. Green, Utah

The Subject Property is located at 6064 North Silver Leaf Dr. – Mt. Green, Utah. The property is located off of Silver Leaf Dr., which is located east of Highway 84.

Qwest communication proposes to install 9000 feet of cable. The project will tie into an existing manhole located on at 4080 West Old Highway Road. The project will install 9000 feet of fiber cable along Old Highway Road and Silver Leaf Dr.. The property is located in the Mt. Green, UT. Construction will take place along existing Right of Way reducing the amount of impacted on the city.
New Harmony Library –
34 South 2900 East – New Harmony, Utah

The Subject Property is located at 34 South 2900 East, New Harmony, Utah. The property is located off of 2900 East Street, which is located west of US Interstate 15.

Qwest communication proposes to install 8500 feet of fiber optic cable along Highway 144. The property is located in the community of New Harmony, UT. The construction will take place along existing Right of Way reducing the amount of impact on the city and environment.
Nibley Elementary School –  
3200 South 925 West – South Salt Lake, UT

The Subject Property is located at 3200 South 925 West, Nibley, UT. The property is located off of 3200 South Street, which located to the east of Highway 89.

Qwest communication proposes to install 5280 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 3196 South U.S. Highway 165. Fiber cable will be installed along 3200 South Street. Two additional hand holes will be installed and the building will be connected to the network.
North Lake Elementary School –
268 North Coleman – Tooele, Utah

The Subject Property is located at 268 North Coleman Street, Tooele, Utah. The property is located off of Coleman Street, which is located to the north of State Road 112.

Qwest communication proposes to install 4300 feet of cable along existing Right of Way. The project will tie into an existing manhole located at the intersection of Utah Ave. and 50 West Street. Fiber cable will be installed along Utah Ave (State Road 112). Additional hand holes will be installed during the project. A manhole will be installed at 325 West Utah Ave.
Ogden Preparatory Academy K-4 – 
2221 Grant Avenue, Ogden, UT

The Subject Property located at 2221 Grant Avenue, Ogden, UT. The property is located off of Grant Ave., which is located to the east of Interstate 15.

Qwest communication proposes to install 500 feet of cable along existing Right of Way. The project will tie into an existing manhole located on at 311 South 22nd Street. Fiber cable will be installed along 22nd Street and Grant Avenue. A new handhole will be installed at the school.
Open Classroom K-8 –  
134 North D Street – Salt Lake City, Utah

The Subject Property is located at 134 North D Street – Salt Lake City, Utah. The property is located off of D Street, which is located to the east of Interstate 15.

Qwest communication proposes to install 1100 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 475 East South Temple. Fiber cable will be installed 1100 feet east along D Street to an existing manhole at 121 North D Street.
Oquirrh Elementary –
7165 South Paddington Road – West Jordan, Utah

The Subject Property is located at 7165 South Paddington Road – West Jordan, Utah. The property is located off of Paddington Road, which is located to the east of Bangerter Highway.

Qwest communication proposes to install 4700 feet of cable. The project will tie into an existing manhole located at 7034 South 2700 West.
Park City Library –
1255 Park Ave. – Park City, Utah

The Subject Property is located at 1255 Park Ave. – Park City, Utah. The property is located off of Park Ave., which is located to the west of State Road 224.

Qwest communication proposes to install 730 feet of cable. The project will tie into an existing manhole located at 1300 North Park Ave. Construction will take place along the Right of Way of Norfolk Ave. A hand-hole will be installed during this portion of the project.
Pleasant Grove Library –
30 East Center Street – Pleasant Grove, Utah

The Subject Property is located at 30 East Center Street – Pleasant Grove, Utah. The property is located off of Center Street, which is located to the north of Highway 89.

Qwest communication proposes to install 500 feet of cable along existing Right of Way. The project will tie into an existing manhole located at the corner of 100 East and Center Street. Fiber cable will be installed along Center Street for 500 feet where an additional hand hole will be installed.
Polk Elementary –
2615 Polk Ave., Ogden, UT

The Subject Property located at 2615 Polk Ave., Ogden, UT. The property is located off of Polk Ave., which is located to the east of State Road 203.

Qwest communication proposes to install 750 feet of cable along existing Right of Way. The project will tie into an existing manhole located on at 1323 East 26th Street. Fiber cable will be installed along 26th Street and Polk Ave. A new hand-hole will be installed at the location of the existing school.
Oquirrh Mountain Charter School –
1425 South Angel Street – Kaysville, UT

The Subject Property is located at 1425 S Angel Street, Kaysville, UT. The property is located on the corner of Angel Street and Western Drive. The site is located west of Interstate 15.

Qwest communication proposes to install 2700 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 1378 South Sunset Drive. Fiber cable will be installed along Sunset Drive and Western Drive. Two additional hand holes will be installed.
Quest Academy K-9 –
4812 West 4000 South, West Haven, UT

The Subject Property located at 4812 West 4000 South, West Haven, UT. The property is located off of 4000 South Street, which is located to the west of Interstate 15.

Qwest communication proposes to install 5810 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 4034 West 4000 South. Fiber cable will be installed along 4000 South. Two additional hand holes will be installed at the location of the existing school.
Red Mountain Elementary –
263 East 200 South – Ivins, Utah

The Subject Property is located at 263 East 200 South, Ivins, UT. The property is located off of 200 South Street, which is located to the east of Old Highway 91.

Qwest communication proposes to install 2000 feet of fiber cable. The project will tie into an existing manhole located at 195 West Center Street. Fiber will be installed along the Right of Way of 200 East Street and 200 South Street.
Richfield Public Library –
83 East Center Street, Richfield, UT

The Subject Property located at 83 East Center Street, Richfield, UT. The property is located off of Center Street, which is located to the east of Interstate 70.

Qwest communication proposes to install 500 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 102 East 100 North. Fiber cable will be installed along 100 East Street. An additional hand hole will be installed at the location of the existing library.
Riverside Elementary –  
8737 South 1220 West – West Jordan, Utah

The Subject Property is located at 8737 S 1220 West – West Jordan, Utah. The property is located off of 1220 West Street, which is located to the west of Interstate 15.

Qwest communication proposes two options for the proposed project. Option A will be to install 1584 feet of cable along 8830 South and 1220 West. Option B will be to install 3200 feet of cable along 8830 South, 1240 West, Capernaum Road, 1175 West, and 8750 South. The project will tie into an existing manhole located at 8821 South 1300 West. Additional hand holes will be installed during the project.
Riverside Elementary –
550 West Merrill Road – Washington, Utah

The Subject Property is located at 550 West Merrill Road (2500 South) – Washington, Utah. The property is located on the corner of 2500 South Street and Harvest Lane. The project is located to the east of Interstate 15.

Qwest communication proposes to install 1000 feet of cable. The project will tie into an existing hand hole located at 640 East Sandia Road. The project will install fiber cable along 2500 South Street. A new hand hole will be installed at the school location.
Rose Creek Elementary –
12812 South 3600 West – Riverton, Utah

The Subject Property is located at 12812 South 3600 West – Riverton City, Utah. The property is located off of 3600 West Street, which is located to the east of State Road 154 (Bangerter Highway).

Qwest communication proposes to install 504 feet of fiber cable. The project will tie into an existing manhole located at 12838 South 3600 West. Fiber cable will be installed along 3600 West Street then installed into the property. An additional hand hole will be installed.
Rose Springs Elementary School –
5349 North Insbrook Place – Stansbury Park, Utah

The Subject Property is located at 5349 North Insbrook Place, Stansbury Park, Utah. The property is located off of Insbrook Place, which is located to the east of State Road 36.

Qwest communication proposes to install 1800 feet of cable along existing Right of Way. The project will tie into an existing manhole located at the intersection of Highway 36 and Bates Canyon Road. Fiber cable will be installed along Bates Canyon Road, Winchester Drive, and Insbrook Place. Additional hand holes will be installed during the project.
April 2, 2010

Utah Education Network
Attn: Jeff Egly
101 S Wasatch Dr.
Salt Lake City, UT 84112

RE: Salt Lake Center for Science Education
1440 West Goodwin Ave
Salt Lake City, UT

Dear Mr. Egly,

I am replying to your request for information regarding how broadband services were delivered to Salt Lake Center for Science Education. The broadband services delivered to the campus of Salt Lake Center for Science Education were delivered over Qwest’s existing fiber network that was in place prior to the submission of UEN’s NTIA BTOP Round One grant. No costs will be charged to the University of Utah/Utah Education Network that were incurred prior to August 14th, 2009 the date of the University of Utah/Utah Education Network NTIA BTOP Round One application.

Sincerely,

Joni Robertson, Qwest Global Account Manager
Sandstone Elementary School –
850 North 2450 East – St. George, UT

The Subject Property is located at 850 North 2450 East, St. George, UT. The property is located on 2450 East Street which is located to the east of Interstate 15.

Qwest communication proposes to install 1700 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 2373 East Red Cliffs Drive. Fiber cable will be installed along Red Cliffs Drive and 2450 East Street. A hand hole will be installed and the building will be connected to the network.
Santa Clara Elementary –
2950 West Crestview Dr. – Santa Clara, Utah

The Subject Property is located at 2950 West Crestview Dr., Santa Clara, UT. The property is located off of Crestview Drive.

Qwest communication proposes to install 3500 feet of fiber cable. The project will tie into an existing manhole located at 2803 West Santa Clara Drive. Fiber will be installed along the Right of Way of Santa Clara view and Crestview Drive.
Smithfield Elementary School –
200 North 800 West – Smithfield, UT

The Subject Property is located at 200 North 800 West Smithfield, UT. The property is located off of 800 West Street, which is located west of Highway 91.

Qwest communication proposes to install 6460 feet of cable along existing Right of Way. The project will tie into existing utilities. Fiber cable will be installed along 100 North Street and 800 West Street. The project will be bored 6460 feet. The majority of the project will be placed on a State Highway and under a Railroad crossing.
Sunset Elementary School –
495 North Westridge Drive – St. George, UT

The Subject Property is located at 495 North Westridge Drive, St. George, UT. The property is located on Westridge Drive, which is located to the west of State Road 18.

Qwest communication proposes to install 3200 feet of fiber cable along existing Right of Way. The project will tie into an existing hand hole located at 458 North Dixie Drive. Fiber cable will be installed along 540 North Street and Westridge Drive. A hand hole will be installed and the building will be connected to the network.
Syracuse Arts Academy K–6
2893 West 1700 South (Antelope Drive) – Syracuse, UT

The Subject Property is located at 2893 West 1700 South (Antelope Drive) Syracuse, UT. The property is located on Antelope Drive. The site is located on State Road 108.

Qwest communication proposes to install 175 feet of fiber cable along the Right of Way of Antelope Drive. The project will tie into an existing manhole located at 2807 West Antelope Drive. At this point a hand hole will be installed and the building will be connected to the network.
Davis County Library –
1875 South 2000 West – Syracuse, UT

The Subject Property is located at 1875 South 2000 West Syracuse, UT. The property is located on the corner of 2000 West and 1900 South Street. The site is located south of State Road 108 and West of Interstate 15.

Qwest communication proposes to install 300 feet of cable along the west Right of Way line of 2000 West Street. The project will tie into an existing manhole located at 2036 South 2000 West Street. Fiber will be installed along the Right of Way to a point 300 feet south of the existing manhole. At this point a hand hole will be installed and the building will be connected to the network.
Terra Linda Elementary –  
8400 South 3400 West – West Jordan, Utah

The Subject Property is located at 8400 South 3400 West – West Jordan, Utah. The property is located off of 3400 West, which is located to the east of Bangerter Highway.

Qwest communication proposes to install 3,960 feet of fiber cable. The project will tie into an existing manhole. Additional hand holes will be installed during the project.
Thomas O. Smith Elementary –
3295 Gramercy Ave, Ogden, UT

The Subject Property located at 3295 Gramercy Ave., Ogden, UT. The property is located off of Gramercy Ave., which is located to the East of Highway 89.

Qwest communication proposes to install 3000 feet of cable along existing Right of Way. The project will tie into an existing manhole located on at 3204 Gramercy Ave. Fiber cable will be installed along 32nd Street. A new hand-hole will be installed at the corner of 32nd Street and Madison Ave. The project will continue on 32nd Street and Monroe Blvd, where an additional hand-hole will be installed. The school will then be tied to the network.
Three Mile Creek Elementary –  
2625 South 1050 West – Perry, Utah

The Subject Property located at 2625 South 1050 West – Perry, Utah. The property is located off of 1050 West Street, which is located to the South of Brigham City and east of Interstate 15.

Qwest communication proposes to install 3920 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 2671 South Highway 89. Fiber cable will be installed along Highway 89, 2700 South Street, and 1200 West Street. An additional hand hole will be installed.
Tooele City Library –
128 West Vine Street – Tooele, Utah

The Subject Property is located at 128 West Vine Street, Tooele, Utah. The property is located off of Vine Street, which is located to the west of State Road 36.

Qwest communication proposes to install 250 feet of cable along existing Right of Way. The project will tie into an existing manhole located at the intersection of Vine Street and 150 West Street. Fiber cable will be installed along 150 West Street. An additional hand hole will be installed during the project.
Tooele County Library Book Rep. –
429 East Main – Grantsville, Utah

The Subject Property is located at 429 East Main, Grantsville, Utah. The property is located off of Main Street, which is State Road 138.

Qwest communication proposes to install 300 feet of cable along existing Right of Way. The project will tie into an existing manhole located at 403 East Main Street. Fiber cable will be installed along Main Street. An additional hand hole will be installed during the project.
The Subject Property is located at 4956 West 6200 South – Kearns, Utah. The property is located off of 6200 South Street, which is located to the west of Interstate 215.

Qwest communication proposes to install 875 feet of fiber cable. The project will tie into an existing manhole located at 4829 West 6200 South. Construction will take place along the Right of Way of 6200 South Street.
Wasatch County Library –
465 East 1200 South – Heber, Utah

The Subject Property is located at 465 East 1200 South Street, Heber, Utah. The property is located off of 1200 South Street, which is located to the east of Highway 189.

Qwest communication proposes to install 2852 feet of cable along existing Right of Way. The project will tie into an existing manhole located at the intersection of Highway 189 and 1200 South Street. Fiber cable will be installed along 1200 South Street. Additional hand holes will be installed during the project.
Wasatch Elementary School – 3370 Polk Ave., Ogden, UT

The Subject Property located at 3370 Polk Ave., Ogden, UT. The property is located off of Polk Ave., which is located to the east of State Road 203.

Qwest communication proposes to install 2215 feet of cable along existing Right of Way. The project will tie into an existing hand hole located on at 1236 East 35th Street. Fiber cable will be installed along 35th Street and Polk Avenue. Additional hand holes will be installed throughout the project.
Wasatch Peak Academy K-6
414 North Cutler Drive – North Salt Lake City, Utah

The Subject Property is located at 414 North Cutler Drive – North Salt Lake City, Utah. The property is located off of Cutler Drive, which is located to the west of Interstate 15.

Qwest communication proposes to install 3800 feet of cable along existing Right of Way. The project will tie into an existing manhole located at the corner of Center Street and Redwood Road. Fiber cable will be installed along Center Street and Redwood Road. An additional hand hole will be installed by the existing school.
Washington Elementary –  
300 North 300 East – Washington, Utah

The Subject Property is located at 300 North 300 East – Washington, Utah. The property is located off 300 East Street. The project is located to the east of Interstate 15.

Qwest communication proposes to install 3000 feet of cable. The project will tie into an existing manhole located at 202 East Telegraph Street. The project will install fiber cable along Telegraph Street and 300 East Street.
Washington Library –
220 North 300 East – Washington, Utah

The Subject Property is located at 220 North 300 East – Washington, Utah. The property is located off 300 East Street. The project is located to the east of Interstate 15.

Qwest communication proposes to install 2500 feet of cable. The project will tie into an existing manhole located at 202 East Telegraph Street. The project will install fiber cable along Telegraph Street and 300 East Street.
Welby Elementary –  
4130 West 9580 South – South Jordan, UT 

The Subject Property is located at 4130 West 9580 South, South Jordan, UT. The property is located off of 9580 South Street, which is located to the west of Bangerter Highway.

Qwest communication proposes to install 900 feet of cable along 4000 West and 9580 South Street. The project will tie to an existing manhole located at 9602 South 4000 West Street.
West Elementary School –
415 West 300 South – Tooele, Utah

The Subject Property is located at 451 West 300 South, Tooele, Utah. The property is located off of 400 West Street, which is located to the west of State Road 36.

Qwest communication proposes to install 4300 feet of cable along existing Right of Way. The project will tie into an existing hand hole located at 303 West Vine Street. Fiber cable will be installed along Vine Street, Coleman Street, 200 South Street, and 500 West Street. Three additional hand holes will be installed during the project.
West Jordan Elementary –
7220 South 2370 West – West Jordan, Utah

The Subject Property is located at 7220 South 2370 West – West Jordan, Utah. The property is located off of 2370 West Street, which is located to the east of Bangerter Highway.

Qwest communication proposes to install 2950 feet of fiber cable. The project will tie into an existing manhole located at 7352 South 2700 West. Fiber cable will be installed along 7325 South, 2370 West, and 2420 South Street. Three additional hand holes will be installed during the project.
Westland Elementary –
2925 West 7180 South – West Jordan, Utah

The Subject Property is located at 2925 West 7180 South – West Jordan, Utah. The property is located off of 7180 South Street, which is located to the east of Bangerter Highway.

Qwest communication proposes to install 2640 feet of fiber cable. The project will tie into an existing manhole located at 7352 South 2700 West. Fiber cable will be installed along 2700 West and 7180 South Street. Two additional hand holes will be installed during the project.
Westvale Elementary –
2300 West 8660 South – West Jordan, Utah

The Subject Property is located at 2300 West 8660 South – West Jordan, Utah. The property is located on the corner of 8660 South and 2200 West Street, which is located to the east of Bangerter Highway.

Qwest communication proposes to install 2100 feet of fiber cable. The project will tie into an existing manhole located at 8211 South 2200 West. Fiber cable will be installed along 2200West Street. An additional hand hole will be installed during the project.
Willard Elementary  –  
40 West 50 South – Willard, Utah

The Subject Property is located at 40 West 50 South – Willard, Utah. The property is located off of 50 South Street, which is located to the west of Highway 89.

Qwest communication proposes to install 2050 feet of fiber cable. The project will tie into an existing manhole located at 315 South Main Street (Highway 89). Fiber cable will be installed along Main Street. An additional hand hole will be installed during the project. The project will be bored the entire length.
Centro De Familia – Head Start Admin. –
3780 South West Temple – Salt Lake City, Utah

April 2, 2010

Utah Education Network
Attn: Jeff Egly
101 S Wasatch Dr.
Salt Lake City, UT 84112

RE: Centro de Familia
3780 South West Temple
Salt Lake City, UT 84115

Dear Mr. Egly,

I am replying to your request for information regarding how broadband services were delivered to the Centro de la Familia Head Start Administration Office.

The broadband services were delivered to the Head Start Administration Office over Qwest’s existing copper network that was in place prior to the submission of UEN’s NTIA BTOP Round One grant. No costs will be charged to the University of Utah/Utah Education Network that were incurred prior to August 14th, 2009 the date of the University of Utah/Utah Education Network NTIA BTOP Round One application.

Sincerely,

Joni Robertson
Qwest Global Account Manager
Ogden Weber Community Action Partnership Head Start – 3159 Grant Ave. – Ogden, Utah

April 2, 2010

Utah Education Network
Attn: Jeff Egly
101 S Wasatch Dr.
Salt Lake City, UT 84112

RE: Ogden Weber Community Action Partnership Headstart
3159 Grant Ave
Ogden, UT 84401

Dear Mr. Egly,

I am replying to your request for information regarding how broadband services were delivered to the Ogden Weber Community Action Partnership Head Start Administration Office.

The broadband services were delivered to the Head Start Administration Office over Qwest’s existing copper network that was in place prior to the submission of UEN’s NTIA BTOP Round One grant. No costs will be charged to the University of Utah/Utah Education Network that were incurred prior to August 14th, 2009 the date of the University of Utah/Utah Education Network NTIA BTOP Round One application.

Sincerely,

Joni Robertson
Qwest Global Account Manager
Salt Lake Community Action Partnership Head Start –
1307 South 900 West – Salt Lake City, Utah

April 2, 2010

Utah Education Network
Attn: Jeff Egly
101 S Wasatch Dr.
Salt Lake City, UT 84112

RE: Salt Lake Community Action Partnership Head Start
    1307 S 900 W
    Salt Lake City, UT 84104

Dear Mr. Egly,

I am replying to your request for information regarding how broadband services were delivered to the Salt Lake Community Action Partnership Head Start Administration Office.

The broadband services were delivered to the Head Start Administration Office over Qwest’s existing copper network that was in place prior to the submission of UEN’s NTIA BTOP Round One grant. No costs will be charged to the University of Utah/Utah Education Network that were incurred prior to August 14th, 2009 the date of the University of Utah/Utah Education Network NTIA BTOP Round One application.

Sincerely,

Joni Robertson
Qwest Global Account Manager
Willow Elementary School –
439 South Willow Street – Grantsville, Utah

April 2, 2010

Utah Education Network
Attn: Jeff Egly
101 S Wasatch Dr.
Salt Lake City, UT 84112

RE: Willow Elementary
439 S Willow St.
Grantsville, UT 84029

Dear Mr. Egly,

I am replying to your request for information regarding how broadband services were delivered to Willow Elementary School.

The broadband services were delivered to Willow Elementary school were delivered over Qwest’s existing fiber network that was in place prior to the submission of UEN’s NTIA BTOP Round One grant. No costs will be charged to the University of Utah/Utah Education Network that were incurred prior to August 14th, 2009 the date of the University of Utah/Utah Education Network NTIA BTOP Round One application.

Sincerely,

Joni Robertson
Qwest Global Account Manager
List of Sites – Area of Construction/Utopia

Area of Construction Map

April 6, 2010

Description of UEN Gig Connections Via UTOPIA

TO:

Utah Education Networks

UTOPIA has several installation modalities to meet the requirements of the nine locations included in the Round One STOP locations. All of the Round One locations require less than 200 feet of new underground construction, as further explained in the narrative, to tap into existing fiber paths that have been constructed over the past seven years.

Layton Library – 155 North Wasatch, Layton requires approximately 2,733 feet of aerial construction on existing Rocky Mountain Power poles beginning at 240 Church Street proceeding in a north-northeast direction along the south side Church Street to 400 Church Street, and then turning south-southeast to 154 Hawthorne Drive, and then south crossing Hawthorne Drive to 141 Hawthorne Drive at which point the cable will riser down the utility pole and then be trenched approximately 150 feet east to the west side of 155 North Wasatch.

Payson City Library – 66 S Main, Payson requires approximately 175 feet of underground construction in public utility easement beginning at an existing UTOPIA splice case at 100 S Main proceeding north to 66 S Main and then to the east side of the building at 66 S Main.

Brigham City Library – 26 E Forest, Brigham City requires approximately 100 feet of aerial construction beginning from an existing UTOPIA splice point at 1 South Main proceeding north-northeast to 26 E Forest with an entry on the south side of the building.

Karl Maeser Academy – 532 North State St, Lindon requires approximately 175 feet of new underground construction beginning from an existing UTOPIA splice case at 530 N State proceeding south along the public utility easement along
the east side of State Street and turning east to an entry point on the west side of the building.

Timpanogos Academy – 55 S Titan Trail (100 E), Lindon requires approximately 140 feet of new underground construction from an existing UTOPIA splice case at in the southeast corner of 122 East Center Street proceeding south along the public utility easement along the east side of 100 East and then turning east to the northwest corner of the building.

Utah County Academy of Science – 940 W 800 S, Orem requires approximately 250 feet of new underground construction from an existing UTOPIA splice case at 1062 W 800 S proceeding east along the public utility easement on the north side of 800 S and then turning north-northeast to an entry point on the southwest corner of the building.

The broadband services to be delivered to the Murray Public Library, 166 E 5300 S, Murray, and the Noah Webster Academy, 205 E 400 S, Orem, will be delivered over existing fiber UTOPIA fiber cables that were in place prior to the submission of UEN’s NTIA BTOP Round One grant. Costs identified for these locations are for upgrading the electronics from 100MB to GigE devices. The broadband services to be delivered to the Orem Public Library, 58 N State Street, Orem, will be extended from an existing UTOPIA fiber cable in the adjoining Orem City Hall utilizing existing building conduits. No costs will be charged to the University of Utah/Utah Education Network that were incurred prior to August 14th, 2009 the date of the University of Utah/Utah Education Network NTIA BTOP Round One application.
Karl Maeser Preparatory Academy – 532 North State Street – Lindon, Utah

The Subject Property is located at 532 North State Street – Lindon, Utah. The property is located off of State Street, which is Highway 89.

UTOPIA proposes to install 175 feet of fiber cable. The project will tie into an UTOPIA splice case at 530 North State Street.
Timpanogos Academy K-8
55 South Titan Trail (100 East) – Lindon, Utah

The Subject Property is located at 55 South Titan Trail (100 East) – Lindon, Utah. The property is located off of 100 East, which is located to the east of Highway 89.

UTOPIA proposes to install 140 feet of fiber cable. The project will tie into an UTOPIA splice case at the corner of 122 East Center Street proceeding south along the public utility easement along the east side of 100 East and then turning east to the northwest corner of the building.
Utah Academy of Sciences 10-12
940 West 800 South – Orem, Utah

The Subject Property is located at 940 West 800 South – Orem, Utah. The property is located off of 800 South, which is located to the east of Interstate 15.

UTOPIA proposes to install 250 feet of fiber cable. The project will tie into an UTOPIA splice case at 1062 West 800 South proceeding east along the public utility easement on the north side of 800 South and then turning north-northeast to an entry point on the southwest corner of the building.
Noah Webster Academy K-6
205 East 400 South – Orem, Utah

This site will not have any impact on the existing environment. As stated in the letter above no construction will be performed on the proposed site. The broadband services to be delivered to North Webster Academy, 205 E 400 S, Orem, will be delivered over existing fiber UTOPIA fiber cables that were in place prior to the submission of UEN’s NTIA BTOP Round One grant. Costs identified for the proposed location is for upgrading the electronics from 100 MB to GigE devices.

Brigham City Carnegie Library
26 East Forest – Brigham City, Utah

The Subject Property is located at 26 East Forest Street – Brigham City, Utah. The property is located off of Forest Street, which is located to the east of Interstate 15.

UTOPIA proposes to install 100 feet of aerial construction. The project will tie into an UTOPIA splice point at 1 South Main proceeding north-northeast to 26 East Forest Street with an entry on the south side of the building.
Murray Public Library
166 East 5300 South – Murray, Utah

This site will not have any impact on the existing environment. As stated in the letter above no construction will be performed on the proposed site. The broadband services to be delivered to the Murray Public Library, 166 East 5300 South, Murray will be delivered over existing fiber UTOPIA fiber cables that were in place prior to the submission of UEN’s NTIA BTOP Round One grant. Costs identified for the proposed location is for upgrading the electronics from 100 MB to GigE devices.

Orem Public Library
58 North State Street – Orem, Utah

This site will not have any impact on the existing environment. As stated in the letter above no construction will be performed on the proposed site. The broadband services to be delivered to be delivered to the Orem Public Library, 58 North State Street, Orem, will be extended from an existing UTOPIA fiber cable in the adjoined Orem City Hall utilizing existing building conduits. No costs will be charged to the University of Utah/Utah Education Network that was incurred prior to August 14th, 2009 the date of the University of Utah/Utah Education Network NTIA BTOP Round One application.
Layton Library -
155 North Wasatch Drive – Layton, Utah

The Subject Property is located at 155 North Wasatch Drive – Layton, Utah. The property is located off of Wasatch Drive, which is located to the east of Interstate 15.

UTOPIA proposes to install approximately 2,733 feet of aerial construction on existing Rocky Mountain Power poles beginning at 240 Church Street proceeding in a north-northeast direction along the south side of Church Street to 400 Church Street, and then turning south-southeast to 154 Hawthorne Drive, and then south crossing Hawthorne Drive to 141 Hawthorne Drive at which point the cable will riser down the utility pole and then be trenched approximately 150 feet east to the west side of 155 North Wasatch.
The Subject Property is located at 66 South Main Street – Payson, Utah. The property is located off of Main Street, which is located to the east of Interstate 15.

UTOPIA proposes to install approximately 175 feet of underground construction in public utility easement beginning at an existing UTOPIA splice case at 100 South Main Street proceeding north to 66 South Main and then to the east side of the building at 66 South Main Street.
List of Sites – Area of Construction/South Central Communications

**Area of Construction Map**

**Iron County Bookmobile Repository Library**

4763 North Santa Fe Trail, Enoch, UT

The Subject Property is located at 4763 North Santa Fe Trail – Enoch, Utah. The property is located on the corner of Santa Fe Trail and 4800 North Street, which is located to the West of Interstate 15.
Parowan Public Library -
16 South Main Street, Parowan, UT

The Subject Property is located at 16 South Main Street (State Road 271) – Parowan, Utah. The property is located on Main Street, which is located to the east of Interstate 15.
SUU Head Start
2390 West Hwy. 56, Suite 1 – Cedar City, Utah
4/6/2010

Dear Mr. Eigby,

I am replying to your request for information regarding how the broadband service was delivered to SUU Headstart in Cedar City, Utah.

Broadband service was delivered to the SUU Headstart building west on Hwy #56 in Cedar City, Utah on November 24, 2009 with a new fiber cable that was placed from South Central Communications Switch building on Westview Drive east along Hwy #56 then into the SUU Headstart building. No costs will be charged to the University of Utah/Utah Education Network that were incurred prior to August 34, 2009, the date of the University of Utah/Utah Education Network NEA BTOP Round One application.

Dennis R. Johnson
OSP ENG MGR
South Central Communications
List of Sites – Area of Construction/Centracom/WFN

**Area of Construction Map**

**Salina Public Library**  
**90 West Main Street – Salina, Utah**
Salina City Public Library

Narrative Description

Our existing fiber is on 100 West next to the building with a storage loop. We will splice into the fiber on the west side of the building and run a 12-fiber drop into the east side of the building, (refer to the map). There will be no underground required on this project.

CentraCom Interactive
List of Sites – Area of Construction/Broadweave/Veracity

Area of Construction Map

Mountainland Head Start
264 West 300 North – Provo, Utah

The connection used existing fiber paths created in construction Projects involving Provo City, Utah County, and UVU (UVSC at the Time). These fiber paths were started some time around 2001 and lasted may have continued through 2004. The Detail of this construction is not known at this time. However it is known that all paths through Provo city are overhead construction. Cable is attached to existing poles and no earth was turned. The placement of cable along Geneva Road was also attached to poles and is overhead.

To tap into the existing fiber paths a small degree of construction was done on site at each school location.

The Location on 260 W 300 N, Provo Utah had a NAP at the pole located on the North West corner of this lot. A small 2 of fiber optic cable was placed overhead from that NAP into the network facility area of the School. Two fiber connectors were spliced to Veracity Network gear inside the network room. Two fibers were spliced at the NAP out side on the pole. A short LC fiber patch cord was installed to connect the Veracity Network device to the UEN device. Another fiber patch was made at an area Hut (SDN 4) located at 744 N 300 w, Provo Utah to connect existing fiber paths to the Veracity Backbone fiber. Another fiber patch connection was made at our Aggregation Hut (Power plant Hut) located 744 N 300 W, Provo Utah to a device that already linked to a device at UVU data center. That existing link is two fibers in the Veracity Networks Backbone fiber from the Power plant Hut to another area Hut (SDN 19), where it patches onto two other fibers in a shared Backbone cable between Provo City, Veracity Networks, UVU, and Utah County. That portion of the already existing link between Veracity Networks and UVU shared cable runs along Geneva Road to a splice point at University Parkway and Geneva Road where it is spliced onto existing cable that runs into UVU data center.
The broadband services were delivered March 2010 to the Mountainland Head Start Administration Office over Veracity Network’s existing fiber network that was in place prior to the submission of UEN’s NTIA BTOP Round One grant. No costs will be charged to the University of Utah/Utah Education Network that were incurred prior to August 14th, 2009 the date of the University of Utah/Utah Education Network NTIA BTOP Round One application.
List of Sites – Area of Construction/Emery Tel/WFN

**Area of Construction Map**

**Rural Utah Child Development – Head Start**
**150 A West Main Street – Wellington, Utah**

The Subject Property is located at 150 West Main Street – Wellington City, Utah. The property is located off of Main Street, which is located to the west of Highway 6.
List of Sites – Area of Construction/Strata/WFN

Area of Construction Map

Ute Indian Tribe Head Start Admin.
938 South 500 East – Fort Duchesne, Utah

April 2, 2010

Mr. Jeff Egly
Utah Education Network
101 Wasatch Drive, Room 215
Salt Lake City, Utah 84112

Dear Mr. Egly,

We are replying to NTIA’s request for certain information regarding compliance with environmental requirements related to construction of broadband facilities to the Ute Tribe Headstart Administration Office.

These fiber facilities were installed by Strata Networks more than seven years ago, and therefore construction related to the environmental assessment has been completed and no additional environmental assessment is required. Service was initiated for University of Utah/Utah Education Network (UEN) over these facilities in October of 2009. UEN was not, and will not be, charged any amounts for these facilities prior to the initiation of services.

Sincerely,

Bruce H. Todd
Strata Networks
Chief Executive Officer/GM

211 E 200 N (PO Box 398) Roosevelt, UT 84065
www.stratanetworks.com
List of Sites – Area of Construction/Frontier

Area of Construction Map

Project Construction Narrative

Project Name: Gig-E Network Delta/ Fillmore/ Monticello Libraries

Region: West  Territory: Mountain States  Exchange Names: Delta/ Fillmore/ Monticello

Engineer: Kim Healey  435-257-8125
Darrell Mc Donald  435-257-8136

Estimated Start Date: 06/15/10  Estimated Completion Date: 09/15/10

Project Details

Region: West Territory  
Project Name: Gig-E Network Delta/ Fillmore/ Monticello Libraries

Description of Project:
This project will place Fiber Optic OSP facilities and electronics to provide 100 Mbit of Ethernet connectivity for 3 Library sites in Millard & San Juan Counties, UT.
Delta City Library  Actelis  ML 130
Fillmore City Library  Actelis  ML 130
Monticello City Library  Actelis  ML 130

A total of 800’ feet of BFO-24 fiber will be placed to Delta Library, 650’ feet of BFO-24 fiber will be placed to the Fillmore Library. 520’ feet of BFO-24 fiber will be placed to the Monticello City Library.

Three Central Offices will be equipped with Actelis ML 130 over Fiber
Delta  Actelis  ML 1300
Fillmore  Actelis  ML 130
Monticello  Actelis  ML 130

What drives the need for this project?
The Utah Education Network issued a RFP in 2009, and requested bids for Ethernet connectivity to 3 Libraries in Millard and San Juan Counties. The locations represented by this project are all within the Frontier Sering areas. The CO electronics in the 3 CO’s identified will be equipped for this customer but will have wired capacity for any other customers that request Ethernet services.
This undertaking, along with previous ones, will establish Frontier as the last mile provider for UEN sites in our Delta, Fillmore and Monticello exchanges.

Alternatives Considered:
Copper cable to all sites was considered, however the required bandwidth would have required major copper reinforcements. The fiber placement solution is the alternative of choice.

**Why is this the alternative of choice?**
The fiber solution is the most economical alternative, and delivers the required bandwidth.

**Why is the timeframe relevant?**
Construction will commence as soon as project is approved.

**Delta Library Proposed Project:**
Currently Frontier has an existing Manhole located 150’ feet north of the Delta Library. We will Directional bore from the Manhole to the east side of the Delta Library. Entrance will be made at this point into the library. Fiber will be pulled overhead into the frame room. An additional 420’ ft of BFO-24 fiber will be placed between the Manholes on 200 West to the manhole North of the Delta Library. Construction will be in existing conduit system and under asphalt no environmental impacts should exist.

**Fillmore Library Proposed Project:**
Currently Frontier has an existing Optic Ped located 390’ feet north of the Fillmore Library. We will Directional bore from the Optic Ped to the South side of the Fillmore Library. We will then directional bore from 100 West across the lawn for 100 feet, the directional bore again in the lawn north to the building. Entrance will be made at this point into the library. Fiber will be pulled overhead into the frame room. Construction will be under asphalt on 100 West, then through the lawn into the building. No environmental impacts should exist.

