

Blueprint 2025: 10 Recommendations for 2024 and Beyond

Getting infrastructure right - making national improvements - will require a ‘whole of country’ transition around three forces: clarity of mission; speed of project development; and the eventual confidence that comes from successfully building on our strengths - Norman Anderson, Forbes, Aug. 31, 2021.

Our Founder Norman Anderson created Blueprint 2025 (“BP2025”) in 2015 as a collaboration among infrastructure professionals, leading infrastructure development companies, and public sector project managers, including the managers of state infrastructure banks. The objective is to restore the U.S.’ position as the nation with the world’s best, most technologically advanced, most sustainable, most climate resilient, and most productive infrastructure. Digitalization, artificial intelligence, and electrification are urgently demanding transformation of our infrastructure and offering the potential - through American innovation - to ensure U.S. leadership in the 4th industrial revolution.

We are dealing with these issues in the context of the largest industrial shift in 120 years. Norman’s *Vision*, and the recommendations and philosophy flowing from it, continue to contribute to the enactment and implementation of groundbreaking federal legislation as well as far-sighted and innovative new policies at both the federal and state levels. These Recommendations seek to build on the previous years’ recommendations and continue the progress to date.

The Recommendations

- 1. Continuously Evaluate and Improve Infrastructure Policies:** IIJA, IRA and CHIPS Act, empower the Administration to develop something akin to Industrial Policy in advancing the broad-ranging objectives set out in those laws. These policies will likely result in major changes in our infrastructure, the ways in which U.S. companies operate and the lives of people in communities. Experience is increasingly demonstrating the potential for unintended adverse consequences unless infrastructure policies are based on integrated systems thinking and continuous assessment of results—all in the context of broad Sustainable Infrastructure Goals. Innovations in AI, sensing and satellite technologies have now opened the way for systems that will not only reliably predict outcomes, but also provide real-time review of actual results, allowing for recalibration of projects, their funding and their economic, environmental, and fiscal impacts. There needs to be balanced, data driven analysis of policies to advance just and fair transition from fossil fuels to “renewables”, to balance the advantages and disadvantages of utility scale vs distributed wind and solar, of wind and solar vs natural gas transitioning to hydrogen, of Carbon Capture (mechanical or natural) vs shutdown or curtailment of facilities and abandonment of resources, of distributed generation vs long distance transportation, etc. Project prioritization, through subsidies or permitting decisions, has - up to this point - been determined largely through intuition and politics. That has created the potential for policies that are costly in terms of both money and economic impact, but less than optimally effective in minimizing carbon emissions, protecting the environment, or protecting and improving lives in communities. Infrastructure decisions have long lived effects and may

affect lives in communities for generations. Adverse unintended consequences will be difficult to remedy. BP2025 recommends continuous data driven Integrated Systems analysis of significant infrastructure decisions and policies, particularly in the energy sector. Digital systems should be made available to organize and assess input into this process by States, Communities, the Private sector, and the concerned Public.

2. **Promote Private Investment:** Upfront and continued public funding sources are clearly inadequate to support maintenance and modernization of the nation’s public infrastructure system of roads, streets, bridges, and related infrastructure, much less the advanced infrastructure needed to open the way to the current revolution. Moreover, these projects, as currently designed and conceived, do not maximize public benefits but, instead, may adversely impact local economies. Properly conceived, planned, designed, constructed and maintained public infrastructure (e.g., highways and their rights of way) can generate revenues and support sustainable communities. We have recommended collaboration with states, communities, and the private sector to facilitate projects such as the *Ohio Route 30 Opportunity Corridor*, the *Texas SH130/Route 66 Project* and a new *Advanced Technology Corridor* authorized in recent West Virginia legislation. These projects will demonstrate new models for minimizing upfront public investment while maximizing community benefits through planned private investment driven by digitalized and transparent community input. Similar private and public/private financing approaches have historically built major infrastructure projects and are proving to be an attractive alternative to purely public finance.
3. **Digitalize, Expedite and Improve Permitting and Regulation:** Reform of the NEPA process is a necessary precondition to Infrastructure improvement. The essential role of Digital Technology and AI in achieving that reform have long been central Blueprint themes and this Recommendation received more affirmative Network reactions than any of the others. The *Fiscal Responsibility Act*, signed by the President last summer, includes provisions to expedite and improve NEPA reviews and provides for study of:

the potential for online and digital technologies to address delays in reviews and improve public accessibility and transparency under section 102 (2) (c) of the National Environmental Policy Act of 1969.

