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BUILDING A 21ST-CENTURY INFRASTRUCTURE FOR AMERICA: ECONOMIC DEVELOPMENT STAKEHOLDERS' PERSPECTIVES

(115–24)

HEARING

BEFORE THE

SUBCOMMITTEE ON
ECONOMIC DEVELOPMENT, PUBLIC BUILDINGS, AND EMERGENCY MANAGEMENT

OF THE

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HOUSE OF REPRESENTATIVES

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Committee on Transportation and Infrastructure
U.S. House of Representatives
Washington DC 20515

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September 8, 2017

SUMMARY OF SUBJECT MATTER

TO:	Members, Subcommittee on Economic Development, Public Buildings, and Emergency Management
FROM:	Staff, Subcommittee on Economic Development, Public Buildings, and Emergency Management
RE:	Subcommittee Hearing on "Building a 21st Century Infrastructure for America: Economic Development Stakeholders' Perspectives"

PURPOSE

The Subcommittee on Economic Development, Public Buildings, and Emergency Management will meet on Wednesday, September 13, 2017, at 10:00 a.m. in 2167 Rayburn House Office Building, for a hearing titled "Building a 21st Century Infrastructure for America: Economic Development Stakeholders' Perspectives." The purpose of this hearing is to receive the views of economic development stakeholders regarding infrastructure in the 21st Century. The hearing will examine proposals to strengthen economic development programs, effectively coordinate federal funding to maximize the leveraging of private investment in infrastructure, and build and rebuild better to reduce disaster costs. Witnesses include representatives from the National Association of Development Organizations, the International Economic Development Council, the BuildStrong Coalition, and SEDA – Council of Governments.

BACKGROUND

Economic Development

The Subcommittee on Economic Development, Public Buildings, and Emergency Management has jurisdiction over programs promoting economic development in communities suffering economic distress. The economic development activities of the Subcommittee include jurisdiction over the Economic Development Administration (EDA), the Appalachian Regional Commission (ARC), the Denali Commission, the Delta Regional Authority, the Northern Great Plains Regional Authority, the Northern Border Regional Commission, the Southeast Crescent Regional Commission, and the Southwest Border Regional Commission.

V

In 1965, Congress passed the *Public Works and Economic Development Act*[1] establishing EDA and the *Appalachian Regional Development Act*[2] establishing ARC. In subsequent decades, Congress passed legislation establishing other regional economic development commissions. While the missions of the various agencies and commissions may vary slightly, all fundamentally have the same mission -- to bolster the efforts of communities to attract private sector investment and create new job opportunities. The agencies and commissions focus on spurring economic development and growth in economically distressed communities. They provide grants for planning, technical assistance, public works and infrastructure, and have a role in disaster recovery efforts.

The economic development agencies and commissions specifically target projects that leverage private investment and create jobs. As a result of targeted funding, these programs generally help to attract private investment in distressed and rural areas. For example, in 2007, EDA contracted Grant Thornton to study the costs and economic impact of EDA's construction investments. The Grant Thornton study concluded that "EDA investments in rural areas have a statistically significant impact on employment levels in the communities in which they are made, generating between 2.2 and 5.0 jobs per $10,000 in incremental EDA funding, at a cost per job of between $2,001 and $4,611."[3]

Between fiscal year FY 2012 and FY 2016, EDA invested nearly $1.4 billion in 3,244 projects. Of that total, 615 projects, totaling $786 million, are expected to create and/or retain 226,393 jobs and attract nearly $29 billion in private investment. Historically, about two-thirds of EDA funding has been awarded to rural areas and one-third to urban areas. On average, for every $1 of EDA construction project funding, $15 in private investment is generated.[4]

Investments by ARC from October 2015 through January 2017 supported 662 projects in Appalachia totaling $175.7 million, matching more than $257 million in non-federal funds and attracting $443 million in private investment. These investments will create or retain more than 23,670 jobs and impact 420 counties in Appalachia.

Mitigation Strengthens Infrastructure Resilience

Disaster mitigation includes actions taken to reduce loss of life and property by lessening the impact of disasters. Effective mitigation acts to minimize the potential loss from a disaster based on identifying and understanding the risks in a given area or community. Mitigation can encompass a wide variety of activities, including preparation and planning, elevating or moving structures prone to flooding, hardening structures to mitigate effects of hurricanes or earthquakes, and establishing building codes and zoning ordinances.

Mitigation not only saves lives but has been shown to also reduce disaster costs by minimizing damage from a disaster. For example, pursuant to a requirement of the *Disaster*

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[1] Public Law 89-136
[2] Public Law 89-4
[3] U.S. Department of Commerce, Economic Development Administration, Construction Grants Program Impact Assessment Report, Grant Thornton, September 30, 2008.
[4] FY2016 EDA Performance Metrics.

Mitigation Act of 2000, the Congressional Budget Office (CBO) completed an analysis on the reduction in federal disaster assistance as a result of mitigation efforts.[5] That study examined mitigation projects funded from 2004 to mid-2007. CBO found that of the nearly $500 million invested through Pre-Disaster Mitigation grants, future losses were reduced by $1.6 billion for an overall ratio of three to one. In essence, for every dollar invested in mitigation, three dollars were saved. CBO's analysis reaffirmed a prior study commissioned by the Federal Emergency Management Agency and conducted by the Multihazard Mitigation Council of the National Institute of Building Sciences that concluded, in 2005, each dollar spent on mitigation saves four dollars in future losses due to disasters.[6]

As a growing number of natural disasters have hit vulnerable regions across the country in recent years, state and local leaders have explored a range of new investment strategies to better safeguard their infrastructure assets and ultimately provide greater protection for their economies. Many cities, for instance, are already leading in the development of resilient infrastructure projects and exploring non-traditional insurance options.

WITNESS LIST

Mr. Bill Seigel
Assistant Executive Director
SEDA-Council of Governments

Mr. Justin Hembree
Executive Director
Land of Sky Regional Council
National Association of Development Organizations

Mr. Brett Doney, CEcD, SCLA, AICP
President and CEO
Great Falls Development Authority, Great Falls, Montana
International Economic Development Council

Mr. Steve Linkous
President and CEO
Hartford Mutual Insurance Company
National Associates of Mutual Insurance Companies
BuildStrong Coalition

Ms. Jessica Grannis, JD, LLM
Adaption Program Manager
Georgetown Climate Center

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[5] Congressional Budget Office, *Potential Cost Savings from the Pre-Disaster Mitigation Program*. September 2007.
[6] Multihazard Mitigation Council, National Institute of Building Sciences (2005), *Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities.*

BUILDING A 21ST-CENTURY INFRASTRUCTURE FOR AMERICA: ECONOMIC DEVELOPMENT STAKEHOLDERS' PERSPECTIVES

WEDNESDAY, SEPTEMBER 13, 2017

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ECONOMIC DEVELOPMENT,
PUBLIC BUILDINGS, AND EMERGENCY MANAGEMENT,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met, pursuant to notice, at 10 a.m. in room 2167, Rayburn House Office Building, Hon. Lou Barletta (Chairman of the subcommittee) presiding.

Mr. BARLETTA. The committee will come to order. The purpose of this hearing is to examine how we build a 21st-century infrastructure for America in the context of economic development and disaster resilience.

First, as the chairman of the subcommittee with oversight over FEMA [Federal Emergency Management Agency], we are working closely with the Members, States, and communities devastated by Hurricanes Harvey and Irma. Our thoughts and prayers go out to the families and the communities that are impacted.

I also want to acknowledge the brave and tireless work of the thousands of first responders, volunteers, and members of the Federal family that are helping respond to these catastrophic storms and pave the way for recovery.

I have seen firsthand how disasters can upend and devastate communities: the loss of homes, jobs, cherished belongings, and, most tragically, lives.

We must work to ensure the States and communities impacted by these hurricanes recover, and recover quickly. And, in recovering, it becomes even more critical to ensure that we rebuild smarter and better. It will not serve anyone well if we simply rebuild without incorporating mitigation measures that will minimize the impact of future disasters.

Investment in mitigation ensures the wise investment of taxpayer dollars because mitigation strengthens infrastructure, saves lives, and reduces future disaster costs and losses.

Today I hope we can find ways to ensure mitigation is built into our building and rebuilding process so that we can save lives and property.

Critical in the recovery following a disaster is ensuring businesses and jobs return. Agencies like the Economic Development

Administration, or EDA, provide critical assistance to help with economic recovery following a disaster.

For example, in the district I represent, many businesses were impacted by floodwaters during Tropical Storm Lee, threatening businesses and hundreds of jobs. EDA's investment of $15 million for flood control systems in Bloomsburg, Pennsylvania, leveraged an additional $10 million in private investment and saved nearly 900 jobs.

Today we also want to explore how we can strengthen economic development programs to more effectively leverage private investment in infrastructure and create jobs. And we want to examine how we can build and rebuild better to save lives, strengthen our communities, and reduce disaster costs and losses.

But the mission of agencies like EDA and the Appalachian Regional Commission, or ARC, extend well beyond natural disasters. Federal economic development programs often provide the last piece of the puzzle distressed communities need to attract private investment, businesses, and jobs.

For example, ARC's Partnerships for Opportunity and Workforce and Economic Revitalization, also known as the POWER Initiative, invested $9 million in Pennsylvania that will attract $33 million in private investment and create over 600 jobs in coal-impacted communities.

The grants from these agencies are usually tied to specific outcomes that increase their impact in distressed communities and ensure jobs are actually created and other goals achieved.

I look forward to hearing from our witnesses how these programs work and what programs exist to improve upon them.

In rebuilding our Nation's infrastructure, we cannot do it alone. It takes all levels of Government and the private sector. How do we maximize these economic development and disaster response programs to ensure good outcomes and quick recovery, while creating lasting jobs and economic growth? I am sure our witnesses today will help us answer these questions. I thank you all for being here.

I now recognize the ranking member of the subcommittee, Mr. Johnson, for a brief opening statement.

Mr. JOHNSON. Thank you, Mr. Chairman, and good morning. I wish to extend my condolences to those who have lost loved ones during the recent hurricanes. And my thoughts and prayers are with the survivors of both hurricanes. I wish them a successful recovery.

Given the recent back-to-back hurricanes, which also went through Atlanta and other parts of Georgia as a storm, today's hearing on the importance of resilient infrastructure and promoting strong economic development is timely.

The American Society of Civil Engineers, ASCE, has noted that the Nation has an infrastructure deficit. In fact, the ASCE has graded the Nation's infrastructure a D-plus. Between 2016 and 2025, ASCE found that households will lose $3,400 each year in disposable income due to infrastructure deficiencies.

Loss of individual income affects the ability of businesses to provide well-paying jobs, which in turn further reduces incomes. If this investment gap is not addressed by 2025, ASCE determined

that the economy is expected to lose almost $4 trillion in gross domestic product, resulting in a loss of 2.5 million jobs by 2025.

While the sorry state of infrastructure has a devastating impact on our national economy and its citizens in ordinary times, during times of disasters it also increases costs. Hurricane Harvey damage estimates range from $100 billion up to $180 billion. Swiss RE, a private reinsurance company, estimates that Hurricane Irma damage could cost $100 billion to $300 billion. The infrastructure damage caused by these hurricanes will negatively impact and affect the local economies with business disruptions and workers left jobless, or at least temporarily unemployed.

The Nation cannot afford to continue on this path. We must rebuild, but it must be stronger, safer, and smarter. While devastating, these hurricanes provide the affected areas with an opportunity to be more resilient, going forward. For those communities that are not affected, this should be a wake-up call to invest in resilient infrastructure before disaster strikes.

Studies have shown that investments in mitigation before disaster strikes saves $3 to $4 for every dollar spent on mitigation. FEMA's Pre-disaster Mitigation Program provides grants specifically for this purpose. By all accounts, FEMA's PDM program is working, which is why it is so baffling that President Trump proposed to reduce PDM funding by over $60 million in his fiscal year 2018 budget. He wants to build a wall, rather than put America's infrastructure and the American taxpayers first.

But President Trump has gone further. Instead of requiring communities to build back stronger, last month he revoked the Federal Flood Risk Management Standard. This standard would have required infrastructure projects built with Federal funds such as those the hurricane-impacted communities are about to undertake, be built back more resilient.

This standard would have required projects to be rebuilt to one of three standards: the 500-year flood standard, a reasonable requirement, given that Texas suffered its third 500-year flood in 3 years; using climate science-informed data; or constructing critical infrastructure 3 feet above the base flood elevation, and other infrastructure 2 feet above the base flood elevation.

President Trump would be wise to follow the old adage: If something isn't broke, don't fix it. We have an opportunity to diminish future losses. Let's not throw it away. Congress needs to look out for all taxpayers and require these impacted communities to recover smarter and stronger where Federal funds are used. This is the only way to end the cycle of build, damage, rebuild.

After a disaster, all sectors need to recover. FEMA estimates that up to 40 percent of small businesses do not return after a disaster. This means we need to invest in economic development activities in those areas and elsewhere. The Economic Development Administration, EDA, has a disaster assistance recovery program that affords local communities the flexibility necessary to recover economically after a disaster.

As Congress looks at supplemental appropriations for disaster-affected areas, this committee must ensure that funding is provided for this program. For years, regional organizations in other parts of the country have successfully assisted local communities in

achieving economic development through infrastructure investments. While Congress has authorized the Southeast Crescent Regional Commission, Congress has only appropriated minimal funding, and the President has yet to appoint a Federal cochair that would allow the Commission to become operational.

My district, which is within the Commission's boundaries, has an unemployment rate of 8.9 percent, and a poverty rate of 15 percent. We are already behind, and my district cannot afford to lose $3,400 per year due to infrastructure deficiencies.

It is time for EDA to be reauthorized and adequately funded, and the Southeast Crescent Regional Commission must be stood up so that my district can experience desperately needed economic development. Investment in resilient infrastructure works, and is one of the best tools to address unemployment and poverty, and reduce disaster costs and losses.

President Trump has called for infrastructure investments, yet has not provided a plan forward. Not only that, he has proposed to eliminate EDA and the only regional organizations despite their success. Congress needs to ignore President Trump's ill-conceived proposals and support local communities by reauthorizing funding for these proven programs.

Thank you, and I look forward to today's testimony.

Mr. BARLETTA. Thank you. At this time, I would like to recognize the chairman of the full committee, Mr. Shuster.

Mr. SHUSTER. Thank you, Chairman Barletta. And thank you and Ranking Member Johnson for holding this important hearing today exploring what our Nation needs to build a 21st-century infrastructure.

I want to welcome Mr. Seigel, whose SEDA–COG [Susquehanna Economic Development Association-Council of Governments] encompasses counties that are near and dear to my heart: Mifflin, Juniata, Snyder, Perry County, great places that I used to represent, and now I know—I believe Mr. Barletta and Mr.—no. Perry has a piece of that, too, but so does Marino. Yes. So again, great part of the State of Pennsylvania. And I miss them very much because they are strong Republican bastions.

[Laughter.]

Mr. SHUSTER. So, anyway, I was happy that Mr. Perry and Mr. Barletta and Mr. Marino got that part of the world.

Again, before we start, also I want to offer my condolences to those who have lost loved ones, and to the families that were affected by Hurricanes Harvey and Irma, and our thoughts and prayers are with them.

I also want to recognize the professionals at FEMA who are working night and day to manage the disaster response to those hurricanes, as well as, you know, across the States; the responders as well as the folks in the local communities. It has been a terrible tragedy. But again, watching America pull together, it is always—makes you feel proud and renews your strength and belief that America is the greatest nation in the history of the world.

When these tragedies strike, as we have learned with Katrina, Rita, and Sandy, we need to be able to effectively help the people and those communities impacted. And from a policy perspective, we can never stop exploring ways to improve and invest in those disas-

ters, in the preparedness, response, and recovery, and how these programs and capabilities can be improved.

I know the folks from the BuildStrong Coalition are here today, and they are doing great work on—I have been to their facility in South Carolina. I think they burned a building the day I was there. But, you know, they can blow a building up, but it is a great facility, I would encourage everybody to go down there and see it—and the work they are doing is really great work—so that as we rebuild these communities, we are learning the lessons from what those folks are doing and that that industry is doing to make sure that we are doing the right thing as we rebuild these communities.

I expect our witnesses today to address the critical issues. I know we got a great panel here today.

But investment in infrastructure goes beyond disasters. On the economic development side, we have communities all across this Nation: struggling coal communities, small Appalachian towns, communities that are suddenly hit by disasters, and businesses are closing. And I know where I come from in Pennsylvania, it is all small, small and rural communities. So this is an incredibly important aspect of what we do.

For many of these communities, agencies like the EDA and ARC provide the technical expertise and the seed money they need to spur the economic growth and create and save jobs. So it is incredibly important, I know, across the country. But certainly, I know in my district and Congressman Barletta's district and Mr. Johnson's district and the State, there is a great need for it.

So I look forward to hearing from our witnesses today. And again, I want to—everyone affected by the hurricanes that have just occurred, we know that, as I said earlier, they are in our thoughts and our prayers. And we stand ready to help rebuild and recover those areas. So thank you very much.

Mr. BARLETTA. Thank you, Mr. Chairman. We now welcome our witnesses. On our panel we have Mr. Bill Seigel, assistant executive director of SEDA-Council of Governments; Mr. Justin Hembree, executive director, Land of Sky Regional Council, representing the National Association of Development Organizations; Mr. Brett Doney, president and CEO, Great Falls Montana Development Authority, representing the International Economic Development Council; Mr. Steve Linkous, president and CEO of Harford Mutual Insurance Company, and chairman of the National Association of Mutual Insurance Companies, representing the BuildStrong Coalition; and Ms. Jessica Grannis, adaption program director, Georgetown Climate Center.

I ask unanimous consent that our witnesses' full statements be included in the record.

Without objection, so ordered.

For our witnesses, since your written testimony has been made a part of the record, the subcommittee would request that you limit your oral testimony to 5 minutes.

Mr. Seigel, you may proceed.

TESTIMONY OF WILLIAM C. SEIGEL, ASSISTANT EXECUTIVE DIRECTOR, SEDA-COUNCIL OF GOVERNMENTS; JUSTIN HEMBREE, EXECUTIVE DIRECTOR, LAND OF SKY REGIONAL COUNCIL, ON BEHALF OF THE NATIONAL ASSOCIATION OF DEVELOPMENT ORGANIZATIONS; BRETT DONEY, CECD, SCLA, AICP, PRESIDENT AND CEO, GREAT FALLS MONTANA DEVELOPMENT AUTHORITY, ON BEHALF OF THE INTERNATIONAL ECONOMIC DEVELOPMENT COUNCIL; STEVE LINKOUS, PRESIDENT AND CEO, HARFORD MUTUAL INSURANCE COMPANY, AND CHAIRMAN, NATIONAL ASSOCIATION OF MUTUAL INSURANCE COMPANIES, ON BEHALF OF THE BUILDSTRONG COALITION; AND JESSICA GRANNIS, J.D., LL.M., ADAPTION PROGRAM DIRECTOR, GEORGETOWN CLIMATE CENTER

Mr. SEIGEL. Thank you, and good morning. Good morning, Chairman Barletta, subcommittee members, and guests. I am Bill Seigel, I am the assistant executive director of SEDA-Council of Governments, a regional local development agency serving 11 counties in central Pennsylvania. On behalf of SEDA–COG and the nearly three-quarters of a million residents of our region, we thank you for the opportunity to share our perspectives on infrastructure needs and the role of the Federal Government in our region.

We are a rural region, historically defined by agriculture, anthracite coal, and manufacturing. Today we are challenged to redefine ourselves by maintaining and growing our manufacturing sector, while building our service industries.

We look to the Federal Government to partner with us as we confront these challenges. Roads, bridges, and rail are important, but not to the exclusion of flood resiliency and technology in our 18th- and 19th-century communities. The funds offered through the Economic Development Administration, the Community Development Block Grant program, the Appalachian Regional Commission, and the Federal Emergency Management Agency, to name a few, are critical catalysts for our infrastructure projects.

How do we build a 21st-century infrastructure in America? In central Pennsylvania it is through Federal, State, local, and private partnership, partnerships that protect and enhance the infrastructure in which we have already invested, and by complementing that investment with new infrastructure that allows the region and its industries to remain competitive.

Allow me to share a success story. The town of Bloomsburg, as the chairman made reference, is located on the banks of the Susquehanna River and, until recently, was the only municipality on the Susquehanna without flood protection.

Autoneum North America, a manufacturer of automotive carpet, today employs over 650 workers with an annual payroll of over $30 million. If you traveled here today by car, you likely placed your feet on their carpet. Autoneum faced a serious dilemma. Located in the special flood hazard area, their 100-year-old plant flooded every several years.

If they chose to remain at this location, they placed themselves at risk of financial devastation, as is evidenced by their $60 million loss in 2011. The entire automotive manufacturing system and supply chain was slowed by the unavailability of automotive carpet

while Autoneum struggled through shutdown and recovery. It affected the entire Nation.

Relocation out of the flood hazard area had similar impacts, due to lost production time ripping through Detroit. They could not stay, they could not leave. But after Hurricane Lee and Tropical Storm Sandy, long-term customers began to waffle at contract renewal, and to investigate alternative suppliers, including foreign suppliers, to avoid the cost of flood-induced shutdowns.

In 2014, SEDA–COG and the Columbia County commissioners were successful in obtaining a $15 million EDA grant to construct a flood protection system around Autoneum. With the EDA commitment, we leveraged $12 million from the Commonwealth of Pennsylvania, along with $2.5 million of private funds to construct a $30 million flood control system. SEDA–COG staff managed the funding and the project. We broke ground in 2015 and completed the project last year under budget and ahead of schedule.

I recently learned that several of Autoneum's major customers had placed contract renewals on hold until we broke ground for that project. Without the partnership of the Federal Government through EDA, it is with near certainty that I can say we would have lost this manufacturer, leaving the town of Bloomsburg without the employment and with a 42-acre vacant manufacturing facility falling into blight and generating little to no taxes.

Protecting the existing infrastructure, in this example Autoneum North America, is a priority of SEDA–COG. Using the Federal tools such as EDA, CDBG, and FEMA pre-disaster mitigation, SEDA–COG is able to incentivize public and private partners. EDA support of LDDs [local development districts] allows us to develop and maintain a caliber of staff that otherwise would not exist in rural Pennsylvania, and which is critical to leading the economic and community development activities.

In deference to time I would conclude by saying in order to build a 21st-century infrastructure, we must continue to partner at all levels of Government and business to address all three legs of this stool. We need to first maintain what exists. We need to protect it from the new threats.

And we need to expand it to become globally competitive.

Thank you very much.

Mr. BARLETTA. Thank you for your testimony, Mr. Seigel.

Mr. Hembree, you may proceed.

Mr. HEMBREE. Thank you, Chairman Barletta, Ranking Member Johnson, members of the subcommittee, for the opportunity to testify this morning on infrastructure and the EDA's role in aiding rural and distressed communities. My name is Justin Hembree. I am the executive director of Land of Sky Regional Council. We are a public entity dedicated to economic and community development headquartered in Asheville, North Carolina.

I am also a board member of the National Association of Development Organizations, known as NADO. NADO is a member-based association of more than 350 regional development organizations throughout the country.

NADO provides advocacy, education, research, and training to members, including 368 EDA funded and designated economic development districts, or EDDs. NADO members support local gov-

ernments, communities, and economies through regional collaboration, comprehensive planning, and program implementation.

I come before the committee to speak on EDA's role as a key facilitator of economic opportunity for distressed and underperforming communities. Since its creation under the Federal Public Works and Economic Development Act of 1965, EDA has provided direct financial and technical assistance, resulting in business and job growth, especially for small and rural communities.

From fiscal years 2012 to 2016, EDA steered $2 billion towards local and regional initiatives, leveraging nearly $39 billion in private investment, while helping to create and retain 321,000 jobs.

Infrastructure investments are a major part of EDA's assistance to communities. A good example is the agency's recent investment of nearly $400,000 into a sewer line expansion and wastewater system upgrade for the small town of Mars Hill, North Carolina.

The funding addressed additional capacity needs for the town's wastewater treatment plant, due to an expansion of Mars Hill University as well as the creation of a new industrial site.

The sewer line also contributed to business expansion along the I–26 corridor. Overall, EDA's investment leveraged at least $585,000 in local and State funding. The project helped to create and retain 95 jobs with a private investment of $35 million.

The project also shows how EDA serves as an integrator of public and private resources. EDA identifies and invests in projects, in part, based upon participation from local and State partners. EDA investments also combine with resources from other Federal agencies such as HUD, Department of Agriculture, and the Appalachian Regional Commission.

EDA also offers loan servicing for small businesses. EDA's revolving loan fund responds to the challenge of cost and access to capital involved with small business startup and expansion. EDA loan funding is often the last resort for small businesses seeking resources to launch and grow operations. Loans are managed by economic development districts to provide direct local oversight and compliance between lenders and loan recipients.

To improve local processes, NADO has recommended the suspension of RLF [revolving loan fund] burdensome reporting requirements following loan repayment. A defederalization of the loan would cut unnecessary requirements currently endured by local administrators.

As Congress considers a proposal to rebuild our Nation's infrastructure, EDA remains a strong resource to assist in Federal, State, and local economic development activities. Strategic movement of Federal resources will be key to ensuring taxpayer dollars are directed to the greatest infrastructure needs. EDA offers both a successful record and structure responsive to local and regional needs in infrastructure development, especially in rural areas.

Again, thank you for the opportunity to address the subcommittee, and I look forward to answering your questions.

Mr. BARLETTA. Thank you for your testimony, Mr. Hembree.

Mr. Doney, you may proceed.

Mr. DONEY. Good morning. On behalf of the International Economic Development Council, our board of directors, and over 5,000 members, thank you, Chairman Barletta and Ranking Member

Johnson, for inviting me here today to share our perspective on this critical issue.

Before delivering my prepared remarks, I would like to note that our full testimony includes a report written by our economic development research partnership of IEDC, titled, "Critical Condition: Infrastructure for Economic Development."

[The IEDC report entitled "Critical Condition: Infrastructure for Economic Development" is available on pages 63–150.]

I would also like to take a moment to thank you for your kind remarks and appreciation of disaster recovery and response workers and volunteers. Across Montana and the West, we are fighting thousands of fires right now, and there are a lot of people this morning working out there, protecting lives and community.

As economic developers, every day we work with businesses of all sizes to help them start up, expand, address adversity, and take advantage of new opportunities. Infrastructure is often a deal-breaking challenge to overcome. Iconic projects, such as the Erie Canal, the Hoover Dam, and the Interstate Highway System reflect investments that revolutionized the economic futures of the people and regions they touched.

In economic development, more often we are challenged with smaller but no less critical infrastructure needs. Gaps in our local infrastructure that prevent businesses from creating the higher wage jobs desperately needed in too many of our communities and regions.

EDA has been a critical partner in overcoming these deal-killing infrastructure gaps. Our challenges today are greater than ever before. We need your help to ensure that EDA remains an instrumental resource and partner in helping those of us on the ground at the local level get things done.

In my submitted testimony, in addition to the detailed report on how economic developers work with infrastructure, I provide a few examples of successful projects that have taken place in my community. I am happy to discuss these and answer questions about them, as well as our statewide Montana Infrastructure Coalition, but I will use my time to discuss suggestions for how economic developers might like to see this committee proceed as it addresses our infrastructure crisis.

There are two opportunities we would like to highlight for EDA to advance infrastructure for the purpose of economic development.

First, as has been discussed by this committee in the past, and by Mr. Hembree, the defederalization of revolving loan funds will allow communities to leverage existing funding with State and private-sector funding to potentially great impact.

Second, the advancement of the division of economic development integration at EDA would result in streamlined processes and leveraged Federal investments, with the outcome of a better, more coordinated Federal engagement in local economic development efforts.

I would also like to point out one other opportunity for your consideration. Economic recovery following disaster is a critical component to restoring communities. The national disaster recovery framework identifies the Department of Commerce, via EDA, as

the lead Federal agency on economic recovery. Yet the Department was left out of Sandy's supplementals. We encourage the members of this committee to ensure the Department is included in future supplemental related to Hurricanes Harvey and Irma, hopefully also the western fires, as well as any future legislation regarding the role of the Federal agencies in disaster response and recovery.

It has been suggested an explanation for calling for the elimination of the Economic Development Administration that the Department of Transportation could fulfill EDA's role in infrastructure. This demonstrates a lack of understanding of the type of infrastructure that EDA supports. The most straightforward description would be to consider it as "last 100 yards" infrastructure.

These are the sewer lines and rail spurs running into industrial parks and manufacturing plants that DOT money does not cover. These are the renovations of existing buildings that take the idea of a business incubator in a small town to reality. These are the expansion of broadband capacity that allows a Rust Belt city to move into the 21st century. These, to put it a different way, are the targeted, locally driven, strategically planned investments in infrastructure that EDA makes that no other Federal agency does on a national scale.

We encourage this committee to look to the strengths of EDA and the regional development agencies, their institutional knowledge of local economic needs and abilities, and invest in them. Thank you.

Mr. BARLETTA. Thank you for your testimony, Mr. Doney.

Mr. Linkous, you may proceed.

Mr. LINKOUS. Good morning. Thank you, Chairman Barletta, Ranking Member Johnson, and members of the subcommittee. Thank you for inviting me today to testify. My name is Steve Linkous, and I am the president and chief executive officer of the Harford Mutual Insurance Company. I also serve as chairman of the board of directors of the National Association of Mutual Insurance Companies. NAMIC is a founding and executive committee member of the BuildStrong Coalition, on whose behalf I am testifying today.

Founded in 1842, Harford Mutual Insurance Company has grown from a small, local insurer serving homeowners and farmers in rural Bel Air, Maryland, to a regional company protecting policyholders in seven States and the District of Columbia.

One of the reasons we have been providing property and casualty insurance products to our policyholders for over 175 years is the mutual insurance model, where policyholders are put first.

Harford Mutual is a member of NAMIC, the largest property and casualty insurance trade association in the country, with more than 1,400 member companies. As we have seen in recent days, now is more important than ever to consider the devastating and growing impact of severe disasters. And during this critical time for everyone in the path of these hurricanes, we commend the leadership of Chairman Barletta, who has never wavered in his mission to reduce disaster losses and better protect communities ahead of the next storm.

As victims recover from the massive destruction left behind in the wake of Hurricanes Harvey and Irma, we should remember that the storms have not only destroyed lives and homes, but will

have a devastating effect on the local economies for years to come. According to FEMA, 40 to 60 percent of small businesses never reopen their doors after a disaster. And 90 percent of smaller companies fail within a year if they cannot resume operation within 5 days.

But it is not just small businesses that suffer the long-term effects of extreme weather. Rather, catastrophes have lasting ramifications on entire communities. A recent study by the National Bureau of Economic Research shows that counties hit by severe disasters experience greater out-migration, lower home prices, and higher poverty rates.

As they wreak havoc on our economies and communities, natural catastrophes are also drastically increasing in frequency and severity, and creating an enormous burden on the Nation's taxpayers. Between 1976 and 1995, there were an average number of only 39 annual Federal disaster declarations.

This number has skyrocketed to 121 between 1996 and 2015, during which we experienced Hurricane Katrina and Superstorm Sandy, storms that resulted in almost $180 billion in combined Federal aid. And many expect the combined aid sent to victims of Harvey and Irma could reach $200 billion.

While victims of catastrophes like Harvey and Irma should always be the first priority, we owe it to America to drastically change our approach. We will always help victims get back on their feet. But I believe we should be doing more to keep them from becoming victims in the first place.

Research has shown repeatedly that pre-disaster mitigation and more resilient construction is our best line of defense in the face of disasters. But the Federal Government has taken a reactive posture, spending 14 times more on rebuilding communities after, instead of preparing before the catastrophes strike. We have the science and the ability to do better, and we must implement a national strategy for investing in disaster mitigation in order to protect lives, communities, and taxpayer dollars.

First, we must incentivize States to adopt and enforce safe construction standards. As part of this critical reform, essential assistance made available to communities after disasters could be used to develop and enforce such standards.

Next, we must shift reactive post-disaster mitigation dollars to a new national Hazard Mitigation Grant Program, where funds could be used by communities to protect homes and mitigate risk before a disaster strikes.

Additionally, Congress should adjust the Federal minimum cost share following a major disaster, based upon a State's resiliency. We should not treat States that put responsible mitigation measures in place the same as those that needlessly leave lives and homes vulnerable.

Finally, the Federal Government should respond more efficiently to victims of disasters like Harvey and Irma by consolidating all Federal disaster assistance programs under FEMA.

As Congress and the President work together to help the victims of disasters and improve the Nation's infrastructure, the time has never been more urgent to adopt a national strategy for investing

in disaster mitigation, which will save lives, property, and billions of taxpayer dollars.

Chairman Barletta, Ranking Member Johnson, and members of the subcommittee, thank you again for holding today's critical hearing. I look forward to answering any of your questions.

Mr. BARLETTA. Thank you for your testimony, Mr. Linkous.

Ms. Grannis, you may proceed.

Ms. GRANNIS. Thank you to the distinguished members of the House Transportation and Infrastructure Committee for inviting me to testify on this important topic. My name is Jessica Grannis, I manage the adaptation program for the Georgetown Climate Center, an institute based at Georgetown University Law Center that supports State and local efforts to reduce carbon pollution and prepare for the impacts of climate change. Part of my work focuses on how Federal programs can better support State and local efforts to prepare for future climate impacts.

This year of record-breaking weather and devastating impacts provides a sobering preview of what we can expect with greater frequency and intensity as the climate changes. Sea-level rise, more intense heavy downpour events, and more extreme heat will increasingly affect people, property, and infrastructure.

These events have also had significant economic and fiscal impacts. According to NOAA [National Oceanic and Atmospheric Administration] data adjusted for inflation, we saw an average of two billion-dollar disaster events per year in the 1980s. That number has risen to 10 per year since 2010. And 2017 is likely to break yet another record as the most costly year for natural disasters that this Nation has ever experienced.

It is essential to talk about resilience now, as Congress makes billion-dollar decisions about how to fund long-term recovery. A fiscally responsible approach does not put communities back to the status quo and in harm's way. Congress should require that Federal investments account for anticipated future conditions and provide incentives to encourage communities to take proactive steps to reduce their own risks.

Many cities and States are already taking action. Miami Beach, Florida, is investing $500 million to elevate roads and install new pumping systems, which the mayor reported helped the city avoid some flood losses during this week's Irma storm surge. After impacts from Hurricane Sandy, Fort Lauderdale rebuilt Highway A1A to provide additional flood protection. And cities in the Midwest like Chicago are upgrading their sewer systems and deploying green infrastructure to better manage the increasing rainfall that is already overwhelming their antiquated systems.

Federal agencies have also been developing commonsense measures that ensure that taxpayer dollars are not being wasted. After Hurricane Sandy, disaster-affected communities were required to build back stronger. FEMA is also requiring States to consider climate change and hazard mitigation plans. Congress should support and encourage these types of proactive Federal agency actions.

Although promising resilience practices are being developed at all levels of Government, much more needs to be done to help our communities respond to the increasing threats, and Congress should lead these efforts.

First, Congress can reform and modernize Federal disaster recovery programs under the Stafford Act. Rebuilding to replace exactly what was damaged or destroyed to the pre-storm standards is not the responsible nor the fiscally prudent thing to do in an era of climate change. Congress can require recipients of disaster recovery funds to consider climate projections when reconstructing infrastructure with disaster recovery funds. Reinstating the Federal Flood Risk Management Standards that required projects using Federal funds to build to higher standards would be a good start.

Congress should fund the programs that provide science and technical assistance that help State and local governments understand their risks and design assets to be more resilient to future changes, including supporting FEMA's flood plain mapping program.

Congress can also simplify and harmonize administrative requirements for deploying disaster recovery funds to enable State and local grantees to more easily combine funding streams and reduce redtape for both grantees and administering agencies.

Second, Congress should fund and encourage communities to proactively implement measures to reduce risks by funding FEMA's Pre-disaster Mitigation Program. More help is needed for communities preparing for other impacts, like extreme heat, droughts, and wildfires.

Congress could also consider FEMA's proposal to create a disaster deductible, which would allow communities to be rewarded for the mitigation measures that they are already implementing on the ground.

Finally, much more investment is needed in sound infrastructure, even without disasters. Congress could create and fund and consider infrastructure banks that are being deployed at the State level, or even look at a national infrastructure bank to enable private-sector investment in upgrading and enhancing the resilience of U.S. infrastructure systems.

Thank you for the opportunity to discuss some commonsense actions that Congress can take to build the resilience of our communities and our Nation. More information about these examples is available in my written testimony and on our website. And I welcome your questions. Thank you.

Mr. BARLETTA. Thank you for your testimony, Ms. Grannis. I will now begin the first round of questions, limited to 5 minutes for each Member. If there are any additional questions following the first round, we will have additional rounds of questions as needed.

I ask unanimous consent that Members not on this subcommittee be permitted to sit with the subcommittee at today's hearing and ask questions.

With that, I will begin the first round. Mr. Seigel, as you point out in your testimony, economic development funding was critical in saving hundreds of jobs in Bloomsburg, Pennsylvania. Can you talk about the challenges small and distressed communities have in attracting private investment? And how do economic development programs help address those challenges?

Mr. SEIGEL. Certainly, Mr. Chairman. The challenges we have in the small and rural communities of the SEDA–COG region begins with the fact that many of our communities have very limited staff.

One of the important things that the Economic Development Administration as well as the Appalachian Regional Commission provides is support to organizations such as SEDA-Council of Governments to actually step in and serve as virtual staff to these communities in pursuing and in administering the Federal funds that are available.

