



ILLUSTRATION BY PETER GREENWOOD FOR TIME

# WHAT IT WILL TAKE TO REBUILD AMERICA

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*plus*

A BLUEPRINT  
FOR TODAY

MOONSHOTS FOR  
TOMORROW

AND A PLAN FOR  
GETTING IT RIGHT

WHEN PRESIDENT TRUMP DECLARED, IN his first speech to Congress, “The time has come for a new program of national rebuilding,” the applause was loud and long. This pledge to spend what it takes to fix roads and bridges, rails and broadband, dams and airports—a staple of his campaign speeches—struck a chord with public opinion. The legacy of past generations that sustained the world’s largest economy is aging and needs repair. Some 34 million Americans still lack access to broadband. The electrical grid can’t keep up with advances in renewable energy. People understand this: a recent poll for CNN found that 79% of Americans want the President to increase spending on infrastructure, including 72% of people who say they don’t support Donald Trump.

His commitment was music to the ears of Wall Street and Main Street, and charmed labor as well as management. State and local officials from Hartford to Honolulu had scrambled in the weeks after Trump’s victory to compile wish lists of worthy projects, hoping to catch his eye. “America is suffering from a massive infrastructure deficit—crumbling and dilapidated roads, bridges, airports, and tunnels,” Trump said in a statement to TIME. “We need members of both parties—partnering with industry and workers—to join together to repair, rebuild and renew the infrastructure of the United States.”

So if everyone agrees, if the need is great and the will is there, if America’s very

quality of life is at stake, as well as safety, jobs and economic competitiveness, then one would think that this is where all of Washington has a chance to step up. An embattled President could prove whether his record as a developer is relevant; Republicans in Congress could practice governing; Democrats could deliver long-promised results. Everyone wins—unless Bismarck’s advice that “Politics is the art of the possible” no longer holds. After the failure by Trump and congressional Republicans to deliver on their pledge to repeal Obamacare, the questions were written across Washington in neon. Does the President actually have a plan, and can he persuade even people who may agree with him to go along with it?

Although Trump often spoke during the campaign of unlocking \$1 trillion in infrastructure investments, the pledge may prove as hollow as his promised mastery of the health care muddle. Ten weeks after Trump’s Inauguration, key House and Senate leaders say they are not in talks with the White House on a plan. And the reason is that there is no blueprint to discuss one. Only in early March did White House economic adviser Gary

Cohn convene a meeting to create a framework for drafting a proposal.

According to a White House official, Cohn put them to work on a six-lane process for moving forward, with the expectation that infrastructure would be handled after health care and tax reform. Lanes one and two were devoted to finding new and existing projects worthy of a federal boost. But the rest of the lanes were devoted to issues of regulation and finance—on the theory that streamlining the approval of infrastructure projects will unleash a tornado of pent-up energy. “If we were to take our 10-year process and shrink it down to a two-year process, that in and of itself would create trillions of dollars of economic activity,” the official said. “Trillions.”

Trump’s staff has identified a few priorities, like broadband and the electrical grid, that require significant federal investment. His \$1 trillion plan will include, officials say, between \$100 billion and \$200 billion of actual taxpayer money for projects like these. But the bulk of Trump’s promise is contained in the theoretical tsunami of money in private hands supposedly waiting for regulatory reform. While nonpartisan experts agree that America’s permitting process is too cumbersome, Trump’s team is an outlier in thinking that faster approvals will have such a staggering effect. You might ask: How much of this plan has to do with infrastructure, and how much is part of the war—as White House strategist Steve Bannon calls it—on the “administrative state”?

Which in turn undercuts Trump’s

invocation of bipartisan cooperation. It comes as he is gutting the Democrats’ climate-change policies, charging ahead with his controversial border wall and Twitter-bashing Hillary Clinton. It’s hard to take seriously a hand extended across the aisle when the middle finger is so prominent. The renegade Republicans who scotched the health care bill want to cut spending, not increase it. And the tax reforms that might free up some money for infrastructure are locked inside a fortress guarded by fire-breathing special interests.

Chicago Mayor Rahm Emanuel is one of the local officials who has discussed projects with the Trump White House, including plans to alleviate rail congestion through one of the world’s busiest transit hubs. A Democrat, he has been known to strike bipartisan deals, but he doesn’t see much hope for this one. “I don’t think the federal government is going to step up, to be honest,” Emanuel says. “I’ve been honest with his Administration. You can’t get from here to there—there’s no fairy dust that’s going to figure this out. You’re going to have to invest in it.”

