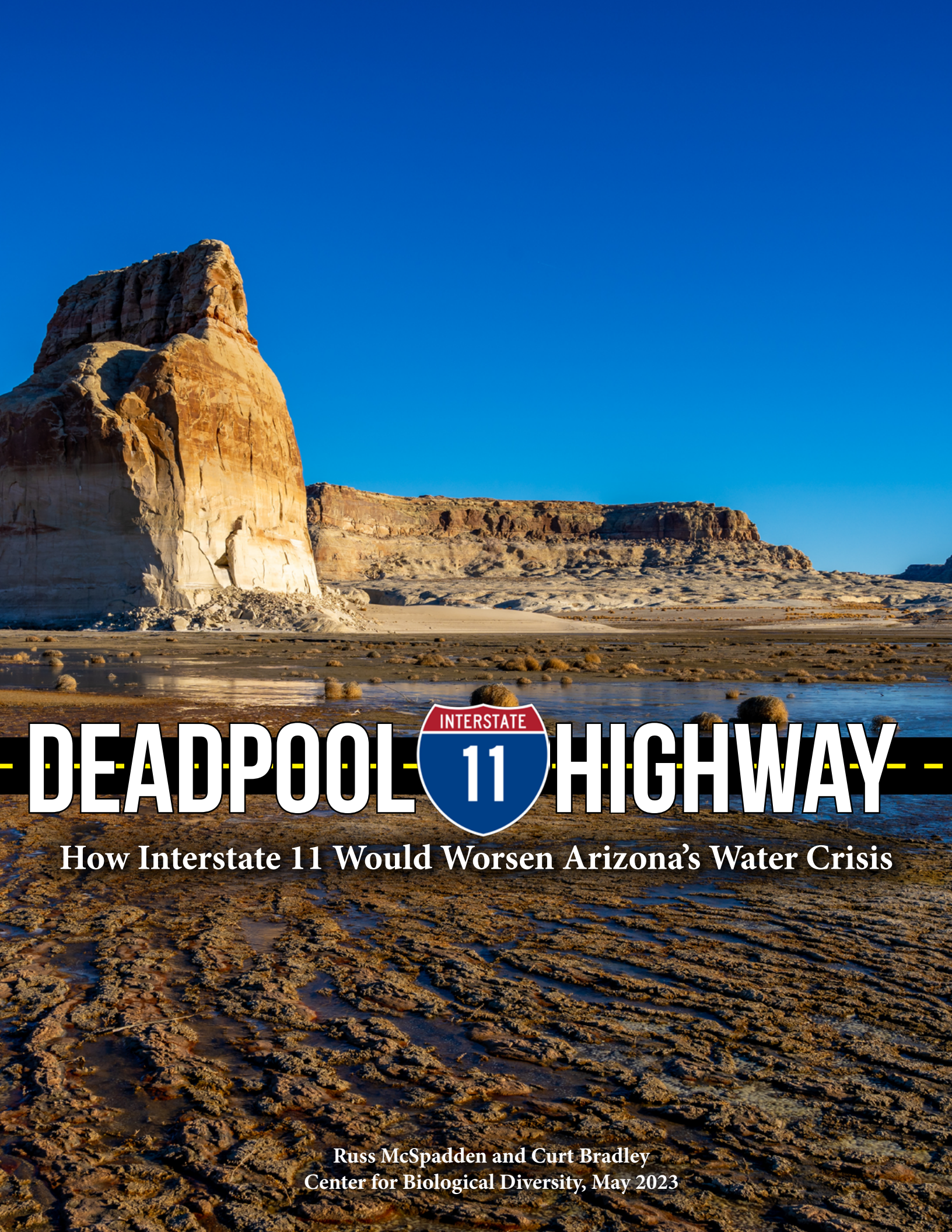

How Interstate 11 Would Worsen Arizona's Water Crisis

Russ McSpadden and Curt Bradley
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DEADPOOL HIGHWAY

How Interstate 11 Would Worsen Arizona's Water Crisis

INTRODUCTION

Arizona and the Colorado River Basin are suffering the effects of the most severe drought in 1,200 years.[1] The state is at a water-management crossroads. For Arizona to continue to thrive, policymakers must make smart decisions that respond to our limited and decreasing water supply.

Transportation investments can induce unsustainable water demand through new development and spawn new development in places where adequate water supplies don't exist.

Such is the case with Interstate 11.

The Arizona Department of Transportation and Federal Highway Administration have proposed building a new 280-mile highway corridor, I-11, with the explicit purpose of supporting seven future "growth areas"[2] that already face water scarcity, drought conditions, and overallocated water supplies. At least one of these doesn't have current water supplies to support that growth.