That is the same service that we provide to small businesses as they try to develop. We not only support communities, but we support the individual businesses and provide financing and assistance in pursuing and obtaining the funding that is necessary to move their projects forward.

Mr. BARLETTA. Mr. Seigel, as you know, there are many coal-impacted communities in Pennsylvania. How have EDA and ARC helped in getting these communities back on their feet?

Mr. SEIGEL. Thank you. Currently, the Northumberland County and SEDA–COG are working jointly on a project that was actually funded through the POWER Initiative that you referenced earlier. That program is to assist coal-impacted communities. And while the program is aimed principally at current coal-impacted communities, the reality is that within the SEDA–COG region, the anthracite coal was key to the development of this country many years ago. They are still impacted communities, with the loss of the anthracite coal industry that has declined.

The POWER Initiative has provided us an opportunity to utilize over 6,000 acres of coal-damaged land located in Lower Northumberland County in the anthracite fields. And that acreage was virtually vacant. It was destroyed through many of the mining operations and disposal operations. And today we have converted that, and are in the process of converting that into the Anthracite Outdoor Adventure Area. We are sponsoring Jeep jamborees, four-wheel drive off-road jamborees, and it has turned into an outstanding economic development engine for that otherwise distressed community.

Currently, the projects include the construction of communications towers, so that we have connectivity. An earlier comment was made about broadband and the importance of that in our region, and I have many examples of that critical need: roadways, camping, and spin-off businesses associated with the Anthracite Outdoor Adventure Area, which was funded through the POWER Initiative. So I offer that as an example of the tools we use.

Mr. BARLETTA. Mr. Linkous, I know it is too early to tell the full extent of the devastation caused by Hurricane Irma, but we have heard about the many changes Florida made following Hurricane Andrew to reduce the damages, losses, and costs from future disasters. Are we able to gain any lessons learned from Florida as to how we, as a Nation, can strengthen our infrastructure to withstand the next disaster?

Mr. LINKOUS. Thank you. Absolutely. As we have seen from some of the terrible images coming out of Florida, there has been a dramatic shift, due to the building codes and seeing the resiliency to the storm that hit, compared to Hurricane Andrew some 25 years ago.

Senator Nelson recently, as he flew over the State, commented to CNN that he was able to clearly distinguish between buildings

that were build pre-Andrew and post-Andrew. So it went to prove very dramatically that sensible and strong building codes can have a dramatic impact on protecting lives and the building properties that are all around them.

Unfortunately, events like Andrew come along every now and then, and we are devastated by their impact. But we certainly learn from them. And Florida certainly shines as an example in this country, where they took the opportunity to increase their building codes, enforce their building codes in order to make their State far more resilient.

In many ways Florida was lucky with Irma in the way she took her path; a direct strike on Miami that is at a very low flood level already could have been devastating. And I think that, as the State continues to see more disasters head their way, enforcing these building codes across the State—and as we migrate these across the country—will be extremely important to saving lives and property.

Mr. BARLETTA. Thank you. The Chair now recognizes Ranking Member Johnson for 5 minutes.

Mr. JOHNSON. Thank you.

Ms. Grannis, what is the long-term funding impact of rescinding the Federal Flood Risk Management Standard? And has your organization studied the long-term fiscal impact of implementing the standard versus not implementing the standard?

Ms. GRANNIS. We have not studied the long-term fiscal impact of implementing the standard or not implementing the standard. I think what we do know is, from the figures that you pointed out earlier, $1 in mitigation saves us $4 in cost avoided.

And the Federal Flood Risk Management Standard was to implement a commonsense mitigation approach to make sure that when we were building infrastructure with Federal dollars it would be either elevated to account for the future flood risk that we are seeing in our communities now and that we expect to see with greater intensity and frequency in the future, and to encourage people to think about relocating infrastructure out of flood plains and out of high hazard areas so that they are not as exposed to those flood risks in the first place. So that would be a good metric to look for when you are funding disaster recovery dollars this time around.

Mr. JOHNSON. Thank you. What is the order of magnitude of funding necessary to fund resilience in a manner that bends the cost curve on disaster funding?

Ms. GRANNIS. Another great question. As a lawyer, I don't have as good a sense of the economic case for some of these investments that we need to make, in terms of pre-disaster mitigation. But I would say again the numbers that have come out of studies in the past that $1 saves $4 are a good metric. And we have other studies that look at other mitigation approaches, like restoring and enhancing natural flood plains. And the amount that that can help communities reduce their flood impacts are a good benchmark to look to when looking at Federal investments.

Mr. JOHNSON. Thank you, Ms. Grannis.

Mr. Linkous, do you think that there will be a difference in property damage between Florida and Texas, due to the different emphasis on the use of building codes?

Mr. LINKOUS. Thank you. Most certainly. We saw that in Houston, especially with the flood impact, that it is estimated that only 20 percent of the flood victims actually have flood insurance, whereas flood insurance is owned by nearly 80 percent of those affected in Florida. I think this speaks to the State's preparation of not only their own infrastructure, but also communicating to the citizens of their States the importance of having those protections at their disposal.

Mr. JOHNSON. What about the use of building codes in Florida, versus lack thereof in Texas?

Mr. LINKOUS. Well, certainly, as I mentioned earlier, we have seen that, in Florida, it is very clear, the distinction between those homes and buildings that are built to the newer standards.

In various parts of the country, the building codes are mandated either at the State level or even at a county level, and they can vary widely.

On top of the building codes, an important factor is the enforcement of those codes, especially in rapidly developing communities. The resources at the county and State level are so limited that it makes it difficult to even enforce the higher standards that are there. Florida has put forth money to make sure that the enforcement is in place. And certainly, what we have proposed to Congress in our BuildStrong Coalition is that there are funds available to those communities to make sure that they are trained, licensed, and enforced when dealing with these building codes.

Mr. JOHNSON. Thank you.

Mr. Hembree, in 2009 the American Recovery and Reinvestment Act provided funding for the Economic Development Administration. Are there any lessons learned from implementation of that act that could be incorporated into an infrastructure bill so that members of your organization could use funds more efficiently?

Mr. HEMBREE. Absolutely. I think if you look at the lessons learned from our implementation of those funds through that program, we found that a lot of times construction ready doesn't really mean construction ready. I think what we found through that process was that there needs to be more flexibility at the Federal level, working with EDA's regional offices, to move those funds through quicker to help us implement the projects that we know are in place.

I think the other thing that is important with that is an understanding that sometimes, from the Federal level with these programs, one size doesn't fit all when it comes to the types of projects that funds are dedicated to or being directed to. Mainly, when you are talking about rural and distressed communities, there are various different needs and different capacity at the local level for the ability for organizations to effectively administer that type of program. There was such a large amount of funds trying to be moved out in such a short period of time.

Mr. JOHNSON. Thank you, and I yield back.

Mr. BARLETTA. Thank you. The Chair now recognizes Mr. Ferguson for 5 minutes.

Mr. FERGUSON. Thank you, Mr. Chairman, and thank you all for your testimony today.

One of the things I want to comment on is my experience as a mayor in using EDA funding. In two examples that I have, we had a revolving loan fund that we used to stabilize buildings in our downtown. And it was pretty effective in closing the economic viability gap in some of those instances, going in and providing funding that a traditional lender simply would not touch. And what we found, we had a high level of success with that.

And then we also had success using EDA grants for that last mile of infrastructure on water and sewer projects. The net result is that we were able to create about 16,000 manufacturing jobs in our community, and revitalize the downtown. And these were two important tools that we used.

One of the things I would like to get you all's thoughts on, it was—we touched on rural broadband. One of the things that I have seen going into rural areas—and my part of Georgia certainly has a very rural component to it—have you all ever thought about rural broadband development, and how a revolving loan fund or a grant program might be used for that?

And, Mr. Hembree, I will start with you on that.

Mr. HEMBREE. Thank you. I have actually not given any specific thought to the revolving loan fund program as part of a broadband initiative. But just in terms of my knowledge of the way that that program works, and some opportunities that are there, I think it could certainly work.

Particularly, at least in North Carolina, we have to take the approach, based on some State statutes, all broadband projects have to be public-private partnerships. Localities can't control or operate broadband systems as a utility. So, an RLF program or a grant program can certainly provide funds that would facilitate those types of partnerships to make it work.

The challenge that we face—and I think all of us face across the country when we are talking about rural broadband—is that, in terms of our economic competitiveness, in terms of us being able to have the ability to compete on the national and global market, we have got to have that connection. But the flip side of that is the density is not high enough in rural areas for the market to drive deployment of those resources and those infrastructures to the area—so that is sort of the catch-22—and where EDA and other programs could step in to fill that gap.

Mr. FERGUSON. And that is my point in that, is that, you know, a lot of times we will use either the grant program or the revolving loan fund program to close the economic viability gap in these other types of economic development projects. And I think that we all recognize that the rural broadband infrastructure is really critical to really making sure that we stay competitive on a global stage.

But, quite candidly, it is really the best way forward for rural America. It is the way that we connect young people in those communities to economic opportunities in the metropolitan areas. And I would say that using—now beginning to change our model for economic development may be moving away from traditional infrastructure projects to putting a heavy emphasis for the next few years into broadband development and tie that directly to our edu-

cation system to develop students that can use this to earn a living. I think it is pretty important to do.

So, whether it is a revolving loan fund, or a grant program, or whatever it is, I think we need to look at this maybe the same way that we have traditionally, putting in water and sewer lines for an economic development project.

So, with that, Mr. Chairman, I will yield back.

Mr. BARLETTA. Thank you. The Chair now recognizes Ms. Norton for 5 minutes.

Ms. NORTON. Thank you very much, Mr. Chairman. And I thank you for this hearing, which I am going to say, unfortunately, is very timely, in light of recent events.

I think this question is really for Mr. Linkous—am I pronouncing your name correctly—because of a suggestion in your testimony.

And in my own district, the Nation's Capital, the threat of not hurricanes—although that does happen here—but certainly of floods on the Mall are imminent. And we just finished working through this committee, constructing a levee there. And I have two bills where construction is underway now, literally on the water, the Southeast Waterfront, the Southwest Waterfront. This is fairly typical of building in the United States. So the notion of protections not only against disasters like hurricanes, but of surges, of floods is nationwide.

Now, in your testimony, Mr. Linkous, you proposed something very interesting. First of all, you say in your testimony that only 15 percent of those affected by Harvey were covered by insurance. That ought to shake us up. I can't imagine how we are going to rebuild, when you pile on Irma and the rest.

And you are making a suggestion that I would like to have you justify. It is perfectly understandable that you would focus—as the Congress has not sufficiently—on pre-disaster funding. And so you proposed that 10 percent—and here I am reading from your testimony—of all funds appropriated for the existing post-disaster Hazard Mitigation Grant Program be allocated to a new program, a new mitigation program, where funds would be available with regards to whether a disaster occurred and could be used for strengthening homes and businesses.

So essentially, you want to take funds from disaster funds. It is kind of tough love to make perhaps the Congress and maybe even the States do what they haven't done in the past. Is it—have you concluded that the only way to get sufficient attention on pre-disaster funds is this kind of tough taking from Peter to pay Paul, as some would say? If you say to Sandy, for example, which is still going on, the rebuilding there, that part of those funds, which I must tell you they had a harder time getting than it looks like we are having getting for the Texas and Florida disasters, if you were to, say, take away 10 percent of the funds that are being used to rebuild New York and New Jersey and set them aside for whoever needs funds, we are likely to get members from those delegations saying, "Really?"

So, would you explain why you come to that conclusion, and if you think it would be successful here in the Congress.

Mr. LINKOUS. Thank you. You know, a wise person once said that an ounce of prevention is worth a pound of cure. And, as we know,

that was Benjamin Franklin, who also happens to be a Founding Father of our mutual insurance industry, and his company continues 265 years later in Philadelphia. I think we need to take that sage wisdom when we go into addressing our Nation's disaster recovery.

As we have heard, $1 equals $4 on the back end. And if we continue to——

Ms. NORTON. But everybody in the Congress will give lipservice to what you have just said. But you have cited in your own testimony that sometimes 80 percent—I think one of your figures, the amount—go in to post-disaster than Congress has been willing to put in to pre-disaster.

So they—everybody believes it, but it is in our DNA to help people when disasters occur. But cannot be found anywhere, apparently among Democrats or Republicans to take a big chunk of money and use it for pre-disaster, even though you won't find any Member who disagrees with what you just said.

So I am really looking for the remedy. Do you think this notion of saying, OK, you are willing to generate funds after disaster, because you have no—you really have no alternative. So if there is a provision that says some of that money has to go into pre-disaster, then maybe we will build up a pre-disaster mitigation fund. That is what you seem to be proposing.

And I am asking—this is taking away from a disaster to pay for the next disaster, whoever gets it—it might not even be the particular jurisdiction—I am asking you do you think that that is really all that is left to do now to get Congress focused on the importance of pre-disaster funding.

Mr. LINKOUS. I agree with you, that we must focus on recovering those that are impacted by Harvey and Irma, or whatever the major disaster that may be striking in the Nation. Our priority must be, first and foremost, there.

That being said, what we have laid out is simply incentivizing States to take measures to prevent the damage that would come from the next hurricane. Whether we like it or not, the frequency and severity of weather events are increasing on a dramatic pace. Our funding of these events from a disaster situation on a post-disaster basis is unsustainable. We will not have the funds to——

Ms. NORTON. Well, people who lose funds—let's say people in New York and New Jersey——

Mr. LINKOUS. One——

Ms. NORTON [continuing]. By having these funds taken from their post-disaster funds, would they be available to them for pre-disaster mitigation?

Mr. LINKOUS. Yes. What we are recommending is taking a set percentage of the annual funds that are coming out of disaster relief, and setting them aside for pre-disaster mitigation. As you mentioned, 10 percent. So, if $200 billion was in the package for 1 year, we would be setting aside $20 billion for the States to recover. One key element of what we are proposing is also having FEMA oversee all dollars that are being spent on a disaster basis.

Billions of dollars were set aside for Sandy. Most of that should have gone to New Jersey and New York, where the disaster actually happened. But as we know, slush funds were created across

the board that impacted 25 States that got Sandy relief funds. So we believe that there is sufficient dollars within the disaster recovery funds that can be utilized toward pre-disaster mitigation.

Ms. NORTON. I think it should be considered. As tough as it is, I think that the gentleman's proposal should be considered. Thank you very much.

Mr. BARLETTA. Thank you. The Chair now recognizes Mr. Faso for 5 minutes.

Mr. FASO. Thank you, Mr. Chairman.

Mr. Linkous, I recently met with a mutual insurance company located in my district. And, as you know, we had significant damage due to Irene and Lee back in 2011, as did the State of Vermont. And all through the Catskills we had serious flooding and property damage. And one of the things that the folks from the mutual company told me was that, ironically, the people who did not have flood insurance, they received compensation quicker than the people who had flood insurance. And I am wondering if you could comment on that, and what your experience and the opinion of your association and your coalition is on that topic.

Mr. LINKOUS. Thank you. Well, certainly, when we are proposing recommendations to Congress, one of them is not to have insurance programs run by the Federal Government. We know that the large bureaucracy that is created around FEMA creates problems when it ultimately takes place in delivering a check to an affected business owner or homeowner.

We, as mutual insurance companies, are based in the community. We were formed because of the community. And we are there to closely monitor their impact, and can have a far quicker and more responsive mitigation of their disasters because we are there.

When you take it to a Federal level, you are inherently going to build in some lag of time as the Government is dealing not only with the flooding, but also the impacts of the hurricane and infrastructure, gas shortages, and everything else that inherently get in the way.

We would call for more privatization of the National Flood Insurance Program. We have put forth key elements to revitalizing the National Flood Insurance Program, one of them being allowing data to be supplied by the National Flood Insurance Program to the private market, so companies like us could assess that information. Right now that information is only in the hands of FEMA. In order for us to adjust the rates according to the exposure, so that it does not jeopardize our companies, we need that information at our level in order to do that.

Mr. FASO. So streamlining the information, making it accessible, in your view, would allow for quicker compensation for those that are adversely affected by these events.

Mr. LINKOUS. Absolutely.

Mr. FASO. And I don't know if Ms. Grannis or another member of the panel would like to comment. One of the things I hear consistently from people in my district is the dissatisfaction with the FEMA mapping process, and that this process is often convoluted, filled with mistakes, et cetera. Could the panelists, Ms. Grannis or any of the other panelists, care to comment on that issue?

Ms. GRANNIS. Sure, I would be happy to. I think that is a common critique in many communities, that the flood plain maps are underpredicting what actually floods during these events, that FEMA is underfunded to update the maps. Many communities have maps that are, you know, many decades old.

We have looked at solutions to try to have Federal agencies work better together. You have a multitude of different Federal agencies that are collecting data relevant to flood risk: USGS [United States Geological Survey], FEMA, NOAA. So, creating a facility that allows those different data sets to be combined and used to more easily update flood plain maps and give communities better flood risk information.

So I think, when looking at the National Flood Insurance Program, looking at options for improving FEMA's flood plain mapping program is going to be really key, and also giving FEMA the funds they need to make sure that those maps are up to date and accurate, and including future conditions information for communities.

Mr. FASO. Any of the other panelists have a thought on this issue?

Mr. LINKOUS. If I could just add, as well, myself, as a company, we are looking at multiple exposures: hurricanes, severe convective storms, tornadoes, severe weather events. We utilize modeling companies in the industry—RMS, AIR—to provide us data. They change their models, if not once a year, multiple times a year, based on the information they are receiving from the disasters. The more disasters we have, unfortunately, provide more data to us to be able to deal with those.

When flood plains are changed on a multiyear basis, we know immediately that they are out of date. And so they cannot be used as a basis to adequately charge a rate to the consumer or a business that is in a flood plain, or even for them to determine are they truly in a flood plain to begin with. And so, we need to update the data, as Ms. Grannis said, and that would certainly go a long way to supporting the Federal insurance flood program.

Last thing I would say on flood is that we all have to understand that the rates being charged by the NFIP [National Flood Insurance Program] are pre-subsidized. So the dollars that are determined internally to charge for a risk is already subsidized when it reaches the consumer. We are giving them a false sense of security by them thinking, oh, it only costs me $500 for my flood policy, it must not be a big risk, when really it has been subsidized by 90 percent by the Federal Government.

More importantly, we know that there are some living in those flood-affected areas that can't afford the higher flood rates, but there are many that can afford the higher flood rates, but we are pre-subsidizing across the board, and not looking at this in the proper way. NAMIC has called for many changes in the NFIP that we would look for Congress to passing.

Mr. FASO. Thank you, Mr. Chairman. I yield back.

Mr. BARLETTA. Thank you. The Chair now recognizes Mr. Smucker for 5 minutes.

Mr. SMUCKER. Thank you, Mr. Chairman. I thank you for holding this hearing, which, of course, is timely in regards to disaster relief and mitigation, and also I think it is timely in terms of the Federal

role in infrastructure, as we talk about an infrastructure package that we hope to see come forward in the next few months or so.

And I want to target at least my first two questions in that regard, and this is specifically to Mr. Doney. And just to provide just a little context, or background, a community that I represent is the city of Lancaster, about 60,000 people, in Pennsylvania. And if you visit Lancaster now—again, this is happening in many areas, but specifically in my district—it is a vibrant, downtown area that is important to the entire county.

And that didn't just happen by accident. It was really the result of, you know, a lot of community leaders who focused on that for several decades. And we now see the outcome of that. And people recognize, you know, that that is a very important development to the region, as well as to the downtown.

And it didn't come about entirely by private investment. It really was targeted—in this case it was mostly State dollars that—if you look back specifically, a baseball stadium and a convention center, which would not have happened without targeted investment. It was a public-private partnership.

And that is why I am excited about what we are talking about, in terms of our infrastructure package. We are talking about spurring private investment dollars, which—neither of those projects that I mentioned would have happened without a public-private partnership, but neither would have a lot of other ancillary businesses and development occur that didn't require any State dollars, but was all private investment driven by the initial investment into the community.

I am not—you know, I am new here, I am not as familiar with the Federal role. And so I guess I am interested in hearing from you about the role of the Economic Development Administration. What specifically can the Economic Development Administration provide that other agencies cannot? If you would, speak to that.

Mr. DONEY. Well, I think in two respects. And it approaches the need for economic opportunity and healthy, vibrant communities and regions, as well as emergency preparedness.

One is capacity on the ground. EDA invests in building that capacity. One thing about economic development is we cross just about every area. So we develop the relationships with our healthcare, with housing, with transportation, certainly with the business community, with education. Those relationships help us address things and creatively package things together. So capacity is one.

Two is that last bit of money to make something happen. EDA tends to focus on those catalytic projects that you get one thing going and it gets the ball rolling. We have a revolving loan fund that is 20 years old. We have recycled that money many times. We average 17 percent into a deal, so that we push the conventional lenders to do as much as possible, we push the business to raise as much equity as possible, and then we fill that gap.

It is frustrating at times, when we come here to Washington, that we don't think the role of that is as greatly appreciated. We are the dealmakers there, and we are trying to close that last gap.

Mr. SMUCKER. I wonder if you—do you have—as we look at spurring additional public-private partnerships, do you have sugges-

tions for improvements, based on your experience, to that agency or other Federal agencies?

Mr. DONEY. Well, two things. One, streamlining things at EDA. They have much lower staff than they used to have. The regulatory burdens certainly don't go away, environmental review and things like that. That is one of the reasons we have suggested the defederalization of the revolving loan funds. Again, our loan fund is 20 years old, and we still have to file regular reports, and then EDA staff have to review those.

The proposal that was before the House last year would have removed that for revolving loan funds that had proven themselves over a number of years to be performing well. So that would give them the flexibility there.

The other is let EDA play its congressionally mandated role of being the lead agency in economic development, and developing those relationships to eliminate stovepipes between other agencies. Usually, when we are working on something, whether it be broadband, disaster recovery, or just trying to put a deal together, as you know from being mayor, we are cobbling together a whole variety of public and private resources.

EDA is the one agency that has the flexibility to fill whatever gap that we have. It is really the only resource that we have that has that flexibility to fill that last gap.

Mr. SMUCKER. Thank you. I see I am out of time.

Mr. BARLETTA. Thank you. I am now going to begin a second round of questions, if any other Members want to participate.

Mr. Hembree, are there ways in which we can ensure agencies like EDA and ARC encourage mitigation when funding disaster-related projects?

Mr. HEMBREE. Absolutely, I think there are. I think there are probably both some requirements—maybe regulatory-type requirements—that could be put in place tied to funding levels. Well, I guess you would call that probably the stick approach.

Probably what your local communities and we would like to see more is sort of the carrot approach. And from that, what I mean, and traditionally what has been successful with some programs in the past when we have dealt with similar issues, is identifying what those communities' needs are, in terms of potential mitigation, what happens, what if, and encourage that planning process beforehand.

I think we, as a nation and as regional development organizations, and even as local governments, have become much better at doing that. I think there is still a lot of work to go. So, I guess what the bottom line could be, one of the things that could be done is that could be tied to funds, sort of getting back to the same thing we are talking about, you know, in terms of the actual recovery funds to put in place, if that makes sense.

Mr. BARLETTA. Yes, thank you. That is—thank you very much.

Mr. Doney, in recent years, as you point out, EDA has served as an integrator of Federal economic development programs working with other agencies and streamlining the application process for distressed communities. Can you talk about why this role is important, and how it can be strengthened?

Mr. DONEY. Certainly. EDA plays the—again, that last-gap role. When it comes to infrastructure, it has the flexibility that if our need on a project is a sewer line or a water line—maybe it is a building renovation, maybe it is broadband, a whole variety of different things usually at the scale that won't reach the level of other Federal programs, EDA can fill that gap.

The programs of economic adjustment have been particularly critical in my region. The U.S. economy, the global economy, is so dynamic that the economic adjustment program allows us to develop plans and implement plans at the local level to react and take advantage of new market opportunities and address market challenges that come up.

So, the public works program is that last gap of infrastructure. I don't know where else to turn to, if it is not EDA. It is not like we have choices. We turn to EDA because there is nothing else that we can do, we have exhausted everything at the local, regional, and State level. We are very creative at getting everything we can to put something together. We turn to EDA when there is no other resource left.

Mr. BARLETTA. Thank you.

Mr. Seigel, you highlight the significance of disaster mitigation in your testimony. Mitigation not only saves lives and reduces property damage, but it can also save jobs. Can you talk more about how mitigation is critical in economic development?

Mr. SEIGEL. We have just completed a very intense community education and outreach program in the SEDA–COG region, and we are actually going to be taking that across the local development districts through 52 counties and Pennsylvania. And the purpose of that was to hear from the businesses and the citizens about how we can plan for resiliency.

It is a critical element of job retention and job creation. In terms of the retention, we have actually proposed and rolled out some concept ideas, suggesting offering tax credits, targeting revolving loan funds, revenues to businesses in order to build resiliency into their facilities.

The types of things we are looking at are relocation, flood proofing, those types of things, all of those things that would allow a business to come back into operation quickly after an event occurs. And we are utilizing the EDA revolving loan funds for that, as well as advocating for certain interests and tax credit benefits for those purposes.

Mr. BARLETTA. Thank you. The Chair now recognizes Ranking Member Johnson.

Mr. JOHNSON. Thank you.

Mr. Linkous, what aspects of the National Flood Insurance Program, if privatized, or—let me ask the question like this.

You recommend that the National Flood Insurance Program be privatized, but what would the current market for flood insurance—or would that current market for flood insurance be served under a privatization model?

Mr. LINKOUS. Thank you. We are calling for increased privatization of the National Flood Insurance Program, not necessarily the complete elimination of the flood. Flood is a very difficult loss to

model. That being said, I think the appetite of carriers and reinsurers would be quite healthy.

We know that there is a significant capital surplus in both the reinsurance and carrier markets. Carriers are looking for areas to deploy that capital in order to serve markets, grow their market share. So I think it would be quite extensive.

That being said, insurance companies are not going to take that first step to entering that risk until they understand fully the risk. And so that information coming to us being allowed to set actuarially sound rates for the risk that is there needs to be part of the reforms that—to the overall protection of flood in the Nation.

Mr. JOHNSON. Would the private market be amenable to assuming the FEMA mapping process, along with this privatization proposal?

Mr. LINKOUS. Well, certainly, because we know that the better data we have, the better we can manage the overall risk. If we don't manage properly the risk of our company, small or large, we ultimately will go out of business. That is why we have been around for 175 years, because we look at the risk appropriately.

Our owners are our policyholders. So I am not the owner of the company, I am the steward of the company. So the policyholders expect me to make sure that I am mitigating the risks that ultimately protects their surplus, the policyholders' surplus.

So I would see that the industry would enjoy engaging with the NFIP to make sure that the maps are correct, that they are updated on a frequent basis, and adapt to the changing climate that we see all around us that are driving more and more floods into these programs.

I think there is an opportunity with the insurance industry coming in with its massive infrastructure of data, that it can supplement and help not only policyholders at the home and business level, but also communities that are looking for ways to improve their infrastructures.

Mr. JOHNSON. Ms. Grannis—thank you, Mr. Linkous—Ms. Grannis, what would privatization look like if it were to become the policy of the country?

Ms. GRANNIS. I think there would be a couple things that I would look to in thinking about how the private insurance market would play a role within and to complement the NFIP.

The first is the flood plain mapping program. You know, we want that information to be public, we want that information to be updated and accurate, because it drives so many decisions about how we set insurance prices, where we build, how we build, who has to purchase insurance. So, you know, we want that information to be maintained as a public good.

There has been proposals to include, like, a surcharge on policies to make sure that the flood plain mapping program continues to have the resources it needs. The second component that I would want to preserve is the role of the NFIP in encouraging communities to mitigate risk, and to do things like have better land-use practices in flood plains, have better codes and standards on the books. So we want to make sure that that public good is still preserved with a private role, as well.

And then I think the third prong of the National Flood Insurance Program that really has to be managed carefully is the affordability of flood insurance. This is the last line of defense for people if they are affected by flood insurance. This is the only money they have to rebuild. And so, if those insurance prices go through the roof and lower income homeowners are not able to continue to maintain coverage, or are priced out of their home, that will have significant resilience effects on communities and the ability of households to recover in the event of these extreme storms.

Mr. JOHNSON. Thank you. I yield back.

Mr. BARLETTA. Thank you, Mr. Johnson. And I thank you all for your testimony today.

If there are no further questions, I would ask unanimous consent that the record of today's hearing remain open until such time as our witnesses have provided answers to any questions that may be submitted to them in writing, and unanimous consent that the record remain open for 15 days for any additional comments and information submitted by Members or witnesses to be included in the record of today's hearing.

Without objection, so ordered.

I would like to thank our witnesses again for their testimony today.

If no other Members have anything to add, this subcommittee stands adjourned.

[Whereupon, at 11:30 a.m., the subcommittee was adjourned.]

TESTIMONY OF WILLIAM C. SEIGEL

before

Subcommittee on Economic Development, Public Buildings, and Emergency Management

on

September 13, 2017

10:00 A.M.

Rayburn House Office Building

Room 2167

Washington, D.C.

Building a 21st Century Infrastructure for America:

Economic Development Stakeholders Perspectives

Good morning Chairman Barletta, subcommittee members and guests. I am Bill Seigel, assistant executive director of SEDA-Council of Governments (SEDA-COG), a regional Local Development District (LDD), serving 11 rural Counties in central Pennsylvania. On behalf of SEDA-COG and the nearly three-quarters of a million residents of our region, thank you for the opportunity to share our perspectives on infrastructure needs and the role of the federal government in our region.

We are a rural region, historically defined by agriculture, anthracite coal and manufacturing. Today we are challenged to redefine ourselves by maintaining and growing our manufacturing sector while building our service industries. We look to the federal government to partner with us as we confront these challenges. Roads, bridges and rail are important, but not to the exclusion of flood resiliency and technology in our 18th and 19th century communities. The funds offered through the Economic Development Administration (EDA), Community Development Block Grant (CDBG) program, the Appalachian Regional Commission (ARC), and the Federal Emergency Management Agency (FEMA), to name a few, are critical catalysts for our infrastructure projects.

How do we build a 21st century infrastructure for America? In central Pennsylvania, it is through federal, state, local and private partnerships that protect and enhance the infrastructure in which we have already invested, and by complementing that investment with new infrastructure that allow the region and its industries to remain competitive.

Allow me to share a recently completed success story:

The Town of Bloomsburg, Columbia County is located on the banks of the Susquehanna River, and until recently was the only municipality along the Susquehanna without flood protection. Autoneum North America, a manufacturer of automotive carpet and soundproofing textiles, located in Bloomsburg employs 650 workers with an annual payroll of over $30 million. If you traveled here today by car, you likely placed your feet on their carpet.

Autoneum faced a serious dilemma. Located in the special flood hazard area, their 100-year-old plant flooded every several years. If they chose to remain in this location, they placed themselves at risk for financial devastation, as evidenced by a $60 million loss in 2011. The entire automotive manufacturing system and supply chain was slowed by the unavailability of automotive carpet while Autoneum struggled through shut-down and recovery. Relocation out of the special flood hazard area would have similar impacts, due to lost production time – rippling through to Detroit. They could not stay; they could not leave. But, after Hurricane Lee and Tropical Storm Sandy, long-term automotive manufacturing customers began to waffle at contract renewal and to investigate alternative suppliers, including foreign suppliers, to avoid the cost of flood-induced shut-downs.

In 2014 SEDA-COG and the Columbia County commissioners were successful in obtaining a $15 million EDA grant to construct a flood protection system around Autoneum. With the EDA commitment, we could leverage $12 million from the Commonwealth of Pennsylvania, along with $2.5 million of private funds to construct a $30 million flood control system. SEDA-COG managed the funding and the project broke ground in 2015 and completed the project last year – under budget and ahead of schedule.

I recently learned that several of Autoneum's major customers had placed contract renewals on hold until we broke ground. Without the partnership of the federal government, through EDA, it is with near certainty that I can say we would have lost this manufacturer, leaving the Town of Bloomsburg with a 42-acre vacant manufacturing facility falling into blight and generating little to no taxes.

Protecting the existing infrastructure, in this example Autoneum North America, is a priority of SEDA-COG. Using the federal tools such as EDA, CDBG, and the FEMA Pre-Disaster Mitigation program, SEDA-COG is able to incentivize public and private partners. EDA's support of LDDs allows us to develop and maintain a caliber of staff that otherwise would not exist in rural Pennsylvania, and which is critical to leading economic and community development.

Decades ago, SEDA-COG recognized the impact of recurring floods on our community and economic development mission. We began assisting our communities to implement and maximize the Community Rating System (CRS), empowering local communities to reduce loss and increase resiliency, preserving the existing tax base and infrastructure. We have just completed an intense community education and outreach program on flood resiliency in our region and have been invited with our Local Development District Development partners in Pennsylvania to take the program to 52 of our 67 counties. As a nation, we have invested billions in developing the infrastructure of our communities. We must first protect this investment - only then can we enhance it.

And, enhance it we must. Today's manufacturers also need 21st century infrastructure, in one word, CONNECTIVITY. High-speed internet is not any less important today then electrification was in 1882 when Thomas Edison switched on the lights at the Sunbury City Hotel using a first in the world, three wire overhead, electrical system throughout the streets of Sunbury.

Another story, and I promise, more brevity:

Gilson Boards, a manufacturer of world-renowned snow boards is located near New Berlin in Union County. They located here in part due to the availability of the local hardwoods necessary in the manufacturing of the boards. SEDA-COG's Export staff provided considerable support in developing their export trade. A large amount of their domestic and international business is managed through the internet. Unfortunately, neither broadband nor high-speed internet is available in much of our region. Until recently, when Gilson Boards staff needed to print a large web-based document, the service was so slow that they copied it to a thumb drive and drove to Lewisburg to print the documents. A one hour plus, round trip, was faster than printing in house! Today through the efforts of Pen Tele Data, Service

Electric and Gilson Boards, we have addressed Nick Gilson's problem. But the solution was a $40,000, 2.5-mile-long wire, to the Gilson facility.

In conclusion, in order to build a 21st century infrastructure we must continue to partner at all levels of government and business to address all three legs of the stool; maintain what exists, protect it from new threats and expand it to become globally competitive.

WRITTEN STATEMENT FOR THE RECORD

JUSTIN HEMBREE, EXECUTIVE DIRECTOR OF THE LAND OF SKY REGIONAL COUNCIL
AND BOARD MEMBER OF THE NATIONAL ASSOCIATION OF DEVELOPMENT ORGANIZATIONS
BEFORE THE
U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON ECONOMIC DEVELOPMENT, PUBLIC BUILDINGS, AND EMERGENCY MANAGEMENT

WASHINGTON, D.C.
SEPTEMBER 13, 2017

Thank you, Chairman Barletta, Ranking Member Johnson, and members of the subcommittee for the opportunity to testify this morning on infrastructure and the U.S. Economic Development Administration's (EDA) role in aiding rural and distressed communities.

My name is Justin Hembree. I am the Executive Director of the Land of Sky Regional Council, a regional public entity dedicated to economic and community development and headquartered in Asheville, North Carolina. I am also a board member of the National Association of Development Organizations (NADO). My professional background includes 16 years of city, county, and regional government management.

The **National Association of Development Organizations** (NADO) is a member-based association of more than 350 regional development organizations throughout the country. NADO provides advocacy, education, research, and training to members including the 386 EDA funded and designated Economic Development Districts (EDDs). NADO members – referred to as councils of governments, local

development districts, planning and development districts, regional councils and regional planning commissions – were established to provide support to local governments, communities, and economies through regional collaboration, comprehensive planning, and program implementation.

Regional development organizations administer many programs and services essential to economic and community development. The locally-driven set of programs vary depending on region and state, but include transportation planning, infrastructure, housing, aging, emergency management, Geographic Information System (GIS) management, small business financing, and workforce development. Regional development organizations are governed by a board of local elected officials and local stakeholders representing business, education, and public interests which set objectives for the organization.

The **Land of Sky Regional Council** (LOS) is a regional development entity dedicated to assisting local governments through technical assistance and program administration in four Western North Carolina counties (Buncombe, Henderson, Madison, and Transylvania). The organization is a regional planning and development agency designated as an Economic Development District by the U.S. Economic Development Administration and a Local Development District (LDD) designated by the Appalachian Regional Commission (ARC). While serving in a technical assistance capacity for local governments, LOS oversees the regional Workforce Investment Board (WIB) as designated by the U.S. Department of Labor (DOL), serves as the regional public transit provider, implements services for seniors as the regional Area Agency on Aging (AAA) in coordination with the U.S. Department of Health and Human Services (HHS), and manages volunteer services provided through the Senior Community Services Program (SCSP).

On behalf of NADO's membership, Mr. Chairman, I would like to thank you and the members of the subcommittee for your support of infrastructure development throughout the country. NADO appreciates the opportunity to address EDA's role in an upcoming infrastructure proposal, especially for small and underserved communities.

The U.S. Economic Development Administration serves a unique role as the sole federal agency dedicated to economic development. As such, EDA offers the expertise and structure to advance local and regional infrastructure planning and economic development. The agency is dedicated to assisting distressed communities with an emphasis on supporting rural areas. EDA implements various programs

and services addressing specific and often complex local needs. As a facilitator of activities between federal agencies, EDA is a conduit for interagency economic development initiatives. Much of EDA's investment is driven by its network of Economic Development Districts which work with communities to prioritize local and regional priorities for economic development. Overall, EDA's efforts lead to significant job creation and investment in local and regional economies.

