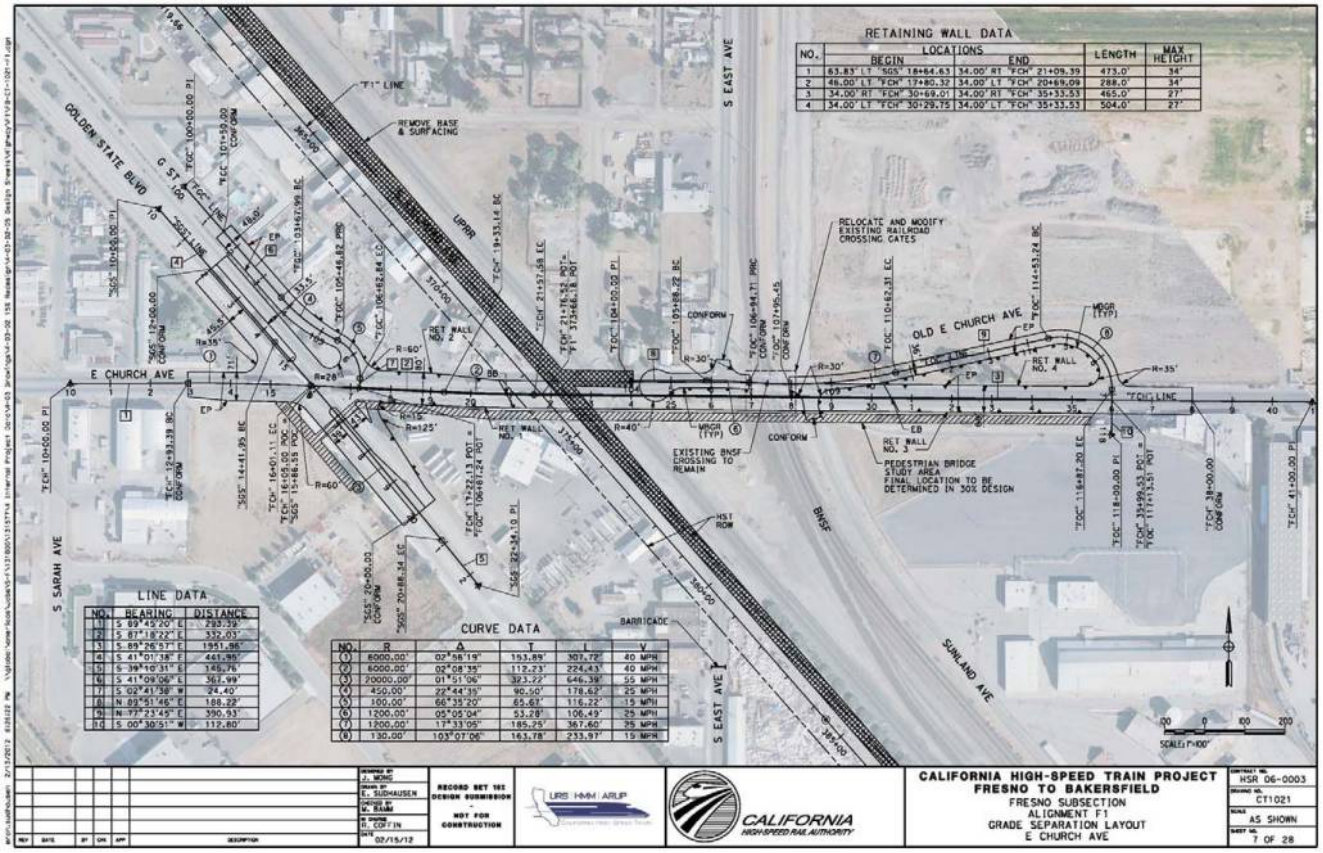

From California High-Speed Rail Project, Request for Proposal for Design-Build Services, Fresno to Bakersfield, Fresno Subsection.

COURTESY OF THE CALIFORNIA HIGH-SPEED RAIL AUTHORITY.

MICHAEL HILTZIK

Learning from the LA Aqueduct

It's getting harder to sell the future in California

Billions of dollars will be spent on infrastructure projects to support California's thriving population in the twenty-first century, and that's just counting the projects we've already dreamed up. Governor Jerry Brown has revived the idea of a peripheral canal to carry water south from Northern California reliably while reducing the ecological strain of exports on the Sacramento-San Joaquin

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Delta; the California high-speed rail project looks forward to a day when regular north-south commuting in the state outruns the capacity of air travel; and the state's schools, colleges, and universities continue to struggle with the task of educating students for an economy that requires increasing numbers of highly and specifically skilled workers. Where will all that money come from?