As noted last year, the technologies called out in this “E-NEPA” mandate are the only way that the reforms in this Act, or others which have been proposed for the future, can be effectively implemented. Absent this sort of engine for NEPA reform, U.S. infrastructure will continue to lag that of other countries and the objectives of recent major legislative initiatives will not be achieved. BP 2025 recommends aggressive conduct and enhancement of the work called for by this provision. Demonstration of digital technologies in this context, be it through pilots or brown-field projects, can also open the way for efficiencies in other governmental functions such as the promulgation of regulations, assistance programs and the procurement process.

Unfortunately, we have seen little progress in this direction since the mandate's enactment last year. Permitting major new infrastructure projects, whether or not they are perceived as environmentally beneficial, continues to be a one-off, slow, and painstaking process. We are currently seeing a multi-month pause in a longstanding and important program while the government slowly "reevaluates" its impact. 2025's longstanding recommendation-- that we need a national environmental database, a digital process for managing input and decision making and the use of AI technologies to predict and monitor outcomes, will yield both enhanced efficiency and superior environmental outcomes. In addition, the legal challenge and review process needs to be streamlined such that a decision must be made in no more than 120 days. This technology transition can have transformational impacts on the efficiency of government and the ability of citizens to participate. There should be no further delays.

4. **Promote Resilient Infrastructure:** Recent disastrous fires, storms and related events highlight the need for standards addressing both resiliency and sustainability, expanding the concept beyond environmental and material concerns. The *American Society of Civil Engineers* has devoted extensive efforts to the development and maintenance of new consensus engineering criteria for Resilient Sustainable Infrastructure and there is a need for a global incentive structure which will mobilize the world's engineering community, together with Governors, mayors and other infrastructure purchasers, insurers, and financiers, to support this standard and assure adequate risk assessment and mitigation. Governments and development funders should consider incorporation of standards like these into building codes and infrastructure funding programs and continuously upgrading them to reflect progress enabled by innovation. Insurance and finance companies should be allowed and encouraged to take resilience standards into account in their ratings, charges, and coverage decisions.
5. **Enhance Access to Infrastructure Finance:** BP2025 continues to support creation of a chartered Federal Infrastructure Bank to channel private investment into U.S. infrastructure without contributing to the national debt. The Bank should be privately managed and embrace private funding, like the Federal Home Loan Bank. It could be an engine for sustained infrastructure investment with fair and reasonable return on the investment -- channeling and leveraging Pension Funds and other private monies-- as well as a source of financial expertise and standards of fairness that will put states and communities on more equal footing in negotiating with project developers and financiers. A Bank with long-term performance thresholds could also strengthen and reinvigorate state infrastructure banks by lending to them, by supporting project funding for projects that cross state lines and by leading an expansion of State and Regional Infrastructure Banks' functions beyond transportation only.
6. **Promote Compensation for Conservation-** Marketable carbon credits, environmental diversity credits, and other monetized natural values can play an important and beneficial role in mitigating climate change, preserving species diversity, and protecting environmental values. However, their utility, particularly in the case of so-called "voluntary" credits, has been limited by the lack of clear and generally accepted standards, monitoring methodologies and validation systems. Just as important, there seems to be a

lack of public trust in at least some of the private entities which have taken the lead in certification efforts. BP2025 supports an active leadership role for developing nations and countries in the Global South in the establishment of broadly accepted standards and creation of credit trading markets taking these values into account. Developed countries, multilateral development organizations and the private sector should consider supporting these systems through grant funding and technical assistance. They should also provide support in international and domestic assistance programs through mechanisms such as debt for nature swaps, monetization of project related benefits, and accepting monetized natural values as payment. Tradeable environmental values can be an important mechanism to provide fair, just, and equitable treatment to the countries which have minimally contributed to the causes of climate change but are suffering disproportionate impacts. If well structured, these mechanisms could have the added benefit of promoting US engineering and technology exports to countries that would not otherwise be able to finance and build projects which create environmental credits.

