Utah K-12 Public Schools Unreinforced Masonry Inventory

Methods, Findings, and Recommendations

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Cover photograph – Seismic retrofit of Polk Elementary School in Ogden, Utah (foreground), with construction of a new, three-story addition (background) (photo credit: FFKR Architects).

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Foreword

Children represent the future of Utah. They embody seemingly limitless potential, and represent the hopes and dreams of countless families across the state. Utah is a family-oriented state with a growing population.

Children also spend the majority of their weekday waking hours attending school. While schools provide an environment for learning, socialization, and personal growth, we generally assume the buildings themselves are sturdy. Unfortunately, some schools by virtue of their age or construction materials can pose a potential safety risk to those very same children. Most noteworthy in Utah, with its high earthquake hazard, is unreinforced masonry (URM). Schools constructed of URM, or bricks with little or no steel reinforcement, are susceptible to significant earthquake damage during even low or moderate earthquake shaking. These durable, and often historic, structures were built prior to the formal incorporation of earthquake design into Utah building codes. This inventory study identified 119 school campuses statewide with URM construction.

Some school districts have proactively studied and aggressively addressed this risk; we can say with certainty the risk of URM school damage is now lower than it was a decade ago. Additional districts are actively assessing their risk and are working towards addressing it. The intent of this inventory is to provide an equitable and uniform assessment of each K-12 public school statewide to ensure that, regardless of location or size of enrollment, all citizens have equal access to information pertaining to the earthquake safety of their local schools.

An undertaking of such magnitude does not manifest itself without prompting or precedent. A debt of gratitude is owed to past school mitigation efforts by the Utah Seismic Safety Commission (USSC) and the Structural Engineers Association of Utah (SEAU), whose work to raise awareness of this issue is best demonstrated by the 2011 study *Utah Students at Risk: The Earthquake Hazards of School Buildings* (USSC/SEAU, 2011). That study began the ambitious work of inventorying a sample of school buildings across Utah to gain a sense of the scope of the problem. Building upon their progress, we have finished the job by compiling this complete statewide inventory of all K-12 public schools.

While these vulnerable school buildings were constructed over several decades last century, such an acute risk to vulnerable schoolchildren warrants prompt and decisive action. Knowledge of the scope and severity of the risk is an important first step. Identifying policy and funding solutions to such challenges may not be simple, yet a willing coalition of local, state, and federal agencies, as well as nonprofit and private sector partners, stands ready to support the necessary next steps.

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Executive Summary

The ground shaking felt throughout much of Utah during the magnitude 5.7 Magna earthquake on March 18, 2020, was a reminder that the grand mountain ranges that frame the state's cities and towns have been formed by millions of years of uplifting geologic activity. The resulting building damage from Magna to Salt Lake gave visual confirmation that unreinforced masonry (URM) buildings are vulnerable structures. The event was a wake-up call to prepare for a major earthquake.

The Wasatch Front region is predicted to have a 43 percent chance of producing a magnitude 6.75 or greater earthquake in the next 50 years. In comparison to the magnitude 5.7 Magna earthquake, a magnitude 6.7 earthquake will release about 30 times the energy. In such an earthquake, not only will the shaking be much stronger, it also will be longer, causing more widespread and severe damage, particularly to vulnerable construction, like unreinforced masonry.

School buildings are one of the most utilized spaces in our cities, commonly serving as resources for community events and emergency shelters. They are occupied by children and should be a priority for protection. But schools also tend to remain in service longer than other types of buildings, and in a state like Utah, where periodic structural inspections are not required by law, they often don't receive seismic improvements in timely intervals.

This study provides the first statewide inventory of K-12 public school buildings in Utah developed for the purpose of documenting and communicating seismic risk. The inventory includes the number and location of campuses with URM buildings or additions in the state, the estimated enrollment at those campuses, and the estimated value of buildings at those campuses. Charter and private schools are not included in the inventory. The findings highlight the urgent need for action to reduce the earthquake risk from these buildings.

Inventory Findings

Twenty of Utah's twenty-nine counties have at least one school campus with a URM building or addition. In those twenty counties, there are 119 school campuses with URM construction where 72,126 children (or 12 percent of

total K-12 public school enrollment) spend some or all their school hours. These estimates include only buildings identified as URM in a seismic safety screening. The inventory also classifies "likely URM" buildings and "likely under-reinforced masonry" buildings, but these are not included in the estimates. The value of the buildings on school campuses with identified URM totals nearly 2 billion dollars.

Recommendations

The following six recommendations are put forth for action following the release of the inventory of K-12 public school URM buildings.

Validate and Finalize the URM Inventory. The inventory of K-12 public school URM buildings prepared by this study is a starting point for discussion with key stakeholders. Because of limitations in the study, some buildings in the inventory identified as URM may have been demolished and rebuilt, sold, or retrofitted.

Provide Funding for Feasibility Studies and Mitigation. Funding is necessary for completing feasibility studies to determine whether seismic retrofits or building replacements are more beneficial or cost effective for individual school districts. These kinds of studies provide necessary information for school districts to seek construction funding, such as through bonding or federal mitigation grants.

Develop a Statewide Inventory of all Vulnerable Schools. There are schools built with other types of construction that are highly vulnerable during earthquakes. Additionally, the inventory does not include charter or private schools or religious institutions, even if they contain buildings or additions constructed of URM.

Include Under-Reinforced Masonry School Buildings in Mitigation Initiatives. These buildings are highly vulnerable to damage and collapse during earthquakes. Including them in any statewide mitigation initiative would help make students safer.

Establish Recommended Retrofit Standards for URM School Buildings. There are different nationally recognized engineering standards that can be used in designing seismic retrofits for buildings. However, some of these standards are insufficient for schools.

Establish a Target Date for all URM Schools to be Repurposed, Retrofitted, or Demolished. Establishing a target date would help to rally stakeholders and provide a goal to strive toward.

Given the prevalence of URM on campuses in Utah, it will take a coalition of stakeholders to ensure that each student in the state is safe at school during earthquakes. The first step is understanding the scope of the problem, by answering the questions—how many and which campuses have URM construction in Utah. This inventory starts to provide answers. The next step is action, so that those with the ability to cause change can say to future generations that they did all that they could, as quickly as they could, to protect Utah's children.

Chapter 1
Introduction

1.1 Background and Purpose

The Utah Division of Emergency Management (DEM) and the Federal Emergency Management Agency (FEMA) have been working over the last several years to define and address the risk to Utah caused by unreinforced masonry (URM) buildings. In 2019, the organizations hosted a summit in Salt Lake City (ATC, 2020), where diverse stakeholder groups came together to raise awareness of URM risk and mitigation best practices. In 2021, the *Wasatch Front Unreinforced Masonry Risk Reduction Strategy* (FEMA, 2021) was published, recommending the implementation of a broad program centered on five strategies aimed at reducing URM risk across the state. One of those strategies focused on URM school risk reduction, and it called for validating and finalizing the statewide inventory of URM school buildings.

The primary purpose of this report is to document work conducted in 2021 and 2022 to develop a statewide inventory of K-12 public school buildings constructed of URM. The inventory does not include charter or private schools. The report describes the methods used to develop this inventory, summarizes key findings, and recommends future actions. The inventory is contained in an electronic database. For practical purposes, only selected data from the database are included in the report. It is anticipated that this report and the database will be used by DEM, the Utah State Board of Education (USBE), the Utah Seismic Safety Commission (USSC), and FEMA to communicate information about the risk posed by URM school buildings, to support outreach and engagement with key stakeholders, and to guide and help implement risk reduction strategies.

The magnitude 5.7 Magna earthquake on March 18, 2020, was a powerful reminder that older, vulnerable buildings pose a danger to communities throughout Utah. At least 145 historic buildings were damaged in that earthquake (SPHO, 2020). However, the Wasatch Front region is predicted to have a 43 percent chance of experiencing a magnitude 6.75 or greater earthquake in the next 50 years (UGS, 2016). In comparison to the Magna earthquake, a magnitude 6.7 earthquake will release about 30 times the energy. It is hoped that this inventory, coupled with a heightened awareness of seismic risk among Utahns following the Magna earthquake, as well as the

guidance provided in the *Wasatch Front Unreinforced Masonry Risk Reduction Strategy*, will lead to meaningful action across the state to address URM school buildings.

This work builds upon FEMA's longstanding support for school safety against natural hazards. For example, FEMA P-774, *Unreinforced Masonry Buildings and Earthquakes: Developing Successful Risk Reduction Programs* (FEMA, 2009); FEMA P-1000, *Safer, Stronger, Smarter: A Guide to Improving School Natural Hazard Safety* (FEMA, 2017); and FEMA P-2090 / NIST SP-1254, *Recommended Options for Improving the Built Environment for Post-Earthquake Reoccupancy and Functional Recovery Time* (FEMA/NIST, 2021), all have recommendations and other material relevant to reducing risk from URM school buildings in Utah.

1.2 Scope of Study

The scope of work consisted of combining existing inventory datasets from the Utah State Board of Education, the Utah Division of Risk Management, and various engineering reports commissioned by individual school districts and the State of Utah. Where engineering reports were not available, other information, such as building age and type of construction, were used to make initial determinations about whether a school building would be classified as likely constructed of URM. In-person surveys of selected schools by structural engineers, combined with Google Earth and other remote data, were conducted to validate these assumptions and expand the datasets. All school districts within the scope of study were contacted and asked to comment on an initial list of buildings or additions identified as URM, and their feedback was incorporated.

However, not all schools were visited in-person to conduct surveys, there is some uncertainty in the accuracy and completeness of the existing inventory datasets, and prior engineering reports commissioned by school districts and the State of Utah are of different vintages and in some cases different methodologies. It is therefore assumed that some school buildings classified as URM in this report are not in fact constructed of URM, are built of URM but have been seismically retrofit, have been sold, or have been demolished. For this reason, the K-12 public school URM inventory prepared by this study should not be considered as static or final. Instead, the inventory should be updated as more accurate information is collected. Despite any shortcomings, this is the first statewide inventory of school buildings in Utah developed for the purpose of documenting and communicating seismic risk.

Funding for the development of the database and the preparation of this report was provided by FEMA (task order contract HSFE60-17-D-0002) and Utah DEM (agreement 11/8/2021) to the Applied Technology Council.

1.3 Organization and Content

This report describes an effort to collect, organize, and inventory K-12 public school URM buildings in the State of Utah.

Chapter 2 discusses the background and history of public-school inventories in Utah. It summarizes legislative attempts to inventory all Utah schools and work that has been done at the district level to evaluate individual school buildings.

Chapter 3 describes how existing and new information was gathered and processed to develop an inventory.

Chapter 4 provides key findings and recommendations.

Appendix A includes a list of school campuses identified to have one or more URM buildings or additions.

Appendix B includes a list of school campuses with buildings or additions that are likely URM.

Appendix C includes a list of school campuses with buildings or additions that are likely under-reinforced masonry.

Appendix D includes a list of school campuses with a seismic safety screening score of 2 or less.

Appendix E provides a review of retrofit standards for URM school buildings, a recommendation for minimum retrofit standards, and a recommendation for criteria for evaluating previously retrofitted buildings.

Chapter 2

History of URM Buildings and URM School Inventories in Utah

2.1 History of URM Buildings in Utah

Utah can be described as a low-probability, high-consequence seismic area. Large earthquakes occur infrequently in the state, but Utah has a large inventory of older, vulnerable buildings, especially those constructed of URM. This is a consequence of its recent history.

Individuals from the Church of Jesus Christ of Latter-day Saints and other non-indigenous groups began moving to the area in the mid-1800s. They carried with them construction knowledge that included the use of bricks and mortar for building materials. The land provided the necessary materials to make clay bricks, and many early structures were built of URM.

Utah's largest modern earthquakes have occurred in rural parts of the state. Hansel Valley (1909) and Elsinore (1921) experienced events estimated at magnitude 6+ with no casualties or significant losses, starkly contrasting with events like California's Long Beach earthquake (1933), wherein more than 230 URM school buildings were destroyed, suffered major damage, or were judged unsafe to occupy (EERI, 2016). Whereas California began prohibiting URM construction in the wake of these losses, URM school construction continued in Utah at least through the 1960s. It wasn't until statewide adoption of building codes in the 1970s that URM construction was forbidden across the state.

2.2 History of Legislative Attempts to Inventory Utah Schools

In the late 1990s, the Utah Seismic Safety Commission (USSC) and the Structural Engineers Association of Utah (SEAU) began collaborating to help raise awareness of the potential danger from earthquakes for many of Utah's schools.

At least as early as 2006, the Utah State Office of Education (USOE, now called Utah State Board of Education) was discussing the idea of implementing a seismic safety plan to reduce risks of older, vulnerable school buildings "along the high hazard faults and liquefaction zones of

Utah" (USOE, 2006). However, these discussions did not lead to any statewide action.

In 2007, Representative Larry Wiley, a local building official, introduced a placeholder bill in the general session: H.B. 431, *Utah School Seismic Hazard Inventory*. Although the bill did not contain text, it put the legislature on notice that school seismic safety was a state concern.

H.B. 162, *Utah School Seismic Hazard Inventory*, was introduced into the 2008 legislative session. Appropriations of $500,000 were requested to perform seismic safety screenings of all Utah schools. The bill also proposed the creation of a Public-School Seismic Safety Committee for the purpose of administering the program and establishing guidelines for buildings requiring further investigation. The bill was amended in the Government Operations Committee with language to create immunity from suit for the state, school districts, charter schools and their officers and employees for failure to exercise or perform any action related to the seismic safety inventory performed by the bill. The bill was eventually dismissed in the rules committee and not heard by both houses of the legislature.

The following year, H.B. 330, *Utah School Seismic Hazard Inventory*, was introduced into the legislature. This bill was essentially the same bill as H.B. 162 in content and appropriations. The floor discussion noted that if vulnerable school buildings were identified, the state would most likely incur a duty of obligation to "fix" the dangerous buildings. This bill was defeated and did not make it to a Senate hearing.

The magnitude 6 Wells, Nevada earthquake occurred during the 2008 legislative session. Following the earthquake, the state legislature passed H.J.R. 7, *Joint Resolution Recognizing Unreinforced Masonry Building*. This called for the USSC to compile an inventory of public URM buildings in the state and urged the commission "to recommend priorities to address the problem in a manner that will most effectively protect the lives, property, and economy of the state."

In 2009, the State of Utah received funding from FEMA for a pilot study to conduct seismic safety screenings of public and charter schools. The proposal for the pilot study recommended that a steering committee be established to define the parameters of the study sampling, to select the program consultants, and to compile a final report documenting findings and recommendations.

This pilot study was aided by the cooperation of the Utah State Office of Education (USOE) and information the office had collected about the age

and condition of Utah's schools. The results of the pilot study were published in the report, *Utah Students at Risk: The Earthquake Hazards of School Buildings* (USSC/SEAU, 2011). Thirty-nine of the 128 surveyed school buildings were identified as being constructed of URM. The study was viewed as helping local and state advocates for seismic safety make the case for the need for a larger statewide survey.

Following the publication of *Utah Students at Risk*, USSC and SEAU advocated for expanding the work of the pilot study to conduct seismic safety screenings of all Utah schools. In 2011, Representative Larry Wiley introduced H.B. 423, *Public School Seismic Safety Committee*, which sought the creation of a committee that would advise and make recommendations to the legislature, governor, state superintendent, and State Board of Education on seismic safety issues in public schools. The bill did not pass, but the governor added a $150,000 line item to begin developing a statewide school survey.

In 2010, H.B. 330 was re-introduced as H.B. 72, *Utah School Seismic Hazard Inventory*. This time, the USSC advised that the appropriations be reduced due to the financial constraints of the reduced state budget in the years following the financial crisis of 2007-2008. The bill was edited to reduce the scope of work and the appropriations reduced to $25,000. During hearings at the Education Committee meetings, it was suggested that a bill with any appropriations would not make it out of committee to the floor of the House of Representatives. Accordingly, Representative Wiley asked the USSC and SEAU if the survey could be accomplished without state funding. Although this was to become an essentially volunteer effort, the USSC and SEAU endorsed elimination of the appropriations request in the hope that the change would lead to approval by the House. This amendment resulted in H.B. 72 S01, which was eventually approved by the House of Representatives after having been initially defeated on the floor. This occurred late in the legislative session, and the Senate Rules Committee did not release the bill to the Senate floor before the session ended.

During the 2013 General Session of the Utah Legislature, H.B. 278, *Public Schools Seismic Studies*, passed and established requirements for school districts to conduct or update a seismic safety evaluation for school buildings constructed before 1975 if the school district issues certain general obligation bonds.

2.3 School Seismic Retrofits in Utah

Several school districts in Utah have been proactive in improving school safety by successfully financing school replacements or retrofits through local bonding initiatives.

These school districts typically have employed structural engineering firms to conduct seismic safety screenings, which are used to prioritize replacement or retrofit of older school buildings. The structural engineering firms have helped the districts assess the feasibility of these projects, providing important information for proposed bond measures that, when approved, have funded school construction projects aimed at mitigating seismic risk.