EDA was created by the Public Works and Economic Development Act of 1965. Throughout its 52-year history, investments have helped create and retain jobs and impart lasting benefits for communities across the country. Investments in the last ten years led to the creation of 468,378 jobs and the leveraging of $55 billion in private investment. In fiscal year (FY) 2016, EDA's targeted funding served 649 projects in all 50 states as well as Guam and Puerto Rico. Through these investments, 34,043 jobs were created and retained leveraging $4.8 billion in private investment.

Infrastructure development makes up a significant piece of EDA's investment portfolio. Over the years, the agency has made targeted investments in projects aimed at strengthening physical connections to move products and services to the marketplace. In many cases, EDA contributes to specific, community-driven needs by funding non-traditional infrastructure projects including telecommunications and broadband. A good example of EDA's contribution to infrastructure development is its investment of $15 million into two flood control systems in Bloomsburg, Pennsylvania. During Tropical Storm Lee in 2011, Bloomsburg businesses were impacted by flood waters. This project reinforces flood prevention and reduces risk of future weather-related disasters for area businesses, especially in the agriculture and automotive industries. Construction of the flood control systems saved 895 jobs and EDA's funding leveraged $10 million in private investment.

Another project example is EDA's funding of rail improvements at an industrial site in Corning, Arkansas. EDA's contribution of $1.2 million assisted in creating 942 jobs while leveraging $192 million of private investment for the small, rural community in the northeast part of the state. The project also reinforces infrastructure against potential disaster in the future.

Planning also contributes significantly to EDA's investments. By working with stakeholders at the local and regional level, EDA staff determine how federal resources can be best utilized for maximum impact.

Data collection and application through shared planning between local and federal agencies leads to better results in project development. A measured approach also helps to ensure accountability and protects federal resources from mismanagement.

Assistance to communities in dire economic condition remains a top priority for EDA. Business development fails to keep pace in many places, especially rural communities. In response, EDA identifies ways to assist those struggling to stay competitive. EDA applies the latest data available to assess those areas with the greatest needs and contributes resources to facilitating infrastructure, entrepreneurship, and business expansion. While other federal entities such as the U.S. Department of Agriculture assist communities with utility and infrastructure development, EDA is unique among federal agencies in that it prioritizes the long-term economic impact of a project when committing resources. In FY2016, EDA invested 50.5% of its funds in areas of high distress leading to $2.6 billion in private investment.

EDA helps to create jobs and grow business through a host of programs and services. My testimony will highlight three: Partnership Planning, Public Works and Economic Adjustment Assistance, and Revolving Loan Fund Programs:

- The Partnership Planning Program provides resources to local stakeholders in setting priorities and addressing needs around economic development. EDA funds planning processes within designated regions, engaging stakeholders on topics such as transportation, housing, and workforce development. Government, business, and citizens are represented within the process as participants identify challenges, strengths, and opportunities impacting economic growth. In recognizing current conditions, action steps are then developed to take account of assets and mobilize existing and potential resources. The process brings together stakeholders who would otherwise not meet, collaborating to advance ideas for regional economic development. As a result, a report - the Comprehensive Economic Development Strategy (CEDS) - is developed documenting information on the state of the region and planned actions moving forward. The CEDS is updated on a five-year basis and serves as a guide for investment.

- An example of the CEDS in action is the planning process led by the SEDA – Council of Governments (SEDA-COG). SEDA-COG is an Economic Development District headquartered in Lewisburg, Pennsylvania and serving the counties of Centre, Clinton, Columbia, Juniata, Lycoming, Mifflin, Montour, Northumberland, Perry, Snyder, and Union. The CEDS process brings together public and private stakeholders to examine issues impacting economic development and growth including land use, transportation, and workforce. The CEDS Committee along with SEDA-COG staff analyze areas of the local economy through development of a SWOT (Strength, Weaknesses, Opportunities, Challenges) analysis. In turn, objectives are decided upon to address obstacles and foster opportunities for expanding the regional economy. In the recent 2015 CEDS update, the committee determined that support of Central Region PREP Program's Service Provider Network and SEDA-COG Region Keystone Opportunity Zone were critical to business development and expansion. The CEDS process produced several regional goals including protecting existing jobs, promoting renewable and non-renewable energy, attracting foreign investment, and upgrading infrastructure with an emphasis on broadband.
- CEDS has expanded beyond regions to assess conditions and determine priorities statewide as well. For instance, regional councils of government (COGs) in North Carolina came together to form the NC Tomorrow initiative supported by EDA and the U.S. Department of Housing and Urban Development (HUD). In the first phase, stakeholders from the state's regions created a Uniform Process for North Carolina to develop the NC Statewide Strategy for Comprehensive Community and Economic Development. The second phase merged regional CEDS documents into a statewide economic development plan. An update of the plan was recently completed and COGs are implementing action steps as resources and partners become available.

- The Public Works and Economic Adjustment Program invests funding into lacking or non-existent facilities to assist business development and job creation. EDA receives proposals from a wide range of communities looking to advance various industry sectors and considers several factors in funding projects including leveraging of public and private investment. The agency also relies on local and state government partners to provide feedback on project benefits. Many projects funded under this program are infrastructure-based including road, water and wastewater, and broadband development.

    - The City of Asheville was awarded an EDA Public Works grant to develop a former Brownfields site accommodating the location of a brewery and tasting room for New Belgium Brewing. EDA's investment of $1.1 million provided key transportation and waterline upgrades. Initially, a 2011 EPA grant funded Phase I and II of a Brownfields assessment on the property. Overall, EDA, along with state ($300,000) and local ($1.1 million) funding, leveraged $175 million from New Belgium Brewing, creating 151 jobs over six years.

- The Revolving Loan Fund (RLF) Program directs capital to assist small business with startup and expansion costs. Responding to the need to help America's small business connect to adequate financing, the RLF Program provides necessary capital. This program is often a last resort for entrepreneurs and small business owners whom have been turned down by other lending services. Although heightened risk is involved, small businesses excel under this program leading to company growth and job creation. EDA administers the RLF Program in partnership with regional economic development organizations which provide loan oversight and management. The regional entities review applications and provide recommendations during the loan process.

    - The Northeast Pennsylvania Alliance (NEPA Alliance) responds to the capital needs of small business through local administration of an RLF. Here are two examples highlighting successes in the loan program and how diverse sources of federal funding can be combined to strengthen investments:

- In late 2014, NEPA Alliance provided $140,000 in financing to the Susquehanna Brewing Company. The loan assisted the company in purchasing new equipment and in turn, creating jobs. NEPA Alliance applied EDA and USDA-Rural Development (USDA-RD) funding in offering the loan package.
- NEPA also assisted Hawk Mountain Labs address operational needs through a $195,000 loan. The loan allowed the company to obtain new equipment for field and laboratory testing in the coal and natural gas markets. Jobs creation was realized through the loan package which was also made possible through EDA and USDA-RD.

The RLF Program does face structural challenges that if remedied could increase its effectiveness and flexibility. EDA's initial RLF grant and any income and interest derived from it are considered federal property in perpetuity. As a result, RLF operators are required to comply with extensive reporting and audit requirements even for funds capitalized in the 1970s. Ownership of EDA RLFs should be fully transferred to the local intermediary seven years after final disbursement of the grant if certain requirements are met. This would significantly reduce the oversight and management burdens on EDA and local RLF fund operators, while still ensuring local accountability is maintained. A June 2015 U.S. Department of Commerce Office of Inspector General (OIG) report found that with the significant effort it takes to adequately monitor a large portfolio of long-standing RLFs, EDA's limited staff time and tools do not allow for proper oversight. The OIG report cited de-federalization of RLFs as an opportunity to simplify management of the program.

EDA also serves a vital role as an integrator of federal programs. EDA's objectives often align and intersect with the mission areas of other federal agencies. Interagency collaboration can help to achieve shared goals. One example is the Appalachian Regional Commission (ARC) which advances economic growth through investments in infrastructure, small business, and workforce development in the 13-state Appalachian Region. Between 2011 and 2016, the decline in coal production led to a loss of 33,500 jobs. To spur job growth, EDA and ARC partnered together on the POWER (Partnerships for Opportunity and Workforce and Economic Revitalization) Initiative and funded economic development projects in

250 eligible coal-impacted counties. As of June 2017, ARC has awarded $92 million in coordination with EDA. These investments have helped to create and retain 8,600 jobs and leveraged an additional $206 million for the region while preparing workers and students for jobs in technology, manufacturing, entrepreneurship, and agriculture. To expand upon this success and explore further partnership opportunities, EDA recently entered Memorandums of Understanding (MOUs) with key federal agencies engaged in economic and community development: the U.S. Department of Housing and Urban Development (HUD), the U.S. Environmental Protection Agency (EPA), and the U.S. Department of Agriculture (USDA). Given the areas of overlap in the missions of each agency, the MOUs allow for a distinct and specialized partnership to promote economic development opportunities. Energy and resources applied in a collaborative manner strengthen the federal government's response to helping communities succeed in attracting and sustaining business.

Economic Development Districts aid EDA's goals in determining how and where to apply agency resources. EDDs exist as regional non-profit organizations engaged in economic and community development issues. Districts are directed by a board of local government officials and citizens which set organizational priorities and actions. By connecting with EDA on specific local and regional priorities, a "bottom-up" approach is established where stakeholders can inform EDA on connecting federal resources to promoting business and job creation opportunities.

EDA is a strong partner in helping to meet economic development needs throughout the nation, but especially for small and rural communities. Job creation and retention maintains a top priority for EDA. The agency dedicates staff and resources to learn from and respond to economic conditions in underperforming areas. Rural communities are particularly vulnerable to changing tides of the market and globalization. In turn, EDA has applied considerable attention and devoted funding through its established processes to assist in new and expanding business and create and retain jobs in these areas. In FY2016, EDA applied 44.5% of its infrastructure and RLF funds into rural areas. As a result, EDA funding helped to leverage $3 billion.

As Congress considers a new infrastructure bill, EDA remains a viable and compatible entity to facilitate job creation and business development opportunities. The agency maintains programs and services aiding infrastructure development and economic competitiveness in underperforming communities.

EDA's programs operate with considerable input from local and regional stakeholders allowing for better decision-making and targeted application of federal resources into on-the-ground priorities. Recent steps to partner across federal government enhances EDA's assistance through increased expertise and coordination of resources.

In closing, EDA is prepared to lead economic development initiatives as it pertains to national infrastructure improvements.

TESTIMONY
Before the
Subcommittee on Economic Development, Public Buildings, ad Emergency Management
Hearing:
Building a 21st Century Infrastructure for America: Economic Development Stakeholders' Perspectives
Wednesday, September 13, 2017

Testimony of Brett Doney, CEcD, President & CEO, Great Falls Montana Development Authority, Great Falls, Montana, on behalf of the International Economic Development Council, Washington, DC

On behalf of the International Economic Development Council, our Board of Directors and over 5,000 members, thank you Chairman Barletta and Ranking Member Johnson for inviting me here today to share our perspective on this critically important issue. Before delivering my prepared remarks this morning, I would like to submit for the record our full testimony, which includes a report written by the Economic Development Research Partnership of the International Economic Development Council titled ' Critical Condition: Infrastructure for Economic Development.

The International Economic Development Council (IEDC) is a non-profit, non-partisan membership organization serving economic developers. IEDC is the largest organization of its kind. Economic developers promote economic well-being and quality of life for their communities, by creating, retaining and expanding jobs that facilitate growth, enhance wealth and provide a stable tax base. From public to private, rural to urban, and local to international, IEDC's members are engaged in the full range of economic development activities. Given the breadth of economic development work, our members are employed in a wide variety of settings including local, state, provincial and federal governments, public private partnerships, chambers of commerce, universities and a variety of other institutions. When we succeed, our members

create high-quality jobs, develop vibrant communities, and improve the quality of life in their regions.

Economic developers and the communities we serve rely on infrastructure to support the pursuit of a high-quality of life for all citizens. Infrastructure investments of the past contributed greatly to the economic vitality of our Nation and are the bedrock of a robust middle-class within our society. Projects like the Erie Canal, the Hoover Dam, and the Interstate Highway System brought with them revolutionary changes to the economic futures of the lives and regions they touched. Indeed, there is little question of the importance of infrastructure to the economic health of a community or the well-being of those who dwell within it; what remains the question challenging all of us: how do we tackle such a complex issue?

The complexity lies within the inherent diversity of our topic. Infrastructure includes, from the perspective of an economic developer, passenger transportation, freight, energy, sanitation and communications. Taken together, we refer to them commonly as 'infrastructure' but when looked at individually, we see unique challenges to each with regard to construction, maintenance, funding, regulation and oversight. While it can be said that a number of federal agencies participate in the planning, funding, maintenance and expansion of infrastructure, we contend that these agencies work collaboratively, and are not duplicative, each with a unique set of expertise and capabilities that serve equally unique infrastructure challenges, community sizes and economic conditions.

Economic developers across the country have long relied on the Economic Development Administration (EDA) for technical and financial resources when working to create jobs in their community. Created on August 26, 1965, when President Lyndon Johnson signed into law the

Public Works and Economic Development Act, EDA was created to help urban centers and rural towns not just recover but come back stronger from economic decline. President Johnson said:

"But still for some of our fellow Americans, the gates are still closed. These folks live in the fishing villages and the old textile towns of New England; they live in the railroad centers of Pennsylvania where the coal trains no longer run; they live in the small areas of Arkansas and Oklahoma and east Texas; they live in the mountain towns of Utah and Idaho, in the timber settlements of the Far West. For them the laws of economic change have been rather harsh and unyielding."

The conditions that necessitated the creation of EDA and the regional development agencies overseen by this committee, unfortunately, continue to exist today. EDA's current framework – including the Public Works and Economic Adjustment Assistance programs – have provided the agency with many options to contribute to local and regional infrastructure well-being. EDA can provide assistance to communities in order to construct items as diverse as rail spurs, access roads, and sewer lines. EDA funding can also be used in brick-and-mortar projects to construct or renovate new spaces. These assistance programs have varying degrees of match requirements and are granted to communities who successfully show how the award fits with their Comprehensive Economic Development Strategy, known as a CEDS.

And while economic conditions will likely always necessitate mechanisms such as EDA, ARC, DRA and Denali, I'd like to highlight a few success stories related to EDA that illustrate why I and others in my profession have come to rely on these agencies for resources and expertise.

Workforce development has risen to the top or near the top of a long list of topics economic developers must consider when working to support job growth in their communities. We hear

time and time again that employers cannot find the talent they need to sustain or grow their businesses. Workforce development relates to infrastructure in more ways than the jobs created in order to build or maintain a highway, and highlights one of the most effective ways EDA helps local economies: through their ability to contribute funding toward brick-and-mortar projects.

The oil extraction industry has made significant technological changes over the past several years that requires a workforce with advanced welding skills well beyond what was once considered adequate by the industry. Additionally, Canadian regulations demand that companies exporting components into Canada be certified to Canadian Welding Bureau standards. The College of Great Falls MSU collaborated with the State of Montana Board of Regents, the Governor's Office, the Great Falls Development Authority, private sector companies, and Canadian authorities to identify the workforce needs in terms of skills and certification requirements. The need for welders and fitters is at least 200 new positions, annually.

With EDA's financial assistance of $1,489,255, Great Falls College-Montana State University renovated an existing building to develop a trans-border Industrial Trades Training Center on its campus to help fill the workforce needs of industries involved in the Canadian oil sands extraction and the Bakken Oil Fields in North Dakota and eastern Montana. The renovated training center trains welders for certification in both American and Canadian welding standards. As a result of this training and dual certification, the Canadian company, ADF International, committed to employing 120 welders, fitters, engineers, and other specialized trade workers.

ADF employment has topped 210 in Great Falls, Montana and is headed toward 340. Kids in high school just a few years ago used dual enrollment at the college to earn welding certification.

They just completed some of the most complicated steel structures for the new Atlanta Falcon stadium and are now working on the Salt Lake Airport expansion. Two local steel fabrication companies, Loenbro and Anderson Steel, have also expanded, creating hundreds of jobs and growing our tax base. EDA'a investment in the college and a $200,000 economic adjustment grant to my organization has been pivotal in leveraging over $60 million in private investment. And in helping the Great Falls Montana MSA to grow manufacturing employment by an annual average of 5.4% over the last 5 years, more than five times the national average.

EDA infrastructure investments have also supported manufacturing in rural communities. Pasta Montana received a $1,750,000 EDA loan in 1996 that was last piece of financing to build a $20 million plant. The investment was leveraged to support an adjoining General Mills flour mill, which ultimately invested in a $12 million expansion to create capacity to serve the pasta plant. The city was brought into the project and creatively made available a site directly across a ravine from the land-locked General Mills plant so flour could be pumped by pipe directly into the pasta plant. The plant recently celebrated it's 20th anniversary by adding a new production line, increasing capacity by over 28%. Over $300 million worth of local grown wheat has been purchased by the plant, truly emphasizing the regional, cross industry impact of this investment

As this committee moves forward with the important work of setting a course for infrastructure policy in our Nation, IEDC encourages you to look to EDA as a resource capable of making targeted investments using local input that can leverage state and private sector resources to achieve meaningful and lasting economic impacts. While examples of EDA successes can be seen in communities in every state, EDA is by no means perfect. We respectfully submit the following ideas to improve EDA for your consideration:

Revolving Loan Fund Defederalization

The Great Falls Development Authority is a public/private economic development partnership that serves the 13-county Great Falls Montana trade area in north central Montana. Since 1995, we have operated an EDA Revolving Loan Fund that has helped finance dozens of businesses in our region, filling the gaps that conventional lenders are not able to finance. Our EDA RLF was funded by EDA grants awarded in 1995 and 2000 of $1.5 million and $750,000, respectively. With local match and retained earnings, our EDA RLF now totals $4,487,188.

Our EDA RLF has performed very well. It has been instrumental as a critical tool in our economic development efforts. To date, we have closed 48 loans in our EDA RLF totaling $17,687,071 that have leveraged additional investment of $86,395,552 for a total investment in our region of $104,082,623. Our loans have averaged 17% of projects, filling the gap between what conventional lenders can finance and available equity. These loans have enabled businesses to create 2,796 jobs, an average of $6,326 of EDA RLF loan per job. Our cumulative loan write-off since 1995 has totaled 1.7%, a record most banks would be envious of.

We currently have 12 active EDA RLF loans, none of which are delinquent. Our EDA RLF loan deployment ration is 115%. We have pre-committed loan funds to a business in anticipation of receiving a loan balloon payoff this month. For the last few years, we have struggled to acquire sufficient loan capital to meet the opportunities in our region.

To fill this need, we have won loan capital from numerous local, state and federal sources, including USDA Intermediary Relending Program (IRP), EPA Brownfield, HUD Community Development Block Grant (CDBG) through the City of Great Falls, Cascade County and the

Montana Department of Commerce, State Small Business Credit Initiative (SSBCI) through the State of Montana, Community Development Financial Institution (CDFI), state MicroBusiness funds from the Montana Department of Commerce, state loan funds from the Montana Board of Investments, local tax increment financing funds from the City of Great Falls, and a 4-bank line of credit from local bank partners. We have sold loan participations to other CDFI's, our local NeighborWorks Great Falls, and the Montana Board of Investments. We created an affiliate organization, High Plains Financial, to become an SBA 504 lender to be able to fill financing gaps using that tool. We aggressively partner with banks in our region and beyond to try to convince them to increase the percentage of deals they finance to minimize the gaps we must fill. We created an Angel Network to connect entrepreneurs with local sources of equity. And, we have partnered whenever possible with other economic development lenders, CDFI's, state and federal agencies, and the Community Reinvestment Fund to try to insure that our local businesses get the capital they need to start, grow and prosper.

Despite all of these efforts, our biggest challenge is the need for more loan capital. It is difficult for a small EDO/CDFI in one of the nation's smallest metro areas, in one of our smallest states (by population) to access loan capital funds from national banks and foundations, but we are mounting a concerted effort in this regard. We are using our unencumbered loan capital equity to leverage long-term low interest loans form these sources, loans often called Equity Equivalent (EQ2) or program-related-investments (PRI). Equity in rural America is very hard to come by. We have one two financial assistance awards from the CDFI Fund that we can use to leverage loan capital loans from banks and foundations. Indeed, the CDFI Fund encourages and expects CDFI's to do so to leverage the taxpayer funds awarded.

If we could do the same with our EDA loan fund, which now totals $4,487,188, we believe we could quickly leverage the funds 1:1 and over time grow the leverage to 3:1 or even higher. Imagine what we could do to increase our regional economic development impact by leveraging $4.5 million into $18 million!

It is worth noting that RLF resources are permitted to be used for public infrastructure, in addition to traditional business lending purposes. Defederalization of the RLF program at EDA could potentially unlock hundreds of millions in existing funding that can be leveraged with state, local and private sector funding to fund locally-driven infrastructure projects.

Integrator Role

In recent years, EDA has taken concrete steps to work in collaboration with other federal agencies and programs operating in the economic development space. The Office of Management and Budget identified EDA as the lead federal agency on economic development integration. Accordingly, the Division of Economic Development Integration (EDI) was created in 2016 and EDA began to connect with economic development initiatives throughout the federal government, including the Department of Labor, Department of Agriculture and the Small Business Administration, to name a few. Today, EDI includes a director working here in Washington and integrator staff person in each of the 6 regional offices throughout the country.

There can be no reasonable argument against greater collaboration among agencies and programs touching on economic development. As an economic developer, I can tell you that a great deal of my job is collaborating with local, regional, state and federal stake holders. The very nature of economic development – a profession that touches on access to capital for small business, foreign direct investment attraction & export promotion, infrastructure, manufacturing,

workforce development, and so much more – demands a comprehensive approach to job creation. Simply put: we must work with everyone to achieve successful outcomes of jobs created and economies strengthened.

The EDI role at EDA makes a great deal of sense because it is a step in the right direction of coordination amidst the vastness of the federal government. Yes, there are components of likely every federal department that touch on economic development at one point or another. However, this is not necessarily cause for concern related to duplication and wasteful spending. Just as each of the many facets of an economic developer's job is seemingly unique, we seek to convene these resources and drive them toward common outcomes that support economic vitality, so too must the federal government. The EDI role further strengthens EDA's role as the 'economic developer' of the federal government. It is right, therefore, that EDA work to 'convene' and coordinate the economic development efforts of other federal agencies and programs.

IEDC encourages this committee to explore options to further strengthen EDA's role as the lead economic development agency of the federal government. EDA, which requires reauthorization, should be given additional authorities to encourage collaboration of efforts across agencies and programs, streamline regulations wherever possible, and provide greater opportunities leverage financial investments. We believe the EDI provides an excellent step in this direction and should be included in future reauthorizations of the agency.

It has been suggested, in explanation for calling for the elimination of the Economic Development Administration, that the Department of Transportation could fulfill EDA's role in infrastructure. To suggest this is to clearly demonstrate a lack of understanding of the type of infrastructure EDA supports. The most straight-forward description would be to consider it as

'last 100 yards' infrastructure. These are the sewer lines and rail spurs running into industrial parks and manufacturing plants that DOT money does not cover. These are the renovations of existing buildings that take the idea of a business incubator in a small town to a reality. These are the expansion of broadband capacity that allows a rust-belt city to move into the 21st century. These, to put it a different way, are the targeted, locally-driven, strategically planned investments in infrastructure that EDA makes that no other federal agency does. We encourage this committee to look to the strengths of EDA and the regional development agencies – their institutional knowledge of local economic needs and abilities – and invest in them.

Worth noting is that in his remarks that day in 1965, President Johnson also applauded the fact that Congress had cut taxes by "$19 billion in 19 months" and yet still there remained work to be done to help communities build stronger, more resilient and more inclusive economies. What he spoke of then remains true today: that in order to truly engage in economic development, we must do more than cut taxes and that the mechanisms such as EDA, the Delta Regional Authority, the Appalachian Regional Commission, and the Denali Commission are essential tools that can be marshaled by economic developers through the guidance and leadership of the members of this committee.

We thank you for your support of these agencies and your attention to the urgent infrastructure crisis facing our Nation.

Statement

of

Steve Linkous

President & CEO

Harford Mutual Insurance Company

on behalf

of the

BuildStrong Coalition

to the

United States House of Representatives

Committee on Transportation and Infrastructure

Subcommittee on Economic Development, Public Buildings and Emergency Management

Hearing on

Building a 21st Century Infrastructure for America: Economic Development Stakeholders' Perspectives

September 13, 2017

Introduction

Chairman Barletta, Ranking Member Johnson, and members of the Subcommittee, thank you for inviting me to testify at today's important hearing. My name is Steve Linkous and I am the President and Chief Executive Officer of Harford Mutual Insurance Company. I also serve as Chairman of the Board of Directors of the National Association of Mutual Insurance Companies (NAMIC). NAMIC is a founding and executive committee member of the BuildStrong Coalition, on whose behalf I am testifying today.

The Coalition, formed in 2011 to respond to an increasing number of severe disasters, is made up of firefighters, emergency responders, insurers, engineers, architects, contractors and manufacturers, as well as consumer organizations, code specialists, and many others committed to building the nation's homes and businesses more resiliently.

Founded in 1842 in Harford County, Maryland, Harford Mutual Insurance Company has been providing property and casualty insurance products to our policyholders for over 175 years. One of the reasons we have been around for so long is the mutual insurance model, where policyholders are put first. This focus on policyholders is evident in our commitment to individualized customer service, fast, fair claims handling, and the creation of innovative products designed to meet our customers' changing needs. Growing from a small local insurer serving homeowners and farmers in rural Bel Air, Maryland to a regional company protecting policyholders in seven states and the District of Columbia, we're committed to mutual success.

Harford Mutual is a member of the National Association of Mutual Insurance Companies (NAMIC). NAMIC is the largest property/casualty insurance trade association in the country, with more than 1,400 member companies representing 39 percent of the total insurance market. NAMIC member companies, which serve more than 170 million policyholders and write more than $230 billion in annual premiums, range in size from one person operating a farm mutual in a single county to national and globally active insurers providing a wide array of comprehensive commercial and personal lines coverages.

The insurance industry plays a unique and critical role in the disaster mitigation and recovery process, serving as a leader in promoting pre-disaster loss-prevention techniques, and standing shoulder to shoulder with the federal government and emergency responders to help victims recover and rebuild after a catastrophe. As we have seen in recent days, now is more important than ever to consider the devastating, and growing impact, of severe disasters. And during this critical time for the folks in Texas, Louisiana, Florida, and elsewhere, we commend the leadership of Chairman Barletta, who has never wavered in his mission to reduce disaster losses and better protect communities ahead of the next storm. As part of this effort, the Chairman held an important hearing earlier this year that highlighted specific ways we can help reform the way our nation handles disasters.

While progress has been made, serious concerns remain surrounding the federal government's current approach to pre-disaster mitigation, which has left communities across the nation vulnerable ahead of the next storm. In the face of an unsustainable, and fast-rising post-disaster federal cost share, Harford Mutual, NAMIC, and the BuildStrong Coalition are all calling on Congress to reform the government's backwards approach to disasters by creating a National Mitigation Investment Strategy designed to protect lives and communities. I look forward to discussing the policies that make up these important reforms in further detail today.

Disasters Have Long-Term Devastating Effects on Local Economies and Communities

As victims recover from the massive destruction left behind in the wake of Hurricanes Harvey and Irma, we should remember that the storm has not only destroyed lives and homes, but will have a devastating effect on local economies for years to come. According to FEMA, roughly 40-60 percent of small businesses never reopen their doors after a disaster.[1] The agency also says that 90 percent of smaller companies fail within a year unless they can resume operations within five days.[2] But it is not just small businesses that are negatively impacted by the long-term ramifications of extreme weather. Rather, catastrophes have lasting ramifications on entire communities. A recent study by the National Bureau of Economic Research shows that counties hit by severe disasters experienced greater out-migration, lower home prices, and higher poverty rates.[3] The study's authors point to a 12-percent increase in the number of people leaving New Orleans following Hurricane Katrina.[4]

Natural catastrophes are not only wreaking havoc on our economies, they are increasing in frequency and severity at an alarming rate. Between 1976 and 1995, there were an average number of 39 yearly federal disaster declarations.[5] This number skyrocketed to 121 between 1996 and 2015, during which we experienced Hurricane Katrina and Superstorm Sandy, storms that combined to kill over 2,000 people and cause $225 billion in property damage.[6] Having already spent nearly $1 trillion on disaster recovery since 1983, taxpayers are left picking up an increasing share of the tab. In 1955, after Hurricane Diane caused significant damage to the coast of South Carolina, the federal government paid 5 percent of the recovery efforts. Following Hurricane Katrina, that number had risen to 50 percent, and in 2012, taxpayers were left to pay for a massive 77 percent of the recovery efforts following Superstorm Sandy. The dangerous trajectory of our nation's post-disaster cost curve is unsustainable, and ultimately puts Americans at risk.

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[1] https://www.fema.gov/media-library/assets/documents/108451.
[2] https://www.fema.gov/media-librarydata/1441212988001 1aa7fa978c5f999ed088dcaa815cb8cd/3a_BusinessInfographic-1.pdf.
[3] NATIONAL BUREAU OF ECONOMIC RESEARCH, THE EFFECT OF NATURAL DISASTERS ON ECONOMIC ACTIVITY IN US COUNTIES: A CENTURY OF DATA (MAY 2017) 22.
[4] *Id.*
[5] https://www.fema.gov/disasters/grid/year.
[6] *Id.*

A Backwards Approach to Mitigation

Even knowing the power of resilient building and despite multiple studies that show that every $1 spent on preventative mitigation saves taxpayers $4 in disaster relief, FEMA has taken a reactive posture to disasters.[7] The agency spends far more on rebuilding after the catastrophe than proactively preparing communities before the next storm. From 2011 to 2014, FEMA spent 14 times more on post-disaster rebuilding measures, rather than those centered on increasing resiliency before disasters, allocating just $222 million to the Pre-Disaster Mitigation Program compared to $3.2 billion to the post-disaster, Hazard Mitigation Grant Program.[8]

But a larger issue is at play. From 2004 to 2013, FEMA spent a massive 89 times more on post-disaster assistance than pre-disaster mitigation.[9] Victims of catastrophes, like those in the wake of Hurricanes Harvey and Irma, should always be put back on their feet in the aftermath of a disaster. But the fact that FEMA would invest such a small amount to prepare communities pre-disaster offers a stark reminder that our government needs a wholesale change in approach.

Leaving Communities and Individuals Vulnerable to the Next Storm

The increasing reliance on taxpayers to cover post-disaster losses has created a moral hazard, where the vast majority of the nation is stuck in an endless cycle of destruction, rebuilding homes and businesses following disasters to the same subpar standards that enabled their destruction. And because of the dangerous assumption that the federal government has a never-ending supply of cash to cover the cost of post-disaster recovery, individuals are not adequately protecting themselves.

This is evident right now in Texas, where only about 15 percent of those in the path of severe flooding caused by Harvey maintain flood insurance. And if we continue to go down our current path, there will be an even larger pool of victims that are uninsured and financially exposed. As two of the largest stakeholders in the aftermath of a catastrophe, both the insurance industry and federal government have a shared interest in reducing damage and losses from disasters, and this starts with ensuring Americans and homes are better protected. We have the science and ability to do better, but we need smarter policy that creates the right incentives and behaviors.

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[7] NATIONAL INSTITUTE OF BUILDING SCIENCES (2005) NATURAL HAZARD MITIGATION SAVES: AN INDEPENDENT STUDY TO ASSESS THE FUTURE SAVINGS FROM MITIGATION ACTIVITIES. VOL. 1.

[8] UNITED STATES GOVERNMENT ACCOUNTABILITY OFFCE (2015) HURRICANE SANDY: AN INVESTMENT STRATEGY COULD HELP THE FEDERAL GOVERNMENT ENHANCE RESILIENCE FOR FUTURE DISASTERS. Rep. GAO-15-515. Available online: http://www.gao.gov/products/GAO-15-515.

[9] United States. Cong. Senate. Committee on Appropriations Subcommittee on Commerce, Justice, and Science. Hearing on National Water Hazards & Vulnerabilities: Improved Forecasting for Response & Mitigation Apr. 4, 2017. 115th Cong. 1st sess. (statement of Bryan Koon, Director, Florida Division of Emergency Management, Former President, National Emergency Managers Association), available here https://www.appropriations.senate.gov/download/040417-koon-testimony.

Correcting Course Through a National Mitigation Investment Strategy

Preventative reforms will help save lives, dramatically reduce damage, and reduce the cost of recovery for taxpayers. Unfortunately, the federal disaster system is fragmented and heavily skewed towards reactive post-disaster mitigation spending rather than thoughtful long-term investing. Congress must reexamine the balance between pre-and post-disaster spending, and incentivize states to build more resiliently, by adopting a National Mitigation Investment Strategy.

The BuildStrong Coalition is calling on Congress and the Trump Administration to include the reforms that constitute the National Mitigation Investment Strategy when creating a comprehensive aid package needed by victims of Hurricanes Harvey and Irma. The Strategy, more critical now than ever, is made up of a package of smart reforms that will ensure lives and homes are better shielded during the next storm.

1. ***Incentivize States to Build Resiliently***
   First, since the federal government is failing to incentivize states, communities, and individuals to invest in pre-disaster mitigation, leaving so many communities stuck in an endless cycle of destruction, we are calling on Congress to reverse this trend by giving states a reason to do the right thing before the storm. This policy would incentivize states to adopt and enforce modern building codes for residential and commercial structures by making available an additional 4 percent of funding in FEMA post-disaster grants for states that do so.[10]

2. ***Fortify Communities with New Tools for Mitigation***
   We must leverage the lifesaving and cost saving power of pre-disaster mitigation by shifting significant federal resources from being employed in a reactive, post-disaster setting, to being invested ahead of the disaster. This can be accomplished by first clarifying that the development and enforcement of state building codes are eligible uses under the existing Pre-Disaster Mitigation Program, and then shifting current misallocated resources into a National Hazard Mitigation Grant Program (NHMGP). The NHMGP will allocate funds for the development, implementation, or enforcement of modern building codes and other cost-effective mitigation purposes. As part of this important reform, 10 percent of all funds appropriated for the existing, post-disaster Hazard Mitigation Grant Program would be allocated to the new NHMGP, where funds will be available without regard to whether a disaster occurred, and can be used towards strengthening the nation's homes and businesses.

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[10] The additional 4 percent in funding would be allocated to states through FEMA's Hazard Mitigation Grant Program.

3. ***Equip States with New Tools to Enforce Resiliency***
   Many states that have adopted strong building codes don't operate an adequate inspection regime, and so we are calling for Congress to give communities new tools for enforcement by clarifying that "essential assistance" available to communities after disasters includes funds for the development and enactment of enforceable statewide building codes.

4. ***Reform the Federal Cost-Share***
   Given the unsustainable, and fast-rising post-disaster federal cost share, action must be taken to protect our states and communities, while reducing the dependence on taxpayers. We can achieve this measurable reform by adjusting the federal minimum cost share following a major disaster based upon adoption of FEMA-approved resilient mitigation plans and adoption and enforcement of safe building codes. Specifically, we are calling for the current 75 percent federal minimum cost share to decrease to 60 percent for states that fail to take resilient mitigation actions and do not adopt a modern building code, and to increase to 80 percent for states that have taken resilient mitigation actions and have adopted strong construction standards.

5. ***Streamline FEMA Assistance Programs***
   Increasingly, victims of disasters are going without assistance after a storm since assistance is distributed by 19 federal agencies, that frequently tie the funds to projects around the nation. We are calling for the federal government to more efficiently respond to victims after a disaster by consolidating ad-hoc federal disaster assistance programs under FEMA and requiring projects to meet cost-benefit standards.

Conclusion

Chairman Barletta, Ranking Member Johnson, and members of the subcommittee, thank you again for holding today's hearing on this important topic. It is more critical than ever that we ensure our nation's homes and businesses are built resiliently to withstand the devastating impacts of catastrophes. As Congress and the President work together to assist victims of Hurricanes Harvey and Irma and improve the nation's infrastructure, we urge lawmakers and the administration to adopt a national strategy for investing in disaster mitigation, which will save lives, property, and billions in taxpayer dollars. I look forward to answering any questions you may have.

Testimony for the U.S. House Committee on Transportation & Infrastructure Hearing on "Building a 21st Century Infrastructure for America"

Wednesday, September 13, 2017

Jessica Grannis, J.D., LL.M
Adaptation Program Director for the Georgetown Climate Center
Staff Attorney and Adjunct Professor at the Harrison Institute for Public Law,
Georgetown University Law Center

Why Resilience is Important?

Thank you to the distinguished members of the House Transportation and Infrastructure Committee for inviting me to testify on this important topic of the resilience of our nation's infrastructure systems. My name is Jessica Grannis. I manage the adaptation program for the Georgetown Climate Center, an institute based at Georgetown University Law Center that supports state and local efforts to reduce carbon pollution and prepare for the impacts of climate change. Much of my work focuses on how federal programs – such as federal disaster recovery programs and the National Flood Insurance Program – can either help or hinder the important climate preparedness work that is happening at the state and local government levels.

The Georgetown Climate Center has worked to capture the challenges communities have faced in rebuilding resiliently after recent disasters, including writing case studies of recovery efforts in New Orleans after Hurricane Katrina,[1] Vermont's efforts to rebuild transportation systems after Hurricane Irene,[2] and lessons from the Rebuild by Design competition after Hurricane Sandy.[3] We also worked with the White House State, Local and Tribal Leaders Task Force on Climate Preparedness and Resilience to develop recommendations for reforming federal programs to support state and local efforts to prepare for the impacts of climate change.[4] Through this research, we have identified a number of common-sense reforms that Congress could enact to help communities rebuild to be more resilient in the face of impacts from climate change, including sea-level rise and more extreme weather.