**Monticello Library Proposed Project:**
Currently Frontier has an existing Manhole located 340’ feet east of the Monticello Library. We will Directional bore from the Manhole to the East side of the Monticello Library through the park. Entrance will be made at this point into the library. Fiber will be pulled overhead into the frame room. Construction will be under asphalt on 100 East, then through the lawn into the building. No environmental impacts should exist.
Delta City Library -
76 North 200 West, Delta, UT

The Subject Property is located at 76 North 200 West – Delta, Utah. The property is located on 200 West Street, which is located to the north of Highway 50.
Monticello Library -
80 North Main Street, Monticello, UT

The Subject Property is located at 80 North Main Street – Monticello, Utah. The property is located on Main Street, which is Highway 191.
Fillmore Library -
25 South 100 West, Fillmore, UT

The Subject Property is located at 25 South 100 West – Fillmore, Utah. The property is located on 100 West Street, which is located to the east of Interstate 15.
Appendix B

List of Cities – Topography Maps

**Services:** 2597 People  
**Vicinity Map:** USDA Topography Map of Beaver, UT
Services: 883 Students
Vicinity Map: USDA Topography Map of Bluffdale, Utah
Services: 42,190 People
Vicinity Map: USDA Topography Map of Bountiful, Utah
Services: 18,709 People
Vicinity Map: USDA Topography Map of Brigham City, Utah
Services: 28,667 People
Vicinity Map: USDA Topography Map of Cedar City, Utah
Services: 42,190 People
Vicinity Map: USDA Topography Map of Centerville, Utah
Services: 42,190 People
Vicinity Map: USDA Topography Map of Clearfield, Utah
Services: 201 People
Vicinity Map: USDA Topography Map of Corinne, UT
Services: 5266 People
Vicinity Map: USDA Topography Map of Delta, UT
Services: 573 Students
Vicinity Map: USDA Topography Map of Draper, UT
Services: 39,067 People
Vicinity Map: USDA Topography Map of Erda, Tooele County, UT
Services: 41,190 People
Vicinity Map: USDA Topography Map of Farmington, UT
Services: 2136 People
Vicinity Map: USDA Topography Map of Fillmore, UT
Services: 193 People
Vicinity Map: USDA Topography Map of Fort Duchesne, UT
Services: 606 Students
Vicinity Map: USDA Topography Map of Grantsville, UT
Services: 1095 Students
Vicinity Map: USDA Topography Map of Herriman, UT
Services: 16,189 People
Vicinity Map: USDA Topography Map of Highland, UT
Services: 27,517 People
Vicinity Map: USDA Topography Map of Hurricane, UT
Services: 17,130 People
Vicinity Map: USDA Topography Map of Hyrum, UT
Services: 1245 People
Vicinity Map: USDA Topography Map of Ivins, UT
Services: 42,190 People
Vicinity Map: USDA Topography Map of Kaysville, UT
Services: 9353 Students
Vicinity Map: USDA Topography Map of Kearns, UT
Services: 680 People  
Vicinity Map: USDA Topography Map of LaVerkin, UT
Services: 41,190 People
Vicinity Map: USDA Topography Map of Layton, UT
Services: 46,802 People
Vicinity Map: USDA Topography Map of Lehi, UT
Services: 688 Students
Vicinity Map: USDA Topography Map of Lindon, UT
**Services:** 48,657 People  
**Vicinity Map:** USDA Topography Map of Logan, Utah
Services: 315 Students
Vicinity Map: USDA Topography Map of Midvale, UT
Services: 2018 people
Vicinity Map: USDA Topography Map of Monticello, UT
Services: 9054 people
Vicinity Map: USDA Topography Map of Morgan, UT
Services: 46,201 People
Vicinity Map: USDA Topography Map of Murray, Utah
Services: 27,517 People
Vicinity Map: USDA Topography Map of New Harmony, Utah
Services: 622 People
Vicinity Map: USDA Topography Map of Nibley, UT
Services: 372 Students
Vicinity Map: USDA Topography Map of North Salt Lake, UT
Services: 6,130 People
Vicinity Map: USDA Topography Map of Ogden, Utah
Services: 93,250 people

Vicinity Map: USDA Topography Map of Orem, UT
Services: 7,980 people
Vicinity Map: USDA Topography Map of Park City, UT
Services: 2,624 People
Vicinity Map: USDA Topography Map of Parowan, UT
Services: 17,429 People
Vicinity Map: USDA Topography Map of Payson, UT
Services: 33,798 People
Vicinity Map: USDA Topography Map of Pleasant Grove, UT
Services: 1510 Students
Vicinity Map: USDA Topography Map of Provo, UT
Services: 7217 People
Vicinity Map: USDA Topography Map of Richfield, UT
Services: 1990 Students
Vicinity Map: USDA Topography Map of Riverton, UT
Services: 317 Students
Vicinity Map: USDA Topography Map of Salem, UT
Services: 4179 People
Vicinity Map: USDA Topography Map of Salina, UT
Services: 3448 Students
Vicinity Map: USDA Topography Map of Salt Lake City, Utah
Services: 1245 People
Vicinity Map: USDA Topography Map of Santa Clara, Utah
Services: 759 Students
Vicinity Map: USDA Topography Map of Saratoga Springs
Services: 661 People
Vicinity Map: USDA Topography Map of Smithfield
Services: 1990 Students
Vicinity Map: USDA Topography Map of South Jordan, UT
Services: 4620 Students
Vicinity Map: USDA Topography Map of St. George, Utah
Services: 564 Students
Vicinity Map: USDA Topography Map of Syracuse, UT
Services: 39,067 People
Vicinity Map: USDA Topography Map Tooele, UT
Services: 21,066 people
Vicinity Map: USDA Topography Map of Heber, UT
Services: 27,517 People
Vicinity Map: USDA Topography Map of Washington, UT
Services: 434 People
Vicinity Map: USDA Topography Map of Wellington, UT
Services: 9353 Students
Vicinity Map: USDA Topography Map of West Jordan, UT
Services: 323 People  
Vicinity Map: USDA Topography Map of Willard, UT
### Appendix C

#### Air Quality

Table 1: National Ambient Air Quality Standards

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Primary Standards</th>
<th>Secondary Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level</td>
<td>Averaging Time</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>9 ppm (10 mg/m³)</td>
<td>8-hour [1]</td>
</tr>
<tr>
<td></td>
<td>35 ppm (40 mg/m³)</td>
<td>1-hour [1]</td>
</tr>
<tr>
<td>Lead</td>
<td>0.15 µg/m³ [1]</td>
<td>Rolling 3-Month Average</td>
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<tr>
<td></td>
<td>1.5 µg/m³</td>
<td>Quarterly Average</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>53 ppb [2]</td>
<td>Annual (Arithmetic Average)</td>
</tr>
<tr>
<td></td>
<td>100 ppb</td>
<td>1-hour [2]</td>
</tr>
<tr>
<td>Particulate Matter (PM₁₀)</td>
<td>150 µg/m³</td>
<td>24-hour [3]</td>
</tr>
<tr>
<td>Particulate Matter (PM₂.₅)</td>
<td>15.0 µg/m³</td>
<td>Annual (Arithmetic Average)</td>
</tr>
<tr>
<td></td>
<td>35 µg/m³</td>
<td>24-hour [3]</td>
</tr>
<tr>
<td>Ozone</td>
<td>0.075 ppm (2008 std)</td>
<td>8-hour [8]</td>
</tr>
<tr>
<td></td>
<td>0.08 ppm (1997 std)</td>
<td>8-hour [9]</td>
</tr>
<tr>
<td></td>
<td>0.12 ppm</td>
<td>1-hour [10]</td>
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<tr>
<td>Sulfur Dioxide</td>
<td>0.03 ppm (Arithmetic Average)</td>
<td>0.5 ppm</td>
</tr>
<tr>
<td></td>
<td>0.14 ppm</td>
<td>24-hour [1]</td>
</tr>
</tbody>
</table>
Utah Green House Gas Reduction Goal
Appendix D

Geology and Soils
List of Soils by Project

Bountiful Library (South Davis) – Bountiful, UT
KgB – Kilburn gravelly sandy loam, 1 to 3 percent slopes

Map Unit Setting
Elevation: 4,400 to 5,300 feet
Mean annual precipitation: 14 to 18 inches

Map Unit Composition
Kilburn and similar soils: 100 percent

Description of St. Kilburn
Setting
Landform: Alluvial fans
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Lacustine deposits

Properties and qualities
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.1 inches)

Typical profile
0 to 5 inches: Gravelly sandy loam
5 to 11 inches: Gravelly sandy loam
11 to 24 inches: Very cobbly sandy loam
24 to 60 inches: Very gravelly loamy coarse sand
Adult Education Center – Tooele, UT

37 – Lakewin gravelly loam, 1 to 5 percent slopes

**Map Unit Setting**
- Elevation: 4,700 to 5,200 feet
- Mean annual precipitation: 14 to 16 inches
- Mean annual air temperature: 46 to 52 degrees F
- Frost-free period: 140 to 170 days

**Map Unit Composition**
- Lakewin canyon and similar soils: 85 percent
- Minor components: 15 percent

**Description of Lakewin Setting**
- Landform: Lake terraces
- Landform position (three-dimensional): Tread
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Alluvium and lacustrine derived from quartzite and limestone

**Properties and qualities**
- Slope: 1 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water
  - High (1.98 to 5.95 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 30 percent
- Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
- Available water capacity: Low (about 4.5 inches)

**Typical profile**
- 0 to 7 inches: Gravelly loam
- 7 to 18 inches: Gravelly sandy clay loam
- 18 to 30 inches: Very gravelly sandy loam
- 30 to 60 inches: Very gravelly sand
American Prep Academy – Draper, UT

**BnA – Bluffdale silty clay loam, 0 to 1 percent slopes**

**Map Unit Setting**
Elevation: 4,400 to 4,700 feet  
Mean annual precipitation: 13 to 15 inches  
Mean annual air temperature: 49 to 51 degrees F  
Frost-free period: 130 to 150 days

**Map Unit Composition**
Bluffdale and similar soils: 85 percent  
Minor components: 15 percent

**Description of Bluffdale**

**Setting**
Landform: Lake terraces, lake plains  
Landform position (three-dimensional): Talf, rise  
Down-slope shape: Linear  
Across-slope shape: Linear  
Parent material: Lacustrine deposits

**Properties and qualities**
Slope: 0 to 1 percent  
Depth to restrictive feature: More than 80 inches  
Drainage class: Moderately well drained  
Capacity of the most limiting layer to transmit water: Moderately low to moderately high (0.06 to 0.20 in/hr)  
Depth to water table: More than 80 inches  
Frequency of flooding: None  
Frequency of ponding: None  
Calcium carbonate, maximum content 40 percent  
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)  
Sodium adsorption ratio, maximum: 13.0  
Available water capacity: High (about 10.2 inches)

**Typical profile**
0 to 9 inches: Silty clay loam  
9 to 16 inches: Silty clay loam  
16 to 22 inches: Silty clay  
22 to 31 inches: Silty clay  
31 to 40 inches: Silty clay  
40 to 62 inches: Silty clay loam
**HbA – Harrisville silt loam, 0 to 1 percent slopes**

**Map Unit Setting**
- Elevation: 4,250 to 4,550 feet
- Mean annual precipitation: 13 to 18 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 160 to 180 days

**Map Unit Composition**
- Harrisville and similar soils: 85 percent
- Minor components: 15 percent

**Description of Harrisville**

**Setting**
- Landform: Lake terraces
- Landform position (three-dimensional): Tread
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Lacustrine deposits

**Properties and qualities**
- Slope: 0 to 1 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Moderately well drained
- Capacity of the most limiting layer to transmit water: Moderately low to moderately high (0.06 to 0.20 in/hr)
- Depth to water table: More 42 to 60 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content 40 percent
- Maximum salinity: Very slightly saline to slightly saline (4.0 to 8.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 60.0
- Available water capacity: High (about 9.2 inches)

**Typical profile**
- 0 to 9 inches: Silty loam
- 9 to 14 inches: Silty clay loam
- 14 to 18 inches: Silty clay loam
- 18 to 26 inches: Silty loam
- 26 to 39 inches: Silty clay loam
- 39 to 60 inches: Very fine sandy loam
Arrowhead Elementary – Santa Clara, UT

LA – Lava Flows

**Map Unit Composition**
Lava: 100 percent

**Description of Lava Flows**

**Setting**
Landform: Lava flows
Down-slope shape: Linear
Across-slope shape: Linear

TC – Tobler fine sandy loam

**Map Unit Setting**
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 160 to 170 days

**Map Unit Composition**
Tobler and similar soils: 85 percent
Minor components: 15 percent

**Description of Tobler**

**Setting**
Landform: Hills, alluvial fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, concave
Across-slope shape: Convex
Parent material: Alluvium derived from sandstone and shale

**Properties and qualities**
Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 7.2 inches)
Typical profile
0 to 4 inches: Fine sandy loam
4 to 13 inches: Fine sandy loam
13 to 38 inches: Fine sandy loam
38 to 60 inches: Fine sandy loam
Map Unit Setting
Elevation: 4,550 to 5,700 feet
Mean annual precipitation: 15 to 17 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 120 to 160 days

Map Unit Composition
Steed and similar soils: 90 percent
Minor components: 10 percent

Description of Steed
Setting
Landform: Alluvial fans
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from limestone and sandstone and/or alluvium derived from quartzite

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 3.2 inches)

Typical profile
0 to 5 inches: Gravelly loam
5 to 11 inches: Gravelly loam
11 to 17 inches: Extremely gravelly sandy loam
17 to 60 inches: Extremely gravelly sandy loam
BEAVER CITY LIBRARY – BEAVER, UT

UL – URBAN LAND

**Map Unit Composition**
Urban land: 100 percent

**Ds – Draper loam, sandy subsoil variant**

**Map Unit Setting**
Elevation: 5,700 to 6,000 feet
Mean annual precipitation: 11 to 13 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 108 days

**Map Unit Composition**
Draper variant and similar soils: 95 percent
Minor components: 5 percent

**Description of Draper Variant**

**Setting**
Landform: Stream terraces, flood plains
Landform position (three-dimensional): Tread, talfl
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium derived from igneous rock and quartzite

**Properties and qualities**
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More 12 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 4.0 inches)

**Typical profile**
0 to 9 inches: Loam
9 to 15 inches: Gravelly loam
15 to 25 inches: Gravelly sandy loam
25 to 60 inches: Very gravelly sand
Bloomington Elementary – St. George, UT
JaB – Junction fine sandy loam, 1 to 2 percent slopes

**Map Unit Setting**
- Elevation: 2,700 to 3,400 feet
- Mean annual precipitation: 8 to 11 inches
- Mean annual air temperature: 57 to 67 degrees F
- Frost-free period: 190 to 195 days

**Map Unit Composition**
- Junction and similar soils: 85 percent
- Minor components: 15 percent

**Description of Junction Setting**
- Landform: Alluvial
- Down-slope shape: Concave
- Across-slope shape: Convex

**Properties and qualities**
- Slope: 1 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water (High: 2.00 to 6.00 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 20 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Available water capacity: Moderate (about 7.2 inches)

**Typical profile**
- 0 to 2 inches: Fine sandy loam
- 2 to 9 inches: Fine sandy loam
- 9 to 21 inches: Fine sandy loam
- 21 to 32 inches: Fine sandy loam
- 32 to 60 inches: Fine sandy loam
Sb – St. George silt loam, strongly saline

**Map Unit Setting**
Elevation: 2,450 to 3,400 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 57 to 67 degrees F
Frost-free period: 190 to 195 days

**Map Unit Composition**
St. George, strongly saline, and similar soils: 90 percent
Minor components: 10 percent

**Description of St. George, Strongly Saline Setting**
Landform: Lake Alluvial fans
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone, siltstone, and shale

**Properties and qualities**
Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water:
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 30 percent
Maximum salinity: Moderately saline to strongly saline (16.0 to 32.0 mmmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water capacity: Low (about 4.2 inches)

**Typical profile**
0 to 9 inches: Silty loam
9 to 20 inches: Loam
20 to 29 inches: Silty loam
29 to 38 inches: Silty loam
38 to 60 inches: Silty loam
Bluffdale Elementary – Bluffdale, UT
**BnB – Bluffdale silty clay loam, 1 to 3 percent slopes**

**Map Unit Setting**
- Elevation: 4,400 to 4,700 feet
- Mean annual precipitation: 13 to 15 inches
- Mean annual air temperature: 49 to 51 degrees F
- Frost-free period: 130 to 150 days

**Map Unit Composition**
- Bluffdale and similar soils: 85 percent
- Minor components: 15 percent

**Description of Bluffdale Setting**
- Landform: Lake terraces
- Landform position (three-dimensional): Tread
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Lacustrine deposits

**Properties and qualities**
- Slope: 1 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Moderately well drained
- Capacity of the most limiting layer to transmit water: Moderately low to moderately high (0.06 to 0.20 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 20 percent
- Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 13.0
- Available water capacity: High (about 10.2 inches)

**Typical profile**
- 0 to 9 inches: Silty clay loam
- 9 to 16 inches: Silty clay loam
- 16 to 22 inches: Silty loam
- 22 to 31 inches: Silty loam
- 31 to 40 inches: Silty loam
- 40 to 62 inches: Silty clay loam
Bonneville Elementary – Ogden, UT

HaB – Harrisville silt loam, 1 to 3 percent slopes

Map Unit Setting
Elevation: 4,250 to 4,500 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

Map Unit Composition
Harrisville and similar soils: 100 percent

Description of Harrisville
Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/ or lacustrine deposits

Properties and qualities
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 30 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 50.0
Available water capacity: High (about 10.2 inches)

Typical profile
0 to 8 inches: Silty loam
8 to 14 inches: Silty clay loam
14 to 22 inches: Silty clay loam
22 to 33 inches: Silty clay loam
33 to 45 inches: Silty clay loam
45 to 60 inches: Silty clay loam
Bunderson Elementary – Brigham City, UT
KoB – Kilburn gravelly loam, 1 to 3 percent slopes

**Map Unit Setting**
Elevation: 4,270 to 5,150 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 160 days

**Map Unit Composition**
Kilburn and similar soils: 90 percent
Minor components: 10 percent

**Description of Kilburn**

**Setting**
Landform: Alluvial fans
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from quartzite, gneiss, and schist.

**Properties and qualities**
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 15 percent
Available water capacity: Low (about 5.6 inches)

**Typical profile**
0 to 8 inches: Gravelly loam
8 to 14 inches: Gravelly sandy loam
14 to 22 inches: Gravelly loam
22 to 35 inches: Very gravelly sandy loam
35 to 60 inches: Very gravelly sandy loam
Canyon Rim Academy – Salt Lake City, UT
**BhB – Bingham gravelly loam, 3 to 6 percent slopes**

**Map Unit Setting**
Elevation: 4,350 to 5,200 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 51 to 54 degrees F
Frost-free period: 150 to 180 days

**Map Unit Composition**
Bingham and similar soils: 95 percent
Minor components: 5 percent

**Description of Bingham Setting**
Landform: Alluvial fans, lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Gravelly alluvium

**Properties and qualities**
Slope: 3 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 40 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Low (about 4.8 inches)

**Typical profile**
0 to 6 inches: Gravelly loam
6 to 10 inches: Gravelly loam
10 to 14 inches: Gravelly clay loam
14 to 23 inches: Gravelly clay loam
23 to 35 inches: Cobbly clay loam
35 to 60 inches: Very cobbly loamy sand
Cedar City Public Library – Cedar City, UT

310 – Ashdown loam, gypsiferous substratum, 2 to 5 percent slopes

**Map Unit Setting**
Elevation: 5,600 to 6,000 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 140 days

**Map Unit Composition**
Ashdown and similar soils: 85 percent
Minor components: 15 percent

**Description of Ashdown**

**Setting**
Landform: Stream terraces, alluvial flats, alluvial fans
Parent material: Alluvium derived from igneous and sedimentary rock

**Properties and qualities**
Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 20 percent
Gypsum, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Available water capacity: High (about 9.5 inches)

**Typical profile**
0 to 6 inches: Loam
6 to 25 inches: Sandy clay loam
25 to 44 inches: Loam
44 to 59 inches: Sandy clay loam
59 to 60 inches: Loam
Centerville Library – Centerville, UT  
**DrB – Draper loam, drained, 1 to 3 percent slopes**

**Map Unit Setting**
- Elevation: 4,250 to 5,000 feet
- Mean annual precipitation: 14 to 18 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 130 to 175 days

**Map Unit Composition**
- Draper and similar soils: 100 percent

**Description of Draper Setting**
- Landform: Flood plains, alluvial fans
- Landform position (three-dimensional): Dip, talf
- Down-slope shape: Linear, concave
- Across-slope shape: Concave, convex
- Parent material: Alluvium

**Properties and qualities**
- Slope: 1 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat poorly drained
- Capacity of the most limiting layer to transmit water: Moderately high to high (0.60 to 2.00 in/hr)
- Depth to water table: More 36 to 60 inches
- Frequency of flooding: Rare
- Frequency of ponding: None
- Calcium carbonate, maximum content: 5 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Available water capacity: High (about 9.6 inches)

**Typical profile**
- 0 to 8 inches: Loam
- 8 to 21 inches: Loam
- 21 to 30 inches: Loam
- 30 to 53 inches: Loam
- 53 to 60 inches: Loam
Clearfield Library (North Davis) – Clearfield, UT

**KaC – Kidman fine sandy loam, 3 to 6 percent slopes**

**Map Unit Setting**
Elevation: 4,200 to 5,100 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

**Map Unit Composition**
Kidman and similar soils: 95 percent
Minor components: 5 percent

**Description of Kidman**

**Setting**
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

**Properties and qualities**
Slope: 3 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 7.5 inches)

**Typical profile**
0 to 11 inches: Fine sandy loam
11 to 17 inches: Fine sandy loam
17 to 27 inches: Fine sandy loam
27 to 37 inches: Fine sandy loam
37 to 49 inches: Very fine sandy loam
49 to 60 inches: Very fine sandy loam
Columbia Elementary – West Jordan, UT
BnB – Bluffdale silty clay loam, 1 to 3 percent slopes

Map Unit Setting
Elevation: 4,400 to 4,700 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 130 to 150 days

Map Unit Composition
Bluffdale and similar soils: 85 percent
Minor components: 15 percent

Description of Bluffdale
Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

Properties and qualities
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: High (about 10.2 inches)

Typical profile
0 to 9 inches: Silty clay loam
9 to 16 inches: Silty clay loam
16 to 22 inches: Silty clay
22 to 31 inches: Silty clay
31 to 40 inches: Silty clay
40 to 62 inches: Silty clay loam
Coral Canyon Elementary – Washington, UT

**EB – Eroded land-Shalet complex, warm**

**Map Unit Setting**
Elevation: 3,600 to 5,550 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 165 to 170 days

**Map Unit Composition**
Eroded land: 78 percent
Shalet and similar soils: 20 percent

**Description of Eroded Land Setting**
Landform: Erosion remnants
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Residuum weathered from shale

**Properties and qualities**
Slope: 2 to 20 percent
Depth to restrictive feature: 4 to 15 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Gypsum, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Very low (about 2.1 inches)

**Typical profile**
0 to 4 inches: Clay loam
4 to 12 inches: Clay loam
12 to 16 inches: Weathered bedrock
Coral Cliffs Elementary – St. George, UT
Sa – St. George silt loam

**Map Unit Setting**
- Elevation: 2,450 to 3,400 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 57 to 67 degrees F
- Frost-free period: 190 to 195 days

**Map Unit Composition**
- St. George and similar soils: 85 percent
- Minor components: 15 percent

**Description of St. George**

**Setting**
- Landform: Flood plains
- Landform position (three-dimensional): Talf
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Alluvium derived from sandstone, siltstone, and shale

**Properties and qualities**
- Slope: 1 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water
  - Moderately high to high (0.60 to 2.00 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content 30 percent
- Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
- Available water capacity: High (about 9.8 inches)

**Typical profile**
- 0 to 9 inches: Silt loam
- 9 to 20 inches: Loam
- 20 to 29 inches: Silt loam
- 29 to 38 inches: Silty loam
- 38 to 60 inches: Loam
Corrine Early Learning Center – Corrine, UT  
Fv – Fridlo silt loam, 0 to 1 percent slopes

**Map Unit Setting**  
Elevation: 4,200 to 4,600 feet  
Mean annual precipitation: 14 to 18 inches  
Mean annual air temperature: 48 to 52 degrees F  
Frost-free period: 140 to 160 days

**Map Unit Composition**  
Fridlo and similar soils: 85 percent  
Minor components: 15 percent

**Description of St. Fridlo**  
**Setting**  
Landform: Lake terraces  
Landform position (three-dimensional): Tread  
Down-slope shape: Linear  
Across-slope shape: Linear  
Parent material: Alluvium and lacustine deposits derived from mixed rocks

**Properties and qualities**  
Slope: 0 to 1 percent  
Depth to restrictive feature: More than 80 inches  
Drainage class: Moderately well drained  
Capacity of the most limiting layer to transmit water  
Moderately low (0.02 to 0.06 in/hr)  
Depth to water table: About 30 to 72 inches  
Frequency of flooding: None  
Frequency of ponding: None  
Calcium carbonate, maximum content 40 percent  
Maximum salinity: Slightly saline to moderately saline (8.0 to 16.0 mmhos/cm)  
Sodium adsorption ratio, maximum: 30.0  
Available water capacity: Moderate (about 8.5 inches)

**Typical profile**  
0 to 6 inches: Silt loam  
6 to 9 inches: Silt loam  
9 to 15 inches: Silt loam  
15 to 21 inches: Silty clay loam  
21 to 29 inches: Silt loam  
29 to 60 inches: Silty clay loam
Davis County Library – Farmington, UT

UL – Urban land

**Map Unit Setting**
Elevation: 4,200 to 9,000 feet

**Map Unit Composition**
Urban land and similar soils: 95 percent
Dee Elementary – Ogden, UT
SkA – Sunset loam, drained, 0 to 1 percent slopes

**Map Unit Setting**
Elevation: 4,200 to 4,800 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

**Map Unit Composition**
Sunset and similar soils: 100 percent

**Description of Sunset**

**Setting**
Landform: Stream terraces, flood plains
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium

**Properties and qualities**
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 42 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Available water capacity: High (about 9.6 inches)

**Typical profile**
0 to 7 inches: Loam
7 to 18 inches: Loam
18 to 32 inches: Loam
32 to 44 inches: Loam
44 to 68 inches: Loam
Diamond Valley Elementary – St. George, UT

**LA – Lava flows**

**Map Unit Composition**
Lava flows: 100 percent

**Description of Lava Flows**

**Setting**
Landform: Lava flows
Down-slope shape: Linear
Across-slope shape: Linear

**RaG – Redbank fine sandy loam, 1 to 5 percent slopes**

**Map Unit Setting**
Elevation: 3,300 to 5,500 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 160 to 170 days

**Map Unit Composition**
Redbank and similar soils: 85 percent
Minor components: 15 percent

**Description of Redbank**

**Setting**
Landform: Valleys, alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Alluvium derived from limestone, sandstone, siltstone, and shale

**Properties and qualities**
Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content 30 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 8.4 inches)
Typical profile
0 to 5 inches: Fine sandy loam
5 to 16 inches: Fine sandy loam
16 to 35 inches: Fine sandy loam
35 to 60 inches: Loam
Discovery Elementary – Brigham City, UT

**JaA – James Canyon loam, 0 to 3 percent slopes**

**Map Unit Setting**
- Elevation: 4,250 to 4,300 feet
- Mean annual precipitation: 14 to 16 inches
- Mean annual air temperature: 47 to 49 degrees F
- Frost-free period: 150 to 160 days

**Map Unit Composition**
- James canyon and similar soils: 85 percent
- Minor components: 15 percent

**Description of James Canyon**

**Setting**
- Landform: Alluvial fans
- Down-slope shape: Concave
- Across-slope shape: Convex
- Parent material: Alluvium derived from quartzite and/ or alluvium derived from sandstone.

**Properties and qualities**
- Slope: 0 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat poorly drained
- Capacity of the most limiting layer to transmit water: Moderately high to high (0.60 to 2.00 in/hr)
- Depth to water table: About 18 to 36 inches
- Frequency of flooding: Rare
- Frequency of ponding: None
- Available water capacity: Moderate (about 8.0 inches)

**Typical profile**
- 0 to 8 inches: Loam
- 8 to 15 inches: Loam
- 15 to 35 inches: Loam
- 35 to 40 inches: Gravelly loam
- 40 to 60 inches: Very gravelly sandy loam
District Early Learning Center – Tooele City, UT

37 – Lakewin gravelly loam, 1 to 5 percent slopes

**Map Unit Setting**
Elevation: 4,700 to 5,200 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 140 to 170 days

**Map Unit Composition**
Lakewin canyon and similar soils: 85 percent
Minor components: 15 percent

**Description of Lakewin Setting**
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and lacustrine derived from quartzite and limestone

**Properties and qualities**
Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Available water capacity: Low (about 4.5 inches)

**Typical profile**
0 to 7 inches: Gravelly loam
7 to 18 inches: Gravelly sandy clay loam
18 to 30 inches: Very gravelly sandy loam
30 to 60 inches: Very gravelly sand
District Transportation Building – Brigham City, UT
JaA – James Canyon loam, 0 to 3 percent slopes

Map Unit Setting
Elevation: 4,250 to 4,300 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 150 to 160 days

Map Unit Composition
James canyon and similar soils: 85 percent
Minor components: 15 percent

Description of James Canyon
Setting
Landform: Alluvial fans
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from quartzite and/or alluvium derived from sandstone.

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water: Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water capacity: Moderate (about 8.0 inches)

Typical profile
0 to 8 inches: Loam
8 to 15 inches: Loam
15 to 35 inches: Loam
35 to 40 inches: Gravelly loam
40 to 60 inches: Very gravelly sandy loam
Dixie Downs Elementary – St. George, UT

**EB – Eroded land-Shalet complex, warm**

**Map Unit Setting**
Elevation: 3,600 to 5,550 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 165 to 170 days

**Map Unit Composition**
Eroded land: 78 percent
Shalet and similar soils: 20 percent

**Description of Eroded Land**

**Setting**
Landform: Erosion remnants
Parent material: Residuum weathered from shale

**Description of Shalet**

**Setting**
Landform: Swales
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Residuum weathered from shale

**Properties and qualities**
Slope: 2 to 20 percent
Depth to restrictive feature: 4 to 15 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Very low (about 2.1 inches)

**Typical profile**
0 to 4 inches: Clay loam
4 to 12 inches: Clay loam
12 to 16 inches: Weathered bedrock
Dual Immersion Academy K-6 – Salt Lake City, UT
WmA – Welby silt loam, 0 to 1 percent slopes

Map Unit Setting
Elevation: 4,200 to 4,400 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 130 to 150 days

Map Unit Composition
Welby and similar soils: 85 percent
Minor components: 15 percent

Description of Welby

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Very slightly saline to slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: High (about 9.6 inches)

Typical profile
0 to 8 inches: Silt loam
8 to 16 inches: Silt loam
16 to 25 inches: Silt loam
25 to 33 inches: Loam
33 to 44 inches: Silt loam
44 to 60 inches: Silty clay loam
East Elementary – Tooele City, UT

37 – Lakewin gravelly loam, 1 to 5 percent slopes

**Map Unit Setting**
Elevation: 4,700 to 5,200 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 140 to 170 days

**Map Unit Composition**
Lakewin canyon and similar soils: 85 percent
Minor components: 15 percent

**Description of Lakewin**

**Setting**
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and lacustrine derived from quartzite and limestone

**Properties and qualities**
Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Available water capacity: Low (about 4.5 inches)

**Typical profile**
0 to 7 inches: Gravelly loam
7 to 18 inches: Gravelly sandy clay loam
18 to 30 inches: Very gravelly sandy loam
30 to 60 inches: Very gravelly sand
East Elementary – St. George, UT

JaB – Junction fine sandy loam, 1 to 2 percent slopes

**Map Unit Setting**
Elevation: 2,700 to 3,400 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 57 to 67 degrees F
Frost-free period: 190 to 195 days

**Map Unit Composition**
Junction and similar soils: 85 percent

**Description of Junction**

**Setting**
Landform: Alluvial fans
Down-slope shape: Concave
Across-slope shape: Concave

**Properties and qualities**
Slope: 1 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Gypsum, maximum content: 7 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 7.2 inches)

**Typical profile**
0 to 2 inches: Fine sandy loam
2 to 9 inches: Fine sandy loam
9 to 21 inches: Fine sandy loam
21 to 32 inches: Fine sandy loam
32 to 60 inches: Fine sandy loam
Elk Meadows Elementary – South Jordan, UT
LaC – Lakewin sandy loam, 1 to 6 percent slopes

Map Unit Setting
Elevation: 4,400 to 4,500 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 150 to 160 days

Map Unit Composition
Lakewin and similar soils: 90 percent
Minor components: 10 percent

Description of Lakewin

Setting
Landform: Deltas, lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

Properties and qualities
Slope: 1 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: Low (about 3.4 inches)

Typical profile
0 to 10 inches: Sandy loam
10 to 18 inches: Gravelly sandy loam
18 to 25 inches: Very gravelly sandy loam
25 to 44 inches: Very gravelly loamy coarse sand
44 to 64 inches: Very gravelly coarse sand
Excelsior Academy – Erda, UT

19 – Erda silty loam, 1 to 5 percent slopes

**Map Unit Setting**
- Elevation: 4,250 to 6,000 feet
- Mean annual precipitation: 12 to 14 inches
- Mean annual air temperature: 45 to 52 degrees F
- Frost-free period: 130 to 170 days

**Map Unit Composition**
- Erda and similar soils: 90 percent
- Minor components: 10 percent

**Description of Erda**

**Setting**
- Landform: Lake terraces, fan remnants
- Landform position (three-dimensional): Tread
- Down-slope shape: Linear, concave
- Across-slope shape: Linear, convex
- Parent material: Alluvium derived from sedimentary rock and/or lacustrine deposits derived from sedimentary rock

**Properties and qualities**
- Slope: 1 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water: Moderately low to moderately high (0.06 to 0.57 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 40 percent
- Maximum salinity: Nonsaline to slightly saline (0.0 to 8.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 30.0
- Available water capacity: High (about 10.2 inches)

**Typical profile**
- 0 to 8 inches: Silt loam
- 8 to 14 inches: Silt loam
- 14 to 39 inches: Silt loam
- 39 to 60 inches: Silt loam
Foothill Elementary – Brigham City, UT
**JaA – James Canyon loam, 0 to 3 percent slopes**

**Map Unit Setting**
Elevation: 4,250 to 4,300 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 47 to 49 degrees F
Frost-free period: 150 to 160 days

**Map Unit Composition**
James canyon and similar soils: 85 percent
Minor components: 15 percent

**Description of James Canyon**

**Setting**
Landform: Alluvial fans
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from quartzite and/ or alluvium derived from sandstone.

**Properties and qualities**
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water capacity: Moderate (about 8.0 inches)

**Typical profile**
0 to 8 inches: Loam
8 to 15 inches: Loam
15 to 35 inches: Loam
35 to 40 inches: Gravelly loam
40 to 60 inches: Very gravelly sandy loam
Freedom Academy K-7 – Provo, UT
Px – Provo Sunset complex

Map Unit Setting
Elevation: 4,500 to 4,900 feet
Mean annual precipitation: 11 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 130 to 150 days

Map Unit Composition
Provo and similar soils: 70 percent
Sunset and similar soils: 30 percent

Description of Provo

Setting
Landform: Flood plains
Landform position (three dimensional): Dip, talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium derived from limestone, sandstone, quartzite, and shale.

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water
High (2.00 to 6.00 in/hr)
Depth to water table: About 18 to 48 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Sodium adsorption ratio, maximum: 13.0
Available water capacity: Very low (about 2.8 inches)

Typical profile
0 to 7 inches: Gravelly fine sandy loam
8 to 15 inches: Gravelly fine sandy loam
15 to 35 inches: Extremely gravelly sand
35 to 40 inches: Extremely gravelly loamy sand
40 to 60 inches: Extremely gravelly sand
Description of Sunset

Setting
Landform: Flood plains
Landform position (three dimensional): Dip, talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium derived from limestone, granite and shale.

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Sodium adsorption ratio, maximum: 13.0
Available water capacity: Moderate (about 7.5 inches)

Typical profile
0 to 7 inches: Loam
7 to 14 inches: Loam
14 to 41 inches: Stratified very fine sandy loam to loam
41 to 60 inches: Stratified loam to silty clay loam
George Washington Academy – St. George, UT
Se – St. George silty clay loam, shallow water table

Map Unit Setting
Elevation: 2,450 to 3,400 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 57 to 67 degrees F
Frost-free period: 190 to 195 days

Map Unit Composition
St. George wet, shallow water table, and similar soils: 85 percent

Description of St. George, Wet, Shallow Water Table

Setting
Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone, siltstone, and shale

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 30 percent
Gypsum, maximum content: 30 percent
Maximum salinity: Very slightly saline to slightly saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: High (about 9.1 inches)

Typical profile
0 to 9 inches: Silty clay loam
9 to 20 inches: Loam
20 to 29 inches: Silt loam
29 to 38 inches: Silt loam
38 to 60 inches: Loam
Gramercy Elementary – Ogden, UT
Lt – Logan silty clay loam, 0 to 3 percent slopes

**Map Unit Setting**
Elevation: 4,200 to 4,650 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

**Map Unit Composition**
Logan and similar soils: 95 percent
Minor components: 5 percent

**Description of Logan**

**Setting**
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/ or lacustrine deposits

**Properties and qualities**
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 12 to 30 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 60 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: High (about 9.5 inches)

**Typical profile**
0 to 5 inches: Silty clay loam
5 to 12 inches: Silty clay loam
12 to 29 inches: Silty clay loam
29 to 46 inches: Silt loam
46 to 60 inches: Stratified fine sand to silty clay
Guadalupe Schools K-3 – Salt Lake City, UT
**LcA – Lasil silt loam, 0 to 2 percent slopes**

**Map Unit Setting**
- Elevation: 4,200 to 4,300 feet
- Mean annual precipitation: 14 to 18 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 160 to 180 days

**Map Unit Composition**
- Lasil and similar soils: 85 percent
- Minor components: 15 percent

**Description of Lasil**

**Setting**
- Landform: Lake plains
- Landform position (three-dimensional): Talf, rise
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Lacustrine deposits

**Properties and qualities**
- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat poorly drained
- Capacity of the most limiting layer to transmit water: Moderately low to moderately high (0.06 to 0.20 in/hr)
- Depth to water table: About 30 to 48 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 40 percent
- Maximum salinity: Moderately saline to strongly saline (16.0 to 32.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 60.0
- Available water capacity: Low (about 3.4 inches)

**Typical profile**
- 0 to 5 inches: Silt loam
- 5 to 9 inches: Silt loam
- 9 to 14 inches: Clay loam
- 14 to 29 inches: Silt loam
- 29 to 48 inches: Silt loam
- 48 to 78 inches: Fine sand
Hawthorn Academy – West Jordan, UT

**BIB – Bluffdale sandy loam, 1 to 3 percent slopes**

**Map Unit Setting**
Elevation: 4,400 to 4,700 feet  
Mean annual precipitation: 13 to 15 inches  
Mean annual air temperature: 49 to 51 degrees F  
Frost-free period: 130 to 150 days

**Map Unit Composition**
Bluffdale and similar soils: 100 percent

**Description of Bluffdale**

**Setting**
Landform: Lake terraces, lake plains  
Landform position (three-dimensional): Taft, rise  
Down-slope shape: Linear  
Across-slope shape: Linear  
Parent material: Lacustrine deposits

**Properties and qualities**
Slope: 1 to 3 percent  
Depth to restrictive feature: More than 80 inches  
Drainage class: Moderately well drained  
Capacity of the most limiting layer to transmit water: Moderately low to moderately high (0.06 to 0.20 in/hr)  
Depth to water table: More than 80 inches  
Frequency of flooding: None  
Frequency of ponding: None  
Calcium carbonate, maximum content: 40 percent  
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)  
Sodium adsorption ratio, maximum: 13.0  
Available water capacity: High (about 9.5 inches)

**Typical profile**
0 to 9 inches: Sandy loam  
9 to 16 inches: Silty clay loam  
16 to 22 inches: Silty clay  
22 to 31 inches: Silty clay  
31 to 40 inches: Silty clay  
40 to 62 inches: Silty clay loam
Hayden Peak Elementary – West Jordan, UT

**HaB – Hans silt loam, 1 to 3 percent slopes**

**Map Unit Setting**
- Elevation: 4,550 to 4,700 feet
- Mean annual precipitation: 14 to 16 inches
- Mean annual air temperature: 51 to 53 degrees F
- Frost-free period: 150 to 165 days

**Map Unit Composition**
- Hans and similar soils: 90 percent
- Minor components: 10 percent

**Description of Hans**
**Setting**
- Landform: Lake terraces
- Landform position (three-dimensional): Tread
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Lacustrine deposits

**Properties and qualities**
- Slope: 1 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water: Moderately low to moderately high (0.06 to 0.20 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 30 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 30.0
- Available water capacity: High (about 10.2 inches)

**Typical profile**
- 0 to 7 inches: Silt loam
- 7 to 14 inches: Silty clay loam
- 16 to 21 inches: Silty clay loam
- 21 to 34 inches: Silty clay loam
- 34 to 42 inches: Silt loam
- 42 to 60 inches: Silt loam
Heritage Elementary – St. George, UT

Tc – Tobler fine sandy loam

**Map Unit Setting**
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 160 to 170 days

**Map Unit Composition**
Tobler and similar soils: 85 percent
Minor components: 15 percent

**Description of Tobler Setting**
Landform: Hills, alluvial fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, concave
Across-slope shape: Convex
Parent material: Alluvium derived from sandstone and shale

**Properties and qualities**
Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 7.2 inches)

**Typical profile**
0 to 4 inches: Fine sandy loam
4 to 13 inches: Fine sandy loam
13 to 38 inches: Fine sandy loam
38 to 60 inches: Fine sandy loam
Herriman Elementary – Herriman, UT

**BhA – Bingham gravelly loam, 1 to 3 percent slopes**

**Map Unit Setting**
Elevation: 4,350 to 5,200 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 51 to 54 degrees F
Frost-free period: 150 to 180 days

**Map Unit Composition**
Bingham and similar soils: 85 percent
Minor components: 15 percent

**Description of Bingham**

**Setting**
Landform: Alluvial fans, lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Gravelly alluvium

**Properties and qualities**
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 40 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Low (about 4.8 inches)

**Typical profile**
0 to 6 inches: Gravelly loam
6 to 10 inches: Gravelly loam
10 to 14 inches: Gravelly loam
14 to 23 inches: Gravelly clay loam
23 to 35 inches: Cobbly clay loam
35 to 60 inches: Very cobbly loamy sand
Highland City Library – Highland, UT
**BkB – Bingham gravelly loam, 1 to 3 percent slopes**

**Map Unit Setting**
- Elevation: 4,700 to 5,200 feet
- Mean annual precipitation: 14 to 18 inches
- Mean annual air temperature: 45 to 52 degrees F
- Frost-free period: 150 to 170 days

**Map Unit Composition**
- Bingham and similar soils: 95 percent
- Minor components: 5 percent

**Description of Bingham**

**Setting**
- Landform: Alluvial fans, terraces
- Landform position (three-dimensional): Tread
- Down-slope shape: Concave, linear
- Across-slope shape: Convex, linear
- Parent material: Alluvium and/or lacustrine deposits derived from mixed sources

**Properties and qualities**
- Slope: 1 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water: Moderately high to high (0.60 to 2.00 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 30 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mhos/cm)
- Available water capacity: Low (about 4.2 inches)

**Typical profile**
- 0 to 6 inches: Gravelly loam
- 6 to 12 inches: Gravelly sandy clay loam
- 12 to 18 inches: Gravelly fine sandy loam
- 18 to 27 inches: Very gravelly sandy loam
- 27 to 60 inches: Very gravelly sand
Hillcrest Elementary – Ogden, UT
PaB – Parleys loam, 1 to 3 percent slopes

Map Unit Setting
Elevation: 4,300 to 5,050 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F

Map Unit Composition
Parleys and similar soils: 100 percent

Description of Harrisville

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

Properties and qualities
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 40 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.4 inches)

Typical profile
0 to 6 inches: Loam
6 to 15 inches: Loam
15 to 26 inches: Clay loam
26 to 33 inches: Silty clay loam
33 to 48 inches: Silty loam
48 to 60 inches: Stratified fine sand to Silty clay loam
Horace Mann Elementary – Ogden, UT
HaB – Harrisville silt loam, 1 to 3 percent slopes

Map Unit Setting
Elevation: 4,250 to 4,500 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

Map Unit Composition
Harrisville and similar soils: 100 percent

Description of Harrisville

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/ or lacustrine deposits

Properties and qualities
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 30 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 50.0
Available water capacity: High (about 10.2 inches)

Typical profile
0 to 8 inches: Silty loam
8 to 14 inches: Silty clay loam
14 to 22 inches: Silty clay loam
22 to 33 inches: Silty clay loam
33 to 45 inches: Silty clay loam
45 to 60 inches: Silty clay loam
Horizon Elementary – Washington, UT

**JaC – Junction fine sandy loam, 2 to 5 percent slopes**

**Map Unit Setting**
- Elevation: 2,700 to 3,400 feet
- Mean annual precipitation: 8 to 11 inches
- Mean annual air temperature: 57 to 67 degrees F
- Frost-free period: 190 to 195 days

