

UTAH GRADES



AVIATION

C



BRIDGES

B+



CANALS

D+



DAMS

C+



DRINKING
WATER

B-



HAZARDOUS
WASTE

C+



LEVEES

D-



ROADS

B+



SOLID WASTE

B-



STORMWATER

C+



TRANSIT

B+



WASTEWATER

C

GPA: C+

ABOUT THE GRADES

THE 2020 REPORT CARD FOR UTAH'S INFRASTRUCTURE WAS WRITTEN BY A COMMITTEE OF CIVIL ENGINEERS ACROSS UTAH WHO VOLUNTEERED THEIR TIME TO COLLECT AND ANALYZE DATA, PREPARE AND REVIEW THEIR FINDINGS AND PRESENT THEIR CONCLUSIONS. THE COMMITTEE WORKED WITH STAFF FROM ASCE AND ASCE'S COMMITTEE ON AMERICA'S INFRASTRUCTURE TO PROVIDE A SNAPSHOT OF INFRASTRUCTURE, AS IT RELATES TO US LOCALLY. INFRASTRUCTURE IS GRADED BASED ON EIGHT CRITERIA: CAPACITY, CONDITION, FUNDING, FUTURE NEED, OPERATION AND MAINTENANCE, PUBLIC SAFETY, RESILIENCE, AND INNOVATION. ASCE GRADES DEFINES THESE GRADES AS FOLLOWS:



EXCEPTIONAL,
FIT FOR THE
FUTURE



GOOD,
ADEQUATE
FOR NOW



MEDIOCRE,
REQUIRES
ATTENTION



POOR,
AT RISK



FAILING/CRITICAL,
UNFIT FOR
PURPOSE

SOLUTIONS TO RAISE THE GRADE

1

DEVELOP A STATEWIDE RISK ASSESSMENT FRAMEWORK THAT PRIORITIZES AND PROGRAMS FUNDING (OR PROVIDES PRACTICAL FINANCE MECHANISMS) FOR LEVEE FLOOD CONTROL AND CANAL PROJECTS TO SYSTEMATICALLY ADDRESS DEFICIENCIES, REDUCE RISKS, AND ELIMINATE POTENTIALLY EXPENSIVE FLOOD INSURANCE REQUIREMENTS FOR PROPERTY OWNERS IMPACTED BY REVISIONS TO FEMA FLOOD MAPS IN THE NATIONAL FLOOD INSURANCE PROGRAM.

2

IMPROVE FREQUENCY OF DAM REHABILITATION FROM 60 YEARS TO 25 YEARS FOR THE HEALTH, SAFETY AND WELFARE OF THE PUBLIC.

3

EXTEND THE LIFE-CYCLE COST OF DRINKING WATER, STORMWATER AND WASTEWATER SYSTEMS BY ESTABLISHING STATEWIDE GUIDELINE FOR CONSTRUCTION, OPERATIONS AND MAINTENANCE. THESE GUIDELINES SHOULD INCLUDE SEISMIC RESILIENCY, LOW-IMPACT DEVELOPMENT POLICIES, AND SUSTAINABILITY PRACTICES.

4

UPDATE THE STATE'S WASTE MANAGEMENT PRACTICES WITH AN EMPHASIS ON SUSTAINABLE WASTE MANAGEMENT, A STRONG LOCAL RECYCLING MARKET, A CIRCULAR MANUFACTURING ECONOMY TO REDUCE COSTS, AND A BAN ON E-WASTE IN LANDFILLS.

5

IMPROVE ACCESS TO FREQUENT, RELIABLE TRANSIT AND ESTABLISH TRANSIT PLANNING AND LAND USE POLICIES THAT SEEK TO INCREASE ACCESS TO HISTORICALLY UNDERSERVED AND MULTI-CULTURAL COMMUNITIES.