There's a lesson to be learned from William Mulholland. Famous today for bringing water to Los Angeles and victimizing the people of Owens Valley, he's less well known for his role in the chicanery that took place at the other end of the planned aqueduct, where the people of Los Angeles were asked to put up $1.5 million to launch the project via a bond vote in 1905.

Tempting as it may be to think of that bygone era as one free of such obstacles as environmental impact reports and antidevelopment lawsuits, the aqueduct was by no means a sure thing. Moneyed interests lined up on both sides of the project, as did the press. In the months leading up to the September 7 vote, Mulholland and his supporters showered the voters with misrepresentations and outright lies. They warned that the city's population of 220,000 souls was about to outgrow its local water supply; the "nightmare" of a dry Los Angeles could be only weeks away. They raised the specter of private speculators acquiring control of the municipal system if the voters failed to act—although the only such figure known was a former partner of Mulholland's who had been unable to raise funds for such a scheme in more than a decade of trying.

An embargo on the project's announcement was broken one day early by the *Los Angeles Times*, which proclaimed the new era with all the enthusiasm one would expect from a publication controlled by members of the syndicate expecting to profit from the sale of newly watered land: "Titanic Project to Give City a River" read its page-one headline on 29 July 1905. The aqueduct plan, the *Times* declared, was "the most important movement for the development of Los Angeles in all the city's history." The *Times* predicted that land values in the San Fernando Valley would double with the coming of the water. This was a miscalculation; within ten days of the announcement land values had already quintupled.

But the *Times's* scoop turned one of its competitors against the aqueduct. William Randolph Hearst's *Los Angeles Examiner* positioned itself as the enemy of moguls poised to rake in multimillion-dollar hauls. The *Examiner* called incessantly for investigations of profiteering while raising doubts about the healthfulness of the Owens River, which skeptics called "a vile bed of typhoid germs."

Mulholland and the *Times* reminded city dwellers of a "drought" that had crippled the city from 1895 to 1904—an exaggeration, though there were a number of dry years in the preceding decade. What registered in people's minds was the hot spell that August, which drove temperatures over 100 degrees. That was evidence enough that the water supply of Los Angeles was poised on a knife edge. That the weather broke and brought back normal temperatures by the first of September weighed little against the fearsome drumbeat coming from the aqueduct party. As it happened, the results of the election told contradictory tales of municipal apathy and municipal fervor. Only 11,500 voters came to the polls, fewer than half those who had voted in the mayoral election the previous year. But those who came voted for the $1.5 million bond issue by a margin of fourteen to one.

Before a second vote in 1907 to approve a $23 million bond—the money needed to actually build the aqueduct—many of the same charges were aired again, but as a pale echo of their earlier selves. Even the *Examiner*, bowing to what had become genuine municipal zeal, muted its opposition. Turnout on 12 June 1907 swelled to more than twice that of 1905, and the margin of victory was almost as great, ten to one. The *Times* declared victory the next morning in its distinctively crass fashion, reporting, "The few 'antis' who appeared were as lonesome as a ham sandwich at a picnic of the sons of Levi."

We can debate the methods Mulholland and associates used as they were worked out at both ends of what became the Los Angeles Aqueduct—indeed, that debate continues to this day. But we should acknowledge his fundamental farsightedness, which was fixed early in his career on securing a water supply for a growing Los Angeles.

"The city needed the aqueduct, but it was a need founded in prospect," wrote the water historian William Kahrl in 1982. "The city had to have the aqueduct, not to meet any actual and immediate needs, but to serve the prospective demands of a greatly increased future population." The choice was between a Los Angeles destined to be a small city of a half-million, even a quarter-million population, and a Los Angeles taking its place as a great metropolis.

The attitude of Mulholland and his backers was that if fearmongering and deceit on a monumental scale were necessary to build a monumental water works, so be it. Asked during the campaign what would happen if the city failed to vote the bonds and failed to get the water, he replied crisply, "If you don't get it now, you'll never need it." Mulholland was committed to building more than was needed in his day and letting tomorrow grow into the slack.