**Map Unit Composition**
- Junction and similar soils: 85 percent

**Description of Junction**

**Setting**
- Landform: Hills, alluvial fans
- Landform position (two-dimensional): Backslope
- Landform position (three-dimensional): Side slope
- Down-slope shape: Convex, concave
- Across-slope shape: Convex

**Properties and qualities**
- Slope: 1 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water: High (2.00 to 6.00 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 20 percent
- Gypsum, maximum content: 7 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Available water capacity: Moderate (about 7.2 inches)

**Typical profile**
- 0 to 2 inches: Fine sandy loam
- 2 to 9 inches: Fine sandy loam
- 9 to 21 inches: Fine sandy loam
- 21 to 32 inches: Fine sandy loam
- 32 to 60 inches: Fine sandy loam
Hurricane Library – Hurricane, UT
LeB – Leeds silty clay loam, 1 to 2 percent slopes

Map Unit Setting
Elevation: 2,550 to 3,300 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 57 to 67 degrees F
Frost-free period: 190 to 200 days

Map Unit Composition
Leeds and similar soils: 85 percent

Description of Leeds

Setting
Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from limestone, sandstone, and shale

Properties and qualities
Slope: 1 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Available water capacity: High (about 10.1 inches)

Typical profile
0 to 8 inches: Silty clay loam
8 to 15 inches: Silty clay loam
15 to 23 inches: Sandy loam
23 to 60 inches: Silt loam
Hyrum Library – Hyrum, UT

**RhA – RICKS GRAVELLY LOAM, 0 TO 3 PERCENT SLOPES**

**Map Unit Setting**
- Elevation: 4,500 to 5,700 feet
- Mean annual precipitation: 15 to 17 inches
- Mean annual air temperature: 46 to 48 degrees F
- Frost-free period: 130 to 160 days

**Map Unit Composition**
- Ricks and similar soils: 95 percent
- Minor components: 5 percent

**Description of Ricks**

**Setting**
- Landform: Lake terraces
- Landform position (three-dimensional): Tread
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Alluvium and deltaic sediments derived from limestone, sandstone and quartzite

**Properties and qualities**
- Slope: 0 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat excessively drained
- Capacity of the most limiting layer to transmit water: Moderately high to high (0.57 to 1.98 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 25 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Available water capacity: Low (about 3.4 inches)

**Typical profile**
- 0 to 4 inches: Gravelly loam
- 4 to 9 inches: Gravelly loam
- 9 to 14 inches: Gravelly loam
- 14 to 18 inches: Gravelly sandy loam
- 18 to 24 inches: Very gravelly sand
- 24 to 60 inches: Very gravelly sand
James Madison Elementary – Ogden, UT

**HaB – Harrisville silt loam, 1 to 3 percent slopes**

**Map Unit Setting**
- Elevation: 4,250 to 4,500 feet
- Mean annual precipitation: 14 to 18 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 160 to 180 days

**Map Unit Composition**
- Harrisville and similar soils: 100 percent

**Description of Harrisville**

**Setting**
- Landform: Lake terraces
- Landform position (three-dimensional): Tread
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Alluvium and/ or lacustrine deposits

**Properties and qualities**
- Slope: 1 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat poorly drained
- Capacity of the most limiting layer to transmit water: Moderately low to moderately high (0.06 to 0.20 in/hr)
- Depth to water table: About 30 to 48 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content 30 percent
- Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 50.0
- Available water capacity: High (about 10.2 inches)

**Typical profile**
- 0 to 8 inches: Silty loam
- 8 to 14 inches: Silty clay loam
- 14 to 22 inches: Silty clay loam
- 22 to 33 inches: Silty clay loam
- 33 to 45 inches: Silty clay loam
- 45 to 60 inches: Silty clay loam
John Hancock School K-8 – Pleasant Grove, UT
**PIC – Pleasant Grove gravelly loam, 3 to 6 percent slopes**

**Map Unit Setting**
- Elevation: 4,600 to 5,700 feet
- Mean annual precipitation: 14 to 18 inches
- Mean annual air temperature: 46 to 50 degrees F
- Frost-free period: 150 to 170 days

**Map Unit Composition**
- Pleasant Grove and similar soils: 100 percent

**Description of Pleasant Grove**

**Setting**
- Landform: Alluvial fans
- Down-slope shape: Concave
- Across-slope shape: Convex
- Parent material: Colluvium and / or slope alluvium derived from limestone, quartzite and shale

**Properties and qualities**
- Slope: 3 to 6 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water
  - Moderately high to high (0.60 to 2.00 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 30 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 10.0
- Available water capacity: Moderate (about 6.2 inches)

**Typical profile**
- 0 to 6 inches: Gravelly loam
- 6 to 21 inches: Cobbly loam
- 21 to 38 inches: Very cobbly loam
- 38 to 49 inches: Very cobbly fine sandy loam
- 49 to 60 inches: Very cobbly loam
Jordan Hills Elementary – West Jordan, UT

**BhA – Bingham gravelly loam, 1 to 3 percent slopes**

**Map Unit Setting**
Elevation: 4,350 to 5,200 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 51 to 54 degrees F
Frost-free period: 150 to 180 days

**Map Unit Composition**
Bingham and similar soils: 85 percent
Minor components: 15 percent

**Description of Bingham**

**Setting**
Landform: Alluvial fans, lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Gravelly alluvium

**Properties and qualities**
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Low (about 4.8 inches)

**Typical profile**
0 to 6 inches: Gravelly loam
6 to 10 inches: Gravelly loam
10 to 14 inches: Gravelly loam
14 to 23 inches: Gravelly clay loam
23 to 35 inches: Cobbly clay loam
35 to 60 inches: Very cobbly loamy sand
Kaysville Library – Kaysville, UT
UL – Urban land

**Map Unit Setting**
Elevation: 4,200 to 9,000 feet

**Map Unit Composition**
Urban land and similar soils: 95 percent
Lakeview Elementary – Brigham City, UT

**KoB – Kilburn gravelly loam, 1 to 3 percent slopes**

**Map Unit Setting**
- Elevation: 4,270 to 5,150 feet
- Mean annual precipitation: 14 to 18 inches
- Mean annual air temperature: 49 to 50 degrees F
- Frost-free period: 130 to 160 days

**Map Unit Composition**
- Kilburn and similar soils: 90 percent
- Minor components: 10 percent

**Description of Kilburn**

**Setting**
- Landform: Alluvial fans
- Down-slope shape: Concave
- Across-slope shape: Convex
- Parent material: Alluvium derived from quartzite, gneiss, and schist.

**Properties and qualities**
- Slope: 1 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat excessively drained
- Capacity of the most limiting layer to transmit water: Moderately high to high (0.60 to 2.00 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content 15 percent
- Available water capacity: Low (about 5.6 inches)

**Typical profile**
- 0 to 8 inches: Gravelly loam
- 8 to 14 inches: Gravelly sandy loam
- 14 to 22 inches: Gravelly loam
- 22 to 35 inches: Very gravelly sandy loam
- 35 to 60 inches: Very gravelly sandy loam
Lakeview Academy K-9 – Saratoga Springs, UT

**TaB – Taylorsville silty clay loam, 1 to 3 percent slopes**

**Map Unit Setting**
- Elevation: 4,500 to 4,800 feet
- Mean annual precipitation: 14 to 16 inches
- Mean annual air temperature: 47 to 50 degrees F
- Frost-free period: 130 to 170 days

**Map Unit Composition**
- Taylorsville and similar soils: 95 percent
- Minor components: 5 percent

**Description of Taylorsville**

**Setting**
- Landform: Lake terraces
- Landform position (three-dimensional): Tread
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Lacustrine deposits derived from limestone and shale

**Properties and qualities**
- Slope: 1 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water: Moderately low to moderately high (0.06 to 0.20 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 40 percent
- Maximum salinity: Very slightly saline to slightly saline (4.0 to 8.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 25.0
- Available water capacity: High (about 10.1 inches)

**Typical profile**
- 0 to 7 inches: Silty clay loam
- 7 to 13 inches: Silty clay loam
- 13 to 36 inches: Silty clay loam
- 36 to 56 inches: Silty clay loam
- 56 to 62 inches: Silty clay loam
LaVerkin Elementary – LaVerkin, UT
LeA – Leeds silty clay loam, 0 to 1 percent slopes

Map Unit Setting
Elevation: 2,550 to 3,300 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 57 to 67 degrees F
Frost-free period: 190 to 200 days

Map Unit Composition
Leeds and similar soils: 85 percent

Description of Leeds

Setting
Landform: Alluvial flats
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Alluvium derived from limestone, sandstone, and shale

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Available water capacity: High (about 10.1 inches)

Typical profile
0 to 8 inches: Silty clay loam
8 to 15 inches: Silty clay loam
15 to 23 inches: Sandy loam
23 to 60 inches: Silt loam
Lehi City Public Library – Lehi, UT
Ss – Sunset loam, gravelly substratum

**Map Unit Setting**
Elevation: 4,500 to 4,900 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 130 to 150 days

**Map Unit Composition**
Sunset and similar soils: 75 percent
Minor components: 25 percent

**Description of Sunset**

**Setting**
Landform: Flood plains
Landform position (three dimensional): Dip, talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium derived from limestone, granite and shale.

**Properties and qualities**
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 42 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: Low (about 5.5 inches)

**Typical profile**
0 to 7 inches: Loam
7 to 14 inches: Loam
14 to 20 inches: Very fine sandy loam
20 to 60 inches: Stratified gravelly loamy sand to gravelly sandy loam
Liberty Academy K-12 – Salem, UT

**TmC – Timpanogos loam, 3 to 6 percent slopes**

**Map Unit Setting**
- Elevation: 4,700 to 4,900 feet
- Mean annual precipitation: 15 to 18 inches
- Mean annual air temperature: 47 to 50 degrees F
- Frost-free period: 130 to 150 days

**Map Unit Composition**
- Timpanogos and similar soils: 90 percent
- Minor components: 10 percent

**Description of Timpanogos**

**Setting**
- Landform: Lake terraces
- Landform position (three dimensional): Tread
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Lacustrine deposits derived from limestone, quartzite, and shale.

**Properties and qualities**
- Slope: 3 to 6 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water: Moderately high to high (0.60 to 2.00 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 30 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 13.0
- Available water capacity: Moderate (about 8.7 inches)

**Typical profile**
- 0 to 9 inches: Loam
- 9 to 14 inches: Loam
- 14 to 18 inches: Loam
- 18 to 48 inches: Silt loam
- 48 to 60 inches: Gravelly loamy coarse sand
Lincoln Academy K-9 – Pleasant Grove, UT
WeC – Welby silt loam, extended season, 3 to 6 percent slopes

Map Unit Setting
Elevation: 4,500 to 5,200 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 130 to 170 days

Map Unit Composition
Welby and similar soils: 100 percent

Description of Welby

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits derived from limestone, sandstone, and shale

Properties and qualities
Slope: 3 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: High (about 10.1 inches)

Typical profile
0 to 7 inches: Silt loam
7 to 12 inches: Loam
12 to 22 inches: Silt loam
22 to 65 inches: Silt loam
Lincoln Elementary – Ogden, UT

**HaB – Harrisville silt loam, 1 to 3 percent slopes**

**Map Unit Setting**
- Elevation: 4,250 to 4,500 feet
- Mean annual precipitation: 14 to 18 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 160 to 180 days

**Map Unit Composition**
- Harrisville and similar soils: 100 percent

**Description of Harrisville**

**Setting**
- Landform: Lake terraces
- Landform position (three-dimensional): Tread
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Alluvium and/or lacustrine deposits

**Properties and qualities**
- Slope: 1 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat poorly drained
- Capacity of the most limiting layer to transmit water
  - Moderately low to moderately high (0.06 to 0.20 in/hr)
- Depth to water table: About 30 to 48 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content 30 percent
- Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 50.0
- Available water capacity: High (about 10.2 inches)

**Typical profile**
- 0 to 8 inches: Silty loam
- 8 to 14 inches: Silty clay loam
- 14 to 22 inches: Silty clay loam
- 22 to 33 inches: Silty clay loam
- 33 to 45 inches: Silty clay loam
- 45 to 60 inches: Silty clay loam
Logan Library – Logan, UT  
**SvA – STEED GRAVELLY LOAM, 0 TO 3 PERCENT SLOPES**

**Map Unit Setting**  
Elevation: 4,550 to 5,700 feet  
Mean annual precipitation: 15 to 17 inches  
Mean annual air temperature: 46 to 48 degrees F  
Frost-free period: 120 to 160 days

**Map Unit Composition**  
Steed and similar soils: 90 percent  
Minor components: 10 percent

**Description of Steed**

**Setting**  
Landform: Alluvial fans  
Down-slope shape: Concave  
Across-slope shape: Convex  
Parent material: Alluvium derived from limestone and sandstone and/or alluvium derived from quartzite

**Properties and qualities**  
Slope: 0 to 3 percent  
Depth to restrictive feature: More than 80 inches  
Drainage class: Somewhat excessively drained  
Capacity of the most limiting layer to transmit water: Moderately high to high (0.57 to 1.98 in/hr)  
Depth to water table: More than 80 inches  
Frequency of flooding: Rare  
Frequency of ponding: None  
Calcium carbonate, maximum content: 40 percent  
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)  
Available water capacity: Moderate (about 3.2 inches)

**Typical profile**  
0 to 5 inches: Gravelly loam  
5 to 11 inches: Gravelly loam  
11 to 17 inches: Extremely gravelly sandy loam  
17 to 60 inches: Extremely gravelly sandy loam
Midas Creek Elementary – Riverton, UT

**LdB – Lasil silt loam, drained, 1 to 3 percent slopes**

**Map Unit Setting**
Elevation: 4,200 to 4,300 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

**Map Unit Composition**
Lasil and similar soils: 90 percent
Minor components: 10 percent

**Description of Lasil**

**Setting**
Landform: Lake plains
Landform position (three-dimensional): Rise, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

**Properties and qualities**
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 40 percent
Maximum salinity: Moderately saline to strongly saline (16.0 to 32.0 mmhos/cm)
Sodium adsorption ratio, maximum: 60.0
Available water capacity: Low (about 3.4 inches)

**Typical profile**
0 to 5 inches: Silt loam
5 to 9 inches: Silt loam
9 to 14 inches: Clay loam
14 to 29 inches: Silt loam
29 to 48 inches: Silt loam
48 to 78 inches: Fine sand
Monte Vista Elementary – South Jordan, UT

**BnB – Bluffdale silty clay loam, 1 to 3 percent slopes**

**Map Unit Setting**
Elevation: 4,400 to 4,700 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 130 to 150 days

**Map Unit Composition**
Bluffdale and similar soils: 85 percent
Minor components: 15 percent

**Description of Bluffdale**

**Setting**
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

**Properties and qualities**
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: High (about 10.2 inches)

**Typical profile**
0 to 9 inches: Silty clay loam
9 to 16 inches: Silty clay loam
16 to 22 inches: Silty clay
22 to 31 inches: Silty clay
31 to 40 inches: Silty clay
40 to 62 inches: Silty clay loam
Morgan County Library – Morgan, UT
PcA – Parlo loam, 0 to 3 percent slopes

**Map Unit Setting**
Mean annual precipitation: 18 to 22 inches

**Map Unit Composition**
Parlo and similar soils: 90 percent
Minor components: 10 percent

**Description of Parlo**

**Setting**
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium derived from limestone, sandstone, and quartzite

**Properties and qualities**
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 6.2 inches)

**Typical profile**
0 to 7 inches: Loam
7 to 15 inches: Loam
15 to 19 inches: Loam
19 to 31 inches: Loam
31 to 36 inches: Very gravelly loam
36 to 70 inches: Extremely gravelly loamy sand
Mountain Shadows Elementary – West Jordan, UT

Re – Red Rock silt loam

**Map Unit Setting**
- Elevation: 4,500 to 5,200 feet
- Mean annual precipitation: 15 to 17 inches
- Mean annual air temperature: 53 to 55 degrees F
- Frost-free period: 150 to 170 days

**Map Unit Composition**
- Red rock and similar soils: 85 percent
- Minor components: 15 percent

**Description of Red Rock**

**Setting**
- Landform: Alluvial fans
- Down-slope shape: Concave
- Across-slope shape: Convex
- Parent material: Alluvium

**Properties and qualities**
- Slope: 1 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water: Moderately low to moderately high (0.06 to 0.20 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 15 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 13.0
- Available water capacity: High (about 10.2 inches)

**Typical profile**
- 0 to 4 inches: Silt loam
- 4 to 20 inches: Silty clay loam
- 20 to 28 inches: Silty clay loam
- 28 to 40 inches: Clay loam
- 40 to 45 inches: Silt loam
- 45 to 60 inches: Silty clay loam
Mountain View Elementary – Brigham City, UT

**KnC – Kilburn gravelly sandy loam, 3 to 6 percent slopes**

**Map Unit Setting**
Elevation: 4,270 to 5,150 feet  
Mean annual precipitation: 14 to 18 inches  
Mean annual air temperature: 49 to 50 degrees F  
Frost-free period: 130 to 160 days

**Map Unit Composition**
Kilburn and similar soils: 95 percent  
Minor components: 5 percent

**Description of Kilburn**

**Setting**
Landform: Alluvial fans  
Down-slope shape: Concave  
Across-slope shape: Convex  
Parent material: Alluvium derived from quartzite, gneiss, and schist.

**Properties and qualities**
Slope: 3 to 6 percent  
Depth to restrictive feature: More than 80 inches  
Drainage class: Somewhat excessively drained  
Capacity of the most limiting layer to transmit water: Moderately high to high (0.60 to 2.00 in/hr)  
Depth to water table: More than 80 inches  
Frequency of flooding: None  
Frequency of ponding: None  
Calcium carbonate, maximum content: 15 percent  
Available water capacity: Low (about 5.3 inches)

**Typical profile**
0 to 8 inches: Gravelly sandy loam  
8 to 14 inches: Gravelly sandy loam  
14 to 22 inches: Gravelly loam  
22 to 35 inches: Very gravelly sandy loam  
35 to 60 inches: Very gravelly loamy sand
Mtn. Green Elementary – Mtn. Green, UT
PaA – Parleys loam, high rainfall, 0 to 3 percent slopes

**Map Unit Setting**
Mean annual precipitation: 18 to 22 inches

**Map Unit Composition**
Parleys and similar soils: 85 percent
Minor components: 15 percent

**Description of Parleys**

**Setting**
Landform: Lake terraces, alluvial fans, stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Linear, convex, concave
Parent material: Alluvium and/or lacustrine deposits derived from mixed sources

**Properties and qualities**
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.9 inches)

**Typical profile**
0 to 7 inches: Loam
7 to 13 inches: Loam
13 to 18 inches: Silty clay loam
18 to 32 inches: Clay loam
32 to 45 inches: Silty clay loam
45 to 60 inches: Loam
New Harmony Library – New Harmony, UT

NaC – Naplene silt loam, 2 to 6 percent slopes

**Map Unit Setting**
Elevation: 3,600 to 5,300 feet  
Mean annual precipitation: 14 to 15 inches  
Mean annual air temperature: 44 to 52 degrees F  
Frost-free period: 140 to 160 days

**Map Unit Composition**
Naplene and similar soils: 75 percent

**Description of Parleys**

**Setting**
Landform: Valleys, alluvial fans  
Landform position (three-dimensional): Talf  
Down-slope shape: Linear  
Across-slope shape: Concave  
Parent material: Alluvium derived from igneous and sedimentary rock

**Properties and qualities**
Slope: 2 to 6 percent  
Depth to restrictive feature: More than 80 inches  
Drainage class: Well drained  
Capacity of the most limiting layer to transmit water: Moderately high (0.20 to 0.60 in/hr)  
Depth to water table: More than 80 inches  
Frequency of flooding: None  
Frequency of ponding: None  
Calcium carbonate, maximum content: 20 percent  
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)  
Available water capacity: High (about 10.8 inches)

**Typical profile**
0 to 2 inches: Silt loam  
2 to 7 inches: Silt loam  
7 to 15 inches: Silt loam  
15 to 22 inches: Silty clay loam  
22 to 39 inches: Silt loam  
39 to 60 inches: Silt loam
Nibley Elementary – Nibley, UT
RhA – Ricks Gravelly loam, 0 TO 3 PERCENT SLOPES

Map Unit Setting
Elevation: 4,500 to 5,700 feet
Mean annual precipitation: 15 to 17 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 130 to 160 days

Map Unit Composition
Ricks and similar soils: 95 percent
Minor components: 5 percent

Description of Ricks

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and deltaic sediments derived from limestone, sandstone and quartzite

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 3.4 inches)

Typical profile
0 to 4 inches: Gravelly loam
4 to 9 inches: Gravelly loam
9 to 14 inches: Gravelly loam
14 to 18 inches: Gravelly sandy loam
18 to 24 inches: Very gravelly sand
24 to 60 inches: Very gravelly sand
Northlake Elementary – Tooele, UT

37 – Lakewin gravelly loam, 1 to 5 percent slopes

Map Unit Setting
Elevation: 4,700 to 5,200 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 140 to 170 days

Map Unit Composition
Lakewin canyon and similar soils: 85 percent
Minor components: 15 percent

Description of Lakewin

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and lacustrine derived from quartzite and limestone

Properties and qualities
Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Available water capacity: Low (about 4.5 inches)

Typical profile
0 to 7 inches: Gravelly loam
7 to 18 inches: Gravelly sandy clay loam
18 to 30 inches: Very gravelly sandy loam
30 to 60 inches: Very gravelly sand
Ogden Preparatory Academy K-4 – Ogden, UT
HaB – Harrisville silt loam, 1 to 3 percent slopes

Map Unit Setting
Elevation: 4,250 to 4,500 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

Map Unit Composition
Harrisville and similar soils: 100 percent

Description of Harrisville

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/ or lacustrine deposits

Properties and qualities
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 30 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 50.0
Available water capacity: High (about 10.2 inches)

Typical profile
0 to 8 inches: Silty loam
8 to 14 inches: Silty clay loam
14 to 22 inches: Silty clay loam
22 to 33 inches: Silty clay loam
33 to 45 inches: Silty clay loam
45 to 60 inches: Silty clay loam
Open Classroom K-8 – Salt Lake City, UT  
**BhB – Bingham gravelly loam, 3 to 6 percent slopes**

**Map Unit Setting**  
Elevation: 4,350 to 5,200 feet  
Mean annual precipitation: 16 to 18 inches  
Mean annual air temperature: 51 to 54 degrees F  
Frost-free period: 150 to 180 days

**Map Unit Composition**  
Bingham and similar soils: 95 percent  
Minor components: 5 percent

**Description of Bingham**

**Setting**  
Landform: Alluvial fans, lake terraces  
Landform position (three-dimensional): Tread  
Down-slope shape: Linear  
Across-slope shape: Linear  
Parent material: Gravelly alluvium

**Properties and qualities**  
Slope: 3 to 6 percent  
Depth to restrictive feature: More than 80 inches  
Drainage class: Well drained  
Capacity of the most limiting layer to transmit water  
High (2.00 to 6.00 in/hr)  
Depth to water table: More than 80 inches  
Frequency of flooding: None  
Frequency of ponding: None  
Calcium carbonate, maximum content 40 percent  
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)  
Sodium adsorption ratio, maximum: 5.0  
Available water capacity: Low (about 4.8 inches)

**Typical profile**  
0 to 6 inches: Gravelly loam  
6 to 10 inches: Gravelly loam  
10 to 14 inches: Gravelly clay loam  
14 to 23 inches: Gravelly clay loam  
23 to 35 inches: Cobbly clay loam  
35 to 60 inches: Very cobbly loamy sand
Oquirrh Elementary – West Jordan, UT
BnB – Bluffdale silty clay loam, 1 to 3 percent slopes

Map Unit Setting
Elevation: 4,400 to 4,700 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 130 to 150 days

Map Unit Composition
Bluffdale and similar soils: 85 percent
Minor components: 15 percent

Description of Bluffdale

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

Properties and qualities
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline(0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: High (about 10.2 inches)

Typical profile
0 to 9 inches: Silty clay loam
9 to 16 inches: Silty clay loam
16 to 22 inches: Silty clay
22 to 31 inches: Silty clay
31 to 40 inches: Silty clay
40 to 62 inches: Silty clay loam
Park City Library – Park City, UT

126 – Echocreek loam, 2 to 10 percent slopes

**Map Unit Setting**
- Elevation: 5,400 to 7,400 feet
- Mean annual precipitation: 14 to 18 inches
- Mean annual air temperature: 40 to 45 degrees F
- Frost-free period: 70 to 100 days

**Map Unit Composition**
- Echocreek and similar soils: 85 percent
- Minor components: 15 percent

**Description of Echocreek**

**Setting**
- Landform: Stream terraces
- Landform position (three-dimensional): Tread
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Alluvium derived from sandstone, quartzite and shale

**Properties and qualities**
- Slope: 2 to 10 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water: Moderately high to high (0.60 to 2.00 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 15 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Available water capacity: High (about 9.6 inches)

**Typical profile**
- 0 to 7 inches: Loam
- 7 to 18 inches: Loam
- 18 to 26 inches: Loam
- 26 to 38 inches: Loam
- 38 to 45 inches: Loam
- 45 to 60 inches: Loam
Pleasant Grove Library – Pleasant Grove, UT
PIC – Pleasant Grove gravelly loam, 3 to 6 percent slopes

**Map Unit Setting**
Elevation: 4,600 to 5,700 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 150 to 170 days

**Map Unit Composition**
Pleasant Grove and similar soils: 100 percent

**Description of Pleasant Grove**

**Setting**
Landform: Alluvial fans
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Colluvium and / or slope alluvium derived from limestone, quartzite and shale

**Properties and qualities**
Slope: 3 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: Moderate (about 6.2 inches)

**Typical profile**
0 to 6 inches: Gravelly loam
6 to 21 inches: Cobbly loam
21 to 38 inches: Very cobbly loam
38 to 49 inches: Very cobbly fine sandy loam
49 to 60 inches: Very cobbly loam
Polk Elementary – Ogden, UT

**HaB – Harrisville silt loam, 1 to 3 percent slopes**

**Map Unit Setting**
Elevation: 4,250 to 4,500 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

**Map Unit Composition**
Harrisville and similar soils: 100 percent

**Description of Harrisville**

**Setting**
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/ or lacustrine deposits

**Properties and qualities**
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 30 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 50.0
Available water capacity: High (about 10.2 inches)

**Typical profile**
0 to 8 inches: Silty loam
8 to 14 inches: Silty clay loam
14 to 22 inches: Silty clay loam
22 to 33 inches: Silty clay loam
33 to 45 inches: Silty clay loam
45 to 60 inches: Silty clay loam
Oquirrh Mountain Charter School – Kaysville, UT  
WgA – Warm Springs fine sandy loam, saline, sodic, 0 to 1 percent slopes  

Map Unit Setting  
Elevation: 4,200 to 4,400 feet  
Mean annual precipitation: 14 to 18 inches  
Mean annual air temperature: 48 to 52 degrees F  
Frost-free period: 160 to 180 days  

Map Unit Composition  
Warm springs, strongly alkali, and similar soils: 95 percent  
Minor components: 5 percent  

Description of Warm Springs, Strongly Alkali Setting  
Landform: Lake terraces  
Landform position (three-dimensional): Tread  
Down-slope shape: Linear  
Across-slope shape: Linear  
Parent material: Lacustrine deposits  

Properties and qualities  
Slope: 0 to 1 percent  
Depth to restrictive feature: More than 80 inches  
Drainage class: Somewhat poorly drained  
Capacity of the most limiting layer to transmit water: Moderately high to high (0.60 to 2.00 in/hr)  
Depth to water table: About 24 to 42 inches  
Frequency of flooding: Occasional  
Frequency of ponding: None  
Calcium carbonate, maximum content: 30 percent  
Maximum salinity: Moderately saline to strongly saline (16.0 to 32.0 mmhos/cm)  
Sodium adsorption ratio, maximum: 60.0  
Available water capacity: Low (about 5.3 inches)  

Typical profile  
0 to 8 inches: Fine sandy loam  
8 to 15 inches: Fine sandy loam  
15 to 24 inches: Fine sandy loam  
24 to 37 inches: Fine sandy loam  
37 to 60 inches: Loamy fine sand
Quest Academy – West Haven, UT
**Fa – Ford loam, 0 to 1 percent slopes**

**Map Unit Setting**
Elevation: 4,200 to 4,300 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

**Map Unit Composition**
Ford and similar soils: 90 percent
Minor components: 10 percent

**Description of Ford**

**Setting**
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

**Properties and qualities**
Slope: 0 to 1 percent
Depth to restrictive feature: 20 to 40 inches to petrocalcic
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water
Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Slightly saline to moderately saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 30.0
Available water capacity: Low (about 3.4 inches)

**Typical profile**
0 to 9 inches: Loam
9 to 16 inches: Loam
16 to 34 inches: Fine sandy loam
34 to 44 inches: Indurated
44 to 52 inches: Fine sandy loam
52 to 60 inches: Indurated
Red Mountain Elementary – Ivins, UT

Ib – Ivins loamy fine sand

Map Unit Setting
Elevation: 2,800 to 3,800 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 57 to 67 degrees F
Frost-free period: 170 to 195 days

Map Unit Composition
Ivins and similar soils: 85 percent

Description of Ivins

Setting
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Eolian deposits derived from sandstone and shale

Properties and qualities
Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water
Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 8.6 inches)

Typical profile
0 to 4 inches: Loamy fine sand
4 to 24 inches: Loamy fine sand
24 to 30 inches: Sandy clay loam
30 to 39 inches: Sandy clay
39 to 60 inches: Sandy clay loam
Riverside Elementary – West Jordan, UT

**BsA – Bramwell silty clay loam, 0 to 1 percent slopes**

**Map Unit Setting**
- Elevation: 4,300 to 4,450 feet
- Mean annual precipitation: 13 to 15 inches
- Mean annual air temperature: 49 to 51 degrees F
- Frost-free period: 130 to 150 days

**Map Unit Composition**
- Bramwell and similar soils: 85 percent
- Minor components: 15 percent

**Description of Bramwell**

**Setting**
- Landform: Lake plains
- Landform position (three-dimensional): Talf, rise
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Lacustrine deposits

**Properties and qualities**
- Slope: 0 to 1 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat poorly drained
- Capacity of the most limiting layer to transmit water: Moderately low to moderately high (0.06 to 0.20 in/hr)
- Depth to water table: About 36 to 48 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 30 percent
- Maximum salinity: Nonsaline to slightly saline (2.0 to 8.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 13.0
- Available water capacity: High (about 9.3 inches)

**Typical profile**
- 0 to 2 inches: Silty clay loam
- 2 to 8 inches: Silty clay loam
- 8 to 22 inches: Silty clay loam
- 22 to 35 inches: Silty clay loam
- 35 to 47 inches: Silty clay
- 47 to 72 inches: Clay
Riverside Elementary – Washington, UT  
**Sd – St. George silty clay loam, moderately saline**

**Map Unit Setting**
- Elevation: 2,450 to 3,400 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 57 to 67 degrees F
- Frost-free period: 190 to 195 days

**Map Unit Composition**
- St. George, moderately saline, and similar soils: 80 percent
- Minor components: 10 percent

**Description of St. George, Moderately saline**

**Setting**
- Landform: Valley floors, flood plains
- Landform position (three-dimensional): Talf
- Down-slope shape: Linear
- Across-slope shape: Concave, linear
- Parent material: Alluvium derived from sandstone, siltstone, and shale

**Properties and qualities**
- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Moderately well drained
- Capacity of the most limiting layer to transmit water: Moderately high (0.20 to 0.60 in/hr)
- Depth to water table: About 24 to 42 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 30 percent
- Gypsum, maximum content: 30 percent
- Maximum salinity: Slightly saline to moderately saline (8.0 to 16.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 10.0
- Available water capacity: Moderate (about 7.8 inches)

**Typical profile**
- 0 to 9 inches: Silty clay loam
- 9 to 20 inches: Loam
- 20 to 29 inches: Silt loam
- 29 to 38 inches: Silt loam
- 38 to 60 inches: Loam
Rose Creek Elementary – Riverton, UT

**BnB – Bluffdale silty clay loam, 1 to 3 percent slopes**

**Map Unit Setting**
- Elevation: 4,400 to 4,700 feet
- Mean annual precipitation: 13 to 15 inches
- Mean annual air temperature: 49 to 51 degrees F
- Frost-free period: 130 to 150 days

**Map Unit Composition**
- Bluffdale and similar soils: 85 percent
- Minor components: 15 percent

**Description of Bluffdale**

**Setting**
- Landform: Lake terraces
- Landform position (three-dimensional): Tread
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Lacustrine deposits

**Properties and qualities**
- Slope: 1 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat poorly drained
- Capacity of the most limiting layer to transmit water: Moderately low to moderately high (0.06 to 0.20 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 40 percent
- Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 13.0
- Available water capacity: High (about 10.2 inches)

**Typical profile**
- 0 to 9 inches: Silty clay loam
- 9 to 16 inches: Silty clay loam
- 16 to 22 inches: Silty clay
- 22 to 31 inches: Silty clay
- 31 to 40 inches: Silty clay
- 40 to 62 inches: Silty clay loam
Rose Springs Elementary – Stansbury Park, UT

19 – Erda silty loam, 1 to 5 percent slopes

**Map Unit Setting**
- Elevation: 4,250 to 6,000 feet
- Mean annual precipitation: 12 to 14 inches
- Mean annual air temperature: 45 to 52 degrees F
- Frost-free period: 130 to 170 days

**Map Unit Composition**
- Erda and similar soils: 90 percent
- Minor components: 10 percent

**Description of Erda**

**Setting**
- Landform: Lake terraces, fan remnants
- Landform position (three-dimensional): Tread
- Down-slope shape: Linear, concave
- Across-slope shape: Linear, convex
- Parent material: Alluvium derived from sedimentary rock and/or lacustrine deposits derived from sedimentary rock

**Properties and qualities**
- Slope: 1 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water: Moderately low to moderately high (0.06 to 0.57 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 40 percent
- Maximum salinity: Nonsaline to slightly saline (0.0 to 8.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 30.0
- Available water capacity: High (about 10.2 inches)

**Typical profile**
- 0 to 8 inches: Silt loam
- 8 to 14 inches: Silt loam
- 14 to 39 inches: Silt loam
- 39 to 60 inches: Silt loam
Sandstone Elementary – St. George, UT

JaB – Junction fine sandy loam, 1 to 2 percent slopes

**Map Unit Setting**
- Elevation: 2,700 to 3,400 feet
- Mean annual precipitation: 8 to 11 inches
- Mean annual air temperature: 57 to 67 degrees F
- Frost-free period: 190 to 195 days

**Map Unit Composition**
- Junction and similar soils: 85 percent
- Minor components: 15 percent

**Description of Junction**

**Setting**
- Landform: Alluvial
- Down-slope shape: Concave
- Across-slope shape: Convex

**Properties and qualities**
- Slope: 1 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water
  - High (2.00 to 6.00 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content 20 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Available water capacity: Moderate (about 7.2 inches)

**Typical profile**
- 0 to 2 inches: Fine sandy loam
- 2 to 9 inches: Fine sandy loam
- 9 to 21 inches: Fine sandy loam
- 21 to 32 inches: Fine sandy loam
- 32 to 60 inches: Fine sandy loam

Sb – St. George silt loam, strongly saline

**Map Unit Setting**
- Elevation: 2,450 to 3,400 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 57 to 67 degrees F
Frost-free period: 190 to 195 days

Map Unit Composition
St. George, strongly saline, and similar soils: 90 percent
Minor components: 10 percent

Description of St. George, Strongly Saline

Setting
Landform: Lake Alluvial fans
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone, siltstone, and shale

Properties and qualities
Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 30 percent
Maximum salinity: Moderately saline to strongly saline (16.0 to 32.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water capacity: Low (about 4.2 inches)

Typical profile
0 to 9 inches: Silty loam
9 to 20 inches: Loam
20 to 29 inches: Silty loam
29 to 38 inches: Silty loam
38 to 60 inches: Silty loam
Santa Clara Elementary – Santa Clara, UT

**Ib – Ivins loamy fine sand**

**Map Unit Setting**
- Elevation: 2,800 to 3,800 feet
- Mean annual precipitation: 8 to 11 inches
- Mean annual air temperature: 57 to 67 degrees F
- Frost-free period: 170 to 195 days

**Map Unit Composition**
- Ivins and similar soils: 85 percent

**Description of Ivins**

**Setting**
- Landform: Terraces
- Landform position (three-dimensional): Tread
- Down-slope shape: Linear
- Across-slope shape: Concave
- Parent material: Eolian deposits derived from sandstone and shale

**Properties and qualities**
- Slope: 1 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat excessively drained
- Capacity of the most limiting layer to transmit water: Moderately high (0.20 to 0.60 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 25 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Available water capacity: Moderate (about 8.6 inches)

**Typical profile**
- 0 to 4 inches: Loamy fine sand
- 4 to 24 inches: Loamy fine sand
- 24 to 30 inches: Sandy clay loam
- 30 to 39 inches: Sandy clay
- 39 to 60 inches: Sandy clay loam
Smithfield Elementary – Smithfield, UT
GrA – GREEN GRAVELLY LOAM, 0 TO 3 PERCENT SLOPES

**Map Unit Setting**
Elevation: 4,500 to 5,100 feet
Mean annual precipitation: 14 to 17 inches
Mean annual air temperature: 46 to 49 degrees F
Frost-free period: 130 to 150 days

**Map Unit Composition**
Green canyon and similar soils: 95 percent
Minor components: 5 percent

**Description of Green Canyon**

**Setting**
Landform: Fans
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from limestone and dolomite

**Properties and qualities**
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 50 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 3.3 inches)

**Typical profile**
0 to 9 inches: Gravelly loam
9 to 16 inches: Gravelly loam
16 to 23 inches: Very gravelly fine sandy loam
23 to 60 inches: Very gravelly loamy sand
Sunset Elementary – St. George, UT

BA – Badland

Map Unit Composition
Badland and similar soils: 100 percent

Description of Badland

Setting
Landform: Hills, escarpments
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, free face
Down-slope shape: Concave
Across-slope shape: Convex
Syracuse Arts Academy K-6 – Syracuse, UT
TbA – Timpanogos loam, 0 to 1 percent slopes

Map Unit Setting
Elevation: 4,300 to 5,050 feet
Mean annual precipitation: 14 to 18 inches

Map Unit Composition
Timpanogos and similar soils: 95 percent
Minor components: 5 percent

Description of Bluffdale

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: Moderate (about 8.5 inches)

Typical profile
0 to 6 inches: Loam
6 to 15 inches: Loam
15 to 27 inches: Loam
27 to 39 inches: Loam
39 to 60 inches: Fine sandy loam
Syrcuse Library – Syracuse, UT
TbA – Timpanogos loam, 0 to 1 percent slopes

Map Unit Setting
Elevation: 4,300 to 5,050 feet
Mean annual precipitation: 14 to 18 inches

Map Unit Composition
Timpanogos and similar soils: 95 percent
Minor components: 5 percent

Description of Bluffdale

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: Moderate (about 8.5 inches)

Typical profile
0 to 6 inches: Loam
6 to 15 inches: Loam
15 to 27 inches: Loam
27 to 39 inches: Loam
39 to 60 inches: Fine sandy loam
Terra Linda Elementary – West Jordan, UT  
**BIB – Bluffdale sandy loam, 1 to 3 percent slopes**

**Map Unit Setting**  
Elevation: 4,400 to 4,700 feet  
Mean annual precipitation: 13 to 15 inches  
Mean annual air temperature: 49 to 51 degrees F  
Frost-free period: 130 to 150 days

**Map Unit Composition**  
Bluffdale and similar soils: 100 percent

**Description of Bluffdale**

**Setting**  
Landform: Lake terraces, lake plains  
Landform position (three-dimensional): Talf, rise  
Down-slope shape: Linear  
Across-slope shape: Linear  
Parent material: Lacustrine deposits

**Properties and qualities**  
Slope: 1 to 3 percent  
Depth to restrictive feature: More than 80 inches  
Drainage class: Moderately well drained  
Capacity of the most limiting layer to transmit water  
Moderately low to moderately high (0.06 to 0.20 in/hr)  
Depth to water table: More than 80 inches  
Frequency of flooding: None  
Frequency of ponding: None  
Calcium carbonate, maximum content: 40 percent  
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)  
Sodium adsorption ratio, maximum: 13.0  
Available water capacity: High (about 9.5 inches)

**Typical profile**  
0 to 9 inches: Sandy loam  
9 to 16 inches: Silty clay loam  
16 to 22 inches: Silty clay  
22 to 31 inches: Silty clay  
31 to 40 inches: Silty clay  
40 to 62 inches: Silty clay loam
Thomas O. Smith Elementary – Ogden, UT

HaB – Harrisville silt loam, 1 to 3 percent slopes

**Map Unit Setting**
Elevation: 4,250 to 4,500 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

**Map Unit Composition**
Harrisville and similar soils: 100 percent

**Description of Harrisville**

**Setting**
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/ or lacustrine deposits

**Properties and qualities**
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 30 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 50.0
Available water capacity: High (about 10.2 inches)

**Typical profile**
0 to 8 inches: Silty loam
8 to 14 inches: Silty clay loam
14 to 22 inches: Silty clay loam
22 to 33 inches: Silty clay loam
33 to 45 inches: Silty clay loam
45 to 60 inches: Silty clay loam
Three Mile Creek Elementary – Perry, UT
KnC – Kilburn gravelly sandy loam, 3 to 6 percent slopes

**Map Unit Setting**
Elevation: 4,270 to 5,150 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 160 days

**Map Unit Composition**
Kilburn and similar soils: 95 percent
Minor components: 5 percent

**Description of Kilburn**

**Setting**
Landform: Alluvial fans
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from quartzite, gneiss, and schist.