In some cases, districts have decided to demolish and replace URM school buildings (Figure 2-1), whereas in other cases districts have opted to retrofit URM school buildings. Ogden High School is an Art Deco building constructed in 1937 and is listed on the National Register of Historic Places. It was retrofitted and expanded in December 2012 (Figure 2-2 and Figure 2-3).

Figure 2-1 Demolition of unreinforced masonry construction at East High School, Salt Lake City in 1996 (photo credit: Lynn R Johnson, Salt Lake Tribune).

Polk Elementary School in Ogden was constructed in the late 1926. An addition built in the 1960s was demolished, and an addition constructed in 1990 is being remodeled. A seismic retrofit of the original building and a three-story addition are currently under construction (Figure 2-4). The school is scheduled to open in fall 2022.

Figure 2-2 The renovation and retrofit of historic Ogden High School was completed in December 2012 (photo credit: Reaveley Engineers).

Figure 2-3 Steel reinforcement placed during the retrofit of Ogden High School (photo credit: Reaveley Engineers).

Figure 2-4 The new three-story addition currently under construction at Polk Elementary School in Ogden. In the background, work on the seismic retrofit of the original school building, from 1926, is underway (photo credit: FFKR Architects).

Chapter 3
Inventory Development

3.1 Compilation and Filtering of Existing Inventory Data

This section describes the existing sources of data used to create an inventory of K-12 public school buildings across 896 school campuses in Utah. From these, a consolidated dataset was developed that identifies school inventory that is URM or likely URM. Data processing also was conducted to identify schools that had not been previously evaluated with seismic safety screenings.

3.1.1 Data Sources Used for the Inventory

Information about Utah schools was collected from two public agencies: the State of Utah Division of Risk Management and the Utah State Board of Education. Each dataset includes important information about the state's school buildings; however, these datasets do not contain common identifying indices to correlate the records. Furthermore, in some instances, the names of the schools vary. The process of combining this information is detailed in Section 3.1.6.

3.1.2 State of Utah Division of Risk Management Dataset

The Division of Risk Management provided a list of public K-12 facilities insured by the state. In addition to school name, school district, and address, the list includes a building function description, a Marshall & Swift construction classification, construction year, a current value estimate, and square footage.

3.1.3 Utah State Board of Education Dataset

The USBE provided a list of all schools across public, private, and charter local education agencies (LEAs), also known as school districts. In addition to school name, LEA (referred to as district in the state's information), and address, this list includes a school type description, school website, school open date, and school close date, as applicable. The dates included in this dataset indicate only the establishment or dissolution of a school and do not necessarily inform the dates of building construction, modification, or addition. It should be noted that most schools in Canyons School District were formerly part of a larger Jordan School District until July 1, 2009.

3.1.4 Seismic Safety Screening Datasets

Since the 1980s, a number of LEAs have hired engineering firms to conduct seismic safety screenings. Table 3-1 lists the seismic safety screening data subsets that were collected and included in the consolidated dataset. The table shows the names of the data subsets and the LEA to which they pertain. The screening methodologies used include:

- Most of the data subsets use various versions of FEMA P-154, *Rapid Visual Screening of Buildings for Potential Seismic Hazards: A Handbook* (FEMA, 2002; FEMA, 2015a). FEMA P-154 is the source of a widely used methodology for conducting seismic safety screenings on large inventories of buildings. The methodology produces a Rapid Visual Screening (RVS) score, typically in the range of 0 to 7, with higher scores corresponding to better expected seismic performance and a lower potential for collapse in a large earthquake. Importantly, a low RVS score indicates that a more detailed engineering investigation of the building should be conducted. A low RVS score does not necessarily mean that a building requires mitigation work, such as a seismic retrofit.
- ATC-14, *Evaluating the Seismic Resistance of Existing Buildings* (ATC, 1987). ATC-14 uses checklists and analysis checks to rate and rank buildings according to their earthquake damage potential.
- ATC-21, *Rapid Visual Screening of Buildings for Potential Seismic Hazards* (ATC, 1988). ATC-21 was the first evaluation tool to provide a score intended to indicate potential for collapse in a seismic event.
- FEMA's Rapid Observation of Vulnerability and Estimation of Risk (ROVER) software generates an RVS score based on the FEMA P-154 methodology.
- ASCE/SEI 31-03, *Seismic Evaluation of Existing Buildings* (ASCE, 2002), and ASCE/SEI 41-06, *Seismic Evaluation and Retrofit of Existing Buildings* (ASCE, 2007). Although ASCE/SEI 31-03 and ASCE/SEI 41-06 provide similar screening methodologies to the others listed, some interpretation is necessary to derive a comparable score. USOE records indicate that these types of studies have been performed by some districts, but the results are not captured in this consolidated inventory.

Despite some variations, all the noted procedures are fundamentally similar in their approaches. Buildings are assessed based on construction type, construction year, and site characteristics, and given a basic score largely based on historical seismic performance of buildings with similar characteristics. Observable building characteristics, such as vertical and

horizontal irregularities that are known contributors to seismic performance, are also incorporated. The ultimate score is intended to indicate the expected seismic performance.

The information captured by the screening data subsets includes year constructed, square footage, and building type (such as unreinforced masonry). With the exception of the ATC-14 evaluations, each also includes an RVS score.

The information contained in the consolidated dataset includes the school district, structure name (sometimes with a descriptor by building), school type, address, construction year, square footage, building type, final RVS score, and the source.

Table 3-1 Seismic Safety Screening Data Included in the Consolidated Dataset

Name	LEA	Screener	Methodology	Date
Salt Lake City School District	Salt Lake City School District	Reaveley Engineers	ATC-14	1987-1988
Jordan School District	Jordan & Canyons School Districts	Reaveley Engineers	ATC-21	1990
Weber School District	Weber School District	Reaveley Engineers	ATC-21	1991
Alpine School District	Alpine School District	Reaveley Engineers	FEMA P-154, Second Edition	August 2006
Grand School District	Grand School District	Reaveley Engineers	FEMA P-154, Second Edition	May 2007
Davis School District	Davis School District	Reaveley Engineers	FEMA P-154, Second Edition	August 2006
Students at Risk	Sample of schools from various districts	SEAU/BHW Engineers	FEMA P-154, Second Edition	2010
Weber School District	Weber School District	BHW Engineers	FEMA 154, Second Edition	2014
State Funded Inventory	Beaver, Box Elder, Carbon, Garfield, Granite, Iron, Juab, Morgan, Nebo, North Sanpete, North Summit, Park City, Piute, Sevier, South Sanpete, South Summit, Tintic, Wasatch, Washington County, Wayne	Reaveley Engineers	FEMA P-154, Second Edition, ROVER Database	2015
Duchesne School District	Duchesne School District	BHW Engineers	FEMA 154, Second Edition	2018

3.1.5 Supplemental Data

In addition to these data subsets, the following data fields were added to the consolidated dataset: latitude, longitude, census tract ID, and Social Vulnerability Index (SoVI®). This information could be used in the future to

upload the data onto a geographic information system (GIS) platform or to correlate school districts and campuses with URM buildings with a measure of social vulnerability.

3.1.6 Data Filtering

Once the individual datasets were combined and duplicate entries were removed, the consolidated dataset included more than 2,500 entries. Figure 3-1 shows the filtering process and logic used to reduce these entries to only school campuses with potential URM buildings or additions, and to delineate campuses without known RVS scores. As the flowchart shows, once consolidated, data for non-public institutions (e.g., private schools) and facilities where student occupancy is not anticipated (e.g., district and transportation buildings) were removed. Many entries included various buildings from the same school campus. For simplification, these entries were combined to represent a single school campus. The filtered data were then parsed into school campuses with RVS scores and those without RVS scores.

Of the school campuses with RVS scores, campuses with RVS scores greater than 2 were removed, because this is a common threshold to indicate a building that does not need further engineering review. The remaining school campuses with RVS scores were then parsed into schools with URM buildings or additions and schools without URM buildings or additions.

Of the school campuses without RVS scores, campuses were removed where all buildings were constructed after 1980. The remaining school campuses were then flagged for either remote or in-person evaluations to score and better understand their seismic vulnerability.

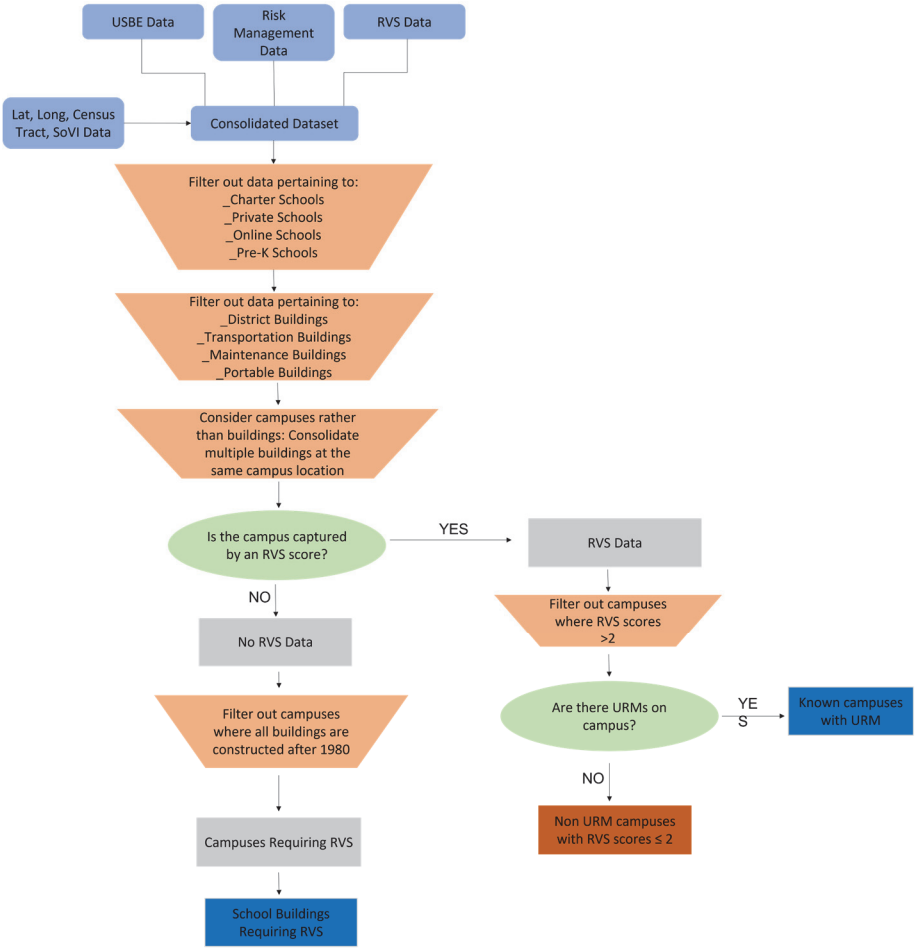

Figure 3-1 Flowchart depicting data filtering process.

3.2 Qualifications about Existing Screening Data

3.2.1 Varying Survey Methods

The existing screening data were generated by a variety of individuals using different methodologies over an extended period of time. The methodologies are well documented, but their application is nonetheless dependent on the assumptions, biases, and experience of the screeners. Although each methodology by itself is sufficient to screen buildings, the aggregation of the data means that there are some inconsistencies, such as the treatment of additions and the relative value of RVS scores. Still, when the employed screening methodology resulted in a score, the number should reliably identify schools requiring additional engineering study. As previously noted, an RVS score of 2 is the generally accepted cutoff for identifying schools that require additional engineering study, and that threshold has been maintained here.

3.2.2 Buildings with Additions and Modifications

Some existing screenings did not distinguish between the original structure and additions or modifications, but others did make these distinctions. Whether they did or not, the RVS scores generally reflect the oldest portion of a school. As a result, a campus with additions or modifications might have received a low score even when that score really only pertains to the original structure.

Some school buildings have been modified or replaced after the date of the existing screening, and some of these modifications might have included seismic retrofit work. Where information about modifications or replacements was readily available, these changes were reflected in the inventory. However, some modifications or replacements that occurred after the date of existing screenings might not have been identified. As a result, the inventory might wrongly reflect that a building hasn't been retrofitted or that it is still in operation.

3.2.3 Quality Control

Most of the RVS score sheets have been prepared by engineering firms and individuals trained on the various methods described above. Due to the large number of existing surveys collected, it was not possible to independently verify all the results; however, some spot checking was performed. It is assumed that the data are sufficiently accurate for the purposes of developing this inventory.

3.3 Expansion and Refinement of Inventory Data

The consolidated dataset was parsed into two URM inventory subsets: (1) campuses *without* known RVS scores and with potential URM buildings or additions, and (2) campuses *with* RVS scores and known URM buildings or additions. This section describes additional screenings conducted to expand the first subset and work conducted to clarify and refine the second subset.

3.3.1 Screenings of Campuses without Known RVS Scores and with Potential URM Buildings or Additions

Additional seismic safety screenings were conducted on campuses without known RVS scores. The methodology of FEMA P-154, Second Edition was implemented because it most closely aligns with existing screening data, providing a better means of comparison. Inventory in regions of high seismicity, districts with no history of prior screening efforts, and campuses providing efficient travel times (i.e., campuses close to others that also

required screenings) were prioritized. Those remaining were then prioritized for remote seismic safety screenings.

In-Person Seismic Safety Screenings

Prior to each in-person seismic safety screening, a preliminary, remote review was conducted to provide more context and information when available. The following were reviewed using remote tools:

- Satellite images available online, including historic aerials of the school campus, providing information about additions, demolitions, and other renovations.
- Site seismicity based on the 2015 NEHRP Provisions (FEMA, 2015b)
- Site classification based on the 2008 Utah Geological Survey map, "Earthquake Site-Conditions Map for the Wasatch Front Urban Corridor, Utah."

In-person screenings were conducted primarily from the exterior of a building, with some exceptions where the interior was made available or additional information was provided by school facility management.

Remote Seismic Safety Screenings

Remote screenings were done with the same preliminary, remote review done in advance of in-person surveys. In lieu of on-site observation, Google Earth, Google Street View, Historic Aerials, and information gleaned from the district websites were used to capture the required screening data.

Consideration and Incorporation of New Screening Data

In both the in-person and remote screenings, a distinction between URM and "under-reinforced" masonry could not always be made by visual observation. Where a definitive observation could not be made, those buildings and additions constructed prior to 1980 were conservatively assumed to be either likely URM or under-reinforced masonry in the dataset (see Section 3.4.2).

In some cases, URM buildings were found to have changed occupancy or ownership, to have been demolished and replaced, or to have been retrofitted. In these cases, except for retrofits, the buildings were recategorized in the dataset to reflect the current condition. See Section 3.4.4 for the treatment of retrofitted URM buildings.

3.3.2 *Refinement of Screenings of Campuses with RVS Scores Denoting URM Buildings or Additions*

The existing seismic safety screenings date back to the late 1980s. Since the initial screening work was done, some school buildings have been demolished and replaced or retrofitted. Readily available information about replacements or retrofits sourced through district websites, press releases, or project team experience was added to the inventory as notes. In addition, all school districts were contacted and asked to comment on an initial list of buildings or additions identified as URM. Notes were added to the inventory to record those instances when a school district responded that an identified URM building or addition had been or was in the process of being demolished, replaced, sold, or retrofit. Those identified URM buildings or additions that were reported by a school district as sold or replaced were left in the inventory with strikethrough text, so that a complete record of the inventory regarding URM buildings or additions would be available. See Section 3.4.4 for the treatment of retrofitted URM buildings.

3.4 Criteria for Inventory Development

3.4.1 *Pre-Code and Benchmark Years*

The State of Utah did not adopt a statewide seismic code until the 1970s. Although some building departments may have imposed higher building standards in advance of this date, for the purposes of the study, pre-code indicates anything constructed before this statewide adoption. For the purposes of this study, the cutoff year for pre-code construction is taken as 1976. Buildings constructed before the pre-code year have lower RVS scores.

A benchmark year for a given "building type" identifies when the code required design features that are expected to lead to significant improvements in seismic performance. Buildings constructed after the benchmark year have higher RVS scores. Table 3-2 lists the building types and their corresponding benchmark years assumed for this study.

Table 3-2 Pre-Code and Benchmark Years for Masonry Building Types

FEMA Building Type		Pre-Code Year	Benchmark Year
RM1	Reinforced masonry buildings with flexible floor and roof diaphragms	1976	1997
RM2	Reinforced masonry buildings with rigid floor and roof diaphragms	1976	1994
URM	Unreinforced masonry bearing wall buildings	None	1

[1] No benchmark year

3.4.2 Unreinforced and Under-Reinforced Masonry Construction

Unreinforced masonry can be interpreted in several ways from an engineering perspective. For the purposes of this study, two main groupings are used: (1) brick or block assemblies with no reinforcing steel, or (2) brick or block assemblies that are lightly reinforced, or under-reinforced, with steel from a design-code perspective.

Although unreinforced masonry construction has historically meant no reinforcement within the walls, there is evidence that under-reinforced buildings also perform poorly in earthquakes.

Due to the history of the State of Utah's building code adoption, as well as the evolution of structural engineering design standards, as steel reinforcement began being added to masonry building systems, it was often at levels that would not be considered sufficient by today's standards. Significant improvements were made to the design standards for masonry construction in 1994 and 1997.