But with his approval rating in the Gallup poll sinking to an abysmal 35%, Trump may soon find he needs something broadly popular to anchor his policy pivot. Infrastructure is his best and most worthy prospect. His name on the side of skyscrapers around the world gives him credibility as a builder. And his past history as a New York Democrat could give him space to tone down his anti-government gospel. He knows what

WATER AND WASTEWATER



the problems are. Younger economies around the world have leapfrogged us in building state-of-the-art works, while our infrastructure is showing its age. Trump frames the issue with his characteristic colorful hyperbole. “You come in from Dubai and Qatar and you see these incredible—you come in from China, you see these incredible airports,” he says, “we’ve become a third-world country.”

As a younger nation, we built on a heroic scale, creating instantly recognizable monuments to dynamism and energy. Grand Central Terminal. The Chicago “L.” The TWA terminal at Kennedy International Airport. The endless ribbon of interstate highway. The Golden Gate Bridge. Sadly, we’ve discovered that building such projects is more glorious than maintaining them, even as we’ve made new projects too difficult to build. Admirable goals, like environmental protection and worker safety, are mummied in red tape. All the while, more and more of our national income has been diverted into other priorities: the safety net, the Social Security system, our health care, infrastructure and the costs of the world’s most dominant military.

WHILE AMERICA WAITS for the White House proposal, and the battles that will erupt when it lands in Congress, we should think harder about how much to spend and how to spend it. The best infrastructure investments begin in the imagination. They are bold bets on tomorrow. Their essence isn’t found in an engineering textbook. It’s found in W.P. Kinsella’s novel *Shoeless Joe*, in which a ghostly voice promises an Iowa farmer: “If you build it, he will come.” Like the farmer’s baseball diamond in a cornfield, a visionary project changes a culture and creates its own demand.

Two hundred years ago, the governor of New York convinced the state legislature to dig a canal from the Hudson River to the Great Lakes. A boondoggle, people scoffed. But DeWitt Clinton could imagine the impact of such a direct waterway linking the unsettled heartland to the port of New York City. The Erie Canal ignited settlement of the frontier and soon carried a brisk trade in crops and goods that ensured New York’s place as America’s leading city.

A vision leads to a project, which leads to the future. Another example: among the settlers in the booming Midwest was a young man whose ambition was to be “the DeWitt Clinton of Illinois.” Instead, Abraham Lincoln wound up in the White House, where his vision of a stronger Union found expression in infrastructure. Amid the chaos of the Civil War, Lincoln carved out time to push for approval of the Transcontinental Railroad.

Today’s transformative infrastructure projects might not look like the broad-

ELECTRICITY



BUILDING A NATION

America has been creating the architecture of national life since before it was a nation.  
—Merrill Fabry

1673

The route of the **Post Road or King’s Highway** is first traveled to deliver mail from NYC to Boston. Eventually stretching from Boston to Charleston, S.C., it was used by George Washington and General Cornwallis in the Revolutionary War.

1788

The U.S. Constitution is ratified, giving **Congress the power to establish post offices and post roads**, along with the authority to regulate interstate commerce and provide for common defense and welfare.

1806

Congress authorizes the **first federally funded roadway**: National Road. By 1818, mail coaches travel it between Maryland and Wheeling, W.Va., which is on the Ohio River, and by the 1830s it reaches Illinois.

1817

Work begins on the **Erie Canal**. Completed two years ahead of schedule, in 1825, its 363 miles link western waterways to the Hudson River and Atlantic Ocean, allowing the movement of heavy loads at a tenth of the cost of going by road.

1827

**New York City’s horse-drawn omnibuses begin service**, one of the first mass-transit routes. In 1832 a different NYC omnibus route uses rails in the street, making it an early kind of streetcar.

1856

Chicago’s **municipal sewer system** was one of the first, along with those in Brooklyn and Jersey City, N.J., built in the same decade. But the major surge in sewer construction came 40 years later.

1869

The **transcontinental railroad is completed** in Promontory, Utah, made possible by congressional grants of land right-of-ways. Cross-country travel time is greatly reduced—for those who can afford it.

1876

Alexander Graham Bell’s **first telephone transmission** heralds the arrival of a technology that would be ubiquitous a century later, when 90% of U.S. households had a landline.