**Properties and qualities**
Slope: 3 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Low (about 5.3 inches)

**Typical profile**
0 to 8 inches: Gravelly sandy loam
8 to 14 inches: Gravelly sandy loam
14 to 22 inches: Gravelly loam
22 to 35 inches: Very gravelly sandy loam
35 to 60 inches: Very gravelly loamy sand
Tooele City Library – Tooele, UT

37 – Lakewin gravelly loam, 1 to 5 percent slopes

**Map Unit Setting**
Elevation: 4,700 to 5,200 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 140 to 170 days

**Map Unit Composition**
Lakewin canyon and similar soils: 85 percent
Minor components: 15 percent

**Description of Lakewin**

**Setting**
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and lacustrine derived from quartzite and limestone

**Properties and qualities**
Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Available water capacity: Low (about 4.5 inches)

**Typical profile**
0 to 7 inches: Gravelly loam
7 to 18 inches: Gravelly sandy clay loam
18 to 30 inches: Very gravelly sandy loam
30 to 60 inches: Very gravelly sand
6 – Birdow loam, 1 to 4 percent slopes

Map Unit Setting
Elevation: 4,250 to 6,200 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days

Map Unit Composition
Birdow and similar soils: 90 percent
Minor components: 10 percent

Description of Birdow

Setting
Landform: Alluvial fans, flood plains, stream terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Concave, linear
Across-slope shape: Convex, concave

Properties and qualities
Slope: 1 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.59 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.6 inches)

Typical profile
0 to 10 inches: Loam
10 to 28 inches: Loam
28 to 60 inches: Loam
HIB – Hillfield loam, 1 to 3 percent slopes

Map Unit Setting
Elevation: 4,400 to 4,800 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

Map Unit Composition
Hillfield and similar soils: 95 percent
Minor components: 5 percent

Description of Hillfield

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

Properties and qualities
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water capacity: Moderate (about 8.8 inches)

Typical profile
0 to 3 inches: Loam
3 to 10 inches: Loam
10 to 18 inches: Loam
18 to 31 inches: Loam
31 to 50 inches: Very fine sandy loam
50 to 60 inches: Sandy loam
Wasatch County Library – Heber City, UT
Hr – Holmes gravelly loam

Map Unit Composition
Holmes and similar soils: 85 percent
Minor components: 15 percent

Description of Holmes

Setting
Landform: Stream terraces, alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Concave, convex

Properties and qualities
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.3 inches)

Typical profile
0 to 11 inches: Gravelly loam
11 to 21 inches: Very gravelly loam
21 to 28 inches: Extremely gravelly coarse sandy loam
28 to 60 inches: Extremely gravelly loamy coarse sand
Wasatch Elementary – Ogden, UT
HaB – Harrisville silt loam, 1 to 3 percent slopes

Map Unit Setting
Elevation: 4,250 to 4,500 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

Map Unit Composition
Harrisville and similar soils: 100 percent

Description of Harrisville

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/ or lacustrine deposits

Properties and qualities
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 30 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 50.0
Available water capacity: High (about 10.2 inches)

Typical profile
0 to 8 inches: Silty loam
8 to 14 inches: Silty clay loam
14 to 22 inches: Silty clay loam
22 to 33 inches: Silty clay loam
33 to 45 inches: Silty clay loam
45 to 60 inches: Silty clay loam
Wasatch Peak Academy K-6 – North Salt Lake, UT
PNA – Payson-Warm Springs complex, 0 to 3 percent slopes

Map Unit Setting
Elevation: 4,200 to 4,600 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

Map Unit Composition
Payson and similar soils: 65 percent
Warm springs, deep over clay, and similar soils: 30 percent
Minor components: 5 percent

Description of Payson

Setting
Landform: Swales on lake terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Lacustrine deposits

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water
Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content 40 percent
Maximum salinity: Very slightly saline to moderately saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 60.0
Available water capacity: High (about 9.1 inches)

Typical profile
0 to 2 inches: Silt loam
2 to 4 inches: Silt loam
4 to 9 inches: Silty clay loam
9 to 24 inches: Clay
24 to 60 inches: Silt loam
Washington Elementary – Washington, UT
HG – Hobog-Rock land association

**Map Unit Setting**
Elevation: 2,600 to 3,800 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 57 to 67 degrees F
Frost-free period: 190 to 195 days

**Map Unit Composition**
Hobog and similar soils: 50 percent
Rock land: 40 percent

**Description of Hobog**

**Setting**
Landform: Mesas
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Material weathered from sandstone

**Properties and qualities**
Slope: 3 to 40 percent
Depth to restrictive feature: 8 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Very low (about 0.6 inches)

**Typical profile**
0 to 4 inches: Very cobbly loam
4 to 13 inches: Very flaggy loam
13 to 17 inches: Unweathered bedrock
Map Unit Setting
Elevation: 2,600 to 3,800 feet
Mean annual precipitation: 8 to 11 inches
Mean annual air temperature: 57 to 67 degrees F
Frost-free period: 190 to 195 days

Map Unit Composition
Hobog and similar soils: 50 percent
Rock land: 40 percent

Description of Hobog

Setting
Landform: Mesas
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Material weathered from sandstone

Properties and qualities
Slope: 3 to 40 percent
Depth to restrictive feature: 8 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Very low (about 0.6 inches)

Typical profile
0 to 4 inches: Very cobbly loam
4 to 13 inches: Very flaggy loam
13 to 17 inches: Unweathered bedrock
Welby Elementary – South Jordan, UT

**BhB – Bingham gravelly loam, 3 to 6 percent slopes**

**Map Unit Setting**
Elevation: 4,350 to 5,200 feet
Mean annual precipitation: 16 to 18 inches
Mean annual air temperature: 51 to 54 degrees F
Frost-free period: 150 to 180 days

**Map Unit Composition**
Bingham and similar soils: 95 percent
Minor components: 5 percent

**Description of Bingham**

**Setting**
Landform: Alluvial fans, lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Gravelly alluvium

**Properties and qualities**
Slope: 3 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Low (about 4.8 inches)

**Typical profile**
0 to 6 inches: Gravelly loam
6 to 10 inches: Gravelly loam
10 to 14 inches: Gravelly clay loam
14 to 23 inches: Gravelly clay loam
23 to 35 inches: Cobbly clay loam
35 to 60 inches: Very cobbly loamy sand
West Elementary – Tooele, UT

6 – Birdow loam, 1 to 4 percent slopes

**Map Unit Setting**
- Elevation: 4,250 to 6,200 feet
- Mean annual precipitation: 10 to 14 inches
- Mean annual air temperature: 45 to 48 degrees F
- Frost-free period: 100 to 170 days

**Map Unit Composition**
- Birdow and similar soils: 90 percent
- Minor components: 10 percent

**Description of Birdow**

**Setting**
- Landform: Alluvial fans, flood plains, stream terraces
- Landform position (three-dimensional): Tread, talf, dip
- Down-slope shape: Concave, linear
- Across-slope shape: Convex, linear

**Properties and qualities**
- Slope: 1 to 4 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water: Moderately high to high (0.59 to 1.98 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: Rare
- Frequency of ponding: None
- Calcium carbonate, maximum content: 15 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Available water capacity: High (about 9.6 inches)

**Typical profile**
- 0 to 10 inches: Loam
- 10 to 28 inches: Loam
- 28 to 60 inches: Loam
West Jordan Elementary – West Jordan, UT  
BnB – Bluffdale silty clay loam, 1 to 3 percent slopes

Map Unit Setting  
Elevation: 4,400 to 4,700 feet  
Mean annual precipitation: 13 to 15 inches  
Mean annual air temperature: 49 to 51 degrees F  
Frost-free period: 130 to 150 days

Map Unit Composition  
Bluffdale and similar soils: 85 percent  
Minor components: 15 percent

Description of Bluffdale  
Setting  
Landform: Lake terraces  
Landform position (three-dimensional): Tread  
Down-slope shape: Linear  
Across-slope shape: Linear  
Parent material: Lacustrine deposits

Properties and qualities  
Slope: 1 to 3 percent  
Depth to restrictive feature: More than 80 inches  
Drainage class: Moderately well drained  
Capacity of the most limiting layer to transmit water  
Moderately low to moderately high (0.06 to 0.20 in/hr)  
Depth to water table: More than 80 inches  
Frequency of flooding: None  
Frequency of ponding: None  
Calcium carbonate, maximum content: 40 percent  
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)  
Sodium adsorption ratio, maximum: 13.0  
Available water capacity: High (about 10.2 inches)

Typical profile  
0 to 9 inches: Silty clay loam  
9 to 16 inches: Silty clay loam  
16 to 22 inches: Silty clay  
22 to 31 inches: Silty clay  
31 to 40 inches: Silty clay  
40 to 62 inches: Silty clay loam
Westland Elementary – West Jordan, UT

**BnB – Bluffdale silty clay loam, 1 to 3 percent slopes**

**Map Unit Setting**
Elevation: 4,400 to 4,700 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 130 to 150 days

**Map Unit Composition**
Bluffdale and similar soils: 85 percent
Minor components: 15 percent

**Description of Bluffdale Setting**
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

**Properties and qualities**
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: High (about 10.2 inches)

**Typical profile**
0 to 9 inches: Silty clay loam
9 to 16 inches: Silty clay loam
16 to 22 inches: Silty clay
22 to 31 inches: Silty clay
31 to 40 inches: Silty clay
40 to 62 inches: Silty clay loam
Westvale Elementary – West Jordan, UT  
**BhA – Bingham gravelly loam, 1 to 3 percent slopes**

**Map Unit Setting**  
Elevation: 4,350 to 5,200 feet  
Mean annual precipitation: 16 to 18 inches  
Mean annual air temperature: 51 to 54 degrees F  
Frost-free period: 150 to 180 days

**Map Unit Composition**  
Bingham and similar soils: 85 percent  
Minor components: 15 percent

**Description of Bingham Setting**

**Landform:** Alluvial fans, lake terraces

**Landform position (three-dimensional):** Tread

**Down-slope shape:** Linear

**Across-slope shape:** Linear

**Parent material:** Gravelly alluvium

**Properties and qualities**

**Slope:** 1 to 3 percent  
**Depth to restrictive feature:** More than 80 inches  
**Drainage class:** Well drained  
Capacity of the most limiting layer to transmit water  
**High** (2.00 to 6.00 in/hr)

**Depth to water table:** More than 80 inches  
**Frequency of flooding:** None  
**Frequency of ponding:** None  
**Calcium carbonate, maximum content:** 40 percent  
**Maximum salinity:** Nonsaline (0.0 to 2.0 mmhos/cm)  
**Sodium adsorption ratio, maximum:** 5.0  
**Available water capacity:** Low (about 4.8 inches)

**Typical profile**

0 to 6 inches: Gravelly loam  
6 to 10 inches: Gravelly loam  
10 to 14 inches: Gravelly loam  
14 to 23 inches: Gravelly clay loam  
23 to 35 inches: Cobbly clay loam  
35 to 60 inches: Very cobbly loamy sand
Willard Elementary – Willard, UT

**WcC – Wasatch gravelly sandy loam, 3 to 10 percent slopes**

**Map Unit Setting**
- Elevation: 4,270 to 5,200 feet
- Mean annual precipitation: 14 to 18 inches
- Mean annual air temperature: 46 to 48 degrees F
- Frost-free period: 140 to 150 days

**Map Unit Composition**
- Wasatch and similar soils: 85 percent
- Minor components: 15 percent

**Description of Wasatch**

**Setting**
- Landform: Alluvial fans
- Down-slope shape: Concave
- Across-slope shape: Convex
- Parent material: Alluvium derived from quartzite, gneiss, and schist

**Properties and qualities**
- Slope: 3 to 10 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat excessively drained
- Capacity of the most limiting layer to transmit water: High (2.00 to 6.00 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Available water capacity: Low (about 3.5 inches)

**Typical profile**
- 0 to 1 inches: Gravelly sandy loam
- 1 to 11 inches: Gravelly sandy loam
- 11 to 29 inches: Gravelly sandy loam
- 29 to 60 inches: Very gravelly sand
Ogden Weber CAP Head Start – Ogden, UT
HaB – Harrisville silt loam, 1 to 3 percent slopes

Map Unit Setting
Elevation: 4,250 to 4,500 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 160 to 180 days

Map Unit Composition
Harrisville and similar soils: 100 percent

Description of Harrisville

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/ or lacustrine deposits

Properties and qualities
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 30 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 30 percent
Maximum salinity: Nonsaline to very slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 50.0
Available water capacity: High (about 10.2 inches)

Typical profile
0 to 8 inches: Silty loam
8 to 14 inches: Silty clay loam
14 to 22 inches: Silty clay loam
22 to 33 inches: Silty clay loam
33 to 45 inches: Silty clay loam
45 to 60 inches: Silty clay loam
Karl Maeser Preparatory Academy – Lindon, UT
RdA – Redola loam, 0 to 3 percent slopes

Map Unit Setting
Elevation: 4,600 to 5,000 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 130 to 150 days

Map Unit Composition
Redola and similar soils: 95 percent
Minor components: 5 percent

Description of Redola
Setting
Landform: Flood plains, alluvial fans
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Concave, convex
Parent material: Alluvium derived from limestone and sandstone

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 8.1 inches)

Typical profile
0 to 8 inches: Loam
8 to 30 inches: Loam
30 to 50 inches: Stratified gravelly coarse sand to very fine sand loam
50 to 60 inches: Gravelly coarse sand
Timpanogos Academy K-8 – Lindon, UT
PcB – Parleys silty clay loam, 0 to 3 percent slopes

Map Unit Setting
Elevation: 4,650 to 5,000 feet
Mean annual precipitation: 15 to 20 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 150 to 170 days

Map Unit Composition
Parleys and similar soils: 100 percent

Description of Parleys

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits derived from mixed sources

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.2 inches)

Typical profile
0 to 7 inches: Silty clay loam
7 to 20 inches: Silty clay loam
20 to 35 inches: Silty clay loam
35 to 67 inches: Silt loam
TmB – Timpanogos loam, 0 to 3 percent slopes

Map Unit Setting
Elevation: 4,700 to 4,900 feet
Mean annual precipitation: 15 to 18 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 150 to 170 days

Map Unit Composition
Timpanogos and similar soils: 90 percent
Minor components: 10 percent

Description of Timpanogos

Setting
Landform: Lake terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits derived from derived from limestone, quartzite and granite

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: Moderate (about 8.7 inches)

Typical profile
0 to 9 inches: Loam
9 to 14 inches: Loam
14 to 18 inches: Loam
18 to 48 inches: Silt loam
48 to 60 inches: Gravelly loamy coarse sand
Brigham City Carnegie Library – Brigham City, UT
KoB – Kilburn gravelly loam, 1 to 3 percent slopes

Map Unit Setting
Elevation: 4,270 to 5,150 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 49 to 50 degrees F
Frost-free period: 130 to 160 days

Map Unit Composition
Kilburn and similar soils: 90 percent
Minor components: 10 percent

Description of Kilburn

Setting
Landform: Alluvial fans
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium derived from quartzite, gneiss, and schist.

Properties and qualities
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 15 percent
Available water capacity: Low (about 5.6 inches)

Typical profile
0 to 8 inches: Gravelly loam
8 to 14 inches: Gravelly sandy loam
14 to 22 inches: Gravelly loam
22 to 35 inches: Very gravelly sandy loam
35 to 60 inches: Very gravelly sandy loam
Layton Library – Layton, UT
AbB – Ackmen loam, 1 to 3 percent slopes

**Map Unit Setting**
Elevation: 4,400 to 5,300 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 120 to 150 days

**Map Unit Composition**
Ackmen and similar soils: 100 percent

**Description of Ackmen**

**Setting**
Landform: Alluvial fans
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Slope alluvium

**Properties and qualities**
Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.6 inches)

**Typical profile**
0 to 6 inches: Loam
6 to 32 inches: Loam
32 to 60 inches: Loam
Payson Library – Payson, UT

**RdA – Redola loam, 0 to 3 percent slopes**

**Map Unit Setting**
- Elevation: 4,600 to 5,000 feet
- Mean annual precipitation: 14 to 16 inches
- Mean annual air temperature: 46 to 48 degrees F
- Frost-free period: 130 to 150 days

**Map Unit Composition**
- Redola and similar soils: 95 percent
- Minor components: 5 percent

**Description of Redola**

**Setting**
- Landform: Flood plains, alluvial fans
- Landform position (three-dimensional): Talf, dip
- Down-slope shape: Linear, concave
- Across-slope shape: Concave, convex
- Parent material: Alluvium derived from limestone and sandstone

**Properties and qualities**
- Slope: 0 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water
  - Moderately high to high (0.60 to 2.00 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 30 percent
- Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
- Available water capacity: Moderate (about 8.1 inches)

**Typical profile**
- 0 to 8 inches: Loam
- 8 to 30 inches: Loam
- 30 to 50 inches: Stratified gravelly coarse sand to very fine sandy loam
- 50 to 60 inches: Gravelly coarse sand
Iron County Bookmobile Repository Library – Enoch, UT

504 – Wales loam, 0 to 2 percent slopes

Map Unit Setting
Elevation: 5,000 to 5,800 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 140 days

Map Unit Composition
Wales and similar soils: 85 percent
Minor components: 15 percent

Description of Wales

Setting
Landform: Fan remnants, alluvial flats, alluvial fans
Parent material: Alluvium derived from igneous and sedimentary rock

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 15 percent
Maximum salinity: Nonsaline to very slightly saline(0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: High (about 9.5 inches)

Typical profile
0 to 3 inches: Loam
3 to 21 inches: Silt loam
21 to 32 inches: Loam
32 to 41 inches: Sandy loam
41 to 53 inches: Silt Loam
53 to 60 inches: Stratified sand to silt loam
Parowan Public Library – Parowan, UT

307 – Ashdown clay loam, 0 to 2 percent slopes

Map Unit Setting
Elevation: 5,400 to 5,700 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 140 days

Map Unit Composition
Ashdown and similar soils: 85 percent
Minor components: 15 percent

Description of Ashdown

Setting
Landform: Stream terraces, alluvial flats, alluvial fans
Parent material: Alluvium derived from igneous and sedimentary rock

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content 35 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Available water capacity: High (about 10.5 inches)

Typical profile
0 to 9 inches: Clay loam
9 to 24 inches: Clay loam
24 to 43 inches: Loam
43 to 54 inches: Silt loam
54 to 60 inches: Loam
Rural Utah Child Development Head Start – Wellington, UT

64 – Minchey loam, 1 to 3 percent slopes

**Map Unit Setting**
- Elevation: 5,380 to 5,880 feet
- Mean annual precipitation: 6 to 8 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 115 to 140 days

**Map Unit Composition**
- Minchey and similar soils: 85 percent
- Minor components: 15 percent

**Description of Minchey**

**Setting**
- Landform: Benches, mesas
- Down-slope shape: Linear
- Across-slope shape: Linear
- Parent material: Outwash derived from sandstone, quartzite and shale

**Properties and qualities**
- Slope: 1 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Well drained
- Capacity of the most limiting layer to transmit water: Moderately high (0.20 to 0.60 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 60 percent
- Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/com)
- Sodium adsorption ratio, maximum: 5.0
- Available water capacity: Moderate (about 7.8 inches)

**Typical profile**
- 0 to 3 inches: Loam
- 3 to 12 inches: Clay loam
- 12 to 20 inches: Clay loam
- 20 to 32 inches: Sandy clay loam
- 32 to 48 inches: Gravelly sandy loam
- 48 to 64 inches: Very gravelly sandy loam
Delta City Library – Delta, UT

As – **Anco silty clay loam**

**Map Unit Setting**
- Elevation: 4,500 to 4,800 feet
- Mean annual precipitation: 6 to 8 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 115 to 120 days

**Map Unit Composition**
- Anco and similar soils: 90 percent
- Minor components: 10 percent

**Description of Anco**

**Setting**
- Landform: Flood plains, deltas
- Landform position: (three-dimensional): Talf
- Down-slope shape: Linear
- Across-slope shape: Concave, linear
- Parent material: Alluvium and/or lacustrine deposits

**Properties and qualities**
- Slope: 0 to 1 percent
- Depth to restrictive feature: More than 80 inches
- Drainage class: Somewhat poorly drained
- Capacity of the most limiting layer to transmit water: Moderately low to moderately high (0.06 to 0.20 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum content: 40 percent
- Gypsum, maximum content: 1 percent
- Maximum salinity: Very slightly saline to moderately saline (4.0 to 16.0 mmhos/cm)
- Sodium adsorption ratio, maximum: 13.0
- Available water capacity: Moderate (about 7.8 inches)

**Typical profile**
- 0 to 7 inches: Silty clay loam
- 7 to 21 inches: Silty clay loam
- 21 to 33 inches: Silt loam
- 33 to 41 inches: Loamy fine sand
- 41 to 49 inches: Silty clay loam
- 49 to 61 inches: Silt loam
Monticello Library – Monticello, UT

MnD – Monticello very fine sandy loam, 0 to 10 percent slopes

Map Unit Setting
Elevation: 5,800 to 7,500 feet
Mean annual precipitation: 14 to 18 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 140 days

Map Unit Composition
Monticello and similar soils: 100 percent

Description of Monticello

Setting
Landform: Plateaus
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from sandstone

Properties and qualities
Slope: 0 to 10 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: High (about 10.1 inches)

Typical profile
0 to 4 inches: Very fine sandy loam
4 to 8 inches: Very fine sandy loam
8 to 22 inches: Loam
22 to 32 inches: Loam
32 to 45 inches: Loam
45 to 60 inches: Loam
President Millard Fillmore Library – Fillmore, UT

38 – Donnard–Borvant–Collard complex, 2 to 5 percent slopes

**Map Unit Setting**
Elevation: 4,800 to 5,500 feet  
Mean annual precipitation: 12 to 16 inches  
Mean annual air temperature: 46 to 52 degrees F  
Frost-free period: 100 to 150 days

**Map Unit Composition**
Donnardo and similar soils: 40 percent  
Collard and similar soils: 25 percent  
Borvant and similar soils: 25 percent  
Minor components: 10 percent

**Description of Donnardo**

**Setting**
Landform: Fan remnants  
Down-slope shape: Concave  
Across-slope shape: Convex  
Parent material: Alluvium from limestone and sandstone

**Properties and qualities**
Slope: 2 to 5 percent  
Depth to restrictive feature: More than 80 inches  
Drainage class: Well drained  
Capacity of the most limiting layer to transmit water: Moderately high to high (0.60 to 2.00 in/hr)  
Depth to water table: More than 80 inches  
Frequency of flooding: None  
Frequency of ponding: None  
Calcium carbonate, maximum content: 40 percent  
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)  
Available water capacity: Low (about 5.8 inches)

**Typical profile**
0 to 11 inches: Gravelly fine sandy loam  
11 to 21 inches: Gravelly fine sandy loam  
21 to 60 inches: Very cobbly loam
Appendix E

Water Resources
List of Wetland maps and FEMA flood maps by Project

Bountiful Library (South Davis) – Bountiful, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Adult Education Center – Tooele, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Arrowhead Elementary – Santa Clara, UT

**Floodplain Maps**

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Bear River Charter School – Logan, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone C as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Beaver City Library – Beaver, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone C as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
NEPA and NHPA Assessment

Bluffdale Elementary – Bluffdale, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Bonneville Elementary – Ogden, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Bunderson Elementary – Brigham City, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Canyon Rim Academy – Salt Lake City, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Flood Hazard Zone AO as indicated on the map below. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas, appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Clearfield Library (North Davis) – Clearfield, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Columbia Elementary – West Jordan, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Coral Canyon Elementary – Washington, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Coral Cliffs Elementary – St. George, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Corrine Early Learning Center – Corrine, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Davis County Library – Farmington, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Diamond Valley Elementary – St. George, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
District Early Learning Center – Tooele City, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
District Transportation Building – Brigham City, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Dixie Downs Elementary – St. George, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Elk Meadows Elementary – South Jordan, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Excelsior Academy – Erda, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone D as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Foothill Elementary – Brigham City, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Freedom Academy K-7 – Provo, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
George Washington Academy – St. George, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Guadalupe Schools K-3 – Salt Lake City, UT

Existing Flood Zone Maps – This area is located within a flood zone AE as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Hawthorn Academy – West Jordan, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Hayden Peak Elementary – West Jordan, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Heritage Elementary – St. George, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Highland City Library – Highland, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Hillcrest Elementary – Ogden, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Horace Mann Elementary – Ogden, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Horizon Elementary – Washington, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Hurricane Library – Hurricane, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Hyrum Library – Hyrum, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone C as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
James Madison Elementary – Ogden, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
John Hancock School K-8 – Pleasant Grove, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Kaysville Library – Kaysville, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Lakeview Elementary – Brigham City, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Lakeview Academy K-9 – Saratoga Springs, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
LaVerkin Elementary – LaVerkin, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Lehi City Public Library – Lehi, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Liberty Academy K-12 – Salem, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Lincoln Academy K-9 – Pleasant Grove, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Lincoln Elementary – Ogden, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Logan Library – Logan, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone C as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Midas Creek Elementary – Riverton, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Monte Vista Elementary – South Jordan, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Morgan County Library – Morgan, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Mountain Shadows Elementary – West Jordan, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Mountain View Elementary – Brigham City, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Mtn. Green Elementary – Mtn. Green, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
New Harmony Library – New Harmony, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Nibley Elementary – Nibley, UT

Source: http://www.fws.gov/wetlands/Data/GoogleEarth.html

Coverage: All Wetlands in the State of Utah. For Specific detailed locations, view public records.

**Floodplain Maps**

Existing Flood Zone Maps – This area is located within an area that has not been mapped by FEMA. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas, appropriate steps will be followed.
Northlake Elementary – Tooele, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Open Classroom K-8 – Salt Lake City, UT

Existing Flood Zone Maps – This area is located within a non flood zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Oquirrh Elementary – West Jordan, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Park City Library – Park City, UT

Existing Flood Zone Maps – This area is located within a Flood Hazard Zone AO as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Pleasant Grove Library – Pleasant Grove, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Polk Elementary – Ogden, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Quest Academy – West Haven, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas, appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Richfield Public Library – Richfield, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Riverside Elementary – West Jordan, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Riverside Elementary – Washington, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Rose Creek Elementary – Riverton, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Rose Springs Elementary – Stansbury Park, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Sandstone Elementary – St. George, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Santa Clara Elementary – Santa Clara, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Smithfield Elementary – Smithfield, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone C as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Sunset Elementary – St. George, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
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Terra Linda Elementary – West Jordan, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Thomas O. Smith Elementary – Ogden, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone C as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within an unmapped area. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas, appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within an unmapped area. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas, appropriate steps will be followed.
Wasatch County Library – Heber City, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas, appropriate steps will be followed.
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Washington Library – Washington, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
West Elementary – Tooele, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
West Jordan Elementary – West Jordan, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Westland Elementary – West Jordan, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
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Willard Elementary – Willard, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Timpanogos Academy K-8 – Lindon, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone C as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Existing Flood Zone Maps – The proposed flood map for the area is not available through FEMA. However, construction will not be affected by a potential flood zone. Where construction falls within flood areas, appropriate steps will be followed.
Brigham City Carnegie Library – Brigham City, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone X as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
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Payson Library – Payson, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone C as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Iron County Bookmobile Repository Library – Enoch, UT

Existing Flood Zone Maps – This area is located within a non Flood Hazard Zone C as indicated on the map below. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas, appropriate steps will be followed.
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Delta City Library – Delta, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone C as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Monticello Library – Monticello, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone C as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
President Millard Fillmore Library – Fillmore, UT

Existing Flood Zone Maps – This area is located within a Non Hazard Zone C as indicated on these maps. When designing fiber routes, the flood maps will be reviewed for exact locations. Where construction falls within flood areas appropriate steps will be followed.
Appendix F

Biological Resources
Migratory Bird Flyway

http://www.birdnature.com/flyways.html
Opportunities abound in Utah for the public to observe, appreciate and understand wildlife and people's role in the environment. In 1998, 39,500 people visited National Wildlife Refuges in Utah. The Refuges themselves are diverse, both in location and in their approach to wildlife and habitat management.

**Bear River MBR** Migratory Bird Refuge is located on the north shore of the Great Salt Lake. The Bear River Delta has long been considered one of the most valuable water bird and wetland areas of the Intermountain West. In 1991, the Refuge was designated as a Western Hemisphere Shorebird Reserve.

Established in 1959, **Fish Springs NWR** National Wildlife Refuge was named for the native fish, the Utah chub. The lush habitat of the Refuge, surrounded by miles of Great Basin Desert, is a true oasis for wildlife.

**Ouray NWR** National Wildlife Refuge lies along the Green River and includes desert uplands, wetlands, and riverine and cottonwood forest. The Refuge includes critical habitat for the endangered Colorado pike minnow and razorback sucker.
Appendix F-1

Federally endangered and threatened species in Utah

United States Department of the Interior
FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
UTAH FIELD OFFICE
2369 West Orton Circle, Suite 50
West Valley City, Utah 84119
Phone 801-975-3330

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
UTAH COUNTIES

October 2009

SYMBOLS:
* - Nest in this county of Utah
© - There is designated critical habitat for the species within the county
ø - Migrates through Utah, no resident populations
▲ - Wintering populations, only eight known nesting pairs in Utah
▼ - Critical habitat proposed in this county
◄ - Historical range
▲ - Experimental non-essential population
# - Introduced, refuge population
Ж - "Western" Yellow-billed Cuckoo = distinct population segment in Utah
+ - Water depletions from any portion of the occupied drainage basin are considered to adversely affect or adversely modify the critical habitat of the endangered fish species, and must be evaluated with regard to the criteria described in the pertinent fish recovery populations

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University of Utah
BTOP Award #NT10BIX5570024
Black-footed Ferret ▲
Bonytail ● ±
Colorado Pikeminnow ● ±
Humpback Chub ● ±
Mexican Spotted Owl ●
Razorback Sucker ● ±
Uinta Basin Hookless Cactus
Yellow-billed Cuckoo ▲

DAGGETT
Black-footed Ferret ▲
Bonytail ● ±
Canada Lynx
Colorado Pikeminnow ● ±
Humpback Chub ● ±
Razorback Sucker ● ±
Ute Ladies'-tresses
Yellow-billed Cuckoo ▲

DAVIS

Yellow-billed Cuckoo ▲

DUCHESSNE

Barney Ridge-cress
Black-footed Ferret ▲ ▲
Bonytail ● ±
Canada Lynx
Colorado Pikeminnow ● ±
Humpback Chub ● ±
Mexican spotted owl (suitable habitat occurs in Southern Duchesne County, including Nine-Mile & Argyle Canyon)

Pariette cactus
Razorback Sucker ● ±
Shrubby Reed-mustard
Uinta Basin Hookless Cactus
Ute Ladies'-tresses
Yellow-billed Cuckoo ▲

EMERY

California Condor ▲
Barney Reed-mustard
Black-footed Ferret ▲ ▲
Bonytail ● ±
Colorado Pikeminnow ● ±
Humpback Chub ● ±
Jones Cycladenia
Last Chance Townsendia
Maguire Daisy

Mustela nigripes
Gila elegans
Ptychocheilus lucius
Clica cypha
Sistrurus occidentalis
Xyrauchen texanus
Sclerocactus wrightii
Coccoicus americanus
Mustela nigripes
Gila elegans
Lyca canadensis
Ptychocheilus lucius
Clica cypha
Xyrauchen texanus
Spiranthes diurbanalis
Coccoicus americanus
Lepidium barbeanum
Mustela nigripes
Gila elegans
Lyca canadensis
Ptychocheilus lucius
Clica cypha
Sistrurus occidentalis lucida
Sclerocactus brevispinus
Xyrauchen texanus
Schoenocrambe suffrutescens
Sclerocactus wrightii
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Coccoicus americanus
Gymnopyx californianus
Schoenocrambe barnebyi
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Gila cypha
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Erigeron maguirei
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<td>Razorback Sucker</td>
<td>Xyrauchen texanus</td>
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<tr>
<td>Southwestern Willow Flycatcher</td>
<td>Engpaloaxus treilli extimus</td>
</tr>
<tr>
<td>Yellow-billed Cuckoo</td>
<td>Coccyzus americana</td>
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</table>
Bonytail \( \oplus \pm \)
Canada Lynx
Colorado Pikeminnow \( \oplus \pm \)
Heliotrope Milk-vetch \( \oplus \)
Humpback Chub \( \oplus \pm \)
Razorback Sucker \( \oplus \pm \)
Utah Prairie Dog
Yellow-billed Cuckoo \( \mathcal{X} \)

**SEVIER**

Bonytail \( \oplus \pm \)
California Condor \( \blacktriangle \)
Colorado Pikeminnow \( \oplus \pm \)
Humpback Chub \( \oplus \pm \)
Last Chance Townsendia
Razorback Sucker \( \oplus \pm \)
Utah Prairie Dog
Wright Fishhook Cactus
Yellow-billed Cuckoo \( \mathcal{X} \)

**SUMMIT**

Black-footed Ferret \( \blacktriangle \)
Bonytail \( \oplus \pm \)
Canada Lynx
Colorado Pikeminnow \( \oplus \pm \)
Humpback Chub \( \oplus \pm \)
Razorback Sucker \( \oplus \pm \)
Yellow-billed Cuckoo \( \mathcal{X} \)

**TOOELE**

Ute Ladies'-tresses
Yellow-billed Cuckoo \( \mathcal{X} \)

**UARTAH**

Black-footed Ferret \( \blacktriangle \)
Bonytail \( \oplus \pm \)
Canada Lynx
Clay Reed-mustard
Colorado Pikeminnow \( \oplus \pm \)
Humpback Chub \( \oplus \pm \)
Mexican Spotted Owl \( \oplus \)
Pariette cactus
Razorback Sucker \( \oplus \pm \)
Shrubby Reed-mustard
Utina Basin Hookless Cactus
Ute Ladies'-tresses
White River Penstemon
Yellow-billed Cuckoo \( \mathcal{X} \)

**UTAH**

Bonytail \( \oplus \pm \)

**Codes:**
- **E** - Endangered
- **T** - Threatened
<table>
<thead>
<tr>
<th>Species</th>
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<td>Clay Pincushion</td>
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<tr>
<td>Colorado Pikeminnow</td>
<td>Psychochilus lucius</td>
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<tr>
<td>Desert Milk-vetch</td>
<td>Astraptes desvertetus</td>
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<td>Humphack Club</td>
<td>Gila cypha</td>
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<td>June Sucker</td>
<td>Chasmistes biurus</td>
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<tr>
<td>Razorback Sucker</td>
<td>Xyrauchen texanus</td>
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<tr>
<td>Utah Valvata Snail</td>
<td>Valvata utahensis</td>
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<td>Ute Ladies'-tresses</td>
<td>Spiranthus diluvialis</td>
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<tr>
<td>Yellow-billed Cuckoo</td>
<td>Coccycs ameriasms</td>
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**WASATCH**

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<td>Bonytail</td>
<td>Gila elegans</td>
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<tr>
<td>Canada Lynx</td>
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<tr>
<td>Colorado Pikeminnow</td>
<td>Psychochilus lucius</td>
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<tr>
<td>Razorback Sucker</td>
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<td>Utah Ladies'-tresses</td>
<td>Spiranthus diluvialis</td>
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<tr>
<td>Yellow-billed Cuckoo</td>
<td>Coccycs americans</td>
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**WASHINGTON**

<table>
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<tr>
<th>Species</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Condor</td>
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<tr>
<td>Dwarf Bear-poppy</td>
<td>Gopherus agassizii</td>
</tr>
<tr>
<td>Giersch mallow</td>
<td>Arctomecon humillus</td>
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<td>Holngren Milk-vetch</td>
<td>Spheoalcea gierschii</td>
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<tr>
<td>Mexican Spotted Owl</td>
<td>Astraptes holmgrenii</td>
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<tr>
<td>Shiwitz Milk-vetch</td>
<td>Stipa occidentalis</td>
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<td>Siler Pincushion Cactus</td>
<td>Astraptes angustifloris</td>
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<td>Southwestern Willow Flycatcher</td>
<td>Empidomex trailli etius</td>
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<tr>
<td>Virgin River Club</td>
<td>Gila rohbius seminuda</td>
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<tr>
<td>Woundful</td>
<td>Phagopterus argentianus</td>
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<td>Yellow-billed Cuckoo</td>
<td>Coccycs americans</td>
</tr>
</tbody>
</table>

**WAYNE**

<table>
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<tr>
<th>Species</th>
<th>Scientific Name</th>
</tr>
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<td>Baneby Reed-mustard</td>
<td>Schoenocrambe barnesbyi</td>
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<tr>
<td>Bonytail</td>
<td>Gila elegans</td>
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<td>California Condor</td>
<td>Gymnogyps californianus</td>
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<tr>
<td>Colorado Pikeminnow</td>
<td>Psychochilus lucius</td>
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<tr>
<td>Humphack Club</td>
<td>Gila cypha</td>
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<td>Last Chance Townsendia</td>
<td>Townsendia aprica</td>
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<tr>
<td>Maguire Daisy</td>
<td>Eryngios magnire</td>
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<tr>
<td>Mexican Spotted Owl</td>
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<tr>
<td>Razorback Sucker</td>
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<td>San Rafael Cactus</td>
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<tr>
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<td>Empidomex trailli etius</td>
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<td>Utah Prairie Dog</td>
<td>Cynocephus parvulens</td>
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<tr>
<td>Ute Ladies'-tresses</td>
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<tr>
<td>Winkler Cactus</td>
<td>Pediocactus winklei</td>
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Appendix F-2

U.S. Fish and Wildlife Service Letter

United States Department of the Interior
FISH AND WILDLIFE SERVICE
117TH FIELD OFFICE
2500 WEST ORTON CIRCLE, SALT LAKE CITY, UT 84104

April 19, 2010

Jeff Egly
Associate Director, Technical Services
Utah Education Network
University of Utah
301 Wasatch Drive, Room 215
Salt Lake City, Utah 84112-1792

RE: UEN Grant Projects under National Telecommunication Information Administration (NTIA) Broadband Technology Opportunities Program (BTOP)

Dear Mr. Egly,

In your letter dated April 8, 2010, you requested our assistance in determining whether 128 proposed internet broadband extensions and connections will impact Fish and Wildlife resources. Our authorities are defined under the Endangered Species Act and Migratory Bird Treaty Act.