For the purposes of this study, masonry construction that is suspected to have less than 50 percent of the minimum reinforcing steel specified in the 1994 Uniform Building Code is categorized as under-reinforced. Further research to determine the amount of reinforcement should be performed in future studies. The amount of reinforcement can also be found in record construction documents, where available.

3.4.3 Defining Criteria for URM, Likely URM, and Under-Reinforced Masonry Buildings or Additions

Buildings or additions identified as URM meet all of the following criteria:

- Construction type identified as unreinforced masonry in a seismic safety screening
- On a public-school campus
- Not on a private- or charter-school campus
- Not a utility or administrative building

Some campuses have buildings or additions that are likely URM, but an in-person survey was not performed to confirm this assumption. Buildings or additions identified as likely URM meet all of the following criteria:

- No seismic safety screening data available

- Construction type identified as Marshall & Swift classification C: masonry/concrete exterior walls; wood/steel roof/floor structures except concrete slab
- On a public-school campus
- Not on a private- or charter-school campus
- Not a utility or administrative building
- Original construction dated before 1966

Some campuses have buildings or additions constructed of masonry that is under-reinforced from a design-code perspective, but this could not be confirmed from in-person screenings or other available data. Buildings or additions identified as likely under-reinforced meet all of the following criteria:

- No seismic safety screening data available
- Construction type identified as Marshall & Swift classification C: masonry/concrete exterior walls; wood/steel roof/floor structures except concrete slab
- On a public-school campus
- Not on a private- or charter-school campus
- Not a utility or administrative building
- Original construction dated between 1966 and 1980

Or

- Buildings identified as RM1 or RM2 in a seismic safety screening
- On a public-school campus
- Not on a private- or charter-school campus
- Not a utility or administrative building
- Original construction dated before 1980

3.4.4 Treatment of Retrofitted URM Buildings

Some school districts have completed seismic retrofits of buildings or additions that have been identified as URM. Those identified URM campuses that were reported by a school district as having been retrofitted were left in the inventory with a note that a retrofit has been performed and verification is pending. This approach was taken to treat all retrofitted URM buildings equally in the inventory and to avoid making judgments about the

completeness or reliability of the retrofit work. (See Appendix E for more information about the range of engineering standards available for seismic retrofits.) It is acknowledged that the inventory may not include notes about all retrofitted URM buildings in the state.

3.5 Filtering of Expanded Inventory

The expanded inventory, which contains the existing inventory data described in Section 3.1 and new inventory data described in Section 3.3, was filtered to derive four data subsets of particular interest to this study. These subsets include:

School campuses identified to have one or more URM buildings or additions. This subset, which is provided in Appendix A, includes all school campuses with a URM building or addition that was identified from a seismic safety screening. Placement in this appendix does not necessarily mean that all additions to the school campus are constructed of URM.

School campuses identified to have one or more buildings or additions that are likely URM. This subset, which is provided in Appendix B, is based on construction year and Marshall & Swift construction class from the Utah Division of Risk Management dataset. Seismic safety screenings are not known to have been performed for these campuses. Placement in this appendix does not necessarily mean that all additions to the school campus are likely constructed of URM.

School campuses identified to have one or more buildings or additions that are likely under-reinforced masonry. This subset, which is provided in Appendix C, is based on construction year and Marshall & Swift construction class from the Utah Division of Risk Management dataset. Seismic safety screenings are not known to have been performed for these campuses. Placement in this appendix does not necessarily mean that all additions to the school campus are likely under-reinforced.

School campuses with one or more buildings or additions that received an RVS score of 2 or less. This subset, which is provided in Appendix D, is based on seismic safety screening data. Placement in this appendix does not necessarily mean that all additions to the school campus received an RVS score of 2 or less.

Chapter 4

Key Findings and Recommendations

4.1 Key Findings

4.1.1 Estimated Number of URM Campuses, Enrollment at URM Campuses, and Associated Property Value

This section provides a summary of the key findings from the inventory data collected on K-12 public schools in Utah. The findings are presented in Table 4-1, which is organized by county and school district. For each school district, Table 4-1 includes a count of total campuses, the number of campuses with URM building or additions, the number of buildings or additions with identified URM, the number of campuses with building or additions that are likely URM, the total enrollment at each school district, the estimated enrollment at identified URM campuses, and the estimated building value of identified URM campuses (i.e., the total value of buildings at those campuses and not just of the identified URM buildings or additions).

Twenty of Utah's twenty-nine counties have at least one school campus with a URM building or addition. In those twenty counties, there are 119 school campuses with URM construction where 72,126 children (or 12 percent of total K-12 public school enrollment) spend some or all their school hours. These estimates include only buildings identified as URM in a seismic safety screening. Neither likely URM buildings (Appendix B) nor likely under-reinforced masonry buildings (Appendix C) were included in these calculations. The value of the buildings on school campuses with identified URM totals nearly 2 billion dollars. The names of campuses with one or more identified URM buildings or additions are provided in Appendix A. Table 4-1 includes some campuses that have retrofitted their URM buildings, as shown in Appendix A.

Although not summarized in Table 4-1, the inventory also identifies 130 school campuses with buildings or additions that are likely under-reinforced (Appendix C) and 326 school campuses with buildings or additions that received an RVS score of 2 or less from a seismic safety screening (Appendix D). An RVS score of less than 2 indicates that further engineering study should be conducted.

Table 4-1 Summary of URM Campuses by County and District

County	School District	Campuses	Campuses with Identified URM (Appendix A)	Buildings or Additions with Identified URM	Campuses with likely URM (Appendix B)	Total Enrollment 2021	Estimated 2021 Enrollment at Identified URM Campuses	Estimated Building Value of Identified URM Campuses
Beaver								
	Beaver	5	0	0	0	1,519	0	$ -
Beaver County Subtotals		5	0	0	0	1,519	0	$ -
Box Elder								
	Box Elder	25	7	8	2	11,832	3,869	$107,021,827
Box Elder County Subtotals		25	7	8	2	11,832	3,869	$107,021,827
Cache								
	Cache	26	3	3	0	18,833	2,648	$71,192,264
	Logan	9	3	3	0	5,484	1,914	$64,746,000
Cache County Subtotals		35	6	6	0	24,317	4,562	$135,938,264
Carbon								
	Carbon	10	0	0	0	3,289	0	$ -
Carbon County Subtotals		10	0	0	0	3,289	0	$ -
Daggett								
	Daggett	3	2	2	1	187	85	$4,259,042
Daggett County Subtotals		3	2	2	1	187	85	$4,259,042
Davis								
	Davis	90	17	34	1	70,643	9,932	$155,179,690
Davis County Subtotals		90	17	34	1	70,643	9,932	$155,179,690
Duchesne								
	Duchesne	14	1	1	1	4,987	302	$10,288,889
Duchesne County Subtotals		14	1	1	1	4,987	302	$10,288,889
Emery								
	Emery	10	4	2	0	2,172	1,203	$58,986,690
Emery County Subtotals		10	4	2	0	2,172	1,203	$58,986,690
Garfield								
	Garfield	10	2	2	0	923	301	$23,000,000
Garfield County Subtotals		10	2	2	0	923	301	$23,000,000
Grand								
	Grand	3	0	0	0	1,379	0	$ -
Grand County Subtotals		3	0	0	0	1,379	0	$ -

Table 4-1 Summary of URM Campuses by County and District (continued)

County	School District	Campuses	Campuses with Identified URM (Appendix A)	Buildings or Additions with Identified URM	Campuses with likely URM (Appendix B)	Total Enrollment 2021	Estimated 2021 Enrollment at Identified URM Campuses	Estimated Building Value of Identified URM Campuses
Iron								
	Iron	16	1	1	0	10,748	1,267	$25,993,045
Iron County Subtotals		16	1	1	0	10,748	1,267	$25,993,045
Juab								
	Juab	5	0	0	2	2,590	0	$ -
	Tintic	3	0	0	0	213	0	$ -
Juab County Subtotals		8	0	0	2	2,803	0	$ -
Kane								
	Kane	9	2	2	1	1,287	598	$17,927,858
Kane County Subtotals		9	2	2	1	1,287	598	$17,927,858
Millard								
	Millard	10	0	0	0	2,973	0	$ -
Millard County Subtotals		10	0	0	0	2,973	0	$ -
Morgan								
	Morgan	5	1	2	0	3,201	456	$11,830,000
Morgan County Subtotals		5	1	2	0	3,201	456	$11,830,000
Piute								
	Piute	3	0	0	0	291	0	$ -
Piute County Subtotals		3	0	0	0	291	0	$ -
Rich								
	Rich	4	2	2	0	498	228	$20,622,432
Rich County Subtotals		4	2	2	0	498	228	$20,622,432
Salt Lake								
	Canyons	49	3	3	0	33,488	1,169	$37,693,169
	Granite	92	20	28	0	61,851	14,418	$284,923,043
	Jordan	64	0	0	0	56,102	0	$ -
	Murray	11	7	7	0	6,097	3,156	$64,894,141
	Salt Lake	41	1	1	0	20,536	2,809	$83,266,300
Salt Lake County Subtotals		257	31	39	0	178,074	21,552	$470,776,653

Table 4-1 Summary of URM Campuses by County and District (continued)

County	School District	Campuses	Campuses with Identified URM (Appendix A)	Buildings or Additions with Identified URM	Campuses with likely URM (Appendix B)	Total Enrollment 2021	Estimated 2021 Enrollment at Identified URM Campuses	Estimated Building Value of Identified URM Campuses
San Juan								
	San Juan	12	5	5	0	2,929	1,541	$73,110,888
San Juan County Subtotals		12	5	5	0	2,929	1,541	$73,110,888
Sanpete								
	North Sanpete	8	0	0	0	2,445	0	$ -
	South Sanpete	7	0	0	0	3,127	0	$ -
Sanpete County Subtotals		15	0	0	0	5,572	0	$ -
Sevier								
	Sevier	13	3	3	0	4,461	1,089	$16,823,105
Sevier County Subtotals		13	3	3	0	4,461	1,089	$16,823,105
Summit								
	North Summit	3	0	0	0	1,011	0	$ -
	Park City	7	0	0	0	4,696	0	$ -
	South Summit	7	1	1	0	1,635	487	$37,872,225
Summit County Subtotals		17	1	1	0	7,342	487	$37,872,225
Tooele								
	Tooele	25	3	3	2	22,004	1,126	$36,639,200
Tooele County Subtotals		25	3	3	2	22,004	1,126	$36,639,200
Uintah								
	Uintah	11	2	2	0	6,668	1,345	$50,993,384
Uintah County Subtotals		11	2	2	0	6,668	1,345	$50,993,384
Utah								
	Alpine	88	8	16	0	80,953	7,678	$282,309,775
	Nebo	46	7	7	1	35,335	7,301	$155,876,877
	Provo	21	1	1	1	13,317	623	$7,004,374
Utah County Subtotals		155	16	24	2	129,605	15,602	$445,191,026

Table 4-1 Summary of URM Campuses by County and District (continued)

County	School District	Campuses	Campuses with Identified URM (Appendix A)	Buildings or Additions with Identified URM	Campuses with likely URM (Appendix B)	Total Enrollment 2021	Estimated 2021 Enrollment at Identified URM Campuses	Estimated Building Value of Identified URM Campuses
Wasatch								
	Wasatch	8	0	0	1	9,061	0	$ -
Wasatch County Subtotals		8	0	0	1	9,061	0	$ -
Washington								
	Washington	52	0	0	1	35,346	0	$ -
Washington County Subtotals		52	0	0	1	35,346	0	$ -
Wayne								
	Wayne	4	1	1	0	429	196	$2,258,516
Wayne County Subtotals		4	1	1	0	429	196	$2,258,516
Weber								
	Ogden	22	5	5	0	10,617	2,104	$119,173,450
	Weber	45	7	16	0	32,197	4,281	$105,242,667
Weber County Subtotals		67	12	21	0	42,814	6,385	$224,416,117
TOTALS		896	119	161	14	587,354	72,126	$1,929,128,851

4.1.2 URM Buildings and Community Impact

Schools often have longer life spans than other buildings. As a result, they are modified with additions to accommodate changing circumstances. In many communities, they are viewed as a primary resource for sporting events, cultural events, election polling sites, and emergency shelters. This means that the loss of a single building can have a serious impact on the community. At the same time, smaller school districts or school districts with lower income levels are not able to access funding mechanisms, such as bonding, to make seismic improvements to their schools. The inventory includes data, which are not reported here, on the social vulnerability of communities in Utah. These data could be used in conjunction with the data summarized in Table 4-1 to identify school districts that should be prioritized for technical and financial support.

4.2 Recommendations

4.2.1 Validate and Finalize the URM Inventory

The inventory of K-12 public school URM buildings prepared by this study is a starting point for discussion with key stakeholders. All school districts within the scope of study were contacted and asked to comment on an initial list of buildings or additions identified as URM, and their feedback was incorporated. Still, due to acknowledged limitations in the study, some buildings in the inventory may have been misidentified as URM. Others listed as URM may have been demolished and rebuilt, sold, or retrofitted since they were originally screened. Further outreach to school districts should be conducted to validate and finalize the URM inventory. It is recommended that a body be established to take ownership of, oversee, and administer this process.

4.2.2 Provide Funding for Feasibility Studies and Mitigation

It is recommended that funding be provided for completing feasibility studies to determine whether seismic retrofits or building replacements are more beneficial or cost effective for individual school districts. These kinds of studies require the engagement of architectural and engineering firms and provide necessary information for school districts to seek construction funding, such as through bonding or federal mitigation grants. However, even with the results of feasibility studies, some school districts may not be able to raise the capital necessary to repurpose, retrofit, or demolish URM buildings due to technical or financial constraints. It is recommended that funding be provided to support those districts that otherwise would not be able to implement solutions.

4.2.3 Develop a Statewide Inventory of all Vulnerable Schools

It is recommended that the inventory be expanded beyond URM to include all Utah schools with construction that is known to be highly vulnerable during earthquakes. As a first step, seismic safety screenings should be conducted for all campuses meeting certain criteria that have not yet been screened. These data would allow campuses to be prioritized for further study and would provide a more complete list of vulnerable school buildings.

Additionally, the inventory should be expanded to include charter and private schools. Currently, they are not included in the inventory, even if they contain buildings or additions constructed of URM.

4.2.4 Include Under-Reinforced Masonry School Buildings in Mitigation Initiatives

Although the primary focus of this study was to create an inventory of URM school buildings, buildings constructed of under-reinforced masonry can also be highly vulnerable to damage and collapse during earthquakes. Including these buildings in the scope of any statewide mitigation initiative would help to make students significantly safter during future earthquakes.

4.2.5 Establish Recommended Retrofit Standards for URM School Buildings

Currently, there are different nationally recognized engineering standards that can be used in designing seismic retrofits for buildings (see Appendix E). Because school buildings are primarily occupied by children and the buildings are uniquely valuable to their communities, some of the current retrofit standards are insufficient for schools. It is recommended that a body of structural engineers and other stakeholders be convened to recommend retrofit standards for URM school buildings in Utah.

4.2.6 Establish a Target Date for all URM Schools to be Repurposed, Retrofitted, or Demolished

It is recommended that a target date be established by which time all URM school buildings in Utah should be repurposed, retrofitted, or demolished. Establishing a target date would help to rally stakeholders and provide a goal to strive towards.

Appendix A

School Campuses with URM Buildings or Additions

Table A-1 includes a list of school campuses with one or more URM buildings or additions identified from seismic safety screenings. Placement in this appendix does not necessarily mean that all additions to the school campus are constructed of URM. In the table, construction year generally refers to the date of construction of the oldest standing portion of the campus and is based on records of the State of Utah Division of Risk Management. There are some exceptions, such as when a full seismic upgrade has been preliminarily verified to replace the URM seismic-force-resisting system, in which case the date has been changed to the year of the seismic upgrade.

See Appendix B for additional campuses that are reported as having URM buildings or additions by a school district but were not confirmed in a seismic safety screening. School campuses that have been identified as having URM buildings or additions that have been replaced or sold remain in Table A-1 with strikethrough text. Repurposed URM buildings that are still owned by a school district are noted and remain in Table A-1 but are not included in Table 4-1.

