REPORT CARD COMMITTEE

Chair: Melissa Matassa-Stone, PE, CFM, LEED AP, M. ASCE, WGM Group Inc.
Dave Aune, PE, Great West Engineering, Inc.
Stephanie Beckert, PE, Great West Engineering, Inc.
Bob Church, PE, Great West Engineering, Inc.
Erin Claunch, PE, City of Billings
John Connors, PE, CFM, Montana Department of Natural Resources & Conservation
Jerry Davis, PE, M. ASCE
Mike Day, PE, Territorial Landworks, Inc.
Kate Dinsmore, WGM Group, Inc.
Philip Forbes, PE, M. ASCE, Morrison-Mairele, Inc.
Loran Frazier, PE, M. ASCE, WGM Group, Inc.
Kurt Hafferman, PE, M. ASCE, Billmayer & Hafferman, Inc.
Jeremy Keene, PE, WGM Group, Inc.
Mike Kynett, PE, M. ASCE, Morrison-Maierle, Inc.
Chris Laity, PE, Great West Engineering, Inc.
Michele LeMieux, PE, Montana Department of Natural Resources & Conservation
Kristyn Mayernik, PE, A.M. ASCE, Morrison-Maierle, Inc.
Roger Millar, PE, AICP, F. ASCE, Smart Growth America
Matthew Mudd, PE, M. ASCE, Great West Engineering, Inc.
Scott Murphy, PE, M. ASCE, Morrison-Maierle, Inc.
Craig Nowak, PE, F. ASCE, Morrison-Maierle, Inc.
Jon Pederson, PE, NewFields Companies, LLC
Matt Schmidt, PE, SE, Beaudette Consulting Engineers, Inc.
Larry Schock, CFM, Montana Department of Natural Resources & Conservation
Stephanie Seymanski, PE, M. ASCE, Morrison-Maierle, Inc.
Jeff Smith, PE, LEED AP, WGM Group, Inc.
Shoots Veis, PE, M. ASCE, Interstate Engineering
Bill Wiegand, PE, M. ASCE, Morrison-Maierle, Inc.
Ezra Williams, PLA, CPSI, CTA Architects Engineers
Brittney Kohler, ASCE National
Becky Moylan, ASCE National

STATE SECTION

mtsectionpresident@gmail.com
www.infrastructurereportcard.org/montana

ASCE GOVERMENT RELATIONS

govrel@asce.org
www.infrastructurereportcard.org

ASCE HEADQUARTERS

1801 Alexander Bell Drive, Reston, VA 20191
www.asce.org

ASCE
MONTANA SECTION

2014 Report Card for MONTANA'S INFRASTRUCTURE

How Is Montana's Infrastructure Doing?

Montana's aging infrastructure is approaching a critical state of disrepair, earning a cumulative grade of C- in this *2014 Report Card for Montana's Infrastructure*. From neighborhood roads and community schools to safe drinking water, dams that produce energy and prevent flooding to waterways that irrigate fields, this infrastructure is used by all Montana residents and is essential to our economic future. Montana's citizens have an interest in solving our infrastructure problems. Regular maintenance and improvements will keep them running longer and save taxpayers money. This Report Card shows us that better stewardship is needed from our leaders to ensure that public health, safety, economic mobility, and welfare are maintained in the Big Sky State.

Over the course of 2014, the Montana Section of the American Society of Civil Engineers (ASCE) compiled a team of more than 30 civil engineers from the public, private, and non-profit sectors with wide-ranging industry expertise to prepare a school-style report card for Montana's infrastructure. Using a simple A to F grading system, the Report Card takes stock of eight specific infrastructure types in Montana - Dams, Irrigation Canals and Waterways, Drinking Water, Transportation, Schools, Wastewater, Transit, and Solid Waste. Not a day goes by that we each don't rely on these systems to maintain our quality of life.