ABOUT ASCE UTAH

THE UTAH SECTION OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) WAS ESTABLISHED IN 1916. THE UTAH SECTION IS A MEMBER OF THE REGION 8 BOARD OF GOVERNORS AND IS DIVIDED INTO FOUR BRANCHES ACROSS THE STATE OF UTAH; NORTHERN UTAH, WASATCH FRONT, CENTRAL UTAH AND SOUTHERN UTAH. THE UTAH SECTION ALSO HAS AN ACTIVE YOUNGER MEMBER'S FORUM AND STUDENT CHAPTERS AT UTAH STATE UNIVERSITY, UNIVERSITY OF UTAH, BRIGHAM YOUNG UNIVERSITY AND UTAH VALLEY UNIVERSITY. THIS EXTENDED HISTORY AND EXPERIENCE HAS PROVIDED THE UTAH SECTION OF ASCE A UNIQUE AND IN-DEPTH UNDERSTANDING OF INFRASTRUCTURE ACROSS THE STATE. AS OF JANUARY 2020 THE UTAH SECTION HAD 1,675 MEMBERS AND IS STILL GROWING.

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ASCE
UTAH SECTION



INFRASTRUCTURE MATTERS

UTAH IS GROWING. OUR STATE IS HOME TO THE "MIGHTY FIVE" NATIONAL PARKS, AND WE ARE INTERNATIONALLY RECOGNIZED FOR OUR HIKING, BIKING, SKIING, AND MANY OTHER OUTDOOR OPPORTUNITIES. UTAHNS ENJOY A RESILIENT AND DIVERSE ECONOMY SUPPORTED BY INFRASTRUCTURE FROM ROADS AND TRAILS TO WATER TREATMENT PLANTS AND AIRPORTS THAT REPRESENTS A COMMITMENT GOING BACK TO THE STATE'S PIONEER ROOTS. IF YOU LIVE IN UTAH, YOU KNOW THIS IS A SPECIAL PLACE. WHILE WE SHOULD CELEBRATE THE SUCCESS OF OUR RAPIDLY DEVELOPING WASATCH FRONT, WE UTAHNS RECOGNIZE THE IMPORTANCE OF OUR RURAL COMMUNITIES TO THE CONTINUED SUCCESS AND PROSPERITY OF OUR GREAT STATE. THESE RURAL COMMUNITIES NEED ACCESS TO RELIABLE CLEAN WATER, FUNCTIONAL ROADS, TRANSIT, FLOOD CONTROL, AND OTHER NECESSITIES OF LIFE. MEANWHILE, THE MORE DENSELY POPULATED WASATCH FRONT IS CONCERNED ABOUT PLANNING FOR THE FUTURE AND KEEPING UTAH AN AFFORDABLE, ACCESSIBLE, AND BEAUTIFUL PLACE TO LIVE.

THE UTAH SECTION OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) HAS PRODUCED THIS INFRASTRUCTURE REPORT CARD FOR THE BENEFIT OF ALL UTAHNS. YOU ARE OUR FAMILIES, OUR NEIGHBORS, OUR FRIENDS, AND OUR FELLOW CITIZENS AND WE VIEW THE RESPONSIBILITY OF BEING GOOD STEWARDS OF OUR STATE'S INFRASTRUCTURE AS A CALLING RATHER THAN JUST AN OCCUPATION. WE HOPE THAT YOU WILL TAKE A MOMENT TO READ OUR INFRASTRUCTURE ASSESSMENTS, REFLECT ON THE ROLE THAT INFRASTRUCTURE PLAYS IN YOUR DAILY LIFE, AND CONSIDER CONTACTING YOUR REPRESENTATIVES AS WELL ON ISSUES THAT MATTER TO YOU AS WELL AS ACTIVELY PARTICIPATING IN PUBLIC FORUMS TO CONTINUE TO MAKE INFRASTRUCTURE MATTER IN UTAH. THERE IS NO DOUBT THAT YOUR INPUT IS CRITICAL TO DEVELOPING A FULL UNDERSTANDING OF COMMUNITY NEEDS AND PRIORITIZING LONG-TERM INVESTMENT AND PLANNING IN INFRASTRUCTURE. WHEN IT COMES TO PLANNING FOR OUR FUTURE, YOUR VOICE MATTERS!