Table A-1 K-12 Public School Campuses with URM Buildings or Additions

County	School District	School Name	Address	Construction Year	Comments
Beaver					
	-	-	-	-	
Box Elder					
	Box Elder School District	Box Elder High	380 S 600 W, BRIGHAM CITY, UT 84302	1982	Partial replacement, verification pending
	Box Elder School District	Century School	5820 N 4800 W, BEAR RIVER CITY, UT 84301	1964	
	~~Box Elder School District~~	~~Dale Young Community High~~	~~230 W 200 S, BRIGHAM CITY, UT 84302~~	~~1884~~	Replaced, renamed Sunrise High ICF Fox
	Box Elder School District	Foothill School	820 N 100 E, BRIGHAM CITY, UT 84302	1962	
	Box Elder School District	Grouse Creek School	1 W BUCKAROO BLVD, GROUSE CREEK, UT 84313	1912	

Table A-1 K-12 Public School Campuses with URM Buildings or Additions (continued)

County	School District	School Name	Address	Construction Year	Comments
Box Elder (continued)					
	Box Elder School District	Lake View School	851 S 200 W, BRIGHAM CITY, UT 84302	1962	
	Box Elder School District	Mountain View School	650 E 700 S, BRIGHAM CITY, UT 84302	1960	
	Box Elder School District	North Park School	50 E 700 N, TREMONTON, UT 84337	1962	
Cache					
	Cache School District	Lincoln School	90 S CENTER, HYRUM, UT 84319	1964	From district provided Tier 1 report
	~~Cache School District~~	~~Millville School~~	~~67 S MAIN, MILLVILLE, UT 84326~~	~~1978~~	URM portion demolished in 2016
	~~Cache School District~~	~~North Park School~~	~~2800 N 800 E, NORTH LOGAN, UT 84341~~	~~1965~~	District report indicates reinforcement in masonry.
	Cache School District	Providence School	91 E CENTER, PROVIDENCE, UT 84332	1957	1938 portion has been demolished, Tier 1 report provided
	Cache School District	Sky View High	520 S 250 E, SMITHFIELD, UT 84335	1963	
	Logan City School District	Adams School	415 E 500 N, LOGAN, UT 84321	1936	
	Logan City School District	Mount Logan Middle	875 N 200 E, LOGAN, UT 84321	1963	
	Logan City School District	Wilson School	89 S 500 E, LOGAN, UT 84321	1926	
Carbon					
	-	-	-	-	
Daggett					
	Daggett School District	Flaming Gorge School	135 5TH AVE, DUTCH JOHN, UT 84023	1958	
	Daggett School District	Manila School	200 W 2ND, MANILA, UT 84046	1959	
Davis					
	Davis School District	Adelaide School	731 W 3600 S, BOUNTIFUL, UT 84010	1952	Retrofit performed, verification pending.
	Davis School District	Bountiful Jr High	30 W 400 N, BOUNTIFUL, UT 84010	1915	Partial replacement, verification pending.
	Davis School District	Centerville School	350 N 100 E, CENTERVILLE, UT 84014	1952	Partial replacement, verification pending.
	Davis School District	Central Davis Jr High	663 CHURCH ST, LAYTON, UT 84041	1953	Retrofit performed, verification pending.
	Davis School District	Clearfield High	931 S 1000 E, CLEARFIELD, UT 84015	1958	Retrofit performed, verification pending.

Table A-1 K-12 Public School Campuses with URM Buildings or Additions (continued)

County	School District	School Name	Address	Construction Year	Comments
Davis (continued)					
	Davis School District	Clinton School	1101 W 1800 N, CLINTON, UT 84015	1952	Partial replacement, verification pending.
	Davis School District	Crestview School	185 W GOLDEN AVE, LAYTON, UT 84041	1955	Retrofit performed, verification pending.
	Davis School District	Doxey School	944 N 250 W, SUNSET, UT 84015	1958	Retrofit performed, verification pending.
	Davis School District	Holbrook School	1018 E 250 N, BOUNTIFUL, UT 84010	1959	Retrofit performed, verification pending.
	Davis School District	Millcreek Jr High	245 E 1000 S, BOUNTIFUL, UT 84010	1967	Retrofit performed, verification pending.
	Davis School District	Sunset School	2014 N 250 W, SUNSET, UT 84015	1954	Retrofit performed, verification pending.
	Davis School District	Syracuse School	1503 S 2000 W, SYRACUSE, UT 84075	1984	Partial replacement, verification pending.
	Davis School District	Taylor School	293 E PAGES LN, CENTERVILLE, UT 84014	1961	Retrofit performed, verification pending.
	Davis School District	Tolman School	300 E 1200 N, BOUNTIFUL, UT 84010	1954	Retrofit performed, verification pending.
	Davis School District	Vae View School	1750 W 1600 N, LAYTON, UT 84041	1962	Retrofit performed, verification pending.
	Davis School District	West Point School	3788 W 300 N, WEST POINT, UT 84015	1915	Partial replacement, verification pending.
	Davis School District	Whitesides School	233 N COLONIAL AVE, LAYTON, UT 84041	1953	Retrofit performed, verification pending.
Duchesne					
	Duchesne School District	East School	700 E 400 N, ROOSEVELT, UT 84066	1974	Retrofit performed, verification pending.
Emery					
	Emery School District	Cottonwood School	55 E 200 S, ORANGEVILLE, UT 84537	1962	
	Emery School District	Emery High School	975 N CENTER, CASTLE DALE, 84513	1962	
	Emery School District	Ferron Elementary	115 W MILL RD, FERRON, UT 84523	1962	Replacement pending
	Emery School District	Huntington School	90 E 100 N, HUNTINGTON, UT 84528	1962	
Garfield					
	~~Garfield School District~~	~~Bryce Valley School~~	~~500 W CENTER, TROPIC, UT 84776~~	~~1955~~	Replaced
	Garfield School District	Escalante School	50 N 300 E, ESCALANTE, UT 84726	1956	Retrofit pending

Table A-1 K-12 Public School Campuses with URM Buildings or Additions (continued)

County	School District	School Name	Address	Construction Year	Comments
Garfield (continued)					
	Garfield School District	Panguitch School	110 S 100 W, PANGUITCH, UT 84759	1957	Partial replacement, verification pending
Grand					
	~~Grand School District~~	~~Grand County Middle~~	~~439 S 100 E, MOAB, UT 84532~~	~~1962~~	Replaced
Iron					
	Iron School District	Cedar City High	703 W 600 S, CEDAR CITY, UT 84720	1964	
Juab					
	-	-	-	-	
Kane					
	Kane School District	Kanab School	41 W 100 N, KANAB, UT 84741	1954	
	Kane School District	Valley High	150 N CENTER, ORDERVILLE, UT 84758	1955	
Millard					
	~~Millard School District~~	~~Millard High~~	~~200 W EAGLE AVE, FILLMORE, UT 84631~~	~~1976~~	Replaced
Morgan					
	Morgan School District	Morgan Middle	115 E YOUNG ST, MORGAN, UT 84050	1923	
Piute					
	-	-	-	-	
Rich					
	~~Rich School District~~	~~North Rich School~~	~~54 E 100 S, LAKETOWN, UT 84038~~	~~1955~~	Replaced
	Rich School District	Rich Middle School	54 E 100 S, LAKETOWN, UT 84038	1955	
	Rich School District	South Rich School	25 S 100 W, RANDOLPH, UT 84064	1954	
Salt Lake					
	Canyons School District	Bella Vista School	2131 E 7000 S, COTTONWOOD HEIGHTS, UT 84121	1965	Retrofit performed, verification pending.
	Canyons School District	Copperview School	8449 S 150 W, MIDVALE, UT 84047	1961	Retrofit performed, verification pending.
	~~Canyons School District~~	~~Edgemont School~~	~~1085 E 9800 S, SANDY, UT 84094~~	~~1959~~	Replaced
	~~Canyons School District~~	~~Midvalley School~~	~~217 E 7800 S, MIDVALE, UT 84047~~	~~1957~~	Replaced

Table A-1 K-12 Public School Campuses with URM Buildings or Additions (continued)

County	School District	School Name	Address	Construction Year	Comments
Salt Lake (continued)					
	~~Canyons School District~~	~~Peruvian Park School~~	~~1545 E 8425 S, SANDY, UT 84093~~	~~1964~~	Replaced
	Canyons School District	Sandy School	8725 S 280 E, SANDY, UT 84070	1950	Retrofit performed, verification pending.
	Granite School District	Academy Park School	4580 WESTPOINT DR, WEST VALLEY CITY, UT 84120	1962	
	Granite School District	Bonneville Jr High	5330 S 1660 E, SALT LAKE CITY, UT 84117	1964	
	Granite School District	Brockbank Jr High	2935 S 8560 W, MAGNA, UT 84044	1948	
	Granite School District	Cottonwood School	5205 HOLLADAY BLVD, SALT LAKE CITY, UT 84117	1958	
	Granite School District	Crestview School	2100 E LINCOLN LN, SALT LAKE CITY, UT 84124	1961	
	Granite School District	David Gourley School	4905 S 4300 W, KEARNS, UT 84118	1959	
	Granite School District	Eastwood School	3305 WASATCH BLVD, SALT LAKE CITY, UT 84109	1959	
	Granite School District	Evergreen Jr High	3401 S 2000 E, SALT LAKE CITY, UT 84109	1956	
	Granite School District	Granite Park Jr High	3031 S 200 E, SALT LAKE CITY, UT 84115	1948	
	Granite School District	Howard R. Driggs School	4340 S 2700 E, SALT LAKE CITY, UT 84124	1964	
	Granite School District	Jackling School	3760 S 4610 W, WEST VALLEY CITY, UT 84120	1966	
	Granite School District	Kearns Jr High	4040 W SAMS BLVD, KEARNS, UT 84118	1953	
	Granite School District	Lake Ridge School	7400 W 3400 S, MAGNA, UT 84044	1964	
	Granite School District	Mill Creek School	3761 S 1100 E, SALT LAKE CITY, UT 84106	1956	
	Granite School District	Redwood School	2650 S REDWOOD RD, WEST VALLEY CITY, UT 84119	1953	
	Granite School District	Skyline High	3251 E 3760 S, SALT LAKE CITY, UT 84109	1962	Replacement pending 2026
	Granite School District	Taylorsville School	2010 W 4230 S, SALT LAKE CITY, UT 84119	1963	
	Granite School District	Valley Jr High	4195 S 3200 W, WEST VALLEY CITY, UT 84119	1949	

Table A-1 K-12 Public School Campuses with URM Buildings or Additions (continued)

County	School District	School Name	Address	Construction Year	Comments
Salt Lake (continued)					
	Granite School District	West Lake Jr High	3400 S 3450 W, WEST VALLEY CITY, UT 84119	1964	Replacement pending Fall 2024
	Granite School District	Western Hills School	5190 S HEATH AVE, KEARNS, UT 84118	1962	
	Murray School District	Grant School	662 W 6140 S, MURRAY, UT 84123	1959	
	Murray School District	Liberty School	140 W 6100 S, MURRAY, UT 84107	1957	Retrofit performed, verification pending.
	Murray School District	Longview School	6240 S 560 E, MURRAY, UT 84107	1960	Retrofit performed, verification pending.
	Murray School District	Mcmillan School	315 E 5900 S, MURRAY, UT 84107	1953	Retrofit performed, verification pending.
	Murray School District	Parkside School	495 E 5175 S, MURRAY, UT 84107	1969	Retrofit performed, verification pending.
	Murray School District	Riverview Jr High	751 W TRIPP LN, MURRAY, UT 84123	1974	Retrofit performed, verification pending.
	Murray School District	Viewmont School	745 W 5720 S, MURRAY, UT 84123	1965	Retrofit performed, verification pending.
	Salt Lake School District	West High	241 N 300 W, SALT LAKE CITY, UT 84103	1997	Retrofit performed, verification pending.
San Juan					
	San Juan School District	Albert R. Lyman Middle	535 N 100 E, BLANDING, UT 84511	1960	
	San Juan School District	Blanding School	302 S 100 W, BLANDING, UT 84511	1955	
	San Juan School District	La Sal School	STATE HIGHWAY #46, LA SAL, UT 84530	1940	
	San Juan School District	Monticello High	164 S 200 W, MONTICELLO, UT 84535	1950	
	San Juan School District	San Juan High	311 N 100 E, BLANDING, UT 84511	1961	
Sanpete					
	-	-	-	-	
Sevier					
	Sevier School District	Koosharem School	75 E CENTER, KOOSHAREM, UT 84744	1901	
	Sevier School District	Monroe School	40 W CENTER ST, MONROE, UT 84754	1951	Retrofit performed, verification pending.
	~~Sevier School District~~	~~North Sevier Middle~~	~~135 N 100 W, SALINA, UT 84654~~	~~1999~~	URM portion replaced 1999, retrofit of gym performed, verification pending

Table A-1 K-12 Public School Campuses with URM Buildings or Additions (continued)

County	School District	School Name	Address	Construction Year	Comments
Sevier (continued)					
	Sevier School District	Pahvant School	520 N 300 W, RICHFIELD, UT 84701	1958	Retrofit planned
Summit					
	South Summit School District	South Summit High	45 S 300 E, KAMAS, UT 84036	1990	Substantial replacement 1990, original gym remains
Tooele					
	Tooele School District	Tooele Jr High	411 W VINE ST, TOOELE, UT 84074	1964	
	Tooele School District	Wendover High	110 WILDCAT BLVD, WENDOVER, UT 84083	1944	
	Tooele School District	West School	451 W 300 S, TOOELE, UT 84074	1959	
Uintah					
	Uintah School District	Uintah Middle School	161 N 1000 W, VERNAL, UT 84078	1955	
	Uintah School District	Vernal Middle	721 W 100 S, VERNAL, UT 84078	1964	
Utah					
	Alpine School District	Alpine School	400 E 300 N, ALPINE, UT 84004	1965	
	Alpine School District	American Fork High	510 N 600 E, AMERICAN FORK, UT 84003	1959	
	~~Alpine School District~~	~~Cedar Valley School~~	~~40 E CENTER, CEDAR FORT, UT 84013~~	~~1907~~	Sold
	~~Alpine School District~~	~~Central School~~	~~95 N 400 E, PLEASANT GROVE, UT 84062~~	~~1950~~	Replaced
	Alpine School District	Geneva School	400 N 665 W, OREM, UT 84057	1948	Demolition in progress
	~~Alpine School District~~	~~Lehi High~~	~~180 N 500 E, LEHI, UT 84043~~	~~1959~~	Replaced 2021
	Alpine School District	Lehi School	765 N CENTER, LEHI, UT 84043	1951	
	Alpine School District	Lindon School	30 N MAIN, LINDON, UT 84042	1967	
	Alpine School District	Pleasant Grove High	700 E 200 S, PLEASANT GROVE, UT 84062	1959	
	Alpine School District	Sharon School	525 N 400 E, OREM, UT 84097	1954	
	Alpine School District	Windsor School	1315 N MAIN, OREM, UT 84057	1956	

Table A-1 K-12 Public School Campuses with URM Buildings or Additions (continued)

County	School District	School Name	Address	Construction Year	Comments
Utah (continued)					
	Nebo School District	Springville Jr High	165 S 700 E, SPRINGVILLE, UT 84663	1958	Renamed Summit Center. Retrofit performed, verification pending.
	Nebo School District	Brockbank School	340 W 500 N, SPANISH FORK, UT 84660	1959	Retrofit performed, verification pending.
	Nebo School District	Payson High	1050 S MAIN, PAYSON, UT 84651	1968	Replacement pending
	Nebo School District	Sage Creek School	1050 S 700 E, SPRINGVILLE, UT 84663	1959	Retrofit performed, verification pending.
	Nebo School District	Spanish Fork High	99 N 300 W, SPANISH FORK, UT 84660	1964	Replacement pending
	Nebo School District	Springville High	1205 E 900 S, SPRINGVILLE, UT 84663	1968	Replacement pending
	Nebo School District	Wilson School	590 W 500 S, PAYSON, UT 84651	1959	Retrofit performed, verification pending.
	Provo School District	Wasatch School	1080 N 900 E, PROVO, UT 84604	1949	Replacement pending 2024
Wasatch					
	-	-	-	-	
Washington					
	-	-	-	-	
Wayne					
	Wayne School District	Loa School	50 S 100 E, LOA, UT 84747	1953	
Weber					
	Ogden City School District	Bonneville School	490 GRAMERCY AVE, OGDEN, UT 84404	1964	
	Ogden City School District	George Washington High	455 28TH STREET, OGDEN, UT 84401	1958	
	Ogden City School District	James Madison School	2563 MONROE BLVD, OGDEN, UT 84401	1969	
	Ogden City School District	Ogden High	2828 HARRISON BLVD, OGDEN, UT 84403	1937	Retrofit performed, verification pending.
	Ogden City School District	Polk School	2615 POLK AVE, OGDEN, UT 84401	1926	Retrofit in progress, verification pending.
	Weber School District	Bonneville High	251 E 4800 S, OGDEN, UT 84405	1959	
	Weber School District	Lakeview School	2025 W 5000 S, ROY, UT 84067	1952	
	Weber School District	Lomond View School	3644 N 900 W, OGDEN, UT 84414	1959	

Table A-1 K-12 Public School Campuses with URM Buildings or Additions (continued)

County	School District	School Name	Address	Construction Year	Comments
Weber (continued)					
	Weber School District	Municipal School	5775 S 2200 W, ROY, UT 84067	1957	
	Weber School District	Roosevelt School	190 W 5100 S, OGDEN, UT 84405	1957	Replacement pending
	~~Weber School District~~	~~Roy Jr High~~	~~5400 S 2100 W, ROY, UT 84067~~	~~1942~~	Replaced 2019
	Weber School District	Roy School	2888 W 5600 S, ROY, UT 84067	1963	
	Weber School District	T.H. Bell Jr High	165 W 5100 S, OGDEN, UT 84405	1962	

Appendix B

School Campuses with Buildings or Additions that are Likely URM

Table B-1 includes a list of school campuses identified to have one or more buildings or additions that are likely URM based on the construction year and Marshall & Swift construction class from the Utah Division of Risk Management records. Additionally, where school districts have reported buildings or additions to be URM, they are included here with annotation in the comments. Seismic safety screenings are not known to have been performed for these campuses. Placement in this appendix does not necessarily mean that all additions to the school campus are likely constructed of URM. In the table, construction year generally refers to the date of construction of the oldest standing portion of the campus and is based on records of the State of Utah Division of Risk Management.