As we watch with heartache the devastation wrought by hurricanes hitting Texas, Florida, Puerto Rico and the Virgin Islands, while California and the Pacific Northwest struggle with raging wildfires, we must consider what this year of record-breaking extreme weather means for our infrastructure and our communities—now and in the future. Among recent examples:

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[1] http://www.georgetownclimate.org/reports/reimagining-new-orleans-post-katrina.html
[2] http://www.georgetownclimate.org/reports/lessons-learned-from-irene-climate-change-federal-disaster-relief-and-barriers-to-adaptive-reconstruction.html
[3] http://www.georgetownclimate.org/reports/rebuilding-with-resilience-lessons-from-the-rebuild-by-design-competition-after-hurricane-sandy.html
[4] http://www.georgetownclimate.org/reports/preparing-our-communities-for-climate-impacts-recommendations-for-federal-action.html

- Houston received a record-breaking 51 inches (more than 4 feet) of rainfall over a couple of days (more than the state sees in typical year and the most rainfall ever from a single storm in the continental U.S.).[5]
- Hurricane Irma was one of the strongest storms ever recorded in the Atlantic Ocean.[6]
- This summer, the Southwest U.S. experienced a record-breaking heatwave, with temperatures exceeding 120 degrees in some parts of the country. It was so hot in Arizona that planes could not take off.
- And the West has been experiencing devastating wildfires, 7.8 million acres have already burned and wildfire season is not yet over.

In just the past couple of weeks, over a hundred of people have been killed, thousands have been displaced, and whole communities have been devastated. And 2017 is likely to break another record as the most costly year for natural disasters that this nation has ever experienced.

So what should we take away from this record-breaking year? These extreme events give us a preview of what we will see with greater frequency and intensity in the coming decades as the climate changes. Storms fueled by warmer oceans and combined with additional sea-level rise will cause greater damage to coastal communities. More extreme rain events will overwhelm aging infrastructure systems not designed to carry these large volumes of water. And more extreme heat will degrade roads and runways, buckle railroad and subway lines, and create dangerous conditions for outdoor workers who maintain and repair these essential services—and indeed for anyone without access to cooling facilities. Failing to acknowledge these changing threats will leave too many communities unprepared.

These events also have significant economic impacts. One in four businesses affected by a major disaster never reopens. And the costs to the country of these extreme weather events will take an increasing toll on government resources. The exposure of the federal government to these economic losses from extreme weather has caused the U.S. General Accountability Office to add climate change to its high-risk list.[7] Before Harvey and Irma, the National Flood Insurance Program was already $24.6 billion debt and too few people carry insurance to help them recover from these damaging flood events.[8] According to NOAA, from 2012 to 2016, we saw a doubling of the number of extreme weather events, causing losses in excess of a billion dollars.[9] And 2017 may literally be "off the charts" in terms of economic losses.

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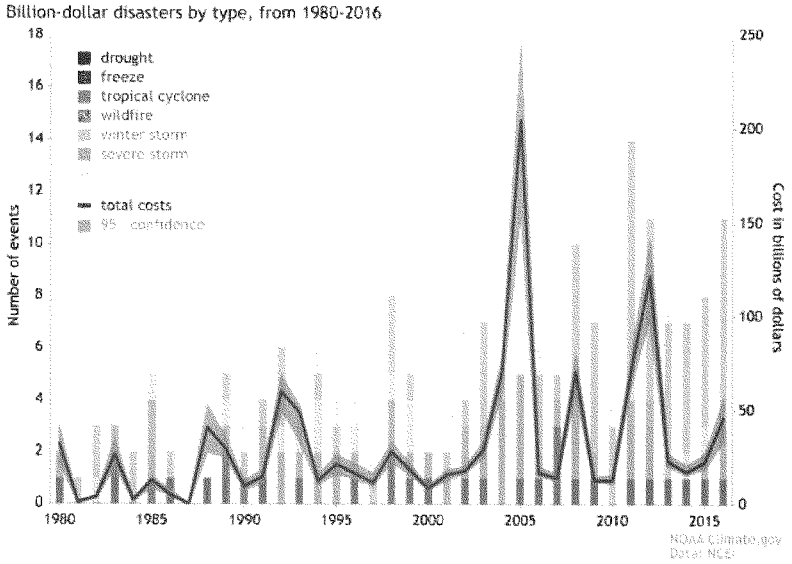
[5] https://www.washingtonpost.com/news/capital-weather-gang/wp/2017/08/29/harvey-marks-the-most-extreme-rain-event-in-u-s-history/?utm_term=.9fe3f921a3aa

[6] https://www.nytimes.com/interactive/2017/09/09/us/hurricane-irma-records.html?mcubz=1&_r=0

[7] US Government Accountability Office, *High Risk Series: Progress on Many High-Risk Areas While Substantial Efforts Needed on Others* at 150-179, (Feb. 2017, GAO-17-317) *available at:* http://www.gao.gov/assets/690/682765.pdf.

[8] https://www.gao.gov/products/GAO-17-425.

[9] https://www.climate.gov/news-features/blogs/beyond-data/2016-historic-year-billion-dollar-weather-and-climate-disasters-us



It is essential to talk about resilience now, as Congress makes billion-dollar decisions about how to fund long-term recovery programs for disaster-affected communities. To be both fiscally and morally responsible, we must ensure that the investments we are making today are designed to withstand future extreme weather. We owe it to the survivors of these storms to make scientifically sound recovery decisions about how to best protect people from these extreme weather events, which we know will occur with greater frequency and intensity in the future. Rebuilding to replace exactly what was damaged or destroyed is both misguided and irresponsible.

What is it to be Resilient?

The Department of Homeland Security defines resilience as "the ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions."[10] Community resilience can be increased using better land-use practices and stronger building codes. Strong and redundant infrastructure systems are also critical components of a community's ability to withstand and rebound from disasters. And resilience pays off: a 2005 National Institute of

[10] https://www.dhs.gov/topic/resilience

Building Science study calculated that every dollar spent on hazard mitigation results in $4 of avoided losses.[11]

The good news is that there are proactive, fiscally responsible options for responding to the changes we are seeing. Many cities and states across the country are already taking practical steps to enhance the resilience of their infrastructure systems and to prepare their communities. Communities are considering future extreme weather in their local plans. For example, Baltimore, Maryland, considered climate change in its local hazard mitigation plan[12] and Chattanooga-Hamilton County in Georgia considered climate change in its long-range transportation plan.[13] Other cities are dedicating funds to retrofit infrastructure systems. Miami Beach, Florida, has developed and begun to implement a $500 million capital investment plan to elevate roads and install new pumping systems, which the mayor reported helped the city hold back some flooding during Irma.[14] Other communities have used disaster recovery funds to rebuild more resiliently. After impacts from Hurricane Sandy, Ft. Lauderdale rebuilt Highway A1A to provide additional flood protection.[15] You can find these and other examples of how leading cities and states are taking actions to enhance the resilience of transportation and other infrastructure systems in the Georgetown Climate Center's Adaptation Clearinghouse. The Clearinghouse contains thousands of resources – including more than 150 case studies focused on transportation, developed in partnership with the Federal Highway Administration.[16]

Under the last administration, federal agencies began developing common-sense measures to ensure that taxpayer dollars are not being wasted. With Hurricane Sandy recovery funds, state and local grantees were required to be build back stronger (with at least a foot of additional elevation or floodproofing). Federal agencies worked with New York City to roll out updated floodplain maps with information about sea-level rise to inform rebuilding efforts.[17] 2015 guidance put out by the Federal Emergency Management Agency (FEMA) requires states to consider future climate change when updating hazard mitigation plans, which govern expenditures of Hazard Mitigation Grant Program funding after disaster events. The Federal Highway Administration (FHWA) is requiring state departments of transportation to develop asset management plans that consider future conditions and extreme weather events as part of lifecycle and risk-management planning.[18] Congress should support and encourage more of these types of proactive federal agency actions that support risk-based decisionmaking.

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[11] Multihazard Mitigation Council of the National Institute of Building Science, *Natural Hazard Mitigation Saves: An Independent Study to Assess the Future Savings from Mitigation Activities* (2005), *available at:* http://www.floods.org/PDF/MMC_Volume1_FindingsConclusionsRecommendations.pdf.

[12] http://www.adaptationclearinghouse.org/resources/baltimore-s-disaster-preparedness-and-planning-project-dp3.html

[13] http://www.adaptationclearinghouse.org/resources/chattanooga-hamilton-county-north-georgia-2040-regional-transportation-plan.html

[14] http://www.miamiherald.com/news/local/community/miami-dade/miami-beach/article41141856.html

[15] http://www.adaptationclearinghouse.org/resources/fdot-rebuild-of-highway-a1a-in-fort-lauderdale.html

[16] http://www.adaptationclearinghouse.org/sectors/transportation/case-studies-b.html

[17] http://www.adaptationclearinghouse.org/resources/sea-level-rise-tool-for-hurricane-sandy-recovery.html

[18] https://www.federalregister.gov/documents/2016/10/24/2016-25117/asset-management-plans-and-periodic-evaluations-of-facilities-repeatedly-requiring-repair-and#sectno-citation-%E2%80%89515.7

Opportunities for Promoting Resilience

Although promising resilience practices are being developed at all levels of government, much more needs to be done to help our communities respond to increasing threats, and Congress is well-positioned to be a leading part of the solution.

Reform and Modernize Federal Disaster Recovery Programs

Congress will be allocating tens—if not hundreds—of billions of dollars to help disaster-affected communities rebuild from just the catastrophic storm events of 2017. Congress can and should enact needed reforms to modernize federal disaster recovery programs to enable affected communities to rebuild with resilience. The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) authorizes disaster or emergency declarations that allow for the allocation of funds to help communities recover and rebuild.[19] But the problem is that the program was designed to put buildings and infrastructure back in place the way it was before the disaster event (i.e., to the pre-disaster design and footprint), and the program limits the ability of affected communities to rebuild in ways that will ensure they can withstand the next storm. The Georgetown Climate Center has worked with many disaster-affected communities to capture the challenges they faced in trying to build back stronger and to identify opportunities for federal reforms. For example, in Vermont after Hurricane Irene, municipalities across the state had to fight to get reimbursed under the Public Assistance program when they replaced antiquated pipe-culverts with larger bottomless culverts that were designed to better manage the increased rainfall and streamflow already being experienced in the region. These types of common-sense, cost-savings approaches should be encouraged, not made more difficult.

Additionally, Congress often allocates disaster recovery dollars through a variety of different federal programs administered by different federal agencies. State and local grantees often struggle to patch together the different funding streams to help them rebuild stronger infrastructure systems. Different administrative requirements, environmental review requirements, and timing for the allocation of funds all hinders the ability of grantees to combine funding streams to fund comprehensive recovery projects affecting multiple different assets. As one example, federal agencies use different methods for calculating the benefits and costs of a project (benefit-cost analysis or BCA), which means that applicants must prepare different BCAs for different agencies, sometimes for the same projects, and BCA methods do not account for the increasing risks posed by climate change.

Congress can reform and modernize disaster recovery programs to facilitate resilient rebuilding in the following ways:

- Congress can require recipients of disaster recovery funds to use the best available science about future climate change when reconstructing infrastructure and public facilities with disaster recovery funds.
- Congress could reinstate and codify the Federal Flood Risk Management Standards, which would require grantees to consider future sea-level rise and changing precipitation patterns

[19] https://fas.org/sgp/crs/homesec/RL33053.pdf

when designing and siting projects funded with federal dollars. To do so, state and local governments need sound science. Congress should also fund the science and technical assistance programs that help state and local governments understand their risks and design assets to be more resilient to future changes. For example, Congress should fully fund FEMA's floodplain mapping program and enable map updates to include information about future conditions and sea-level rise, which will be critically important to helping communities understand their changing flood risks.

- Congress could prioritize investments that restore and enhance natural and nature-based flood protection. "Nature's infrastructure"—such as barrier islands, wetlands, and dune systems—provide natural flood defenses that absorb flood waters and dampen storm surges. Preserving and enhancing these natural features is a cost-effective way of reducing impacts.
- Congress could harmonize methods of conducting benefit-cost analysis across funding programs and BCAs should use the best available science to account for future conditions when assessing the flood-risk-reduction benefits of a project.
- Congress could support and provide funding to stand up federal coordinating teams to facilitate coordination across agencies allocating disaster recovery funds and conducting environmental review and permitting. For the Sandy recovery, coordinating teams helped the agencies expedite project delivery, reduce duplication of effort, and streamline permitting and environmental review. These teams were so successful that federal agency leaders in the region want to maintain the teams even after recovery efforts are completed.
- Congress could require federal agencies to simplify and harmonize the planning and administrative requirements they impose on grantees. By trimming red tape, Congress can help ease the ability of grantees to combine funding streams and enable them to enhance the resilience of assets and deliver projects that provide multiple benefits. For example, FEMA could allow grantees to calculate their state and local match requirements across all projects funded with Public Assistance (PA) money, rather than requiring grantees to provide match for every individual project (similar to how FEMA administers the Hazard Mitigation Grant Program).[20] Congress could also specify that the rules and regulations (including NEPA rules) of the primary funding agency should satisfy and override the rules of any secondary funding agencies. This would allow funding streams to be more easily combined and would reduce transactional costs on both grantees and administering agencies. More discussion and other practical ideas for improving disaster recovery are detailed in a recent report published by Holly Leicht, the director for New York and Jersey for the U.S. Department of Housing and Urban Development during the Sandy recovery.[21]
- Over the longer term, it will be important to quantify the benefits of the actions that we are taking. Currently, we only have the 2005 National Institute of Building Science's study with the oft-cited finding that $1 spent on mitigation results in $4 of avoided losses. However, this study does not look across the full range of different flood-risk-reduction approaches,

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[20] Holly M. Leicht, *Rebuild the Plane Now: Recommendations for Improving Government's Approach to Disaster Recovery and Preparedness* at 13 (July 2017), *available at*: http://communityp.com/new-report-ex-obama-official-makes-recommendations-improving-governments-approach-disaster-recovery-preparedness/.
[21] Id.

such as nature-based approaches which provide multiple societal and environmental benefits. This study needs to be updated to help policymakers better understand the range of mitigation options available to them and the return on investment from different approaches in consideration of future climate change. A National Academies or other study could be commissioned to update and refine this analysis.

Fund and Encourage Pre-Disaster Mitigation

A more proactive approach that encourages communities to take actions to reduce their risks *before* a disaster strikes is needed. Our current approach to disaster recovery and mitigation is reactive: after a storm hits, we send billions of dollars to rebuild communities. Although we need to continue to help communities in need, this approach does not facilitate smart rebuilding and does not encourage communities to proactively take steps to reduce their risks. The instinct after a disaster strikes is to return to the status quo—to get things back to "normal" as quickly as possible, rather than preparing for a "new normal." Very few communities have plans or rules on the books that enable them to rebuild more resiliently after a disaster. As a result, structures and people are often put back in harm's way.

Congress could encourage communities to proactively implement measures that will reduce their risks to natural hazards and reduce the exposure of the federal government to these costly catastrophic events.

- Congress could provide more money upfront to help communities develop plans, update building codes and land-use regulations, and construct projects that will reduce community risks to natural hazards. FEMA's pre-disaster mitigation program and flood mitigation assistance programs are currently oversubscribed. Congress should also consider how to provide funding to help communities address other hazards, such as extreme heat, drought, and wildfires. Funding for these types of pre-disaster mitigation programs should be increased, not cut.
- Congress could consider a legislative option for implementing a FEMA proposal to require a disaster deductible.[22] FEMA's approach would require state and communities to set aside funds to support their own recovery or take proactive steps to reduce risks. It would create incentives for communities to adopt stronger building codes and floodplain regulations, which can significantly decrease flood losses. This could reduce the total costs to the federal government for paying disaster recovery costs over time.

Create and Fund Infrastructure Banks

Even without catastrophic disaster events, infrastructure systems in the United States are in desperate need of modernization and investment. The American Society of Civil Engineers gives U.S. infrastructure a D+ grade and has estimated that $1.1 trillion will be needed by 2020 to bring our infrastructure up to a state of good repair.[23] Aging, undersized, and under maintained infrastructure systems have not kept up with growing populations, increased

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[22] https://www.regulations.gov/document?D=FEMA-2016-0003-0150.

[23] American Society of Civil Engineers, *2017 Infrastructure Report Card* (2017), *available at:* https://www.infrastructurereportcard.org/.

development, and new technologies. As we spend to update antiquated infrastructure systems, we must ensure that the systems we are building are designed for a future that will look very different from the past.

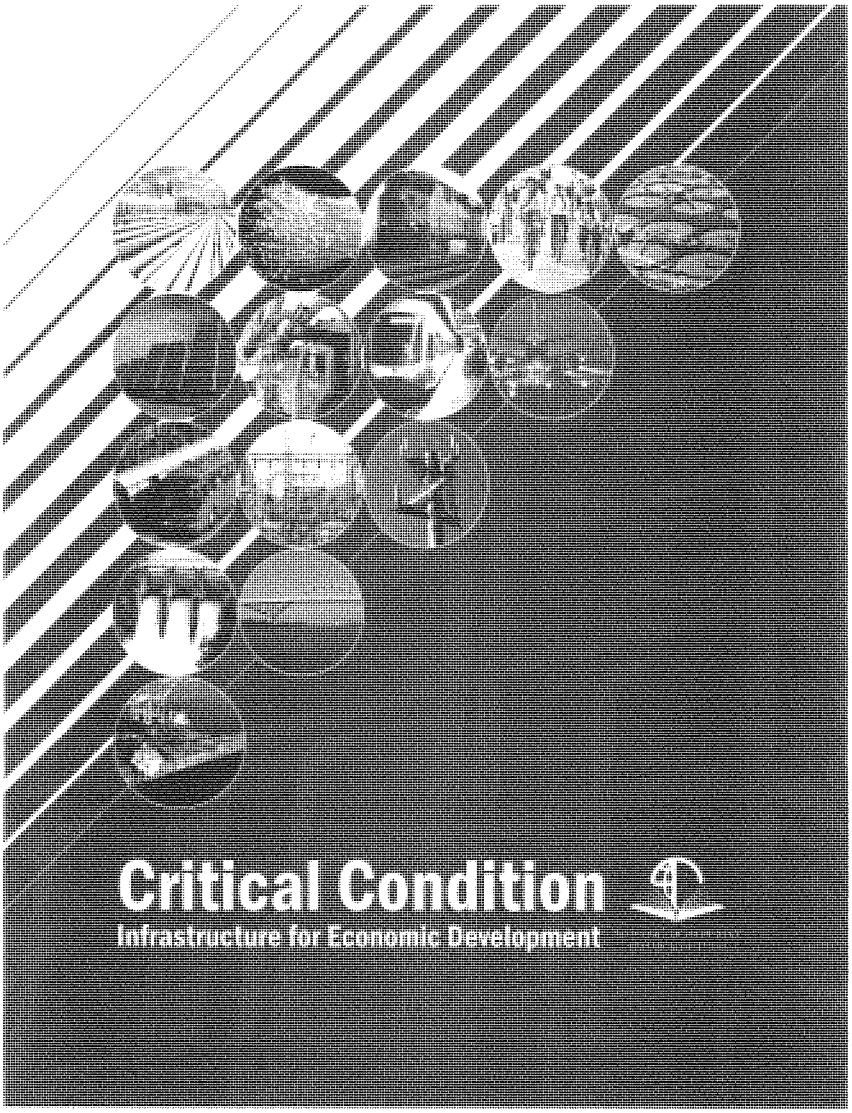
Current federal programs for financing infrastructure are underfunded given state and local needs. They allocate funding in silos, hindering the development of cross-sector, multi-benefit projects that deliver the greatest return on investment. And they fail to encourage investments to enhance the resilience of interdependent infrastructure systems. For example, financing for the water infrastructure is allocated through the State Revolving Funds, while transportation financing is supported through the Transportation Infrastructure Financing and Innovation Act (TIFIA). This siloed approach to funding and financing limits the opportunity for state and local governments to combine different funding streams to design and construct more ambitious infrastructure projects that deliver multiple community benefits, such as projects to retrofit highways and incorporate green infrastructure to manage stormwater runoff or incorporate other multi-modal improvements.

Congress could create and fund infrastructure banks to enable private sector investment in upgrading and enhancing the resilience of U.S. infrastructure systems.

- Projects funded through an infrastructure bank should be designed to be resilient to future climate change;
- Retrofits to existing infrastructure should be prioritized over creation of new infrastructure; and
- An infrastructure bank should enable blending of funds from other financing mechanisms, such as funds from state revolving funds and transportation and water financing programs.

Conclusion

This year of record-breaking weather and related devastating impacts provides a sobering preview of what we can expect with greater frequency and intensity as the climate changes. A fiscally-responsible approach to rebuilding that does not put communities back in harm's way requires that we account for anticipated future conditions and that we encourage communities to take proactive steps to reduce their own risks. My testimony identifies some of the many opportunities for Congress to direct disaster assistance and hazard mitigation funding in ways that reduce the long-term fiscal exposure of the nation to these types of extreme weather events. Thank you for the opportunity to discuss some proactive actions that Congress can take to build the resilience of our communities and our nation, and I welcome your questions.


Critical Condition
Infrastructure for Economic Development

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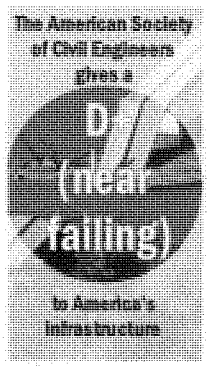
Introduction: Infrastructure is a Critical Condition for Economic Development

Previous generations of Americans endowed the country with one of the most advanced infrastructure networks in the world. Historical evidence suggests that the astonishing economic development that the United States experienced over the last two centuries was made possible by the high quality of infrastructure the nation had the foresight to invest in. Examples such as the Erie Canal in 1807, the Transcontinental Railroad in 1869 and the interstate highway system in the 1950s-60s show that the nation has benefited from grand-scale, visionary investments in its infrastructure. These past investments opened new frontiers for economic prosperity and contributed to making the United States the world economic powerhouse it is today.



In recent years, however, the nation's infrastructure has faced significant challenges. As other countries have made massive investments in new, cutting-edge infrastructure, the United States has lost its lead. The country's ranking on overall quality of infrastructure has declined on the World Economic Forum's Competiveness Index; the 2015-2016 index ranks the United States in the 11th position.[1] Domestically, the American Society of Civil Engineers Infrastructure Report Card, published every four years, has since 1998 consistently rated America's infrastructure as "near failing." In 2013, the latest report, the rating was a D+ (poor).[2] Simply put, U.S. infrastructure faces serious challenges that deserve urgent attention from those concerned with the country's economic development.

How Economic Developers Can Influence Infrastructure Planning and Development

Economic developers have a unique position between the public and the private sectors that enables them to influence infrastructure planning and development and engender support from both sides. They can:

- **Participate in local, regional, and state infrastructure planning.**
  As representatives of the business community, economic developers can speak to business concerns during the local, regional, and state planning process.

[1] Klaus Schwab and Xavier Sala-i-Martin, *The Global Competitiveness Report: 2015-2016*, (Geneva: World Economic Forum), 2015.

[2] American Society of Civil Engineers, *2013 Report Card for America's Infrastructure*, (Reston, VA: ASCE), 2013.

- **Educate community leaders on the importance of infrastructure to competitiveness.**
  This includes the retention and creation of jobs as well as building the workforce.
- **Take action on these challenges by working with lawmakers and business leaders**
  With their connections, economic developers can bring together leaders in government and business to influence infrastructure investment.
- **Analyze how national challenges will manifest themselves in their communities.**
  Because economic developers monitor industry trends at the national and local levels, they can predict how their communities will develop and their future infrastructure needs.
- **Support financing of infrastructure construction and maintenance.**
  Economic developers can advocate for—and sometimes contribute to —funding infrastructure, whether through public or private means.

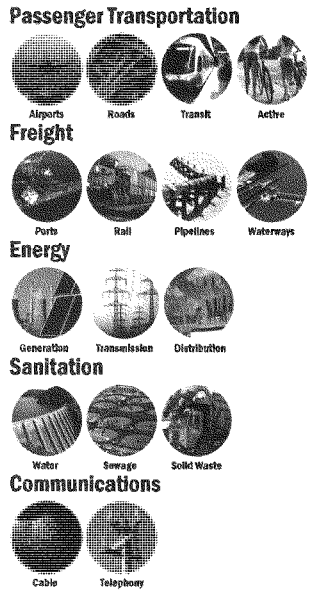


Figure 1. Economic infrastructure

Infrastructure Definition

Infrastructure can be defined as, "the physical components of interrelated systems providing commodities and services essential to enable, sustain, or enhance societal living conditions." More specifically, noted infrastructure scholar Johan Fourie explains the tie between the economy and infrastructure: "Economic infrastructure is defined as infrastructure that promotes economic activity, such as roads, highways, railroads, airports, sea ports, electricity, telecommunications, water supply and sanitation. Social infrastructure is defined as infrastructure that promotes the health, education and cultural standards of the population" (Figure 1).[3]

[3] Jeffrey E. Furman, "What is the World Is Infrastructure," PB Infrastructure Forum, July/August, 2008, pp. 30-33.

To address the interests of the economic development community, this report focuses exclusively on economic infrastructure. However, an important recent addition to the traditional core infrastructure that will be addressed is broadband access, which straddles the line between economic and social infrastructure.

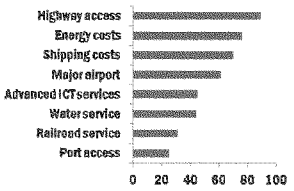


Figure 2. Percent of corporate executives agreeing that factor is somewhat or very important for location decisions.[4]

Infrastructure and Competitiveness

From a state and local economic development perspective, regions compete again each other, and those with poor infrastructure are at a disadvantage, although other aspects of each community may be competitive. For example, economic activities tend to migrate towards communities that are adjacent to highways, leaving less-served areas at a disadvantage. Furthermore, infrastructure issues generally have a primary role in business location decisions.

Infrastructure spurs economic development in the following ways.

Infrastructure Development Increases the Competitiveness of Local Firms

An efficient infrastructure system allows for the unhampered flow of goods and services. Infrastructure is a public good that contributes to a business advantage, which in turn increases functionality and profits. With a strong infrastructure system—especially in the realm of transportation—businesses are able to manage inventories and transport goods less expensively, as well as access a variety of suppliers and markets. Furthermore, their employees are able to more reliably and affordably transport themselves to work.[5]

Infrastructure is Key to Attracting Companies and Talent Workers

Appropriate infrastructure is a top criterion in business location decisions (Figure 2). For example, a food processing plant will not consider locating in a community unless the sewer and water systems are sufficient to handle plant capacity.[6] As Area Development points out, "Whether the project being considered is an advanced manufacturing facility, logistics/distribution warehouse, data center, life sciences campus, or a corporate headquarters, state, regional, and local infrastructure assets are fundamental to the decision-making process."[7] Infrastructure can also draw talent. Young people are increasingly moving to cities that

[4] *Area Development*, "29th Annual Survey of Corporate Executives: A Realignment of Location Priorities," 2015.

[5] National Economic Council and the President's Council of Economic Advisers, *An Economic Analysis of Transportation Infrastructure Investment*, (Washington, DC: The White House), 2014.

[6] Janet M. Rives and Michael T. Heaney, "Infrastructure and Local Economic Development," *Regional Science Perspectives 25*, 1995, pp. 58-73.

[7] Leslie Wagner, "Infrastructure Lessons for Economic Growth and Business Success," *Area Development, Summer*, 2012.

offer urban lifestyles enhanced by investment in cultural amenities, vibrant public spaces, and public transportation.

Infrastructure Development Creates a Cycle of Investment and Economic Growth

Investing in infrastructure increases the property value of the land it is built upon. This principle is the same theory behind tax increment financing, an innovative and popular form of public financing which allows municipalities to borrow against the future property taxes of an improved area. Residential areas that benefit from infrastructure improvement see property values rise as living standards, such as shorter commute times and closer proximity to desirable amenities, increase.[8]

Well-Planned Infrastructure Increases Household Disposable Income

After housing, transportation is the second-highest expense for American families.9 Most of that money is spent on automobile transportation. Decreasing vehicle miles traveled, time in traffic, and distance from destinations decreases the amount spent on transportation, thereby increasing disposable income, which grows local economies through expenditures on retail, restaurants, and entertainment. Infrastructure solutions to alleviate the expense of automobile transportation include developing more efficient traffic networks and public transit.

Infrastructure Investment Creates Jobs

In the Great Depression, the federal government funded infrastructure projects that supplied jobs for thousands of workers. A similar investment today could create accessible jobs for those workers still suffering from the effects of the Great Recession and increase economic activity throughout the country. In fact, this is what the American Recovery and Reinvestment Act (ARRA), passed in 2009, was designed to do. As was the case with ARRA, infrastructure investment creates jobs in construction and supporting sectors.[10] Additionally, the production and sale of raw materials would increase.

Infrastructure development is essential to competitiveness. Efficient systems of transportation, water, and wastewater can entice businesses to expand or locate in communities. Talent is also attracted by people-focused infrastructure and retained by convenient living situations that offer increasing property values. The overall economic health of communities is improved by creating better infrastructure systems that can encourage disposable spending in the local economy and create jobs. From business attraction to talent retention to small business development to job creation, there is no economic development concern that infrastructure does not touch.

To promote continued infrastructure investments as an essential component of economic development, it is recommended that economic developers increase their engagement in infrastructure planning at the local and regional level, and advocate for increased infrastructure funding on a national level.

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[8] NEC and CEA, *Transportation Infrastructure Investment*.

[9] Smart Growth America and National Complete Streets Coalition, *Complete Streets Lower Transportation Costs*, (Washington, DC: SGA).

[10] NEC and CEA, *Transportation Infrastructure Investment*.

Case Study: The Economic Development Coalition of Southwest Indiana

The Economic Development Coalition of Southwest Indiana is a unique organization, a regional, public-private organization that merges business attraction and retention efforts with community development.

The Coalition was formed in 2006 to serve four counties – Gibson, Posey, Vanderburgh and Warrick – along with the city of Evansville. At that time, the region's leaders decided to try combining a new, regional approach to economic development efforts with the responsibilities of a previous regional planning organization. (The Coalition includes both 501(c)(3) and 501(c)(6) organizations, and while it is not formally set up as an Economic Development District or regional planning organization, it is recognized by both the state of Indiana and the U.S. Department of Commerce as filling these roles.)

Working with state and local government partners and local economic development organizations – the Growth Alliance (Evansville/Vanderburgh County), Success Warrick County, Gibson County Economic Development Corporation and the Posey County Economic Development Partnership – the Coalition has helped secure over $6.1 billion in investments and brought over 6,500 jobs to the region, serving companies such as ATK, Wood Siemens, Toyota, Toyota Boshoku and others. But in addition to the typical work that EDOs do in business retention and expansion, building capacity for future development is a key charge of the Coalition.

The Coalition's Community Development Division consists of four people who help the region's communities identify development gaps and write grants to meet those needs. To date, the Coalition has secured more than $75 million in grants for infrastructure projects such as water and sewer system expansions and improvements to the region's levee systems. Grants received for community projects range from $10,000 to nearly $5 million.

"We've found this approach to be much more aligned," said Coalition President and CEO Greg Worthen of the organization's two-pronged approach. "It gives us a better perspective about how everything is interconnected. It works better if we're all on the same page."

As the agency that leads the region's Comprehensive Economic Development Strategy (CEDS) process, the Coalition works with communities to identify and prioritize projects for the next several years. The Coalition also manages and evaluates communities' grant-funded projects, if requested, for which it receives a fee. It may work with a community's engineering consultants, help write project plans and ensure compliance. "We are very efficient at what we do. Communities see this as a real value for them," said Worthen.

The Coalition has worked on more than 300 community development projects over its eight-year life. These included all kinds of projects that Worthen never anticipated, such as helping a community move a gas line from bridge over the Wabash River from Illinois. But "you discover there is a need," Worthen said, and addressing that need directly boosts economic development capacity.

Recently, the Coalition worked with one of the local economic development organizations to attract an investment that will involve a public-private partnership to build a bypass. An incoming company plans to build the bypass to state standards, after which it will be transferred to the state. In addition to helping

attract the investment, the Coalition is helping the county to develop a transportation plan that incorporates the new project.

"The business community says, 'Here are the issues we want you to address.' It might be outside of what groups like ours typically are involved in, but you have to design a program specifically for your region," said Wathen. "Whatever that value is, 'who have to buy into it.' If you don't adapt, you're lost."

That approach appears to be working well. In fact, other Indiana regions have expressed interest in possibly replicating the Coalition's model. "When investors can see that a community is willing to invest in itself, it increases the probability that others will want to come and invest in that community too," Wathen said.

American Infrastructure Planning, Responsibility, and Finance Has Changed Over Time

To understand the current state of American infrastructure, it is essential to understand the historical political priorities, economic drivers, and technological developments that contributed to the system as it exists today. Several major trends course through the history of U.S. infrastructure development:

- Infrastructure development has always been both a reaction to economic growth and a source of new economic development;
- A variety of players, notably states, municipalities, special authorities, the federal government, and the private sector have planned and financed infrastructure over time;
- Changes in economic conditions and needs often presage new policy approaches to infrastructure investment; and
- The planning and financing mechanisms that are in place today are often a legacy of past decisions and conditions and are not always well-suited to today's economic realities.

The Groundwork for Today's Infrastructure Begins in the Nineteenth Century

Infrastructure construction has played a prominent role in economic development since the early years of the United States. The nineteenth century witnessed tremendous construction of canals, railroads, roads, telephone lines, and sewers, financed and operated by a mix of local, state, federal, and private organizations.[11] The rapid deployment of infrastructure in the early decades of the country was both a response to, and a cause of, the country's strong economic development.[12]

Early in the country's history, the federal government played a large role in coordinating and financing infrastructure projects, especially interstate projects, such as the canalization of the Potomac River; the

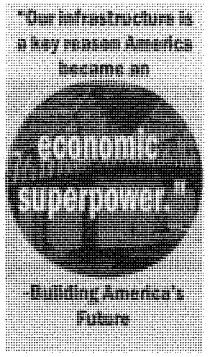
[11] Vicki Elmer and Adam Leigland, *Infrastructure Planning and Finance: A Smart and Sustainable Guide for Local Practitioners*, (New York: Routledge), 2014.

[12] Waheed Uddin, W. Hudson, and Ralph Haas, *Public Infrastructure Asset Management*, (New York: McGraw Hill), 2013, p. 8.

National Road from Maryland to Illinois; and a system of lighthouses.[13] In 1808, federal leaders unveiled a plan to build $20 million ($324 billion in 2015 dollars) in roads and canals.[14] However, opponents defeated the plan on the basis that it would favor some regions over others in economic competition; federal investment in infrastructure was accordingly reduced for much of the nineteenth century.[15]

New Modes of Transportation, New Funding Arrangements

In face of the charged debates that suppressed federal financing, legislators at the state level began to issue bonds to advance the construction of works critical to economic growth.[16] Canals were particularly important works in speeding the movement of goods. New York businessmen, hoping to give their city a trade advantage, lobbied the legislature to levy taxes on salt and land sales to build a canal that by-passed Niagara Falls.[17] Opened in 1825, the Erie Canal set off a wave of state- and private-led canal building that vastly improved the nation's inland navigation.[18]



Soon after, the newly invented railway again revolutionized the shipping of goods.[19] The economic importance of this new technology was clear, yet again, opponents argued against federal involvement in railway building, this time on the basis that it would be tainted by corruption. Confident that the private sector would choose to invest in the most economically productive projects, the federal government supported railway development by granting companies large swaths of land along proposed routes. After the transcontinental railway was completed in 1869, the majority of investment of new railway infrastructure investment came from the private railway operators themselves.

Starting in the 1860s, private interests began to build oil pipelines to convey petroleum, newly discovered in Pennsylvania, to markets. The economics of pipelines favored industry consolidation, leading to concerns about competition. In the early twentieth century, government antitrust legislation broke apart the largest

[13] Building America's Future Education Fund, *Building America's Future: Falling Apart and Falling Behind*, (Washington, DC: BAFED), 2012.

[14] BAFED, *Falling Apart and Falling Behind*.

[15] David Perry, "Building the City through the Back Door: The Politics of Debt, Law, and Public Infrastructure," in *Building the Public City, The Politics, Governance, and Finance of Public Infrastructure*, ed. David Perry (Thousand Oaks, CA: Sage), 1995, pp. 203-306.

[16] Heywood T. Sanders, "Public Works and Public Dollars: Federal Infrastructure Aid and Local Investment Policy," in *Building the Public City: The Politics, Governance, and Finance of Public Infrastructure*, ed. David Perry, (Thousand Oaks, CA: Sage), 1995.

[17] Elmer and Leigland, *Infrastructure Planning and Finance*.

[18] Jerry Mitchell, *The American Experiment with Government Corporations*, (Armonk, NY: M.E. Sharpe), 1999.