I have reviewed the following projects, all within the state of UT:

<p>| Bonneville Library, Bonneville | Adult Education Center, Tooele | American Prep Academy, Draper |
| Arrowhead Elementary, Santa Clara | Bear River Charter School, Logan | Beaver City Library, Beaver |
| Bear River Elementary, Liberty | Bloomington Elementary, St. George | Bluffdale Elementary, Bluffdale |
| Bonneville Elementary, Ogden | Bountiful Elementary, Bountiful City | Canyon Rim Academy K-8, Salt Lake City |
| Cedar City Public Library in the Park, Cedar City | Centerville Library, Centerville | Clearfield Library, Clearfield |
| Columbia Elementary, West Jordan | Coal Canyon Elementary, Washington | Coral Cliffs Elementary, St. George |
| Corrine Early Learning Center, Corinne | Davis County Library, Farmington | Dee Elementary, Ogden |
| Diamond Valley Elementary, St. George | Discovery Elementary, Brigham City | District Early Learning Center, Tooele |
| District Transportation Building, Brigham City | Dixie Downs Elementary, St. George | Dual Immersion Academy K-6, Salt Lake City |
| East Elementary, Tooele | East Elementary, St. George | Elk Meadows Elementary, South Jordan |
| Excelstar Academy, Buhl | Foxhill Elementary, Brigham City | Freedom Academy K-7, Preston |</p>
<table>
<thead>
<tr>
<th>George Washington Academy, St. George</th>
<th>Granary Elementary, Ogden</th>
<th>Granadale School K-3, Salt Lake City</th>
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<tbody>
<tr>
<td>Hawthorne Academy, West Jordan</td>
<td>Hayden Peak Elementary, West Jordan</td>
<td>Heritage Elementary, Ogden</td>
</tr>
<tr>
<td>Horizons Elementary, Hurricane</td>
<td>Highland City Library, Highland</td>
<td>Hillcrest Elementary, Ogden</td>
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<td>Horizons Manor Elementary, Ogden</td>
<td>Horizons Elementary, Washington</td>
<td>Hurricane Library, Hurricane</td>
</tr>
<tr>
<td>Hyrum Library, Ogden</td>
<td>James Madison Elementary, Ogden</td>
<td>John Hancock School K-8 Pleasant Grove</td>
</tr>
<tr>
<td>Jordan Valley School, Midvale</td>
<td>Jordan Hills Elementary, West Jordan</td>
<td>Kaye Valley Library, Kaye Valley</td>
</tr>
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<td>Lake View Elementary, Brigham City</td>
<td>Lakeview Academy K-9, Saratoga Springs</td>
<td>LaVerkin Elementary, LaVerkin</td>
</tr>
<tr>
<td>Lehi City Public Library, Lehi</td>
<td>Liberty Academy K-12, Salem</td>
<td>Lincoln Academy K-6, Pleasant Grove</td>
</tr>
<tr>
<td>Lincoln Elementary, Ogdenn</td>
<td>Logan Library, Logan</td>
<td>Midas Creek Elementary, Riverton</td>
</tr>
<tr>
<td>Maeste Vista Elementary, South Jordan</td>
<td>Morgan County Library, Morgan</td>
<td>Mountain Shadows Elementary, West Jordan</td>
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<td>Mountain View Elementary, Brigham City</td>
<td>Mountain Green Elementary, Mountain Green</td>
<td>New Harmony Elementary, New Harmony</td>
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<td>Nibley Elementary School, Nibley</td>
<td>Northland Elementary, Tooele</td>
<td>Ogden Preparatory Academy K-4, Ogden</td>
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<td>Open Classroom K-8, Salt Lake City</td>
<td>Ogden Elementary, West Jordan</td>
<td>Park City Library, Park City</td>
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<td>Pleasant Grove Library, Pleasant Grove</td>
<td>Park City Library, Park City</td>
<td>Ogden Preparatory Academy K-4, Ogden</td>
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<td>Red Mountain Elementary, Ivins</td>
<td>Richfield Public Library, Richfield</td>
<td>Riverton Elementary, West Jordan</td>
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<td>Riverview Elementary, Washington</td>
<td>Rose Creek Elementary, Riverton</td>
<td>Rose Springs Elementary, Stansbury Park</td>
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<td>Salt Lake Center for Science Education 6-9, Salt Lake City</td>
<td>Sandstone Elementary, St. George</td>
<td>Santa Clara Elementary, Santa Clara</td>
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<td>Smithfield Elementary School, Smithfield</td>
<td>Sunset Elementary, St George</td>
<td>Syracuse Arts Academy K-6, Syracuse</td>
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<td>Syracuse Library, Syracuse</td>
<td>Terra Linda Elementary, West Jordan</td>
<td>Thomas O. South Elementary, Ogden</td>
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<td>Three Mile Creek Elementary, Perry</td>
<td>Tooele City Library, Tooele</td>
<td>Tooele County Library Book Repository, Tooele</td>
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<td>Utah Virtual Academy K-12, Kearns</td>
<td>Wasatch County Library, Heber</td>
<td>Wasatch Elementary, Ogdenn</td>
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<td>Welby Elementary, South Jordan</td>
<td>West Elementary, Tooele</td>
<td>West Jordan Elementary, West Jordan</td>
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<td>Westvale Elementary, West Jordan</td>
<td>Willard Elementary, Willard</td>
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<td>Centre De Familia-Frugal Star</td>
<td>Ogden Weber CAP Head Start, Ogden</td>
<td>Salt Lake CAP Head Start, Salt Lake City</td>
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<td>Administration, Salt Lake City</td>
<td>Ogden Weber CAP Head Start, Ogden</td>
<td>Salt Lake CAP Head Start, Salt Lake City</td>
</tr>
<tr>
<td>Kuf Maeser Preparatory Academy, Lindon</td>
<td>Timpanogos Academy K-8, Lindon</td>
<td>Utah Academy of Sciences 1K-12, Orem</td>
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<tr>
<td>North Weber Academy K-6, Orem</td>
<td>Brigham City Carnegie Library, Brigham City</td>
<td>Murray Public Library, Murray</td>
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<td>Orem Public Library, Orem</td>
<td>Layton</td>
<td>Payson Library, Payson</td>
</tr>
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<td>Iron County Bookmobile Repository Library, Cedar City</td>
<td>Payson Public Library, Payson</td>
<td>SCU Head Start, Cedar City</td>
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<tr>
<td>Solana Public Library, Solana</td>
<td>Mountain View Head Start, Provo</td>
<td>Rural Utah Child Development Head Start, Wellington</td>
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<td>Utah Indian Tribe Head Start, Ft. Ducheson</td>
<td>Delta City Library, Delta</td>
<td>Monticello Library, Monticello</td>
</tr>
<tr>
<td>President Millard Fillmore Library, Fillmore</td>
<td>Willow Elementary School, Grantsville</td>
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</tr>
</tbody>
</table>
Based on information provided in your letter, we have determined your project is not likely to adversely affect threatened and endangered species and critical habitat. In addition, we are not aware of any impacts to migratory birds due to these projects. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered. We appreciate your interest in conserving endangered species. If further assistance is needed or you have any questions, please contact Katherine Richardson of our office at (801)975-3330, extension 125.

Sincerely,

[Signature]

Larry Crist
Utah Field Supervisor
Appendix G

SWCA Environmental Survey Reports

G-1  SWCA Historical Archeological Surveys and Findings
G-2  SWCA Historical Structural Surveys and Findings
G-3  State Historic Preservation Office Correspondence and Concurrence Letters
Appendix G-1
SWCA Historical Archeological Surveys and Findings

September 21, 2010

Kevin Dutt
Utah Education Network
101 Wasatch Dr., Rm. 215
Salt Lake City, Utah 84112-1792

RE: Utah Education Network BTOP Surveys

Dear Mr. Dutt,

This letter reports an intensive-level cultural resource assessment by SWCA Environmental Consultants (SWCA) of the area of potential effect (APE) for the Utah Education Network National Telecommunications and Information Administration (NTIA) Broadband Technologies Opportunity Program (BTOP) Environmental Assessment Project. This project includes 128 educational facilities (i.e., schools, libraries, and Head Start centers) across the state of Utah that will receive improved or new broadband connections. Such connections will either be upgrades to existing in situ infrastructure or new extensions from the nearest fiber optic cable. All cultural resource work for the project was conducted under authority of Public Lands Policy Coordination Office Permit No. 56 (Elisabeth Robinson), state project number U-10-ST-0249bpgs.

The APE consists of the respective facility itself and the corridor that will be trenched to install or upgrade the fiber optic cable (Figures 1–6). These corridors vary in length dependent on the requirements of the individual facility, but will be no more than 100ft. in width. The majority of these project areas will be in urban environments where no native or undisturbed ground is present. Consequently, the cultural resources survey area only consists of the Diamond Valley Elementary project area where the APE crossed the undeveloped Utah Department of Transportation (UDOT) right-of-way. Additionally, if the APE crossed any known archaeological sites, the respective site was visited and the documentation updated if necessary.

The survey area includes six UEN project areas in Weber, Davis, Wasatch, and Washington Counties (Table 1), and is on UDOT and private lands.
Table 1. Location of the Survey Areas.

<table>
<thead>
<tr>
<th>UEN Site Name</th>
<th>Legal Location</th>
<th>USGS Quadrangle</th>
<th>Land Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wasatch Peak Academy</td>
<td>T1N R1W Section 2</td>
<td>Salt Lake City North (2001)</td>
<td>Private</td>
</tr>
<tr>
<td>Wasatch County Library</td>
<td>T4S RSE Section 6</td>
<td>Charleston (2000)</td>
<td>Private</td>
</tr>
<tr>
<td>Thomas C. Smith Elementary</td>
<td>T1N R1W Section 33</td>
<td>Ogden (2001)</td>
<td>Private</td>
</tr>
<tr>
<td>Arrowhead Elementary</td>
<td>T42S R16W Section 22</td>
<td>White Hills (1986)</td>
<td>Private</td>
</tr>
<tr>
<td>Santa Clara Elementary</td>
<td>T42S R16W Section 15</td>
<td>White Hills (1986)</td>
<td>Private</td>
</tr>
<tr>
<td>Diamond Valley Elementary</td>
<td>T41S R16W Section 2</td>
<td>Santa Clara (1986)</td>
<td>Private and UDOT</td>
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</table>

Prior to fieldwork, a search of project, site, and preservation files at the Utah Division of State History (UDSH) was conducted on May 4 and 6, 2010. In all, 225 archaeological projects had been conducted within 500 feet of the APE. These results are detailed in a Class I report submitted to UEN prior to the initiation of cultural resource surveys (Robinson 2010). Of these sites, four have been documented as within the APE (Table 2). General Land Office (GLO) plat maps of the area were also examined for historical information pertaining to the project area.

Table 2. Previously Documented Sites Within the APE

<table>
<thead>
<tr>
<th>UEN Site Name</th>
<th>Sites within the APE</th>
<th>Eligibility</th>
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<tbody>
<tr>
<td>Wasatch Peak Academy</td>
<td>42DV0000885</td>
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<td>Wasatch County Library</td>
<td>45WA0005264</td>
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<td>45WS0031343</td>
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<td>Arrowhead Elementary</td>
<td>45WS0043971</td>
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</tr>
<tr>
<td>Santa Clara Elementary</td>
<td>45WS0043971</td>
<td>Eligible</td>
</tr>
</tbody>
</table>

As part of the UEN BTOP Project, SWCA consulted with the Utah Geological Survey (UGS) to determine the potential for encountering previously documented and presently unknown paleontological resources within the APE. A response has not been received to date.

Victor Villaran of SWCA conducted the pedestrian inventory for cultural resources in the Diamond Valley Elementary APE on May 20, 2010. It was discovered that the UDOT right-of-way had been recently bladed and that the entire survey area along Diamond Valley Road was paved with bladed shoulders. Therefore, inventory of this area was conducted on a reconnaissance level, and the four historic linear features depicted on the GLO plat maps were investigated. Approximately 1.0 linear mile (12.5 acres) was inventoried for the Diamond Valley Drive project area covering the entire project APE (Figure 1). No cultural resources were observed during the inventory within the Diamond Valley Drive project area none of the four historic linear features depicted on the GLO plat maps were present within the APE.
Mr. Villagran also visited Site 42WS004371, which is located within the APE for both Arrowhead Elementary and Santa Clara Elementary UEN site locations (Figures 2-3). The segment of this site that was updated within the APE has been impacted by modern upgrades and development projects rendering it a non-contributing element of the site as a whole.

Nicole Barger of SWCA conducted evaluations of the known cultural resource sites within the Wasatch Peak Elementary, Wasatch County Library, and Thomas O. Smith Elementary on May 27, 2010. This was accomplished by updating the current site condition and content on IMACS forms. Aerial maps and global positioning system (GPS) coordinates were used to navigate the within APE. The three sites that cross the APE (42DV000086, 42WA000294, 42WB000343) have also been impacted by modern developments projects and have either been destroyed or are no longer surface manifestations within the UEN APE.

Site 42DV000086 is a historic railroad with associated structures located in North Salt Lake, Utah (Figure 4). This segment of 42DV000068 located within the Wasatch Peak Academy UEN site location has been destroyed due to modern development of residential housing, a public school, and a shopping center. The site area has experienced extensive development and is therefore recommended a non-contributing segment of the site as a whole.

Site 42WA000294 is the historic Lower Canal located in Heber City, Utah which diverts water to provide irrigation to agricultural and ranching communities in the area (Figure 5). This segment of 42WA000294 located within the Wasatch County Library UEN site location appears to have been piped underground through a residential neighborhood and is recommended a non-contributing segment of the site as a whole.

Site 42WB000343 is the historic Weber Canal located in South Ogden, Utah which was constructed to provide irrigation to agricultural and farming communities in the area (Figure 6). This segment of 42WB000343 located within the Thomas O. Smith Elementary UEN site location appears to have been piped underground through a commercially developed area and is recommended a non-contributing segment of the site as a whole.

Construction associated with the UEN RSVP project will avoid all cultural resource sites within the APE. Consequently, SWCA recommends a finding of No Historic Properties Affected. A copy of this report is included for submission to the UDSH in the event there are no comments or questions concerning it.

Please contact me with questions regarding this letter report or the survey. I can be reached via e-mail at erobinson@swca.com or by telephone at (801) 322-4307.

Sincerely,

Elisabeth Robinson, M.A., RPA
Project Manager
References Cited

Robinson, Elisabeth
Figure 1. Project location map showing the Diamond Valley Reconnaissance Survey Area.
Figure 2. Project location map showing the Arrowhead Elementary Survey Area.
Figure 3. Project location map showing the Santa Clara Elementary Survey Area.
Figure 4. Project location map showing the Wasatch County Library Survey Area.
Figure 5. Project location map showing the Wasatch Peak Academy Survey Area.
Figure 6. Project location map showing the Thomas O. Smith Elementary Survey Area.
June 4, 2010

Kevin Dutt
Utah Education Network
101 Wasatch Dr., Rm. 215
Salt Lake City, Utah 84112-1792

RE: Utah Education Network BTOP Surveys

Dear Mr. Dutt,

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<th>Legal Location</th>
<th>USGS Quadrangle</th>
<th>Land Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wasatch Peak Academy</td>
<td>T1N R1W Section 3</td>
<td>Salt Lake City North (2001)</td>
<td>Private</td>
</tr>
<tr>
<td>Wasatch County Library</td>
<td>T4S R5E Section 8</td>
<td>Charleston (2000)</td>
<td>Private</td>
</tr>
<tr>
<td>Thomas O. Smith Elementary</td>
<td>T6N R1W Section 33</td>
<td>Ogden (2001)</td>
<td>Private</td>
</tr>
<tr>
<td>Arrowhead Elementary</td>
<td>T42S R16W Section 22</td>
<td>White Hills (1986)</td>
<td>Private</td>
</tr>
<tr>
<td>Santa Clara Elementary</td>
<td>T42S R16W Section 15</td>
<td>White Hills (1986)</td>
<td>Private</td>
</tr>
<tr>
<td>Diamond Valley Elementary</td>
<td>T41S R16W Section 2</td>
<td>Santa Clara (1986)</td>
<td>Private and UDOT</td>
</tr>
</tbody>
</table>

Prior to fieldwork, a search of project, site, and preservation files at the Utah Division of State History (UDSH) was conducted on May 4 and 6, 2010. In all, 225 archaeological projects had been conducted within 500 feet of the APE. These results are detailed in a Class I report submitted to UEN prior to the initiation of cultural resource surveys (Robinson 2010). Of these sites, four have been documented within the APE (Table 2). General Land Office (GLO) plat maps of the area were also examined for historical information pertaining to the project area.

Table 2. Previously Documented Sites Within the APE

<table>
<thead>
<tr>
<th>UEN Site Name</th>
<th>Sites within the APE</th>
<th>Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wasatch Peak Academy</td>
<td>42DV0000206</td>
<td>Not Eligible</td>
</tr>
<tr>
<td>Wasatch County Library</td>
<td>42WA0000294</td>
<td>Eligible</td>
</tr>
<tr>
<td>Thomas O. Smith Elementary</td>
<td>42WB000343</td>
<td>Eligible</td>
</tr>
<tr>
<td>Arrowhead Elementary</td>
<td>42WG004371</td>
<td>Eligible</td>
</tr>
<tr>
<td>Santa Clara Elementary</td>
<td>42WS004371</td>
<td>Eligible</td>
</tr>
</tbody>
</table>

As part of the UEN BTOP Project, SWCA consulted with the Utah Geological Survey (UGS) to determine the potential for encountering previously documented and presently unknown paleontological resources within the APE. A response has not been received to date.

Victor Villagran of SWCA conducted the pedestrian inventory for cultural resources in the Diamond Valley Elementary APE on May 20, 2010. It was discovered that the UDOT right-of-way had been recently bladed and that the entire survey area along Diamond Valley Road was paved with bladed shoulders. Therefore, inventory of this area was conducted on a reconnaissance level, and the four historic linear features depicted on the GLO plat maps were investigated. Approximately 1.0 linear mile (12.5 acres) was inventoried for the Diamond Valley Drive project area covering the entire project APE (Figure 1). No cultural resources were observed during the inventory within the Diamond Valley Drive project area none of the four historic linear features depicted on the GLO plat maps were present within the APE.
Mr. Villagran also visited Site 42WS004371, which is located within the APE for both Arrowhead Elementary and Santa Clara Elementary UEN site locations (Figures 2-3). The segment of this site that was updated within the APE has been impacted by modern upgrades and development projects rendering it a non-contributing element of the site as a whole.

Nicole Barger of SWCA conducted evaluations of the known cultural resource sites within the Wasatch Peak Elementary, Wasatch County Library, and Thomas O. Smith Elementary on May 27, 2010. This was accomplished by updating the current site condition and content on IMACS forms. Aerial maps and global positioning system (GPS) coordinates were used to navigate the within APE. The three sites that cross the APE (42DV000086, 42WA000294, 42WB000343) have also been impacted by modern developments projects and have either been destroyed or are no longer surface manifestations within the UEN APE.

Site 42DV000086 is a historic railroad with associated structures located in North Salt Lake, Utah (Figure 4). This segment of 42DV000068 located within the Wasatch Peak Academy UEN site location has been destroyed due to modern development of residential housing, a public school, and a shopping center. The site area has experienced extensive development and is therefore recommended a non-contributing segment of the site as a whole.

Site 42WA000294 is the historic Lower Canal located in Heber City, Utah which diverts water to provide irrigation to agricultural and ranching communities in the area (Figure 5). This segment of 42WA000294 located within the Wasatch County Library UEN site location appears to have been piped underground through a residential neighborhood and is recommended a non-contributing segment of the site as a whole.

Site 42WB000343 is the historic Weber Canal located in South Ogden, Utah which was constructed to provide irrigation to agricultural and farming communities in the area (Figure 6). This segment of 42WB000343 located within the Thomas O. Smith Elementary UEN site location appears to have been piped underground through a commercially developed area and is recommended a non-contributing segment of the site as a whole.

Construction associated with the UEN BTOP project will avoid all cultural resource sites within the APE. Consequently, SWCA recommends a finding of No Historic Properties Effected. A copy of this report is included for submission to the UDSH in the event there are no comments or questions concerning it.

Please contact me with questions regarding this letter report or the survey. I can be reached via e-mail at erobinson@swca.com or by telephone at (801) 322-4307.

Sincerely,

Elisabeth Robinson, M.A., RPA
Project Manager

References Cited

Robinson, Elisabeth
Figure 1. Project location map showing the Diamond Valley Reconnaissance Survey Area.
Figure 2. Project location map showing the Arrowhead Elementary Survey Area.
**Figure 3**: Project location map showing the Santa Clara Elementary Survey Area.
Figure 4. Project location map showing the Wasatch County Library Survey Area.
Figure 5. Project location map showing the Wasatch Peak Academy Survey Area.
Figure 6. Project location map showing the Thomas O. Smith Elementary Survey Area.
May 10, 2010

Kevin Dutt
Utah Education Network
101 Wasatch Dr., Rm. 215
Salt Lake City, Utah 84112-1792

Dear Mr. Dutt,

This letter serves as a report of a Class I file search and resource assessment by SWCA Environmental Consultants (SWCA) of the area of potential effects (APE) for the Utah Education Network National Telecommunications and Information Administration (NTIA) Broadband Technologies Opportunity Program (BTOP) Environmental Assessment Project. All cultural resource work for the project was conducted under authority of Public Lands Policy Coordination Office Permit No. 56 (Elisabeth Robinson). The APE consists of 128 educational facilities (i.e., schools, libraries, and Head Start centers) that will receive improved or new broadband connections (Figures 1–5). Such connections will either be upgrades to existing in situ infrastructure or new extensions from the nearest fiber optic cable.

A search of project, site, and preservation files at the Utah Division of State History (UDSH) was conducted on May 4 and 6, 2010. A total of 225 archaeological projects have been conducted within 500 feet of the project APE, and 14 sites have been documented in this area (Tables 1 and 2). Three sites (42BO822, 42DV140, and 42UT473) are linear in design and cross into the APE, although the project during which the sites were documented is not within the APE. Three additional sites (42CA58, 42WB87, and 42WB94) were documented independent of a specific project.
### Table 1. Projects Located within 500 Feet of the Utah Education Network (UEN) APE

<table>
<thead>
<tr>
<th>Project No.</th>
<th>Reference</th>
<th>Consultant</th>
<th>Archaeological Sites within 500 Feet of APE</th>
</tr>
</thead>
<tbody>
<tr>
<td>U-76-UA-0167p.r</td>
<td>A Survey of Archaeological and Historical Resources within the Prado Reservoir Canal Area of the Central Utah Project</td>
<td>U of U</td>
<td>None</td>
</tr>
<tr>
<td>U-77-BCE-0225s</td>
<td>Cultural Resource Evaluation (Archaeology) of the West Valley Highway Salt Lake County, Utah</td>
<td>Brigham Young University (BYU)</td>
<td>None</td>
</tr>
<tr>
<td>U-83-BL-0091r.w</td>
<td>WDU/REV Provo City Exchange</td>
<td>Bureau of Land Management (BLM)</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Harrisburg Quainty Grant Archaeology, Northeast of St. George, Utah</td>
<td>BLM</td>
<td>42WS1515</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>42WS1517</td>
</tr>
<tr>
<td></td>
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<td>42WS1525</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>42WS1524</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>42WS1526</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>42WS1551</td>
</tr>
<tr>
<td>U-83-BBE-0004b</td>
<td>Archaeological Survey of a Power Line Corridor in Washington County, Utah</td>
<td>International Learning and Research, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-82-BL-0114b</td>
<td>Hamilton Fort Pipeline, Iron County, Utah</td>
<td>BLM</td>
<td>None</td>
</tr>
<tr>
<td>U-82-BL-0115b</td>
<td>RGPP Iron County Schools, Cross Hollow, Iron County, Utah</td>
<td>BLM</td>
<td>None</td>
</tr>
<tr>
<td>U-82-BL-0116b</td>
<td>RGPP Cedar City Corporation, Iron County, Utah</td>
<td>BLM</td>
<td>None</td>
</tr>
<tr>
<td>U-82-BE-0137p.s</td>
<td>Middle Box - Santa Clara Line</td>
<td>BYU</td>
<td>None</td>
</tr>
<tr>
<td>U-82-BE-0142b.p</td>
<td>Alternate Santa Clara Power Line</td>
<td>BYU</td>
<td>None</td>
</tr>
<tr>
<td>U-83-BL-0120b</td>
<td>State Street (I-15) Great Salt Lake County, Utah</td>
<td>BLM</td>
<td>None</td>
</tr>
<tr>
<td>U-83-BE-0012b.</td>
<td>Cultural Resource Survey of Portions of 14 Utah Indian Drainage Projects</td>
<td>Bureau of Reclamation (BOR)</td>
<td>None</td>
</tr>
<tr>
<td>U-83-BE-0037r.s</td>
<td>Cultural Resources Survey of Portions of the Wasatch Aqueduct Alignment, Salt Lake County, Utah</td>
<td>BOR</td>
<td>None</td>
</tr>
<tr>
<td>U-83-SU-0012s</td>
<td>A Cultural Resources Survey of a Proposed Road Widening Project Along 12th Street in Ogden, Utah</td>
<td>Saperholt Archaeological Consultants</td>
<td>None</td>
</tr>
<tr>
<td>U-84-BL-0052b.</td>
<td>Quantity Grant L-53430</td>
<td>BLM</td>
<td>None</td>
</tr>
<tr>
<td>U-84-BL-0057c</td>
<td>An Archaeological Survey of the Utah Department of Transportation's Blending Northerly Project, San Juan County, Utah</td>
<td>LePikes Archaeological Consultants, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-84-BCE-0052a.s</td>
<td>An Archaeological Survey of Three Power Line Routes in Iron and Washington Counties, Utah</td>
<td>BYU</td>
<td>None</td>
</tr>
<tr>
<td>U-85-BL-0200b.</td>
<td>New Harmony Chain</td>
<td>BLM</td>
<td>None</td>
</tr>
<tr>
<td>U-85-BCE-0057b.p</td>
<td>An Archaeological Survey of the Springdale Substation in Washington County, Utah</td>
<td>BYU</td>
<td>None</td>
</tr>
<tr>
<td>U-85-G-0033s</td>
<td>An Archaeological Survey Conducted on each side of Sunset Boulevard in St. George, Washington County, Utah</td>
<td>International Learning and Research, Inc.</td>
<td>None</td>
</tr>
</tbody>
</table>
### Table 1. Projects Located within 500 Feet of the Utah Education Network (UEN) APE

<table>
<thead>
<tr>
<th>Project No.</th>
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<th>Consultant</th>
<th>Archaeological Sites within 500 Feet of APE</th>
</tr>
</thead>
<tbody>
<tr>
<td>U-55-BC-0551b.s</td>
<td>An Archaeological/Paleontological Survey and Testing Program along State Route (SR) 18, Washington County, Utah</td>
<td>BYU</td>
<td>42V51635, 42V51639</td>
</tr>
<tr>
<td>U-56-UC-0053s</td>
<td>An Archaeological Inventory of Paradise Valley Development State Lands in St. George, Utah</td>
<td>Utah State History Society</td>
<td>None</td>
</tr>
<tr>
<td>U-55-BC-0210s</td>
<td>Utah Department of Transportation (UDOT) SR 93 Upgrade - American Fork</td>
<td>BYU</td>
<td>None</td>
</tr>
<tr>
<td>U-56-IG-0259s</td>
<td>An Archaeological Survey of the Old U.S. 91 Right-of-way from the Town of Kanarraville to the New Harmony Interchange</td>
<td>International Leaning and Research, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-56-BL-0038b</td>
<td>Davies Land Exchange</td>
<td>BLM</td>
<td>None</td>
</tr>
<tr>
<td>U-56-IG-0377p</td>
<td>An Archaeological Survey Conducted in Anticipation of a Street and Road Improvement Project in Washington City, Washington County, Utah</td>
<td>International Leaning and Research, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-56-BC-052p</td>
<td>Cultural Resource Inventory of the Proposed Pleasant Grove Main Post Office Site</td>
<td>BYU</td>
<td>None</td>
</tr>
<tr>
<td>U-56-BL-0055b</td>
<td>Community Pit Cedar City</td>
<td>BLM</td>
<td>None</td>
</tr>
<tr>
<td>U-56-BC-078p</td>
<td>A Cultural Resource Inventory of the Proposed SR 189 Upgrade and Realignment in Provo Canyon from Olmsted to Heber City, Utah, and Wasatch County, Utah</td>
<td>BYU</td>
<td>None</td>
</tr>
<tr>
<td>U-56-IG-0744p</td>
<td>Archaeological Survey and Testing along the St. George Culinary Water Line in Washington County, Utah</td>
<td>International Leaning and Research, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-56-BC-0815p</td>
<td>A Cultural Resource Inventory of Three Proposed Keysville Main Post Office Sites</td>
<td>BYU</td>
<td>None</td>
</tr>
<tr>
<td>U-57-BC-0077p</td>
<td>Trench Monitoring for Barred Cultural Resources in Selected Locations Along the Mountain Fuel Pipeline Phase I, from Idaho to the Summit/Plate County Line, South-central, Utah</td>
<td>BYU</td>
<td>None</td>
</tr>
<tr>
<td>U-57-IG-0190p</td>
<td>An Archaeological Survey of the Washington City Sewer Line, Utah</td>
<td>International Leaning and Research, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-57-PO-0190p</td>
<td>Cultural Resource Inventory of a Portion of Block 19 in American Fork, Utah County, Utah</td>
<td>P-H Associates</td>
<td>None</td>
</tr>
<tr>
<td>U-57-IG-0194p</td>
<td>An Archaeological Survey of Approximately 100 Acres of Land Along Both Banks of the Virgin River South and East of Springdale, Washington County, Utah</td>
<td>International Leaning and Research, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-57-IG-0323p</td>
<td>An Archaeological Survey Conducted Along Both Sides of a Short Segment of Bluff Street in St. George, Utah</td>
<td>International Leaning and Research, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-57-IG-0433p</td>
<td>An Archaeological Survey of the Proposed U.S. Post Office Site Located on the West Side of 200 Block of South Main Street in Cedar City, Utah</td>
<td>International Leaning and Research, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-57-CN-0615b.s.p</td>
<td>Class III Inventory of Proposed AT&amp;T Fiber Optics Facilities in Utah</td>
<td>Centennial Archaeology, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-57-PO-0730p</td>
<td>Historic Resource Evaluation for a Preferred Post Office Location on Block 33, Plat A, Beautiful, Davis County, Utah</td>
<td>P-H Associates</td>
<td>None</td>
</tr>
<tr>
<td>U-55-NP-0024b.s.p</td>
<td>A Cultural Resource Inventory of the Proposed Mountain Fuel Supply Company Natural Gas Pipeline from Cedar City in Iron County to Avon in Washington County, Utah</td>
<td>Nielsen Consulting Group</td>
<td>None</td>
</tr>
<tr>
<td>U-59-IG-0262p</td>
<td>An Archaeological Survey of a 20-acre Portion of the Sunset Boulevard Improvement Project in St. George, Utah</td>
<td>International Leaning and Research, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>Project No.</td>
<td>Reference</td>
<td>Consultant</td>
<td>Archaeological Sites within 500 Feet of APE</td>
</tr>
<tr>
<td>-------------</td>
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<td>------------------------------------------</td>
</tr>
<tr>
<td>U-56-PD-05255.p</td>
<td>Cultural Resource Inventory of the Hamilton Fort to North Cedar Section of I-15, Milepost 52 to E3. Iron County, Utah</td>
<td>P-III Associates</td>
<td>None</td>
</tr>
<tr>
<td>U-56-PD-05384.p</td>
<td>Cultural Resource Inventory of a Proposed Improvement along SR 112, Tooele County, Utah</td>
<td>P-III Associates</td>
<td>None</td>
</tr>
<tr>
<td>U-56-PD-06035</td>
<td>A Cultural Resources Survey of a Portion of Washington Boulevard, Ogden, Utah</td>
<td>P-III Associates</td>
<td>None</td>
</tr>
<tr>
<td>U-56-PD-06050</td>
<td>A Cultural Resources Survey of Project SR 193, SR 126 to SR 88, Davis County, Utah</td>
<td>P-III Associates</td>
<td>None</td>
</tr>
<tr>
<td>U-59-PD-0975</td>
<td>SR 15, Snow Canyon to Vego State Route</td>
<td>P-III Associates</td>
<td>None</td>
</tr>
<tr>
<td>U-59-PD-0158p</td>
<td>Cultural Resource Inventory of SR 56 (200 North) from Main Street to the West City Limits, Cedar City, Iron County, Utah</td>
<td>P-III Associates</td>
<td>None</td>
</tr>
<tr>
<td>U-59-BC-0491b.p</td>
<td>A Cultural Resource Inventory of the Proposed WYCAL Pipeline Through the State of Utah</td>
<td>BYU</td>
<td>None</td>
</tr>
<tr>
<td>U-59-AG-0491b.p</td>
<td>Cultural Resource Inventory and Evaluative Testing Along U.S. 191: Black Mesa Road to Shattal Junction, San Juan County, Utah</td>
<td>Abajo Archaeology</td>
<td>None</td>
</tr>
<tr>
<td>U-59-SJ-0529S</td>
<td>A Cultural Resources Survey of a Portion of Mountain Road, Logan, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
</tr>
<tr>
<td>U-59-SJ-0557p</td>
<td>A Cultural Resources Inventory of Two Division of Wildlife Resources Land Purchases on the Bear River, Box Elder County, Utah</td>
<td>Nielsen Consulting Group</td>
<td>None</td>
</tr>
<tr>
<td>U-59-BC-0579w</td>
<td>Stoddard Division Dam and Gateway Canal, Morgan County, Utah</td>
<td>BYU</td>
<td>None</td>
</tr>
<tr>
<td>U-59-BC-0696s</td>
<td>A Cultural Resources Survey of a Portion of 700/800 East Between 7200 and 9400 South, Salt Lake County, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
</tr>
<tr>
<td>U-59-BC-0755s</td>
<td>University Avenue Trolley Tracks</td>
<td>BYU</td>
<td>None</td>
</tr>
<tr>
<td>U-59-SJ-0635S</td>
<td>A Cultural Resources Survey of a Portion of the West Forest Street, Brigham City, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
</tr>
<tr>
<td>U-59-SJ-0667S</td>
<td>A Second Cultural Resources Survey of the Virgin River - 21 Bridge Replacement Project, Washington County, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
</tr>
<tr>
<td>U-59-SJ-0148p</td>
<td>A Cultural Resources Survey of the Proposed West Valley Highway Project from 5400 South to 9000 South, Salt Lake County, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
</tr>
<tr>
<td>Project No.</td>
<td>Reference</td>
<td>Consultant</td>
<td>Archaeological Sites within 500 Feet of APE</td>
</tr>
<tr>
<td>------------</td>
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<td>------------------------------------------</td>
</tr>
<tr>
<td>U-91-G-0011s</td>
<td>Sunset Boulevard Widening Project, Santa Clara</td>
<td>International Learning and Research, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-91-US-0983</td>
<td>Pleasant Grove Old Fort Wall</td>
<td>Utah Statewide Archaeological Society</td>
<td>None</td>
</tr>
<tr>
<td>U-91-SJ-0059a</td>
<td>A Cultural Resources Survey of the West Valley Highway Project from 12500 South to 14000, Salt Lake County, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
</tr>
<tr>
<td>U-91-SJ-0151s</td>
<td>Brigham City Airport Facility Locations</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
</tr>
<tr>
<td>U-91-NP-0234p.s</td>
<td>An Archaeological Inventory of the Proposed Umpams St. George Substation to River Substation Alternative Power Lines near St. George and Middleton, Washington County, Utah</td>
<td>Nielsen Consulting Group</td>
<td>None</td>
</tr>
<tr>
<td>U-91-AS-0300p.s</td>
<td>SR 14 near Cedar Canyon Landslide, between MP 0.6 and 5.5</td>
<td>Abajo Archaeology</td>
<td>None</td>
</tr>
<tr>
<td>U-91-SJ-0312</td>
<td>Peterson Interchange</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
</tr>
<tr>
<td>U-91-AS-0440p.s</td>
<td>Cultural Resource Inventory of Utah Department of Transportation’s SR 9 Survey Corridor Between Milepost 4.70 and 9.75, Washington County, Utah</td>
<td>Abajo Archaeology</td>
<td>None</td>
</tr>
<tr>
<td>U-91-SJ-0693s.p</td>
<td>A Cultural Resources Survey of the Proposed Forest Street/1-5 Intersection, Box Elder County, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
</tr>
<tr>
<td>U-91-BL-0752b</td>
<td>Road Paving near Santa Clara</td>
<td>BLM</td>
<td>None</td>
</tr>
<tr>
<td>U-91-NP-0735s</td>
<td>St. George Virgin Road Bridge Construction Areas</td>
<td>Nielsen Consulting Group</td>
<td>None</td>
</tr>
<tr>
<td>U-92-NP-0005s</td>
<td>A Cultural Resource Inventory of the Proposed U.S. 40 to Whitnerock's Road (SR 121) Upgrade, Uintah County, Utah</td>
<td>Nielsen Consulting Group</td>
<td>None</td>
</tr>
<tr>
<td>U-92-G-0113s</td>
<td>An Intensive Archaeological Survey of Two Sections of Drainage Easement, Santa Clara, Utah</td>
<td>International Learning and Research, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-92-NP-117p.s</td>
<td>A Cultural and Paleontological Inventory of the Proposed American Fork to Alpine 1-15 Loop, Utah County, Utah</td>
<td>Nielsen Consulting Group</td>
<td>None</td>
</tr>
<tr>
<td>U-92-SJ-027p.s</td>
<td>A Cultural Resources Inventory of the Proposed 5000 West Corridor Route, Salt Lake County, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
</tr>
<tr>
<td>U-92-SJ-057p.s</td>
<td>9000 South between Redwood Road and 3200 West, Midvale, Salt Lake County, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
</tr>
<tr>
<td>U-92-NP-0650b.s.p</td>
<td>A Cultural Resource Inventory of the Proposed Utah Power &amp; Light Darrington Valley Line Upgrade in Washington County, Utah</td>
<td>Nielsen Consulting Group</td>
<td>None</td>
</tr>
<tr>
<td>U-92-BC-0869p</td>
<td>A Cultural Resource Survey and Historic Building Assessment of Properties within the Proposed 9000 South Corridor for the SR 99/10/21 Connector Development, Provo, Utah County</td>
<td>BYU</td>
<td>42U8788</td>
</tr>
<tr>
<td>U-92-BL-0752b</td>
<td>U.S. West Buried Cable R/W</td>
<td>BLM</td>
<td>None</td>
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<tr>
<td>U-93-NP-</td>
<td>An Archaeological Evaluation of the Proposed Delta City</td>
<td>Nielsen Consulting</td>
<td>None</td>
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</table>
### Table 1. Projects Located within 500 Feet of the Utah Education Network (UEN) APE