Table B-1 K-12 Public School Campuses with Buildings or Additions that are Likely URM

County	School District	School Name	Address	Class Abbreviation	Construction Year	Comments
Beaver						
	-	-	-	-	-	
Box Elder						
	Box Elder School District	Bear River Middle	300 E 1500 S, GARLAND, UT 84312	C	1965	District Review comments indicate this school is URM.
	Box Elder School District	Box Elder Middle	18 S 500 E, BRIGHAM CITY, UT 84302	C	1965	District Review comments indicate this school is URM.
Cache						
	-	-	-	-	-	
Carbon						
	-	-	-	-	-	
Daggett						
	Daggett School District	Old Manila High School	196 W 200 N, MANILA, UT 84046	C	1959	Now district office, used for auxillary student gymnasium, etc.

Table B-1 K-12 Public School Campuses with Buildings or Additions that are Likely URM (continued)

County	School District	School Name	Address	Class Abbreviation	Construction Year	Comments
Davis						
	Davis School District	H C Burton School	827 E 200 S, KAYSVILLE, UT 84037	C	1959	
Duchesne						
	Duchesne School District	Duchesne High School	175 W MAIN, DUCHESNE, 84021	C	1965	Replacement 2004, Original gym remains
Emery						
	-	-	-	-	-	
Garfield						
	-	-	-	-	-	
Grand						
	-	-	-	-	-	
Iron						
	-	-	-	-	-	
Juab						
	Juab School District	Juab High School Vocational Building	555 E 750 N, NEPHI, UT 84648	C	1977	
	Juab School District	Mona School	260 E 200 S, MONA, UT 84645	C	1982	
Kane						
	Kane School District	Valley School	110 E STATE, ORDERVILLE, UT 84758	C	1968	District Review comments indicate this school is URM.
Millard						
	-	-	-	-	-	
Morgan						
	-	-	-	-	-	
Piute						
	-	-	-	-	-	
Rich						
	-	-	-	-	-	
Salt Lake						
	~~Granite School District~~	~~Oakwood School~~	~~5815 S HIGHLAND DR, SALT LAKE CITY, UT 84121~~	~~C~~	~~1909~~	Replaced 2011

Table B-1 K-12 Public School Campuses with Buildings or Additions that are Likely URM (continued)

County	School District	School Name	Address	Class Abbreviation	Construction Year	Comments
San Juan						
	-	-	-	-	-	
Sanpete						
	-	-	-	-	-	
Sevier						
	-	-	-	-	-	
Summit						
	-	-	-	-	-	
Tooele						
	Tooele School District	Grantsville High	155 W CHERRY ST, GRANTSVILLE, UT, 84029	B	1966	Original gym
	Tooele School District	Tooele High	301 W VINE, TOOELE, UT 84074	C	1949	Industrial arts building (IA)
Uintah						
	-	-	-	-	-	
Utah						
	~~Alpine School District~~	~~Lehi Jr High~~	~~700 E CEDAR HOLLOW RD, LEHI, UT 84043~~	~~C~~	~~1921~~	Replaced in 1987
	Nebo School District	Park View School	360 S 100 E, PAYSON, UT 84651	C	1954	Substantial replacement 2003, verification pending
	Provo School District	Dixon Middle School	750 W 200 N, PROVO, UT 84601	B	1931	
Wasatch						
	Wasatch School District	Wasatch Alternate HS (North Campus)	180 E 600 S, HEBER, UT 84032	D	1965	Retrofit performed 2014, verification pending
Washington						
	Washington School District	Enterprise Elementary	216 S 100 E, ENTERPRISE, UT 84725	C	1969	
Wayne						
	-	-	-	-	-	
Weber						
	-	-	-	-	-	

Appendix C

School Campuses with Buildings or Additions that are Likely Under-Reinforced Masonry

Table C-1 includes a list of school campuses with buildings or additions that are likely under-reinforced masonry based on the construction year and Marshall & Swift construction class from the State of Utah Division of Risk Management records. Seismic safety screenings are not known to have been performed for these campuses. Placement in this appendix does not necessarily mean that all additions to the school campus are likely under-reinforced masonry. In the table, construction year generally refers to the date of construction of the oldest standing portion of the campus and is based on records of the State of Utah Division of Risk Management.

Table C-1 K-12 Public School Campuses with Buildings or Additions that are Likely Under-Reinforced Masonry

County	School District	School Name	Address	Class Abbreviation	Construction Year	Comments
Beaver						
	-	-	-	-	-	
Box Elder						
	Box Elder School District	McKinley School	120 W 500 S, TREMONTON, UT 84337	C	1973	
Cache						
	Cache School District	Millville School	67 S MAIN, MILLVILLE, UT 84326	C	1978	URM portion demolished in 2016
	Cache School District	North Cache Middle School	157 W 600 S, RICHMOND, UT 84333	C	1968	
	Cache School District	North Park School	2800 N 800 E, NORTH LOGAN, UT 84341	C	1965	
	Cache School District	Summit School	80 W CENTER, SMITHFIELD, UT 84335	C	1976	
Carbon						
	Carbon School District	Helper Middle	151 UINTAH ST, HELPER, UT 84526	C	1937	Partial replacement, verification pending

Table C-1 K-12 Public School Campuses with Buildings or Additions that are Likely Under-Reinforced Masonry (continued)

County	School District	School Name	Address	Class Abbreviation	Construction Year	Comments
Carbon (continued)						
	Carbon School District	Mont Harmon Middle	60 W 400 N, PRICE, UT 84501	C	1967	
	Carbon School District	Sally Mauro School	20 2ND AVE, HELPER, UT 84526	C	1966	
Daggett						
	-	-	-	-	-	
Davis						
	Davis School District	Boulton School	2611 S ORCHARD DR, BOUNTIFUL, UT 84010	C	1959	
	Davis School District	Bountiful High	695 S ORCHARD DR, BOUNTIFUL, UT 84010	C	1951	
	Davis School District	Cook School	1175 W 1350 S, SYRACUSE, UT 84075	C	1978	
	Davis School District	East Layton School	2470 E CHERRY LN, EAST LAYTON, UT 84041	C	1979	
	Davis School District	Farmington School	50 W 200 S, FARMINGTON, UT 84025	C	1974	
	Davis School District	Kaysville Jr High	100 E 350 S, KAYSVILLE, UT 84037	C	1960	
	Davis School District	King School	601 E 1000 N, LAYTON, UT 84041	C	1977	
	Davis School District	Knowlton School	801 SHEPARD LN, FARMINGTON, UT 84025	C	1978	
	Davis School District	Meadowbrook School	700 N 325 W, BOUNTIFUL, UT 84010	C	1964	
	Davis School District	Morgan School	1065 THORNFIELD RD, KAYSVILLE, UT 84037	C	1979	
	Davis School District	North Layton Jr High	1100 W 2000 N, LAYTON, UT 84041	C	1968	
	Davis School District	Oak Hills School	1235 E 600 S, BOUNTIFUL, UT 84010	C	1962	
	Davis School District	Orchard School	205 E CENTER ST, NORTH SALT LAKE, UT 84054	C	1963	
	Davis School District	South Davis Jr High	298 W 2600 S, BOUNTIFUL, UT 84010	C	1957	
	Davis School District	South Weber School	1285 E LESTER, SOUTH WEBER, UT 84405	C	1976	

Table C-1 K-12 Public School Campuses with Buildings or Additions that are Likely Under-Reinforced Masonry (continued)

County	School District	School Name	Address	Class Abbreviation	Construction Year	Comments
Davis (continued)						
	Davis School District	Stewart School	1155 N MAIN, CENTERVILLE, UT 84014	C	1977	
	Davis School District	Sunset Jr High	1610 N 250 W, SUNSET, UT 84015	C	1963	
	Davis School District	Woods Cross High	600 W 2200 S, WOODS CROSS, UT 84087	C	1972	
Duchesne						
	Duchesne School District	Altamont School	190 W MAIN, ALTAMONT, UT 84001	C	1974	
	Duchesne School District	Neola School	8709 N STATE RD 121, NEOLA, UT 84053	C	1979	
	Duchesne School District	Myton School	400 E MAIN ST, MYTON, UT, 84052	C	1980	
Emery						
	Emery School District	Canyon View Middle School	BOX 250 CANYON RD, HUNTINGTON, UT 84528	D	1976	
	Emery School District	Green River High	400 N 455 W, GREEN RIVER, UT 84525	C	1981	
	Emery School District	San Rafael Middle School	420 W 500 S, FERRON, UT 84523	D	1976	
Garfield						
	Garfield School District	Panguitch High	390 E 100 S, PANGUITCH, UT 84759	C	1973	
Grand						
	-	-	-	-	-	
Iron						
	Iron School District	Cedar East School	255 E COLLEGE AVE, CEDAR CITY, UT 84720	C	1950	
	Iron School District	Parowan School	128 W 100 N, PAROWAN, UT 84761	C	1961	
Juab						
	Juab School District	Nebo View Elementary	380 E 200 N, NEPHI, UT 84648	C	1952	
Kane						
	-	-	-	-	-	

Table C-1 K-12 Public School Campuses with Buildings or Additions that are Likely Under-Reinforced Masonry (continued)

County	School District	School Name	Address	Class Abbreviation	Construction Year	Comments
Millard						
	Millard School District	Delta Middle	251 E 300 N, DELTA, UT 84624	C	1977	
	Millard School District	Fillmore School	555 W 400 S, FILLMORE, UT 84631	C	1978	
Morgan						
	-	-	-	-	-	
Piute						
	-	-	-	-	-	
Rich						
	-	-	-	-	-	
Salt Lake						
	Canyons School District	Alta High	11055 S HAWK HWY, SANDY, UT 84094	C	1978	Partial replacement, verification pending
	Canyons School District	Bell View School	9800 S 800 E, SANDY, UT 84094	C	1966	
	~~Canyons School District~~	~~Brighton High~~	~~2220 E, Salt Lake City, UT 84121~~	~~C~~	~~1969~~	Replaced Fall 2021
	Canyons School District	Brookwood School	8640 S 2565 E, SANDY, UT 84093	C	1976	
	Canyons School District	Canyon View School	3050 E 7800 S, Salt Lake City, UT 84121	C	1971	
	Canyons School District	Draper School	1080 E 12660 S, DRAPER, UT 84020	C	1976	
	Canyons School District	East Midvale School	6990 S 300 E, MIDVALE, UT 84047	C	1966	
	Canyons School District	East Sandy School	8295 S 870 E, SANDY, UT 84094	C	1969	
	Canyons School District	Eastmont Middle	10100 S 1300 E, SANDY, UT 84094	C	1973	
	Canyons School District	Granite School	9760 S 3100 E, SANDY, UT 84092	C	1976	
	Canyons School District	Jordan Valley School	7501 S 1000 E, MIDVALE, UT 84047	C	1975	
	Canyons School District	Oakdale School	1900 E 8100 S, SANDY, UT 84093	C	1973	
	Canyons School District	Park Lane School	9955 S 2300 E, SANDY, UT 84092	C	1979	
	Canyons School District	Ridgecrest School	1800 E 7200 S, COTTONWOOD HEIGHTS, UT 84121	C	1967	

Table C-1 K-12 Public School Campuses with Buildings or Additions that are Likely Under-Reinforced Masonry (continued)

County	School District	School Name	Address	Class Abbreviation	Construction Year	Comments
Salt Lake (continued)						
	Canyons School District	Silver Mesa School	8920 S 1700 E, SANDY, UT 84093	C	1978	
	Canyons School District	Sprucewood School	12025 S 1000 E, SANDY, UT 84094	C	1978	
	Canyons School District	Sunrise School	1520 E 11265 S, SANDY, UT 84092	C	1976	
	Canyons School District	Union Middle	615 E 8000 S, SANDY, UT 84070	C	1968	Replacement pending 2023
	Canyons School District	Willow Canyon School	9650 S 1700 E, SANDY, UT 84092	C	1974	
	Granite School District	Arcadia School	3461 W 4850 S, TAYLORSVILLE, UT 84118	C	1967	
	Granite School District	Bennion School	5775 S SIERRA GRANDE DR, SALT LAKE CITY, UT 84118	C	1977	
	Granite School District	Calvin S. Smith School	2150 W 6200 S, TAYLORSVILLE, UT 84118	C	1978	
	Granite School District	Carl Sandburg School	3900 S 5325 W, WEST VALLEY CITY, UT 84120	C	1966	
	Granite School District	Cyprus High	8623 W 3000 S, MAGNA, UT 84044	C	1924	Replacement pending.
	Granite School District	Eisenhower Jr High	4351 S REDWOOD RD, TAYLORSVILLE, UT 84123	C	1973	
	Granite School District	Fox Hills School	3775 W 6020 S, SALT LAKE CITY, UT 84118	C	1979	
	Granite School District	Hartvigsen School	1510 W 5400 S, TAYLORSVILLE, UT 84123	C	1973	
	Granite School District	Hillsdale School	3275 W 3100 S, WEST VALLEY CITY, UT 84119	C	1961	
	Granite School District	James E. Moss School	4399 S 500 E, SALT LAKE CITY, UT 84107	C	1966	
	Granite School District	John F. Kennedy Jr High	4495 S 4800 W, WEST VALLEY CITY, UT 84120	C	1969	
	Granite School District	Kearns High	5525 S COUGAR LN, KEARNS, UT 84118	C	1966	
	Granite School District	Magna School	8500 W 3100 S, MAGNA, UT 84044	C	1954	

Table C-1 K-12 Public School Campuses with Buildings or Additions that are Likely Under-Reinforced Masonry (continued)

County	School District	School Name	Address	Class Abbreviation	Construction Year	Comments
Salt Lake (continued)						
	Granite School District	Monroe School	4450 W 3100 S, WEST VALLEY CITY, UT 84120	C	1972	
	Granite School District	Morningside School	4170 S 3000 E, SALT LAKE CITY, UT 84124	C	1955	
	Granite School District	Olene Walker Elementary	3225 S 800 E, SALT LAKE CITY, UT 84106	C	1973	
	Granite School District	Pioneer School	3860 S 3380 W, WEST VALLEY CITY, UT 84119	C	1964	
	Granite School District	Plymouth School	5220 S 1470 W, SALT LAKE CITY, UT 84123	C	1974	
	Granite School District	Rolling Meadows School	2950 WHITEHALL DR, WEST VALLEY CITY, UT 84119	C	1972	
	Granite School District	Rosecrest School	2420 FISHER LN, SALT LAKE CITY, UT 84109	C	1959	
	Granite School District	Stansbury School	3050 S 2700 W, WEST VALLEY CITY, UT 84119	C	1963	
	Granite School District	Twin Peaks School	5325 S 1045 E, SALT LAKE CITY, UT 84117	C	1966	
	Granite School District	Upland Terrace School	3700 S 2860 E, SALT LAKE CITY, UT 84109	C	1964	
	Jordan School District	Bingham High	2160 W 10400 S, SOUTH JORDAN, UT 84095	C	1975	
	Jordan School District	Majestic School	7430 S 1700 W, WEST JORDAN, UT 84084	C	1975	
	Jordan School District	Monte Vista School	11121 S 2700 W, SOUTH JORDAN, UT 84095	C	1977	
	Jordan School District	Southland School	12675 S 2700 W, RIVERTON, UT 84065	C	1974	
	Jordan School District	Terra Linda School	8400 S 3400 W, WEST JORDAN, UT 84088	C	1973	
	Jordan School District	Westland School	2925 W 7180 S, WEST JORDAN, UT 84084	C	1972	
	Jordan School District	Westvale School	2300 W 8660 S, WEST JORDAN, UT 84088	C	1967	
	Salt Lake School District	Bryant Middle	40 S 800 E, SALT LAKE CITY, UT 84102	C	1977	

Table C-1 K-12 Public School Campuses with Buildings or Additions that are Likely Under-Reinforced Masonry (continued)

