



2016 REPORT CARD FOR HUMBOLDT COUNTY'S WATER INFRASTRUCTURE

An independent review of the current state of water infrastructure needs, capability and funding in Humboldt County by the North Coast Branch of the American Society of Civil Engineers





WATER INFRASTRUCTURE

***The Report Card for Humboldt County's Water Infrastructure* assesses the drinking water distribution and treatment systems providing and moving clean water in Humboldt County.**

This Report Card covers 19 water systems, including the Humboldt Bay Municipal Water District (the single regional wholesale supplier), six cities, 11 community services districts, and one tribe (Table 1). A total of 38,143 water service connections are represented with 87% (33,104) of these being residential.

Humboldt County's 3,568 square miles are primarily rural, which makes the upkeep of water infrastructure more difficult in comparison to urban areas, and consequently, more expensive per person to maintain. The population served by the infrastructure reviewed in this Report Card totals approximately 104,000, which is about 80% of the county's total population.

The first Report Card by ASCE, published in September 2014, assessed the road and bridges categories. In this second Report Card, the local water infrastructure category was assessed. In both Report Cards, seven fundamental criteria were used to assess the categories: condition, capacity, safety, operation and maintenance, resilience, funding and future need, and innovation.

By the Numbers

80% of Humboldt County residents rely on the water infrastructure graded **B** overall.

19 water systems participated and work to provide clean water in Humboldt County

33,104 residential water customers are served

7 criteria were used to assess the infrastructure: condition, capacity, safety, operation and maintenance, resilience, funding and future need, and innovation

Table 1. Humboldt County Water Infrastructure by Service Providers

Agency ¹	Connections						Total
	Single Family Residential	Multi-Family Residential	Commercial/ Institutional/ Industrial	Landscape Irrigation	Other	Agricultural Irrigation	
City of Eureka ²	7,876	770	1,183	0	0	0	9,829
Humboldt Community Services District ³	6,697	332	247	8	0	0	7,284
City of Arcata ⁴	4,445	572	664	16	0	0	5,697
McKinleyville Community Services District ⁵	4,832	442	243	0	0	0	5,517
City of Fortuna ⁶	3,972	0	319	30	7	0	4,328
City of Rio Dell ⁷	1,105	62	45	8	0	0	1,220
Willow Creek Community Services District ⁸	*	*	*	*	*	*	935
City of Blue Lake ⁹	*	*	*	*	*	*	686
Jacoby Creek Water District ¹⁰	531	0	0	0	0	0	531
Fieldbrook- Glendale Community Services District ¹¹	553	0	19	0	0	0	572
Manila Community Services District ¹²	354	21	5	1	0	0	381
City of Trinidad ¹³	*	*	*	*	*	*	325
Loleta Community Services District ¹⁴	197	36	18	0	0	0	251
Humboldt Bay Municipal Water District ¹⁵	182	1	16	0	0	0	199
Palmer Creek Community Services District ¹⁶	*	*	*	*	*	*	154
Myers Flat Mutual Water System ¹⁷	87	*	13	*	*	*	100
Alderpoint Water District ¹⁸	*	*	*	*	*	*	79
Big Lagoon Community Services District ¹⁹	37	0	1	0	0	0	38
Bear River Band of Rohnerville Rancheria ²⁰	*	*	*	*	*	*	17
Total	30,868	2,236	2,773	63	7	0	38,143

*Not Available

¹ Note: 32 surveys were sent out and 19 responded; from here forward, "Humboldt County infrastructure" refers to that of the 19 respondents