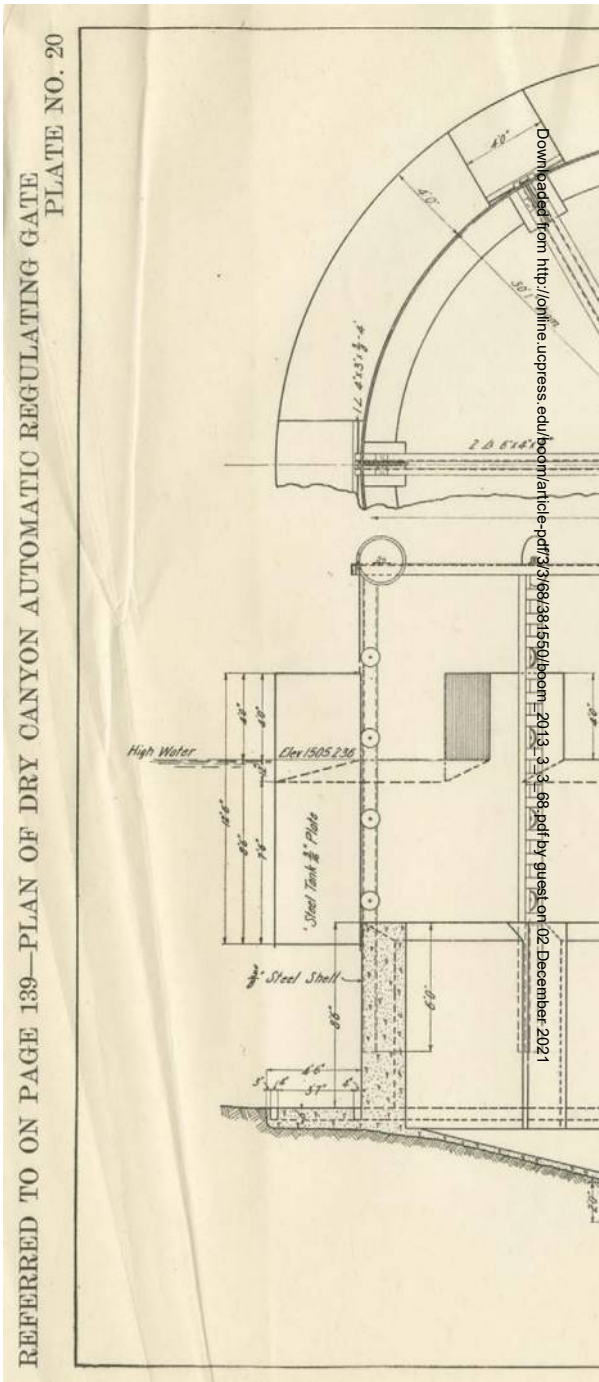
Before the aqueduct campaign, Mulholland had helped to rally public and political support for the city to retake ownership of its water supply from the privately owned company that employed him. The water system then was already decrepit, and in any case too small to serve a boomtime clientele. Homeowners complained of finding fish in their water pipes—that is, when there was water in the water pipes—and water company employees were known to find the odd corpse in a reservoir. But more money flowed in from more customers, and more pipelines were being laid all the time.

The city took over the system in 1902 with the proceeds of a $2 million bond sale. As head of what was now a city agency, Mulholland launched himself into the dual roles of engineering chief and promoter of municipal growth. The search for water to fuel and supply that growth led him to the Owens Valley and gave birth to the aqueduct. To ensure municipal control over the water supply, the project would have to be publicly financed. In 1905, when Angelenos voted to raise the money through bonds, they were voting to buy their aqueduct on layaway.

The aqueduct, in its visionary birth and its method of financing, looked ahead to many other works that made the Golden State: bridges, dams, freeways, the state university system, and, yes, more waterworks. These projects may not all have been unalloyed blessings, but without them California could not have fulfilled its dreams. Mulholland's approach to securing popular support for speculative and expensive public works prefigured our uneasy approach to major infrastructure spending today. The same questions arise again and again: When should infrastructure be the government's responsibility? When should it be left to private enterprise? And if the former, how best to pay for the job?

California is facing these issues on multiple fronts today.

Infrastructure development always rests on a certain type of visionary faith. First, one must believe that critical