County	School District	School Name	Address	Class Abbreviation	Construction Year	Comments
Salt Lake (continued)						
	Salt Lake School District	Ensign School	775 12TH AVE, SALT LAKE CITY, UT 84103	C	1978	
	Salt Lake School District	Wasatch School	30 R ST, SALT LAKE CITY, UT 84103	C	1976	
San Juan						
	San Juan School District	Whitehorse High	STATE HIGHWAY #262, MONTEZUMA CREEK, UT 84534	C	1978	
Sanpete						
	-	-	-	-	-	
Sevier						
	Sevier School District	South Sevier Middle	300 E CENTER, MONROE, UT 84754	C	1975	Substantial replacement 2022, retrofit of gym and shop, verification pending
Summit						
	-	-	-	-	-	
Tooele						
	Tooele School District	Grantsville Jr High	318 S HALE ST, GRANTSVILLE, UT, 84029	C	1982	
	Tooele School District	Stansbury Park Elementary	485 COUNTRY CLUB DR, STANSBURY PARK, UT, 84074	B	1980	
Uintah						
	-	-	-	-	-	
Utah						
	Alpine School District	Barratt School	168 N 900 E, AMERICAN FORK, UT 84003	C	1977	
	Alpine School District	Bonneville School	1245 N 800 W, OREM, UT 84057	C	1978	
	~~Alpine School District~~	~~Greenwood School~~	~~50 E 200 S, AMERICAN FORK, UT 84003~~	~~C~~	~~1956~~	Replaced 2021
	Alpine School District	Highland School	10865 N 6000 W, HIGHLAND, UT 84003	C	1979	
	Alpine School District	Lakeridge Jr High	951 S 400 W, OREM, UT 84058	C	1975	

Table C-1 K-12 Public School Campuses with Buildings or Additions that are Likely Under-Reinforced Masonry (continued)

County	School District	School Name	Address	Class Abbreviation	Construction Year	Comments
Utah (continued)						
	Alpine School District	Mountain View High	665 W CENTER, OREM, UT 84057	C	1979	
	Alpine School District	Orem School	450 W 400 S, OREM, UT 84058	C	1972	
	Alpine School District	Pleasant Grove Jr High	810 N 100 E, PLEASANT GROVE, UT 84062	C	1976	
	Alpine School District	Sego Lily School	550 E 900 N, LEHI, UT 84043	C	1956	
	Alpine School District	Shelley School	602 N 200 W, AMERICAN FORK, UT 84003	C	1966	
	Alpine School District	Valley View School	941 ORCHARD DR, PLEASANT GROVE, UT 84062	C	1966	
	Nebo School District	Barnett School	456 N 300 E, PAYSON, UT 84651	C	1979	
	Nebo School District	Larsen School	1175 E FLONETTE DR, SPANISH FORK, UT 84660	C	1979	
	Nebo School District	Mapleton School	120 W MAPLE, MAPLETON, UT 84664	C	1970	
	Nebo School District	Payson Jr High	1025 S HWY 6, PAYSON, UT 84651	C	1977	
	Nebo School District	Spanish Fork Jr High	600 S 820 E, SPANISH FORK, UT 84660	D	1974	
	Provo School District	Timpview High	3570 N 650 E, PROVO, UT 84604	C	1977	Replacement pending
Wasatch						
	Wasatch School District	Midway School	225 S 100 E, MIDWAY, UT 84049	C	1975	
	Wasatch School District	Wasatch High School West Campus	200 E 800 S, HEBER CITY, UT 84032	S	1976	Partial retrofit, verification pending
Washington						
	Washington School District	Dixie High School ROTC	350 E 700 S, ST GEORGE, UT 84770	C	1960	
	Washington School District	Springdale School	898 ZION PARK BLVD, SPRINGDALE, UT 84767	C	1976	

Table C-1 K-12 Public School Campuses with Buildings or Additions that are Likely Under-Reinforced Masonry (continued)

County	School District	School Name	Address	Class Abbreviation	Construction Year	Comments
Wayne						
	Wayne School District	Hanksville School	50 CENTER ST, HANKSVILLE, UT, 84734	C	1958	
	Wayne School District	Wayne High	265 S 400 W, BICKNELL, UT, 84715	C	1955	
	Wayne School District	Wayne Middle	75 N CENTER, BICKNELL, UT, 84715	C	1957	
Weber						
	Ogden City School District	James Madison School	2563 MONROE BLVD, OGDEN, UT 84401	C	1969	
	Ogden City School District	Mound Fort Junior High	1400 MOUND FORT DR, OGDEN, UT 84404	C	1974	
	Weber School District	Bates School	850 E 3100 N, OGDEN, UT 84414	C	1964	
	Weber School District	Country View School	4650 W 4800 S, WEST HAVEN CITY, UT 84401	C	1973	
	Weber School District	Green Acres School	640 E 1900 N, OGDEN, UT 84414	C	1978	
	Weber School District	H Guy Child School	655 E 5500 S, OGDEN, UT 84405	C	1966	
	Weber School District	Hooper School	5500 S 5900 W, HOOPER, UT 84315	C	1970	
	Weber School District	Kanesville School	3112 S 3500 W, West Haven, UT 84401	C	1978	
	Weber School District	North Ogden Jr High	575 E 2900 N, OGDEN, UT 84414	C	1967	
	Weber School District	Pioneer School	250 N 1600 W, OGDEN, UT 84404	C	1966	
	Weber School District	Riverdale School	1160 W 4400 S, OGDEN, UT 84405	C	1967	
	Weber School District	Sand Ridge Jr High	2075 W 4600 S, ROY, UT 84067	C	1969	
	Weber School District	Valley View School	2465 W 4500 S, ROY, UT 84067	C	1964	
	Weber School District	Weber High	430 W WEBER HIGH DR, OGDEN, UT 84414	C	1971	

Appendix D

School Campuses with an RVS Score of 2 or Less

Table D-1 includes a list of school campuses with buildings or additions that received an RVS score of 2 or less based on seismic safety screenings. Placement in this appendix does not necessarily mean that all additions to the school campus received an RVS score of 2 or less. In the table, construction year generally refers to the date of construction of the oldest standing portion of the campus and is based on records of the State of Utah Division of Risk Management. There are some exceptions, such as when a full seismic upgrade has been preliminarily verified to replace the seismic-force-resisting system, in which case the date has been changed to the year of the seismic upgrade.