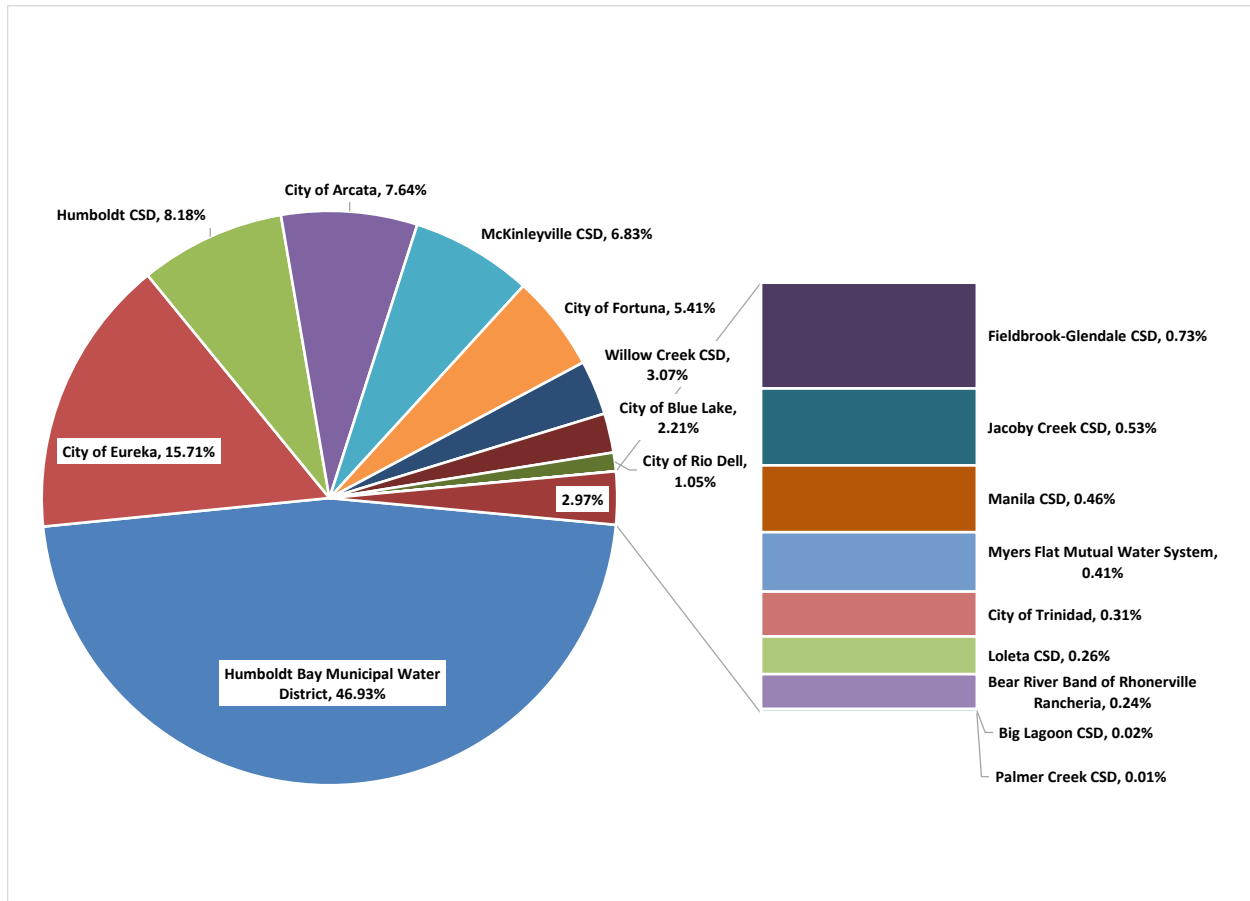
- ² City of Eureka
- ³ Humboldt Community Services District
- ⁴ City of Arcata
- ⁵ McKinleyville Community Services District
- ⁶ City of Fortuna
- ⁷ City of Rio Dell
- ⁸ Willow Creek Community Services District
- ⁹ City of Blue Lake
- ¹⁰ City of Arcata
- ¹¹ GHD
- ¹² Manila Community Services District
- ¹³ GHD
- ¹⁴ Loleta Community Services District
- ¹⁵ Humboldt Bay Municipal Water District
- ¹⁶ Palmer Creek Community Services District
- ¹⁷ GHD
- ¹⁸ Alderpoint Water District
- ¹⁹ Big Lagoon Community Services District
- ²⁰ Bear River Band of Rohnerville Rancheria

A committee of local water experts and officials gives this 2015 Report Card for Humboldt County's water infrastructure a grade of B.