7. **Adapt Federal Programs to Community Needs:** Federal Agencies are inherently single purpose entities that have difficulty with projects designed to advance multiple objectives. The states and their communities should be empowered to define their priority projects and access the resources needed to deliver them. The transition to more modern infrastructure will require decisions based on holistic (whole life cycle) assessment of the needs of the affected communities. Infrastructure projects - even traditional roads, streets, and bridges - can no longer be single purpose but must serve multiple objectives including communications, robotics and autonomous vehicles, data transmission, analysis, and storage—all in addition to energy-efficient transportation. States, their communities, State Infrastructure Banks, CDFIs and similar entities should be enabled to provide effective inputs on the full range of these issues, identify and create pipelines of priority projects and bring in private funding. The federal approach to project authorization and funding needs restructuring to take these realities into account. Again, effective deployment of digital technologies' such as feasibility study funding tied to digital twins and AI outcome projection, is essential to this effort. BP2025 recommends strong commitment to a flexible and far-reaching effort applying modern technologies to make federal infrastructure programs more effective in serving the public good. Federal Agencies need incentives to be innovation friendly and to use digital technologies and artificial intelligence to continuously assess impact and outcomes.
8. **Empower an Infrastructure Office:** - Perhaps due to increasing emphasis on global warming, carbon emissions and transition from fossil fuels, the number of agencies engaged in activities that will affect infrastructure development continues to proliferate, Agencies ranging from Treasury, to SEC, to CFTC and EPA are involved in regulatory initiatives which will have major impacts on the infrastructure community. The Department of Transportation--which many view as the federal government's lead infrastructure authority, is focused primarily on transportation, rather than innovations that will lead future development, and is committed to public funding as the engine for development. There is a need for an authoritative source of cross cutting expertise with

authority to inform and guide impactful infrastructure decisions. BP2025 has consistently advocated empowerment of an infrastructure office in the White House and, at the time of last years' recommendations, was pleased with the progress then being made. Since that time, however, senior officials have departed, but replacements, staff changes and revisions to organizational structure have not yet been announced. To fully realize the potential of innovative new laws like the IIJA, IRA and Fiscal Responsibility Act, there needs to be an infrastructure office that is readily accessible by the public and fully empowered to deal with silos in the line agencies and advocate for States and cities that need to break new ground to effectively serve the needs of their communities. These needs, together with the need for coherent and authoritative information to support the many decisions to be made and billions to be spent, are clear. The Administration should empower and clearly assign a leadership role to either this Office or a credible successor and issue directives to the cognizant agencies fully empowering the selected Office to effectively perform that function.

- 9. Ensure Accessible Power for Industries of the Future:** Data processing and storage and Artificial Intelligence are dependent on accessible power and it is becoming increasingly evident that delays in access are hindering development. It is important to promote data centers and increasingly large data hubs within U.S. territory. To do this, the mix of energy resources, both centralized and distributed generation and transmission capabilities must be fully optimized--minimizing stranded energy, ensuring grid connectivity with ample redundancies, promoting distributed generation and communications connectivity must continue to be an absolute priority. The demand drivers for modular energy have never been more prevalent. Fully accessible power will enable and compound the benefits of cleaner energy options.

- 10. Reassert Leadership in Helping Build a Better, More Sustainable and Resilient World:** As observed last year, U.S. Infrastructure technology is in many respects the world's best and is recognized as such. However, whether it is due to the lack of the U.S.' support for financing, foreign government's subsidization of competing companies or concern over corruption in foreign countries' procurement processes (ISO37001), U.S. engineering and construction companies too often elect not to participate in bidding for major international projects. There needs to be more robust support for U.S. firms in the global infrastructure marketplace. The Build Act, which the Congress enacted in 2019, provides tools to do this without major expenditures of federal dollars, (though its scope still needs to be expanded and Office of Management and Budget scoring policies still need to be corrected). The PGI Partnership for Global Infrastructure that builds upon the global initiative that the G7 leaders announced in June of 2021 could greatly magnify the force of these efforts, particularly if combined with the monetization of natural capital proposed in recommendation 6 above. BP2025 supports and encourages reinvigoration of these and similar efforts to provide an alternative to China's Belt and Road Initiative and enable U.S. business to again play a leading role in global infrastructure development.

The Closing Takeaway:

The Countries that lead this 4th Industrial Revolution will be those that are most effectively digitalized, data-driven and innovation friendly. The U.S. is capable of meeting this challenge but must clearly focus if the goal is to be achieved.

These Recommendations represent a broad consensus among the members of the infrastructure community that support the *Blueprint 2025 Initiative*. We also believe that most of them will appeal to the public in general and on both sides of the Congressional aisles. We sincerely hope that this is the case and that anyone who is interested will feel free to call on us if anything further is needed.

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