<table>
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<tr>
<th>Project No.</th>
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<th>Consultant</th>
<th>Archaeological Sites within 500 Feet of APE</th>
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<tbody>
<tr>
<td>0006s</td>
<td>Main Street (U.S. 1) Revitalization Project, Milard County, Utah</td>
<td>Group</td>
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<td>U-93-UM-0050s</td>
<td>A Cultural Resource Inventory of the Lehi Hill Parcel, Cedar City, Utah</td>
<td>Utah Division of State Lands and Forestry</td>
<td>None</td>
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<tr>
<td>U-93-UM-0100b</td>
<td>Utah Power &amp; Light Cedar Highlands Power Line, Iron County, Utah</td>
<td>Nielson Consulting Group</td>
<td>None</td>
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<tr>
<td>U-93-UM-0117s</td>
<td>RBISG American Fork I-15 Loop</td>
<td>Nielson Consulting Group</td>
<td>None</td>
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<tr>
<td>U-93-UM-0118p</td>
<td>A Cultural and Paleontological Inventory of the Proposed South Loop Road in Utah County, Utah</td>
<td>Nielson Consulting Group</td>
<td>None</td>
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<tr>
<td>U-93-UM-0410b</td>
<td>US West BLM Fiber Optic Easements</td>
<td>International Learning and Research, Inc.</td>
<td>None</td>
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<tr>
<td>U-93-UM-0610s</td>
<td>Dixie Downs Parcel Survey</td>
<td>Utah Division of State Lands and Forestry</td>
<td>None</td>
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<tr>
<td>U-93-UM-0813s</td>
<td>A Cultural Resource Inventory of the Proposed Coleman Street Upgrade, Tooele, Tooele County, Utah</td>
<td>Nielson Consulting Group</td>
<td>None</td>
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<tr>
<td>U-93-UM-0713b</td>
<td>A Cultural Resource Inventory of the Proposed Utah Power &amp; Light Dammeron - Diamond Valley BLM Removal and Reconstruction Corridor in Washington County, Utah</td>
<td>Nielson Consulting Group</td>
<td>None</td>
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<tr>
<td>U-93-SJ-0722s</td>
<td>A Cultural Resource Inventory of a Proposed Bridge Replacement Project on SR 13, Box Elder County, Utah</td>
<td>Stagebrush Archaeological Consultants</td>
<td>None</td>
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<tr>
<td>U-93-BL-0024b</td>
<td>Ron Williams Road R/W</td>
<td>BLM</td>
<td>None</td>
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<tr>
<td>U-93-BL-0031b</td>
<td>Rock Salt Well</td>
<td>BLM</td>
<td>None</td>
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<tr>
<td>U-94-SJ-005p</td>
<td>A Cultural Resources Survey of the Proposed Salt Lake Avenue Interchange Modifications/10 Widening Project, Salt Lake County, Utah</td>
<td>Stagebrush Archaeological Consultants</td>
<td>None</td>
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<tr>
<td>U-94-AS-012p</td>
<td>UDOT CR 9 and SR 17, Washington County, Utah</td>
<td>Abajo Archaeology</td>
<td>None</td>
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<tr>
<td>U-94-NP-013s</td>
<td>A Cultural Resource Inventory of the Proposed US West Fiber Optic Cable Corridor in Utah, Sanpete, and Sevier Counties, Utah</td>
<td>Nielson Consulting Group</td>
<td>None</td>
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<tr>
<td>U-94-NP-015p</td>
<td>A Cultural Resource Inventory of the Proposed Usmansui Creek 69kV Power Line, East of St. George, Washington County, Utah</td>
<td>Nielson Consulting Group</td>
<td>None</td>
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<tr>
<td>U-94-0150b</td>
<td>US West - Parowan to Beaver Fiber Optical Line Survey, Utah</td>
<td>International Learning and Research, Inc.</td>
<td>None</td>
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<tr>
<td>U-94-EE-017p</td>
<td>A Cultural Resource Investigation for Kern River Transmission Company, Geneva Lateral, Utah County, Utah</td>
<td>Harry Reid Center for Environmental Studies</td>
<td>None</td>
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<tr>
<td>U-94-G-0279s</td>
<td>Ivis Bike Path Survey</td>
<td>International Learning and Research, Inc.</td>
<td>None</td>
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<tr>
<td>U-94-BL-0430s</td>
<td>Kanarraville Real Stop - Interstate 15 Redesign, Iron County, Utah</td>
<td>Baseline Data, Inc.</td>
<td>None</td>
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<tr>
<td>U-94-BL-0430b</td>
<td>Santa Clara Quantity Grant</td>
<td>BLM</td>
<td>None</td>
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<tr>
<td>Project No.</td>
<td>Reference</td>
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<tr>
<td>U-04-AS-05706-p,s</td>
<td>Cultural Resource Inventory and Evaluative Testing Along SR 18, St. George to Snow Canyon Project, Washington County, Utah</td>
<td>Abajo Archaeology</td>
<td>42WX1516, 42WX1522, 42WX1636, 42WX1637, 42WX1838, 42WX3838, 42WX2671, 42WX2672, 42WX2673, 42WX2675, 42WX2676, 42WX2677, 42WX2678, 42WX2679, 42WX2680, 42WX2681, 42WX2682, 42WX2683, 42WX3644</td>
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<tr>
<td>U-05-BS-0001-p,s</td>
<td>A Proposed Cultural Resource Inventory of 600 North in the Town of Brigham City, Box Elder County, Utah</td>
<td>Baseline Data, Inc.</td>
<td>None</td>
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<tr>
<td>U-05-SJ-0077-p,s</td>
<td>A Cultural Resources Inventory of Five Intersections in Cedar City, St. George, and Hurricane, Iron and Washington Counties, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
</tr>
<tr>
<td>U-05-VZ-0146-p</td>
<td>Stoddard Borrow Pit</td>
<td>Desert West Research, Inc.</td>
<td>None</td>
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<tr>
<td>U-05-SJ-0244-p,s</td>
<td>A Cultural Resources Inventory of SR 13 Between I-15 and Main Street, Brigham City, Box Elder County, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
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<tr>
<td>U-05-UO-0256-p,</td>
<td>Snow Canyon State Park Inventory, Washington County, Utah</td>
<td>Utah State Parks</td>
<td>None</td>
</tr>
<tr>
<td>U-05-G-0312-p</td>
<td>Diamond Valley Gravel Pit</td>
<td>International Learning and Research, Inc.</td>
<td>None</td>
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<tr>
<td>U-05-SJ-363-p,s</td>
<td>Cultural Resource Inventory for the City of St. George’s Proposed Skyline Drive Road, Washington County, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
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<tr>
<td>U-05-SJ-0384-p</td>
<td>A Cultural and Paleontological Resource Inventory for the Proposed Riverside Drive Widening Project in St. George, Washington County, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
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<tr>
<td>U-05-BL-363-b,s</td>
<td>Desert Tortoise Exchange (DTX) Tract 13, Washington County, Utah</td>
<td>BLM</td>
<td>None</td>
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<tr>
<td>U-05-UT-0420-p</td>
<td>UDOT Limited Testing at Site 42WX1836 along SR 16</td>
<td>SWCA, Inc.</td>
<td>None</td>
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<tr>
<td>U-05-SJ-0471-p</td>
<td>UDOT SR 82 from Highland to I-15</td>
<td>Sagebrush Archaeological Consultants</td>
<td>42L167</td>
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<tr>
<td>U-05-BC-0406-p</td>
<td>The Central Utah Project Completion Program, Spanish Fork Canyon - Nephi Irrigation System</td>
<td>BYU</td>
<td>None</td>
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<tr>
<td>U-05-ST-0406-p</td>
<td>UDOT Telegraph Road Survey</td>
<td>SWCA, Inc.</td>
<td>None</td>
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<th>Archaeological Sites within 500 Feet of APE</th>
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<tbody>
<tr>
<td>U-95-BL-067p</td>
<td>A Cultural Resources Inventory of Two Intersection and a 10-acre Block in and near Logan, Cache County, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
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<tr>
<td>U-99-BL-080N</td>
<td>Cultural Resource Inventory of 800 North In Brigham City, Box Elder County, Utah</td>
<td>Baseline Data, Inc.</td>
<td>None</td>
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<tr>
<td>U-99-UT-0131b</td>
<td>Report on the Cultural Resources Inventory Completed for the Proposed WorldCom Seattle to Salt Lake City Fiber Optic Line, Part 1: Utah</td>
<td>Northwest Archaeological Consultants, Inc.</td>
<td>42BD164</td>
</tr>
<tr>
<td>U-99-NA-014tn</td>
<td>Non-project Archaeological Work Conducted in Zion National Park from October 1990 to March 1996</td>
<td>National Park Service</td>
<td>None</td>
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<tr>
<td>U-99-UT-0457s</td>
<td>Two Bridges in Spanish Fork, Utah County, Utah</td>
<td>Utah State Department of Transportation</td>
<td>None</td>
</tr>
<tr>
<td>U-99-BL-0624b</td>
<td>Mt. Fred Pipeline, St. George to Central</td>
<td>SWCA, Inc.</td>
<td>42W8524B</td>
</tr>
<tr>
<td>U-98-BS-0858s</td>
<td>A Cultural/Paleontological Inventory of Proposed Egress from SR 5 in Springdale, Washington County, Utah</td>
<td>Baseline Data, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-98-GT-0678s</td>
<td>Pratt-Gilbert Development Sewer Project, Iron County, Utah</td>
<td>Intersearch, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-98-LM-0731s</td>
<td>Sunset Hills and Santa Clara Parcels, Washington County, Utah</td>
<td>Utah Division of State Lands and Forestry</td>
<td>None</td>
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<tr>
<td>U-97-GR-0043s</td>
<td>Leslie-Cedar Canyon Bike Path Survey, Utah</td>
<td>Intersearch, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-97-BS-0093s</td>
<td>A Cultural Resource Inventory of the Proposed Legacy West Davis Line in Davis and Salt Lake Counties, Utah</td>
<td>Baseline Data, Inc.</td>
<td>42DV68</td>
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<tr>
<td>U-97-SL-0276s</td>
<td>Central Utah Project Conservation Credit Program, Central Valley Reuse EIS Project</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
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<tr>
<td>U-97-FL-0432b</td>
<td>Cedar Mountain Stock Trail, Iron County, Utah</td>
<td>BLM</td>
<td>None</td>
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<tr>
<td>U-98-GR-0195s</td>
<td>Three Ponds for Army Reserve Center Relocation</td>
<td>SWCA, Inc.</td>
<td>None</td>
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<tr>
<td>U-99-LM-0247s</td>
<td>MissJara Residential Development Parcel, Washington County, Utah</td>
<td>Utah Division of State Lands and Forestry</td>
<td>None</td>
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<tr>
<td>U-99-GT-0290i</td>
<td>An Archaeological Survey of the Paiute Indian Tribe of Utah-Cedar and Water Tank and Pipeline, a Convenience Store Project, Iron County, Utah</td>
<td>Intersearch, Inc.</td>
<td>None</td>
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<tr>
<td>U-99-JB-0337p</td>
<td>A Cultural Resource Inventory of the Beehive Telephone Line in Cedar Highlands, Cedar City, Utah</td>
<td>JBR Consultants</td>
<td>None</td>
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<tr>
<td>U-98-A1-0341p</td>
<td>SR 38, I-60 to Tooele, Tooele County, Utah</td>
<td>Alpine Archaeological Consultants</td>
<td>None</td>
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<tr>
<td>U-99-HQ-0414s</td>
<td>An Archaeological Inventory of the Exchange Development Area, Washington County, Utah</td>
<td>ZRA, Inc.</td>
<td>None</td>
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<tr>
<td>U-99-NP-0538b</td>
<td>Cultural Resources Inventory for the Proposed FTV Western Fiber Build Part 3: Utah</td>
<td>Northwest Archaeological Consultants, Inc.</td>
<td>None</td>
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<tr>
<td>U-99-UT-0554p</td>
<td>IM-15-3/2944, 1-15, RP 44 &amp; Addendum to the Kenosha Area Safety Rest Area Redesign</td>
<td>Utah State Department of Transportation</td>
<td>None</td>
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<tr>
<td>U-99-NA-0600p</td>
<td>Archaeological Survey of the Proposed Shuttle Bus Stop in Springdale, Utah</td>
<td>National Park Service</td>
<td>None</td>
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<tr>
<td>Project No.</td>
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<tr>
<td>U-98-LM-0702s</td>
<td>An Archaeological Survey of a Trust Land Development Parcel near Harrisburg Junction, Washington County, Utah</td>
<td>Utah Division of State Lands and Forestry</td>
<td>None</td>
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<tr>
<td>U-99-BS-0705</td>
<td>Cultural Resource Inventory of the Tooele Bypass on I-15 between SR 36 and SR 112, Tooele, Tooele County, Utah</td>
<td>Baseline Data, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-99-JT-0742p</td>
<td>Addendum to the Cultural Resource Inventory of the North Cedar I-15 Interchange, Reference Points 61.75 to 62.67, Cedar City, Iron County, Utah</td>
<td>Utah State Department of Transportation</td>
<td>None</td>
</tr>
<tr>
<td>U-99-BS-0705p</td>
<td>A Cultural Resource Inventory of the Level (3) Communications Fiber Optic Cable Located Between Salt Lake City, Salt Lake County and Lyndyl, Millard County, Utah</td>
<td>Baseline Data, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-99-HQ-0002s</td>
<td>The Coral Canyon Archaeological Project, St. George Basin, Southwestern Utah</td>
<td>HRA, Inc.</td>
<td>None</td>
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<tr>
<td>U-99-BS-0135p</td>
<td>A Cultural and Paleontological Resource Inventory for the 12300 South I-15 Interchange and Road Expansion Project, Salt lake County, Utah</td>
<td>Baseline Data Inc.</td>
<td>42BL286</td>
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<tr>
<td>U-99-JT-0168p</td>
<td>A Cultural Resources Inventory of UDOT’s SR 56 I-15 to Iron Springs Road, RP 55.63 to 60.30, Cedar City, Iron County, Utah</td>
<td>Utah State Department of Transportation</td>
<td>None</td>
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<tr>
<td>U-99-SJ-0248p</td>
<td>A Cultural Resources Survey of Pressurized Pipelines for the Wasatch County Efficiency Project, Wasatch County, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
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<tr>
<td>U-99-MQ-0322s</td>
<td>Cultural Resource Inventory along a Segment of St. George’s River Road, Washington County, Utah</td>
<td>Montgomery Archaeological Consultants</td>
<td>None</td>
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<tr>
<td>U-99-HQ-0322s</td>
<td>Archaeological Inventory of the Cross Hollow Hills Development Area, Iron County, Utah</td>
<td>HRA, Inc.</td>
<td>None</td>
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<tr>
<td>U-99-SJ-0416s</td>
<td>A Cultural Resource Inventory for the St. George Airport Improvements/Expansion Project, Box Elder County, Utah</td>
<td>Sagebrush Archaeological Consultants</td>
<td>None</td>
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<tr>
<td>U-99-HQ-0442s</td>
<td>Archaeological Inventory of the Cedar City North Interchange Development Parcel, Iron County, Utah</td>
<td>HRA, Inc.</td>
<td>None</td>
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<tr>
<td>U-99-BL-0746b</td>
<td>Cross Hollow Rock Art Evaluation</td>
<td>BLM</td>
<td>None</td>
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<tr>
<td>U-99-OA-0047b</td>
<td>Uintah Basin Communications U.S. 40 Fiber Optic cable Placement, Roosevelt-Vernal Segment, Uintah County, Utah</td>
<td>Utah Division of State Lands and Forestry</td>
<td>None</td>
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<tr>
<td>U-99-JT-0104x</td>
<td>A Cultural Resources Inventory for SR 74, 1120 North American Fork to Alpine City Limits, Utah County, Utah</td>
<td>Utah State Department of Transportation</td>
<td>None</td>
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<tr>
<td>U-99-BS-0305p</td>
<td>Pleasant Grove Water Improvements Cultural Resource Survey</td>
<td>Baseline Data</td>
<td>42UT1132</td>
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<tr>
<td>U-99-ST-0332b</td>
<td>Adelast Fiber Optic Line</td>
<td>SWCA, Inc.</td>
<td>None</td>
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<tr>
<td>U-99-DH-037p</td>
<td>Cultural Resource Inventory of the SR 6 Price to Wellington Road Widening Project, Carbon County, Utah</td>
<td>Daunes and Moore</td>
<td>None</td>
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<tr>
<td>U-99-JB-0624s</td>
<td>A Cultural Resource Inventory of the Washington County Youth Crisis Center Expansion Project in St. George, Utah</td>
<td>JBIR Consultants</td>
<td>None</td>
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<tbody>
<tr>
<td>U-01-UT-0034s</td>
<td>Utah Olympic Oval Park and Walk Lot</td>
<td>Utah State Department of Transportation</td>
<td>None</td>
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<tr>
<td>U-01-Q-0047p, b, i, s</td>
<td>Utah Basin Communications U.S. 40 Fiber Optic cable Placement, Roosevelt-Vernal Segment, Uintah County, Utah</td>
<td>Intermountain Archaeology Inc.</td>
<td>None</td>
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<tr>
<td>U-01-EP-0270b.s</td>
<td>A Cultural Resource Inventory of Four Segments of 69kv Power Lines from Dammeron to Ivins, Washington County, Utah</td>
<td>Earth Touch, LLC</td>
<td>None</td>
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<tr>
<td>U-01-BG-0514p, s</td>
<td>Mitigation of the Mitchell Irrigation Ditch (R2U11371), 1120 North American Forts to Alpine City Limits, in Utah County, Utah</td>
<td>Baseline Data</td>
<td>None</td>
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<tr>
<td>U-01-BG-0514p, s</td>
<td>Mitigation of the Mitchell Irrigation Ditch (R2U11371), 1120 North American Forts to Alpine City Limits, in Utah County, Utah</td>
<td>Baseline Data</td>
<td>None</td>
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<tr>
<td>U-01-BG-0514p, s</td>
<td>Mitigation of the Mitchell Irrigation Ditch (R2U11371), 1120 North American Forts to Alpine City Limits, in Utah County, Utah</td>
<td>Baseline Data</td>
<td>None</td>
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<tr>
<td>U-01-Q-0045b</td>
<td>Galen Allen Road, Iron County, Utah</td>
<td>BLM</td>
<td>None</td>
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<tr>
<td>U-01-BG-0047b</td>
<td>Layton City I-15 Interchange Project</td>
<td>SWCA, Inc.</td>
<td>None</td>
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<tr>
<td>U-01-EP-0773s.p.w</td>
<td>A Cultural Resource Inventory of the Pave Reservoir Canal, Utah County, Utah</td>
<td>Earth Touch, LLC</td>
<td>None</td>
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<tr>
<td>U-02-QC-0003s, s</td>
<td>Creamer and Noble-Highland Drive Improvement, Washington County, Utah</td>
<td>Intersearch, Inc.</td>
<td>None</td>
</tr>
<tr>
<td>U-01-YM-0032b</td>
<td>Chuckwalla Trailhead</td>
<td>SITLA</td>
<td>None</td>
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<tr>
<td>U-02-DT-0030p</td>
<td>200 South at 300 West, Cedar City</td>
<td>Utah State Department of Transportation</td>
<td>None</td>
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<tr>
<td>U-02-SC-0072p</td>
<td>Cultural Resource Inventory of the Dixie Extension 138kv Power Line Project, Washington County, Utah</td>
<td>Montgomery Archeological Consultants</td>
<td>None</td>
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<tr>
<td>U-02-HQ-0072p</td>
<td>Middlesex Black Ridge Materials PI</td>
<td>HBA, Inc.</td>
<td>None</td>
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<tr>
<td>U-02-SC-0072p</td>
<td>Cultural Resource Inventory of the Payson Parcel (311 Acres), Utah County, Utah</td>
<td>Earth Touch, LLC</td>
<td>None</td>
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<tr>
<td>U-02-SC-0072p</td>
<td>North Loop Road and Tioga, Tooele County, Utah</td>
<td>Baseline Data, Inc.</td>
<td>None</td>
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<tr>
<td>U-02-SC-0072p</td>
<td>Landmark - Virgin River Trail Phase III</td>
<td>Intersearch, Inc.</td>
<td>None</td>
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<tr>
<td>U-02-SC-0072p</td>
<td>South Temple Reconstruction Monitoring</td>
<td>SWCA, Inc.</td>
<td>None</td>
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<tr>
<td>U-02-SC-0072p</td>
<td>Cultural Resources within the Proposed Redrock Villages Development in North Salt Lake City, Davis County, Utah</td>
<td>Baseline Data, Inc.</td>
<td>None</td>
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<tr>
<td>U-02-SC-0072p</td>
<td>1009 South Street Upgrade between U.S. 40 and SR 185</td>
<td>Baseline Data Inc.</td>
<td>4/7WA264</td>
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<tr>
<td>U-02-SC-0072p</td>
<td>U.S. 8 Safety Plan Project</td>
<td>SWCA, Inc.</td>
<td>None</td>
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<tr>
<td>U-02-SC-0072p</td>
<td>An archaeological Inventory of the Proposed Regional Water Pipeline Between Quail Creek Lake and Snow Canyon State Park, Washington County, Utah</td>
<td>BYU</td>
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<td>U-02-SC-0072p</td>
<td>Documentation of Historic Features, South Temple Reconstruction Salt Lake City, Salt Lake County, Utah</td>
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<td>U-02-SC-0072p</td>
<td>Washington Dam Tank and Pipeline, Washington County, Utah</td>
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<td>U-03-SC-0047p</td>
<td>Commuter Rail Project</td>
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<td>U-03-SC-0047p</td>
<td>Water Line Fill Area, Bear River County, Utah</td>
<td>Sagebrush Archaeological</td>
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### Table 1. Projects Located within 500 Feet of the Utah Education Network (UEN) APE

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<td>U-03-BS-030p.s</td>
<td>A Cultural Resource Inventory for the Proposed Woodland Hills Drive Collector Roadway South of Spanish Fork in Utah County, Utah</td>
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<td>U-03-BL-054p. p.s</td>
<td>Cedar City Waterline, Iron County, Utah</td>
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<td>U-03-BC-056p.s</td>
<td>An Archaeological Inventory of the Snow Canyon Parkway and Red Hills Parkway Widening Project, Washington County, Utah</td>
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<td>U-03-MQ-030p.s</td>
<td>Cultural Resource and Fossil Inventory of Utah Department of Transportation’s U.S. 40/1 Monticello to Colorado State Line, San Juan County, Utah</td>
<td>Montgomery Archaeological Consultants</td>
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<td>U-03-A1-066p. p</td>
<td>A Class III Cultural Resource Inventory of the Wasatch Loop Project in Davis, Morgan, and Salt Lake Counties, Utah</td>
<td>Alpine Archaeological Consultants</td>
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<td>U-03-EP-101p.</td>
<td>A Cultural Resource Inventory of a Segment of Syracuse Road (SR 198), from 1900 West to 2000 West, in Syracuse, Davis County, Utah</td>
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<td>Weber River Stream Enhancement Project</td>
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<td>U-04-UM-008p.s</td>
<td>Ledges “A” Development Parcel, Washington County, Utah</td>
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<td>U-04-BS-027p. p</td>
<td>A Cultural and Paleontological Resource Inventory of Proposed Road Improvements on SR 88 in Utah County, Utah</td>
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<td>U-04-BC-032p.s</td>
<td>Historic Property Survey and Assessment for the Proposed Mid-Jordan Light Rail Corridor, Salt Lake County, Utah</td>
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<td>U-04-UM-032p.s</td>
<td>Two Surveys in Washington County, Utah</td>
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<td>U-04-LK-039p.s</td>
<td>A Cultural Resource Inventory of the Santa Clara Drive Streetscape Project in Santa Clara, Utah</td>
<td>JBR Environmental Consultants</td>
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<td>U-04-SL-051p.s</td>
<td>A Cultural Resources Survey and Building Inventory Along the 100 East Street Corridor Located in Logan, Cache County, Utah</td>
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<td>U-04-BC-061p.</td>
<td>An Archaeological Inventory of the St. George and Washington Canals, Washington County, Utah</td>
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<td>U-05-UM-013p.s</td>
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<td>200 North Kayesville</td>
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<td>Determination of Eligibility and Finding Effect for 600 West SR 91 Intersection Upgrade and 600 West Realignment Project, Logan, Utah</td>
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<td>Denver and Rio Grande Western Rail Trail Construction Project, Davis and Weber Counties</td>
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<td>A Cultural Resource Inventory of the Proposed Santa Clara Storm Drain Outlets &amp; Staging Fill Area, Washington County, Utah</td>
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<td>U-08-MO-0242s</td>
<td>Cultural Resource Inventory of Westport Oil and Gas Company’s East Willow Creek Compressor Station, in T55R12E Sec. 32, Uintah County, Utah</td>
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<td>A Cultural Resources Inventory of a Pedestrian Trail on the North Side of Forest Street, Brigham City, Box Elder County, Utah</td>
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<td>A Cultural Resource Inventory of the Skyline to Red Hills Power Line Project, Washington County, Utah</td>
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<td>Bear River Bridge Replacement</td>
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<td>U-09-JJ-1526b</td>
<td>Class III Cultural Resources Inventory of Red Hills Parkway, SR 18 (Buff Street) to Industrial Road, St. George, Washington County, Utah</td>
<td>Jones &amp; Stokes, Inc.</td>
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<td>A Cultural Resource Inventory of the Proposed Grant Tower Reconfiguration Project, Salt Lake City, Salt Lake County, Utah</td>
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<td>A Cultural Resource Inventory of the Proposed Road Improvement Along Main Street, Herriman, Salt Lake County, Utah</td>
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<td>A Cultural Resources Survey for the 5200 South Reconfiguration Project, Nibley, Cache County, Utah</td>
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<td>U-07-HC-1323p</td>
<td>A Cultural Resource Inventory for the Payson Parkway Health Center, Utah County, Utah</td>
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<td>Pratt Trail Extension</td>
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<td>U-06-HC-0715p</td>
<td>A Cultural Resource Inventory of the Mill Drive Bridge Project, Washington County, Utah</td>
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### Table 2. Previously Documented Archaeological Sites Located within 500 feet of the UEN APE

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<th>UEN Site Name</th>
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<th>Cultural Resource Site(s) Located within 500-foot Buffer</th>
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<th>UEN Site Surveyed Post-2005 (Yes/No)</th>
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<td>No</td>
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Table 2. Previously Documented Archaeological Sites Located within 500 feet of the UEN APE

<table>
<thead>
<tr>
<th>UEN Site Name</th>
<th>UEN Site Surveyed Post-2005 (Yes/No)</th>
<th>Cultural Resource Site(s) Located within 500-foot Buffer</th>
<th>NRHP Recommendation or Determination</th>
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<td>No</td>
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<td>Murray Public Library</td>
<td>No</td>
<td></td>
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<td>Orem Public Library</td>
<td>No</td>
<td></td>
<td></td>
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<tr>
<td>Layton</td>
<td>No</td>
<td>420V887</td>
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<td>Payson Library</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron County Stocktonline Repository</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Parowan Public Library</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUU Head Start</td>
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<tr>
<td>Salina Public Library</td>
<td>No</td>
<td>42SV2544</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>42SV2545</td>
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<td>Mountainland Head Start</td>
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<td></td>
<td></td>
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<tr>
<td>Rural Utah Child Development Head Start</td>
<td>No</td>
<td></td>
<td></td>
</tr>
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<td>Ute Indian Tribe Head Start Administration</td>
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<td></td>
</tr>
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<td>No</td>
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<tr>
<td>Monticello Library</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>President Millard Fillmore Library</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willow Elementary School</td>
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<td></td>
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</tr>
</tbody>
</table>

The results of the background research indicate that 14 known cultural resource sites are present within 500 feet of the APE. Where cultural resources eligible for the National Register of Historic Places are located within the APE, SWCA recommends avoidance of this area to reduce effects on these historic properties. Although several projects conducted since 2005 partially overlap the APE, none cover the entire APE of an individual UEN site (project areas surveyed after this year generally do not require re-survey). Therefore, a cultural resources survey will be required at any location where ground disturbance is anticipated. Such surveys will also verify previously documented site locations to determine any potential effects.

Please feel free to contact me with any questions regarding this letter report. I can be reached via email at erobinson@swca.com or via telephone at (801) 322-4307.

Sincerely,

Elisabeth Robinson, M.A., RPA
Project Manager
Figure 1. Project location map showing the statewide APE.
Figure 2. Project location map showing the Weber County APE.
Figure 3. Project location map showing the Davis County APE.
Figure 4. Project location map showing the Salt Lake County APE.
Figure 5. Project location map showing the Washington County APE.
Appendix G-2
SWCA Historical Structural Surveys and Findings

A SELECTIVE RECONNAISSANCE LEVEL
ARCHITECTURAL SURVEY FOR THE UTAH
EDUCATION NETWORK’S BROADBAND
TECHNOLOGIES OPPORTUNITY PROGRAM
ENVIRONMENTAL ASSESSMENT PROJECT,
UTAH

Prepared for
The Utah Education Network

Prepared by
SWCA Environmental Consultants

October 2010
A SELECTIVE RECONNAISSANCE LEVEL ARCHITECTURAL SURVEY FOR THE UTAH EDUCATION NETWORK'S BROADBAND TECHNOLOGIES OPPORTUNITY PROGRAM ENVIRONMENTAL ASSESSMENT PROJECT, UTAH

Prepared for
The Utah Education Network

Submitted to
The National Telecommunications and Information Administration

and
The Utah Department of Transportation

Prepared by
Kiera Simms, Sara Meess

Under the direction of
Elisabeth Robinson, M.A.,

SWCA Environmental Consultants
257 East 200 South, Suite 200
Salt Lake City, Utah 84111-2048
(801) 322-4307

Public Lands Policy Coordination Office Permit No. 56
Antiquities Project No. U-10-ST-02447
SWCA Project No. 16566
SWCA Cultural Resource Report No. 2010-414

October 2010
ABSTRACT

SWCA Environmental Consultants, under contract to the Utah Education Network, conducted a selective reconnaissance level architectural survey for proposed Broadband Technologies Opportunity Program, which will install new or upgrade existing broadband connections at 128 schools, libraries, and Head Start centers across Utah. This document provides an overall project description, and presents the results of and recommendations from the architectural survey.

This report documents the reconnaissance level architectural survey for 30 facilities of historic age that are included in the Broadband Technologies Opportunity Program project area. SWCA carried out fieldwork on October 4-8, 2010, under authority of the Public Lands Policy Coordination Office Permit No. 56 and Antiquities Project No. U-10-ST-0248ps. SWCA also consulted with the Utah Geological Survey regarding known and potential paleontological resources that could be affected by the proposed project.

Of the 30 properties, SWCA recommends 23 eligible for listing on the National Register of Historic Places. Three of the 30 properties are currently listed on the National Register of Historic Places, and SWCA recommends the remaining four properties ineligible for the National Register of Historic Places as a result of substantive structural modifications. A summary of the architectural properties and SWCA’s corresponding National Register eligibility recommendation is provided below.

<table>
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<tbody>
<tr>
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<td></td>
</tr>
<tr>
<td>Beaver City Library</td>
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</tr>
<tr>
<td><strong>Box Elder County</strong></td>
<td></td>
</tr>
<tr>
<td>Brigham City Carnegie Library</td>
<td>B-rated/Eligible</td>
</tr>
<tr>
<td>Corinne Early Learning Center</td>
<td>B-rated/Eligible</td>
</tr>
<tr>
<td>Lake View Elementary (Brigham City)</td>
<td>B-rated/Eligible</td>
</tr>
<tr>
<td>Mountain View Elementary (Brigham City)</td>
<td>C-rated/Ineligible</td>
</tr>
<tr>
<td><strong>Carbon County</strong></td>
<td></td>
</tr>
<tr>
<td>Rural Utah Child Development Head Start (Wellington)</td>
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</tr>
<tr>
<td><strong>Davis County</strong></td>
<td></td>
</tr>
<tr>
<td>Farmington Library</td>
<td>A-rated/Eligible</td>
</tr>
<tr>
<td><strong>Iron County</strong></td>
<td></td>
</tr>
<tr>
<td>Parowan Public Library</td>
<td>B-rated/Eligible</td>
</tr>
<tr>
<td><strong>Millard County</strong></td>
<td></td>
</tr>
<tr>
<td>Delta City Library</td>
<td>C-rated/Ineligible</td>
</tr>
<tr>
<td>President Millard Fillmore Library</td>
<td>B-rated/Eligible</td>
</tr>
<tr>
<td><strong>Salt Lake County</strong></td>
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<tr>
<td>Canyon Rim Academy (Salt Lake City)</td>
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<tr>
<td>Guadalupe Schools K-4 (Salt Lake City)</td>
<td>B-rated/Eligible</td>
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<tr>
<td>Open Classroom K-8 (Salt Lake City)</td>
<td>B-rated/Eligible</td>
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A Selective Reconnaissance Level Architectural Survey for the Utah Education Network's Broadband Technologies Opportunity Program Environmental Assessment Project, Utah

<table>
<thead>
<tr>
<th>Property</th>
<th>Eligibility</th>
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<tr>
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<td>Monticello Library</td>
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<td></td>
</tr>
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<td>Richfield Public Library</td>
<td>B-rated/Eligible, listed on NRHP</td>
</tr>
<tr>
<td>Salina Public Library</td>
<td>B-rated/Eligible, listed on NRHP</td>
</tr>
<tr>
<td><strong>Summit County</strong></td>
<td></td>
</tr>
<tr>
<td>Park City Library</td>
<td>B-rated/Eligible</td>
</tr>
<tr>
<td><strong>Tooele County</strong></td>
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</tr>
<tr>
<td>East Elementary (Tooele)</td>
<td>A-rated/Eligible</td>
</tr>
<tr>
<td>Payson Library</td>
<td>C-rated/Ineligible</td>
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<td>West Elementary (Tooele)</td>
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<td><strong>Utah County</strong></td>
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<tr>
<td>Mountainland Head Start (Provo)</td>
<td>B-rated/Eligible</td>
</tr>
<tr>
<td><strong>Washington County</strong></td>
<td></td>
</tr>
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<td>East Elementary (St. George)</td>
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<tr>
<td><strong>Weber County</strong></td>
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<td>Bonneville Elementary (Ogden)</td>
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<td>Gramercy Elementary (Ogden)</td>
<td>B-rated/Eligible</td>
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<tr>
<td>Hillcrest Elementary (Ogden)</td>
<td>B-rated/Eligible</td>
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<tr>
<td>Horace Mann Elementary (Ogden)</td>
<td>B-rated/Eligible</td>
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<td>Ogden Weber CAP Head Start</td>
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<td>Polk Elementary (Ogden)</td>
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<td>Thomas O. Smith Elementary (Ogden)</td>
<td>B-rated/Eligible</td>
</tr>
<tr>
<td>Wasatch Elementary (Ogden)</td>
<td>B-rated/Eligible</td>
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</table>
A Selective Reconnaissance Level Architectural Survey for the Utah Education Network’s Broadband Technologies Opportunity Program Environmental Assessment Project, Utah

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A Selective Reconnaissance Level Architectural Survey for the Utah Education Network’s Broadband Technologies Opportunity Program Environmental Assessment Project, Utah

INTRODUCTION

The Utah Education Network (UEN), in conjunction with the University of Utah, designed the Broadband Technologies Opportunity Program (BTOP) to install new or upgrade existing broadband connections at 128 schools, libraries, and Head Start centers across Utah. The UEN is preparing an environmental assessment for this project, and SWCA Environmental Consultants (SWCA) is under contract with the UEN to provide assistance in compliance with state and federal cultural resource statutes. The BTOP is funded through a grant from the National Telecommunications and Information Administration (NTIA) who administers such grants for infrastructure and public telecommunications. As a federal agency, NTIA must comply with the National Historic Preservation Act, CERCLA section 106, which provides for the protection of cultural resources. Historic architecture is one of these resources and therefore must be evaluated for effects that may result from the current project. SWCA has previously conducted a literature review and archaeological survey of the BTOP project area (Robinson 2010).

This report documents the reconnaissance-level architectural survey (RLS) for 31 facilities that are of historic age and are included in the BTOP (Figure 1, Table 1). As a standard, SWCA employed a cutoff date of 1965 to define properties as historical (i.e., of sufficient age to be considered under the National Historic Preservation Act). SWCA carried out fieldwork on October 4-8, 2010, soler authority of Public Lands Policy Coordination Office Permit No. 56 and Antiquities Project No. U-10-ST-0248ps.

Project Area

The BTOP RLS project area consists of 30 properties that are either state facilities or privately owned. The legal location of the RLS survey area is listed in Table 1. At each facility, trenching would be conducted from the nearest broadband tie-in, across the property, to the building installation point. Installation would generally consist of creating a small hole (no more than 6 inches in diameter) in the foundation or wall at or below the ground surface to gain access to the infrastructure of the building. The hole would be filled and any landscaping disturbed by the trenching would be restored. The portion of the project area outside of the property was evaluated during the previous archaeological investigation (Robinson 2010). Therefore, the APE for the RLS consists of each subject building and its associated property, across which the trenching for fiber optic cable would occur.

Table 1. Legal Location of Reconnaissance Level Architectural Survey Properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Address</th>
<th>City</th>
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<td>Lake View Elementary</td>
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<td>Mountain View Elementary</td>
<td>680 East 700 South</td>
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<td><strong>Carbon County</strong></td>
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<td>Rural Utah Child Development Head Start</td>
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<td>Wellington</td>
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<tr>
<td><strong>Davis County</strong></td>
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<tr>
<td>Farmington Library</td>
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1
A Selective Reconnaissance Level Architectural Survey for the Utah Education Network's Broadband Technologies Opportunity Program Environmental Assessment Project, Utah

<table>
<thead>
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<th>Address</th>
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</tr>
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<td>Delta City Library</td>
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<td>Millard County</td>
<td>President Millard Fillmore Library</td>
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<td>Fillmore</td>
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<tr>
<td>Salt Lake County</td>
<td>Canyon Rim Academy</td>
<td>3005 South 2000 East</td>
<td>Salt Lake City</td>
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<td>Guadalupe Schools K-3</td>
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<td>San Juan County</td>
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<td>Richfield Public Library</td>
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<td>940 West 800 South</td>
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<td>1300 Ninth Street</td>
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<td>Ogden Weber CAP Head Start</td>
<td>3159 Grant Avenue</td>
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<td>Polk Elementary</td>
<td>2615 Polk Avenue</td>
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<td>Thomas O. Smith Elementary</td>
<td>3295 Gramercy Avenue</td>
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</tr>
<tr>
<td></td>
<td>Wasatch Elementary</td>
<td>3370 Polk Avenue</td>
<td>Ogden</td>
</tr>
</tbody>
</table>
A Selective Reconnaissance Level Architectural Survey for the Utah Education Network's Broadband Technologies Opportunity Program Environmental Assessment Project, Utah

Figure 1. Location of the BTOP RLS project areas.
ENVIRONMENT

The BTOP RLS project area consists of 30 individual locations spread throughout Utah. Consequently, the project area is located within all four of the major physiographic provinces of Utah: the Colorado Plateau, the Middle Rocky Mountains, the Great Basin, and the Great Basin–Colorado Plateau Transition Province (Stokes 1988).

The Colorado Plateau

The Colorado Plateau is located in the southeastern portion of Utah and is bounded by the Wasatch and Uinta Mountains to the north and the Great Basin to the west. The Colorado Plateau is actually a series of plateaus of varying altitudes. The province has a wide diversity of geologic features with only the horizontal nature of the rocks and high elevations as the common features. The name of the province derives from the main drainage of the plateau, the Colorado River. Sedimentary rocks underlie most of the province (Leighty 2001).

The general climate of the Utah portion of the Colorado Plateau is semiarid to arid with temperatures ranging from 8° to 36° F in January and from 56° to 96° F in July. The average annual precipitation varies from fewer than 8 inches to 17 inches. The vegetation generally found in this province includes sagebrush (Artemisia sp.), pinyon pine (Pinus monophylla and Pinus edulis), juniper (Juniperus communis), shadscale (Atriplex confertifolia), Mormon tea (Ephedra sp.), mountain mahogany (Cercocarpus sp.), and ponderosa pine (Pinus ponderosa) (Woods et al. 2001).

The Middle Rocky Mountains

The Middle Rocky Mountains province is located in the northeastern portion of Utah and is bounded by the Colorado Plateau to the south and the Great Basin to the west. The province is defined as the Uinta Mountains and the Wasatch Range. In addition to the mountains, the province contains plains, basins, and river valleys because of the wide geographic range of the Rocky Mountains system. The Wasatch Range has a northerly trend and is narrow and sharply crested with many geologic structures. The Uinta Mountains, in contrast, are a gently arched, easterly trending, broadly folded anticline (Stokes 1988).

The general climate of the Utah portion of the Middle Rocky Mountains is characterized by long cold winters. The vegetation generally found in this province includes alpine meadows with meadows, low shrubs, wildflowers and grasses, and spruce/fir forests (Woods et al. 2001).

The Great Basin

The Great Basin is located in the northwestern portion of Utah and is bounded by the Middle Rocky Mountains to the east and the Great Basin–Colorado Plateau Transition province to the south and southeast. The province is characterized by numerous “short mountain ranges bounded by normal faults and surrounded by alluvium filled valleys” (Stokes 1988). The Great Basin is part of the larger Basin and Range province that extends south to Mexico and west to Oregon. The Great Basin province is defined by an internal drainage system of watershed networks that converge at the Great Salt Lake (Stokes 1988).

The general climate of the Utah portion of the Great Basin is semiarid to arid with temperatures ranging from 12° to 44° F in January and from 48° to 94° F in July. The average annual precipitation varies from fewer than 10 inches to 22 inches. The vegetation generally found in this province includes sagebrush (Artemisia sp.), pinyon pine (Pinus monophylla and Pinus edulis), juniper (Juniperus communis), shadscale (Atriplex confertifolia), and Mormon tea (Ephedra sp.) (Woods et al. 2001).
The Great Basin–Colorado Plateau Transition

The Great Basin–Colorado Plateau Transition province is located in the southwest and central portions of Utah and is bounded by the Colorado Plateau to the east and the Great Basin to the north and west. The province is defined as the transitional zone between the high plateaus of the Colorado Plateau province and the ranges and valleys of the Great Basin province. As such there is a wide diversity in the subsections of the province which include plateaus, valleys and mountains (Stokes 1988).

The general climate of the Utah portion of the Great Basin–Colorado Plateau Transition province is semi-arid to arid with temperatures ranging from 40°–42° F in January and 45°–90° F in July. The average annual precipitation varies from fewer than 5 inches to 24 inches. The vegetation generally found in this province includes sagebrush (Artemisia sp.), pinyon pine (Pinus monophylla and Pinus edulis), juniper (Juniperus communis), shadscale (Atriplex confertifolia), and Mormon tea (Ephedra sp.) (Woods et al. 2001).

CULTURAL CONTEXT

To assess the historical significance of architectural resources found during RLS, it is important to be aware of past activities that occurred in the area, and the individuals and groups associated with them. To that end, cultural contexts are prepared to provide a chronological and thematic framework for consideration of cultural resources. Historical properties were identified across the state and date from 1914 through 1965. The following is a general history of Utah divided into time periods associated with major events and activities pertinent to the construction of the historic properties discussed in this report.

Industrial Era (1883–1928)

In 1883, the Denver and Rio Grande Western Railroad (D&RGW) Company completed a rail line from the town of Spanish Fork, through Spanish Fork and Price Canyons, to the Colorado border. In addition to providing passenger service through the area, this rail line also served to transport supplies to and ore from the mines of the region (Robertson 1986). The completion of the D&RGW rail line and smaller branch lines such as the Salt Lake and Western, the Sevier Railway, the Utah and Pleasant Valley Railway, and the Los Angeles and Salt Lake Railroad, opened the area east of the Wasatch Mountains to further settlement and, especially, mineral development. Even as late as 1925, rail lines such as the National Coal Railway were being built to accommodate mining in the area. As a result of the vast rail network that surrounded the steep mountains and provided access to larger national and global markets, numerous small coal camps and mining towns sprang up along the rail lines throughout the latter part of the 1890s and early part of the 1900s, including Soldier Summit, Helper, Kenilworth, and Woodside (Carr 1972; Van Cott 1990). Additionally, hundreds of small mines and prospects dotted the region’s canyons and mountain slopes. Remnants of these mine workings still exist throughout the area.