Humboldt County's water infrastructure is currently in good to excellent condition. Portions of the infrastructure are coming to the end of their lifetime and will require replacement in the next 20 to 50 years. However, the majority of the local water systems in Humboldt County can safely treat and reliably provide clean water with minimal capacity issues and minimal risk to the public.

While the overall status of the County's water infrastructure is in good to excellent standing, many of the smaller community service district's water infrastructure will require significant investments. These communities service a small fraction of the overall population of Humboldt County, and therefore have minimal impact to the overall County grade. Five of the 11 community service districts individually contribute less than one percent to the overall grade. Yet, they require significant investment on the individual community scale. In contrast, the larger entities including: Humboldt Bay Municipal Water District, the cities, and the larger community service districts contribute, individually, up to 50% to the overall grade (Figure 1). Note that the contributing weight of each community was determined based on the quantity of water consumed by the community.

Figure 1. Humboldt County water service provider's weight contribution to overall grade



To maintain its water infrastructure at its current condition, Humboldt County will need to make significant investments to replace aging components, such as water lines and water storage tanks. Local agencies estimate that approximately \$90 million will be required over the next five to ten years to maintain the existing system at its current condition. Table 2 summarizes Humboldt County’s maintenance and future needs according to current budgets and projections.

Table 2. Maintenance and Future Needs of Humboldt County Water Systems by Agency

Agency	2014 Annual Budget	Anticipated Capital Improvement Cost	Local Share of Capital Improvement Needs ¹	Annualized Cost of Loans ²
Bear River Band of Rohnerville Rancheria	*	*	*	*
Humboldt Bay Municipal Water District ³	\$12,000,000	\$56,000,000	\$22,400,000	\$1,943,091
Humboldt Community Services District ⁴	\$3,300,000	\$5,646,354	\$5,646,354	\$195,918
City of Eureka ⁵	\$2,800,000	\$7,380,000	\$2,952,000	\$256,072
McKinleyville Community Services District ⁶	\$2,471,429	\$11,512,000	\$4,604,800	\$399,444
City of Fortuna ⁷	\$981,420	\$3,328,000	\$3,328,000	\$0
City of Arcata ⁸	\$2,297,249	\$2,133,000	\$2,133,000	\$0
City of Blue Lake ⁹	\$450,000	*	*	*
Fieldbrook- Glendale Community Services District ¹⁰	\$379,000	*	*	*
City of Rio Dell ¹¹	\$360,000	\$5,000,000	\$1,000,000	\$173,490
City of Trinidad ¹⁰	\$292,772	*	*	*
Palmer Creek Community Services District ¹²	\$70,000	*	*	*
Manila Community Services District ¹³	\$170,000	\$230,560	\$230,560	\$0
Myers Flat Mutual Water System ¹⁰	\$70,000	*	*	*
Alderpoint Water District	*	*	*	*
Jacoby Creek Water District	*	*	*	*
Loleta Community Services District ¹⁴	\$55,329	\$636,000	\$254,400	\$21,864
Willow Creek Community Services District ¹⁵	\$816,209	\$150,000	\$150,000	\$0
Big Lagoon community Services District ¹⁶	\$25,658	*	*	*
Total	\$26,539,066	\$88,687,914	\$39,371,114	\$3,077,299

*Not Available

¹ Assumes that the local communities will need to borrow 60% of their funding needs and will finance them over a 30-year period at 4% interest. Provided in this column is the local share of their capital improvement needs.

² Provides the annualized cost of those loans using the assumptions described in Note 1.

Sources for Table 2:

- ³ Humboldt Bay Municipal Water District
- ⁴ Humboldt Community Services District
- ⁵ City of Eureka
- ⁶ McKinleyville Community Services District
- ⁷ City of Fortuna
- ⁸ City of Arcata
- ⁹ City of Blue Lake
- ¹⁰ GHD
- ¹¹ City of Rio Dell
- ¹² Palmer Creek Community Services District
- ¹³ Manila Community Services District
- ¹⁴ Loleta Community Services District
- ¹⁵ Willow Creek Community Services District
- ¹⁶ Big Lagoon Community Services District

With its aging water infrastructure, and given its rural nature and low population density, Humboldt County will require financial assistance to maintain a resilient infrastructure.