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less

County	School District	School Name	Address	Construction Year	Comments
Beaver					
	-	-	-	-	
Box Elder					
	Box Elder School District	Bear River Middle	300 E 1500 S, GARLAND, UT 84312	1965	
	Box Elder School District	Box Elder High	380 S 600 W, BRIGHAM CITY, UT 84302	1961	Partial replacement, verification pending
	Box Elder School District	Box Elder Middle	18 S 500 E, BRIGHAM CITY, UT 84302	1965	
	Box Elder School District	Century School	5820 N 4800 W, BEAR RIVER CITY, UT 84301	1964	
	~~Box Elder School District~~	~~Dale Young Community High~~	~~230 W 200 S, BRIGHAM CITY, UT 84302~~	~~1964~~	Replaced, renamed Sunrise High ICF Fox
	Box Elder School District	Foothill School	820 N 100 E, BRIGHAM CITY, UT 84302	1962	
	Box Elder School District	Lake View School	851 S 200 W, BRIGHAM CITY, UT 84302	1962	
	Box Elder School District	McKinley School	120 W 500 S, TREMONTON, UT 84337	1973	
	Box Elder School District	Mountain View School	650 E 700 S, BRIGHAM CITY, UT 84302	1960	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Box Elder (continued)					
	Box Elder School District	North Park School	50 E 700 N, TREMONTON, UT 84337	1962	
	Box Elder School District	Willard School	40 W 50 S, WILLARD, UT 84340	1986	
Cache					
	Cache School District	Lincoln School	90 S CENTER, HYRUM, UT 84319	1994	
	Cache School District	Millville School	67 S MAIN, MILLVILLE, UT 84326	1978	Partial replacement, verification pending
	Cache School District	North Park School	2800 N 800 E, NORTH LOGAN, UT 84341	1965	
	Cache School District	Sky View High	520 S 250 E, SMITHFIELD, UT 84335	1963	
	~~Cache School District~~	~~Wellsville School~~	~~525 N 200 W, WELLSVILLE, UT 84339~~	~~1999~~	Replaced 1999
	Logan City School District	Adams School	415 E 500 N, LOGAN, UT 84321	1936	
	Logan City School District	Mount Logan Middle	875 N 200 E, LOGAN, UT 84321	1963	
	Logan City School District	Wilson School	89 S 500 E, LOGAN, UT 84321	1926	
Carbon					
	Carbon School District	Carbon High	750 E 400 N, PRICE, UT 84501	1959	Partial replacement, verification pending
	Carbon School District	Helper Middle	151 UINTAH ST, HELPER, UT 84526	1937	Partial replacement, verification pending
	Carbon School District	Mont Harmon Middle	60 W 400 N, PRICE, UT 84501	1967	
	Carbon School District	Sally Mauro School	20 2ND AVE, HELPER, UT 84526	1966	
Daggett					
	Daggett School District	Flaming Gorge School	5TH AVE, DUTCH JOHN, UT 84023	1960	
	Daggett School District	Manila School	125 W 200 N, MANILA, UT 84046	1959	
Davis					
	Davis School District	Adams School	2200 E 2500 N, LAYTON, UT 84041	1982	
	Davis School District	Adelaide School	731 W 3600 S, BOUNTIFUL, UT 84010	1952	Retrofit performed, verification pending.
	Davis School District	Boulton School	2611 S ORCHARD DR, BOUNTIFUL, UT 84010	1959	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Davis (continued)					
	Davis School District	Bountiful High	695 S ORCHARD DR, BOUNTIFUL, UT 84010	1951	
	Davis School District	Bountiful Jr High	30 W 400 N, BOUNTIFUL, UT 84010	1915	Partial replacement, verification pending.
	Davis School District	Bountiful School	1620 S 50 W, BOUNTIFUL, UT 84010	1950	
	Davis School District	H C Burton School	827 E 200 S, KAYSVILLE, UT 84037	1959	
	Davis School District	Centerville Junior High School	625 S MAIN, CENTERVILLE, UT	1964	
	Davis School District	Centerville School	350 N 100 E, CENTERVILLE, UT 84014	1952	Partial replacement, verification pending.
	Davis School District	Central Davis Jr High	663 CHURCH ST, LAYTON, UT 84041	1953	Retrofit performed, verification pending.
	Davis School District	Clearfield High	931 S 1000 E, CLEARFIELD, UT 84015	1958	Retrofit performed, verification pending.
	Davis School District	Clinton School	1101 W 1800 N, CLINTON, UT 84015	1952	Partial replacement, verification pending.
	Davis School District	Cook School	1175 W 1350 S, SYRACUSE, UT 84075	1978	
	Davis School District	East Layton School	2470 E CHERRY LN, EAST LAYTON, UT 84041	1979	
	Davis School District	Crestview School	185 W GOLDEN AVE, LAYTON, UT 84041	1955	Retrofit performed, verification pending.
	Davis School District	Davis High	325 S MAIN, KAYSVILLE, UT, 84037	1994	
	Davis School District	Doxey School	944 N 250 W, SUNSET, UT, 84015	1958	Retrofit performed, verification pending.
	Davis School District	Fairfield Jr High	951 N FAIRFIELD RD, KAYSVILLE, UT 84037	1994	
	Davis School District	Farmington Jr High	150 S 200 W, FARMINGTON, UT, 84025	1990	
	Davis School District	Farmington School	50 W 200 S, FARMINGTON, UT 84025	1974	
	Davis School District	Fremont School	2525 N 160 W, SUNSET, UT 84015	1965	
	Davis School District	Hill Field School	389 S 1000 E, CLEARFIELD, UT 84015	1963	
	Davis School District	Holbrook School	1018 E 250 N, BOUNTIFUL, UT 84010	1959	Retrofit performed, verification pending.
	Davis School District	Kaysville Jr High	100 E 350 S, KAYSVILLE, UT 84037	1960	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Davis (continued)					
	Davis School District	Kaysville School	50 N 100 E, KAYSVILLE, UT 84037	1953	
	Davis School District	King School	601 E 1000 N, LAYTON, UT 84041	1977	
	Davis School District	Knowlton School	801 SHEPARD LN, FARMINGTON, UT 84025	1978	
	Davis School District	Layton High	440 LANCER LN, LAYTON, UT 84041	1966	
	Davis School District	Layton School	369 W GENTILE, LAYTON, UT 84041	1983	
	Davis School District	Lincoln School	591 W 2000 N, LAYTON, UT 84041	1965	
	Davis School District	Meadowbrook School	700 N 325 W, BOUNTIFUL, UT 84010	1964	
	Davis School District	Millcreek Jr High	245 E 1000 S, BOUNTIFUL, UT 84010	1967	Retrofit performed, verification pending.
	Davis School District	Morgan School	1065 THORNFIELD RD, KAYSVILLE, UT 84037	1979	
	Davis School District	Mountain View School	2025 E 3100 N, LAYTON, UT 84040	1995	
	Davis School District	Muir School	2275 S DAVIS BLVD, BOUNTIFUL, UT 84010	1968	
	Davis School District	North Layton Jr High	1100 W 2000 N, LAYTON, UT 84041	1968	
	Davis School District	Northridge High	2430 N HILLFIELD RD, LAYTON, UT 84041	1991	
	Davis School District	Oak Hills School	1235 E 600 S, BOUNTIFUL, UT 84010	1962	
	Davis School District	Orchard School	205 E CENTER ST, NORTH SALT LAKE, UT 84054	1963	
	Davis School District	Reading School	360 W 2025 N, CENTERVILLE, UT 84014	1984	
	Davis School District	South Clearfield School	990 E 700 S, CLEARFIELD, UT 84015	1950	
	Davis School District	South Davis Jr High	298 W 2600 S, BOUNTIFUL, UT 84010	1957	
	Davis School District	South Weber School	1285 E LESTER, SOUTH WEBER, UT 84405	1976	
	Davis School District	Stewart School	1155 N MAIN, CENTERVILLE, UT 84014	1977	
	Davis School District	Sunset Jr High	1610 N 250 W, SUNSET, UT 84015	1963	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Davis (continued)					
	Davis School District	Sunset School	2014 N 250 W, SUNSET, UT 84015	1954	Retrofit performed, verification pending.
	Davis School District	Syracuse Jr High	1450 S 2000 W, SYRACUSE, UT 84075	1985	
	Davis School District	Syracuse School	1503 S 2000 W, SYRACUSE, UT 84075	1984	Partial replacement, verification pending.
	Davis School District	Taylor School	293 E PAGES LN, CENTERVILLE, UT 84014	1961	Retrofit performed, verification pending.
	Davis School District	Tolman School	300 E 1200 N, BOUNTIFUL, UT 84010	1954	Retrofit performed, verification pending.
	Davis School District	Vae View School	1750 W 1600 N, LAYTON, UT 84041	1962	Retrofit performed, verification pending.
	Davis School District	Valley View School	1395 S 600 E, BOUNTIFUL, UT 84010	1961	
	Davis School District	Viewmont High	120 W 1000 N, BOUNTIFUL, UT 84010	1964	
	Davis School District	Wasatch School	270 E CENTER, CLEARFIELD, UT 84015	2012	
	Davis School District	West Bountiful School	500 N 800 W, WEST BOUNTIFUL, UT 84087	2020	
	Davis School District	West Clinton School	2826 W 1800 N, CLINTON, UT 84015	1987	
	Davis School District	West Point School	3788 W 300 N, WEST POINT, UT 84015	1915	Partial replacement, verification pending.
	Davis School District	Whitesides School	233 N COLONIAL AVE, LAYTON, UT 84041	1953	Retrofit performed, verification pending.
	Davis School District	Windridge School	1300 S 700 E, KAYSVILLE, UT 84037	1995	
	Davis School District	Woods Cross High	600 W 2200 S, WOODS CROSS, UT 84087	1972	
	Davis School District	Woods Cross School	745 W 1100 S, WOODS CROSS, UT 84087	1983	
Duchesne					
	Duchesne School District	Altamont School	190 W MAIN, ALTAMONT, UT 84001	1974	
	Duchesne School District	Tabiona High	10 N MAIN, TABIONA, UT 84072	1982	
Emery					
	Emery School District	Book Cliff School	205 S SOLOMON ST, GREEN RIVER, UT 84525	1977	
	Emery School District	Canyon View Middle School	CANYON RD, HUNTINGTON, UT 84528	1976	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Emery (continued)					
	Emery School District	Castle Dale School	195 E 600 N, CASTLE DALE, UT 84513	1976	
	Emery School District	Cleveland School	30 S 100 W, CLEVELAND, UT 84518	1976	
	Emery School District	Cottonwood School	55 E 200 S, ORANGEVILLE, UT 84537	1962	
	Emery School District	Huntington School	90 E 100 N, HUNTINGTON, UT 84528	1962	
	Emery School District	San Rafael Middle School	420 W 500 S, FERRON, UT 84523	1976	
Garfield					
	~~Garfield School District~~	~~Bryce Valley School~~	~~500 W CENTER, TROPIC, UT 84776~~	~~1955~~	Replaced
	Garfield School District	Escalante High	800 E HWY 12, ESCALANTE, UT 84726	1987	
	Garfield School District	Escalante School	50 N 300 E, ESCALANTE, UT 84726	1956	Retrofit pending
	Garfield School District	Panguitch School	110 S 100 W, PANGUITCH, UT 84759	1957	Partial replacement, verification pending
Grand					
	~~Grand School District~~	~~Grand County Middle~~	~~439 S 100 E, MOAB, UT 84532~~	~~1962~~	Replaced
Iron					
	Iron School District	Cedar City High	703 W 600 S, CEDAR CITY, UT 84720	1964	
	Iron School District	Cedar East School	255 E COLLEGE AVE, CEDAR CITY, UT 84720	1950	
	Iron School District	Cedar North School	550 W 200 N, CEDAR CITY, UT 84720	2017	
	Iron School District	Cedar South School	499 W 400 S, CEDAR CITY, UT 84720	1959	
	Iron School District	Enoch School	4701 N WAGON WHEEL DR, ENOCH, UT 84721	1980	
	Iron School District	Fiddlers Canyon School	475 E 1935 N, CEDAR CITY, UT 84721	1982	
	Iron School District	Parowan High	50 W 100 N, PAROWAN, UT 84761	1968	
	Iron School District	Parowan School	128 W 100 N, PAROWAN, UT 84761	1961	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Juab					
	Juab School District	Juab Jr High	555 E 800 N, NEPHI, UT 84648	1980	
	Tintic School District	Tintic High	525 E MAIN, EUREKA, UT 84628	1982	
Kane					
	Kane School District	Kanab School	41 W 100 N, KANAB, UT 84741	1954	
	Kane School District	Valley High	150 N CENTER, ORDERVILLE, UT 84758	1955	
	Kane School District	Valley School	110 E STATE, ORDERVILLE, UT 84758	1968	
Millard					
	Millard School District	Fillmore Middle	435 S 500 W, FILLMORE, UT 84631	1983	
	Millard School District	Fillmore School	555 W 400 S, FILLMORE, UT 84631	1978	
	~~Millard School District~~	~~Millard High~~	~~200 W EAGLE AVE, FILLMORE, UT 84631~~	~~1976~~	Replaced
Morgan					
	Morgan School District	Morgan High	55 N 200 E, MORGAN, UT 84050	1965	
	Morgan School District	Morgan Middle	115 E YOUNG ST, MORGAN, UT 84050	1994	
Piute					
	Piute School District	Oscarson School	160 W SEVIER AVE, MARYSVALE, UT 84750	1961	
	Piute School District	Piute High	550 N 100 W, JUNCTION, UT 84740	2011	
Rich					
	~~Rich School District~~	~~North Rich School~~	~~54 E 100 S, LAKETOWN, UT 84038~~	~~1955~~	Replaced
	Rich School District	Rich Middle School	54 E 100 S, LAKETOWN, UT 84038	1955	
	Rich School District	South Rich School	25 S 100 W, RANDOLPH, UT 84064	1954	
Salt Lake					
	Canyons School District	Albion Middle	2755 E 8890 S, SANDY, UT 84093	1984	Retrofit performed, verification pending.
	Canyons School District	Bell View School	9800 S 800 E, SANDY, UT 84094	1966	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Salt Lake (continued)					
	Canyons School District	Bella Vista School	2131 E 7000 S, Salt Lake City, UT 84121	1965	Retrofit performed, verification pending.
	Canyons School District	Copperview School	8449 S 150 W, MIDVALE, UT 84047	1961	Retrofit performed, verification pending.
	Canyons School District	Crescent View Middle	11150 S 300 E, Sandy, UT 84070	1987	
	Canyons School District	Draper School	1080 E 12660 S, DRAPER, UT 84020	1976	
	Canyons School District	East Midvale School	6990 S 300 E, MIDVALE, UT 84047	1966	
	~~Canyons School District~~	~~Edgemont School~~	~~1085 E 9800 S, SANDY, UT 84094~~	~~1959~~	Replaced
	Canyons School District	Granite School	9760 S 3100 E, SANDY, UT 84092	1976	
	Canyons School District	Indian Hills Middle	1180 E 11600 S, SANDY, UT 84094	1980	Retrofit performed, verification pending.
	~~Canyons School District~~	~~Midvalley School~~	~~217 E 7800 S, MIDVALE, UT 84047~~	~~1957~~	Replaced
	~~Canyons School District~~	~~Peruvian Park School~~	~~1545 E 8425 S, SANDY, UT 84093~~	~~1964~~	Replaced
	Canyons School District	Sandy School	8725 S 280 E, SANDY, UT 84070	1950	Retrofit performed, verification pending.
	Canyons School District	Sprucewood School	12025 S 1000 E, SANDY, UT 84094	1978	
	Canyons School District	Union Middle	615 E 8000 S, SANDY, UT 84070	1968	Replacement pending 2023
	Granite School District	Academy Park School	4580 WESTPOINT DR, WEST VALLEY CITY, UT 84120	1962	
	Granite School District	Arcadia School	3461 W 4850 S, TAYLORSVILLE, UT 84118	1967	
	Granite School District	Beehive School	5655 S 5220 W, KEARNS, UT 84118	1986	
	Granite School District	Bennion Jr High	6055 S 2700 W, TAYLORSVILLE, UT 84118	1980	
	Granite School District	Bennion School	5775 S SIERRA GRANDE DR, SALT LAKE CITY, UT 84118	1977	
	Granite School District	Bonneville Jr High	5330 S 1660 E, SALT LAKE CITY, UT 84117	1964	
	Granite School District	Calvin S. Smith School	2150 W 6200 S, TAYLORSVILLE, UT 84118	1978	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Salt Lake (continued)					
	Granite School District	Carl Sandburg School	3900 S 5325 W, WEST VALLEY CITY, UT 84120	1966	
	Granite School District	Churchill Jr High	3450 E, SALT LAKE CITY, UT 84124	1965	
	Granite School District	Copper Hills School	7635 W 3715 S, MAGNA, UT 84044	1981	
	Granite School District	Cottonwood High	5715 S 1300 E, SALT LAKE CITY, UT 84121	1970	
	Granite School District	Cottonwood School	5205 HOLLADAY BLVD, SALT LAKE CITY, UT 84117	1958	
	Granite School District	Crestview School	2100 E LINCOLN LN, SALT LAKE CITY, UT 84124	1961	
	Granite School District	Cyprus High	8623 W 3000 S, MAGNA, UT 84044	1924	Replacement pending.
	Granite School District	Cyprus High - Brockbank	2935 SOUTH 8560 W, MAGNA, UT 84044	1948	
	Granite School District	David Gourley School	4905 S 4300 W, KEARNS, UT 84118	1959	
	Granite School District	Douglas T. Orchard School	6744 W 3800 S, WEST VALLEY CITY, UT 84128	1977	
	Granite School District	Eastwood School	3305 WASATCH BLVD, SALT LAKE CITY, UT 84109	1959	
	Granite School District	Eisenhower Jr High	4351 S REDWOOD RD, TAYLORSVILLE, UT 84123	1973	
	Granite School District	Evergreen Jr High	3401 S 2000 E, SALT LAKE CITY, UT 84109	1956	
	Granite School District	Fox Hills School	3775 W 6020 S, SALT LAKE CITY, UT 84118	1979	
	Granite School District	Granite Park Jr High	3031 S 200 E, SALT LAKE CITY, UT 84115	1948	
	Granite School District	Harry S. Truman School	4639 S 3200 W, WEST VALLEY CITY, UT 84119	1977	
	Granite School District	Hillsdale School	3275 W 3100 S, WEST VALLEY CITY, UT 84119	1961	
	Granite School District	Hillside School	4283 S 6000 W, WEST VALLEY CITY, UT 84128	1983	
	Granite School District	Howard R. Driggs School	4340 S 2700 E, SALT LAKE CITY, UT 84124	1964	Retrofit performed, verification pending.
	Granite School District	Hunter High	4200 S 5600 W, WEST VALLEY CITY, UT 84120	1990	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Salt Lake (continued)					
	Granite School District	Hunter Jr High	6131 W 3785 S, WEST VALLEY CITY, UT 84120	1986	
	Granite School District	Hunter School	4351 S 5400 W, WEST VALLEY CITY, UT 84120	1981	
	Granite School District	Jackling School	3760 S 4610 W, WEST VALLEY CITY, UT 84120	1966	
	Granite School District	James E. Moss School	4399 S 500 E, SALT LAKE CITY, UT 84107	1966	
	Granite School District	John C. Fremont School	4249 S 1425 W, TAYLORSVILLE, UT 84123	1963	
	Granite School District	John F. Kennedy Jr High	4495 S 4800 W, WEST VALLEY CITY, UT 84120	1969	
	Granite School District	Kearns High	5525 S COUGAR LN, KEARNS, UT 84118	1966	
	Granite School District	Kearns Jr High	4040 W SAMS BLVD, KEARNS, UT 84118	1953	
	Granite School District	Lake Ridge School	7400 W 3400 S, MAGNA, UT 84044	1964	
	Granite School District	Lincoln School	450 E 3700 S, SALT LAKE CITY, UT 84115	1961	
	Granite School District	Magna School	8500 W 3100 S, MAGNA, UT 84044	1954	
	Granite School District	Mill Creek School	3761 S 1100 E, SALT LAKE CITY, UT 84106	1956	
	Granite School District	Monroe School	4450 W 3100 S, WEST VALLEY CITY, UT 84120	1972	
	Granite School District	Morningside School	4170 S 3000 E, SALT LAKE CITY, UT 84124	1955	
	Granite School District	Oakridge School	4325 S JUPITER DR, SALT LAKE CITY, UT 84124	1962	
	Granite School District	Oquirrh Hills School	5241 S 4280 W, KEARNS, UT 84118	1957	
	Granite School District	Philo T. Farnsworth School	3751 S 4225 W, WEST VALLEY CITY, UT 84120	1957	
	Granite School District	Pioneer School	3860 S 3380 W, WEST VALLEY CITY, UT 84119	1964	
	Granite School District	Plymouth School	5220 S 1470 W, SALT LAKE CITY, UT 84123	1974	
	Granite School District	Redwood School	2650 S REDWOOD RD, WEST VALLEY CITY, UT 84119	1953	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Salt Lake (continued)					
	Granite School District	Robert Frost School	3444 W 4400 S, WEST VALLEY CITY, UT 84119	1969	
	Granite School District	Rolling Meadows School	2950 WHITEHALL DR, WEST VALLEY CITY, UT 84119	1972	
	Granite School District	Rosecrest School	2420 FISHER LN, SALT LAKE CITY, UT 84109	1959	
	Granite School District	Silver Hills School	5770 W 5100 S, KEARNS, UT 84118	1985	
	Granite School District	Skyline High	3251 E 3760 S, SALT LAKE CITY, UT 84109	1962	Replacement pending 2026
	Granite School District	South Kearns School	4430 W 5570 S, KEARNS, UT 84118	1956	
	Granite School District	Spring Lane School	5315 S 1700 E, SALT LAKE CITY, UT 84117	1963	
	Granite School District	Stansbury School	3050 S 2700 W, WEST VALLEY CITY, UT 84119	1963	
	Granite School District	Taylorsville High	5225 S REDWOOD RD, TAYLORSVILLE, UT 84123	1981	
	Granite School District	Taylorsville School	2010 W 4230 S, SALT LAKE CITY, UT 84119	1963	
	Granite School District	Thomas Jefferson Jr High	5850 S 5600 W, KEARNS, UT 84118	1987	
	Granite School District	Twin Peaks School	5325 S 1045 E, SALT LAKE CITY, UT 84117	1966	
	Granite School District	Thomas W. Bacchus School	5925 S 5975 W, KEARNS, UT 84118	1981	
	Granite School District	Upland Terrace School	3700 S 2860 E, SALT LAKE CITY, UT 84109	1964	
	Granite School District	Valley Crest School	5240 W 3100 S, WEST VALLEY CITY, UT 84120	1985	
	Granite School District	Valley Jr High	4195 S 3200 W, WEST VALLEY CITY, UT 84119	1949	
	Granite School District	Vista School	4925 S 2200 W, TAYLORSVILLE, UT 84118	1964	
	Granite School District	West Kearns School	4900 S 4620 W, KEARNS, UT 84118	1955	
	Granite School District	West Lake Jr High	3400 S 3450 W, WEST VALLEY CITY, UT 84119	1964	Replacement pending Fall 2024
	Granite School District	Westbrook School	3451 W 6200 S, TAYLORSVILLE, UT 84118	1985	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Salt Lake (continued)					
	Granite School District	Western Hills School	5190 S HEATH AVE, KEARNS, UT 84118	1962	
	Jordan School District	Bingham High	2160 W 10400 S, SOUTH JORDAN, UT 84095	1975	
	Jordan School District	Joel P. Jensen Middle	8105 S 3200 W, WEST JORDAN, UT 84088	1984	Partial retrofit, verification pending
	Jordan School District	Majestic School	7430 S 1700 W, WEST JORDAN, UT 84084	1975	
	Jordan School District	Oquirrh Hills Middle	12949 S 2700 W, RIVERTON, UT 84065	1980	Partial retrofit, verification pending
	Jordan School District	South Jordan Middle	10245 S 2700 W, SOUTH JORDAN, UT 84095	1989	
	Jordan School District	Southland School	12675 S 2700 W, RIVERTON, UT 84065	1974	
	Jordan School District	Terra Linda School	8400 S 3400 W, WEST JORDAN, UT 84088	1973	
	Jordan School District	Westland School	2925 W 7180 S, WEST JORDAN, UT 84084	1972	
	Jordan School District	Westvale School	2300 W 8660 S, WEST JORDAN, UT 84088	1967	
	Murray School District	Grant School	662 W 6140 S, MURRAY, UT 84123	1959	
	Murray School District	Liberty School	140 W 6100 S, MURRAY, UT 84107	1957	Retrofit performed, verification pending.
	Murray School District	Longview School	6240 S 560 E, MURRAY, UT 84107	1960	Retrofit performed, verification pending.
	Murray School District	Mcmillan School	315 E 5900 S, MURRAY, UT 84107	1953	Retrofit performed, verification pending.
	Murray School District	Parkside School	495 E 5175 S, MURRAY, UT 84107	1969	Retrofit performed, verification pending.
	Murray School District	Riverview Jr High	751 W TRIPP LN, MURRAY, UT 84123	1974	Retrofit performed, verification pending.
	Murray School District	Viewmont School	745 W 5720 S, MURRAY, UT 84123	1965	Retrofit performed, verification pending.
	Salt Lake School District	Emerson School	1017 E 1370 S, SALT LAKE CITY, UT 84105	1985	
	Salt Lake School District	Mary W. Jackson School	750 W 200 N, SALT LAKE CITY, UT 84116	1981	
	Salt Lake School District	Wasatch School	30 R ST, SALT LAKE CITY, UT 84103	1976	
	Salt Lake School District	West High	241 N 300 W, SALT LAKE CITY, UT 84103	1997	Retrofit performed, verification pending.