[19] Lichten et al., *Public Infrastructure Asset Management*.

pipeline company, Standard Oil, establishing a pattern for investment and regulation of many energy systems: private companies would construct energy production facilities and distribution networks, while governments would regulate prices and competition.[20]

Toward the end of the nineteenth century, local governments, districts, and authorities began to increase infrastructure building, financed by property taxes and municipal bonds.[21] Both business interests and civic reformers advocated for improved aqueducts, sewers, road clearing, and garbage removal. These works helped to combat the congestion, rampant waterborne diseases, and out-of-control central business district fires that frustrated business, injured workers, and damaged property. To improve citizens' quality of life, towns also granted concessions to private companies to install streetlamps and trams.[22]

Sustained Municipal and Private Investment and A Renewed Place for the Federal Government in the Early Twentieth Century

At the beginning of the twentieth century, the federal government assumed a major role in financing and constructing infrastructure, both to serve the logistical needs of modern federal branches, such as the postal service and military, as well as to serve new technologies and economic realities. The U.S. Army Corps of Engineers and the Inland Waterways Commission improved the country's navigation with ambitious projects such as the Panama Canal, the Intracoastal Waterway, and the lock system on the Mississippi River.[23]

The federal government also began to finance road construction, starting in 1916, despite strong initial resistance from state and local governments. The Federal Aid Highway Act of 1916 inaugurated a funding model in which the federal government provided funds for capital construction, on the condition that states and localities matched them. Under this model, lower-tier governments were left almost entirely responsible for operations and maintenance. This financing arrangement has endured—even today, most federal infrastructure financing is for capital construction.[24] Federal construction funds, matched by states and localities, allowed for the creation of the National Highway System. By connecting local manufacturing and agricultural production, the NHS created a truly national market for goods for the first time.[25]

Despite this growing federal investment, local levels of government remained the largest infrastructure builders in the years after the turn of the century. Municipalities gained greater planning and financing authority during this period.[26] Starting in the 1920s, professional municipal planners, facilitated by federal

[20] Adam J. White, "Infrastructure Policy: Lessons from American History," *The New Atlantis, Spring*, 2002, p. 3-31.
[21] Claire L. Felbinger, "Conditions of Confusion and Conflict: Rethinking the Infrastructure-Economic Development Linkage," in *Building the Public City, The Politics, Governance, and Finance of Public Infrastructure*, ed. David Perry, (Thousand Oaks, CA: Sage), 1995.
[22] Elmer and Leigland, *Infrastructure Planning and Finance*.
[23] White, "Lessons from American History."
[24] White, "Lessons from American History."
[25] Matthew E. Kahn and David M. Levinson, *Fix It First, Expand It Second, Reward It Third: A New Strategy for America's Highways*, (Washington, DC: Brookings Institution/The Hamilton Project), 2011.
[26] Elmer and Leigland, *Infrastructure Planning and Finance*.

legislation, introduced zoning ordinances, comprehensive urban plans, and engineering standards for privately provided infrastructure to bring ordered, rational planning to cities.[27] Municipalities issued significant amounts of debt to fuel this planned growth.[28] A particularly important municipal project in this era was the paving of city streets, speeding the movement of bicycles and goods-carrying vehicles and facilitating cleaning of garbage and horse droppings. As part of the "City Beautiful" movement, cities also financed fountains, boulevards, and parks to promote economic development.[29] Concurrently with the rise of general-purpose municipalities, quasi-public authorities with bond-issuing powers were also founded across the country to quickly build projects outside the scope of regular municipal services, such as ports, airports, and large bridges.[30]

Private companies also continued to make significant investments in infrastructure. Small, competitive pipeline, railway, telephone, and electrical industries integrated themselves into utilities with enormous market power.[31] In towns, land development was led by private homebuilders, who built sewers and roads into their new subdivisions, which were then deeded to cities. Real estate developers also built thousands of miles of suburban streetcar lines to serve new growth areas; these lines, facing financial difficulties, were later taken over by cities, forming the early kernels to many of America's transit agencies.

With Onset of the Great Depression, Federal Government Assumes a Larger Role

As the country entered the Great Depression, private, state, and local investment ground to a halt.[32] The federal government responded to the country's most serious economic crisis ever by instituting massive programs to build new public works. Not only would such programs put the unemployed to work, but as it was known that construction spending had a powerful stimulus effect on consumer spending, legislators hoped that sufficient public building would shock the country back into prosperity.[33] During the Depression, the federal government accounted for a third of all construction activity.[34]

Under the Depression-era Works Progress Administration (WPA), eight million workers built 78,000 bridges and surfaced 639,000 miles of road, among many other works. About half of the works still stand, including the Golden Gate Bridge, the Detroit-Windsor Tunnel, and the Florida Overseas Highway. The giant Grand Coulee and Hoover Dams were also built during this period, simultaneously allowing for flood control,

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[27] Laurence Conway Gerckens, "The Comprehensive Plan in the 20th Century," *Planning Commissioners Journal*, 1998.

[28] Alberta M. Sbragia, *Debt Wish: Entrepreneurial Cities, U.S. Federalism, and Economic Development*, (Pittsburgh, PA: University of Pittsburgh Press), 1996.

[29] Peter Hall, *Cities of Tomorrow: An Intellectual History of Urban Planning and Design in the Twentieth Century*, (Oxford, UK: Blackwell), 1997.

[30] Elmer and Leigland, *Infrastructure Planning and Finance*.

[31] Elmer and Leigland, *Infrastructure Planning and Finance*.

[32] Elmer and Leigland, *Infrastructure Planning and Finance*.

[33] Economic Development Research Group, Inc., *Failure to Act: The Impact of Current Infrastructure Investment on America's Economic Future*, (Washington, DC: American Society of Civil Engineers), 2013.

[34] Charles D. Jacobson and Joel A. Tarr, "Ownership and Financing of Infrastructure: Historical Perspectives," *World Bank Policy Research Working Paper 1488*, 1995.

agricultural irrigation, and hydropower generation and in the process, transforming the economic prospects of Eastern Washington and Southern Nevada.[35] The National Rural Electrification Act (1936) and the establishment of the Tennessee Valley Authority helped electrify inland agricultural areas in the process, making some rural areas attractive to industry for the first time.

Depression-era regulation also increased federal oversight of private utilities. The Federal Power Commission, formed in 1930, began regulating electricity transmission, while the Federal Communications Act of 1934 regulated the telephone industry.[36] The Federal Housing Administration specified how the sewers, sidewalks, and street lighting in front of homes were to be built in order for their owners to qualify for mortgage insurance.[37]

Not only did the federal government's unprecedented degree of involvement in building infrastructure help the country escape from the Great Depression, but more than 70 years later, the American infrastructure system is still reliant on works built during that era.

A Growing Postwar Economy, and an Increasingly Complex Infrastructure System

After the outbreak of World War II, the nation's economy recovered, rendering economic stimulus programs obsolete. The nation rapidly constructed the industrial and military facilities, such as ports and airfields, necessary to secure victory in the war. After America and its allies won the war in 1945, many military facilities were re-purposed for civilian use. For instance, Chicago-O'Hare Airport, along with 500 other former military airfields, became public aviation assets in the late 1940s.[38]

War also exposed the country's security vulnerabilities. It was apparent that to defend against an attack on U.S. soil, the country would need a modern transportation infrastructure—a network of high-speed roads—to deploy troops and equipment across the country. The planned grid that was to become the Interstate Highway System was also seen as economically critical.[39] A major departure of the Interstate system was in finance. Whereas pre-war intercity highways had been primarily toll-financed, construction of the Interstate system was primarily financed with the proceeds of a new federal gas tax.[40] The policies around the planning of the Interstate system were in fact so influential that they continue to influence how the American transportation system is built and financed today.[41]

Interstate highways generated a significant economic impact by increasing the speed and reliability of deliveries, allowing businesses to reduce their stored inventory and fostering greater competition between

[35] Elmer and Leigland, *Infrastructure Planning and Finance*.
[36] Jacobson and Tarr, "Historical Perspectives."
[37] Elmer and Leigland, *Infrastructure Planning and Finance*.
[38] Uddin et al., *Public Infrastructure Asset Management*..
[39] Public Broadcasting Service, "State of the Union Address, 1955." Retrieved October 13, 2015.
[40] White, "Lessons from American History."
[41] Ibid.

producers, deepening labor pools, and reducing product costs.[42] But increased freeway capacity was not economically beneficial everywhere. In cities, freeways contributed to a dramatic shift in business activity and population, from central American cities to their suburbs.[43] Opponents of highways advocated replacing planned freeways with mass transit systems. In fact, after the Interstate system was declared complete in 1973, a portion of the federal gas tax funds was redirected to mass transit.

To address the blight occurring in central cities, the federal government allocated funds for urban renewal projects, including infrastructure investments needed to attract businesses back to central business districts.[44] Still, many urban residents objected to the way federal urban renewal was carried out, causing a backlash against centralized urban planning that lasted into the 1990s.[45]

A Strong Federal Role in the 1960s and 1970s

As the focus of the American economy shifted away from manufacturing to greater reliance on services in the 1970s, demand for infrastructure as well as public policies were altered. Airports played an increasing role in connecting domestic business to global commerce. Highways and trucking gained a new role in allowing "just in time" production processes. Telecommunications infrastructure—from mobile networks to Internet cable—have steadily increased in importance in connecting business to the global economy.[46]

The federal role in funding infrastructure grew steadily after World War II--from 17 percent in 1956 to a peak of 40 percent in 1977--as the federal government became increasingly involved in funding non-highway transportation, rural development, and systems to protect the environment.[47]

A major federal reorganization occurred in 1967. The cabinet-level U.S. Department of Transportation (DOT) brought many disparate federal agencies under its umbrella, allowing it to create "a fast, safe, efficient, accessible, and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people." The federal government increasingly invested not only in highways but in airports, mass transit, and rail as well.[48] The Economic Development Administration (EDA), inaugurated in 1965 with a mandate to ensure equitable infrastructure provision, built public waterworks, sewers, and local roads to service industrial parks in depressed rural areas.[49] Policymakers, growing

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[42] Thomas F. Keane, "The Economic Importance of the National Highway System," *Public Roads, 59*(4), 1996; John Fernald, "Roads to Prosperity? Assessing the Link Between Public Capital and Productivity," *American Economic Review, June*, 1999, pp. 619–638.

[43] White, "Lessons from American History."

[44] R. Capello and A. Gillespie, "Transport, Communication, and Spatial Organization: Future Trends and Conceptual Frameworks," in *Transport and Communications Innovation in Europe*, ed. *G. A.* Giannopoulos and A. E. Gillespie, (New York: Belhaven Press), 1993.

[45] Elmer and Leigland, *Infrastructure Planning and Finance*.

[46] Elmer and Leigland, *Infrastructure Planning and Finance*.

[47] Carl Muelhmann and Keith Mattrick, Trends in Public Infrastructure Spending, (Washington, DC: Congressional Budget Office), 1999.

[48] Uddin et al., *Public Infrastructure Asset Management*.

[49] Elmer and Leigland, *Infrastructure Planning and Finance*.

increasingly aware of the environmental impacts of public works, also instituted strict new environmental laws, such as the National Environmental Policy Act (1969) and Clean Air Act (1970), during this era.[50] The Federal Water Pollution Control Act of 1972 was one of many acts that provided funds for special infrastructure—in this case, wastewater systems and treatment plants, although, following the prewar pattern, postwar federal infrastructure expenditures were primarily meant for the construction of facilities, while operations and maintenance were left to states and localities.[51]

Changing Political and Economic Priorities

The larger federal role in infrastructure taken during the postwar era reversed starting in the 1980s. As a result of changing political priorities, federal infrastructure spending declined from 40 percent to about 25 percent of all public investment, shifting the burden to states and localities.[52] Yet, thrust into a larger role, states and localities did not always pursue comprehensive planning or cost-budget analysis in making infrastructure investments, sometimes prioritizing the construction of peripheral "infrastructures" such as stadiums, casinos, and convention centers at the expense of core economic infrastructure needs.[53] The effects of uncoordinated infrastructure deployment were exacerbated in rapidly growing areas where sprawl and leapfrog development imposed high costs on states and localities. New planning approaches, such as Transit Oriented Development and New Urbanism, were suggested in response to promote more orderly, fiscally responsible growth.[54]

In the 2000s, the Great Recession posed a severe crisis for both the American economy and governments at all levels. Many municipalities and states drastically cut spending. The federal government, inspired by similar actions during the Great Depression, responded with the American Recovery and Reinvestment Act, which included $31 billion for infrastructure construction.[55] Most American states and localities have fully recovered from the recession, though infrastructure spending has not been restored to pre-recession levels.

The American infrastructure system today is the backbone of the U.S. economy—one of the strongest in the world. Yet this country's infrastructure faces numerous challenges, which in turn have important economic development consequences. The challenges to U.S. infrastructure, and the opportunities presented to local and state economic developers, are discussed in the following section, "11 Crucial Challenges and Opportunities."

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[50] Uddin et al., *Public Infrastructure Asset Management*.; Elmer and Leigland, *Infrastructure Planning and Finance*.

[51] Elmer and Leigland, *Infrastructure Planning and Finance*.

[52] Nathan Musick, *Public Spending on Transportation and Water Infrastructure*, (Washington, DC: Congressional Budget Office), 2010.

[53] Dennis R. Judd and Susan S. Fainstein, *The Tourist City*, (New Haven, CT: Yale University Press), 1999.

[54] Elmer and Leigland, *Infrastructure Planning and Finance*.

[55] Tim Harper, "Crisis in America: A Crumbling Infrastructure," CNN, November 11, 2011.

Case Study: The Tennessee-Tombigbee Waterway[56]

The Tennessee-Tombigbee (Tenn-Tom) Waterway opened in 1985 to provide a navigational short-cut from the Mid-Atlantic to the Gulf of Mexico as an alternate to the Mississippi River. The waterway had been proposed as early as 1790 by French explorers, but due to political and economic fluctuations, it would not be built for more than 200 years. In the decades since its construction, it has proven to be a boost for economic development in the area.

The waterway has 10 locks and dams, a 175-foot-deep canal connecting the Tennessee River with the Tombigbee River watershed and 234 miles of navigation channels between the Tennessee River and Mobile, Alabama. The $2 billion dollar transportation project has become an engine for economic development providing a safe, reliable, and cost effective means of transportation. It has also become an important asset for industrial recruitment and attraction, supporting $8.1 billion in annual economic output.

The ports along the Tenn-Tom have diversified from their traditional role of moving cargo to becoming economic development entities themselves. They are developing their industrial properties and working closely with local, regional, and state economic development organizations. The Port of Columbus, working with the Golden Triangle regional economic development organization in Columbus, MS, is a successful example of a river port's new role.

The port director founded accounting and worked with the Golden Triangle Development LLC economic development organization to connect/create with potential prospects interested in locating at the port. The companies attracted to the area include a Chemical steel mill and factories making automotive and aerospace products. In total, the Golden Triangle region has brought in more $6 billion in capital investment over the past decade, creating some 6,000 new jobs in a concentrated, poor region. The result is that the Columbus metropolitan statistical area has moved from number 374 in 2001 to the number 24 top-ranked region in the nation according to the 2015 Milken economic strength rankings.

In order to better leverage river ports as economic development assets, the Mississippi Department of Transportation (MDOT) commissioned the Mississippi Ports Needs and Marketing Assessment. The project included a two-day Mississippi Port Director Economic Development Workshop that brought together the state's 16 port directors, their local economic developers, and the state economic development organization. The report and workshopping session found that:

- Ports need to conduct collaborative economic development planning with their respective economic development organizations;
- Economic development incentives need to be adjusted to better encourage port related economic development;
- As part of an economic development marketing effort, ports need to develop and take advantage of their websites;

[56] This case study was graciously provided by Chad R. Miller Ph.D, Associate Professor of Economic Development, Tourism, & Sports Management at the College of Business, University of Southern Mississippi

- Ports and economic developers need to be better prepared to respond to RFIs on port related projects;
- Port authority and commission board members need to be educated on economic development; and
- Ports need help with developing more waterfront property.

Building on this effort, the Tennessee-Tombigbee Waterway Development Authority is now in the process of developing and implementing a strategic initiative that leverages the Tennessee-Tombigbee Waterway's recent successes to secure and enhance the waterway's role as a connection in future regional economic development. The program has four elements: awareness, administrative reforms, advocacy, and action. It will build on existing research and include charrettes, key informant interviews, staffing from universities, and the development of a strategic action plan. The two-year strategic initiative will both solidify the Tenn-Tom's availability and value as a regional transportation asset and lead to its broader use. This, in turn, will contribute to the region's attainment of forward-looking economic goals.

Partially as a result of the continuing economic growth in the Mid-South, waterborne commerce on the Tenn-Tom has recovered faster than on other segments of the inland navigation system. Further, this pattern of Tenn-Tom traffic growth will likely be reinforced by underlying economic changes including natural gas-led increases in chemical and plastics production and a redistribution of international freight flows attributable to the Panama Canal expansion. The key will be for the multi-state economic team including economic developers, the waterway, departments of transportation, and community leaders to work together.

11 Crucial Challenges and Opportunities for American Infrastructure

Changing political priorities and the interplay of many actors, including private sector operators, the federal government, states, municipalities, and users, have shaped the present infrastructure system over the course of more than two centuries.

The American system was widely viewed for many decades as the best in the world; infrastructure facilitated the innovation and robust, diversified economic growth that made the United States one of the most prosperous countries. Today, a tenth of U.S. workers--more than 14 million people--are employed in constructing, designing, operating, and governing the country's infrastructure assets.[57] In some states, infrastructure plays an even greater role in directly supporting jobs and economic activity. In Tennessee, the freight industry accounts for 40 percent of state gross domestic product; in Maryland, port activities remit $204 million in revenues to state coffers.[58]

[57] Joseph Kane and Robert Puentes, "As Summer Construction Winds Down, Transportation Jobs Challenge Still Looms Large," *Brookings Metropolitan Infrastructure Initiative 157*, 2015.
[58] Coalition for America's Gateways and Trade Corridors, *Investment in Freight is...*, (Washington, DC: CAGTC), 2015.

For the United States to maintain a healthy and robust economy in the future, it will still need high-quality infrastructure. Yet the present system suffers several challenges that are already hurting economic growth and unnecessarily raising expenses for American companies. These strains are listed in the following table.

	Challenges for Infrastructure	Opportunities for Economic Developers
1.	American Demographics and Cultural Values Are Changing, Creating Financing Pressures and Planning Challenges	Economic Developers Can Assist in Analyzing the Effect of Demographic Changes in their Communities
2.	Business Needs and Economic Conditions are Changing	As Representatives of Local Business, Economic Developers Can Communicate New Business Needs and Expectations for Infrastructure
3.	New Technologies Are Changing What is Possible in Infrastructure	Economic Developers Can Advocate for the Effective Adoption of New Technologies
4.	Financing Mechanisms for Infrastructure are the Legacy of Past Policy Environments, and are not Always Appropriate for Today's Conditions	Economic Developers Can Advocate for Sustainable Financing and Assisting in Adopting New Financing Mechanisms
5.	Infrastructure Planning, Prioritization, and Implementation Do Not Adequately Consider Economic Development Needs and Outcomes	By Participating in Infrastructure Planning, Economic Developers Can Ensure that Decision-making Takes into Account Business Needs
6.	Infrastructure Systems are Becoming Increasingly Congested, Costing the Economy Billions in Waste	Economic Developers Can Advocate for Informed and Innovative Solutions to Congestion
7.	Many Infrastructure Assets are Not Adequately Maintained	Economic Developers Can Present a New Narrative to Justify Maintenance Expenditures
8.	Infrastructure Systems are Contributing to Ecological Distress	Economic Developers Can Cooperate to Institute Proactive Sustainability Initiatives that Attract Business, Talent Workers, and Tourists
9.	Patterns of Infrastructure Deployment Can Contribute to Inequality	Economic Developers can Promote Economic Opportunity for Disadvantaged Populations Through Wise Infrastructure Investments
10.	Infrastructure Security is Threatened by	Economic Developers Can Advocate for Secure,

	Human and Natural Disasters	Resilient Infrastructure
11.	U.S. Infrastructure Funding is Falling Behind That of Other Countries, Putting U.S. Regions and Companies at a Competitive Disadvantage	Economic Developers Can Highlight the Competitiveness Consequences for U.S. Businesses and Regions

Table 1. 11 crucial challenges and opportunities for American infrastructure.

The challenges presented above are posing serious strain to American infrastructure, and by extension, to the continued prosperity of American regions. Yet economic developers also are have opportunities to help solve these problems. Economic developers can:

- Participate in local, regional, and state infrastructure planning.
- Educate community leaders on the importance of infrastructure to competitiveness.
- Take action on these challenges by working with lawmakers and business leaders
- Analyze how national challenges will manifest themselves in their communities.
- Support financing of infrastructure construction and maintenance at both local and state levels.

1. American Demographics and Cultural Values Are Changing, Creating Financing Pressures and Planning Challenges

The U.S. is undergoing significant demographic, economic, and technological changes, all of which are affecting demand for infrastructure (Figure 3).

Demographic changes that are affecting the operation and planning of infrastructure systems:

- The U.S. population is growing, but growth is spatially uneven;
- Household size is declining;
- The population is aging; and
- Millennials have become the largest generation.

The U.S. population is projected to increase to 399 million by 2050.[59] However, population growth is occurring in spatially uneven ways. Some areas are growing rapidly, many are growing close to the national average, and others are declining. The discrepancies in growth between American regions are stark. For instance, the population of the Western states is growing about four times faster than the Northeast.[60] About half of U.S. counties are losing population.[61] The growth rate of metropolitan regions across the

[59] U.S. Census Bureau, "2014 National Population Projections." Retrieved October 15, 2015.

[60] Robert W. Burchell, George Lowenstein, William R. Dolphin, Katherine C. Galley, Anthony Downs, Samuel Seskin, Katherine Gray Still, and Terry Moore, "Costs of Sprawl: 2000," *Transit Cooperative Research Program Report 74*, (Washington, DC: National Academy Press), 2002.

[61] Rebecca Tippett, "Nationwide, Majority of Counties Have Lost Population Since 2010," UNC Carolina Population Center. Retrieved December 2, 2015.

country ranges from negative 1.5 percent to nearly 5 percent per year. Today, the growth rate of a third of the United States' central cities exceeds that of their metropolitan areas, reversing a longstanding trend.[62]

Economic developers in high-growth regions face the challenge of meeting short demand for new infrastructure systems in such a way that they create an infrastructure system that is, in the long-term, functionally coherent and financially sustainable. They must plan for growth, without inadvertently introducing measures that hamper community prosperity.

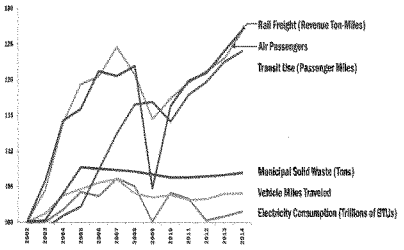


Figure 3. Growth in use of infrastructure since 2002 (2002=100).[63] Consumption for some forms of infrastructure has grown steadily since 2002, while for some others, demand has stagnated.

Areas with a declining population face a wholly different challenge. These locales face financial pressures as about $400 billion in state and federal spending, including many infrastructure programs, is allocated according to population.[64] Declining populations and cost pressures render some facilities obsolete or unnecessary, yet the uncoordinated patterns of depopulation, coupled with the understandable resistance of long-time residents, often frustrate efforts to save funds by retiring them, a process sometimes called 'right-sizing.'

Various other demographic changes are also influencing how infrastructure is used. The population, on average, has aged, and the number of retired persons has increased dramatically. In some locales, this has reduced the amount of rush-hour traffic and increased demand for greater mass transit and active transportation options. Additionally, household size is declining—resulting in less infrastructure capacity demanded per household but also less revenue generation. Finally, the millennial generation has grown. This generation is notable for demanding a greater amount of active transportation and mass transit options than past generations. Americans today believe the nation should give greater priority to walking, cycling, and transit in transportation funding than it has before.[65]

Economic Developers Can Assist in Analyzing the Effect of Demographic Changes in their Communities

Demographic change is occurring across the United States, but it affects each community differently. Economic developers can play an important role in adapting to demographic change by assisting in analyzing

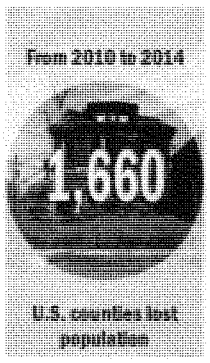
[62] Jordan Weissman, "Austin, Texas, Is Blowing Away Every Other Big City in Population Growth," *Slate*, May 15, 2015.
[63] Bureau of Transportation Statistics; Department of Energy; Federal Aviation Administration.
[64] The Diane Rehm Show, "America's Shrinking Cities," March 28, 2011.
[65] Dutzik and Weissman, Who Pays for Roads?

how it will affect their community's infrastructure demand and by advocating for effective, locally-driven solutions.

For instance, in regions with declining populations, economic developers have been at the forefront in advocating for fiscally responsible solutions to depopulation that preserve infrastructure that is critical for business development while saving local governments money by optimizing existing assets and decommissioning obsolete roads, sewers, and other structures in a process of "right-sizing." The chief planner of one depopulating city explained of his city's right-sizing, "You could call it declining gracefully but I like to think of it more as looking to be competitive and having the potential for growth in the future."[66]

2. Business Needs and Economic Conditions are Changing

Changes in business operations are likewise shifting demand for infrastructure. These trends include:



- Global trade has increased significantly and American firms now do much business abroad. Seaports, airports, and land crossings are today handling twice as much trade shipment volume as 10 years ago; analysts project that trade will double again in the coming decade.
- Business travel continues to increase, placing greater strain on airports and passenger rail.
- Electronic commerce and cloud computing have become central to many business operations, placing greater demands on cellular and broadband networks.
- Domestic energy production has skyrocketed, increasing the use of pipelines and rail tankers for transport as well as refineries; decreased natural gas costs for electricity production; and decreased marine petroleum shipping.
- An increasing number of manufacturing and retail companies rely on just-in-time delivery, placing greater strain on highways and air freight systems.
- Businesses are increasingly concerned about environmental sustainability and have invested in energy conservation, green energy, active transportation, and other technologies and services.

As Representatives of Local Business, Economic Developers Can Communicate New Business Needs and Expectations for Infrastructure

Economic developers are well-placed to analyze changing business needs for infrastructure, as they are in contact with local business representatives on a daily basis. Economic developers can determine the infrastructure assets and investments that are most needed to help existing and target businesses thrive and communicate these needs to policymakers. In some cases, economic developers may be able to leverage business trends to attract new investment. For example, Salt Lake City has used growing corporate interest

[66] Christopher Swope, "Smart Decline," Governing the States and Localities, November, 2008.

in transit-accessible locations to spur economic development. Adobe, eBay, and Goldman Sachs have all made location decisions that take advantage of the city's light rail and commuter rail stations.[67]

3. New Technologies Are Changing What is Possible in Infrastructure

The last decade has seen the emergence of a wide spectrum of technological changes that affect infrastructure use, including:

- Ride-hailing applications and car-sharing services are revolutionizing urban transportation, decreasing transport costs and reducing the need for car ownership.
- Dedicated bicycle lanes and bicycle sharing systems have increased the use of bicycles for commuting.
- Natural gas, electric, and hydrogen vehicles are an increasing part of the U.S. fleet, yet they require specialized charging/filling infrastructure.
- Bus rapid transit systems have gained currency as viable, low-cost alternatives to costly subway and light rail systems.
- Solar panels, geothermal pumps, and wind turbines have become more efficient and prices have also declined.
- Smart water and electric meters help consumers reduce their consumption of infrastructure services, while also allowing for decentralized production.
- The use of big data analytics has helped infrastructure planners to better understand usage patterns and make better real-time supply decisions.

Economic Developers Can Advocate for the Effective Adoption of New Technologies

These technologies could potentially reduce government costs for infrastructure provision while at the same time unlocking many new business opportunities. Yet, antiquated regulations in some jurisdictions forbid the adoption of these technologies. Many have not been deployed to their full potential because of a lack of funding. Economic developers should promote awareness of the potential benefits of these technologies. In some cases, economic developers may be able to access financing to develop these technologies in their communities. Economic developers should also stay aware of today's emerging technologies, such as unmanned aircraft and driverless cars.

4. Financing Mechanisms for Infrastructure are the Legacy of Past Policy Environments, and are not Always Appropriate for Today's Conditions

Economic, social, technological, and political trends are changing America's demand for infrastructure. Yet the mechanisms by which infrastructure is financed often remain tied to past realities. In some cases, this has led to lost opportunities to generate improvements in efficiency and productivity; in other cases, obsolete financing mechanisms are leading to underinvestment in the system, which reduces its efficiency.

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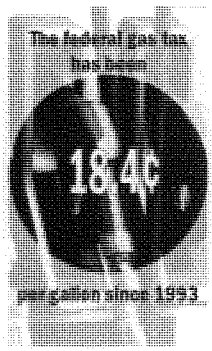
[67] Siemens, "Infrastructure Week: Siemens Study Links Intelligent Infrastructure Investment of Economic Development and Job Creation," [Press Release], May 11, 2015.

Public spending from all levels of government on infrastructure maintenance, optimization, and expansion was about $150 billion per year in 2011, of which the federal share was $68 billion.[68] However, public infrastructure spending is declining; from 2003 to 2012, public spending dropped about 10 percent.[69] Economist Larry Summers has recently determined that current federal infrastructure spending is only equal to depreciation.[70] The main financiers of infrastructure in this country, local governments, have likewise cut infrastructure spending since the Great Recession. Many local governments, facing layoffs to teachers or police, have axed new road and pipe projects and closed existing facilities, from fire stations to street lights.[71]



For many years, a defining principle of American infrastructure policy was that users should pay for the infrastructure they consumed. User fees are considered the most efficient way to pay for infrastructure, which allocate infrastructure capacity to the users who are able to create the most economic value from it, while discouraging waste. User fees recover the cost of providing an infrastructure service, as well as expansion, maintenance, and renovation costs.[72]

For many years, the cost of building and maintaining highways, bridges, and tunnels was covered by federal and state gasoline taxes (a user fee), yet the federal gasoline tax per gallon has been frozen since 1993, and many state tax rates have remained constant or even declined.[73] In the interim, however, administration, labor, and materials costs have risen, and vehicles have become significantly more fuel-efficient, a trend exacerbated by the increasing share of hybrid, natural gas, and electric vehicles on the roads.[74] Federal and state gasoline tax revenues have accordingly declined significantly.

User fees for other infrastructure systems are likewise frozen below the amount necessary to fund both operations and capital projects. A third of water utilities do not recover enough in fees to operate sufficiently.[75] Transit fares cover only 45 percent of day-to-day operations costs.[76]

When user fees do not cover the full costs of infrastructure:

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[68] Kahn and Levinson, *Fix It First*.

[69] CAGTC, *Investment in Freight is...*.

[70] David Wessel, "Spending on Our Crumbling Infrastructure," *Wall Street Journal*, March 10, 2015.

[71] Gregory Ingram and Anthony Flint, "Cities and Infrastructure: A Rough Road Ahead," *Lincoln Institute Land Lines, July*, 2011.

[72] Donald N. Dewees, "Pricing Municipal Services, The Economics of User Fees," *Canadian Tax Journal*, *50* (2), 2002.

[73] BAFED, *Falling Apart and Falling Behind*.

[74] Chris Mooney, "The Gas Tax Has Been Fixed at 18 Cents for Two Decades," *Washington Post*, December 13, 2014.

[75] Patricia A. Dalton, *Physical Infrastructure: Challenges of Investment Options for the Nation's Infrastructure*, (Washington, DC: U.S. Government Accountability Office), 2008.

[76] Neil Pedaliona, "The Unique Genius of Hong Kong's Public Transportation System," The Atlantic, September 18, 2013.

- Price signals are not available to business as to true costs, which can promote wasteful use of resources.
- Governments may have to provide "bail-outs" of general revenues to fund operations, maintenance, or expansion.
- Non-users and occasional users provide an implicit subsidy for heavy infrastructure consumers.[77]
- Private companies will be uninterested in participating in P3s where revenues are insufficient to cover costs.
- Uncertainty about operations quality and project timelines may suspend business investment.
- Funding shortfalls may suspend needed maintenance and expansion projects, resulting in asset deterioration, delays, and congestion.

According to the American Society of Civil Engineers (ASCE), the total gap between anticipated funding and projected finance needs will reach $1.6 trillion by 2020 and $5 trillion by 2040.[78]

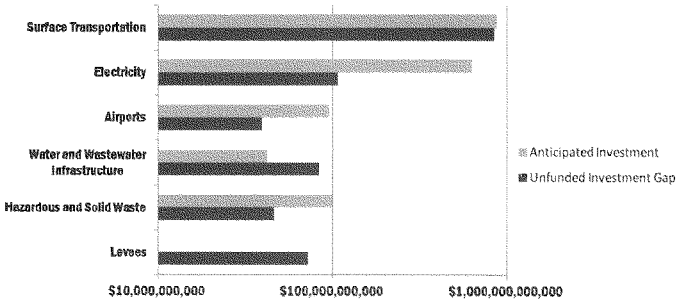

Figure 4. Anticipated future investment and unfunded investment needs for various infrastructure, according the American Society of Civil Engineers (logarithmic scale).[79]

Economic Developers Can Advocate for Sustainable Financing

Obsolete funding mechanisms present a serious impediment to maintaining a modern, efficient infrastructure system. First and foremost, economic developers must communicate to federal, state, and local, policymakers the urgent need for sustainable, sufficient funding for infrastructure projects that are critical to economic development. Economic developers should emphasize that investment in infrastructure increases gross domestic product, employment, and tax revenues.

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[77] Pamela Blais, *Perverse Cities: Hidden Subsidies, Wonky Policy, and Urban Sprawl*, (Vancouver, BC: UBC Press), 2010.
[78] EDRG, *Failure to Act*.
[79] [illegible]

Additionally, economic development professionals can advocate for increased user fees that cover operating and capital costs. Organizations across the political spectrum, including the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) and the U.S. Chamber of Commerce have voiced support for increasing gasoline taxes.[81] Many states, including Georgia, Michigan, South Dakota, Utah, and Washington have raised their gasoline taxes, while Oregon is experimenting with a fee based on mileage rather than fuel consumption.[82] Other states and localities have imposed tolls on existing roads as a revenue source. Congestion tolls, parking pricing, and pollution-based charges, which function similarly to user fees, also are promising interventions.[83]

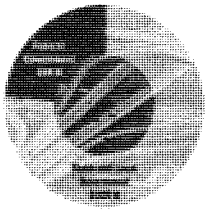

Figure 5. State and local government spending (capital, maintenance, and operations) in 2014 for water and transportation infrastructure, the largest components of infrastructure expenditure. [80]

Economic developers can also work with local planning officials to develop alternative financing. They should collaborate with local governments to access federal and state funding, such as grants and loans that are available from the U.S. Department of Transportation, the Economic Development Administration, and other federal agencies.

Many states and localities have also taken advantage of the low interest rates prevalent since the Great Recession to issue debt to finance infrastructure. The new Tappan Zee Bridge in New York, for instance, was financed by $2.4 billion in debt issued by the New York Thruway Authority.[84] However, proposals have been made to limit tax exemptions for municipal bonds, which would severely limit the use of this tool.

Thirty-three states have already entered into various sorts of public-private partnership, including extending credit assistance to private conglomerates that construct infrastructure.[85] Other states and localities participate in infrastructure banks and exchanges. Yet, in some cases, policy restricts the possibilities of entering into these arrangements.

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[80] Nathan Musick and Amy Petz, *Public Spending on Transportation and Water Infrastructure, 1956 to 2014*, (Washington, DC: Congressional Budget Office), 2015.

[81] Steve Kroft, James Jacoby, Michael Karzis, and Maria Gavrilovic, "Falling Apart: America's Neglected Infrastructure," *60 Minutes*, November 23, 2014.

[82] Carl Davis, "Nine States and Counting Have Raised the Gas Tax Since 2013," Institute on Taxation and Economic Policy. Retrieved December 4, 2015.

[83] Tony Dutzik and Gideon Weissman, *Who Pays for Roads? How the "Users Pay" Myth Gets in the Way of Solving America's Transportation Problems*, (Frontier Group/ U.S. PIRG Education Fund), 2015.

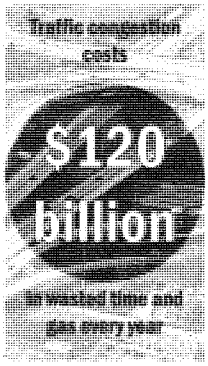
[84] Hornak, "Crisis in America."

[85] Allison Schrager, "The Short-Term Thinking Behind America's Infrastructure Crisis," *Bloomberg Businessweek*, October 14, 2014.

5. Infrastructure Planning, Prioritization, and Implementation Do Not Adequately Consider Economic Development Needs and Outcomes

Not only are funds for infrastructure in short supply, but critics also argue that available funds are not allocated for maximum economic benefit.

Many jurisdictions do not prepare comprehensive infrastructure plans; frequently, there is little coordination between the various levels of government, including special authorities and agencies. This is discussed further in ""The Infrastructure Planning Process" section in this paper. Funding for infrastructure is often based on population-based formulas rather than economic need. Older funding programs may have antiquated stipulations about design, financing, and delivery, stifling innovation.[86] Funding streams are often directed toward new capital construction even though maintenance, rehabilitation, and safety upgrade projects often have equal or greater economic merit.



The process of planning and prioritizing projects often lacks accountability or transparency. The planning of some projects becomes politicized, frustrating careful analysis of the business case for investments. This can lead to the approval of projects of limited economic value. Projects are often designed to reduce short-term public costs, rather than to maximize long-term economic development potential.