The Humboldt County water infrastructure is generally in good condition. However, portions of the infrastructure are coming to the end of their useful life and will require replacement in the next 20 to 50 years. All of these systems were constructed using a majority of grant funding and long term loans that were available at very low interest rates. As grant funding has become harder to obtain, it will be harder for rural communities to be able to fund the necessary replacements. Funding will need to be increased to account for the infrastructure replacement, and it will be important for our local representatives to build support in the legislature for grant funding.

Like many areas of the State, the infrastructure in Humboldt County is vulnerable to natural events such storms, flooding, earthquakes, and fires.

Although local agencies have implemented disaster preparedness planning, Humboldt County's geography presents risks to water infrastructure. The area is very seismically active, and population centers such as the cities of Eureka, Arcata, and Ferndale, are largely in low lying areas that are especially susceptible to flooding during high rainfall and tides, and to tsunamis after major earthquakes. These events obviously threaten drinking water systems.

Skilled water system operators and maintenance personnel are difficult to attract and retain for many Humboldt County cities and agencies, but they are vital for providing safe drinking water.

Coupled with difficulty in recruitment and retention of skilled personnel, increasingly complex regulations and reporting requirements have also increased labor needed to properly run water systems. Assistance from the county, state and federal governments will be vital in helping these systems comply with regulations and to provide safe reliable potable water to their communities. This assistance will need to include both financial and technical support.

RECOMMENDATIONS

1. Maintain and Increase Leadership in Infrastructure Renewal

Humboldt County's infrastructure is a responsibility of local leaders, and leadership is needed to maintain and renew the infrastructure the generations before us have built. Bold leadership and a vision for how strategic infrastructure investment can help local communities are needed to reverse the current trends. Local leaders need to proactively search for funding and promote potential rate increases that will pay for capital improvements.

2. Promote Sustainability and Resilience

Today's infrastructure must meet the community's ongoing needs, and at the same time, protect and improve environmental quality. Sustainability, resiliency, and ongoing maintenance must be an integral part of improving the area's infrastructure. Today's water treatment and distribution systems must be able to withstand both current and future challenges. Both structural and non-structural methods must be applied to meet challenges. Infrastructure systems must be designed to protect the natural environment and withstand both natural and man-made hazards, using sustainable practices, to ensure that future generations can use and enjoy what we build today, as we have benefited from past generations.

3. Develop and Fund Plans to Maintain and Enhance Humboldt County's Infrastructure

Infrastructure investment must be increased at all levels, but it also should be prioritized and executed according to well-conceived plans that focus on the health and goals of the system. The goals should center on water quality, capacity, and environmental stewardship, while encouraging resiliency and sustainability. The plans must reflect a better defined set of federal, state, local, and private sector roles and responsibilities and instill better discipline for setting priorities and focusing funding to solve the most pressing problems.



ABOUT THE REPORT CARD

INFRASTRUCTURE

Infrastructure is the basic physical and organizational structures and facilities needed to operate our community including:

- aviation
- bridges
- dams
- drinking water
- energy
- hazardous waste
- inland waterways
- levees
- public parks and recreation
- rail
- roads
- schools
- solid waste
- transit
- wastewater

MISSION

This first *Report Card for Humboldt County's Infrastructure* assessed two important infrastructure categories: **local roads (D+)** and **bridges (C-)**.

This second *Report Card for Humboldt County's Infrastructure* assesses the water infrastructure category.

The mission of this *Report Card for Humboldt's County's Infrastructure* is to prepare an assessment of Humboldt County's infrastructure to educate the public and civic leaders and build support for dedicated and consistent sources of funding needed to maintaining and improving infrastructure in a timely manner in order to get the most out of our public investments. Infrastructure failures not only

VISION FOR INFRASTRUCTURE

Long Term: Well-maintained, efficient, safe and secure infrastructure facilities that are sufficient to meet the current needs and future needs of a growing State and that protect our quality of life.