This Report Card was prepared specifically for Montana's citizens and policy-makers to make sure we all know how our infrastructure is maintained and what condition it's in today. We expect our infrastructure systems to work when we need them, and we hope this Report Card will help us make good decisions about our infrastructure so Montana will remain a viable home for future generations.

While current infrastructure conditions are concerning, we can find solutions. As civil engineers, we are obligated to share our knowledge and provide critical information about Montana's infrastructure deficiencies in a way that everyone understands. We are committed to protecting the health, safety, and welfare of the public, and it is our hope that this Report Card will help build support to address the state's infrastructure needs. **Montana's economy, environment, health, and safety are at stake.**

GRADES

D-	Schools
D+	Wastewater
C-	Dams
C-	Drinking Water
C	Irrigation Canals & Waterways
C	Transportation
C+	Transit
B-	Solid Waste

Montana's GPA: C-

RAISING THE GRADES
4 KEY SOLUTIONS

1. **Have a Plan and Fund For the Future**: All infrastructure owners and operators should create and fund capital replacement plans for both immediate and long-term needs.
2. **Support Federal Programs That Are Good for Montana**: Montana should support federal efforts that provide direct financial assistance to the state for safe and efficient infrastructure, like the Highway Trust Fund and National Dam Safety Program.
3. **Keep Up Infrastructure Education Efforts**: State agencies should continue and encourage participation in education and outreach programs provided to infrastructure owners and operators.
4. **Innovate As We Replace**: Montana should support and encourage innovative solutions to infrastructure funding and capacity-building, including design/build project delivery and measures to increase waste diversion and recycling.

2014 MONTANA INFRASTRUCTURE GRADES

ASCE MONTANA SECTION

D- SCHOOLS

Montana has over 2,000 school buildings that 144,129 students attend. 68% of these schools were built prior to 1970. 40% of Montana's schools have fewer than 50 students, and others range from remote, one-room schoolhouses to larger community schools stretched to capacity. A 2008 assessment reported that $903M was needed to bring all Montana facilities to good condition. A bottom-to-top statewide school facilities review revealed that 66% of schools showed signs of damage and wear, as well as environmental needs such as HVAC, roof, and electrical issues. Recent energy conservation efforts have begun to curb some energy costs. However, available grant funding was not enough to address incomplete exterior wall insulation, a deficiency in 43% of schools, and incomplete roof insulation, a deficiency in 48% of schools. Montana's children deserve safe, healthy schools in which they can focus their efforts on learning.

D+ WASTEWATER

Montana has approximately 180 public wastewater treatment systems. Of those, 20% of the publicly owned wastewater treatment facilities have significant effluent violations and another 20% are under formal enforcement actions to correct system deficiencies to achieve compliance. Many of the collection systems date back to the early 1900s, and some of this original piping has never been replaced. It is not uncommon for the pipelines in originally established areas to have vitrified clay tile pipe that has cracked or failed. The majority of agencies report replacing little or no wastewater piping on an annual basis. Based on the current rate of replacement, it could take 70 to 90 years to replace Montana's water and wastewater infrastructure. Many communities have completed system additions since the 1950s, but over 60% reported a remaining capacity of less than five years. Current estimates to completely replace Montana's entire water and wastewater infrastructure are estimated to range between $12 billion and $15 billion.

C- DAMS

Montana's 3,316 dams hold approximately 34.5 million acre-feet of water, roughly the amount of water it would take to cover the states of Maine, New Hampshire, and Vermont in water one foot deep. Yet Montana averages only 35% of the average dam safety state budget per dam. The majority of Montana's dams were constructed between 1930 and 1970, and many have reached the end of their design life. The overall condition of Montana's dams is difficult to track because 75% do not have periodic engineering inspections and are not required to have operation permits. Overall, dams designated high hazard are in significantly better condition than dams designated low hazard, as they are inspected and routinely maintained. Montana's Dam Safety Program is allocating the limited resources available to the dams that would have the greatest impact on public safety, but as all dams continue to age, the unknown risk and need for maintenance and rehabilitation will continue to increase. Currently, the funding available for dam maintenance and rehabilitation is not adequate to continue to ensure dam safety.