1882

Lower Manhattan gets the **nation’s first electricity system**, from Thomas Edison’s company. The six jumbo dynamos served about 1 sq. mile. By 1896 alternating current expanded the range of service.

shouldered undertakings of the past. The best ones must harness efficiency and brainpower, not just concrete and steel. Tomorrow's version of the Tennessee Valley Authority, which brought light to darkness in the mid-20th century, could be powered by sunlight and batteries in the 21st. A storm of lucrative contracts for new infrastructure projects could demand a productivity renaissance in the construction industry. Perhaps the monuments of a new age of infrastructure will be the invisible ones that shape a nation able to do more while consuming less. Which is every bit as mind-boggling.

**AFTER THE IRON RAILS** of the Transcontinental Railroad were laid across trackless prairies and over the daunting Sierra Nevada, it seemed that nothing could stop the rise of California—except water. Then as now, the state was parched in some years and flooded in others. California needed water that it could depend on. A man from Lincoln's Illinois, Arthur Powell Davis, made the case for a towering wall of concrete in a narrow canyon near what is now Las Vegas. His vision became the Hoover Dam, which tamed the capricious Colorado River and created a reliable reservoir.

Recently, I asked an executive at one of America's leading engineering firms why we don't build Hoover Dams anymore. Where's our ambition? Where's the moxie that conjured a city from nothing in a remote desert, in the depths of the Depression, and put nearly the whole population to work on a structure able to hold back Lake Mead?

I thought he might point to such large undertakings as the high-speed rail project in California, the mass-transit system that is transforming Denver or the tunneling of a major downtown highway in Seattle. Instead, he directed my attention to an unimpressive cluster of buildings in the suburbs of southern Los Angeles—and, much more important, to what goes on inside.

One group of structures, nothing to look at, houses an Orange County Sanitation District water-treatment facility. Each day some 185 million gallons of raw sewage flows in, and eventually the treated water flows out—not toxic, but not potable either. This wastewater used to be pumped through long pipes to disperse in the Pacific Ocean. But now more than half of the treated product goes next door, to nondescript facilities operated by the Orange County Water District. The OCWD strains the water through microscopic filters, then forces it by reverse osmosis through superfine membranes, and finally bombards it with high-intensity ultraviolet light.

What flows out of the facility, in volumes sufficient to meet the daily de-

mands of roughly 850,000 people, is as pure as a sparkling glass of premium ice water. Pumping stations return it to the Orange County aquifer to percolate into wells for future drinking. The process costs less, and consumes less energy, than importing water from the Colorado River.

So the next Hoover Dam is no dam at all. It's technology, invention, efficiency. Take a look at Singapore—one of the world's infrastructure leaders, according to Germany's respected Kiel Institute for the World Economy. Using the technology pioneered in Orange County, the island nation has replaced 40% of its freshwater consumption with recycled NEWater, as they call it. Infrastructure is shrinking even as it grows more powerful.

Like DeWitt Clinton and Arthur Powell Davis, the leaders of Orange County had to let go of the past to reach for the future. In the mid-1990s, the sanitation district was faced with a need to upgrade existing infrastructure. But instead of doubling down on what they already had, they built something completely different.

**CAN TRUMP HARNESS** that spirit? Groundbreakings and ribbon cuttings have been staples of his existence for four decades. Can a man whose name is synonymous with gold and glitz become a champion of small and smart? America may not need many more interstate flyovers or massive dams. It does need a huge investment in embedded, but invisible, technology to prepare our highways and streets for driverless cars and trucks. Such innovations will allow more vehicles to run on existing roads, reducing the

need for new pavement. A modernized air-traffic control system would permit existing airports to handle more traffic without the need for more runways.

One test will come when the President weighs his priorities for energy infrastructure. Trump's campaign promises to revitalize coal mining may have won votes, but they lacked vision. While politicians have been arguing about the relative merits of coal, gas and nuclear, in the real world, the energy story is suddenly about efficiency.

U.S. demand for electricity has gone flat. Few saw it coming. But Energy Department statistics show that total sales of electricity from all sources, measured in gigawatt hours, have been unchanged for nearly a decade. Between 2007—the last year before the economic crash—and 2015, demand actually fell very slightly. In the same period, the U.S. economy grew by an inflation-adjusted 10%.