HOW YOU CAN GET INVOLVED

- GET THE FULL STORY BEHIND THIS REPORT CARD AT WWW.INFRASTRUCTUREREPORTCARD.ORG/UTAH.
- ASK YOUR ELECTED LEADERS WHAT THEY'RE DOING TO MAKE SURE YOUR INFRASTRUCTURE IS RELIABLE FOR THE FUTURE. USE YOUR ZIP CODE TO FIND YOUR LIST OF ELECTED OFFICIALS AT WWW.INFRASTRUCTUREREPORTCARD.ORG/TAKE-ACTION.

UTAH INFRASTRUCTURE REPORT CARD

WWW.INFRASTRUCTUREREPORTCARD.ORG/UTAH



AVIATION



Aviation is critical to the Utah economy because well maintained public use facilities are important for attracting and supporting businesses. Utah's aviation infrastructure includes 36 public-use airports serving both commercial and general aviation needs with runway surfaces characterized in very good condition. The busiest airport in Utah is the Salt Lake City International Airport (SLC) that is responsible for 98% of enplanements in the state. In recent years, SLC has invested nearly \$4 billion in passenger capacity and cargo volume. However, it is anticipated that there will be a funding gap in the coming years. Furthermore, as airspace becomes increasingly congested leading to flight delays, new technologies, process improvements, and operational efficiencies are coming online to reduce arrival capacity constraints.



BRIDGES



Highway bridges are a critical component to Utah's surface transportation systems. Bridges in poor condition can significantly impact traffic flow, economic development, and emergency services along a roadway corridor. Over the past 5 years, Utah has seen more than a 40% decrease in structurally deficient bridges, going from 2.9% in 2015 to 1.7% in 2020 resulting in the state's bridge inventory being ranked as fourth in the nation for the lowest percentage of structurally deficient bridges. This success is due, in part, to the Utah Department of Transportation's significant increase in funding, up from \$26.5 million in 2016 to \$48 million annually from 2018 to 2020. However, almost 1 in 3 Utah bridges are older than their intended 50-year design life. As the average age of the bridges in the state increases, so must the commitment to preservation, rehabilitation, and replacement of deteriorated structures. Utah has demonstrated national leadership by expanding bridge capacity by 30-40 bridges each year to accommodate population growth and by advancing the use of innovative materials like Lightweight Cellular Concrete in new infrastructure.



CANALS



Canals have served a critical role in Utah's communities with an estimated 5,300 to 8,000 miles across the state largely consisting of earthen embankments and cut ditches. Many in operation today were constructed over 100 years ago representing engineering marvels that contribute to the growth and prosperity of Utah. However, the canal system was not designed or constructed to modern standards, so poor performance or failures that once resulted in flooded fields now threaten cities, public infrastructure, and developments that have encroached upon the canals. While state leadership initiated and funded an inventory of Utah's canals, the condition or risk of over 1,600 entities remains largely unknown, namely risks from extreme weather or events. Furthermore, nearly all canals are owned and maintained by local entities that operate with diminishing funds and have limited access to increasingly competitive state-level resources.



DAMS



There are more than 900 dams in the State of Utah, 860 of which are in the National Inventory of Dams. Ninety-nine percent of dams in the state have an emergency action plan, which is much higher than the national average. However, downstream development is increasing, meaning many dams that were initially constructed using less stringent design criteria are now upstream from population centers. Additionally, there are seismic risks associated with dams near major population centers. Looking ahead, dams become even more critical to preserving Utah's quality of life and public health. The western region of the U.S. continues to receive pressure to provide stable water resources amidst challenges associated with dramatic growth, drought, and climate change. Neighboring states are undertaking ambitious and expansive efforts to meet future water demand through a renaissance in dam construction.