This report extrapolates city and state government data to estimate the population and water needs of Interstate 11's projected growth areas. We find that:

- Population in these areas will soar more than 10 times from roughly 220,500 people to more than 2.8 million, increasing Arizona's population by a third.
- Water use also will increase more than tenfold, or 1,180% — from 33,593 acre-feet to 396,400 acre-feet of water per year. That's 2,774,800 acre-feet every seven years, roughly Arizona's current total annual Colorado River allotment.
- At least one area, metropolitan Phoenix's West Valley, lacks enough water to support the development Interstate 11 is proposing to serve.
- The highway's environmental analysis doesn't consider how much water demand it could induce or whether there's enough water to support these growth areas.

Warming, drying, and the overallocation of Colorado River water have left Lake Powell and Lake Mead perilously low. As depletions exceed the river's declining flows,[3] Lake Powell faces "deadpool" — the point at which there will be insufficient reservoir water to regularly flow downstream into Arizona.[4] In 2023 Arizona entered a Tier 2 shortage, and the federal government cut its Colorado River supply by 21%.[5] Deeper cuts are likely in the future. Groundwater is also overallocated in Arizona, with cities, farms, developers and other entities claiming the right to use more water than exists. As a result, wells and water supplies for agriculture and desert cities are drying up as groundwater pumping outpaces aquifer recharge.[6]

Interstate 11's purpose and need, as identified by state and federal transportation officials, is predicated on water that may not exist and growth projections that are unsustainable in a megadrought with no end in sight. According to the National Oceanic and Atmospheric Administration, hotter and drier conditions in Arizona and the Southwest will continue trending upward during this century.[7]

Interstate 11 would be an expensive disaster for Arizonans and the state's precious, imperiled water resources. It should be shelved.

Lake Powell, 1999 NASA

Lake Powell, 2021 NASA

WHAT WE ANALYZED

We used the Buckeye Water Resources Master Plan[8] (Table 1) to compare current and estimated future population and water demand. If all 27 master planned communities and two area plans in Buckeye are built, the population will soar to 872,000 people in the next 20-40 years. Based on contemporary planned developments, that's an estimate of 2,180 people per square mile. We extrapolated this suburban sprawl density across the seven planned growth areas that Interstate 11 is proposed to serve.[9] We used 2020 U.S. Census data to determine the current population within the growth areas and used Buckeye's average water usage of 136 gallons per person per day.

City of Buckeye Water Demand Projections			
	2018	2040	Buildout of Master Planned Communities and Area Plans
Developed Area (mi²)	34	143	400
Population	72,900	310,800	872,000
Water Demand (AFY)	11,100	47,350	132,850
Note: (1) Water use is based on 136 gallons per capita per day			

Table 1. City of Buckey Water Demand Projections

I-11 Projected Areas of Growth		
Area (mi²)	2,018.00	2018
2020 Population	220,514	
Projected population	2,822,606	
2020 Water Demand	33,593	acre feet/year
Projected Water Demand	429,995	acre feet/year
Increased Water Demand	**396,402**	**acre feet/year**

Table 2. I-11 Projected Areas of Growth

Today roughly 220,500 people live in the planned growth areas along the proposed highway corridor. That's expected to soar to more than 2.8 million people after full buildout — a more than tenfold increase.

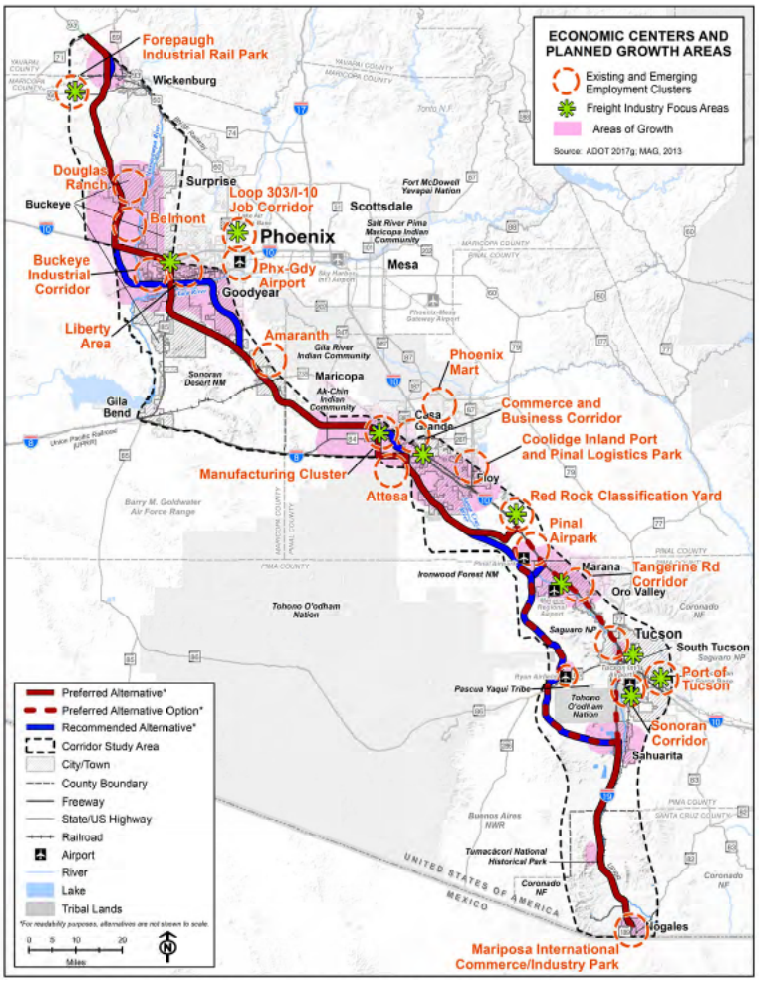
Future development would require an additional 396,400 acre-feet of water per year to serve those new residents. Interstate 11's planned growth areas would consume nearly 2.8 million acre-feet every seven years, roughly equivalent to Arizona's total annual Colorado River allotment.

