RWJF Culture of Health
Sentinel Community Snapshot:

Butte-
Silver Bow, Montana

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About this report

The Sentinel Communities project, conducted by RTI International in collaboration with The RAND Corporation, is sponsored by the Robert Wood Johnson Foundation. The project will monitor activities in each of 30 diverse communities around the country for at least five years. This Snapshot is the first in a series of planned reports about this Sentinel Community. Using data compiled in early 2016, it provides an initial overview of the community’s history, challenges, and approaches to building a Culture of Health. Visit cultureofhealth.org to see the full list of communities, links to other reports, and information about the project.
Introduction

Perched on the Continental Divide high in the Rocky Mountains, the consolidated city-county of Butte-Silver Bow, Mont., lies atop a labyrinthine network of dormant copper mines, once known as the “richest hill on earth” for its mineral wealth. The smallest geographic county in the state, Butte-Silver Bow is mining country or, rather, a former boom town whose mines are largely dormant now. These days, tourists flock to western Montana by the thousands to fish its crystalline rivers and marvel at the snow-capped Rockies, whereas in Butte, the skeletal frames of abandoned mine elevators still sit sentinel throughout the town.

Inactive mining diminishes population
With a population of only 34,462, of which 97 percent resides in the municipality of Butte, the county is 92 percent white, with 4 percent Hispanic, less than 2 percent American Indian or Alaska Native, and 2 percent “some other race.” Eighty years ago, at the peak of the copper boom, Butte’s population was three times what it is today. But now the grown grandchildren of European immigrant miners struggle to wrestle back the natural beauty of their environment from the industry’s complicated legacy.

Historically, Butte-Silver Bow’s population, development, and economy rose and fell with the volatile price of copper. From its peak in the 1920s—through a move to open pit mining and gradual layoffs in 1955—to a cessation of mining activity in 1982, Butte-Silver Bow’s fortunes eventually dwindled to that of a once-storied mining town without a mine. Today, after a return of mining operations in the late 1980s, mining/energy companies are still an important employer in the
area, offering some of the highest paying jobs; however, efforts are ongoing to diversify the economy into tourism, recreation, and more. With a pending Environmental Protection Agency (EPA) consent decree expected this year, which could lead to more large-scale environmental cleanup, county residents maintain hope for a Butte-Silver Bow that more closely resembles what it once was: the pride of the Rocky Mountains.

UNEMPLOYMENT LEADS TO HIGHER POVERTY
Butte-Silver Bow’s unemployment rate and the percentage of residents with either public or private insurance are on par with the state. The median household income of $37,503 is significantly less than the state ($46,766). Nearly 30 percent of the county’s children live in poverty (Figure 1). Educational attainment rates are slightly lower in Butte-Silver Bow than the state, with only 24 percent of residents having a bachelor’s degree or higher and 9 percent having less than a high school diploma.

An alarming number of sites in and around the city of Butte are contaminated with the by-products of copper mining and smelting, but the county and residents have a vision for a brighter, cleaner future and a long history of fighting for that future. Many segments of the community and municipal, state, and federal governments have worked together for decades to advocate for the removal of staggering amounts of lead, arsenic, copper, and other toxic mine waste. Highly contaminated groundwater continues to seep closer to the water table that the community relies on for its existence, while residents await resolution of pending legal questions that have delayed cleanup of this EPA Superfund site for decades.

MINING PITS ARE PENDING DISASTERS
No story of Butte-Silver Bow can be told outside the frame of mining. Although mining activities in the area peaked decades ago, the community exists and has developed because of the value of the precious metals found within the earth beneath it. Said to be the most heavily mined ground in the world, Butte sits atop an estimated 7,000 miles of abandoned mine tunnels and smelting waste pits that have since slowly filled with a neon blue “plume” of toxic wastewater in an aquifer 50 to 60 feet below the surface.