As a result, many projects lack stakeholder buy-in; "Not-In-My-Backyard" sentiment can slow or stifle the implementation of economically beneficial, job-creating infrastructure projects. Environmental review processes are extremely long - the average review takes more than eight years. Critics contend that the process could be streamlined while ensuring protection of critical environmental resources.[87]

Once projects are approved, the use of least-cost contracting without adequate protections can lead to cost overruns, as contractors underbid in order to win projects. This leaves the public-sector responsible for overruns when projects exceed budgets and timelines. Life-cycle costs, and environmental impacts are frequently ignored in project costing. Also, it is often unclear who is responsible for ensuring proper use of funds and effective project implementation. Public-private partnerships, discussed in the 'Public-Private Partnerships: Changing the Way Infrastructure is Funded' section, are one way to mitigate cost overruns and ensure on-time project delivery.

As a result of these planning and prioritization challenges:

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[86] BAFED, *Falling Apart and Falling Behind;* Kahn and Levinson, *Fix It First*.

[87] Petra Todorovich and Daniel Schned, *Getting Infrastructure Going: Expediting the Environmental Review Process*, New York: Regional Plan Association, 2011.

- Projects of significant economic development merit may be delayed, suspended, or even cancelled, posing significant costs from increased congestion and lost economic opportunities.
- Maintenance projects, many with higher cost-benefit ratios than expansion, are frequently deferred.[88]
- Projects sometimes exceed public budgets and stipulated timelines.
- Projects are planned and designed without regard for economic development; infrastructure fails to maximize productivity and quality-of-life enhancements.

By Participating in Infrastructure Planning, Economic Developers Can Ensure that Decision-making Takes into Account Business Needs

Planning and prioritizations of infrastructure should take into account projects' local and regional economic merit. With expertise in economic modeling, economic developers can help engineers and planners to conduct more rigorous cost-benefit-based project prioritization. Economic developers can also advocate for planning and finance reforms, such as streamlining environmental reviews and allowing innovation in project delivery. Additionally, economic developers can play a brokerage role, helping to better coordinate infrastructure planning and finance at the local, regional, and state levels.

6. Infrastructure Systems are Becoming Increasingly Congested, Costing the Economy Billions in Waste

Rising demand for some types of transportation infrastructure has not been complemented by adequate management and investment to expand or optimize existing capacity, leading to congestion. Declining fuel prices, growing wealth, and population growth are all contributing to infrastructure congestion as well.[89]

Congestion is present in many infrastructure systems. Americans spend an estimated 5.5 billion hours in road traffic each year.[90] In 2009, 21 percent of domestic flights were delayed, canceled, or diverted.[91] Significant congestion is expected to worsen at America's busiest airports, where passenger growth is outpacing the national average.[92]

Congestion imposes high costs on both infrastructure users and on the economy as a whole, including lost time, wasted fuel, more accidents, worsened air quality, shipping delays, and higher consumer prices.[93] Businesses also incur costs for more carried inventory as well as supply chain management, which consume resources that could be better used for product research and investment in equipment and plants. The

[88] Musick and Petz, *Public Spending, 1956 to 2014*; Kahn and Levinson, *Fix It First*.

[89] Centre for Economics and Business Research, *The Future Economic and Environmental Costs of Gridlock in 2030*, (London: CEBR), 2014.

[90] J.D. Harrison, "Labor Day Logjam: Five Facts to Keep in Mind as You Hit the Road," *U.S. Chamber of Commerce Above the Fold*, August 31, 2015.

[91] Susan Fleming, *National Aerospace System*, (Washington, DC: United States Government Accountability Office), 2010.

[92] EDRG, *Failure to Act*.

[93] NEC and CEA, *Transportation Infrastructure Investment*.

social cost of airport congestion and delays amounted to $22 billion per year in 2012.[94] According to one consultancy, the costs of road traffic congestion will exceed $180 billion by 2030.[95]

Economic Developers Can Advocate for Informed and Innovative Solutions to Congestion

Economic developers can communicate the high economic costs of congestion to state and federal policymakers while advocating effective solutions that advance economic development. Expanding capacity of existing assets and building new assets are commonly used solutions to solving congestion, but it is important to be aware that building new capacity is not always the most cost-effective solution. Economic developers can equally promote other effective solutions to congestion, such as:

- Promoting infrastructure conservation, such as by offering incentives to users who reduce energy consumption, produce less garbage, or carpool.
- Developing assets that complement congested networks. For instance, transit systems can ease congestion on roadways; small-scale green power installations can reduce strains on the grid.
- Using congestion pricing to smooth usage peaks, ensuring a more economically efficient allocation of existing capacity.

Congestion pricing helps to ensure that the users who derive the most value from infrastructure—often, businesses—are able to access it when they need it, while providing an incentive for others to shift their consumption to lower demand periods, all of which reduces the need for costly capital outlays on new capacity.[96] California, Texas, Minnesota, Florida, and Virginia, all have dynamic toll roads, which set tolls according to real-time traffic conditions.[97] Some states and localities also use congestion pricing for transit, electricity, water, and solid waste disposal. Congestion pricing can be controversial, as it may initially appears to be a business expense; however, it provides a revenue stream that covers infrastructure costs while providing free-flowing, fully-functioning infrastructure when businesses need it, a benefit that usually far exceeds the congestion price.

7. Many Infrastructure Assets are Not Adequately Maintained

Although each infrastructure system has its own attributes and unique challenges, many of America's bridges, pipes, pavement, and dams are poorly maintained as a result of:

- The old age of many assets, which are approaching the end of their intended service lives;[98]
- Rising costs for labor and construction materials, including steel and cement, rises which have outpaced general inflation;[99]

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[94] ASCE, *2013 Report Card*.

[95] CEBR, *Gridlock in 2030*.

[96] Kahn and Levinson, *Fix It First*.

[97] Federal Highway Administration, "Toll Facilities in the United States." Retrieved October 13, 2015.

[98] Dennis Mileti, *Disasters by Design: A Reassessment of Natural Hazards in the United States*, (Washington, DC: Joseph Henry Press), 1999.

[99] Munnell and Pair, *Public Spending, 1950 to 2014*.

- Obsolete funding mechanisms, such as programs that pay only for new capacity and ignore future life-cycle costs in project review;
- Little public awareness of the economic consequences of deferring maintenance;[100]
- Budget cuts; and
- Over-emphasis in planning and budgeting of new construction at the expense of maintenance.

U.S. Chamber of Commerce President Tom Donohue comments, "Though America has one of the best [infrastructure] systems in the world, it is aging and in need of repair."[101] The American Society of Civil Engineers (ASCE) has since 1998 consistently rated American infrastructure as "near failing." According to their estimate, funding for maintenance is only 44 percent of what is needed to keep the system at its *current* level of maintenance—a shortfall of $110 billion per year.[102]

Many of America's infrastructure assets are severely deteriorated:

- In 2011, only 37 percent of the nation's roads were ranked as good or excellent.[103] States would need to spend three times their current expenditures for the next 20 years in order to upgrade the remaining roads to good condition.[104]
- Dozens of locks along major inland shipping routes, "the hidden backbone of our freight network," are between 50 and 100 years old and showing their age.[105]
- Intermodal freight facilities are in a dire state of maintenance.[106]
- The deferred maintenance of levees, which protect urban and agricultural areas, is estimated at $100 billion.[107]
- The American Water Works Association estimates that replacing the pipes in America's aging municipal waterworks will cost about $1 trillion in the coming years.[108]
- Capital expenditures in public transit must increase by 41 percent simply to maintain transit systems at their current level of operations.[109]

[100] Kahn and Levinson, *Fix It First*.

[101] J.D. Harrison, "A Small Business, A Symbolic Bridge, and a National Transportation Crisis," *U.S. Chamber of Commerce Above the Fold*, June 19, 2015.

[102] ASCE, *2013 Report Card*.

[103] Smart Growth America and Taxpayers for Common Sense, *Repair Priorities 2014*, (Washington, DC: SGA), 2014.

[104] SGA and TCS, *Repair Priorities 2014*.

[105] BAFED, *Falling Apart and Falling Behind*.

[106] Coalition for America's Gateways and Trade Corridors, *CAGTC Reauthorization Platform*, (Washington, DC: CAGTC), 2014.

[107] ASCE, *2013 Report Card*.

[108] John Cromwell and Bob Raucher, *Buried No Longer: Confronting America's Water Infrastructure Challenge*, (Washington, DC: American Water Works Association), 2014.

- Some 4,000 dams are structurally deficient.
- Ten percent of the nation's road bridges are ranked by the Federal Highway Administration (FHWA) as "structurally deficient," meaning that the superstructure, substructure, or bridge deck has major defects.[111] Across the country, more than 60,000 bridges have weight restrictions.[112] The Department of Transportation estimates that $115 billion is needed to fix deficient bridges.[113]

The simultaneous degradation of multiple infrastructure systems compounds these negative effects because the performance of infrastructure systems is intertwined. For instance, the effective operation of the electrical system depends on water systems for cooling and steam generation; telecommunications for grid management; rail, pipelines, and roads for fuel delivery; and waste management systems to remove generation by-products, so poor performance in any one of these systems can in turn affect the quality of electrical production.[114]

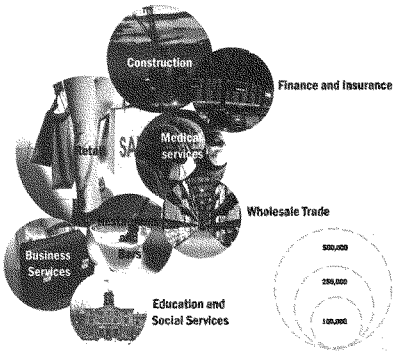

Figure 6. Estimated job losses to 2020 by industry sector as a result of degraded infrastructure, according to the American Society of Civil Engineers.[110]

One highly-cited report states, "Because this deterioration has been diffused throughout the nation, and has occurred gradually over time, its true costs and economic impacts have not always been immediately apparent."[115] Yet the economic effects of poor maintenance of roads, sewers, and energy facilities are manifold:

- Potholes, leaks, and other hazards jeopardize safety;
- Detours, breakdowns, and closures waste fuel and time and add to congestion;
- The risk of catastrophic infrastructure failure is heightened; and
- The future public burden of repair and rehabilitation is worsened.

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[109] Elmer and Leigland, *Infrastructure Planning and Finance*.
[110] EDRG, *Failure to Act*.
[111] Federal Highway Administration, "Deficient Bridges by State and Highway System." Retrieved October 13, 2015.
[112] Ashley Halsey III, "Bad Bridges Have Hidden Cost," *Washington Post*, June 19, 2013.
[113] Harrison, "A Small Business, A Symbolic Bridge."
[114] EDRG, *Failure to Act*.
[115] EDRG, *Failure to Act*.

According to one study, deficiencies in surface transportation alone cost households and businesses $130 billion per year, or $28,000 per household from 2012 to 2020.[116] Another study estimates that congestion, inconvenience, and accidents combine to bring the economic cost of deferred maintenance to $3.1 trillion in lost output, $1.1 trillion in lost trade, and 3.5 million lost jobs.[117]

As maintenance is neglected, the performance of infrastructure systems declines, exemplified by potholes, leaks, communications outages, and brownouts. These hazards can damage vehicles and business equipment; contribute to environmental degradation; and cause accidents that lead to costly hospital visits and missed work days. Businesses, governments, and workers bear the consequent costs of repair as well as higher insurance premiums. One estimate suggests that more than 3 million jobs would be created by 2020 if infrastructure were universally well-maintained (Figure 6).[118]

In more grievous cases, infrastructure assets must be partially or entirely closed to protect user safety and perform emergency repairs. Closures can add to already troublesome delays and congestion. For instance, bridge weight restrictions force trucks, which carry about two-thirds of the nation's freight by weight, to take long detours, adding to fuel, labor, and logistics management costs.[119] Water quality issues can cause production delays at businesses, such as pharmaceutical manufacturers and food processors, that rely on water systems. Unreliable electricity service can impel firms in energy-intensive industries, such as steel and cement production, to install costly backup generators and batteries. Highway closures and transit breakdowns can even prevent employees from reaching their jobsites, impacting productivity. When infrastructure is unreliable—or perceived to be unreliable—it can deter business investment and job creation.

In the most grievous cases, the protracted deterioration of an infrastructure asset leads to catastrophic failure. The effects of an infrastructure collapse—such as a sinkhole, bridge collapse, levee break, sewage system failure, dam collapse, blackout or burst pipeline--reverberate through a regional economy, causing property damage and injury; preventing workers and shipments from getting to their destinations; and causing environmental damage. Given the interconnectedness of infrastructure systems, the economic impacts of infrastructure failure will ripple far beyond the confines of the community where the failure occurs. The economic toll of one recent bridge collapse to a state economy, for example, was estimated at $60 million in lost output.[120] In the long-term, these harm communities' reputations, deterring tourism and hampering business retention and attraction efforts.

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[116] EDRG, *Failure to Act*.

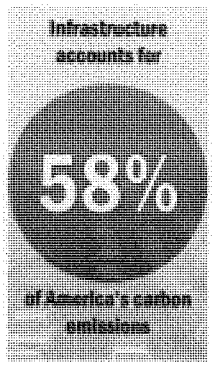
[117] Brian Pallasch and Janet Kavinosky, "America's Infrastructure Crisis Isn't Overstated," *Eno Brief Newsletter*, 2013.

[118] EDRG, *Failure to Act*.

[119] TRIP, *New Jersey Transportation by the Numbers: Meeting the State's Need for Safe and Efficient Mobility*, (Washington, DC: TRIP), 2015.

[120] Minnesota Department of Employment and Economic Development, *Economic Impacts of the I-35 Bridge Collapse*, (St. Paul, MN: DEED).

When preventative maintenance investments are deferred, the costs are disproportionately increased in the future, when costly emergency repairs and closures will be needed. Major rehabilitation projects after years of neglect are expensive and can take years to plan and execute.[121] Cities and states have struggled to pay for emergency repairs, sometimes ordered by state or federal government. The crushing burden of emergency maintenance has contributed to a string of recent municipal bankruptcies.[122]



Economic Developers Can Present a New Narrative to Justify Maintenance Expenditures

One state study found that the economic benefits of clearing the backlog of deferred maintenance on its roads—such as improved safety and freer traffic flow--would exceed costs by six times.[123] Additionally, infrastructure investment today would avert the risks of catastrophic infrastructure failure and severe fiscal strains in the future. Moreover, every dollar spent today on preventative maintenance saves four to 10 dollars in the future on rehabilitation.[124] Harvard professor Rosabeth Kanter argues that leaders should present a new narrative about why investment is needed to rehabilitate the nation's infrastructure. Economic developers are well-positioned to present such a narrative—that rehabilitating decaying infrastructure assets would benefit businesses immediately and ensure long-term economic sustainability.

8. Infrastructure Systems are Contributing to Ecological Distress

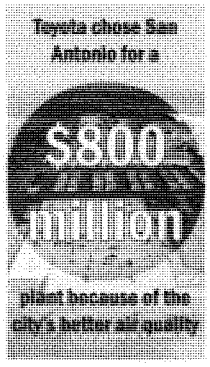
Much of today's infrastructure system was designed and planned in previous eras, with less regard for environmental outcomes. As a result, the infrastructure system in the United States is the cause of environmental problems, including:

- Loss of natural lands;
- Water pollution and shortage; and
- Air pollution.

The way that infrastructure has been planned and financed has contributed to the prevalence of low-density development, which consumes large amounts of productive agricultural land and has destroyed millions of acres of forests and wetlands that are home to wildlife. American governments spend more on roads today than all other forms of transportation combined, contributing to this low-density land use pattern. Road and

[121] Texas 2030 Committee, *It's About Time: Investing in Transportation to Keep Texas Economically Competitive*, (College Station, TX: Texas 2030 Committee), 2011.
[122] White, "Lessons from American History"; Wayne H. Winegarden, *Going Broke One City at a Time: Municipal Bankruptcies in America* (San Francisco: Pacific Research Institute), 2014.
[123] Texas 2030, *It's About Time.*
[124] Kaiser and Lindman, *Pick it First.*

highway spending account for a third of all construction—including private real estate construction—in the United States.[125] Similarly, user fees for sewage and electricity often do not take into account built density, despite the higher costs of servicing more sparsely populated areas. The loss of valuable natural areas, vistas, and wildlife can jeopardize nature-based tourism as well as frustrate efforts to attract skilled workers who value natural environments.



Current U.S. infrastructure consumption patterns also contribute to water shortage and pollution. Each day, 1,100 gallons of water per capita—four times the rate of Germany and the United Kingdom— are drawn from the nation's lakes, rivers, and aquifers for human consumption, industry, and agriculture.[126] Large movements of water through aqueducts and irrigation canals are contributing to unprecedented water shortages. At the same time, the country's sanitary sewer systems regularly discharge untreated sewage overflows into watercourses; a third of U.S. surface waters are now polluted.[127] Water shortage and pollution harm water-dependent industrial sectors including fisheries, agriculture, brewing, cement production, and electrical power generation.[128]

Another consequence of the current design of America's infrastructure system is air pollution. A large share of electricity production and transportation are fuelled by combustion engines, which are the source of the particulate matter that causes smog. Smog causes health problems, such as lost business productivity from illness and premature death, which in 2002 exceeded $6 billion.[129] Companies may select locations with cleaner air to avoid federal oversight in smog-prone cities. Officials in San Antonio contend that their efforts to improve the city's air quality were a key factor in attracting a $900 million Toyota plant over a metropolitan area that faced Clean Air Act sanctions.[130]

Infrastructure systems are also a leading source of greenhouse gases. Fossil fuel combustion at power plants and in motor vehicles accounts for 58 percent of the country's emissions. The production of steel and cement used to build infrastructure are also major sources of industrial CO_2.[131] The emission of greenhouse gases is believed to cause more extreme weather patterns that disrupt business, as well as health problems

[125] Mike Maciag, "How State and Local Construction Dollars Are Spent," *Governing*, September 2, 2015.

[126] Central Intelligence Agency, "The World Factbook." Retrieved October 13, 2015.

[127] Elmer and Leigland, *Infrastructure Planning and Finance*.

[128] Myriam Alexander-Kearns, "Climate Change Threatens Electric Grid Reliability in the Southwest," *Center for American Progress*, August 21, 2015.

[129] K. Knowlton, M. Rotkin-Ellman et al. "Health Costs of Six Climate Change-Related Events in the United States, 2002-2009," *Health Affairs 30*(11), 2011, pp. 2167-2176.

[130] Jennifer Lee, "Clear Skies No More for Millions as Pollution Rule Expands," *New York Times*, April 13, 2004.

[131] United States Environmental Protection Agency, *U.S. Greenhouse Gas Inventory Report: 1990-2013*, (Washington, DC: EPA, [illegible]).

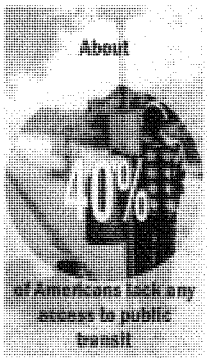
that force people out of the workforce across the country. Recent international accords may lead to new national and state legislation to reduce greenhouse gases. This legislation will likely favor lower emission communities, while causing significant government and business costs in areas where emissions are high.

Economic Developers Can Cooperate to Institute Proactive Sustainability Initiatives that Attract Business, Talent Workers, and Tourists

Current infrastructure policy and design contribute to a variety of ecological damages that depress and disrupt business activity. Economic developers have the opportunity to lead their communities' shift to more sustainable energy and transportation systems, such as solar power and bus rapid transit systems. In advocating and planning for sustainable infrastructure, economic developers may be able to avert short-term environmental damages, promote the development of green industries, attract businesses that strongly value sustainability, and proactively adjust to any future environmental legislation of stricter ecological impact standards. Economic developers may also be able to access new, specialized streams of finance for sustainable infrastructure projects.

9. Patterns of Infrastructure Deployment Can Contribute to Inequality

The pattern of infrastructure deployment can worsen income and racial inequality. Often, infrastructure worsens inequality by promoting investment in suburban locations at the expense of rural and inner city areas.[132] Inequality impacts from infrastructure investment patterns present themselves both at the individual and community level.



Americans need affordable sanitation, telecommunications, and transportation in order to participate in the labor market, yet many individuals lack access to these critical services.[133] Two million Americans lack access to clean water—including a significant portion of African Americans and Native Americans.[134] Half of Americans living in rural areas, tribal lands, and U.S. territories lack high-speed Internet access, an increasingly important asset for economic opportunity.[135] Most critically, infrastructure policies have encouraged automobile-dependent housing and business location, yet many Americans are physically unable to drive or unable to afford an automobile. According to the American Automobile Association, driving a car 30 miles to work each way each day costs about $12,000 per year--22 percent of the median annual household pre-tax

[132] Blais, *Perverse Cities.*

[133] César Calderón and Luis Servén, "Infrastructure, Growth, and Inequality," *World Bank Group Policy Research Working Paper 7034*, 2014.

[134] United Nations News Centre, "US Discriminates on Right to Safe Water and Sanitation, Says UN Expert." Retrieved December 1, 2015.

[135] Federal Communications Commission, *2015 Broadband Progress Report and Notice of Inquiry on Immediate Action to Accelerate Deployment*, Washington, D.C.: FCC, 2015.

income.[136]

Even in the regions where they exist, alternative modes of transportation, such as mass transit and bicycle sharing, are not always located or priced in ways that are accessible to the disadvantaged.[137] As a result, many Americans lack sufficient transportation access to jobs, which can lead to their working only part-time or dropping out of the labor force entirely. As many as 800,000 Americans have given up looking for work because they lack effective transportation.[138] Poor transportation can also frustrate access to other necessities for economic mobility, including healthcare, education, and a competitive choice of consumer goods, such as groceries.[139]

On a larger scale, states and localities with lower-than-average incomes are less able to raise adequate funds for infrastructure construction and maintenance. Lower income jurisdictions have also been more deleteriously affected by spending cuts during the Great Recession and as a result of subsequent fiscal austerity. Therefore, there is a significant disparity in the quality of infrastructure between wealthier states, cities, and counties and their poorer neighbors.[140] This disparity is worsening as communities with low-quality infrastructure lose anchor businesses and their associated sales, income, and property tax revenues.

Economic Developers can Promote Economic Opportunity for Disadvantaged Populations Through Wise Infrastructure Investments

At a macro level, studies find that increasing infrastructure spending reduces income inequality and reduces poverty.[141] Economic developers can advocate that inequality issues be considered in the planning of infrastructure investment, and recommend greater investment in accessible, affordable infrastructure to serve disadvantaged communities.[142] In particular, improving transportation options for disadvantaged Americans would increase economic opportunities for individuals, while deepening labor pools for U.S. businesses.

10. Infrastructure Security is Threatened by Human and Natural Disasters

The security of America's infrastructure is also threatened by the external threats of terrorism and natural disasters.

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[136] American Automobile Association, *Your Driving Costs*, (Washington, DC: AAA), 2015; Carmen DeNavas-Walt and Bernadette D. Proctor, *Income and Poverty in the United States: 2014*, (Washington, DC: U.S. Government Printing Office), 2015.

[137] Joel Rose, "Shifting Gears To Make Bike-Sharing More Accessible," *NPR Code Switch*, December 12, 2013.

[138] Bureau of Labor Force Statistics, "Persons Not in the Labor Force by Desire and Availability for Work, Age, and Sex." Retrieved December 1, 2015.

[139] Gillian B. White, "Stranded: How America's Failing Public Transportation Increases Inequality," *The Atlantic*, May 16, 2015.

[140] William Ascher and Corinne Krupp, eds. *Physical Infrastructure Development: Balancing the Growth, Equity, and Environmental Imperatives*, (New York: Palgrave Macmillan), 2010.

[141] Calderón and Servén, "Infrastructure, Growth, and Inequality."

[142] World Bank Group, *Strong, Sustainable and Balanced Growth: Enhancing the Impact of Infrastructure Investment on Growth and Employment*, (Washington, DC: World Bank), 2014.

In September 2001, the United States faced its worst terrorist attack. Beyond its immense human toll, the events of 9/11 exposed the vulnerability of the nation's air transportation system to terrorism, causing profound economic impacts including severe disruption of the airline industry and a long-lasting depression in tourism. While airport security has been strengthened in recent years, mass transit systems, bridges, power plants, and pipelines all remain potential targets for physical and electronic terrorism that could cause severe loss of life and protracted economic disruption through property damage, medical care costs, gridlock, reduced consumer confidence, higher insurance premiums, and lost earnings. As the post 9/11 slump in the tourism industry demonstrates, even the perceived risks of terrorist attacks can deter business activity.

Infrastructure assets are also vulnerable to natural disasters. Current trends of alteration in the Earth's climate are further threatening infrastructure systems, as dramatic meteorological events, including storm surges, floods, drought, wildfires, and heat waves, become more frequent and severe.[143] Many infrastructure assets are vulnerable to the effects of these events:

- Roads, railways, bridges, and installations such as power plants and sewage treatment plants are often located on coasts and riverbanks, where they are susceptible to damage from storm surges, hurricanes, and floods.
- Droughts and heat waves threaten the viability of water systems, many of which have been built assuming a minimum water level. The U.S. Department of Energy reports that climate change poses a serious risk to nuclear, coal, and natural gas power stations that rely on water for cooling.[144]
- Although some areas are more susceptible, wildfires, earthquakes, and winds threaten infrastructure assets across the country.

Damage or destruction of infrastructure assets during natural disasters can cause government and private operators billions in repair costs. Furthermore, disasters can result in outages of power, communications, and water to businesses, severely disrupting their activities by causing worker absences, business closures, production delays, and delayed shipments.[145]

Economic Developers Can Advocate for Secure, Resilient Infrastructure

As economic developers become increasingly involved in planning and financing infrastructure, they can raise awareness of the potential for significant economic disruptions from terrorism and natural disasters. Economic developers can advocate for:

- Resilient engineering standards that protect critical infrastructure from disaster damage;
- Improved security monitoring and risk analysis;
- Greater emergency resources;

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[143] Mileti, *Disasters by Design*.

[144] U.S. Department of Energy, *QER Report: Energy Transmission, Storage, and Distribution Infrastructure*, (Washington, DC: DOE), 2015.

[145] Patrick Reichenmiller, Andreas Spiegel, David Bresch, and Reto Schnarwiler, *Weathering Climate Change: Insurance Solutions for More Resilient Communities*, (Zurich: Swiss Re, 2013).

- Land use controls, special infrastructure assets (e.g. levees, tidal booms), and re-naturalization (e.g. wetland restoration, reforestation, artificial dunes) to protect adjacent infrastructure assets;[146]
- Planning for the reaction to any infrastructure disaster.

Economic developers may also work directly with business to create disaster plans in case of infrastructure damage and disruption. IEDC has completed extensive projects on disaster preparedness and recovery, including "Leadership in Times of Crisis: A Toolkit for Economic Recovery and Resiliency," which is available on IEDC's disaster resilience website www.restoreyoureconomy.org.

11. U.S. Infrastructure Funding is Falling Behind That of Other Countries, Putting U.S. Regions and Companies at a Competitive Disadvantage

While infrastructure funding at the federal, state, and local government levels and from the private sector in the United States has stagnated or even declined in recent years, other countries have increased their investment in infrastructure. Not only have national and regional governments and corporations in emerging economies, such as China, India, Brazil, and Russia invested significant sums in infrastructure, but so have the private and public sectors in mature economies, such as Japan, Germany, France, and Canada. In transportation funding, the largest component of overall infrastructure funding, the United States now lags nearly every other country in the Organisation for Economic Cooperation and Development group (Figure 7).

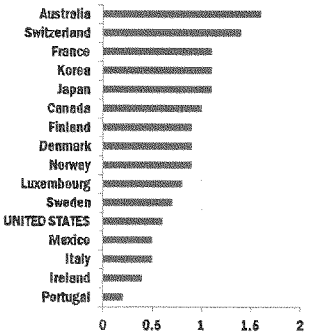


Figure 7. Spending on transportation infrastructure as a percent of gross domestic product in selected countries, 2013.[147]

On the surface, this means that private citizens and business abroad must pay either higher taxes or user fees to fund this increased spending. Yet, infrastructure is an *investment* whose costs are often significantly exceeded by its benefits. Where infrastructure expenditures are higher, the costs of infrastructure services usually are significantly lower, systems are more efficient, congestion is decreased, and the condition of infrastructure assets is higher, resulting in fewer breakdowns. Infrastructure spending abroad thus facilitates doing business abroad.

Relative underfunding puts U.S. regions and companies at a disadvantage in four distinct ways:

[146] Mileti, *Disasters by Design*.

[147] International Transport Forum, "Transportation Infrastructure Investment and Maintenance Spending." Retrieved January 11, 2016.

- Foreign businesses seeking to invest abroad may select other countries where infrastructure quality is better;
- American businesses may offshore critical business facilities to take advantage of superior infrastructure;
- Higher infrastructure service input costs contribute to higher prices for U.S. goods, placing them at a disadvantage in export markets; and
- Foreign imports may compete at a price or quality advantage in domestic markets, edging out American-made products.

All of these relative disadvantages can harm U.S. economic growth.

Economic Developers Can Highlight the Competitiveness Consequences for U.S. Businesses and Regions

Economic developers are uniquely placed in frequent contact with wide swaths of the business community, including importers, exporters, and investment prospects from abroad. As they collect both quantitative and anecdotal evidence of how U.S. underinvestment in infrastructure harms American regions and businesses in relation to foreign competitors, economic developers can communicate these concerns to lawmakers at the state and especially the federal levels. They may also proactively get involved in planning and financing infrastructure projects that level the playing field with international competitors.

Case Study: Dark Fiber in Arlington, VA

Arlington County, VA, adjacent to Washington, D.C., began building its own fiber optic network in 2010. The county developed the high-speed broadband initiative, known as CinnaMillington, to serve the county's schools, government offices, traffic management, and public safety systems.

Fortunately, the decision was made at the beginning to put extra conduit into the ground to which additional fiber optic cable could be added later. (Digging for the conduit is the most expensive part of a new network; the cost of the extra fiber is marginal.) The county is now in the process of laying that additional cable—dubbed streams of "dark fiber." The term for cable that is not connected to end users—is an economic development initiative.

It's not that the county lets access to fiber, as is the case in many communities that build their own broadband networks. For Arlington, the impetus for the project is the ability to offer private and institutional end users—e.g., firms, research institutions, and federal agencies—a service unique in terms of capacity, redundancy, security, and affordability. Such service is particularly applicable to Arlington's highly technical target industries, including big data, cyber security, and health, green, and educational technologies.

Because Arlington is prevented by state statute from providing "lit" fiber—that is, service to the customer—the county will license access to telecommunications providers who will provide the "last mile" connections to individual buildings and businesses.

"Many of our tenants would benefit from higher specialized service providers," said Mark McCrosky, director of real estate development for Arlington County's Office of Economic Development (OED). County leaders

Believe the service will lead to new tax revenues from businesses that come to or stay in Arlington because of it.

The phase of CarrierWeb project is a joint effort between ARD and the country's Department of Technical Services. ARD took the lead on developing the license agreement (approved by the Arlington County Board in February of 2016), the accompanying policy and rate structure, and marketing the initiative.

As the network is slated to be under construction until mid-2016, ARD has not yet begun aggressively marketing the program. Though the county doesn't have a telecommunications licensee on board yet, it does have some institutional providers, such as the Virginia Tech Research Center, connected and taking advantage of the extra capacity that currently exists. Interest so far has been highest from institutional "early adopters," McCauley noted.

"It's chicken and egg," he noted. "We can't provide the service (directly), so we are actively working with telecommunications providers to make sure our approach is right and to get some tenancy on the network so that we have some proofs of concept that will help us understand what the full impact could be," McCauley said.

"This is a long-term investment that we think will bear good fruit," he added. "The broader impact, in my view, is creating more competition, and more competition is always better – better pricing, quality, and diversity of options."

The Infrastructure Planning Process

Infrastructure planning in the United States takes place on multiple levels, due to the complexity of the country's governmental systems. A community may be under the jurisdiction of many different planning entities, including local governments, special districts, metropolitan planning organizations, rural planning organizations, councils of government, and of course, state capital plans. In addition to planning at the regional level, municipalities also plan and implement infrastructure projects. It is essential that the economic developer understand the infrastructure planning functions at each level if they are to make an impact in the process.

Typically, larger projects are planned at the state and regional level. Major transportation projects, including roads, bridges, tunnels, and rail and other public transit systems are planned by entities such as Metropolitan Planning Organizations (MPOs) and EDA-designated Economic Development Districts (EDDs). Local governments and special districts are responsible for planning smaller projects including water and waste systems, streets, streetscapes and transportation, community facilities, energy and telecommunications, and affordable housing. For large projects requiring many different funding streams and planning processes, state, regional, and local entities must work together.

The Importance of Planning Consistency, and the Difficulty in Achieving It

The different levels of infrastructure planning ideally build upon each other in a system that is internally, horizontally, and vertically consistent.[149] Internal consistency refers to a plan that is aligned with each particular agency's regulations and budget expectations. When infrastructure plans are vertically consistent means, local plans correspond to those at a regional level, which, in turn, integrate with state-level plans. Horizontal consistency refers to infrastructure plans aligning with those of neighboring communities and regions, as well as plans in place for special districts such as a water or school district. The graphic included in Figure 8 shows this ideal situation.

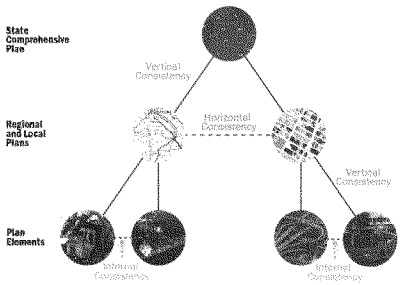


Figure 8. Vertical, horizontal, and internal consistency between plans and plan elements is the ideal of comprehensive infrastructure planning.[148]

It is difficult to achieve this idealized model. The linkages between local, regional, and state infrastructure planning vary in their degrees of strength and awareness of what the other is doing. They focus on different levels of infrastructure, for example, sidewalks and sewers at the local level to bridges and waterways on the regional level to roadways on the state level. Furthermore, different stakeholders are involved at each level, with varying degrees of public engagement. When considering the planning process of infrastructure maintenance and development, it is not surprising that strategic investment and economic competitiveness do not emerge as priorities; the process often becomes politicized, especially since different entities have competing agendas. However, when economic developers have a framework of understanding this process, then they may be able to influence decisions in their community in service of these goals.

It is also worth noting the difference in timelines among infrastructure planning organizations and to highlight the rift between the timelines of economic developers and that of infrastructure planning organizations. Since local infrastructure planning concerns smaller projects, timelines are shorter, though, depending on the system of government in place, they can be subject to priorities of local elected officials. By design, regional entities plan for infrastructure improvement in five- to 20-year increments. This can be frustrating for economic developers, who are working within time constraints to keep or attract a new

[148] Adopted from Elmer and Leigland, *Infrastructure Planning and Finance*.
[149] Elmer and Leigland, *Infrastructure Planning and Finance*.

business. State plans are informed by regional plans but can also be subject to change due to state or federal involvement.

Adding to the frustration is the fact that planning structures vary throughout the United States. For economic developers interested in being involved with infrastructure planning, the following section provides a framework for understanding the process; economic developers will need to do further research in their own communities to map out the process.

Local Planning of Infrastructure

At the local level, governments have the responsibility of creating long-term, comprehensive plans for their communities and ensuring that development within their jurisdictions is in alignment with these plans. Local governments are granted these powers by the state, due to two federal acts that were enacted in the 1920s. The Standard State Zoning Enabling Act of 1926 and the Standard City Planning Enabling Act of 1928—together known as the Standard Acts—essentially set up a model to allow cities to enact zoning in alignment with a long-term, comprehensive plan. Prior to these acts, municipalities had little control over development.

The mechanism through which local governments enact their power over development is through the comprehensive plan, often referred to as a "comp plan." This is the official statement of a municipal legislative body which sets forth major policies concerning future development. It includes development regulations, which translate the land use designations of the general plan into more specific ordinances, such as zoning, which regulate private market development projects. These ordinances are then turned into processes, which result in permits given or citations issued by a municipality. Comp plans are produced by the planning department, the planning commission, and through extensive outreach to the local community.

Comp plans, according to the Standard Acts, only weigh in on infrastructure in two ways; there is a provision for the adoption of a master street plan by the governing body and a provision for approval of all public improvements by the planning commission. In some places, local governments have expanded the reach of their comp plans to include larger infrastructure planning. As authors Elmer and Leigland explain, "There is no comprehensive planning tradition for infrastructure." That is, infrastructure planning on the local level does not adhere to the same public process as comprehensive planning.

Capital Improvement Plans and Capital Budgeting Process

Instead, local infrastructure planning is administered through the Capital Improvement Plan, and the capital budgeting process. The Capital Improvement Plan (CIP) is a short-range plan for four to 10 years, which identifies capital projects and equipment purchases, provides a schedule, and identifies options for financing. The CIP is essentially the "action plan" to maintain infrastructure proposed or supported by the comprehensive plan, as well as strategic plans, and plans for schools, parks, and other municipal departments. In some communities, the CIP has a public comment component, but in others, it is completed by the city manager and heads of departments.

After determining the CIP, then the capital budget is determined. The capital budget is the document where the funds for the capital projects are identified and authorized for expenditure by elected officials. It is a legal document, voted on by the local legislative government but may be changed according to priorities or need. This document can be exhaustive; capital projects may include infrastructure such as water facilities, sewers, streets, parks, and buildings along with equipment like fire trucks, radios, police cars, telecommunications equipment, furniture, and computers. Capital projects also include low-income housing projects and the purchase of land.[150]

By the time the budget is passed, it can be very far removed from the Comprehensive Plan. Since capital budgets are documents that determine funding, they are often influenced by municipal actors seeking to increase their entities' coffers. In addition to heads of municipal governments, actors weighing in on the budget include special purpose districts that are responsible for schools, airports, water, sewers, and some transportation facilities. In an ideal scenario, capital budget requests would be based on a long-term strategic plan from each of these entities.