THE ROUTE THROUGH THE DROUGHT

As proposed, Interstate 11 would extend 280 miles from Nogales, Arizona, on the Mexican border, north to Wickenburg, northwest of Phoenix. Government planners' preferred corridor would run through pristine desert alongside Saguaro National Park, Ironwood Forest National Monument, the Tohono O'odham Nation, Sonoran Desert National Monument and protected wilderness areas, as well the exurban and rural fringes of Tucson and Phoenix.

In a July 2021 environmental impact statement, state and federal transportation agencies said the highway's primary purpose is to "provide a high-priority, high-capacity, access co-controlled transportation corridor to serve population and employment growth."[10] The agencies relied on projected population and employment growth models to estimate future travel demand and justify the new highway. They identified a preferred route to serve seven planned growth areas (see map).

According to the U.S. Census, Arizona is one of the fastest-growing states in the country and had five of the 15 fastest-growing cities in the United States in 2021.[11] The government's projected population growth models for the interstate did not consider the megadrought or the state's water supplies.[12]



Above: Map of Growth Areas in the I-11 Study Area from the final Environmental Impact Statement.
Below: Sprawl development in Buckeye, Arizona.

BUCKEYE: HIGH AND DRY

New information about one of the largest growth areas, the West Valley, clearly demonstrates that Interstate 11's goal of serving growth in the Arizona desert is at risk for lack of water.

In January 2023 the Arizona Department of Water Resources released a bombshell report with a damning conclusion: The West Valley's water supply is projected to be 4.4 million acre-feet short of what it needs based on estimates of groundwater pumping and aquifer recharge.[13] Because state law requires a 100-year assured water supply in this region, the agency can't approve new development here. There just isn't enough water.

Buckeye's 2020 master plan analyzed the water needs of 27 approved master-planned communities. Buckeye would expand eight times over in the coming decades to 872,000 people from a current population of about 101,000, and these new residents would need 132,850 acre-feet of water every year. Just one of the mega-

Site of proposed Interstate 11 corridor through Avra Valley, between Saguaro National Park and Ironwood National Monument west of Tucson in Pima County. Photo by Russ McSpadden

developments, Teravalis, would include more than 100,000 homes and 300,000 residents.[14] Buckeye aims to become the second-largest city in Arizona after Phoenix, with a tenfold increase in water demand.

Buckeye, like each of the growth areas I-11 is intended to serve, represents a model of medium-density, car-dependent sprawl development associated with greater water demand.

NO WATER STUDY

State and federal transportation officials proposed a highway to serve new development but failed to analyze whether, or how much, water is available to support it. Remarkably, there's been no analysis in the federal environmental review of the water demand that the highway would spur, or how much water is available in the areas it's intended to serve. At an estimated construction cost of $7 billion to $10 billion, Interstate 11 could become one of the biggest transportation infrastructure boondoggles in U.S. history.[15] The highway's true price tag is likely higher because planning costs haven't been published. In 2022 the Arizona State Legislature appropriated $25 million for an Arizona Department of Transportation study, but there's no other record of the highway's publicly funded planning costs.[16]

CONCLUSION

Interstate 11 is a costly, unsustainable, environmentally destructive project predicated on growth that would spur a tenfold increase in water demand in the Arizona desert. There's been no analysis of the water supplies needed to support this growth. The Arizona Department of Transportation and Federal Highway Administration's claim that the highway is needed to support future population growth ignores Arizona's water crisis. The state and the Southwest are in the midst of a climate change-induced megadrought that scientists assure us will continue.

I-11 is an outdated, 1960s solution that would only exacerbate 21st century problems of climate change, drought, and dwindling water resources. Arizona Gov. Katie Hobbs and the state legislature should implement policies to mitigate the impact of new highways on unsustainable population growth and water demand and limit transportation infrastructure that would lead to the overallocation of already stressed water resources. This could include implementing water-availability assessments for proposed highways and the growth they're intended to serve.

Arizona must encourage smart growth by divesting from polluting highways and increase investment in green transportation infrastructure that integrates multimodal transportation systems, climate resiliency, and sustainable community development. Arizona can't afford the water demand associated with sprawling, car-dependent development that highways like I-11 would enable.

I-11 should be rejected before any more taxpayer dollars are wasted.

ENDNOTES

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