In 1955, the Anaconda Mining Company (ACM) opened the Berkeley Pit, an open quarry mine in the heart of town that now measures 1.5 miles across and 1,800 feet deep. In the late 1970s, oil company Atlantic Richfield (ARCO) acquired ACM, but closed the Berkeley Pit seven years later. A few years after the closure of Berkeley Pit, Montana Resources Inc. (MRI) was formed to continue mining another nearby site. Although mining is no longer the largest industry in Butte-Silver Bow, MRI, with about 350 employees, remains one of Butte’s top employers.

Much like the labyrinth of shafts beneath the city’s streets, the Berkeley Pit is now essentially a stagnant, unusable lake of toxic water. Some believe that the Berkeley Pit, despite its being a polluted eyesore, actually serves as a sump for the plume, drawing off 5 million gallons of groundwater per day, which in effect, keeps the community’s aquifer safe (for now). However, when the steadily rising pit water reaches the critical point of 5,410 feet (per EPA and Montana Department of Environmental Quality standards), the water will then have to be pumped and treated to prevent seepage into Silver Bow Creek. This critical height of pit water is estimated to occur by 2023.

The effects of mine waste contamination are well documented, with direct correlation to cancers of the lungs, bladder, kidney, and liver, and autoimmune diseases, tissue damage to the respiratory system, and neurological damage. Tests of the plume water in 2010 revealed frightening results: arsenic was 10 times over the drinking water standard, copper was 7,500 times, lead was six times, and zinc was 100 times. Although the plume is currently contained well below the county’s water supply, it continues to seep toward the water table and will eventually become a much more immediate and disastrous threat. With numerous waste sites in and around the city of Butte, the community now faces two potential contamination fronts: buried by-product “tailings” and particulates (or dust) in the air people breathe.

With the state, county, and community’s continued efforts to stay involved in discussions and apply pressure, the EPA and other authorities continue to clean up key sites and properly source a clean water supply for residents. As a sign that these efforts have led to successful cleanup, health outcome data in Butte-Silver Bow largely support the notion that, for now, pollution is largely contained. In 2012, the Montana Department of Public Health & Human Services reported that most cancer rates in Butte-Silver Bow were on par with those of the state and country, except for uterine cancer and melanoma rates, which were higher than the state (Figure 2). A 2014 health needs assessment revealed that the prevalence of chronic obstructive pulmonary disease in the county was more than twice that of the state, with asthma moderately higher (Figure 3).

In 1983, the EPA listed Butte-Silver Bow as a federal Superfund program site—specifically a 30-mile stretch of the Silver Bow Creek.
bed that is now the largest such site in the country. Through the Superfund program, which is funded largely by taxes on petroleum and oil companies, EPA and state agencies typically assess and rate potential cleanup sites, study the effects of the contamination on the environment and population, and then propose a plan for long-term cleanup. Who pays for and carries out that cleanup is negotiated between the EPA, the state, and those responsible for the contamination. Although the program has led to the remediation and reclamation of more than 800 acres of the Silver Bow Creek, public opinion has long been at odds with the EPA’s methods, motives, goals, and results over a complicated 33-year history.

In 1999, EPA partnered with the Montana Department of Environmental Quality to complete a $147 million cleanup of lower Silver Bow Creek funded by ARCO that was completed in the summer of 2015. This creek once ran red with toxins but is now largely restored to its former beauty. However, the EPA has stopped short of removing waste “tailings” from several key sites within Butte city limits along what is known as the Parrot Corridor (Figure 4). The EPA has continually maintained its controversial “waste in place” strategy, contending that the tailings and plume are currently contained and do not present a threat to public health.

In a battle of competing studies and experts, disagreement prevails over the speed with which the plume is seeping toward Silver Bow Creek, any breach of which would endanger the lower creek cleanup and the health of the surrounding wildlife and population.