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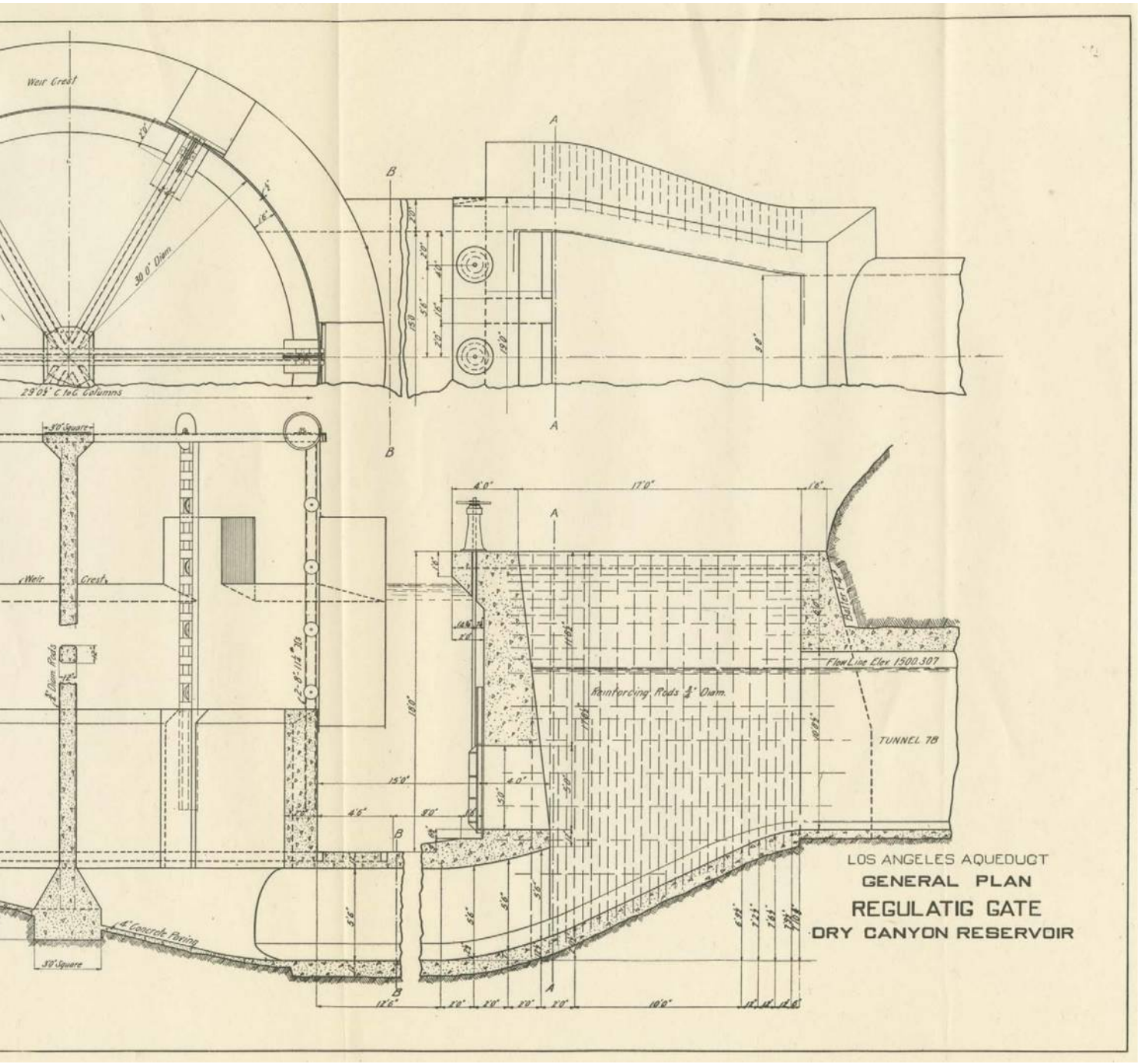


Plan from *Construction of the Los Angeles Aqueduct Final Report*. COURTESY OF UCLA LIBRARY SPECIAL COLLECTIONS, CHARLES E. YOUNG RESEARCH LIBRARY, UCLA.

When should infrastructure be the government's responsibility? When should it be left to private enterprise?

problems loom on the horizon demanding solutions; second—and this is the harder part—that the solutions proposed today will solve those problems. To be convinced that it makes sense to build a high-speed rail line linking northern and southern California, one must accept projections of ridership, cost, environmental impact, and technological innovation that all involve a large measure of conjecture. The benefits of keeping public higher education accessible and inexpensive for the broadest range of California residents may not be measurable for decades, if at all.

Politics, finance, and social policy also play their parts in the process. The alignment of the proposed high-speed rail line is subject to the competing demands of local communities from one end of the state to the other. The construction of a new water conveyance system in the Delta means balancing local and regional costs and benefits with those of the state as a whole. It may be impossible to find a "balance" that satisfies everyone. Building and supporting an expansive university program means imposing costs on all taxpayers to educate the children of a few. Does the entire state gain from offering an elite high-quality education to a few thousand of its sons and daughters every year? Californians in 1960, when the state's higher education master plan was drafted, had no doubt that it did; today they might answer more equivocally.

Mulholland and his big money backers were able to convince the city leaders and voters that the aqueduct was the solution to a real problem. To overcome the opposition, Mulholland, with the help of the *LA Times*, spun a narrative that voters believed: this pure mountain water would ensure Los Angeles's future. It helped, too, that thirst afflicts voters at all levels of society. But the solutions to our current infrastructure needs aren't so straightforward, nor do they improve the lot of all Californians equally. How do you convince nearly forty million people that any given project is one they should fund over decades?