Short Term: A public leadership that develops, enacts and implements the practices and funding mechanisms needed to get there.

Mission: To prepare an assessment of Humboldt County's infrastructure to educate the public and civic leaders, and build support for dedicated and consistent sources of funding needed to sustain the public infrastructure of local jurisdictions.

disrupt the community, they also ultimately make the community bear higher costs for repairs and emergency responses and can increase risk to public safety.

REPORT CARD PROCESS

The North Coast Branch of the San Francisco Section of ASCE began creating the first local Report Card in January of 2014 to tell the story of the infrastructure condition in Humboldt County. For the first Report Card, transportation experts from the public and private entities within Humboldt County participated in the preparation of the Report Card, and local representative from Humboldt County, the cities, and the tribes all came together to assess the road and bridges infrastructure



Figure 2. Bridge over North Fork Mad River near Korbel, CA

of the County. The group was divided into two working committees: roads and bridges. Professional engineers from private engineering consulting firms either represented public entities or specifically assisted in quality assurance for the preparation of the report. California Department of Transportation professionals also assisted in preparing this report and provided reviews. Members of the ASCE North Coast Branch facilitated the discussion and assisted in preparation of the report. The result of this collaboration is a Report Card that brings to the forefront the road and bridges infrastructure needs for all residents living both in the rural and urban areas of Humboldt County.

The Committee first chose to assess local roads and bridges for two reasons. First, road condition information for many cities and the County was readily available from an existing comprehensive pavement condition assessment and would reflect the local needs. Second, local engineers and community members surveyed felt roads and bridges should be assessed first. To be clear, the Report Card does not grade state highways or state bridges although these are assessed as part of the *2012 Report Card for California's Infrastructure*.



Figure 3. Existing asphalt concrete deteriorating on Eel River Drive near Fortuna, CA.

In July 2015, the North Coast Branch of ASCE launched the second Report Card to tell the story of the water infrastructure condition in Humboldt County. For this Report Card, water experts from public and private entities within Humboldt County participated in the preparation of the Report Card, and the working committee including local representative from Humboldt Bay Municipal Water District (the single regional wholesale supplier), the cities, the community services districts and the tribes all came together to assess the local water infrastructure systems within the County.

To gain a better understanding of the drinking water infrastructure, the North Coast Branch of ASCE distributed a survey to the working committee members. The survey allowed each entity to rate their water system based on a scoring system and criteria established by ASCE Infrastructure Report Card methodology. The method for gathering responses was found to be effective at gaining understanding of the condition of the systems. The survey results were supplemented with information obtained from the State Department of Public Health, the entities Consumer Confident Reports, technical details from the Humboldt County General Plan, and further discussions with the entities and local water professionals.

The survey results and the supplemental information described above were compiled and reviewed by a group of local experts, professional engineers from private engineering consulting firms, working in the County over the last 30+ years. The local experts recommended the final grades presented in this report. Members of the ASCE North Coast Branch facilitated the discussion and assisted in preparation of the report. The result of this collaboration is a second Report Card that brings to the forefront the local water infrastructure needs for residents living both in the rural and urban areas of Humboldt County.

ASCE appreciates the support of all of the infrastructure stakeholders who provided input and direction including Dan Duncan, David Hull, Ethan Ricca, Netra Kahtri, James Henry, Doug Culbert, Randy Jensen, Lonnie Danel, John Berchtold, Eric Lust, Rebecca Crow, Christopher Drop, Marcus Drumm, Paul Helliker, Kevin Farmer, Karen Horn, Illijana Asara, and Michael Flockhart.



Figure 4. City of Fortuna Relocation of the Electrical Panels at the Corrosion Control Facility to above the estimated flood elevation for a 100-year storm event.



Figure 5. McKinleyville Community Services District 1.5 million gallon water storage tank that was recoated in 2012



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