Removal of the Parrot Corridor tailings has become a fulcrum issue for the community. In contrast to the EPA’s “waste in place” strategy, many community groups and the state are calling for their removal, even going so far as to develop plans detailing the work. Since 2009, the EPA has been conducting tense negotiations with the county, state, and mining companies to reach a consent decree settlement—one in which no parties admit liability—over the extent and design of future cleanup. Negotiations are kept private by court order, but they are said to involve groundwater and streams cleanup, particulate contamination in air and soil, mineshaft caps, the maintenance of cleanup work, and institutional monitoring. In December 2016, the state signed an agreement with MRI, under which both parties will contribute to the cost of dealing with the approximately 350,000 cubic yards of contaminated soil and the Parrot tailings themselves. A popular view in the community was that ARCO should pay for the removal, leaving the state to spend its allocated funds on restoration projects, as intended. However, in the end, the state agreed to pay for the removal of the tailings, relocating them onto MRI property. The settlement still faces complications involving the relocation of county shops currently on top of half of the site. But Harley Harris, supervising attorney for the Natural Resource Damage Program, hails the agreement as “a major milestone” for decontamination efforts (para. 5).

ECONOMIC WOES AND MENTAL HEALTH CRISIS

In addition to poverty and environmental exposure concerns, Butte-Silver Bow residents struggle with high rates of emotional and behavioral health problems. Butte-Silver Bow County has one of the highest rates of inpatient hospitalizations for mental health problems in the state, with a rate of 14.1 per 1,000 population, compared to the state average of 11.6 per 1,000 population. The county also has one of the highest rates of suicide deaths in the state, with a rate of 19.7 per 100,000 population, compared to the state average of 12.3 per 100,000 population. These rates are particularly concerning given the high prevalence of poverty and unemployment in the county, with 28.2% of households living below the poverty line and 24.1% of the labor force unemployed, compared to the state averages of 14.2% and 10.5%, respectively.

In response, community organizations and health care providers are working to address these health challenges through a variety of initiatives, including increased access to mental health services, community programs to promote mental well-being, and collaborations with local schools and community centers to provide resources and support for youth. However, many residents still face barriers to accessing care, including lack of insurance, transportation, and cultural barriers. This highlights the need for continued efforts to improve mental health care access and support in Butte-Silver Bow County.
health problems. In 2014, St. James Healthcare (also the county’s largest private employer) partnered with Butte-Silver Bow Health Department and others on a Community Health Needs Assessment and Improvement Implementation Plan. The needs assessment identified mental health as the county’s primary health issue.

As a state, Montana lies within what is known as the “suicide belt,” which comprises rural middle-American states that experience significantly higher than average suicide rates. From 2005 to 2015, suicide was the leading cause of death for children, adolescents, and young adults in Montana. Butte-Silver Bow specifically experiences an inordinate amount of self-induced injury and suicide among youth and adults. Between 2011 and 2013, the county had a much higher number of emergency department visits for injury from intentional self-harm than the state (197 cases per 100,000 residents for the county versus 105 per 100,000 residents for the state). From 2012 to 2013, Butte-Silver Bow experienced 30 incidents of suicide, an age-adjusted rate of 42.2, which was nearly double that of the next highest county. From 2013 to 2015, four Butte High School students, one Butte Central High School student, and one Emerson Elementary School student committed suicide by firearm.

**Initiatives Unite for Cleanup and Mental Health**

Although the EPA, mining companies, the state, and county disagree about where and how (what they refer to as) remedy and restoration should proceed, all agree that surface and groundwater contamination are present and pose future threats to the health of Butte-Silver Bow’s population. In 2006, the county successfully negotiated a separate $10 million allocation agreement with ARCO, which has since been invested and grown to $14 million. Each year, the Superfund Advisory and Redevelopment Trust Authority determines the amount of funds available for particular restoration projects. In 2016, it allocated approximately $250,000 for community and economic development projects and $75,000 for historic preservation. Although the allocation is significant, these funds are not intended for cleanup and would cover only a fraction of estimated cleanup costs. That said, the consent decree settlement will dramatically affect the tenor, extent, and focus areas of many collaborative partnerships across the community, and restorative efforts like those detailed above can continue with cleanup efforts finally resuming at key sites throughout the county like upper Silver Bow Creek.