The Uinta Mining District, established in 1869, encompassed much of west-central Utah. The mines of this district provided employment for thousands of workers throughout the first part of the early 1900s. Between the establishment of the district and 1917, the end of World War I, the mines of the area generated an estimated $80 million in revenues. The only downturn in the economic history of this otherwise exceptionally productive mining district came as the result of the Panic of 1893. The Panic of 1893 was the outcome of many converging factors. In addition to a territorial boom in 1889 and 1890, where land prices skyrocketed to 10 times their pre-1889 rates, a late winter in 1892–1893 severely impacted commercial agricultural crops, and the plummeting price of silver forced the closure of many area mines. The economic depression extended beyond the borders of Utah to investors overseas. Many European banks and financiers had funneled large sums of money into Utah’s various mining operations.
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When these banks collapsed under a European depression, Utah’s mining industry declined significantly, and, as a result, local banks that were heavily invested in mining collapsed as well. In all, approximately 115 banks in the American West shut down as a result of the Panic of 1893.

Although the period of the late 1890s and early 1900s was dominated by mineral exploitation in central Utah, other industries such as farming and ranching contributed to the local economy and way of life. Factors that impacted these industries affected the region as a whole. The establishment of the U.S. Forest Reserve and the U.S. Forest Service (USFS), a precursor to the U.S. Forest Service (USFS), in the late 1890s had a significant impact upon ranchers and miners in central Utah due to the high percentage of USFS/USFS lands in the area (Alexander 1987). By 1905, when President Theodore Roosevelt officially organized the USFS, the Uinta and Manti-La Sal National Forests had been created in Utah and Carbon Counties. The development of USFS lands reduced the area available to ranchers for grazing their livestock and restricted mine prospecting on public lands (Alexander 1987). Forest lands were still open to grazing and prospecting on a smaller scale by ranchers and miners, but such activities were regulated through requiring formal applications for grazing and mining permits.

The period from 1910 to 1920 was a prosperous one for residents of Utah. The increased use of industrial ores during World War I created an economic mini-boom in mining towns throughout the area. The mining industry recovered well from the Panic of 1893, and between 1899 and 1928 there were 122 registered mining districts in Utah alone. Although miners and mining companies were the obvious beneficiaries of this war-time demand, area ranchers also enjoyed economic prosperity by selling larger quantities of beef to feed the hungry mine workers. Many Utah towns reached the height of their social and economic growth during this boom period.

Several of the libraries and schools documented for this project were the results of the economic and social growth of this period in Utah. When the transcontinental railroad connected Utah with the rest of the United States, the state was flooded with new people bringing new ideas regarding the general infrastructure of the communities of Utah. To catch up with the rest of the country, a public education system supported by tax dollars was developed and replaced the disjoined schools, which had been run by the Mormon church. A new “architectural awareness” in Utah as well as access to a variety of building supplies spurred on construction of more sophisticated libraries and schools. The buildings were constructed with tax dollars and private donations as well. Several libraries were constructed across Utah between 1913 and 1915 using grant money provided by Andrew Carnegie. Carnegie funded the construction of 23 libraries in Utah. The grants were given with conditions, however. Each community had to donate the building site and provide an annual maintenance fee of at least 10% of the grant amount (Hopeworth 1976). Several of these Carnegie buildings, including the Beaver City Library, the Brigham City Library, and the Richfield Library, are still used as libraries today.

Depression Era (1929–1940)

Like much of the West, with its economy firmly established on resource exploitation and extractive industries, Utah was struck a severe financial blow toward the close of the 1920s. The crash of the stock market in late 1929 heralded the onset of the Great Depression and brought a swift and permanent end to many of Utah’s mining operations. Although many mining companies were able to eke out an existence in the early years of the Depression, a significant number of the area’s smaller mines shut down between 1933 and the onset of World War II. The loss of income resulting from the closing of area mines was not the only problem encountered by miners. Although many miners were single adult males, others had wives and children to support. When local mines shut down in the face of declining revenues, hundreds of miners lost the area in search of employment. Among these men were husbands and fathers, leaving their families behind. Although the separation of some families lasted only a short while, it lasted several years for others.
The agricultural industry, which had contributed heavily to the region’s economic base, also was hit hard by the Great Depression. As income decreased, local farmers and ranchers could no longer afford to purchase seeds and equipment or to maintain herds of livestock. Families living on marginal or sub-marginal lands fell into especially dire circumstances. In response to this situation, agricultural resettlement programs were instituted in Utah as part of the federal government’s New Deal aid package. The resettlement program provided for the construction of hundreds of miles of irrigation canals and water transportation features, as well as for the relocation of families from minimally fertile to more arable land.

Other factors besides the difficulties on Wall Street contributed to the decline in farming and ranching during this period. A low-water year in 1934 resulted in poor crop yields and limited harvests. Additionally, vast expanses of the state include public lands administered by either the Bureau of Land Management (BLM) or the USFS. Legislation regulating the use of federal lands impinged upon farmers and ranchers using the public domain. In the years prior to the 1930s, few restrictions had been placed on grazing on public lands. As a result, large-scale ranchers effectively took control of much of the prime pastureland in the area. In 1934, the federal government passed the Taylor Grazing Act which regulated the use of public grazing land and established the Grazing Service (Hull and Avery 1980). The intended purpose of the act was to stabilize the sometimes economically volatile livestock industry and to stop the misuse and abuse of public lands through regulatory control of those lands by the Grazing Service (a precursor of the BLM). With beef and wool prices at unprecedented lows, hundreds of area ranchers could no longer afford the price of permits to graze their livestock on public lands. Many sold off their herds and attempted other financial pursuits during the Depression years. Once the economy began to improve and agricultural product prices began to rise, many such families purchased new animals and re-entered the ranching industry.

As the nation continued to struggle in the Great Depression, the U.S. government set about establishing programs of institutional relief. As part of President Franklin Roosevelt’s New Deal, various forms of federal aid poured into struggling communities. In general, Western states received more financial support than Eastern states, with Utah ranking ninth overall in federal aid per capita (Holzapfel 1999). In addition to social welfare programs, including federally run programs as well as those operated by the Mormon church for the benefit of its members, a wide variety of work relief programs benefitted local residents. Works Progress Administration (WPA) and Civilian Conservation Corps (CCC) crews engaged in numerous community betterment activities, including road construction and maintenance, bridge construction, snow shoveling, wood chopping, and trails and parks development. Many WPA and CCC work crews were charged with constructing new schools and community and government buildings. Others were responsible for digging miles of irrigation and drainage ditches along Utah’s roadways. The preservation and importance of the WPA, CCC, and other work relief programs in Utah remains evident today in buildings, water storage and transportation features, sidewalks, landscaping, and parks. A couple of the libraries and schools documented during this project were funded by the WPA including the Salt Lake Library and the Rural Utah Child Development Head Start in Wellington. These facilities are physical reminders of a significant period, a character-shaping era, in the history of the region.

**World War II and the Post-War Era (1941–Present)**

Ironically, the events of World War II, which destroyed or forever altered so many lives, brought new economic vigor to Utah. The mining industry enjoyed a brief resurgence during the years of World War II, but this economic upturn failed to provide for the re-establishment of most of the mines and their associated communities, which waned during the Great Depression (Black and Metcalf 1986). However, new developments in the defense industry resulted in a redefinition of Utah mining.
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The detonation of atomic bombs over Hiroshima and Nagasaki, Japan, marked the dawn of the nuclear age and the Cold War. In the early 1950s, uranium deposits were discovered within Utah’s borders. Although most of these deposits were located in San Juan County, several deposits of the non-uranium ore were found in Carbon County, specifically along Cold Creek approximately 20 miles north of Price (Notariani 1994). As a result of these discoveries, a booming uranium mining industry arose in Utah, with Carbon and San Juan Counties sharing in the wealth created by the new demand. Along with this economic boom came a longer lasting demographic boom. At the end of WWII the country as a whole experienced a sharp increase in population, couples who could not afford children during the depression were making up for lost time. With this increase in children came a need for more schools to put them in. During the 1950s and 1960s communities all over Utah were doing everything they could to build more schools. The majority of the school buildings documented for this inventory were built during this time.

Apart from uranium other industries were beginning to emerge as important facets of the area’s economy. In the late 1940s, oil and natural gas deposits were discovered in the Uinta Basin, and by 1948, commercial oil production was a well-established industry. However, it wasn’t until the rise in international oil prices during the 1970s that the industry truly flourished (Fuller 1994). Carbon County also enjoyed an economic boost when fossil fuels were discovered within its borders as well. In addition to its own oil and natural gas development, the county has seen the construction of facilities for transporting and processing fuels from other areas of the state. Once again, the microcosm that was Utah’s economy benefitted from much broader affairs. From 1970 to 1980, nearly seven thousand people flocked to Carbon County, most of whom likely relocated to take advantage of lucrative jobs in the growing oil and natural gas industry (Powell 1994). Yet, those who benefit from upswings in the global economy also suffer from its downturns. When international oil prices fell in 1980, some Utah residents were greatly impacted. With the oil industry on the decline, many area residents returned to farming and ranching for their livelihood or moved to the larger urban communities along the Wasatch Front in search of employment in the rapidly growing high-tech industry.

The dynamic days of the mining and oil booms have since passed, and much of rural Utah has settled into a quiet routine of farming and ranching, although many vestiges of the former life remain scattered throughout the hills and plains of the region. The more urbanized areas along the Wasatch Front continue to grow at an incredible pace, and are rapidly becoming part of national and international social, political, and economic landscapes. Since the 1960s, the central Utah region has continued to enjoy small-scale development. Ranching and farming are still the main industries in the area, although tourism is contributing an increasing amount to the regional economy. In recent years, many small farms and ranches in the area have been abandoned as a result of economic non-viability in the face of much larger corporate agribusiness elsewhere in the West. The area’s oil and natural gas industry has enjoyed resurgence in recent years and become a significant contributor to the local economy.

PREVIOUS RESEARCH

Prior to the commencement of the field inventories of the historic properties, an SWCA staff member conducted a search of the preservation files at the Utah Division of State History (UDSH). Although the results of this search were presented in a previous report (Robinson 2010), the following is a summary of that report.

The search was conducted on September 17, 2010, to determine if any of the facilities 45 years or older had been previously documented. As noted above, 30 of the facilities in the BTOP are of historic age, of these, ten had been documented prior to SWCA conducting the RLS. Of these ten, three have been listed on the NRHP, two have been recommended eligible, four have been recommended not eligible, and one was not fully evaluated. Originally 30 locations were identified for documentation during the Class I
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search; however, upon field inspection it was discovered that two of the locations are not of historic age and are no longer included in this report.

<table>
<thead>
<tr>
<th>Property</th>
<th>Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guadalupe Schools K-3</td>
<td>Not Eligible</td>
</tr>
<tr>
<td>Open Classroom K-8</td>
<td>Not Eligible</td>
</tr>
<tr>
<td>Park City Library</td>
<td>Eligible</td>
</tr>
<tr>
<td>Richfield Public Library</td>
<td>Listed on NRHP</td>
</tr>
<tr>
<td>Ogden Weber CAP Head Start</td>
<td>Not Eligible</td>
</tr>
<tr>
<td>Brigham City Carnegie Library</td>
<td>Listed on NRHP</td>
</tr>
<tr>
<td>Salt Lake Public Library</td>
<td>Listed on NRHP</td>
</tr>
<tr>
<td>Mountain Head Head Start</td>
<td>Not Eligible</td>
</tr>
<tr>
<td>Delta City Library</td>
<td>Eligible</td>
</tr>
<tr>
<td>President Millard Fillmore Library</td>
<td>Not Evaluated</td>
</tr>
</tbody>
</table>

METHODS

The methods used in identifying and documenting historical architectural resources within the project APE followed the standards of the Preservation Section of the UDSH for selective reconnaissance level surveys.

For consistency with UDOT guidelines, SWCA used a cutoff date of 1965 for designating structures as historical. Age of construction for each primary building was derived from a combination of estimation based upon architectural characteristics, records from prior documentation, and information obtained from the applicable County Assessor’s and Recorder’s Offices. Each primary building on each architectural property was entered into an electronic RLS database supplied by the UDSH. The database included indicators of building type, style, height, construction materials, original usage, probable construction date, and NRHP eligibility, which is linked to a rating system established by the UDSH.

Each property documented during the RLS was digitally photographed in color at a minimum resolution of 300 dpi. Every effort was made at survey time to obtain unobstructed photographs of each building; however, vegetation, vehicles, and other items at least partially obscured some of the structures. Black and white photographic index sheets were produced from the digital images. In addition to photographs, notes on the construction materials, number of floors, construction style, and floor plan type were taken in the field. The information collected in the field was based off the Utah Historic Sites Database architectural materials, types, styles, and uses codes.

Evaluation Criteria

As per the mandates of 36 CFR § 60, all cultural resource sites, including buildings, must be evaluated for their NRHP eligibility under four specific criteria and with consideration for seven elements of integrity. A cultural resource site or building may be considered eligible for the NRHP if it:

A – is associated with events that have made a significant contribution to the broad patterns of our history; or
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B – is associated with the lives of persons significant in our past; or

C – embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or

D – has yielded, or may be likely to yield, information important in prehistory or history.

Sites and buildings considered potentially eligible under one of the four aforementioned criteria must also be evaluated for integrity of location, design, setting, materials, workmanship, feeling, and association. To be eligible for the NRHP, a site/building must possess integrity of those elements directly related to the criterion or criteria under which it would be determined eligible.

Additional Evaluation Criteria for Buildings

In Utah, all architectural resources documented at a reconnaissance level are also evaluated using a rating system established by the Historic Preservation program at the UDSH. This system allows for the assignment of one of four ratings to buildings and structures based upon the degree to which they retain historical and architectural integrity.

A – Eligible/Significant: Built within the historic period and retains integrity; excellent example of a style or type; unaltered or only minor alterations or additions.

B – Eligible: Built within the historic period and retains integrity; good example of a style or type, but not as well-preserved or well-executed as “A” buildings; more substantial alterations or additions than “A” buildings, though overall integrity is retained.

C – Ineligible: Built during the historic period but has had major alterations or additions; no longer retains integrity.

D – Ineligible/Out-of-period: Built after the historic period.

When considering integrity and eligibility for individual architectural properties within a given project area under this rating system, several factors are taken into account, including frequency of occurrence and general patterns in degrees and types of modifications given property types have undergone. For those building types and time periods that are well represented in the architectural record of the community in which the study locations are located, stricter standards for defining historical integrity are appropriate. Conversely, for those building types and time periods that are not as well-represented, more lenient standards for defining historical integrity are appropriate.

Under stricter standards for defining integrity, fewer modifications of the primary historical building on a property are considered acceptable. Alterations such as enclosing or partially enclosing a porch, enclosing a carport, or converting an attached garage to additional living space are considered unacceptable if the alteration causes the individual building to be visually distinctive from other buildings of its same type and style within a study area. Out-of-period additions are generally considered an adverse impact on the historical building’s integrity.

Under the stricter criteria, modification of the fenestration (enclosing or changing the size and shape of door and window openings) and the use of historically incompatible roofing materials such as metal shingles and sheet metal are considered a significant impact to a structure’s integrity. Finally, the use of aluminum or vinyl siding is considered an acceptable alteration only if the siding is of sufficient width to replicate historical clapboard, horizontal plank, or drop siding, and the application of the siding does not
eliminate or reduce the aesthetic impact of architectural detailing around windows, doors, eaves, and other elements of the building. The application of other non-historical siding or exterior wall treatments is considered a significant impact unless the materials sufficiently replicate historical treatments in the overall appearance of buildings of the particular type and style to which they are applied.

Under more lenient standards of integrity, more substantial modifications are considered acceptable before integrity is lost. To be considered eligible under the more lenient standards, the primary historical building must retain sufficient integrity to represent the era in which it was constructed. The building's overall form and massing must be discernable despite additions and other modifications of the structure. Out-of-period additions may be considered acceptable if the original form of the building is still decipherable. Under the more lenient standards, window and door openings may be enclosed, but their original form and size must remain discernable. Modification of exterior wall treatments, such as the application of modern aluminum or vinyl siding, is considered acceptable if the new treatment replicates historically appropriate treatments for the given building type and style represented by the property. Similar standards were used by the author when considering the impact of modern roofing materials on the integrity of a historical building, although the UDSH does not specifically identify altered roofing as a consideration in building eligibility.

The interaction between the UDSH ratings system and the eligibility criteria of the NRHP focuses on NRHP Criteria A and C and UDSH ratings A and B. Buildings or structures that receive a UDSH rating of "A" have high architectural integrity, having been subject to no substantive modifications over time. Such resources are considered to retain the elements of historical integrity that are important to qualifying the resource as eligible for listing under NRHP Criteria A and C (personal communication with Elizabeth Giraud. Buildings or structures that receive a UDSH rating of "B" have moderate architectural integrity, having been subject to relatively low levels of modification over time. Such resources are considered to have more limited elements of historical architectural integrity as compared to A-rated buildings, but still warrants consideration as being eligible for the NRHP under Criterion A (personal communication, Elizabeth Giraud, 2007).

INVENTORY RESULTS AND EVALUATIONS

Documented Architectural Properties

As noted, SWCA documented 30 architectural properties built before 1965 during the selective RLS of the project area. The facilities include 20 schools and 11 libraries. Descriptions of the primary historical buildings on each property, their UDSH rating and corresponding NRHP eligibility, and photographs are provided in Table 3. Copies of the RLS photographic index sheets are provided in Appendix C. The location of each property and a notation of its NRHP eligibility are provided on Figure 1.

Most of the buildings have been modified in some way, particularly through the replacement of historical windows, the use of modern siding or other exterior treatments, and the construction of additions. Of the 30 architectural properties documented, two merit an A rating under the SHPO system, retaining solid historical integrity with exteriors remaining unmodified since original construction. Given the A-rating, these properties are considered eligible for the NRHP under Criterion C. An additional 24 of the 30 properties have been subject to at least some visible modification of their historical exteriors and warrant a B-rating under the SHPO system. These buildings lack the high architectural integrity of the A-rated buildings but still retain sufficient integrity to be considered NRHP eligible under Criterion A, as per UDSH instructions on concordance between the UDSH rating system and the NRHP criteria. Thus, 26 architectural properties in the BTOP project area are considered eligible for the NRHP under either
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Criteria A or C. The remaining four architectural properties have been sufficiently modified to render them ineligible for the NRHP under all criteria and to warrant a C-rating under the UDSH system.

The eligible properties represent an array of architectural types, styles, and periods of construction. The earliest building is the 1914 Period Revival style Beaver City Library. The earliest buildings in the project area are either of this style or Prairie School style; however, the majority of buildings exhibit the general of the Post-WWII period, often in combination with other style components such as Modern or Contemporary.
Table 3. Properties Documented for the RTOP Project

<table>
<thead>
<tr>
<th>Address/Transit Facility</th>
<th>Approx. Date Built</th>
<th>Description</th>
<th>SHPO Rating/ NRHP Eligibility</th>
<th>Photograph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beaver City Library</td>
<td>1914</td>
<td>Other commercial/public building exhibiting Period Revival style; clad in regular brick, concrete and a stucco veneer; alterations include possible out-of-period additions on the eastern elevation; no outbuildings; Carnegie Library.</td>
<td>B-Rated, Eligible Listed on NRHP</td>
<td><img src="image1.jpg" alt="Photograph" /></td>
</tr>
<tr>
<td>Bonneville Elementary</td>
<td>1964</td>
<td>Modern school building exhibiting Post-WWII. Other styles; clad in stucco and regular brick; alterations include an out-of-period addition on eastern elevation; two non-contributing outbuildings.</td>
<td>B-Rated, Eligible</td>
<td><img src="image2.jpg" alt="Photograph" /></td>
</tr>
</tbody>
</table>
Table 3. Properties Documented for the RTOP Project

<table>
<thead>
<tr>
<th>Address/Transit Facility</th>
<th>Approx. Date Built</th>
<th>Description</th>
<th>SHPO Rating/ NRHP Eligibility</th>
<th>Photograph</th>
</tr>
</thead>
</table>
| Brigham City Carnegie Library  
29 E. Forest 
Brigham City, Utah | 1915 | Other commercial/public building exhibiting Prairie School style; clad in regular brick, concrete, glass block; and ceramic tile; alterations include a one-story addition on the north and east elevations, new windows and an equipment enclosure, no outbuildings.  
Impact boundary: Property boundary | Listed/eligible | ![Photograph](image1) |
| Canyon Rim Academy  
300 S., 900 E.  
Salt Lake City, Utah | 1955 | Modern school building exhibiting Post-WWII Other style; clad in regular brick; alterations include new windows, a metal awning, and a possible out-of-period addition the east and south elevations; no outbuildings.  
Impact boundary: Property boundary | Listed/eligible | ![Photograph](image2) |
Table 3. Properties Documented for the RTOP Project

<table>
<thead>
<tr>
<th>Address/Transit Facility</th>
<th>Approx. Date Built</th>
<th>Description</th>
<th>SHPO Rating/ NRHP Eligibility</th>
<th>Photograph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrine Early Learning Center 2275 N. 3000 W. Corrine, Utah</td>
<td>1963</td>
<td>Modern school building exhibiting Post-WWII. Other and Shed styles; clad in regular brick and shingles; alterations include new windows and a possible out-of-period addition on the north and west elevations; no outbuildings. <strong>Impact boundary:</strong> Property boundary</td>
<td>B-rated/Eligible</td>
<td><img src="image1.jpg" alt="Photograph" /></td>
</tr>
<tr>
<td>Delta City Library 70 N. 300 W. Delta, Utah</td>
<td>1928</td>
<td>Other commercial/public building exhibiting Late 20th Century. Other and Ranch/Ranch styles; clad in concrete block and metal; the original building may have been incorporated into the current modern structure. <strong>Impact boundary:</strong> Property boundary</td>
<td>Created/Ineligible</td>
<td><img src="image2.jpg" alt="Photograph" /></td>
</tr>
<tr>
<td>Address/Transit Facility</td>
<td>Approx. Date Built</td>
<td>Description</td>
<td>SHPO Rating/ NRHP Eligibility</td>
<td>Photograph</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------------------</td>
<td>-------------</td>
<td>-----------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>East Elementary 453 S. 600 E. St. George, Utah</td>
<td>1955</td>
<td>Modern school building exhibiting Contemporary style; clad in regular brick and stone veneer; alterations include some modern windows, minor areas of stucco and a possible out-of-period addition; no outbuildings. Impact boundary: Property boundary</td>
<td>B-rated/Eligible</td>
<td><img src="image1.png" alt="Photograph" /></td>
</tr>
<tr>
<td>East Elementary 130 S. 7th Street Tooele, Utah</td>
<td>1967</td>
<td>Modern school building exhibiting Late 20th Century; Other style; clad in regular brick and stucco veneer; there are no major alterations; one non-contributing outbuilding. Impact boundary: Property boundary</td>
<td>A-rated/Eligible</td>
<td><img src="image2.png" alt="Photograph" /></td>
</tr>
</tbody>
</table>
A Selective Reconnaissance Level Architectural Survey for the Utah Education Network’s Broadband Technologies Opportunity Program
Environmental Assessment Project, Utah

Table 3. Properties Documented for the RTOP Project

<table>
<thead>
<tr>
<th>Address/Transit Facility</th>
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<th>Description</th>
<th>SHPO Rating/ NRHP Eligibility</th>
<th>Photograph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davis County Library</td>
<td>1904</td>
<td>Other commercial/public building exhibiting Late 20th Century. Other style; clad in stone veneer and regular brick; there are no major alterations; no outbuildings. Impact boundary: Property boundary</td>
<td>Arstred/Eligible</td>
<td><img src="image1.jpg" alt="Photograph of Davis County Library" /></td>
</tr>
<tr>
<td>Gramercy Elementary</td>
<td>1965</td>
<td>Modern school building exhibiting Post-WWII. Other style; clad in fieldstone; stucco brick; alterations include some windows that have been filled in, rear additions, and a modern wall; six non-contributing outbuildings. Impact boundary: Property boundary</td>
<td>Arstred/Eligible</td>
<td><img src="image2.jpg" alt="Photograph of Gramercy Elementary" /></td>
</tr>
</tbody>
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</tr>
</thead>
<tbody>
<tr>
<td>Guadalupe Schools K-3</td>
<td>1969</td>
<td>Modern school building exhibiting Post-WWII. Other style: clad in regular brick and glass block; alterations include reflective awnings, a possible out-of-period addition on the southern elevation; and a concrete block addition; four non-contributing outbuildings. Impact boundary: Property boundary</td>
<td>B-rated/Eligible</td>
</tr>
<tr>
<td>Hilcrest Elementary</td>
<td>1957</td>
<td>Modern school building exhibiting Post-WWII. Other style: clad in multicolored brick and other; alterations include a possible two-story addition on the front facade; seven non-contributing outbuildings. Impact boundary: Property boundary</td>
<td>B-rated/Eligible</td>
</tr>
</tbody>
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</tr>
</thead>
<tbody>
<tr>
<td>Horace Mann Elementary</td>
<td>1964</td>
<td>Modern school building exhibiting Post-WWII. Other style; clad in striated brick; alterations include a possible two-story addition on the front facade; two non-contributing outbuildings. Impact boundary: Property boundary</td>
<td>Listed/Eligible</td>
<td><img src="image1" alt="Photograph" /></td>
</tr>
<tr>
<td>Lake View Elementary</td>
<td>1962</td>
<td>Modern school building exhibiting Post-WWII. Other style; clad in striated brick and other siding; alterations include a possible out-of-period addition on the northern elevation; one non-contributing outbuilding. Impact boundary: Property boundary</td>
<td>Listed/Eligible</td>
<td><img src="image2" alt="Photograph" /></td>
</tr>
</tbody>
</table>
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<th>Photograph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monticello Library 400 N. Main Monticello, Utah</td>
<td>1950</td>
<td>Other commercial/public building exhibiting Rustic and Contemporary styles; clad in stratched brick and stone veneer with wood siding; alterations include some modern windows; no non-contributing outbuildings. Impact boundary: Property boundary</td>
<td>Listed/Eligible</td>
<td><img src="image1.jpg" alt="Photograph" /></td>
</tr>
<tr>
<td>Mountain View Elementary 650 E. 700 S. Brigham City</td>
<td>1960</td>
<td>Modern school building exhibiting Post-WWII. Other and Contemporary styles, clad in multicolored stratched brick and other siding; alterations include a possible out of period addition on the west and south elevation; new windows; and a modern brick wall enclosing the playground; one non-contributing outbuilding. Impact boundary: Property boundary</td>
<td>Listed/Eligible</td>
<td><img src="image2.jpg" alt="Photograph" /></td>
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</tbody>
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<th>Photograph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mountainland Head Start</td>
<td>1925</td>
<td>Other commercial/public building exhibiting Post-WWII. Other style, clad in oversized brick and concrete. Alterations include some modern windows and a wheelchair ramp; no outbuildings. The original 1925 structure may have been incorporated into the current building. Impact boundary: Property boundary</td>
<td>B racist/Eligible</td>
<td></td>
</tr>
<tr>
<td>Ogden Weber CAP Head Start</td>
<td>1905</td>
<td>Modern school building exhibiting Post-WWII. Other style, clad in regular brick; no obvious alterations, but the building is currently being remodeled; three non-contributing outbuildings. Impact boundary: Property boundary</td>
<td>B racist/Eligible</td>
<td></td>
</tr>
</tbody>
</table>
### Table 3. Properties Documented for the RTOP Project

<table>
<thead>
<tr>
<th>Address/Transit Facility</th>
<th>Approx. Date Built</th>
<th>Description</th>
<th>NHPA Rating/ NRHP Eligibility</th>
<th>Photograph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Classroom K-8 134 D St, Salt Lake City, Utah</td>
<td>1964</td>
<td>Modern school building exhibiting Post-WWII Other style; clad in regular brick, concrete, ce-ramic tile, and stone veneer; alterations include some reflective windows; three non-contributing outbuildings. Impact boundary: Property boundary</td>
<td>B-rated/Eligible</td>
<td><img src="image1" alt="Photograph" /></td>
</tr>
<tr>
<td>Park City Library 1855 Park Ave, Park City, Utah</td>
<td>1958</td>
<td>School block building exhibiting Period Revival style; clad in stucco brick and formed concrete; alterations include several modern windows and an out-of-period addition; three non-contributing outbuildings. Impact boundary: Property boundary</td>
<td>B-rated/Eligible</td>
<td><img src="image2" alt="Photograph" /></td>
</tr>
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<th>Photograph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parowan Public Library</td>
<td>1965</td>
<td>Other commercial/public building exhibiting Late 20th Century. Other styles; clad in regular brick and wood shake siding; alterations include some modern windows and possible alteration to the fenestration in one corner of the building; no outbuildings. Impact boundary: Property boundary</td>
<td>NRHP Eligible</td>
<td><img src="image1" alt="Photograph" /></td>
</tr>
<tr>
<td>Payson Library</td>
<td>1885</td>
<td>One-part block building exhibiting Other styles; clad in regular brick, other veneer and stucco; alterations include a complete removal, leaving only small portions of the original brick visible; no outbuildings. Impact boundary: Property boundary</td>
<td>NRHP Eligible</td>
<td><img src="image2" alt="Photograph" /></td>
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<th>Photograph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polk Elementary</td>
<td>1927</td>
<td>School building exhibiting Neo-Classical and 20th Century Commercial styles; clad in regular brick, concrete and stone veneer; alterations include one in-period and one out-of-period addition; two non-contributing outbuildings. Impact boundary: Property boundary.</td>
<td>Listed/Eligible</td>
<td><img src="image1.jpg" alt="Photograph" /></td>
</tr>
<tr>
<td>President Millard Tate Library</td>
<td>1948</td>
<td>Other commercial/public building exhibiting Minimal Traditional and Early Ranch styles; clad in regular brick and vinyl siding, alterations include some modern windows, some use of vinyl siding, and some filled in windows; no outbuildings. Impact boundary: Property boundary.</td>
<td>Listed/Eligible</td>
<td><img src="image2.jpg" alt="Photograph" /></td>
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</tbody>
</table>
# A Selective Reconnaissance Level Architectural Survey for the Utah Education Network’s Broadband Technologies Opportunity Program

## Environmental Assessment Project, Utah

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<th>Photograph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richfield Public Library</td>
<td>1913</td>
<td>Commercial/Public. Other building exhibiting Arts &amp; Crafts (Craftsmen) style: clad in cinder brick, half timbering, and formed concrete; alterations include some modern windows, sills, and frames; no outbuildings; this is a Carnegie Library.</td>
<td>Listed on NRHP</td>
<td></td>
</tr>
<tr>
<td>80 E. Center</td>
<td></td>
<td>Impact boundary: Property boundary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Richfield, Utah</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rust-Utah Child</td>
<td>1935</td>
<td>Horizontal school building exhibiting Period Revival other and Post-WWII. Other styles: clad in regular brick and stucco siding; alterations include some modern windows and doors, some window openings have been filled, and a 1980s addition; no outbuildings.</td>
<td>Listed on NRHP</td>
<td></td>
</tr>
<tr>
<td>Development Head Start</td>
<td></td>
<td>Impact boundary: Property boundary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>190 A.W. Main St.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wellington, Utah</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
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<th>NRHP Rating/Eligibility</th>
<th>Photograph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selma Public Library</td>
<td>1925</td>
<td>Other commercial/public building exhibiting Prairie School and Art Deco style; clad in regular brick and concrete; no alterations; no outbuildings. Impact boundary: Property boundary</td>
<td>Listed on NRHP</td>
<td><img src="image1.jpg" alt="Selma Public Library" /></td>
</tr>
<tr>
<td>Thomas O. Smith Elementary School</td>
<td>1955</td>
<td>Modern school building exhibiting Pueblo/Western style; clad in stucco and glass block; alterations include multiple additions on the east elevation; eight non-contributing outbuildings. Impact boundary: Property boundary</td>
<td>Listed on NRHP</td>
<td><img src="image2.jpg" alt="Thomas O. Smith Elementary School" /></td>
</tr>
<tr>
<td>Address/Facility</td>
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<td>Description</td>
<td>SHPO Rating/ Eligibility</td>
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<tr>
<td>------------------</td>
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</tr>
<tr>
<td>Wasatch Elementary</td>
<td>1951</td>
<td>Modern school building exhibiting Post-WWII. Other and Contemporary styles; clad in multicolored striped brick and other siding; alterations include a possible out-of-period addition on the west elevation and metal-framed windows; 10 non-contributing outbuildings.</td>
<td>B-rated/Eligible</td>
<td></td>
</tr>
<tr>
<td>Impact boundary: Property boundary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West Elementary</td>
<td>1950</td>
<td>Modern school building exhibiting Post-WWII. Other and Contemporary styles; clad in multicolored striped brick and other siding; alterations include a possible out-of-period addition on the west and south elevation.</td>
<td>C-rated/Ineligible</td>
<td></td>
</tr>
<tr>
<td>Impact boundary: Property boundary</td>
<td></td>
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</tr>
</tbody>
</table>
A Selective Reconnaissance Level Architectural Survey for the Utah Education Network’s Broadband Technologies Opportunity Program Environmental Assessment Project, Utah

MANAGEMENT SUMMARY

SWCA completed a selective reconnaissance level architectural survey of facilities included in the BTOP project area that are of historic age. As a result of the survey, SWCA identified 30 architectural properties, of which 23 are recommended eligible for the NRHP, four are recommended not eligible for the NRHP, and three are currently listed on the NRHP. The properties eligible or listed on the NRHP will require consideration for project impacts and resolution of adverse effects, should any be identified.

As noted previously, installation of the broadband lines would generally consist of creating a small hole (no more than 6 inches in diameter) in the foundation or wall of each building at or below the ground surface to gain access to the building infrastructure. The hole would be filled and any landscaping disturbed by the trenching would be restored. It is anticipated that the installation would not result in a substantive alteration to the buildings or historic landscaping of any of the facilities. Therefore it is recommended that the BTOP would result in no adverse effect on historic properties.
A Selective Reconnaissance Level Architectural Survey for the Utah Education Network's Broadband Technologies Opportunity Program Environmental Assessment Project, Utah

REFERENCES

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1976 Carnegie Libraries in Utah, Brigham Young University.

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Leighty, Robert D.


Notariani, Phillip


Powell, Alan Kent (editor)


Robertson, Donald B.

A Selective Reconnaissance Level Architectural Survey for the Utah Education Network’s Broadband Technologies Opportunity Program Environmental Assessment Project, Utah

Robinson, Elisabeth

2010 Utah Education Network Broadband Technologies Opportunity Program Class I Report, Salt Lake City, Utah.

Stokes, William Lee


Van Cott, John W.

1990 Utah Place Names. University of Utah Press, Salt Lake City.


NEPA and NHPA Assessment

QWEST COMMUNICATION SITES

Beaver City Library
55 West Center St.
Beaver, Utah

Project Overview
Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and to that end, will make every effort to minimize the impact to the structure.

Path

Entrance

Project Description
Qwest will provide and place at Customer’s Northeast property corner, one (11) 36”x24”x24” composite hand hole. Qwest will extend one (1) 1.25” pest duct to Customer’s building. At the base of the building structure, Qwest will place one (1) 13”x24”x24” composite hand hole and one (1) 2” 90 degree galvanized rigid sweep bend with four (4) feet of 2” electrical metal tubing up the outside wall. Qwest will then core drill a 2” hole and place one (1) 3” 90 degree LB bend
to access the building's interior utility space. 2" conduit will be extended to Quest drnnc, approximately 25 feet.

Bonneville Elementary
450 Gramercy Ave
Ogden UT

Project Overview
Quest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Quest recognizes the need to preserve the historic integrity of these sites and to that end, will make every effort to minimize the impact to the structure.

Project Description
Quest will provide and place at West corner of customer's property, one (1) 36"x24"x24" composite hand hole. Quest will extend 150' of one (1) 1.25" pest duct to the front of the Customer's building. Quest will place one (1) 15"x24"x24" composite hand hole at grade level and will penetrate building with 2" hole and one (1) 2" conduit.
Canyon Rim Academy
300 S 2900 E
Salt Lake City, UT

Project Overview
Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber-based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and, to that end, will make every effort to minimize the impact to the structure.

Project Description
Qwest will provide and place at Customer’s Northwest property corner one (1). Qwest will extend one (1) 1.25” pest duct along asphalt driveway for approx. 100’ and install a second (1) 13”x24”x24” composite hand hole. Qwest will then extend 1.25” pest duct to customer building and place (1) 13”x24”x24” composite hand hole to terminate pest duct. Qwest will then core drill a 2” hole and place one (1) 3’ 90 degree LB bend to access the area into the boiler room. From that point, Qwest will place 40” of one (1) 2” electrical metal tubing to the customer’s main.
Project Overview

Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber-based broadband service at the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and, to that end, will make every effort to minimize the impact to the structure.

Path

Entrance

Project Description

Qwest will enter customer's property from the west side of building (3550 S). A 12"x24"x24" composite hand hole will be placed on the property. Approximately 50' of 1.25" pest duct will be placed from the hand hole to the base of the structure. At grade level near the structure another 13"x24"x24" composite hand hole will be placed. Extending from the hand hole will be a 2" metal conduit that will rise up the exterior wall to ceiling level. A 90 degree LB will be installed and the conduit will extend vertically through a 2" hole that is drilled in the exterior wall. 2" metal conduit will be extended through removable ceiling tile to office, approx 100'.
Project Overview
Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and to that end, will make every effort to minimize the impact to the structure.

Project Description
Qwest will place a (1) 13"x24"x24" composite hand hole at the SE property line and Qwest will bore approximately 100' of 1.25" pest duct to the base of the structure. A second 13"x24"x24" composite hand hole will be placed at the base of the structure and a 2" metal conduit will extend from the hand hole and enter the parking garage near existing conduits.
East Elementary
453 S 600 E
St. George, UT

Project Overview
Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and to that end, will make every effort to minimize the impact to the structure.

Project Description
Install one (1) 13”x24”x24” composite hand hole and customer’s property line on 700 E and bore through grass area, approximately 100 feet to building. Place a second (1) 13”x24”x24” composite hand hole at customer’s building and extend 2” metal conduit up wall and into building where existing services are already present. Extend metal conduit to existing dmarc inside building utility space.
Project Overview
Crest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber-based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Crest recognizes the need to preserve the historic integrity of these sites and to that end, will make every effort to minimize the impact to the structure.

Project Description
Enter property from Southwest corner of property, head NE, approximately 330 feet with 1.25" pex duct to structure’s east facing wall. Install communication vault for transition from outside plant cable to EMT rigid conduit at building. Extend 4" EMT conduit from communication vault vertically up wall near existing electrical conduit (see image).
Gramercy Elementary
1270 Gramercy Ave
Ogden, UT

Project Overview
Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and to that end, will make every effort to minimize the impact to the structure.

Project Description
Qwest will provide and place at Customer’s Northwest property corner one (1) 36”x24”x24” composite hand hole. From that point, Qwest will place approx 250’ of one (1) 1.25” pigtails duct east to Customer’s building. At that point, Qwest will place one (1) 13”x24”x24” composite hand hole and one (1) 2” 90 degree galvanized rigid sweep bend. Qwest will then core drill a 2” hole and place one (1) 3” 90 degree LB bend to access the area into basement level of the structure. From that point, Qwest will place 100’ of one (1) 2” electrical metal tubing to the customer’s demarc.
Guadalupe School
340 E Gosner St.
Salt Lake City, UT

Project Overview
Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber-based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and to that end, will make every effort to minimize the impact to the structure.

Project Description
Qwest will provide and place at customer’s Northeast property corner one (1) 36” x 24” x 24” composite hand hole. From that point, Qwest will place approx. 200’ of one (1) 1.25” peel duct east to Customer’s building. At that point, Qwest will place one (1) 12” x 24” x 24” composite hand hole and one (1) 2” 90 degree galvanized rigid sweep bend with 18” of 2” electrical metal tubing up the outside wall. Qwest will then core drill a 2” hole and place one (1) 3” 90 degree LB bend to access the area into building crawl space. From that point, Qwest will place 180’ of one (1) 2” electrical metal tubing to the customer’s equipment room. There is also a possibility of utilizing an existing pole line to provide aerial entrance into this structure.
Project Overview

Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber-based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and, to that end, will make every effort to minimize the impact to the structure.

Project Description

Qwest will install one (1) 36" x 24" x 24" composite hand hole placed on the Northwest corner of property. Bore to the building with 12" flexible duct (approx. 150') and core drill the foundation below grade with a 2" hole into the boiler room. A transition box will be placed in the boiler room.
Horace Mann Elementary  
1300 S Dr  
Golden, UT

**Project Overview**

Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber-based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and to that end, will make every effort to minimize the impact to the structure.

**Project Description**

Qwest will install one (1) 36" x 24" x 24" composite hand hole at the SW property line. From there, Qwest will bore conduit into the NW parking lot. Asphalt will be removed and Qwest will core drill a 2" hole and conduit will be extended into the boiler room. Asphalt will be replaced. Transition box will be placed in the boiler room.
Lake View Elementary  
851 S 200 W  
Brigham City, UT

Project Overview
Qwest Communication is responsible for the installation of conduit and fiber optic cable to facilitate the installation and operation of a fiber-based broadband service at the facility described above. It is understood that this site has been deemed by the State Historic Preservation Officers to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and, to that end, will make every effort to minimize the impact to the structure.