Potential Problems with the Capital Budgeting Process

Unfortunately, because long-term strategic planning is not built into the CIP and capital budgeting process, issues that are the purview of individual departments such as water supply management, sewer treatment, local road upkeep, storm water management, and parks and recreation are typically integrated on an as-needed basis. At best, this leads to disjointed development, and at worst, it creates a major financial strain on cities. Because local government departments exist in silos, different departments may not communicate regarding their long-term maintenance and development plans. This leads to redundancies; for example, city streets being re-paved the year prior to a scheduled sewer line replacement, which will require excavation of the newly paved streets.

One solution is to keep capital budgets tied closely to comp plans and economic development strategies, primarily by engaging local planners and economic development professionals. When economic developers have a seat at the table, they will be able to represent the needs of existing and emerging industries. Including planners ensures a more long-term view and provides representatives of the comp plan. When land-use planning and infrastructure planning are combined in a truly comprehensive way, there is potential to create environments that spur business development of all kinds and contribute to municipal budgets. It can help to ensure that the different planned zones of a comprehensive plan have the kind of infrastructure needed to support their functions. This is especially important for business; for example, downtown business areas should have adequate pedestrian environments, while industrial areas' sewer and water needs should be calibrated for labs and or manufacturing. Many communities already incorporate economic development concerns into their infrastructure planning; however, given the local planning process, it is clear how those concerns could be overlooked if not for economic development representation.

Municipal governments and their planning processes are only one aspect of infrastructure planning that influences a community. Depending on the community and the structure of regional planning, some aspects

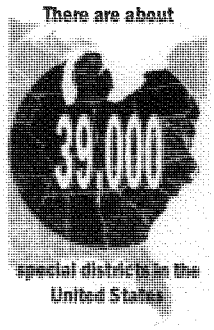
[150] Brear and Leigland, Infrastructure Planning and Finance.

of local infrastructure development may be covered in the Comprehensive Economic Development Strategy (CEDS) that is formulated by regional entities. This process is discussed at length later in this section.

Special Districts

Special districts are a way to navigate infrastructure development that incorporates the support of a local government with the independence of a separate entity. The U.S. Census defines special districts, as local entities "authorized by state law to provide only one or a limited number of designated functions, and with sufficient administrative and fiscal autonomy to qualify as separate governments; known by a variety of titles, including districts, authorities, boards, and commissions."[151]

In other words, special districts are an entity created by a community to meet a specific need, which can range from funding schools to building transportation, water, or sewer systems. Special districts range widely in authority, function, and structure. All are governed by a board, whether elected or appointed. Some are primarily for local infrastructure such as street lighting, while others are large port authorities or public utilities. Local governments' main funding avenue for building infrastructure is increasing taxes or municipal bonds funded by taxes. Inadequate tax bases and competing demands for existing taxes make it hard for cities and counties to provide all the services that citizens demand. Special districts have more than one source of revenue; they may have the authority to levy property taxes, impose service charges, apply for grants, share taxes with other areas, or reply on special assessments.[152] Therefore, they are more likely to be used for specific projects such as schools, transportation entities, or utilities.



Regional Planning

Regional infrastructure planning aims to integrate local priorities into publicly-approved plans in order to receive state and federal monies. The two primary products for infrastructure planning are the Comprehensive Economic Development Strategy, known as CEDS, and transportation plans. Both planning processes develop broad goals and policies for achieving their main objectives, which then guide project selection and ranking for available funds.[153] Both engage local officials and stakeholders in the planning process. Because of the scope of these projects, and the myriad players involved, the planning process is extensive, and there are many opportunities for economic developers to be involved.

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[151] National League of Cities, "Local US Governments." Retrieved January 15, 2016.

[152] NLC, "Local US Governments."

[153] Normal Walzer and Melissa Henriksen, *Role of Transportation in the Comprehensive Economic Development Strategy Process: A Nationwide Scan* (Washington, DC: National Association of Development Organizations Research Foundation, 2009.

Comprehensive Economic Development Strategies

A CEDS is a strategy of a local jurisdiction or a region that reflects economic development needs and priorities. While the CEDS is a useful planning tool, used by local officials, employers, and community leaders to guide decision-making, it is also an essential link to the federal government. The Public Works and Economic Development Act of 1965 requires a CEDS in order to apply for investment assistance under EDA's Public Works or Economic Adjustment Assistance Programs.[154]

A CEDS has potential to become a driving force in strategic economic and infrastructure planning for a region. The role of the CEDS is different than that of economic development plans for local communities; it serves as a visionary document for an entire region, bringing together decision makers from the infrastructure and transportation realms as well as economic development. A successful CEDS results in a plan comprised of regionally-driven strategic priorities that will build capacity across the region, in the realm of infrastructure and beyond.

The CEDS is typically created by an Economic Development District (EDD), which are designated by the Economic Development Administration (EDA). When a community is not covered by an EDD, a local government or commission can create a CEDS. A CEDS is primarily conceived of as visioning documents for the long-term economic future of an EDD, including the infrastructure projects that will be essential to this plan. While the infrastructure projects listed may include transportation, this is not the primary goal of the CEDS—transportation plans are the responsibility of Metropolitan Planning Organizations (MPOs) and Rural Planning Transportation Organizations, which are discussed further in this section. In areas that are not covered by one of these transportation planning organizations, regional transportation planning is conducted by the state department of transportation.

It should be noted that not every county in the United States is part of an EDD, although most are. Figure 9shows the distribution of EDDs around the country. EDDs are designated when there is sufficient size and population to foster economic development on a scale that will mitigate economic distress in that region. A group of counties seeking to become an EDD must meet the requirements of the EDA, including proving there is some economic blight to be addressed, and writing a CEDS. If approved, the newly-minted EDD may be awarded a small amount of funding, which is intended to be matched by the community. Counties in areas that cannot prove blight, or where there is not a significant amount of area or population, or those that do not have the capacity to organize or raise funds therefore may not be involved in an EDD. In this case, major infrastructure planning for the area takes place on a state level.

[154] Economic Development Administration, *Comprehensive Economic Development Strategies Summary of Requirements*, (Washington, DC: U.S. Department of Commerce).

Outside Engagement in Creating CEDS

The CEDS is created by a public-private strategy committee, consisting of elected officials and other local leaders. When developing the CEDS, the committee should analyze the regional economy and design a document to serve as a guide for establishing regional goals and objectives, developing and implementing a regional plan of action, and identifying investment priorities and funding sources.[156] The CEDS is meant to be a regional vision of economic development for the next five years. The more economic developers engage with the planning process, the more the CEDS will align with EDO-established economic goals. Throughout the planning process and afterwards, it is required that the CEDS be vetted through public hearings and made available for review and comment by the public.

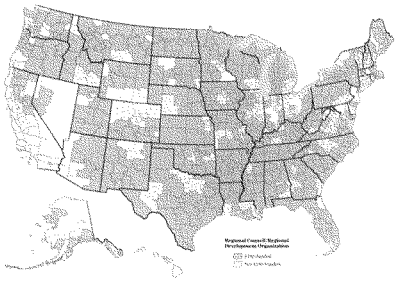

Figure 9. Counties covered by Economic Development Districts across the United States.[155]

This process is designed to bring together the public and private sectors in the creation of an economic development plan. However, a report from National Association of Development Organizations explains that the two most active groups in developing and approving CEDS documents are economic development directors and local elected officials. It should be noted that "economic development directors" in this context refers to the staff leads of EDDs and not economic developers. After elected officials, private employers and chamber of commerce representatives were listed as the most common partners. Engagement with state DOT and transportation industry representatives was reported by fewer than 15 percent of respondents, which indicates that focus of CEDS is less on transportation than economic development goals.

While chamber of commerce representatives are listed as one of the more active participants in CEDS planning, research from the Upjohn Institute shows that economic developers may not be particularly involved with CEDS creation. In a survey of 917 IEDC members, only 19 percent indicated a strong relationship with EDDs. Some 28 percent indicated a regular relationship, while nearly the same amount—27 percent—indicated they had little contact with EDDs. Only 11 percent had no contact with EDDs. Economic developers should seek meaningful engagement with CEDS, especially because of the potential for EDA funding.

[155] Adapted from National Association of Development Organizations, *2011 RDO Organizational Data Profiles*, (Washington, DC: NADO), 2011.

[156] EDA, Comprehensive Economic Development Strategy.

CEDS Requirements

In the past, CEDS was often thought of as a prioritized list of projects to be funded by the EDA. Due to changes in funding at the federal level, and growing pressure to demonstrate return on investment based on smarter use of existing resources, the EDA changed its CEDS requirements in 2014.[157] The goal of the revised format is to generate a more holistic economic development plan funded by diversified sources. The requirements include the following five changes:

- Linking the sections to improve CEDS focus and measurable impact;
- Including key elements such as workforce, broadband, and energy;
- Emphasizing measurable strategies and goals rather than a stand-alone list of projects;
- Integrating and leveraging other planning efforts and resources; and
- Infusing economic resilience into the CEDS.

The new CEDS regulations tie the document to the concerns of local economic developers to a greater extent. The second item, "the need to integrate key elements such as workforce, broadband, and energy," relates to the analytics that economic developers routinely collect on their region. Furthermore, information about existing and emerging industry clusters can provide direction on the kinds of infrastructure that may be needed to support business. These elements should be incorporated into the CEDS process, particularly in the strengths, weaknesses, opportunities and threats (SWOT) analysis as the strategic basis for the entire document.

The "measurable goals and strategies" that CEDS are encouraged to incorporate can easily be tied to economic development initiatives. Development of key industries and any accompanying infrastructure needs can be built into the CEDS. Some CEDS are focused on more broad economic objectives, such as fostering an entrepreneurial culture. For example, the Florida Chamber of Commerce Foundation worked with the EDDs in the state to incorporate the Chamber's Six Pillar economic framework into each of the CEDS. These are talent supply and education, innovation and economic development, infrastructure and growth leadership, business climate and competitiveness, civic and governance systems, and quality of life and quality places.

Similarly, Item 4, "integrating and leveraging other planning efforts and resources" is a tactic that will strengthen the CEDS and contribute to a holistic economic vision for the region. This requirement is also in line with other federal agencies' increased regional focus; for example, the Workforce Innovation and Opportunity Act is focused on regional activities, including regional economic development plans. Planning organizations could better engage the private sector in the CEDS process by partnering with a strong EDO with ties to regional businesses. EDOs can then incorporate CEDS feedback into business retention and attraction surveys and existing outreach efforts.

[157] National Association of Development Organizations, *Rethinking the CEDs and the EDD's Role in Regional Economic Development: Alaska CEDS Workshop*, (Washington, DC: NADO), 2012.

Furthermore, working with EDOs can help planning organizations to satisfy their obligation to include the interests of the private sector in the planning process. The strategy committee is required to include "private sector representatives" as a majority of its membership. However, due to the long-range nature of CEDS planning, this process can seem cumbersome to many businesspeople—economic developers can provide or augment the voice of the private sector on these committees.

Regional Transportation Planning: Metropolitan Planning Organizations and Rural Transportation Planning Organizations

Transportation plans are most often created by regional planning organizations. Metropolitan Planning Organizations (MPOs) are the most common type of organization that engages in transportation planning, although Rural Planning Transportation Organizations are emerging with increased frequency.

As with a CEDS, the MPO engages a committee of local leaders in developing a plan—although it is focused primarily on transportation. Transportation plans include long- and short-term plans. They are integrated into the State Department of Transportation's plan and available for funding via state and federal resources.

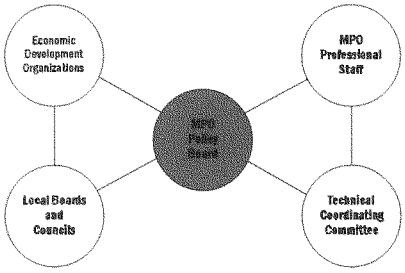

Figure 10. Economic development organizations may interact directly with MPO Policy Boards or may give advice to local boards and councils. MPO Boards then consult with their professional staff and technical coordinating committees to implement plans and recommendations.[158]

A metropolitan planning organization (MPO) is a federally mandated and federally funded transportation policy-making organization that serves any urbanized area with a population greater than 50,000. MPOs are mandated by the Federal-Aid Highway Act of 1962, and federal funding for transportation projects and programs are channeled through these organizations.[159] MPOs develop short-term and long-term transportation plans, with the goal that the planning process be continuing, cooperative, and comprehensive (a guideline known as the 3-Cs).[160] The committees that guide the development of these plans are made up of representatives from local government and governmental transportation authorities. In areas that are not covered by an MPO or a RTPO, transportation planning falls to the state department of transportation.

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[158] Adapted from North Carolina Association of MPOs, *What Are MPOs?*, (Raleigh, NC: NCAMPO), 2012.

[159] North Carolina Association of MPOs, *What Are MPOs?*, (Raleigh, NC: NCAMPO), 2012.

[160] National Operations Center of Excellence, "Glossary," Retrieved January 15, 2015.

MPOs were developed as a means of allocating scarce federal and other transportation funding resources fairly. They provide a venue for collaboration between regional governments, other interested parties, and residents in the planning process, thus facilitating a shared vision for the region's future. Transportation visioning is carried out by the "policy committee," which is comprised of elected or appointed officials from local governmental jurisdictions, representatives of different transportation modes such as public transit, state agency officials such as state Department of Transportation, or environmental agencies, and other, typically non-voting members, such as representatives from federal agencies, and local chambers of commerce.

As far as staff, MPOs vary in size but nearly always retain a core professional planning staff dedicated to analyzing and predicting transportation alternatives, as well as staff to manage the complexity of the planning process. Some MPOs have additional responsibilities such as economic development and land use planning under limited authority embodied in state and federal law.[161] MPOs also vary in terms of organizational arrangements; they can be large, stand-alone agencies, or they can be hosted by another agency or an existing agency designated as an MPO.[162] In some cases, MPOs are encompassed within regional councils of government. In others, the EDD and the MPO are housed within the same agency.

An MPO has five core planning functions:

- Establish a setting: Establish and manage a fair and impartial setting for effective regional decision-making in the metropolitan area.
- Identify and evaluate alternative transportation improvement plans: Use data and planning methods to generate and evaluate alternatives. This is known as a Unified Planning Work Program (UPWP)
- Prepare and maintain a Metropolitan Transportation Plan (MTP): Develop and update a long-range transportation plan for the metropolitan area covering a planning horizon of at least 20 years that fosters (1) mobility and access for people and goods, (2) efficient system performance and preservation, and (3) good quality of life.
- Develop a Transportation Improvement Program (TIP): Develop a short-range program of transportation improvements based on the long-range transportation plan; the TIP should be designed to achieve the area's goals using spending, regulating, operating, management, and financial tools.
- Involve the public: Involve the general public and other affected constituencies in the core functions listed above.

The different plans serve different functions. UPWPs outline the funding sources for each project or task. Funding for MPOs and the projects that are planned by them come from Federal Highway (FHWA) funds and

[161] Federal Highway Administration, "Planning & Environment Linkages Implementation Resources." Retrieved January 15, 2016.
[162] Defenders of Wildlife, "Transportation Planning 101." Retrieved January 15, 2016.

Federal Transit (FTA) funds.[163] These are often matched with state and municipal funds. UPWP also assign responsibility to each task to be completed over one to two years.

	Time Horizon	Contents	Update Requirements
Unified Planning Work Program (UPWP)	1-2 Years	Planning Studies, Tasks, Budget	Annual or every two years
Metropolitan Transportation Plan (MTP)	20 years minimum	Future Goals, Strategies, and Projects	Every 5 years
Transportation Improvement Program (TIP)	4 years	Transportation investments and projects	Every 1-2 years (varies by state)

Table 2. Characteristics of MPO planning functions.

LRTPs are less concrete than UPWPs and tend to be more malleable. They are meant to be visionary and to align transportation system investment priorities with other agencies' plans, including the Statewide Transportation Plan and land use and economic plans. TIPs funnel the priorities of LRTPs into a list of more immediate projects and strategies for implementation. This list is financially constrained and is not meant to be a wish list. After approval, it is incorporated into the Statewide TIP without change. [164]

Regional Transportation Planning Organizations

For planning needs outside of the metropolitan areas, regional planning entities are contracted by the state department of transportation to conduct non-metropolitan transportation planning activities in support of statewide planning. These regional organizations are referred to as Rural Planning Organizations or Regional Transportation Planning Organizations (RPOs or RTPOs). Although recently standardized by the Moving Ahead for Progress in the 21st Century Act (MAP-21) of 2012, these arrangements between RTPOs and state departments of transportation exist in only about 30 states.

RTPOs do not necessarily function as stand-alone agencies. Their purpose is to convene stakeholders around transportation and deliver priorities to the state departments of transportation. Therefore, many RTPOs are housed in a parent agency that conducts other regional functions, such as a regional planning commission, council of governments, or regional economic development district. Other models also exist, such as regional or county transportation commissions or regional MPOs or EDOs completing planning tasks for the surrounding rural counties. In any case, the responsibilities remain the same; engagement of policy

[163] Federal Transit Administration, "Unified Planning Work Program."
[164] Defenders of Wildlife, "Transportation Planning 101." Retrieved January 15, 2016.

committees made up of community leaders, public outreach, identifying development priorities, and creating short-term and long-term plans.

Challenges to Engaging with Planning Organizations

Although planning through development of CEDS and transportation plans is the general path that economic developers can take to be involved in infrastructure planning, it is not a straightforward process. To begin with, EDDs and MPOs do not cover the entire United States—there are places that are not under the jurisdiction of either, in which planning falls to county or state governments. Furthermore, EDDs and MPOs often overlap boundaries, with EDDs typically spanning both rural and metro areas, while MPOs cover only metros. And EDDs' and MPOs' organizational structure varies; in some places the EDD may be housed in a Council of Governments (COG), and in some places it is integrated into the MPO, while in some others it may be a standalone organization. The same is true of MPOs—they can function as stand-alone organizations or be integrated into city or regional planning entities.

State Infrastructure Planning

Infrastructure planning at the state level is uneven. Some states have state planning departments or commissions which vary in their responsibility and power. In other states, infrastructure development is managed through a capital planning process similar to that at the local level. As seen in this process at the local level, most state-level capital plans are not truly cross-functional, nor do they target capital expenditures geographically or strategically.[165] The National Governors Association finds that many infrastructure decision making and planning responsibilities are fragmented, involving numerous agencies including finance, transportation, environment, energy, economic development, agriculture, housing, and emergency management, among others. A recent report from NGA determines that coordination of strategic planning that breaks down silos can help to ensure investments are leveraged for maximum efficiency and effect.

A Short History of State Infrastructure Planning

Early state planning focused on the creation of state development and conservation departments, whose mission was management of the state's natural resources. State planning became federally backed under the FDR administration, with the creation of the National Resources Planning Board. This led to the establishment of state planning boards, resulting in an increase in the number of boards from 14 in 1933 to 47 in 1942. These boards were engaged in far-reaching land and demographic planning ranging from managing drainage basins to recreation surveys to highway planning.[166]

With a new administration shifting its focus to WWII, the NRPB was phased out, and with it, state planning boards decreased in number. However, after WWII through the 1970s, state planning made an uneven

[165] David E. Dowall, "Rethinking Statewide Infrastructure Policies: Lessons from California and Beyond," *Public Works Management and Policy 6*, (1), 2001, pp. 5-17.
[166] Stuart Meck, "State Planning," in *Growing Smart Legislative Guidebook*, (Washington, DC: American Planning Association), 2002.

recovery. Many of these state planning entities were focused on land use, conservation of sensitive areas, and areas expected to urbanize. The 1980s and 90s saw state planning boards move more towards a role of assisting with a state's long-range strategic planning efforts. That is, the state planning board was less involved in on-the-ground land use planning and more involved in policy development and analysis that would then be used by different state departments in developing their plans.

State Planning Today

This trend has continued, but the environment of long-term state infrastructure and land use planning is still uneven. The American Planning Association explains that state planning falls along a scale of six degrees of empowerment. The most powerful are state planning departments, for example, the State Office of Planning in Maryland, which was essential in creating and implementing Maryland's Smart Growth law and policies. Fifth on the list are departments of community development or commerce. Though these are focused on economic development, their political ancestors are state planning boards.

Recognizing the need for integrated planning, governors have created ad hoc planning groups to facilitate planning around major projects. For example, in her term as governor of Arizona, Janet Napolitano created the Governor's Growth Cabinet to coordinate state agency activities around transportation. Similarly, under Governor Arnold Schwarzenegger, state initiatives to decrease greenhouse gas emissions were translated into smart growth planning metrics for MPOs and councils of government.[167]

Capital Budgeting at the State Level

The capital budgeting process at the state level is similar to the process at the local level but writ large. The process begins by determining the Capital Improvement Plan (CIP), which identifies capital spending needs, the costs of planned projects, sources of financing, and the impact that planned projects will have on future operating budgets.[168] The timeline for state CIPs is five to 10 years.

The next step is the creation of the capital budget. This document lists the schedule for acquisition of capital assets, and the distinctive funding sources for these projects such as bonds. Although the capital budget is geared toward long-term investment, immediate budgetary pressures can and often do take precedence over investments in projects that carry long-term benefits. [169]

The involvement of state planning agencies and state legislatures in the capital budgeting process varies. The National Association of State Budget Officers (NASBO) recommends common management and planning standards, regardless of whether a budget is being planned by one state planning agency or by several different departments. Involvement of this legislature can occur through a joint legislative/executive review board, which serves as another layer of oversight, and help mitigate political influence.[170]

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[167] Darren Springer and Greg Dierkers, *An Infrastructure Vision for the 21st Century*, (Washington, DC: National Governors Association), 2008.

[168] National Association of State Budget Officers, *Capital Budgeting in the States*, (Washington, DC: NASBO), 2014.

[169] NASBO, *Capital Budgeting*,.

[170] NASBO, *Capital Budgeting*,.

Case Study: Minnesota Transportation Economic Development (TED) Program

Since 2000, Minnesota's Department of Employment and Economic Development (DEED) has played a direct role in the construction, reconstruction, and improvement of state and local transportation infrastructure.

That's when the state legislature created and funded the Transportation Economic Development (TED) program as a collaboration between the Minnesota DOT (MnDOT) and DEED. The TED program solicits funding applications from local governments for projects that:

- Create and preserve jobs,
- Improve the state's economic competitiveness,
- Increase the tax base,
- Leverage greater private and local public investment in critical infrastructure, and
- Accelerate transportation improvements.

"The legislature established the program recognizing the disadvantage that greater Minnesota has when pitted up against the Twin Cities metro area," said Kim Bednar, MnDOT program manager. "For that reason, metro-area projects compete separately from greater Minnesota proposals. The (TED) program is a recognition that we can boost economic opportunities for smaller communities and rural areas around the state through transportation investments."

TED projects must support one or more of the following industries: manufacturing, technology, warehousing and distribution, research and development, agricultural processing, tourism, warehousing, and industrial park development. Examples of projects funded include an industrial park access road, new or improved interchanges, and infrastructure for a multimodal facility near a warehouse or distribution center.

DEED brings three key resources to the program: money, expertise and contacts. First, the money. For this year's solicitation, $30 million is available – $2 million in general obligation bonds through DEED and $28 million from MnDOT. Though DEED brings less funding to the table, its dollars come with flexibility. MnDOT funds can be used only for state roads, but DEED funds can be used for local roads or utility relocation, for example.

DEED also is able to link its other existing grant programs to TED investments. DEED has two programs for funding public infrastructure: the Greater Minnesota Business Development Public Infrastructure Program and the Innovative Business Development Public Infrastructure Program. These programs can fund up to 50 percent of public infrastructure costs for projects such as utility extensions or relocations and industrial park roads. Localities can submit projects to the TED program and possibly receive additional funding from one of these two programs under the same application.

Second, the expertise. DEED and MnDOT work closely to evaluate and recommend projects that have the greatest potential to foster job growth and private investment. Each department scores TED proposals separately, then a joint review committee recommends projects together. Projects are evaluated on four criteria: 1) transportation impact, 2) economic development impact (weighted equally with transportation

Projects, 2) completeness of the financial plan, and 3) shovel-readiness. OEED staff bring deep knowledge of the state's economic assets and needs to the process.

Third, the contacts. OEED has a long history of working with local governments and local and regional economic development organizations. It promoted the TED program among these contacts and also travels throughout the state with MDOT to conduct trainings on the program.

"One of the things we emphasize (in the trainings) is that economic development people can't put a good application together without collaborating with local transportation people, and county engineers can't put one together without economic development input," said Jeremy LaCross, state program administrative coordinator for OEED. "Almost all the projects we have funded have had a local economic development organization involved, whether in the lead role of writing the application or assisting with the application."

The TED program has provided more than $77 million in grants to 28 projects throughout the state since 2011, leveraging nearly $1.55 million in local government and private funds. These projects are credited with providing or preserving more than 7,000 permanent jobs statewide (not including construction jobs).

Part of the program's success is its ability to foster public-private partnerships. In a number of the projects, the private sector has donated right-of-way or cash, e.g., toward the improvement or construction of interchanges. Projects receive a higher score on the financial readiness part of their application if they offer private investment as part of the local match.

In the past, explains Buchanan of MDOT, "we have been transportation people doing transportation things. If economic development believes that's good, but hasn't been driving the ship. [TED] is a modest program but a way to turn that notion around – let's let economic development help guide at least a small portion of where we make investments in the state."

Federal Infrastructure Financing

As explained in the section "American Infrastructure Planning, Responsibility, and Finance Has Changed Over Time," the federal government's funding of infrastructure has steadily decreased. Furthermore, the role of the federal government has changed from being very top-down to being more focused on funding projects through grants. By far, the federal government invests most of its infrastructure funding in transportation through programs driven by the Department of Transportation. Other types of infrastructure that support energy, communications, and sanitation systems are funded through a variety of sources, including grants and loans from various federal departments.

Transportation

The resources regarding federal funding provided below are an overview of federal infrastructure engagement but by no means comprehensive. This is due to the ever-changing nature of federal policy, in which programs are influenced by election and administration cycles. Therefore, economic developers engaged in infrastructure planning will benefit from strong relationships with their congressional

representatives, who can be an important resource regarding a community's eligibility for federal programming. At the same time, legislators may not have a strong grasp of the myriad of funding pots available for specific infrastructure projects. Economic developers are encouraged to familiarize themselves with databases such as grants.gov, which is updated often with newly created funding.

Fixing America's Surface Transportation Act

In 2015, Congress passed the Fixing America's Surface Transportation (FAST) Act, providing $305 billion in funding for road, bridge, and transit projects, as well as safety initiatives and technology research, across the United States until 2020. The Act amounts to an increase in federal funding of 11 percent.[171]

Important provisions of the act include:

- Dedicated new funding for road and rail freight projects, with an emphasis on intermodality;
- New initiatives that will improve road and rail safety and decrease accidents;
- Streamlining of approval and environmental review processes to allow faster project implementation;
- Relaxation of existing rules and technical assistance to incorporate private sector involvement in public investments;
- Increased decision-making power for states and localities;
- Incorporation of new technologies, such as congestion management tools;
- Reforms to special federal funding programs, such as RRIF and TIFIA; and
- New funding to enhance the security of the energy grid.[172]

Prior to the act's passing, the Highway Trust Fund faced persistent shortfalls that were addressed through short-term injections of general funds. While the act does not address declining federal gasoline tax revenues, being instead financed through transfers from federal general revenues, the act nonetheless constitutes a five-year commitment to transportation funding--the first such bill since 2005. Multi-year funding will allow states and localities receiving the funds to begin larger projects with longer time horizons. For example, the FAST Act will finance the construction of a new rail tunnel across the Hudson River in the New York-New Jersey area, averting the maintenance closure of an important existing tunnel that could have crippled the region's economy.[173]

Transportation Investment Generating Economic Recovery

The Transportation Investment Generating Economic Recovery, or TIGER Discretionary Grant program, was initially created by the American Recovery and Reinvestment Act and provides an opportunity for the

[171] Federal Highway Administration, "Fixing America's Surface Transportation Act or "FAST Act." Retrieved January 18, 2016; U.S. Department of Transportation, "The Fixing America's Surface Transportation Act or "FAST Act." Retrieved January 18, 2016.

[172] Transportation and Infrastructure Committee, *FAST ACT: The Fixing America's Surface Transportation Act*, (Washington, DC: U.S. House of Representatives), 2015.

[173] Emma G. Fitzsimmons, "Federal Transportation Bill Is a Boon for the New Hudson Rail Tunnel, Officials Say," *New York Times*, December 7, 2015.

Department of Transportation's Federal Highway Administration to invest in road, rail, transit, and port projects that aim to achieve national objectives. Since 2009, Congress has dedicated nearly $4.6 billion for seven rounds of TIGER. The graph below details the types of projects this program has funded.

Eligibility requirements for TIGER Grants are not limited to state DOTs and transit agencies, as are many of the funding mechanisms of the DOT; they can provide capital funding directly to any public entity, including municipalities, counties, port authorities, tribal governments, MPOs, or others. These entities are more likely to be involved in economic development. In fact, one of the five long-term outcomes prioritized by the TIGER Grant process is economic competitiveness, as well as safety, state of good repair, quality of life, and environmental sustainability. Because of these requirements, TIGER grants are able to fund projects that have limited sources for federal funds, such as port and freight rail projects.[174]

The process of applying for a TIGER grant is extremely competitive; in 2015, 627 eligible applications requested $10.1 billion or 20 times the available funding.[175] However, communities of all kinds have a fair chance at the funds. Some 43 percent of the awardees for the 2015 cycle were from rural communities, a higher number than in past years.[176]

Transportation Infrastructure Finance and Innovation

The Transportation Infrastructure Finance and Innovation Act program was authorized in 1998 as a way to provide financing for large-scale transportation projects financed partially by tolls and other forms of user-backed revenue. Due to the uncertainty associated with those revenue streams, these projects were difficult to fund at reasonable rates. TIFIA fills those market gaps, and leverages private co-investment by providing federal credit assistance with fixed rates that are often lower than what most borrowers can obtain in the private market. The program provides federal credit assistance in the form of direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national and regional significance, such as highway, transit, railroad, intermodal freight, and port access projects.[177]

Because TIFIA is designed to leverage private funds for large projects, there are several requirements for eligibility. First, the proposed project must be included in the applicable State Transportation Improvement Program. The project must include a capital cost of at least $50 million (or 33.3 percent of a state's annual apportionment of federal-aid funds, whichever is less), and credit assistance is limited to a maximum of 33 percent of the project cost. Additionally, qualified projects are evaluated against eight statutory criteria, including, among others, impact on the environment, significance to the national transportation system, and the extent to which they generate economic benefits, leverage private capital, and promote innovative technologies.[178]

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[174] U.S. Department of Transportation, "About TIGER Grants."
[175] U.S. Department of Transportation, "TIGER Discretionary Grants."
[176] Keith Laing, "Feds Award $500M in TIGER Transportation Grants," *The Hill*, October 29, 2015.
[177] Federal Highway Administration, "TIFIA." Retrieved January 15, 2016.
[178] U.S. Department of Transportation, [TIFIA] "Eligibility." Retrieved January 15, 2016.

Railroad Rehabilitation and Improvement Financing

The Railroad Rehabilitation and Improvement Financing (RRIF) is a program of the Federal Railroad Administration that finances upgrading of rail infrastructure, including freight railways, intercity passenger services, and commuter rail. The program provides loans and loan guarantees up to $35 billion.

New Starts, Small Starts, Core Capacity Improvements

This program is the Federal Transit Administration's main mechanism for funding transit infrastructure. As the name suggests, the program has three components. New Starts covers capital investment in fixed guideway transit systems, such as light rail, commuter rail, and bus rapid transit, which exceed $250 million in value. The Small Starts program funds similar projects worth less than $250 million. Core Capacity Improvement projects are for improvements to corridors that are at or are approaching capacity. Overall, the program provides about $2 billion in capital each year.

StrongPorts

StrongPorts is an initiative of the U.S. Maritime Administration to fund critical port infrastructure. The principal source of funding for the StrongPorts program is through TIGER grants.

Build America Transportation Investment Center

The Building American Transportation Investment Center (BATIC) serves as a clearinghouse for state, municipal, and private-sector project proponents, with information on federal financing and advice on setting up PPPs. BATIC presents information on PABs, TIFIA, RRIF, and other federal transportation credit facilities and grants.

BATIC also serves as a portal to federal technical assistance for setting up PPPs. Federal agencies that provide this assistance include the FHWA's Office of Innovative Program Delivery; the Federal Transit Administration; and the Maritime Administration's StrongPorts program.

Energy

The U.S. Department of Energy (DoE) provides loans to new sustainable energy projects through its Loans Program Office. Financial assistance is also available for conservation projects through the DoE's Office of Energy Efficiency and Renewable Energy (EERE). The U.S. Department of Agriculture provides grants and loans through its Rural Utilities Service (RUS) program. Financial assistance from RUS supports renewable energy production, as well as distribution and transmission facilities required to connect a project to the grid. The Treasury Department also provides tax credits for renewable energy producers.

Telecommunications

For communities to connect into the global information economy, broadband Internet and cellular telephony are necessities. Several federal agencies provide grants and loans for telecommunications infrastructure and planning, including:

- The Appalachian Regional Commission, through its Telecommunications and Technology Program;

- The Delta Regional Authority, through various programs;
- The Federal Communications Commission, through its Connect America Fund;
- The U.S. Department of Agriculture, through its Telecommunications Infrastructure Loan Program and Farm Bill Broadband Loan Program, Substantially Underserved Trust Areas (SUTA), and Community Connect Grant Program;
- The Economic Development Administration, through its Public Works and Economic Adjustment Assistance; and
- The U.S. Department of Housing and Urban Development, through its Community Development Block Grants.[179]

Water and Sewer

The main federal source of funds for water and sewer infrastructure is the U.S. Environmental Protection Agency. The Clean Water State Revolving Fund (CWSRF) is a joint federal-state initiative to improve water quality. Eligible projects include wastewater treatment facilities, as well as cleaning pollution, protecting estuaries, and constructing wetlands. The CWSRF provides low-interest loans, guarantees, insurance, and re-financing.

The United States Department of Agriculture also provides funding for rural sewage and water distribution systems through its RUS.

Multi-Purpose Federal Financing Programs

In addition to the federal transportation programs listed above, a number of federal agencies fund programs that can be used to construct several types of infrastructure (Figure 11), including:

- The Economic Development Administration's Public Works and Economic Adjustment programs;
- The Department of Transportation Private Activity Bonds.

The agencies that administer these programs have placed limits both on the eligibility of projects and fund recipients, which are described below. Economic developers should apprise themselves of these restrictions as they consider applying for federal funds.

Economic Development Administration

The Economic Development Administration has two principal programs that fund infrastructure: the Public Works program and the Economic Adjustment program.

The Public Works program makes grants of up to 50 percent of project cost for public infrastructure projects that are necessary to attract or retain private-sector jobs and investment in economically depressed areas. Eligible projects include:

[179] Doug Kinkoph, *BroadbandUSA: Guide to Federal Funding of Broadband Projects*, (Washington, DC: National Telecommunications and Information Administration), 2015.

- Water and sewer systems;
- Industrial access roads;
- Port facilities;
- Rail spurs; and
- Telecommunications infrastructure.

All projects must be consistent with a CEDS or equivalent economic development master plan.

The Economic Adjustment Assistance (EAA) program is designed to assist communities experiencing rapid, unexpected, and harmful economic transitions. The program makes two forms of grants: Strategy Grants are designed to support the creation or refinement of a CEDS and Implementation Grants are made to finance infrastructure projects identified in a CEDS.

The current investment priorities of the EAA program include:

- Collaborative regional innovation,
- Public-private partnerships,
- Global competitiveness; and
- Environmentally sustainable development.

Private Activity Bonds

Private activity bonds (PABs) are tax-exempt bonds issued by states and localities to finance private sector activities. Exempt facility bonds are a type of PAB that can be used to finance infrastructure that will be owned by a private enterprise, subject to approval from the Department of Transportation. Facilities that may be supported with these bonds include:

- Airports;
- Docks and wharves;
- Water and sewer projects;
- Local electric and gas facilities;
- District heating and cooling facilities;
- Mass commuting facilities;
- Intercity rail facilities;
- Freight transfer facilities;
- Solid and hazardous waste disposal facilities; and
- Highways and roads.[180]

The DOT has capped the number of Exempt Facility PABs that may be outstanding at anytime at $15 billion. As of 2015, $5.8 billion in Exempt Facility bonds have been issued to support 15 projects, including High Occupancy Toll lanes in Northern Virginia; the CenterPoint inland port in Joliet, Illinois, bus rapid transit in

[180] Municipal Securities Rulemaking Board, "Private Activity Bond." Retrieved December 2, 2015; Cornell Law, "26 U.S. Code § 142 - Exempt facility bond." Retrieved December 2, 2015.

Denver, and Pennsylvania's PPP project to replace structurally deficient bridges. An additional $5 billion in PAB allocations have been made, include the All Aboard Florida high-speed rail project between Florida and Orlando.[181]

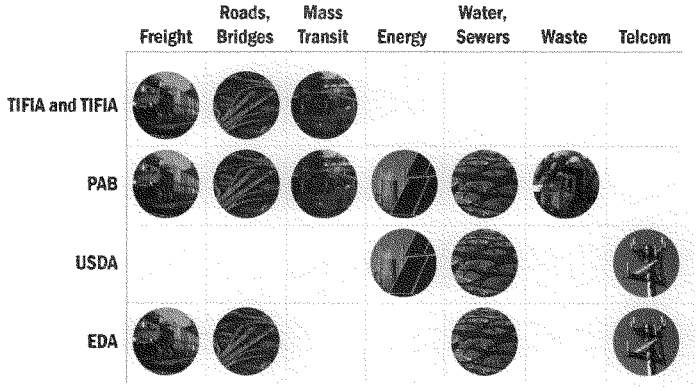


Figure 11. Applicable uses for selected federal grant and loan programs.