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
San Juan					
	San Juan School District	Albert R. Lyman Middle	535 N 100 E, BLANDING, UT 84511	1960	
	San Juan School District	Blanding School	302 S 100 W, BLANDING, UT 84511	1955	
	San Juan School District	La Sal School	STATE HIGHWAY #46, LA SAL, UT 84530	1940	
	San Juan School District	Whitehorse High	STATE HIGHWAY #262, MONTEZUMA CREEK, UT 84534	1978	
	San Juan School District	Monticello High	164 S 200 W, MONTICELLO, UT 84535	1950	
	San Juan School District	San Juan High	311 N 100 E, BLANDING, UT 84511	1961	
Sanpete					
	North Sanpete School District	Fairview School	651 E 150 N, FAIRVIEW, UT 84629	1980	
	North Sanpete School District	Moroni School	98 N 200 W, MORONI, UT 84646	1994	
	South Sanpete School District	Gunnison Valley High	35 E 600 S, GUNNISON, UT 84634	2001	
	South Sanpete School District	Manti High	100 W 500 N, MANTI, UT 84642	2000	
Sevier					
	Sevier School District	Ashman School	70 N 200 W, RICHFIELD, UT 84701	1996	
	Sevier School District	Koosharem School	75 E CENTER, KOOSHAREM, UT 84744	1901	
	Sevier School District	Monroe School	40 W CENTER ST, MONROE, UT 84754	1951	Retrofit performed, verification pending.
	Sevier School District	North Sevier High	350 W 400 N, SALINA, UT 84654	1981	
	Sevier School District	North Sevier Middle	135 N 100 W, SALINA, UT 84654	1999	URM portion replaced 1999, retrofit of gym, verification pending
	Sevier School District	Pahvant School	520 N 300 W, RICHFIELD, UT 84701	1958	Retrofit planned
	Sevier School District	Red Hills Middle	400 S 600 W, RICHFIELD, UT 84701	2009	
	Sevier School District	Salina School	210 W 300 N, SALINA, UT 84654	2009	
	Sevier School District	South Sevier High	430 W 100 S, MONROE, UT 84754	1981	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Sevier (continued)					
	Sevier School District	South Sevier Middle	300 E CENTER, MONROE, UT 84754	1975	Substantial replacement 2022, retrofit of gym and shop, verification pending
Summit					
	North Summit School District	North Summit High	53 S 100 E, COALVILLE, UT 84017	1977	
	North Summit School District	North Summit School	240 S BEACON DR, COALVILLE, UT 84017	1984	
	Park City School District	Mcpolin School	2270 KEARNS BLVD, PARK CITY, UT 84098	1991	
	Park City School District	Park City High	1750 KEARNS BLVD, PARK CITY, UT 84060	1977	Retrofit performed, verification pending.
	Park City School District	Parleys Park School	4600 SILVERSPRINGS DR, PARK CITY, UT 84068	1980	Retrofit performed, verification pending.
	South Summit School District	South Summit High	45 S 300 E, KAMAS, UT 84036	1990	Substantial replacement 1990, original gym remains
	South Summit School District	South Summit Middle	355 E 300 S, KAMAS, UT 84036	2009	
Tooele					
	Tooele School District	Tooele Jr High	411 W VINE ST, TOOELE, UT 84074	1964	
	Tooele School District	Wendover High	110 WILDCAT BLVD, WENDOVER, UT 84083	1944	
	Tooele School District	West School	451 W 300 S, TOOELE, UT 84074	1959	
Uintah					
	Uintah School District	Uintah Middle School	161 N 1000 W, VERNAL, UT 84078	1955	
	Uintah School District	Vernal Middle	721 W 100 S, VERNAL, UT 84078	1964	
Utah					
	Alpine School District	Alpine School	400 E 300 N, ALPINE, UT 84004	1965	
	Alpine School District	American Fork High	510 N 600 E, AMERICAN FORK, UT 84003	1959	
	Alpine School District	American Fork Jr High	20 W 1120 N, AMERICAN FORK, UT 84003	1975	
	Alpine School District	Barratt School	168 N 900 E, AMERICAN FORK, UT 84003	1977	
	Alpine School District	Canyon View Jr High	625 E 950 N, OREM, UT 84097	1985	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Utah (continued)					
	~~Alpine School District~~	~~Cedar Valley School~~	~~40 E CENTER, CEDAR FORT, UT 84013~~	~~1907~~	Sold
	~~Alpine School District~~	~~Central School~~	~~95 N 400 E, PLEASANT GROVE, UT 84062~~	~~1950~~	Replaced
	Alpine School District	Dan W. Peterson	169 N 1100 E, AMERICAN FORK, UT 84003	1981	
	Alpine School District	Geneva School	400 N 665 W, OREM, UT 84057	1948	Demolition in progress
	~~Alpine School District~~	~~Greenwood School~~	~~50 E 200 S, AMERICAN FORK, UT 84003~~	~~1956~~	Replaced 2021
	Alpine School District	Highland School	10865 N 6000 W, HIGHLAND, UT 84003	1979	
	Alpine School District	Lakeridge Jr High	951 S 400 W, OREM, UT 84058	1975	
	~~Alpine School District~~	~~Lehi High~~	~~180 N 500 E, LEHI, UT 84043~~	~~1959~~	Replaced
	Alpine School District	Lehi Jr High	700 E CEDAR HOLLOW RD, LEHI, UT 84043	1987	
	Alpine School District	Lehi School	765 N CENTER, LEHI, UT 84043	1951	
	Alpine School District	Lindon School	30 N MAIN, LINDON, UT 84042	1967	
	Alpine School District	Lone Peak High	10189 N 4800 W, HIGHLAND, UT 84003	1997	
	Alpine School District	Manila School	1726 N 600 W, PLEASANT GROVE, UT 84062	1982	
	Alpine School District	Mountain Ridge Jr High	5525 W 10400 N, HIGHLAND, UT 84003	1993	
	Alpine School District	Mountain View High	665 W CENTER, OREM, UT 84057	1979	
	Alpine School District	Oak Canyon Jr High	111 S 725 E, LINDON, UT 84042	1993	
	Alpine School District	Orchard School	1035 N 800 E, OREM, UT 84097	1983	
	Alpine School District	Orem Jr High	765 N 600 W, OREM, UT 84057	1963	
	Alpine School District	Pleasant Grove High	700 E 200 S, PLEASANT GROVE, UT 84062	1959	
	Alpine School District	Pleasant Grove Jr High	810 N 100 E, PLEASANT GROVE, UT 84062	1976	
	Alpine School District	Sego Lily School	550 E 900 N, LEHI, UT 84043	1956	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Utah (continued)					
	Alpine School District	Sharon School	525 N 400 E, OREM, UT 84097	1954	
	Alpine School District	Shelley School	602 N 200 W, AMERICAN FORK, UT 84003	1966	
	Alpine School District	Suncrest School	668 W 150 N, OREM, UT 84057	1986	
	Alpine School District	Timpanogos High	1450 N 200 E, OREM, UT 84057	1996	
	Alpine School District	Valley View School	941 ORCHARD DR, PLEASANT GROVE, UT 84062	1966	
	Alpine School District	Windsor School	1315 N MAIN, OREM, UT 84057	1956	
	Nebo School District	Art City School	121 N 900 E, SPRINGVILLE, UT 84663	1978	
	Nebo School District	Barnett School	456 N 300 E, PAYSON, UT 84651	1979	
	Nebo School District	Summit Center	165 S 700 E, SPRINGVILLE, UT 84663	1958	
	Nebo School District	Springville Jr High	165 S 700 E, SPRINGVILLE, UT 84663	1958	Renamed Summit Center. Retrofit performed, verification pending.
	Nebo School District	Brockbank School	340 W 500 N, SPANISH FORK, UT 84660	1959	Retrofit performed, verification pending.
	Nebo School District	Cherry Creek School	484 S 200 E, SPRINGVILLE, UT 84663	1979	
	Nebo School District	Goshen School	60 N CENTER, GOSHEN, UT 84633	1983	
	Nebo School District	Larsen School	1175 E FLONETTE DR, SPANISH FORK, UT 84660	1979	
	Nebo School District	Payson High	1050 S MAIN, PAYSON, UT 84651	1968	Retrofit planned
	Nebo School District	Sage Creek School	1050 S 700 E, SPRINGVILLE, UT 84663	1959	Retrofit performed, verification pending.
	Nebo School District	Spanish Fork High	99 N 300 W, SPANISH FORK, UT 84660	1964	Retrofit performed, verification pending.
	Nebo School District	Spanish Fork Jr High	600 S 820 E, SPANISH FORK, UT 84660	1974	
	Nebo School District	Springville High	1205 E 900 S, SPRINGVILLE, UT 84663	1968	Retrofit planned
	Nebo School District	Wilson School	590 W 500 S, PAYSON, UT 84651	1959	Retrofit performed, verification pending.

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Utah (continued)					
	~~Provo School District~~	~~Provo High~~	~~1199 N LAKESHORE DR, PROVO, UT 84601~~	~~2018~~	Replaced 2018
	Provo School District	Timpview High	3570 N 650 E, PROVO, UT 84604	1977	Replacement pending
	Provo School District	Wasatch School	1080 N 900 E, PROVO, UT 84604	1949	
Wasatch					
	-	-	-	-	
Washington					
	Washington School District	Dixie High School ROTC	350 E 700 S, ST GEORGE, UT 84770	1960	
	Washington School District	Enterprise High	565 S 200 E, ENTERPRISE, UT 84725	1986	
	Washington School District	Snow Canyon Middle	1215 N LAVA FLOW DR, ST GEORGE, UT 84770	1992	
	Washington School District	Springdale School	898 ZION PARK BLVD, SPRINGDALE, UT 84767	1976	
Wayne					
	Wayne School District	Hanksville School	50 S CENTER, HANKSVILLE, UT 84734	1958	
	Wayne School District	Loa School	50 S 100 E, LOA, UT 84747	1949	
	Wayne School District	Wayne High	265 N 400 W, BICKNELL, UT 84715	1955	
	Wayne School District	Wayne Middle	75 N CENTER, BICKNELL, UT 84715	1926	
Weber					
	Ogden City School District	Bonneville School	490 GRAMERCY AVE, OGDEN, UT 84404	1964	
	Ogden City School District	Gramercy School	1270 GRAMERCY AVE, Ogden, UT 84404	1953	
	Ogden City School District	James Madison School	2563 MONROE BLVD, OGDEN, UT 84401	1969	
	Ogden City School District	Mount Ogden Junior High	3260 HARRISON BLVD, OGDEN, UT 84403	1959	
	Ogden City School District	Polk School	2615 POLK AVE, OGDEN, UT 84401	1926	Retrofit in progress, verification pending.
	Weber School District	Bates School	850 E 3100 N, OGDEN, UT 84414	1964	
	Weber School District	Bonneville High	251 E 4800 S, OGDEN, UT 84405	1959	

Table D-1 K-12 Public School Campuses with an RVS Score of 2 or Less (continued)

County	School District	School Name	Address	Construction Year	Comments
Weber (continued)					
	Weber School District	Country View School	4650 W 4800 S, WEST HAVEN CITY, UT 84401	1973	
	Weber School District	Farr West School	2190 W 2700 N, OGDEN, UT 84404	1984	
	Weber School District	Green Acres School	640 E 1900 N, OGDEN, UT 84414	1978	
	Weber School District	Hooper School	5500 S 5900 W, HOOPER, UT 84315	1970	
	Weber School District	Kanesville School	3112 S 3500 W, West Haven, UT 84401	1978	
	Weber School District	Lakeview School	2025 W 5000 S, ROY, UT 84067	1952	
	Weber School District	Lomond View School	3644 N 900 W, OGDEN, UT 84414	1959	
	Weber School District	Majestic School	425 W 2550 N, OGDEN, UT 84414	1999	
	Weber School District	Municipal School	5775 S 2200 W, ROY, UT 84067	1957	
	Weber School District	North Ogden Jr High	575 E 2900 N, OGDEN, UT 84414	1967	
	Weber School District	Pioneer School	250 N 1600 W, OGDEN, UT 84404	1966	
	Weber School District	Roosevelt School	190 W 5100 S, OGDEN, UT 84405	1957	
	Weber School District	Roy High	2150 W 4800 S, ROY, UT 84067	1971	
	Weber School District	Roy Jr High	5400 S 2100 W, ROY, UT 84067	1942	
	Weber School District	Roy School	2888 W 5600 S, ROY, UT 84067	1963	
	Weber School District	T.H. Bell Jr High	165 W 5100 S, OGDEN, UT 84405	1962	
	Weber School District	Uintah School	6115 S 2250 E, OGDEN, UT 84403	1963	
	Weber School District	Weber High	430 W WEBER HIGH DR, OGDEN, UT 84414	1971	

Appendix E
Retrofit Standards for URM School Buildings

E.1 Review of Retrofit Standards for URM School Buildings

Across the United States, building codes permit the use of engineering design standards for seismic retrofits of existing buildings that are different than those used for new construction. In general, design standards for seismic retrofits are more lenient, partially to offset the cost of improvements in existing buildings and often justified by the assumption that the building life span after retrofit is shorter than the life span of a new building. This leniency manifests itself in seismic retrofits being designed for lower seismic forces (often 75 percent) than would be used in new construction or in seismic retrofits that only address specific deficiencies (i.e., partial or deficiency-based retrofits). Seismic retrofits that use these lower seismic forces or are deficiency based are expected to perform more poorly during earthquakes compared to buildings of similar construction type designed to the standards of new construction. However, there are existing building standards, such as ASCE/SEI 41-17, *Seismic Evaluation and Retrofit of Existing Buildings* (ASCE, 2017), that include retrofit objectives that approach higher performance standards. These more closely mimic new building code standards and are appropriate for consideration for school retrofits.

E.1.1 Recommended Standard for URM School Building Retrofits

Schools are vitally important places. They are where children are educated, and children are required by law to attend school. As a result, schools are widely recognized as needing to be among society's safest structures. For example, the code that is currently used for new school construction in Utah (2018 *International Building Code*) requires that education buildings (up to and including grade 12) with more than 250 occupants be designed with 25 percent higher seismic forces than a typical commercial or residential structure.

URM buildings are extremely vulnerable to damage or collapse during earthquakes. Given this vulnerability and the widely recognized community value wherein the safety of children is prioritized by making schools safer

than typical buildings, the authors of this report recommend that URM school buildings be retrofit to higher standards than the minimum that is permitted for existing buildings by the building code. Performing a retrofit to the reduced seismic demand permitted under the 2018 *International Existing Building Code* (IEBC), to a discrete upgrade under ASCE/SEI 41-17 Tier 2 (deficiency based), or to a full upgrade under ASCE/SEI 41-17 Tier 3 to a reduced seismic demand (e.g., BPOE) does not meet a safety standard befitting a school. None of these ensure that the retrofitted structure will perform as well as a school building designed to meet modern performance standards.

By making a seismic retrofit of a URM school building meet a performance standard equivalent to that of a new building, the community recognizes the special status of a school. This would provide more equitable safety for children attending school in a retrofitted building compared to modern buildings across the state. Besides reducing the risk of loss of life and injury, an elevated retrofit standard would mitigate future economic losses by reducing downtime and repair costs following an earthquake.

It is recommended that seismic retrofits of URM school buildings use the ASCE/SEI 41-17 Tier 3 procedure with BPON hazard level and life-safety performance as a minimum, providing an expected seismic performance that is close to that of a new building.

E.1.2 Criteria for Evaluating Retrofitted URM School Buildings

This inventory of URM schools includes buildings that have been retrofitted in the past. The next phase of validation should address whether the previously retrofitted buildings meet an agreed-upon level of safety for URM school buildings.

It is recommended that the schools in this category be required to submit evidence of the design standards that were used for the retrofit and describe in recognized engineering terms the expected level of seismic performance. In recognition that previous retrofits were executed in good faith, it is further recommended that the ASCE/SEI 41-17 Tier 3 procedure with BPOE hazard level and life-safety performance as a minimum or design by the IEBC procedure be considered a satisfactory seismic retrofit. A "deficiency-based" ASCE/SE 41-17 Tier 2 procedure may be considered satisfactory; however, it is recommended that such a retrofit should be reviewed by a third party to ensure that all significant hazards were addressed. If incremental or partial retrofits have been performed, it is recommended that these schools remain classified as URM until the entire building has been retrofitted.

References

ASCE, 2002, *Seismic Evaluation of Existing Buildings*, ASCE/SEI 31-03, American Society of Civil Engineers, Reston, Virginia.

ASCE, 2007, *Seismic Evaluation and Retrofit of Existing Buildings*, ASCE/SEI 41-06, American Society of Civil Engineers, Reston, Virginia.

ASCE, 2017, *Seismic Evaluation and Retrofit of Existing Buildings*, ASCE/SEI 41-17, American Society of Civil Engineers, Reston, Virginia.

ATC, 1987, *Evaluating the Seismic Resistance of Existing Buildings*, ATC-14, Applied Technology Council, Redwood City, California.

ATC, 1990, *Rapid Visual Screening of Buildings for Potential Seismic Hazards*, ATC-21, Applied Technology Council, Redwood City, California.

ATC, 2020, *Summit on Unreinforced Masonry Buildings in Utah*, ATC-173-2, Applied Technology Council, Redwood City, California.

EERI, 2016, *Schools shall be URM Free by 2033*, EERI Policy White Paper, Earthquake Engineering Research Institute, Oakland, California.

FEMA, 2002, *Rapid Visual Screening of Buildings for Potential Seismic Hazards: A Handbook*, FEMA P-154, Second Edition, prepared by the Applied Technology Council for the Federal Emergency Management Agency, Washington, D.C.

FEMA, 2009, *Unreinforced Masonry Buildings and Earthquakes: Developing Successful Risk Reduction Programs*, FEMA P-774, prepared by the Applied Technology Council for the Federal Emergency Management Agency, Washington, D.C.

FEMA, 2015a, *Rapid Visual Screening of Buildings for Potential Seismic Hazards: A Handbook*, FEMA P-154, Third Edition, prepared by the Applied Technology Council for the Federal Emergency Management Agency, Washington, D.C.

FEMA, 2015b, *NEHRP Recommended Seismic Provisions for New Buildings and Structures*, FEMA P-1050, Federal Emergency Management Agency, Washington, D.C.

FEMA, 2017, *Safer, Stronger, Smarter: A Guide to Improving School Natural Hazard Safety*, FEMA P-1000, prepared by the Applied Technology Council for the Federal Emergency Management Agency, Washington, D.C.

FEMA, 2021, *Wasatch Front Unreinforced Masonry Risk Reduction Strategy*, Federal Emergency Management Agency, Washington, D.C.

FEMA/NIST, 2021, *Recommended Options for Improving the Built Environment for Post-Earthquake Reoccupancy and Functional Recovery Time*, FEMA P-2090 / NIST SP-1254, prepared by the Applied Technology Council for the Federal Emergency Management Agency and the National Institute of Standards and Technology, Washington, D.C. and Gaithersburg, Maryland.

SHPO, 2020, *Magna Earthquake Historic Building Damage Windshield Survey*, Utah State Historic Preservation Office, Salt Lake City, Utah.

UGS, 2016, *Earthquake Probabilities for the Wasatch Front Region in Utah, Idaho, and Wyoming*, Miscellaneous Publication 16-3, Utah Geological Survey in cooperation with the U.S. Geological Survey, Salt Lake City, Utah.

USOE, 2006, minutes of the meeting of the State Board of Education on June 1, 2006, Utah State Office of Education, Salt Lake City, Utah. https://www.schools.utah.gov/file/4abc7dbb-a92b-459e-892f-6d663b290067

USSC/SEAU, 2011, *Utah Students at Risk*: *The Earthquake Hazards of School Buildings*, Utah Seismic Safety Commission and the Structural Engineers Association of Utah for the Federal Emergency Management Agency, Salt Lake City, Utah.

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