So it's unsurprising that we sometimes seize on the most straightforward and convenient financing solution: require the direct beneficiaries of a project to cover its cost. Should we pay for highway construction through tolls or gasoline taxes? Should students shoulder the cost of their education through tuition, and farmers and city dwellers pay for their water by the gallon? It may be an easier sell, but maybe too

UC Berkeley, 1888. COURTESY OF BANCROFT LIBRARY, UC BERKELEY.

UCLA, 1930. COURTESY OF THELNER HOOVER PHOTOGRAPHY COLLECTION, UCLA LIBRARY SPECIAL COLLECTIONS, CHARLES E. YOUNG RESEARCH LIBRARY.

narrow a way to finance infrastructure that can enrich whole communities or regions for decades.

Moreover, it can place the burden on users who can't afford the price, or result in socio-economic stratification. Los Angeles County's experiment with toll lanes on its congested Harbor Freeway has produced longer commutes for those who cannot or will not pay the toll. Those willing or able to pay the price of uncongested lanes, which can run as high as $15.40 each way on the 11-mile tollway, zip along while those unwilling or unable are stuck in traffic jams on a freeway that was originally built to serve all motorists equally.

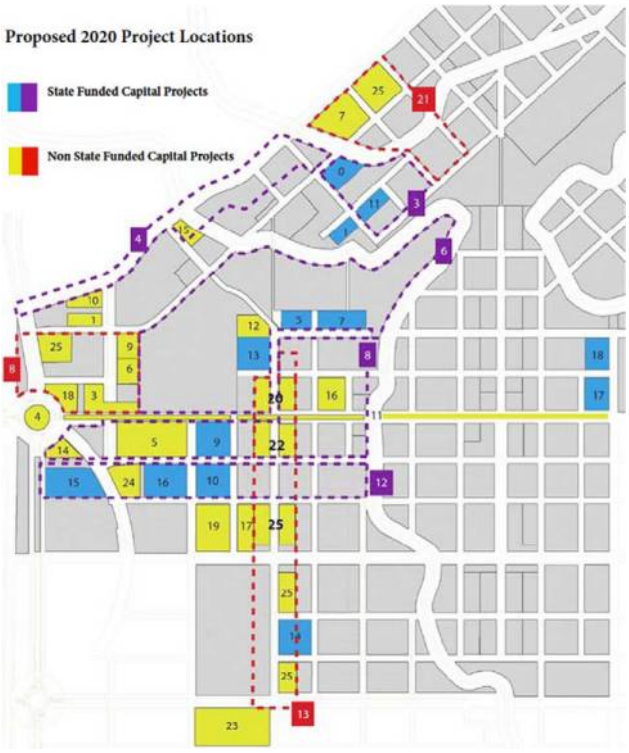
Similarly, as tuition rises in the University of California and California State University systems—instructional costs for in-state residents at Berkeley increased from about $4,000 in 2000–2001 to more than $13,000 last year—they become less accessible for working-class students dependent on scholarships and middle-class Californians who may not qualify for financial aid. Less accessible to all Californians, in fact: strapped for resources, the top UC campuses—Berkeley, UCLA, and UC San Diego—accepted such a large percentage of higher-paying out-of-state applicants for the fall 2013 term that their entering freshman classes could be one-third out-of-staters. Taxpayer support of the state university system, which the drafters of the 1960 higher education master plan saw as indispensable to future economic growth, has systematically dwindled over recent decades; tuition now pays for a higher share of the cost of university education for California residents than does the state general fund. It might seem odd to think of education as infrastructure, but that is exactly how the university system was conceived, as an investment in the future.

Other infrastructure projects are experimenting with a grab bag of funding models. The high-speed rail line that may one day carry passengers from Los Angeles to San Francisco in a little over two and a half hours needs about $68 billion, according to current projections. It would be the most expensive public works project in the nation's history. Less than half of that money has been lined up, though work on the first section linking Madera to Fresno was scheduled to begin this summer. The state's Legislative Analyst's Office has called the funding model "highly speculative," and it includes a mix of sources: voters have approved a $10 billion bond, and grants from the federal government have also been promised. Private investment, perhaps from the prospective rail operator, is also likely to be a part of the answer, and so might investment from China.

Sinking billions of dollars into a high-speed rail line with no money lined up to complete construction is certainly speculative, but also canny. Part of the logic must be that we won't let a mostly useless stretch of track in the middle of the state sit idle. Once work has begun and the money has been spent, it will create its own pressure to finish it.

A collection of projects around the Sacramento–San Joaquin Delta have been on the table for years. The peripheral canal—or tunnels as currently conceived—would improve the quality and increase the quantity of water transported

UC Santa Barbara, opening day registration, 1944. COURTESY OF UCSB.
UC Irvine site, 1961. COURTESY OF UC IRVINE.