In other words, without much fanfare, the U.S. is figuring out how to produce economic growth without consuming more energy. That might be a first in human history. Smart infrastructure investments would seize on this breakthrough and pull it forward. We would build smaller, scattered power plants to reduce wastage of electricity by shortening the distance between generator and customer. We would invest in rapidly improving batteries to make solar energy more practical for running individual homes and small businesses. We would continue to push high-efficiency appliances and lighting to drive down demand for electricity. According to Energy

**PORTS AND SHIPPING**



Department estimates, if the conversion to LED lightbulbs continues at its current pace, demand for electricity will be cut by an amount equal to 44 large power plants 10 years from now.

Maybe you don't think of lightbulbs as infrastructure, but they are.

**DUCTS AND CONCRETE** and asphalt and wire may look mundane, but they have revolutionized the where and the how of human life. The world of freeways and jets has a radically different geography from the world of small towns and rural homesteads that it replaced. Electrified life has a culture different from the culture of lives lit by oil lamps.

Investment in infrastructure is investment in change. It represents a people's belief in something better yet to come, and the willingness to help it along. Across the U.S., local and state governments are reflecting this optimism. Los Angeles voters in November approved a ballot initiative that will raise an estimated \$120 billion for transportation infrastructure over the next four decades. Seattle's voters said yes to a \$54 billion mass-transit investment. Denver-area

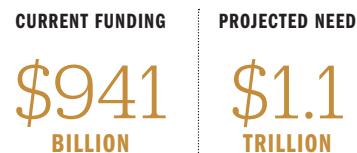
voters have chosen to shoulder the cost of their light-rail network, which could reach \$8 billion. Atlanta residents have kicked in for a \$2.5 billion transit expansion. In Rhode Island, voters have approved \$70 million in bonds to improve the ports of Providence and Davisville.

In light of all this, some experts question whether the Trump plan will rely too much on private investors. Private money is attracted to projects that have a dependable return of revenue. Private money can learn to love toll roads and even airports, but not every bridge or storm sewer is likely to generate a profit for investors.

Ultimately, if the President wants to stake his revival on infrastructure, he will need to bring more than deregulation to the table. He must bring daring. As grand as his \$1 trillion promise may appear, he has a chance at something real that is even bigger. He can use his experience as a salesman to bring budget hawks around to the idea of investing in America's tomorrow. He can turn his knowledge of construction to streamlining the building industry and bringing it into the new century. He can turn his gift for promotion to renewing America's confidence in the strides we are already making.

This is a harder, more substantive, mission than the one that took Trump to the White House. But the wreckage of his health care failure is proof that leadership is not always easy. And doing the hard thing has always been what makes America great. —*With reporting by BEN GOLDBERGER and JOSH SANBURN/NEW YORK; and PHILIP ELLIOTT, SAM FRIZELL AND ZEKE J. MILLER/WASHINGTON* □

**ROADS AND BRIDGES**



1890s	1900	1908	1909	1932	1933	1935	1956	1980s	2017
Chicago's "L" train is the first electric elevated rail line and becomes one of the first rapid-transit systems in the U.S. In 1897 Boston's underground rail tunnel was the nation's first subway.	The Sanitary District of Chicago reverses the flow of the Chicago River to carry wastewater away from Lake Michigan, a source of the city's drinking water.	Jersey City, N.J., is the first city to routinely disinfect its drinking water. In the decade that followed, other cities also implemented chlorination, filtration and purification systems.	College Park Airport in Maryland is one of the first airports. Created to train Army pilots, it remains in service.	The first federal gas tax is levied, of 1¢ per gallon, among a range of new taxes amid the Great Depression.	FDR's New Deal provides \$3.3 billion for the Public Works Administration. Other projects include the Rural Electrification Administration, wiring 288,000 homes by 1939 and the Tennessee Valley Authority.	The Hoover Dam—built by 21,000 people working for four years, at a total cost of \$49 million—creates the largest man-made lake in the U.S. and provides power for Southern California, Nevada and Arizona—as well as a tourist lure.	The Interstate Highway System is established by Congress, which allocated \$25 billion to build a 41,000-mile system over the next decade. Freeways were seen as a national-security issue, so U.S. forces could move swiftly cross-country.	The word <i>infrastructure</i> begins to be used to describe large-scale public projects. They were previously termed <i>public works</i> , but advocates worried the phrase had acquired a negative connotation of pork-barrel politics and corruption.	First segment of NYC's Second Avenue subway opens to the public, almost a century after the project was proposed and decades after excavation began in the 1970s. The final cost was roughly \$4.5 billion—far more than the projected budget.