DRINKING WATER



Most of Utah's growing population is served by drinking water networks that operate under multiple threats. With a population that is projected to reach 5 million people by 2050, Utah not only faces water supply challenges, but significant funding needs, \$11 billion over the next 20 years, and seismic concerns. However, to provide guidance to the public water systems on monitoring critical drinking water assets and networks, the Utah Legislature now requires that the state's Conservancy Districts develop and maintain System Asset Management Programs (SAMPs). Aside from streamlining asset management, these plans also improve the resilience of the Utah's drinking water infrastructure because some areas have developed seismic event contingency plans that include processes for responding, repairing and restoring system functionality as expeditiously as reasonably possible.

Earthquakes are the third major threat to Utah's water supply networks. A Mag-7 earthquake would definitely cripple Utah's major water supply systems by damaging the transmission lines from the water sources that cross the Wasatch Fault to bring water from the mountains to the densely populated valleys.

Through efforts initiated by the Utah Division of Water Resources (DWR) and other state, regional and local agencies, residential per capita water use has decreased by about 20-percent in the past two decades. Utah's Prepare 60 drinking water plan has laid out a well-supported path for optimization of water sources and conservation.



HAZARDOUS WASTE



Hazardous wastes, such as byproducts of mining and manufacturing, present complex management and potential cleanup challenges to communities throughout Utah. Furthermore, electronic wastes containing lead and other heavy metals represent a growing concern when improperly disposed of in landfills. Ongoing cleanup concerns and no clear policy on banning e-waste from landfills is holding Utah back. However, Utah has a unique opportunity to leverage strong partnerships between state agencies and private industry to accomplish important goals in the management of hazardous waste, resource recovery and reuse, and land cleanup and redevelopment. Current public-private partnerships throughout the State are making a sustainable manufacturing industry and a circular economy part of a promising future for Utahans. One such project investigating a method of recovering precious metals, located in Utah and funded by the REMADE Institute, could provide the economic incentive to dramatically increase e-waste recycling by as much as 20%. Coordinated policy support for similar proven initiatives could lower waste management costs, reduce pollution from hazardous and e-wastes, create jobs, and immediately raise Utah's Hazardous Waste infrastructure grade.



LEVEES



Utah's geography rapidly transitions from high elevation, mountainous terrain to low-lying basins or lakes, which puts communities in the path of potential flooding. Levees are instrumental to Utah's flood control system. There are between 102 and 112 miles of levees statewide with approximately 252 individual segments averaging nearly 60 years old. It's estimated that over 125,000 residents are protected by the state's levee infrastructure and the total risk to property should a failure occur exceeds \$10 billion. While little to no construction documentation or condition data are available for existing levees, public safety information regarding floods in Utah includes 23 recorded injuries and 30 recorded deaths since 2000, with 17 flood-related deaths in 2017 alone. Given Utah's flood-prone areas and community encroachment on levees, the public safety consequences or costs of failure have and will continue to increase over time. However, in much of the state, limited to no planning exists for emergencies such as levee breaches. Changes to federal flood mapping, which will increase insurance costs, may mean that many owners cannot afford coverage and would therefore not be eligible for federal recovery funding if flooding occurs. With absent available state and federal funding, local municipalities have taken action to address changes in flood mapping and levee deficiencies. These projects have included levee improvements in Cache, Weber, Iron, and Salt Lake Counties.