The board has been criticized locally for some of its decisions and for appointing citizens who are inexperienced with the inner workings of the Superfund, its agreements, and the sourcing and dispersion of funds. The board funds several summer festivals intended to reinforce residents’ and tourists’ conception of the county’s beauty and historical significance and has set aside funds for the continuance of fresh water sourcing and pumping projects.

**METALS MITIGATION IS A MODEL PROGRAM**

In what is perhaps one of the county’s most effective decontamination programs and a potential model for similar programs, the Residential Metals Abatement Program (RMAP), run by the Butte-Silver Bow Health Department, has been in place for 18 years. Designed to mitigate residents’ exposure to heavy metal particulates present on surfaces throughout Butte, RMAP identifies problem sites in the community through testing—often the attics and yards of homes—it then vacuums out the contaminants, removes and replaces soil, or replants vegetation. So far, the program has cleaned nearly 1,000 homes, and, as recently as 2012, only four of 645 area children tested for lead showed elevated levels. RMAP also educates the public by distributing informational materials to contractors and housing authorities about preventive measures.

The Restore Our Creek Coalition, which is made up of members from Project Green, Citizens for Labor and Environmental Justice,
Citizens Technical Environmental, and the Butte Natural Resource Damage Restoration Council, fights for a comprehensive cleanup of the Parrot Corridor. Restore Our Creek holds regular public forums and "visioning workshops" for the community to comment on future uses for the corridor, including enhanced recreation arts and culture and small business opportunities. EPA and Montana Department of Environmental Quality representatives have addressed these forums in the past, answering questions about restoration efforts and seeking to engage the community in their ongoing efforts.  

**PARTNERSHIPS TO HELP QUELL SUICIDE RATES**

The community has sought funding and engaged cross-sector partnerships to address its high prevalence of emotional and behavioral health issues. Three school districts—Kalispell, Butte, and Browning—were awarded a $3 million grant over five years to implement the Montana Support Outreach and Access for the Resiliency of Students (Montana SOARS) program, which helps educate teachers, students, and parents about mental health issues through training courses and educational materials. SOARS aims to train 125 people per year in Youth Mental Health First Aid training, with additional plans in 2016 to implement a cross-agency referral system in the area to break down silos and information gaps.  

Since 2000, the Montana Department of Public Health & Human Services has partnered with a statewide network of private organizations, individuals, and government agencies that is active in Butte-Silver Bow to address the prevalence of suicide. Among an array of programs aimed at recognizing risk for suicide and prevention, the state has funded Butte public schools' suicide intervention skills trainings for counselors and Butte-Silver Bow's Suicide Prevention Coalition, formed in 2013, which has given away at least 1,500 gun locks to local parents as part of a larger statewide distribution initiative.  

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**Securing a Healthy Future**

From Berkeley Pit to the steel elevator towers throughout town to the dust in their attics, Butte-Silver Bow residents know how deeply ingrained their mining past is in their community and their families’ lives. The county’s future, its freedom from copper’s poisoned environmental legacy, and thus its health, depend on continued community involvement, successful decontamination efforts, collaborative partnerships, and the outcome of the EPA’s pending consent decree. Additional surveillance, data and information gathering, and analysis will examine some of the ways in which Butte-Silver Bow is navigating collaborations and meaningful cross-sector action to improve its community’s health. Specific questions include the following:

- Would the community embrace and benefit from a central agency to better coordinate resources and programs aimed at improving public health outcomes? How should such a resource be established?
- In what ways is the mining industry currently contributing to the community (e.g., economically, socially), and how can these contributions be expanded or encouraged?
- To what extent have Butte-Silver Bow’s suicide prevention programs affected awareness, suicide rates, and other related outcomes?
- What steps has Butte-Silver Bow taken to diversify its economy to improve the median income of its residents?
- What is the long-term plan for attracting tourism to Butte-Silver Bow?
References