UC Merced construction proposal.

COURTESY OF THE UNIVERSITY OF CALIFORNIA, MERCED.

from Northern California to points south and, supporters argue, improve the ecological health of the Delta. Jerry Brown has said that users—primarily large growers in the Central Valley—would fund the canal's construction. But the region needs more than canals; habitat restoration and a slew of smaller projects are also required to clean up the Delta and improve the state's aging water infrastructure. To fund that work, Brown has also floated and retracted—twice now—an $11 billion bond that would make all residents foot the bill.

Brown's water bond was to appear on the November 2012 ballot, but was pulled for fear it would hurt the chances of another Brown-backed measure, Proposition 30. Passed by voters, Proposition 30 raised the state sales tax and introduced new tax rates on people earning over $250,000. The public was asked to pass these temporary tax hikes to fund schools and public safety programs that had been hit hard by successive years of budget cuts. But Brown and other supporters did more than encourage voters to invest in the future of California; taking a page out of Mulholland's book, they warned of dire consequences should the measure fail.

Someone has to spin a story, push, and prod to get the public behind a vision.

The official voters' guide cajoled "without Prop. 30, our schools and colleges face an additional $6 billion in devastating cuts this year." The Los Angeles Unified School District warned that if the voters didn't come through, three weeks would be cut from the school year. Voters were also told that "Prop. 30 keeps cops on the street." The threat was clear: vote yes or blow up the public school system. Vote no and risk your personal safety. The campaign worked, and the measure passed with 55 percent of the vote.

The scale and the forces driving each project push different funding models to the fore. As with the aqueduct, the lesson seems to be that more is required than someone with the vision and faith to dream up the project. Someone has to spin a story, push, and prod to get the public behind that vision.

That was true of the other great water project with which Mulholland identified himself—the Boulder Canyon Project, which we know today as Hoover Dam. The dam might well never have been built had Mulholland not thrown his considerable reputation behind the idea at a crucial moment. Yet it was very different from the aqueduct in terms of the benefits it would bring to California and the West, and how they would be distributed. One might say that all the dam and the aqueduct had in common were that they both involved the transport of water over hundreds of miles, and that both fit within William Mulholland's vision of how to serve the future. The story this time was not needed to win over voters, but members of Congress who would fund the project.

The Hoover Dam project was born as a measure to bring flood control and irrigation to the growers of Imperial Valley. The valley's output of $2 billion in crops—at the turn of the last century!—was menaced by a series of floods beginning in 1905, caused by the construction of a canal from the Colorado River built by a private company not above cutting engineering corners to save money.

As President Theodore Roosevelt advised Congress in the floods' aftermath, the crisis showed that the only entity big enough, rich enough, and determined enough to bring the willful Colorado to heel was the federal government. The job was handed over to the Interior Department's reclamation service, which had already built dams for irrigation and flood control across the West.

Reclamation officials understood that damming the river only to provide flood control and irrigation water to Imperial would never pay: the cost of a properly built canal would bankrupt the water users downstream. But a more ambitious vision would be something else entirely. Combine a canal with a high dam capable of generating electricity and storing water on a large scale, and the result would be a public work that could serve farmers, industries, and residents in all seven states of the Colorado River basin.

Mulholland alluded to that idea when he appeared before a Congressional committee in 1924 to urge that Hoover Dam be built. His immediate goal was to secure the Colorado as yet another water source for a growing Los Angeles—claiming, much as he had done to get the 1905 bond issue passed, that the city was in the grip of an "appalling" and "desperate" drought. ("This committee has got to come to our relief," he warned theatrically, "or we are ruined.") But his more effective tactic may have been to describe the river as a national patrimony, and bringing it under control therefore as a federal mandate. "The Colorado River is wasting more power today than the greatest oil field in California is producing," he said. "The oil will be gone in twenty years; and the Colorado River will be running perpetually."

Mulholland's bravura performance demonstrated how well he understood the politics of public works. Describe a project as "spending," especially for a narrow contemporary purpose, and it is dead; present it as an investment that will enrich generations into the beckoning future, and it looks like a bargain. He was not above placing his thumb on the scale: the drought in Los Angeles was nowhere near as dire as he painted it for Congress; the city's existing supply from the Owens Valley was more than adequate to serve the city for years; and his real goal was to secure water and power to fuel the city's growth. He perceived that the real value in infrastructure investments comes not from their todays, but their tomorrows.

UC Merced conceptual drawing.

COURTESY OF THE UNIVERSITY OF CALIFORNIA, MERCED.