ROADS



Utah's roadway network is more than 49,000 miles, 73% of which is owned by localities and 25% by the state. The remaining 2% of roadway mileage is part of the Interstate Highway System. Utah has long been considered the crossroads of the West and decision-makers have implemented smart policy and invested in the network to keep up that reputation. To serve extensive freight traffic from regional ports, funding for roadways increased from \$1.2 billion in 2017 to \$1.7 billion in 2020 and major capacity investments continue. Utah also embraces innovation and asserts fiscal leadership which is apparent in the 2020 Road Usage Charge for electric and hybrid vehicle owners and the 2021 gas tax increase from \$0.311 to \$0.014 per gallon. Finally, in recent years, the state has streamlined the Transportation Asset Management Plans and project risk analysis to preserve roadway infrastructure, increase adaptability amid extreme events, and maintain roadway functionality after extreme events occur.



SOLID WASTE



Solid waste management is essential to Utah's public and environmental health and is overseen by the Department of Environmental Quality (DEQ). Since 2013, the number of solid waste landfills has increased from 107 to 122. To date, only 5% of the state's total landfill area has been used. While the system's capacity is increasing, the current condition of the state's solid waste sector is somewhat unknown, as Utah's Solid Waste Master Plan has not been updated in 15 years. Meanwhile, solid waste fees, which help landfill owners operate and maintain their infrastructure, generally range from \$5 to \$15 for a standard pick-up truck or trailer. While capacity and economic resources are sufficient for now, recycling remains an area of potential improvement. Less than 2% of municipal solid waste is recycled state-wide, compared with the national average of approximately 35% annually. Educational initiatives and expanded access efforts are currently underway.



STORMWATER



Stormwater systems protect urban and rural communities from flooding. Stormwater quality regulations through the National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System (NPDES MS4) program have created a system of best management practices including bioswales, retention basins, wetlands, and other infrastructure to treat stormwater quality. In Utah, storm drain systems are owned and operated by the state, private, and municipal agencies and include between 5,000 to 10,000 miles of channels, drainpipes, and culverts along with detention systems. There are currently 95 MS4 permit holders within the state. With aging systems, some implemented in the early 1900s, it is important to perform maintenance and repair to ensure appropriate operation; however, not all of the state's stormwater systems have and exercise asset management. Dependent on stormwater utility fees and limited state-level funding and financing resources, ongoing upkeep to avoid system failures and to comply with new stormwater standards may become more challenging. However, addressing the increasingly stringent standards will likely fall onto stormwater system owners as the state only has \$1 million to contribute to innovative stormwater projects.



TRANSIT



Over the past 30 years, transit networks in Utah have significantly improved. Currently, there are over 100 miles of fixed guideway services and over 48 million annual riders, up an additional 2 million in the last five years. Since 2015, the transit system has seen expanded services including a connection between two major universities. While these transit improvements have made the system more convenient and user friendly, there are still pressing needs for system enhancement, expansion, and financial stabilization. Sales taxes from local service district support 65% of the transit system's funding, with the remainder coming from federal sources. Overall, many of Utah's urban residents are experiencing affordable types and sufficient levels of transit service that have not been experienced in their lifetimes, particularly in cities of The Wasatch Front. In contrast, rural areas face more challenges with public transit due to their population density, location and lack of available funding.



WASTEWATER



Wastewater infrastructure is a term used to describe the entire wastewater treatment system. In general, it includes the system of pipes and pumps that collects used water and carries it to a treatment facility, where a combination of physical, chemical, and biological processes clean the wastewater before release into the environment. Generally, the municipal wastewater treatment plants in Utah are meeting baseline technology limits, but new nutrient regulations are requiring older facilities to implement costly upgrades. Additionally, a growing number are at risk of losing installed treatment capacity as their infrastructure ages beyond its expected 40-year useful and efficient operating life. In addition, there is an ongoing deterioration of sewage collection systems that are 65-75 years old and beyond their expected useful life. Many districts and cities in Utah are currently upgrading their water reclamation facilities and collection systems. However, numerous wastewater agencies are struggling to keep up with repair and replacement of facilities, along with addressing ever more stringent regulations and accelerating population growth. For these facilities, aging infrastructure, and increasing maintenance needs may result in declining water quality.