C- DRINKING WATER

Montana has over 5,300 miles of water distribution and transmission piping, a longer stretch than driving roundtrip from Billings to Miami. Montana has approximately 700 public water systems consisting of those in the seven largest cities, about 60 serving communities larger than 1500 people, and the remaining 630 being cities, towns, districts, associations, and private systems. Some systems have piping dating back to the late 1800s and early 1900s, with many systems including pipe that is 75 to 100 years old. Most systems, without regard for size, experience major leaks on an annual basis that waste valuable water. Over 50% reported that the capacity of their distribution system is five years or less. In 2011, the Montana Department of Environmental Quality identified an immediate water system financial need of $885 million. Of the 700 public water systems, more than 1 in 5 are currently not compliant with monitoring requirements and other regulatory requirements.

C IRRIGATION CANALS AND WATERWAYS

Montana has over 2 million acres of irrigated land, an area almost double the size of Glacier National Park. 60% of this irrigated acreage receives some or all of its water needs from a canal supply. Suppliers include 20 State Water Projects, 17 U.S. Bureau of Reclamation facilities, and approximately 246 private irrigation organizations. 32% of owners identified their structures as notably impaired, with more than half reporting impairments due to infrastructure age of greater than 50 years. There is strong support for government facilities, but this is offset with the challenges of non-government facilities that have limited funding resources and a lack of assistance for facility operation. As Montana's irrigation systems continue to age and deteriorate, maintenance and repair demands increase, and operators should act now to better address these looming concerns.

C TRANSPORTATION

Montana has the third highest fatality rate in the nation, with a backlog of transportation projects waiting for available funding. 46% of major roads are in poor to mediocre condition and 40% of gravel roads are in poor or failed condition. These rough roads cost each Montanan approximately $292 to $484 per year in extra maintenance costs depending on their area's roads. 59% of the $60 billion in goods shipped within Montana travel by truck across the state's vast highway infrastructure, further emphasizing the vital role of the Montana transportation network. It is estimated that $14.8 billion is needed to take care of Montana's roadway system and bridges, but projected funding can only meet 25% of those needs. Despite being under funded, the state's highways are in fair to good condition and 92% of the state highway bridges are in good condition, efficiently moving citizens and goods from place to place. The overall lack of adequate funding cripples the effectiveness and lowers the overall rating to a C.

C+ TRANSIT

In Montana, 65 different rail, bus, and van services provide rural and urban transit service; 36 of these are public transit systems. While Montanans who have access to transit have increased their ridership over the past decade, it is estimated that statewide, only 17% of transit needs are being met. Several agencies benefited from over $15 million in Federal recovery investments in 2009, which essentially doubled short-term transit funding in the state, although future maintenance efforts will fall to Montana. 31% of Montana transit agencies responded to a survey that funding levels are "Inadequate" or "Not at All Adequate" to meet future needs. When asked, "What should public transit/public transportation in Montana look like in 20 years?" the single word answer was "more."

B- SOLID WASTE

Of the 1.6 million tons of solid waste generated annually in Montana, approximately 1.3 million tons are landfilled. Since municipal solid waste rules changed in 1993, significant improvements have occurred within Montana's solid waste infrastructure and operations, including a reduction from over 300 facilities statewide to just 31. The state has approximately 38 years of landfill capacity currently permitted. Most of the municipal landfills were either constructed or have received significant upgrades within the last 25 years, providing good to excellent environmental protection. In addition, the support infrastructure, including roads, stormwater controls, and equipment buildings are in relatively good condition. One exception is rural container sites and some transfer facilities, which are generally older and in fair to poor condition, posing significant public safety issues. Montana has improved the percentage of material diverted from its landfills, but needs to continue to make progress towards increasing waste diversion through reuse and recycling. Overall, Montana's solid waste infrastructure is in relatively good condition and solid waste rates are reasonably affordable.