Mulholland had taken his seat in a congressional hearing room on a bracing February day to announce, "I am here in the interest of a domestic water supply for the city of Los Angeles: and that injects a new phase into this whole matter." It was 1924, and the "matter" bedeviling the committee he addressed was where to find the money to build a great dam on the Colorado River.

For months Congress had been gnawing on the subject. Should the government simply pay for it? Charge a fee to the landowners downstream whose farms and ranches would be saved from flooding and served by a reliable source of irrigation? Turn it over to private industry? At length the lawmakers decided that the taxpayers' seed money should be repaid from the sale of the dam's hydroelectric power; but that merely opened up a new question: Who would buy it? The established cities of the West, like San Francisco, were too far away for the transmission lines. Los Angeles was nearer, but even with a population approaching one million, there was reason to doubt whether its electrical demand would pay for the dam.

Then Mulholland stepped in. The congressmen looked with fascination upon this big man with his walrus moustache, the creator of the great Los Angeles Aqueduct, opened only eleven years earlier. He had built the aqueduct, and he was going to tell them how to build the dam.

The real value in infrastructure investments comes not from their todays, but their tomorrows.

Map of proposed Delta pipelines.

COURTESY OF THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.

He started by describing the immediate need. Los Angeles was staring down a crisis, he told them, for there had been no rainfall. "This drought is one of the most appalling things that could happen," he said. But he knew that the travails of Los Angeles alone would not sway Congress into spending more than $50 million for a dam, so he pitched the matter wide. It was not only the city, but the region, that needed the dam—indeed, it was the thirsty yet flood-prone Imperial Valley that had started the movement for the project. "Our sympathies are with the people of Imperial Valley," he said. "Our need is their need, and we have always felt so." Finally, he situated the project within the current of time. The dam was not merely for Los Angeles but for the people of the Southwest; and it was not merely for the here and now but for generations yet to come. Los Angeles would be the biggest customer today for the power harnessed by the dam, and an even bigger customer tomorrow, and in the tomorrows after that. "The city of Los Angeles will grow, and continue to grow."

The dam blueprints were still embryonic, but it was already clear that the project would enrich not small cadres of capitalists and real estate jobbers, but growers, factory builders, and new residents by the thousands, even hundreds of thousands. The electricity generated by its turbines was to belong to the public, for sale at a price that would serve as a benchmark against which to measure the rates charged by its privately owned rivals. The electric power trust was already conniving against the dam, covertly; Mulholland was prepared to stand against them. He promised to buy the dam's entire output of hydroelectricity—mostly to pump water for his city from the river over the mountains—to guarantee a market. As a public work, the dam Mulholland urged upon Congress that wintry day transformed the West, as he knew it would: Since 1930, when the project was launched, the population of the seven states of the Colorado basin has grown by forty-five million people. Much of this is growth that was fueled in part by the dam's water and power.

Projects of the magnitude of the aqueduct and the dam, viewed from a modern perspective, evoke a fundamental question: Could they be built now?

Among the familiar objections raised to major public construction projects is that "we can't afford it." It's proper to ask whether what is lacking is not money, but ambition. Projects of the type that were welcomed by our parents' and