Project Description
Qwest will provide and place at customer’s Northeast property corner one (1) 36” x 24” x 24” composite hand hole. Qwest will place approx 44’ of one (1) 1.25” pest duct due west and sweep duct for 40’ south to Customer’s building. At that point, Qwest will place one (1) 13” x 24” x 24” composite hand hole and one (1) 2’ 90 degree galvanized rigid sweep bend with 2’ of 2” electrical metal tubing up the outside wall. Qwest will then core drill a 2” hole and place one (1) 3” 90 degree LB bend to access the area into the boiler room. From that point, Qwest will place 49’ of one (1) 2” electrical metal tubing to the customer’s dimarc.
Ogden Weber CAP Head Start
3139 Grant Ave
Ogden, UT

Project Overview
Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber-based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Officer to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and to that end, will make every effort to minimize the impact to the structure.

Qwest is utilizing existing conduit and copper cabling. No additional improvements including boring or trenching is required.
Open Classroom
134 D Street
Salt Lake City, UT

Project Overview
Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber-based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and, to that end, will make every effort to minimize the impact to the structure.

Project Description
Qwest will place one (1) 36” x 24” x 24” composite hand hole at SW property corner. Qwest will direction bore using 1.25” pest duct to the bldg in a planter and core drill the foundation below grade with 2” hole and metal conduit into a janitor closet. A transition box will be placed in the janitor closet.
Project Overview
Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and to that end, will make every effort to minimize the impact to the structure.

Project Description
Qwest will provide and place at customer's Northwest property corner one (1) 36"x24"x24" composite hand hole. From that point, Qwest will place approx 100' of one (1) 1.25" past duct east to Customer's building. At that point, Qwest will place one (1) 13"x24"x24" composite hand hole. Qwest will then core drill a 2" hole and place one (1) 3" 90 degree LS bend to access the area into the boiler room. From that point, Qwest will place 50' of one (1) 2" electrical metal tubing to the customer's drum.
Polk Elementary
2615 Polk Ave
Ogden, UT

Project Overview
Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and to that end, will make every effort to minimize the impact to the structure.

Project Description
Qwest will install a 13"x24"x24" composite hand hole at NW property corner. Qwest will bore 1.25" pest duct to the center of back (west wall) where all other conduits enter and will remove asphalt and core drill into boiler room. Qwest will provide a ductal transition box in boiler room.
Richfield Public Library
B3E Center
Richfield, UT

**Project Overview**

Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and to that end, will make every effort to minimize the impact to the structure.

**Project Description**

Qwest will bore approximately 100 feet to West side of building where previous conduit has been installed into building. A 30"x24"x24" composite hand hole will be placed below grade at base of building and a 2" hole will be drilled below grade into building where a conduit will be installed and extended to customer's entrance.
Project Overview

Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Office to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and to that end, will make every effort to minimize the impact to the structure.

Project Description

Qwest will install one (1) 36"x24"x24" composite hand hole at property line on Monroe Ave. A 1.25" pest duct will be installed approximately 100" feet to base of customer structure where a 36"x24"x24" composite hand hole will be installed at grade. A 2" hole will be drilled approximately 12" up cement façade and extended into customer’s utility space.
Project Overview
Qwest Communication is responsible for the installation of conduit and fiber optic cabling to facilitate the installation and operation of a fiber-based broadband service to the facility described above. It is understood that this site has been deemed by the State Historic Preservation Officers to be of historic value. Qwest recognizes the need to preserve the historic integrity of these sites and to that end, will make every effort to minimize the impact to the structure.

Project Description
Qwest will install a 1.3" x 24" x 24" composite conduit hole at the NW property corner. Qwest will bore a 1.25" pest duct to base of structure. A second 1.3" x 24" x 24" composite conduit hole will be installed at grade and Qwest will core drill a 2" hole, below grade, into the foundation. A 2" conduit will be extended into the boiler room and terminated at a new Qwest provided transition box.
CENTRACOM

Salina Public Library – B-Rated Eligible

tenracom will come off the Power Pole with a 12 count flat aerial fiber and extend to the tower located at the North East corner of the building. the fiber will run down the tower and follow the existing lines along the outside of the building and go through the wall using an existing hole.

The fiber will utilize existing path and an existing hole into the building, no drilling will be involved and no boxes will be attached to the outside of the building.
EMERY TELEPHONE

Rural Utah Child Development Head Start – Wellington, Utah – B-Rated/Eligible

Utilizing existing conduit and copper cabling.

FRONTIER COMMUNICATION

President Millard Fillmore Library -

Will utilize existing conduit from the curb into the building to place fiber optic cabling into the library. A fiber distribution panel will be placed on wall adjacent to existing Frontier DMARC. No additional boring or drilling is required.
Monticello Library – B-Rated/Eligible

Frontier will utilize existing conduit from the curb into the building to place fiber optic cabling into the library. A fiber distribution panel will be placed on wall adjacent to existing Frontier DMARC. No additional boring or drilling is required.

SOUTH CENTRAL TELEPHONE

Parowan Public Library

South Central Telephone will use existing pathway consisting of 4" conduit from the curb to library to place fiber in to the building. No additional trenching, boring or other improvements to the library are required.
VERACITY/BROADWEAVE

Mountainland Head Start – B-rated/Eligible

Existing fiber and conduit will be utilized to complete this broadband improvements - Please see attached letter

UTOPIA

Brigham City Carnegie Library – B-rated Eligible

Outside of the University of Utah NTIA BTOP Round One project the City of Brigham City worked directly with Utopia to have fiber placed to this location. Conduit and fiber now exist at this location.
Appendix G-3
State Historic Preservation Office Correspondence

Department of Community and Culture
Palmir D. Hunsaker
Executive Director

State History
Philip E. Notermann
Division Director

July 12, 2010

Jeff Egly
Associate Director
Technical Services
Utah Education Network
University of Utah
101 Wasatch Drive, Room 215
Salt Lake City UT 84112-1792

RE: Consultation for National Historic Preservation Act, Section 106, regarding Broadband Technology Opportunities Program (BTOP) Grant #362, University of Utah - Utah Education Network, Fiber Optic Network Infrastructure Project

In Reply Please Refer to Case No. 10-0517

Dear Mr. Egly:

The Utah State Historic Preservation Office received your request for our comment on the above-referenced project. From the information you provided, it appears that no cultural resources were located in the project Area of Potential Effects. We concur with your determination of No Historic Properties Affected for this project.

This letter serves as our comment on the determinations you have made, within the consultation process specified in 36CFR800.4. If you have questions, please contact me at 801-533-3555 or Lhunsaker@utah.gov or contact Jim Dykman at 801-533-3523 or Jdykman@utah.gov

Sincerely,

Lori Hunsaker
Deputy State Historic Preservation Officer
Archaeology
November 9, 2010

Jill A. Dowling
Federal Preservation Officer
U.S. Department of Commerce
H.C. Hoover Bldg., Room 1036
1401 Constitution Avenue, NW
Washington DC  20230

RE: University of Utah - Utah Education Network Broadband

In reply please refer to Case No. 10-0517

Dear Ms. Dowling:

Thank you for the submission of information regarding the above-referenced project. Based on the materials submitted to the Utah State Historic Preservation Office (USHPO) on 11/2/2010 from Jeff Egly, UEN, with additional correspondence via email from Jill Dowling, DOC, on 11/3/2010 the USHPO concurs with the determinations of eligibility and the finding of No Adverse Effect for the proposed undertaking.

This information is provided to assist with Section 106 responsibilities as per §36CFR800. If you have any questions, please contact me at chansen@utah.gov or (801) 533-3561.

Regards,

Chris Hansen
Preservation Planner
Appendix H

List of Cities – City Zoning Information

Beaver, UT

Beaver Library - Zoning Information for Site Location is Combined Use. The proposed project falls within the zoning requirements of the city of Beaver. Permits may be required at the local level.
Bluffdale, UT

Bluffdale Elementary - Zoning Information for Site Location is R-143 (residential). The proposed project falls within the zoning requirements of the city of Bluffdale. Permits may be required at the local level.
South Davis County Library - Zoning Information for Site Location is General Commercial and Multiple Family Sites. The proposed project falls within the zoning requirements of the city of Bountiful. Permits may be required at the local level.
Brigham City

Brigham City Carnegie Library, Bunderson Elementary, Discovery Elementary, District Transportation Building, Foothill Elementary, Lakeview Elementary, Mountain View Elementary, Three Mile Creek Elementary - Zoning Information for Site Location is M-D, M-G, CBD, R-1-10, RM-7. There are several sites within the Brigham City Area. The zoning for said sites mainly fall in Manufacturing, Commercial and some residential locations within the city. The proposed project falls within the zoning requirements of the city of Brigham City. Permits may be required at the local level.
Cedar City, UT

Cedar City Public Library - Zoning Information for Site Location is General Commercial (GC). The proposed project falls within the zoning requirements of Cedar City. Permits may be required at the local level.
Centerville, UT

Davis County Library - Zoning Information for Site Location is C-VH (Commercial Very High Intensity). The proposed project falls within the zoning requirements of the city of Centerville. Permits may be required at the local level.
Clearfield, UT

Davis County Library - Zoning Information for Site Location is C-2 and R-1-8. The proposed project falls within the zoning requirements of the city of Clearfield. Permits may be required at the local level.
Corinne, UT

Corinne Early Learning Center - Zoning Information for Site Location is R-1/R-2 Residential. The proposed project falls within the zoning requirements of the city of Corinne. Permits may be required at the local level.
Delta, UT

Delta City Library - Zoning Information for Site Location is Combined Use and Residential Zones. The proposed project falls within the zoning requirements of the city of Delta. Permits may be required at the local level.
American Prep Academy - Zoning Information for Site Location is RA1 (residential,) and Public Zone. The proposed project falls within the zoning requirements of the city of Draper. Permits may be required at the local level.
Enoch, UT

Iron County Bookmobile Repository Library - Zoning Information for Site Location is R-1-18 residential. The proposed project falls within the zoning requirements of the city of Enoch. Permits may be required at the local level.
Excelsior Academy - Zoning Information for Site Location is RR-5. The proposed project falls within the zoning requirements of the county of Tooele. Permits may be required at the local level.
Farmington, UT

Davis County Library - Zoning Information for Site Location is BR (Business Residential) Zone. The proposed project falls within the zoning requirements of the city of Farmington. Permits may be required at the local level.
President Millard Fillmore Library - Zoning Information for Site Location is BR (Business Residential) Zone. The proposed project falls within the zoning requirements of the city of Fillmore. Permits may be required at the local level.
Tooele County Library - Zoning Information for Site Location is commercial. The proposed project falls within the zoning requirements of the city of Grantsville. Permits may be required at the local level.
Herriman, UT

Herriman Elementary - Zoning Information for Site Location is A-.25 (Agricultural Single Family.) The proposed project falls within the zoning requirements of the city of Herriman. Permits may be required at the local level.
Highland, UT

Highland Valley Library - Zoning Information for Site Location is Town Center overlay, Commercial and R1-40 (residential) Zones. The proposed project falls within the zoning requirements of the city of Highland. Permits may be required at the local level.
Hurricane Library - Zoning Information for Site Location is High Commercial (HC). The proposed project falls within the zoning requirements of the city of Hurricane. Permits may be required at the local level.
Hyrum, UT

Hyrum Library - Zoning Information for Site Location is C-2 Commercial Downtown. The proposed project falls within the zoning requirements of the city of Hyrum. Permits may be required at the local level.
Red Mountain Elementary - Zoning Information for Site Location is RA-1 (Res. Agriculture District). The proposed project falls within the zoning requirements of the city of Ivins. Permits may be required at the local level.
Kaysville, UT

Davis County Library - Zoning Information for Site Location is CC Central Commercial Zone. The proposed project falls within the zoning requirements of the city of Kaysville. Permits may be required at the local level.

Oquirrh Mountain Charter - Zoning Information for residential Zone. The proposed project falls within the zoning requirements of the city of Kaysville. Permits may be required at the local level.
Utah Virtual Academy K-12 - Zoning Information for Site Location is Retail Commercial. The proposed project falls within the zoning requirements of the city of Kearns. Permits may be required at the local level.
LaVerkin, UT

LaVerkin Elementary - Zoning Information for Site Location is commercial zone. The proposed project falls within the zoning requirements of the city of LaVerkin. Permits may be required at the local level.
Layton, UT

Layton Library - Zoning Information for Site Location is located in a Commercial. The proposed project falls within the zoning requirements of the city of Layton. Permits may be required at the local level.
Lehi, UT

Lehi City Public Library - Zoning Information for Site Location is MDR, Medium Density Residential. The proposed project falls within the zoning requirements of the city of Lehi. Permits may be required at the local level.
Lindon, UT

Karl Maeser Preparatory Academy - Zoning Information for Site Location is General Commercial. The proposed project falls within the zoning requirements of the city of Lindon. Permits may be required at the local level.

Timpanogos Academy K-8 - Zoning Information for Site Location is General Commercial. The proposed project falls within the zoning requirements of the city of Lindon. Permits may be required at the local level.
Logan, UT

Bear River Charter School - Zoning Information for Site Location is SF Residential. The proposed project falls within the zoning requirements of the city of Logan. Permits may be required at the local level.

Logan City Library - Zoning Information for Site Location is Commercial Central. The proposed project falls within the zoning requirements of the city of Logan. Permits may be required at the local level.
Monticello, UT

Monticello Library - Zoning Information for Site Location is CU (Combined Use.) The proposed project falls within the zoning requirements of the city of Monticello. Permits may be required at the local level.
Morgan, UT

Morgan County Library - Zoning Information for Site Location is R-1-8 residential. The proposed project falls within the zoning requirements of the city of Morgan. Permits may be required at the local level.
Mountain Green, UT

Mountain Green Elementary - Zoning Information for Site Locations is R1-20 residential. The proposed project falls within the zoning requirements of the county of Morgan. Permits may be required at the local level.
New Harmony, UT

Zoning Map - New Harmony Area

New Harmony Library - Zoning Information for Site Locations is RA-5 residential. The proposed project falls within the zoning requirements of the city of New Harmony. Permits may be required at the local level.
Nibley, UT

Nibley City General Plan Update

Proposed Zoning Map

Nibley Elementary - Zoning Information for Site Locations is medium density residential. The proposed project falls within the zoning requirements of the city of Nibley. Permits may be required at the local level.
North Salt Lake, UT

Wasatch Peak Elementary - Zoning Information for Site Location is GC (General Commercial). The proposed project falls within the zoning requirements of the city of North Salt Lake. Permits may be required at the local level.
Ogden, UT

Bonneville Elementary - Zoning Information for Site Location is residential. The proposed project falls within the zoning requirements of the city of Ogden. Permits may be required at the local level.

Dee Elementary - Zoning Information for Site Location is residential. The proposed project falls within the zoning requirements of the city of Ogden. Permits may be required at the local level.

Gramercy Elementary - Zoning Information for Site Location is residential. The proposed project falls within the zoning requirements of the city of Ogden. Permits may be required at the local level.

Hillcrest Elementary - Zoning Information for Site Location is R-4 residential. The proposed project falls within the zoning requirements of the city of Ogden. Permits may be required at the local level.

Horace Mann Elementary - Zoning Information for Site Location is R-1-6 residential. The proposed project falls within the zoning requirements of the city of Ogden. Permits may be required at the local level.
James Madison Elementary - Zoning Information for Site Location is R-1-6 residential. The proposed project falls within the zoning requirements of the city of Highland. Permits may be required at the local level.

Lincoln Elementary School - Zoning Information for Site Location is R-1-6 residential. The proposed project falls within the zoning requirements of the city of Ogden. Permits may be required at the local level.

Ogden Preparatory Academy K-4 - Zoning Information for Site Location is M-2 Manufacture. The proposed project falls within the zoning requirements of the city of Ogden. Permits may be required at the local level.

Polk Elementary - Zoning Information for Site Location is R-1-6 residential. The proposed project falls within the zoning requirements of the city of Ogden. Permits may be required at the local level.

Thomas O. Smith Elementary - Zoning Information for Site Location is R-1-6 residential. The proposed project falls within the zoning requirements of the city of Ogden. Permits may be required at the local level.

Wasatch Elementary - Zoning Information for Site Location is R-1-6 residential. The proposed project falls within the zoning requirements of the city of Ogden. Permits may be required at the local level.
Orem, UT

Utah Academy of Sciences 10-12- Zoning Information for Site Location is General Commercial and R8. The proposed project falls within the zoning requirements of the city of Orem. Permits may be required at the local level.
Park City, UT

Park City Library - Zoning Information for Site Location is RC - Residential Commercial. The proposed project falls within the zoning requirements of Park City. Permits may be required at the local level.
Parowan, UT

Parowan Public Library - Zoning Information for Site Location is GC General Commercial. The proposed project falls within the zoning requirements of the city of Parowan. Permits may be required at the local level.
Payson, UT

Payson Library - Zoning Information for Site Location is Medium Density Residential Zones. The proposed project falls within the zoning requirements of the city of Payson. Permits may be required at the local level.
Pleasant Grove, UT

John Hancock School - Zoning Information for Site Location are Commercial, R1-8, and Mixed Use Zones. The proposed project falls within the zoning requirements of the city of Pleasant Grove. Permits may be required at the local level.

Lincoln Academy - Zoning Information for Site Location is R1-8 Zone. The proposed project falls within the zoning requirements of the city of Pleasant Grove. Permits may be required at the local level.

Pleasant Grove Library - Zoning Information for Site Location is Downtown Village. The proposed project falls within the zoning requirements of the city of Pleasant Grove. Permits may be required at the local level.
Provo, UT

Freedom Academy K-7 - Zoning Information for Site Location are CBD, Central Business District and PIC, Planned Industrial Commercial Zone. The proposed project falls within the zoning requirements of the city of Provo. Permits may be required at the local level.
Richfield, UT

Richfield Public Library - Zoning Information for Site Location is the Downtown special purpose district. The proposed project falls within the zoning requirements of the city of Richfield. Permits may be required at the local level.
Midas Creek Elementary - Zoning Information for Site Location are R3 (Residential) The proposed project falls within the zoning requirements of the city of Riverton. Permits may be required at the local level.

Rose Creek Elementary - Zoning Information for Site Location are R3 (Residential) The proposed project falls within the zoning requirements of the city of Riverton. Permits may be required at the local level.
Liberty Academy - Zoning Information for Site Location is R2, Residential Zone. The proposed project falls within the zoning requirements of the city of Salem. Permits may be required at the local level.
Salina, UT

Salina Public Library - Zoning Information this Site Location is C-2. The proposed project falls within the zoning requirements of the city of Salina. Permits may be required at the local level.
Salt Lake City, UT

Canyon Rim Academy - Zoning Information for Site Locations are Residential and Commercial. The proposed project falls within the zoning requirements of Salt Lake City. Permits may be required at the local level.

Dual Immersion Academy - Zoning Information for Site Locations are Residential and Commercial. The proposed project falls within the zoning requirements of Salt Lake City. Permits may be required at the local level.

Guadalupe Schools - Zoning Information for Site Location is Residential. The proposed project falls within the zoning requirements of Salt Lake City. Permits may be required at the local level.

Open Classroom K-8 - Zoning Information for Site Location is Residential. The proposed project falls within the zoning requirements of Salt Lake City. Permits may be required at the local level.
Santa Clara, UT
Arrowhead Elementary - Zoning Information for Site Location are R1-10 (Residential). The proposed project falls within the zoning requirements of the city of Santa Clara. Permits may be required at the local level.

Santa Clara Elementary - Zoning Information for Site Location are R1-10 (Residential). The proposed project falls within the zoning requirements of the city of Santa Clara. Permits may be required at the local level.
Lakeview Academy - Zoning Information for Site Location is Commercial. The proposed project falls within the zoning requirements of the city of Saratoga Springs. Permits may be required at the local level.
Smithfield, UT

Smithfield Elementary - Zoning Information for Site Location is R-1-12. The proposed project falls within the zoning requirements of the city of Smithfield. Permits may be required at the local level.
South Jordan, UT

Elk Meadows Elementary - Zoning Information for Site Location are R-3 (Residential). The proposed project falls within the zoning requirements of the city of South Jordan. Permits may be required at the local level.

Monte Vista Elementary - Zoning Information for Site Location are R-3 (Residential). The proposed project falls within the zoning requirements of the city of South Jordan. Permits may be required at the local level.

Welby Elementary - Zoning Information for Site Location are R-3 (Residential). The proposed project falls within the zoning requirements of the city of South Jordan. Permits may be required at the local level.
St. George, UT
Bloomington Elementary - Zoning Information for Site Location is Central Commercial and Medium Density Residential Zones. The proposed project falls within the zoning requirements of the city of St. George. Permits may be required at the local level.

Coral Cliffs Elementary - Zoning Information for Site Location is OS Zone. The proposed project falls within the zoning requirements of the city of St. George. Permits may be required at the local level.

Diamond Valley Elementary - Zoning Information for Site Location is PD Zone. The proposed project falls within the zoning requirements of the city of St. George. Permits may be required at the local level.

Dixie Downs Elementary - Zoning Information for Site Location is R-1-8 Zone. The proposed project falls within the zoning requirements of the city of St. George. Permits may be required at the local level.

East Elementary - Zoning Information for Site Location is R-1-8 Zone. The proposed project falls within the zoning requirements of the city of St. George. Permits may be required at the local level.

George Washington Academy - Zoning Information for Site Location is A20 Zone. The proposed project falls within the zoning requirements of the city of St. George. Permits may be required at the local level.

Heritage Elementary - Zoning Information for Site Location is R-1-8 Zone. The proposed project falls within the zoning requirements of the city of St. George. Permits may be required at the local level.

Sandstone Elementary - Zoning Information for Site Location is R-1-8 Zone. The proposed project falls within the zoning requirements of the city of St. George. Permits may be required at the local level.

Sunset Elementary - Zoning Information for Site Location is R-1-8 Zone. The proposed project falls within the zoning requirements of the city of St. George. Permits may be required at the local level.
Rose Springs Elementary - Zoning Information for Site Location is R-1-10. The proposed project falls within the zoning requirements of the county of Tooele. Permits may be required at the local level.
Syracuse, UT

Davis County Library - Zoning Information for Site Location is Commercial. The proposed project falls within the zoning requirements of the city of Syracuse. Permits may be required at the local level.

Syracuse Arts Academy - Zoning Information for Site Location is residential. The proposed project falls within the zoning requirements of the city of Syracuse. Permits may be required at the local level.
Adult Education Center - Zoning Information for Site Location is RR-5. The proposed project falls within the zoning requirements of the city of Tooele. Permits may be required at the local level.

District Early Learning Center - Zoning Information for Site Location is R1-7. The proposed project falls within the zoning requirements of the city of Tooele. Permits may be required at the local level.

East Elementary - Zoning Information for Site Location is R1-7. The proposed project falls within the zoning requirements of the city of Tooele. Permits may be required at the local level.

Northlake Elementary - Zoning Information for Site Location is RR1. The proposed project falls within the zoning requirements of the city of Tooele. Permits may be required at the local level.

Tooele City Library - Zoning Information for Site Location is R1-7. The proposed project falls within the zoning requirements of the city of Tooele. Permits may be required at the local level.

West Elementary - Zoning Information for Site Location is R1-7. The proposed project falls within the zoning requirements of the city of Tooele. Permits may be required at the local level.
Heber City, UT

Wasatch County Library - Zoning Information for Site Location is C-2 Commercial. The proposed project falls within the zoning requirements of Heber City. Permits may be required at the local level.
Coral Canyon Elementary - Zoning Information for Site Location is R-1-6, Residential Zone. The proposed project falls within the zoning requirements of the city of Washington. Permits may be required at the local level.

Horizon Elementary - Zoning Information for Site Location is R-1-12, Residential Zone. The proposed project falls within the zoning requirements of the city of Washington. Permits may be required at the local level.

Riverside Elementary - Zoning Information for Site Location is R-1-12, Residential Zone. The proposed project falls within the zoning requirements of the city of Washington. Permits may be required at the local level.

Washington Elementary - Zoning Information for Site Location is R-1-6, Residential Zone. The proposed project falls within the zoning requirements of the city of Washington. Permits may be required at the local level.

Washington Library - Zoning Information for Site Location is R-1-6, Residential Zone. The proposed project falls within the zoning requirements of the city of Washington. Permits may be required at the local level.
West Haven, UT

Quest Academy - Zoning Information for Site Locations are R-4, R-3, and RMH-1. The proposed project falls within the zoning requirements of the city of West Haven. Permits may be required at the local level.
Wellington, UT

Rural Utah Child Development - Zoning Information for Site Location is R-1-7, Residential Zone. The proposed project falls within the zoning requirements of the city of Wellington. Permits may be required at the local level.
Columbia Elementary - Zoning Information for Site Location is R-1-1 OA Zone. The proposed project falls within the zoning requirements of the city of West Jordan. Permits may be required at the local level.

Hawthorn Academy - Zoning Information for Site Location is R-1-1 OB Zone. The proposed project falls within the zoning requirements of the city of West Jordan. Permits may be required at the local level.

Hayden Peak Elementary - Zoning Information for Site Location is R-1-1 OB Zone. The proposed project falls within the zoning requirements of the city of West Jordan. Permits may be required at the local level.

Jordan Hills Elementary - Zoning Information for Site Location is R-1-1 OD Zone. The proposed project falls within the zoning requirements of the city of West Jordan. Permits may be required at the local level.

Mountain Shadows Elementary - Zoning Information for Site Location is R-1-1 OB Zone. The proposed project falls within the zoning requirements of the city of West Jordan. Permits may be required at the local level.

Oquirrh Elementary - Zoning Information for Site Location is R-1-1 OD Zone. The proposed project falls within the zoning requirements of the city of West Jordan. Permits may be required at the local level.
Riverside Elementary - Zoning Information for Site Location is R-1-8 C Zone. The proposed project falls within the zoning requirements of the city of West Jordan. Permits may be required at the local level.

Terra Linda Elementary - Zoning Information for Site Location is P-F Zone. The proposed project falls within the zoning requirements of the city of West Jordan. Permits may be required at the local level.

West Jordan Elementary - Zoning Information for Site Location is R-1-1 OD Zone. The proposed project falls within the zoning requirements of the city of West Jordan. Permits may be required at the local level.

Westland Elementary - Zoning Information for Site Location is R-1-1 OD Zone. The proposed project falls within the zoning requirements of the city of West Jordan. Permits may be required at the local level.

Westvale Elementary - Zoning Information for Site Location is R-1-8 Zone. The proposed project falls within the zoning requirements of the city of West Jordan. Permits may be required at the local level.
Willard, UT

Willard City Zoning Map

Willard Elementary - Zoning Information for Site Location is R-1/2 Residential Zone. The proposed project falls within the zoning requirements of the city of Willard. Permits may be required at the local level.
### Appendix I

#### Poverty Status per Utah City and County

#### Table 10. Poverty Status in 1999: 2000

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<th>State</th>
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Summary Societal, Economic, and Housing Characteristics

U.S. Census Bureau, Economic 2000

(Data based on a sample (except Tilly 1998). For information on confidentiality protections, response error, and sampling error, see Appendix G. For location and definition of data see "How to Use The Census Report"

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<th>Families with income in 1999 from families with income below poverty level, under 18 years</th>
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80 Utah  

Summary Social, Economic, and Housing Characteristics  

U.S. Census Bureau, Census 2000
## NEPA and NHPA Assessment


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|       |        |       |                           |       |      |        | MEDIAN  |         |         |         |
|       |        |       |                           |       |      |        | QUARTILS| MEDIAN  | QUARTILS|
|       |        |       |                           |       |      |        |         | MEDIAN  |         |         |

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Notes: Data based on a sample (except Table 16). For information on methodology, coverage, sampling error, and nonsampling error, see Appendix B.

For a list of abbreviations, see Year in Note The Census Bureau.

U.S. Census Bureau, 2000 Census.
### Utah Anchors Project Elementary Schools with Minority Enrollments

**APPENDIX I**

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Utah Anchors Project Charter Schools with Minority Enrollments

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Underserved Minority Students 4583
 Unserved Minority Students 1492
 Served Minto Students 4152

TOTAL 10227

% of Total Students in BTOP Project 19.96%
Appendix J

Ecoregion Map of Utah
Ecoregions of Utah

Ecoregions shown are based on expansions of 1986 ecoregions in the Central Rockies and surrounding areas. The ecoregions are based on environmental, ecological, and economic properties of the physical landscape. The ecoregions vary in size and complexity. They range from several square kilometers, such as the Echo Cliffs ecoregion (13f), to thousands of square kilometers, such as the Wasatch Plateau ecoregion (17a).

13 Central Basin and Range

Ecoregion 13 is highly arid to semiarid. Seasonal precipitation increases from 5 inches in Ecoregion 13b in the southern Great Basin to 10 inches in Ecoregion 13c in the Along the Bear River. The ecoregion is characterized by cold winters, frigid soils, and a short growing season.

14c Mountain Woodland and Shrubland

Ecoregion 14c is a further subdivision of level III ecoregions. It is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).

15 Mojave Basin and Range

Ecoregion 15 is a further subdivision of level III ecoregions. The ecoregion is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).

16 Wyoming Basin

Ecoregion 16 is a further subdivision of level III ecoregions. It is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).

17 Colorado Plateau

Ecoregion 17 is a further subdivision of level III ecoregions. It is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).

18 Southeastern Basin

Ecoregion 18 is a further subdivision of level III ecoregions. It is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).

19 Wasatch and Uinta Mountains

Ecoregion 19 is a further subdivision of level III ecoregions. It is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).

20 Southern Rockies

Ecoregion 20 is a further subdivision of level III ecoregions. It is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).

21 Colorado Cliffs

Ecoregion 21 is a further subdivision of level III ecoregions. It is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).

22 Southwestern Rockies

Ecoregion 22 is a further subdivision of level III ecoregions. It is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).

23 Northwestern Rockies

Ecoregion 23 is a further subdivision of level III ecoregions. It is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).

24 southeastern Utah Mountains

Ecoregion 24 is a further subdivision of level III ecoregions. It is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).

25 Northern Rockies

Ecoregion 25 is a further subdivision of level III ecoregions. It is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).

26 Southern Rockies

Ecoregion 26 is a further subdivision of level III ecoregions. It is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).

27 Northern Rockies

Ecoregion 27 is a further subdivision of level III ecoregions. It is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).

28 Pacific Northwest

Ecoregion 28 is a further subdivision of level III ecoregions. It is used for recreation and seasonal grazing like the similar but more extensive Alpine Zone (19a).
Appendix K

Brownfield locations – State of Utah

November 11, 2010

Jeff Egly, Associate Director
Utah Education Network
101 Wasatch Drive
Salt Lake City, Utah 84112

Reference: UEN Approval Application for U.S. Army Corps of Engineers – NTIA BTOP
Infrastructure Project

Dear Mr. Egly:

This letter is to confirm that Stantec Consulting Services Inc. has reviewed the information
regarding potential Corps of Engineers permit requirements and has been in discussions with the
Corps of Engineers regarding streamlining any required approval letters.

We are proceeding with the approach outlined in our Proposal of October 26, 2010, in which we
suggest an application for an overall approval letter from the Corps stating "No Permit Required" for
all identified sites and providing the GIS data for entry into the Corps data base.

The process typically takes 3 to 4 weeks for Corps review after submittal, but time frames are at the
complete discretion of the Corps Project Manager and may take longer.

We look forward to completing the review of the aerial photographs of the project areas and
completing this work for you.

Please contact me if you have any questions or comments.

Sincerely,

STANTEC CONSULTING SERVICES INC.

Bruce M. Erickson, AICP
Managing Senior Associate Environmental Infrastructure / Environmental Management
Tel: 801.261.0390
Fax: 801.266.1671
berickson@stantec.com
# Appendix M

## Correspondence

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<td>Letter from Jeff Egly to US Fish and Wildlife Service</td>
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<tr>
<td>4/9/10</td>
<td>Letter from Frank Monteferrante to Utah SHPO Office</td>
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<td>10/9/10</td>
<td>Letter from Mike Petersen to Doug Kinkoph (FPO)</td>
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<td>11/1/10</td>
<td>Letter from Jeff Egly to SHPO</td>
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April 8, 2010

Becky Hotze  
United States Fish and Wildlife Service  
2369 West Orton Circle, Suite 50  
West Valley City, Utah 84119

Becky,

As a follow up to our telephone discussion today enclosed is project detail pertaining to the University of Utah-Utah Education Network’s NTIA BTOP Round One grant which has been approved by the NTIA. To comply with the required NEPA Environmental Assessment process I’m providing this detail so we may begin consultations with the US Fish and Wildlife Service regarding any potential impact on FWS resources.

I will follow up with you in a few days regarding next steps and please feel free to contact me if you have any questions or require additional information.

Respectfully,

[Signature]

Jeff Egly  
Associate Director  
Technical Services  
Utah Education Network  
University of Utah  
Office: 801-585-5669  
Mobile: 801-244-6950

Cc: Frank Monteferrante, NEPA Environmental Specialist, Broadband Technology Grant Program, NTIA
April 9, 2010

Mr. Wilson Martin, SHPO
Utah State History
300 Rio Grande
Salt Lake City, UT 84101

Re: Initiation of National Historic Preservation Act, Section 106, Consultation Regarding Broadband Technology Opportunities Program Grantee # 362 University of Utah, Fiber Optic Network Infrastructure Project

Dear Mr. Martin,

The National Telecommunications and Information Administration (NTIA) has awarded a grant to the University of Utah, through the Broadband Technology Opportunities Program, as part of the American Recovery and Reinvestment Act (ARRA). The funding must be obligated and the project completed within 3 years. This timeline is driven by the laws and regulations governing the use of this ARRA grant funding. The project will deploy fiber-based Ethernet broadband services to 130 anchor institutions across the state. A project description with maps and diagrams is attached.

This project is an "undertaking" as defined in 36 CFR Part 800, and this letter serves as notice that NTIA is initiating consultation under Section 106 of the National Historic Preservation Act. NTIA has determined that this project may impact historic resources. The grant recipient is in the process of determining the eligible sites within the area of potential effect, and determining the effects of the project activities on those sites. When completed, the grant recipient will continue consultations with your office regarding their determination of effects. NTIA will participate in any consultations, if necessary, to resolve adverse effects and develop any memorandum of agreement.

If you have any questions, please contact me at (202) 482-4208, or by e-mail at fmonteferrante@ntia.doc.gov.

Sincerely,

Frank J. Monteferrante, Ph.D.
Environmental Compliance Specialist
National Telecommunications and Information Administration

Attachment

cc: Mr. Dennis Sampson
University of Utah
1471 East Federal Way
Salt Lake City, UT 84102
April 19, 2010

Jeff Egly
Associate Director, Technical Services
Utah Education Network
University of Utah
101 Wasatch Drive, Room 215
Salt Lake City, Utah 84112-1792

RE: UEN Grant Projects under National Telecommunication Information Administration (NTIA) Broadband Technology Opportunities Program (BTOP)

Dear Mr. Egly,

In your letter dated April 8, 2010, you requested our assistance in determining whether 128 proposed internet broadband extensions and connections will impact Fish and Wildlife resources. Our authorities are defined under the Endangered Species Act and Migratory Bird Treaty Act.

I have reviewed the following projects, all within the state of UT:

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Based on information provided in your letter, we have determined your project is not likely to adversely affect threatened and endangered species and critical habitat. In addition, we are not aware of any impacts to migratory birds due to these projects. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered. We appreciate your interest in conserving endangered species. If further assistance is needed or you have any questions, please contact Katherine Richardson of our office at (801) 975-3330, extension 125.

Sincerely,

Larry Crist
Utah Field Supervisor
June 7, 2010

Mr. Wilson Martin, SHP
Utah State History
300 Rio Grande
Salt Lake City, UT 84101

RE: Consultation for National Historic Preservation Act, Section 106, regarding Broadband Technology Opportunities Program (BTOP) Grant # 362 University of Utah-Utah Education Network, Fiber Optic Network Infrastructure Project.

Dear Mr. Martin,

This letter is a follow up to a letter sent to you by Frank Monteferrante, Environmental Compliance Specialist at the National Telecommunications and Information Administration (NTIA) dated April 9, 2010. Mr. Monteferrante’s letter referenced the NTIA BTOP Round One Infrastructure project the University of Utah-Utah Education Network (U of U-UEN) has been awarded and the NEPA Environmental Assessment the U of U-UEN is currently developing. Mr. Monteferrante’s earlier letter also included a letter from me that provided an executive summary of the project, detailed maps and project information.

Included with this current letter is information and a report developed by SWCA Environmental Consultants who the U of U-UEN retained to assist with the consultation as required under section 106 of the National Historic Preservation Act. Also included is a cover letter from SWCA addressed to Kevin Dutt with my office that provides a recommendation of “no historic properties effected”

I’ve provided SWCA’s report and their findings in hard copy and soft copy for your review.

I will follow up with you in the next few days to address any questions and any required next steps.

Respectfully,

Jeff Egly
Associate Director
Technical Services
Utah Education Network
University of Utah

Attachment

cc: Mr Frank Monteferrante
US Dept of Commerce
National Telecommunications and Information Administration
1401 Constitution Avenue, NW - Rm 4812
Washington, DC 20230
October 8th, 2010

Doug Kinkoph
Program Officer, Broadband Technology Opportunities Program
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Ave., NW Washington, DC 20230

RE: Ute Indian Tribe Head Start Program

Doug:

As we discussed with you last Friday on our weekly status call, the University/UEN included the Ute Indian Tribe Head Start Program administration building on the Uintah and Ouray Reservation on Fort Duchesne in our Round 1 BTOP Infrastructure project. UEN needed to complete improvements at this location prior to the award of our application in February 2010 and prior to the subsequent Special Award Condition (SAC) of an Environmental Assessment placed our award by NTIA. Strata Communications, at UEN’s request, proceeded with the project and completed the 10MB broadband connection to the building in December 2009. There was no installation or construction necessary to bring this connection up, since the provider had installed this fiber some time before the BTOP program was announced. This was completed prior to UEN entering into the due diligence phase of the Round 1 infrastructure grants evaluation process, which we completed in early January 2010.

Given our mutual interest in ensuring timely approval of the Environmental Assessment by NTIA, we are requesting that you approve the removal of this site from the BTOP project. UEN will be fully responsible for any costs associated with the project and will not request any reimbursement from BTOP funds to pay for this location. We believe this will alleviate the minimum 45-day environmental consultation required for this site with the Tribal Historic Preservation Officer and the Bureau of Indian Affairs (BIA). We are concerned that our entire project could be delayed if the Environmental Assessment would require full completion of the process for this location. After our discussion with you last week, we believe this would be the best way to proceed in order to keep the project moving in a direction that we can begin construction and keep our timeline on milestone completions within our approved baseline report.

As we have indicated before and discussed with you in some detail, other site changes will be required in the future. However, we would like to discuss those after the EA approval, by using the EA addendum and post-award modification process, so that we do not materially delay approval of the entire EA.

Please let us know if this is acceptable to you, and we look forward to talking with you on Friday.

Sincerely,

Mike Petersen, Executive Director
Utah Education Network
November 1, 2010

Mr. Wilson Martin, SHPO
Utah State History
300 Rio Grande
Salt Lake City, UT 84101

RE: CASE NUMBER 10-0517  Additional NHPA Section 106 consultation with Utah State Historic Preservation Officer specific to historic structures and buildings. Dept. of Commerce, National Telecommunications and Information Administration (NTIA), Broadband Technology Opportunities Program (BTOP) Grant # 362 University of Utah-Utah Education Network Broadband project.

Dear Mr. Martin,

It has been determined that additional review by your office is required before the University of Utah can proceed with its NTIA BTOP Round One Broadband project. Earlier this year the NTIA and University of Utah provided information to your office specific to the build out of broadband infrastructure including Class 1 and 3 surveys conducted by SWCA Environmental Consulting, “Red Line” project drawings, photos and detail specific to the activities required to complete broadband infrastructure improvements. We received a letter from your office dated July 12, 2010 referencing case number 10-0517 determining “No Historic Properties Affected”.

However, upon review by NTIA of the University of Utah’s draft NEPA Environmental Assessment and Section 106 Historic of National Historic Preservation Act Review it was determined that a survey of historic structures and buildings included in this project is also necessary.

Included with this letter is a survey and findings developed on behalf of the University of Utah by SWCA Environmental Consultants and project specific information provided by each of the University’s telecommunication providers for this project. Three locations in the University of Utah’s project are listed on the National Register of Historic Places and 23 locations are A or B-rated Eligible.

I’ve including a two soft copies of this report on compact disc and one hard copy for your review.

I will follow up with you in the next few days to address any questions.

Sincerely,

Jeff Eggy
Associate Director
Technical Services
Utah Education Network
University of Utah
Attachment

cc:  Mr Frank Monteferrante
     US Dept of Commerce
     National Telecommunications and Information Administration
     1401 Constitution Avenue, NW - Rm 4812
     Washington, DC 20230