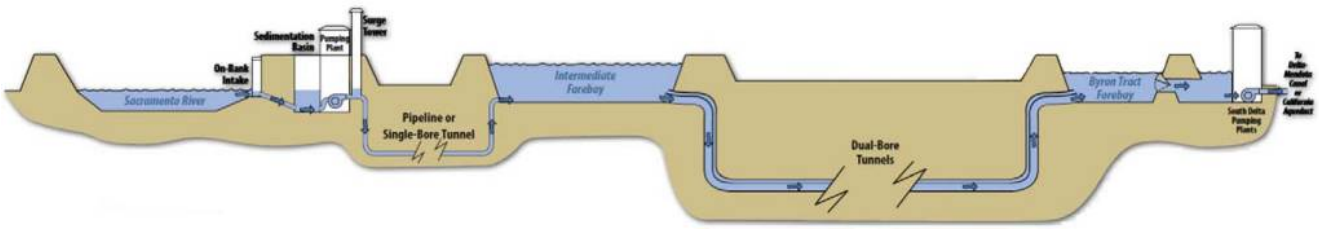
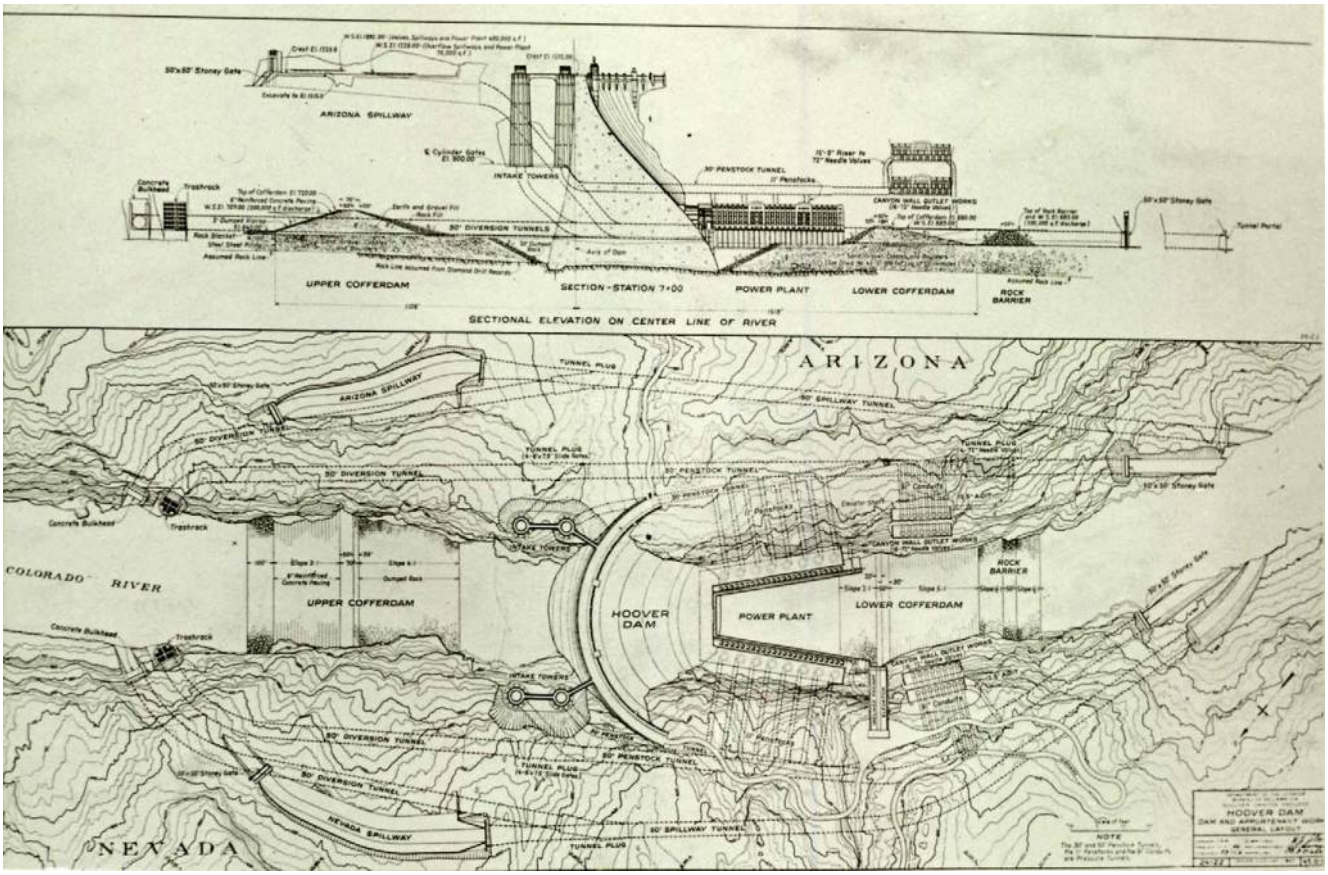


Diagram of proposed Delta pipelines. COURTESY OF THE CALIFORNIA DEPARTMENT OF WATER RESOURCES.



Schematic drawing for Hoover Dam construction. COURTESY OF SPECIAL COLLECTIONS, UNIVERSITY LIBRARIES, UNIVERSITY OF NEVADA, LAS VEGAS.

grandparents' generations as symbols of our commitment to making California greater tomorrow are ridiculed for addressing needs that can't be seen from our front porch. Those bridges, roads, and trains "to nowhere"? Almost all of them will go somewhere eventually, because projects on their scale create their own somewheres. In today's fiscal debate, government debt is treated as an unalloyed burden; actually it's the most responsible way of financing public works that will spin off benefits broadly and over decades.

William Mulholland was the most effective exponent of the idea that a community grows by building for the future. Were a man—or a woman—like him alive today and in the flower of his career, he might well be able to win public support for some of the most grandiose public works currently on the table. We need more men and women with his vision to see California's needs before the rest of us. But vision alone is not enough. Mulholland's other gift was selling his vision. How will the next Mulholland win support to build today for our tomorrows? Will compelling narratives be enough, or will they also resort to the political brute force and sheer hucksterism that were such important weapons in his arsenal? **B**