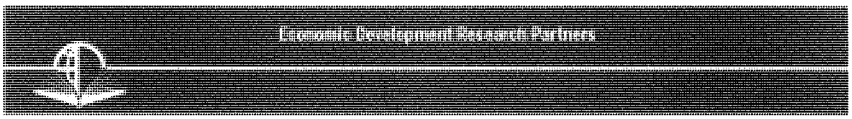
New Frontiers of Financing Infrastructure

Public-Private Partnerships: Changing the Way Infrastructure is Funded

Public private partnerships (PPPs) are a widely-accepted form of doing business that have allowed many communities around the world to more efficiently manage and operate ports, roads, utilities, hospitals, educational facilities, and tourism facilities. In a PPP, the public sector partners with the private sector on a project. But, instead of the public sector simply paying for the services rendered by the private group, the private sector agrees that a portion of their profits will be paid by the success of the project. The private sector taking on this risk is the defining characteristic of a PPP.

PPPs are often used in cases where a government cannot afford to invest in major projects and/or wishes to operate their infrastructure more efficiently. Bringing the private sector into a project is often more effective; PPPs typically encompass both the building and the maintaining of infrastructure projects. Thus, private-sector partners are motivated to build quality projects that return high profits.

[181] Federal Highway Administration, "Florida Rail to Roads," Retrieved December 1, 2015.



Increasingly, PPPs are being seen as instruments of efficiency, leveraging government resources and ultimately increasing economic development. As early as 2002, a study commissioned by the U.S. Department of Commerce Economic Development Administration concluded that PPPs "are now a standard concept in business and state and local government circles, especially in the economic development realm."[182]

Municipal Bonds Versus PPPs

Currently, most publicly-owned infrastructure assets are financed by either tax revenues in the form of federal grants and loans, state and local expenditures, and municipal bonds or through revenue bonds backed by user fees, such as tolls, fees and charges.[183] Municipal bonds are most common, due mainly to their exemption from federal income tax, as well as exemption from state and local income taxes in the jurisdiction where they are issued. Municipal bonds are less expensive than private capital and are not subject to regulation by federal securities laws, except for anti-fraud provisions.

However, recent trends in community finance have made municipal bonds less attractive. Because they have been used extensively, municipal bonds now suffer from increased debt ratio and reduced debt service coverage, according to a 2014 report from the Department of the Treasury.[184] The report also points out that stagnant economic growth and absence of support for new user fees and taxes have curtailed increased debt capacity. Additionally, municipal bonds include statues that dissuade private entities from participating in projects that they fund; infrastructure assets that are financed with tax-exempt bonds are subject to significant limitations on the use of private sector maintenance and operation contracts.[185]

Investors who are active in U.S. corporate and credit markets, such as pension funds, life insurance companies, and sovereign wealth funds, do not typically invest in municipal bonds, but it is becoming more apparent that, for these entities, the public infrastructure market represents a huge opportunity. Public infrastructure offers the opportunity of steady, large scale returns; a position that is amenable to groups that value low to moderate risks. As government budgets tighten at every level, private financing is becoming a more attractive mechanism for infrastructure projects.

The Mechanics of Public-Private Partnerships

Under a PPP, a government contracts with a private firm to design, finance, construct, operate, and maintain (or any subset of those roles) an infrastructure asset on behalf of the public sector.[186] There are many

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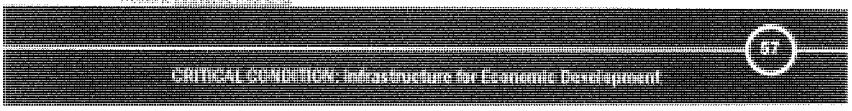
[182] Stephen P. Mullin, "Public-Private Partnerships and State and Local Economic Development: Leveraging Private Investment," *Reviews of Economic Development Literature and Practice, 16*, 2002.

[183] U.S. Department of the Treasury, *Expanding Our Nation's Infrastructure Through Innovative Financing*, (Washington, DC: DOT), 2014.

[184] Treasury, *Innovative Financing*.

[185] Infrastructure assets that are financed with tax-exempt bonds are subject to significant limitations on the use of private sector maintenance and operation contracts.

[186] Treasury, *Innovative Financing*.



financial and managerial advantages to this system. By bringing on private contractors at the beginning, a project can be designed to include features that will promote savings over the long term. Furthermore, private-sector designers will be motivated to come in on budget since cost overruns impact their bottom line. The most cited advantage for the public sector, however, is that governments can transfer risks to the private sector, such as the possibility that construction costs are higher or that toll revenue is lower than expected.[187]

Because the private sector is able to take on more risks than the public sector, and can manage projects more effectively, a PPP has the potential to save taxpayer money and deliver higher quality, more reliable services. While the cost of a PPP project may exceed the bid of a public entity, PPPs have a track record of delivering on-time and on-budget, while publicly funded projects often do not. PPPs differ from privatization in that the government retains a vital contract oversight role. At the end of the PPP contract term, the asset typically reverts to the government.

No two PPPs are the same, and they range from those that are heavily controlled by the public sector to those that are nearly privatized. In the appendix is a list of 18 of the more common PPP models.[188] The National Council for Public-Private Partnerships was a resource used in developing the GAO report.

Precautions in the Use of PPPs

In recent years, PPPs have been presented by many as a panacea for all infrastructure woes. While the investment of private funds into infrastructure traditionally funded by public means is a solution for some communities' infrastructure needs, this approach should be considered carefully. The financial mechanism underlying a PPP is debt, which may be more expensive than the municipal bonds which have traditionally been used to finance infrastructure projects. While there are definite advantages to utilizing the private sector's capital and management, community leaders should recognize that PPPs are a business transaction and are beholden to repayment.

Critics of PPPs argue that risk is not negated but instead spread out in different ways. For example, a long-term PPP can constrain lawmakers' policy-making options, as was the case when a PPP ran toll roads down the center of an Interstate in California. When the state wanted to expand the highway, they were caught in a non-compete clause and had to buy out the private company. The public sector can also be on the hook for revenue that the private company has lost, due to poor performance or public-sector activities.[189] When the city of Chicago entered into a 75-year deal with a private firm to manage its parking meters, they did not anticipate that every time a street is temporarily closed they would have to compensate the company for lost revenue. Clauses to ensure a certain amount of revenue are common in PPPs, due to the low revenues that toll roads and other types of infrastructure projects generate. When the minimum revenues are not

[187] Ryan Holeywell, "Public-Private Partnerships Are Popular, But Are They Practical?" *Governing*, November 2013.
[188] Goverment Accounting Office, *Public-Private Partnerships: Terms Related to Building and Facility Partnerships*, (Washington, DC: GAO), 1999.

[189] Holeywell, "Are They Practical?"

being met, the public sector must fill the gap, often at a price that cancels out the savings of a public-private partnership.

Furthermore, PPPs can create situations that exacerbate income inequality. Toll roads charge higher tolls during the busiest parts of the day, when public highways are clogged enough to warrant switching to an expensive alternative. This leaves lower-income people on roads that are less maintained, presumably in cars that are less road-worthy, spending more time and gas money on the road. In a larger context, if PPPs become the financing structure of the future, then those with less political and economic power will be regulated to publicly-maintained infrastructure, leading to a cycle of disinvestment and eventually a double standard of infrastructure in the United States.

Trends in Infrastructure Financing and Maintenance

PPPs are becoming more popular and increasingly being considered as a solution to infrastructure development. As they are implemented, the model is being adjusted to meet the needs of specific projects. Examples of infrastructure exchanges and infrastructure banks show how communities can customize PPPs to their needs. While PPPs can help close funding gaps, other trends are also emerging. Infrastructure exchanges, banks, and revolving loan funds help bridge information mismatches between small infrastructure projects and large, often international investors. They also attempt to depoliticize project selection through the use of objective funding criteria. Another approach seeks payments from infrastructure beneficiaries. These tactics, including value capture and special assessment financing, are also reviewed below.

Infrastructure Exchanges

PPPs are often used for large projects that have the potential to generate significant revenue, while local governments are hampered by funding for small projects that result in small revenues. Those projects could have a major impact, but they have not been able to attract private funds due to their small size. Additionally, neither the public sector nor the private sector understands how to go about funding these small projects. A new kind of "middleman" organization has emerged to broker relationships between these two sectors.

Case Study: West Coast Infrastructure Exchange

The group at the forefront of connecting governments with the private sector is a partnership funded by the governments of California, Oregon, Washington, and British Columbia known as the West Coast Infrastructure Exchange. This non-profit entity works with connections to broker relationships between public and private bodies, thus making private funds easier to access for smaller, mainly water-related infrastructure projects. The idea is to aggregate smaller water infrastructure projects in proximity to each other into a single, long-term (design-build-finance-maintain) contract. Projects are screened for their viability, according to standards developed by the group. Such contracts shift the competitive focus of private sector bidders away from construction costs to the project's long-term life cycle costs. This "bundling" model provides a way for local level projects to access long-term private sector financing such as sovereign wealth funds and public pension funds.

In the funding of projects across jurisdictions, the Exchange aims to provide viable opportunities that meet scale requirements of private investors. Bundling projects together can contribute to raising investors operational costs and maintenance, in addition to procurement costs. Moreover, the Exchange handles the screening of projects for feasibility, and sorts them accordingly, so private investors know what they are getting.[190] The Exchange also aims to share and develop best practices with the public sector to generate capacity and expertise in new approaches. For example, they present at public sector conferences and provide trainings.

Jonathan Tourt, executive director of the West Coast Infrastructure Exchange, explains that the public sector is more inexperienced in the realm of public-private partnerships, saying, "What we have found is that the public sector needs coaching, education, and assistance. There is so much private sector expertise and funding to do this, but the public sector needs assistance to meet them."

The Exchange has received funding by both the Rockefeller Foundation and the Wasserman Foundation, and it has been replicated by other entities, such as the Intermountain Infrastructure Exchange, but by the governor of Colorado, and the Council of the Great Lakes Region. A 2014 report from the consulting group Kohlberg, Kravis, Roberts & Co. hypothesizes that the exchange model could be used to create a funding marketplace for smaller, regional projects.[191]

"Each regional exchange would be able to focus on the infrastructure delivery and finance strategies best tailored to their own culture, problems, and needs. An East Coast or Gulf Atlantic Exchange may focus on infrastructure needs related to rebuilding coastlines and climate resiliency and hardening. Or on transit and transportation projects that cross state borders. A Midwestern Exchange may focus on the challenges of rebuilding water infrastructure in a largely slow growth environment. A Southern Exchange may focus on new infrastructure to accommodate fast growth and the new geography of manufacturing, supply chains, and goods movement. Irrespective of the precise focus, these individual exchanges could be linked up through a project clearinghouse to share data, information, and best practices."

Infrastructure Banks

Infrastructure banks are a commonly suggested solution to the infrastructure crisis. While banks have been successfully created at the state level, political disagreements have precluded the establishment of a national infrastructure bank. If established, the purpose of a national infrastructure bank would be to make loans to complete infrastructure projects. Those projects would be required to be funded by tax or toll revenue so that loans could be paid back with interest.

On the national level, the idea of an infrastructure bank has been debated by politicians over several administrations for some time. Although the proposals change, the basic premise remains the same: a national bank (or fund, or financing authority) would make low-interest loans and other forms of financing

[190] Heather Hachigan, *West Coast Infrastructure Exchange*, (Ottawa: Carleton Centre for Community Innovation), 2014.
[191] Robert Puentes, Marc Lipschultz, Bruce Katz, and Raj Agrawal, *The Way Forward: A New Economic Vision for America's Infrastructure*, (New York: Kohlberg Kravis Roberts), 2014.

available to other public-sector entities. In some plans, this would replace direct federal funding, and in others, the bank would fund PPPs.

There are some policy precedents for a national infrastructure bank. The Transportation and Infrastructure Finance and Innovation Act (TIFIA) is seen by some as the closest the country has come to a full-fledged infrastructure bank, though it is limited in scope and funding capacity and operates as a program within the Transportation Department, rather than as an external, quasi-government agency.[192] But, because they are congressionally-authorized programs, TIFIA and other infrastructure funding mechanisms are not permanent; a national infrastructure bank would insulate funding from a turbulent debt market, state tax revenues, and swings in congressional funding.

If infrastructure is a competitiveness issue, national financing is another front where the U.S. is falling behind. However, the pressure on federal policy makers to create a national infrastructure bank may be increasing as other world powers have taken this route. In late 2015, a China-backed infrastructure bank for Asia was announced. The Asian Infrastructure Investment Bank started with $100 billion in capital and expects to issue $1.5 billion to $2 billion in loans next year. Its target is to lend $15 billion by 2020.[193]

State Infrastructure Banks

State infrastructure banks (SIBs) operate on the same principal as a national infrastructure bank would. Essentially, their purpose is to provide loan funds to complete infrastructure programs within individual states. Those funds would be paid back with user-generated fees. For some types of infrastructure, this practice is common; however, SIBs face redundancy when cities or counties fund projects with municipal bonds or local taxes. Thus, effective SIBs are highly concentrated in just a few states, and some SIBs are underutilized or inactive.

SIBs can be considered as state revolving funds—publicly-regulated loan funds to assist projects across a range of infrastructure modes. Revenues used to capitalize the funds come from a variety of grants and other sources and include local tax options, apportionment from federal, state, or local budgets, or some other form of debt or equity investment. Because they are state-owned and operated, they are not motivated by profit but do rely on principal repayments, bonds, interest, and fees to re-capitalize and replenish the fund as a perpetual source of debt financing. Financing options through State Revolving Funds (SRFs) most commonly take the form of direct loans at low interest rates but can also include bond issuances, credit and loan guarantees, and in some cases grants.

Figure 12 explains the different kind of state infrastructure investment vehicles, along with examples.

State revolving loan funds concentrate primarily on three types of infrastructure: water, energy, and transportation. The transportation SRFs have the most variety and include entities structured more as banks, those that are capitalized through the state, and those that serve a municipality or county. Also included are infrastructure investment funds, which are integrated with the private sector. For the purposes

[192] Darren Samuelsohn, "Bank of Asphalt," *Politico*, September 22, 2015.

[193] Mark Magnier, "China-led Infrastructure Bank Pats Cautious Launch," December 1, 2015.

of this graphic, state revolving loan funds are differentiated from infrastructure investment funds in that they are often capitalized through a government grant that does not require a high return, whereas private funds are expected to perform at a higher level.

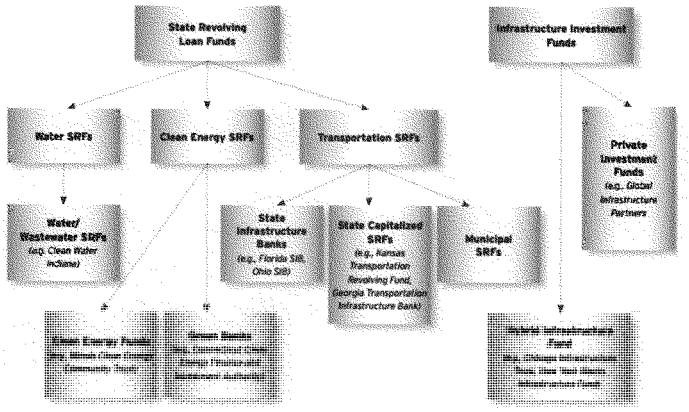


Figure 12. Investment vehicles for state investment infrastructure.[194]

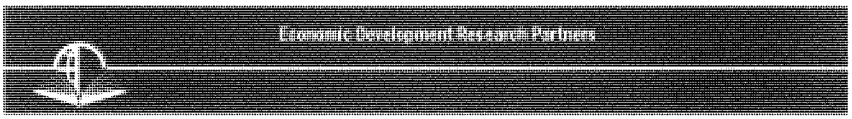
Water/Wastewater Revolving Funds

Water/Wastewater Revolving Funds exist in every state. They were established in 1987, when the federal Water Quality Act phased out construction grants previously offered through the Clean Water Act and established SRFs as a mechanism to leverage additional public and private dollars.

Clean Energy Revolving Funds

Clean energy funds came into popularity in the 1970s following federal legislation such as the Clean Air Act. Over the past decade, clean energy funds in 22 states have invested more than $2.7 billion state dollars in renewable energy markets and leveraged an addition $9.7 billion in federal and private capital.[195] They have funded more than 72,000 projects from solar installations on residential and commercial properties to wind

[194] Robert Puentes and Jennifer Thompson, *Banking on Infrastructure: Enhancing State Revolving Funds for Transportation*, (Washington, DC: Brookings-Rockefeller Project on State and Metropolitan Innovation), 2012.
[195] Puentes and Thompson, Banking on Infrastructure.



farms and biomass generation plants. They can operate out of state agencies such as state energy departments, out of public utility commissions, or as independent nonprofit organizations.

Transportation Revolving Funds

As infrastructure funding and state budgets faced pressure in the 1980s, many states proposed SRFs as a way to secure a permanent pool of capital for transportation investments. Serving as an intermediary between communities and credit markets, state bond banks provide low-cost financing for capital projects. The initial goal of bond banks was to pool the debt of smaller communities to make larger, more cost-effective debt issues. However, the original model was too limited. Larger cities could access the credit market easier on their own, and since the varied needs of many small communities were met through bond banks, the projects tended to be small and not impactful.

The evolution to transportation-targeted SRFs began with institutions like the Florida Toll Facilities Revolving Trust Fund, created in 1986 to help finance revenue-generating projects sponsored by local governments and the Florida Turnpike Enterprise. Today, municipalities are creating their own revolving loan funds, including infrastructure investment funds.

Value Capture

A common source of infrastructure funding consists of user fees. Roadway users may pay tolls, transit users pay fares, and customers of water and sewer services often pay per-gallon fees. But some who may not be direct users are nonetheless the recipients of significant financial benefits from public infrastructure. Value capture is a type of public financing that recovers some or all of the value that public infrastructure generates for private landowners. When public infrastructure investments are made–such as installing new sewer lines, roads, or transit—the value of well-served land increases. Typically, these increases are largely a windfall to private landowners. Value capture mechanisms allow the public sector to recapture some of that publicly-created value.

This already takes place through the land value tax, which is included in most common real estate taxes. However, land value fees do not capture all of the value that has been added to the property due to infrastructure improvements. Of course, property tax rates differ from jurisdiction to jurisdiction. But typically, for every $100 of publicly-created land value, the owner returns only one to two percent annually. Thus, landowners are receiving substantial windfalls from publicly-created land values.[196]

If municipalities could capture publicly-created land values, some infrastructure projects could generate revenues that equal or exceed their cost of construction. Thus, value capture can allow infrastructure projects to be financially self-sustaining, at least to a greater degree than they are in the absence of value capture.

Value capture also reduces the profit from speculative "land-grabs" when new roads or transit stops are

[196] Rick Rybeck, "Funding Long-Term Infrastructure Needs For Growth, Sustainability and Equity," [Policy paper prepared for the D.C. Tax Revision Commission], 2008.

announced. The flurry of purchasing that occurs with the announcement of new infrastructure development typically drives prices up; with value capture mechanisms in place, such as more realistic land taxes, land prices are more closely tied to what residents or businesses are able to pay, rather than to speculator-induced land-price bubbles. The result is land prices that rise and fall more moderately rather than fluctuating wildly as a result of speculative booms and busts. Landowners would pay for infrastructure based on the degree to which they benefit from such investment.

To the extent that the capture of publicly-created land value allowed for a reduction in taxes on privately-created building values, job-creating development could become relatively more profitable than land speculation. Some mechanisms used in economic development and municipal finance are called "value capture" but fail to return publicly-created land values to the public sector. Table 3 clarifies which mechanisms are value capture techniques.

Revenue Generation Technique	Status as Value Capture
Land Value/Site Value Fee - An annual charge based on the value of land.	Yes
Special (or Benefit) Assessment District - A special payment in addition to the typical property tax required of all property owners. A special assessment district counts as value capture if funds are derived from publicly-created land values.	Maybe (Depending upon whether the fee is levied against publicly-created land values or privately-created building values.)
Joint Development/Transit Connection Fees - A joint development fee is a price paid by a developer to develop public land or air rights. A "connection fee" is a price paid by a developer or property owner to create or maintain a direct connection to a transit facility.	Yes
Betterment Levies - One-time fees intended to capture a portion of the land value increment created by an infrastructure project.	Yes
Exactions - One-time, in-kind contributions to public infrastructure negotiated with a developer as part of an agreement to grant a development permit.	No (Cost avoidance)
Development Impact/Transportation Utility Fee - Mandate that private development likely to require an increase in public services must compensate the public for that increase in service level.	No (Cost reimbursement)
Tax Increment Financing (TIF) – Tax revenues are benchmarked for a geographically-defined area. Although tax rates are not changed, any increase in revenues above the benchmarked amount is dedicated to infrastructure development in that	No (Revenue Segregation)

area on the assumption that the infrastructure project created those increased revenues.	
Land Sale/Lease – If the lease or sale of public land is performed at full market value, then the sale or lease price should capture the value imparted to the site by nearby public goods and services at the time of the transaction. Long-term land leases might be preferable to sales because they are periodically renegotiated and renewed. Thus they capture value over a longer period of time rather than at a single point in time.	Yes

Table 3. Techniques for value capture.[197]

For each of these mechanisms, the test of whether it is "value capture" is dependent on whether revenues are derived from publicly-created land values or from privately-created building values or commerce. This is not to imply that these other techniques are never appropriate but merely that they are not "value capture." For example, value capture might be more appropriate in an urban setting where a community wants to encourage development near new or existing infrastructure. On the other hand, cost reimbursement (such as a development impact fee) might be more appropriate in a rural area where new development would over-burden existing infrastructure and otherwise cause the general public to subsidize the new development through subsequent infrastructure expansion.

A Call to Action: What Economic Developers Can do Today to Ensure Infrastructure Needs are Met

Infrastructure affects economic development in a fundamental way. It touches every aspect of business competitiveness, from recruiting companies to ensuring an equitable community to retaining a talented workforce. Economic development professionals can no longer ignore the effects of crumbling infrastructure on their economies. The following five tactics encompass the key messages of this report into a call to action for economic developers:

- Participate in local, regional, and state infrastructure planning.
- Educate community leaders on the importance of infrastructure to competitiveness.
- Take action on these challenges by working with lawmakers and business leaders
- Analyze how national challenges will manifest themselves in their communities.
- Support financing of infrastructure construction and maintenance at both local and state levels.

[197] Rybeck, "Funding Long-Term Infrastructure."

Participate in Local, Regional, and State Infrastructure Planning

In every community, there is a process for planning for future infrastructure happening right now. For that process to favor continued growth and meet the needs of current and future businesses, the voice of the economic developer must be heard.

As explained above, transportation and infrastructure planning at the local and regional level is complex. The first step in engaging is to determine how regional planning entities in a particular area are structured. Is there a Metropolitan Planning Organization (MPO) or an EDA-designated Economic Development District? Are they housed in the same organization or different? Which organization is tasked with writing the Comprehensive Economic Development Strategies (CEDS), and which is the group that develops short- and long-term transportation plans for the state?

Since CEDS are meant to be a regional vision of economic development for the next five years, engaging economic developers on the strategy committee makes sense. Economic developers can contribute significantly, providing analyses of existing and emerging populations and clusters, as well as speaking for the business community. Although EDA funding for CEDS has decreased, this process is still a key path to infrastructure funding, as well as economic visioning, for most communities; engaging in development planning ensures that these federal resources will be directed toward a comprehensive regional vision.

Similarly, as MPOs and Rural Transit Planning Organizations (RTPOs) develop short- and long-term plans, economic developers should be at the table to advocate for the current and future needs of key industries. For smaller organizations, keeping abreast of planning developments and weighing in on public processes may be the extent of engagement. Larger, regional organizations may already have strong connections with these groups, and economic developers should work to strengthen these relationships and become partners in planning.

The planning process for infrastructure maintenance and development focuses on a necessarily long-term view. Economic developers often work on a more constricted timeline, trying to arrange deals to attract or expand companies in the least amount of time. The infrastructure planning process may seem tedious; however, economic developers bring important information to the table, including information on industries that are expanding or contracting and demographic and workforce analysis. Furthermore, they bring with them the concerns of the business community, which is unlikely to be involved otherwise.

Educate Community Leaders on the Importance of Infrastructure to Competitiveness

Motivating action on infrastructure starts with education. Economic development practitioners can frame infrastructure issues in terms of competitiveness and thereby gain more support for investment. This paper provides an overview of infrastructure, including the historical background, economic rationale, and information on current challenges—information that can be used to make the case for infrastructure investment to elected and business leaders.

Community decision makers may not recognize the cost to competitiveness caused by ignoring infrastructure challenges. For example, congestion may be recognized as a nuisance, or even an environmental hazard, but the underlying effects on business are not as apparent. Economic developers can—and should—raise these important impacts. Similarly, economic developers can speak to innovative funding techniques and introduce new ways of thinking about the value of infrastructure.

One of the most pertinent arguments that economic developers can make is to connect infrastructure to quality of life, and the retention and attraction of human capital. A workforce that meets employers' needs is the most valuable asset that a community can offer. That workforce is significantly motivated by quality infrastructure, including easy-to-travel roads, accessible public transportation, and access to high-speed Internet.

Take Action on These Challenges by Working with Lawmakers and Business Leaders

Economic developers can build support for infrastructure funding amongst the business community and declare to the public the competitive case for such funding. Economic developers can convene business leaders to advocate for appropriate infrastructure solutions. Whether funding structures come in the form of public-private financing, increased taxes or bond issuance, or other financing means, businesses should be aware of these implications. In some cases, it may be appropriate for the business and economic development community to advocate for increased levies or taxes. At other times, the business community may advocate for a different approach. EDOs and chambers of commerce can be the voice of the business community on such measures.

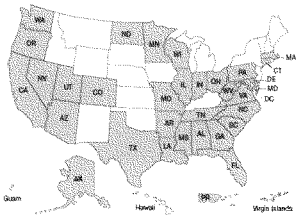


Figure 13. States with legislation enabling PPPs for transportation infrastructure.[198]

Working with the business community to support infrastructure can be an effective lobbying strategy for legislative environments. At the state level, large chambers of commerce and industry groups may already have government affairs staff tracking infrastructure-related legislation. Smaller groups, especially those in rural places where infrastructure investment is necessary for increased development, should also be aware of and engaged with legislation to enhance infrastructure. Even if the move towards funding is small and decided upon by a local council or other legislative system, it can still be helpful for business leaders to testify as to the importance of infrastructure improvements.

For funding at the national level, the capacity of an EDO may determine the amount of effective actions that can be taken. At the very least, EDOs of all sizes should meet with their national legislators and staff to

[198] Adapted from Federal Highway Administration, "State PPP Legislation." Retrieved January 19, 2016.

develop working relationships. Legislators benefit from hearing from their EDO constituents about local examples and industry data. Furthermore, EDOs can work to keep their networks informed about the latest in state and local infrastructure policy and funding availability.

One important issue at the state level that all EDOs should be aware of is the need to create a public policy framework and criteria for the establishment of PPPs. For instance, 33 states have laws allowing for PPPs for transportation projects. Without these laws in place, PPPs are difficult to form and can get tied up in red tape. Figure 13 shows which states have enabling legislation. Ensure effective legislative involvement occurs throughout the capital budgeting process. Some states have achieved greater legislative involvement through joint legislative-executive review boards for capital projects. Joint review boards provide another layer of scrutiny to capital projects and foster communication between the executive branch and the legislature. They also serve to lend credibility to capital budget requests and help mitigate political influences in capital spending decisions.

Analyze How National Challenges Will Manifest Themselves in Local Communities

According to a survey of economic developers in EDRP's 2014 paper, "More than Money: Alternative Incentives that Benefit Companies and Communities," respondents show that "road or rail improvements" (47 percent) are the most commonly-used alternative incentive in the "Infrastructure" category. The next most commonly-used alternative incentives in the "Infrastructure" category are traffic studies (28 percent) and streetscape improvements (26 percent). While road and rail improvements are typically linked to industrial or manufacturing developments, streetscape improvements are usually made to downtown business districts. The types of alternative infrastructure incentives that economic developers are able to accommodate depend on the type of infrastructure that is required for key industries.

Infrastructure needs change over time. As cities become havens for the knowledge economy, infrastructure that supported manufacturing and other heavy industry may become outdated; for example, industrial waterfront districts, such as those in the former steel city of Pittsburgh, are giving way to parks and mixed-use developments. In fact, rather than connecting cities to each other and the rest of the world, a new generation of urban infrastructure is designed with the goal of connecting knowledge workers to each other and to ideas.

With human capital first on the list of community attributes that attract firms, economic developers cannot ignore the importance of infrastructure in creating vibrant, connected urban environments. Cities and towns that prioritize transit, pedestrian, and bike infrastructure in walkable downtown environments create places that foster the knowledge economy. Dense, urban environments that incorporate many different uses have been deemed "innovation districts" and facilitate the spreading of ideas and interpersonal connections. This kind of environment is attractive to both young talent as well as retiring baby boomers.

Support Financing of Infrastructure Construction and Maintenance

Often, securing a business attraction deal will require bringing public and private partners together for infrastructure development. When it comes to setting the ball in motion for infrastructure investment, economic developers are natural instigators. Because they straddle the public and private worlds, have experience in crafting deals that satisfy both sides, and can be effective advocates for infrastructure funded with private investors or public entities, economic developers often find themselves in the role of brokering deals for local, regional, or state infrastructure funding.

Economic developers can support financing by:

- Conducting fiscal and economic analyses of different scenarios. These should show how the project will affect economic impacts. Furthermore, in PPPs, the economic developer may be called upon to be the conduit through which the private sector accesses funding. In this role, economic developers should work with their partners to craft the best strategy for every entity involved.
- Accessing federal resources directly, or support access for state, county, and city governments. Economic development organizations are eligible recipients for some, but not all, of the federal grants and loans listed above. Where applicable, economic developers could access these grants to advance business-focused projects. In other cases, economic developers can work with local governments to promote the use of these programs and strengthen applications.
- Promoting and directly accessing state resources where available. Each state has financing that can be accessed by local governments, authorities, and potentially, economic development organizations. We couldn't list them all, but state revolving loan funds are one source. With the good business case that economic developers have made through their analysis and advocacy work, they should be able to present compelling applications for state monies. Note also that federal and state funds could be leveraged in setting up a PPP.
- Advocating for user fees that cover costs and explaining why these are fair, efficient, and growth-promoting. Additionally, appropriate user fees can be used as a revenue source for a PPP.
- Advocating for legislation that permits value capture for infrastructure projects, which may be used as either a public financing tool or a PPP financing tool, drawing on deep economic development experience in using the similar tool of tax increment financing.
- Working to set up infrastructure exchanges or revolving loan funds, drawing on contacts in banks, government, the local construction industry, and with economic development contacts across the country, thanks to forums such as IEDC.

Appendix 1: PPP Models

O&M: Operations and Maintenance
A public partner (federal, state, or local government agency or authority) contracts with a private partner to provide and/or maintain a specific service. Under the private operation and maintenance option, the public partner retains ownership and overall management of the public facility or system.

OMM: Operations, Maintenance & Management
A public partner contracts with a private partner to operate, maintain, and manage a facility or system proving a service. Under this contract option, the public partner retains ownership of the public facility or system, but the private party may invest its own capital in the facility or system. Any private investment is carefully calculated in relation to its contributions to operational efficiencies and savings over the term of the contract. Generally, the longer the contract term, the greater the opportunity for increased private investment because there is more time available in which to recoup any investment and earn a reasonable return. Many local governments use this contractual partnership to provide wastewater treatment services, for example.

DB: Design-Build
A DB is when the private partner provides both design and construction of a project to the public agency. This type of partnership can reduce time, save money, provide stronger guarantees, and allocate additional project risk to the private sector. It also reduces conflict by having a single entity responsible to the public owner for the design and construction. The public-sector partner owns the assets and has the responsibility for the operation and maintenance.

DBM: Design-Build-Maintain
A DBM is similar to a DB except the maintenance of the facility for some period of time becomes the responsibility of the private-sector partner. The benefits are similar to the DB, with maintenance risk being allocated to the private sector partner and the guarantee expanded to include maintenance. The public-sector partner owns and operates the assets.

DBO: Design-Build-Operate
A single contract is awarded for the design, construction, and operation of a capital improvement. Title to the facility remains with the public sector unless the project is a design/build/operate/ transfer or design/build/own/operate project. The DBO method of contracting is contrary to the separated and sequential approach ordinarily used in the United States by both the public and private sectors. This method involves one contract for design with an architect or engineer, followed by a different contract with a builder for project construction, followed by the owner's taking over the project and operating it. Combining all three passes into a DBO approach maintains the continuity of private-sector involvement and can facilitate private-sector financing of public projects supported by user fees generated during the operations phase.

DBOM: Design-Build-Operate-Maintain
The design-build-operate-maintain (DBOM) model is an integrated partnership that combines the design and construction responsibilities of design-build procurements with operations and maintenance. These project components are procured from the private section in a single contract with financing secured by the

public sector. The public agency maintains ownership and retains a significant level of oversight of the operations through terms defined in the contract.

DBFOM: Design-Build-Finance-Operate-Maintain
With this approach, the responsibilities for designing, building, financing, operating, and maintaining are bundled together and transferred to private-sector partners. There is a great deal of variety in DBFOM arrangements in the United States, especially the degree to which financial responsibilities are actually transferred to the private sector. One commonality that cuts across all DBFOM projects is that they are either partly or wholly financed by debt-leveraging revenue streams dedicated to the project. Direct user fees (tolls) are the most common revenue source. Future revenues may be leveraged to issue bonds or other debt that provide funds for capital and project development costs. They also are often supplemented by public sector grants in the form of money or contributions in-kind, such as right-of-way. In certain cases, private partners may be required to make equity investments as well.

DBFOMT: Design-Build-Finance-Operate-Maintain-Transfer
This partnership model is the same as a DBFOM except that the private sector owns the asset until the end of the contract when the ownership is transferred to the public sector. While common abroad, DBFOMT is not often used in the United States.

BOT: Build-Operate-Transfer
The private partner builds a facility to the specifications agreed to by the public agency, operates the facility for a specified time period under a contract or franchise agreement with the agency, and then transfers the facility to the agency at the end of the specified period of time. In most cases, the private partner will also provide some, or all, of the financing for the facility, so the length of the contract or franchise must be sufficient to enable the private partner to realize a reasonable return on its investment through user charges. At the end of the franchise period, the public partner can assume operating responsibility for the facility, contract the operations to the original franchise holder, or award a new contract or franchise to a new private partner.

BOO: Build-Own-Operate
The contractor constructs and operates a facility without transferring ownership to the public sector. Legal title to the facility remains in the private sector, and there is no obligation for the public sector to purchase the facility or take title. A BOO transaction may qualify for tax-exempt status as a service contract if all Internal Revenue Code requirements are satisfied.

BBO: Buy-Build-Operate
A BBO is a form of asset sale that includes a rehabilitation or expansion of an existing facility. The government sells the asset to the private-sector entity, which then makes the improvements necessary to operate the facility in a profitable manner.

Developer Finance
The private party finances the construction or expansion of a public facility in exchange for the right to build residential housing, commercial stores, and/or industrial facilities at the site. The private developer contributes capital and may operate the facility under the oversight of the government. The developer gains the right to use the facility and may receive future income from user fees.

While developers may in rare cases build a facility, more typically they are charged a fee or required to purchase capacity in an existing facility. This payment is used to expand or upgrade the facility. Developer financing arrangements are often called capacity credits, impact fees, or extractions.

EUL: Enhanced Use Leasing or Underutilized Asset
An EUL is an asset management program in the Departments of Defense and Veterans Affairs (VA) that can include a variety of different leasing arrangements (e.g., lease/develop/operate, build/develop/operate). EULs enable the agencies to long-term lease property to the private sector or other public entities for non-agency uses in return for receiving fair consideration (monetary or in-kind) that enhances the agency's mission or programs.

LDO or BDO: Lease-Develop-Operate or Build-Develop-Operate
Under these partnerships arrangements, the private party leases or buys an existing facility from a public agency; invests its own capital to renovate, modernize, and/or expand the facility; and then operates it under a contract with the public agency.

Lease/Purchase
A lease/purchase is an installment-purchase contract. Under this model, the private sector finances and builds a new facility, which it then leases to a public agency. The public agency makes scheduled lease payments to the private party. The public agency accrues equity in the facility with each payment. At the end of the lease term, the public agency owns the facility or purchases it at the cost of any remaining unpaid balance in the lease. Under this arrangement, the facility may be operated by either the public agency or the private developer during the term of the lease. Lease/purchase arrangements have been used by the General Services Administration for building federal office buildings and by a number of states to build prisons and other correctional facilities.

Sale/Leaseback
This is a financial arrangement in which the owner of a facility sells it to another entity, and subsequently leases it back from the new owner. Both public and private entities may enter into sale/leaseback arrangements for a variety of reasons. An innovative application of the sale/leaseback technique is the sale of a public facility to a public or private holding company for the purposes of limiting governmental liability under certain statues. Under this arrangement, the government that sold the facility leases it back and continues to operate it.

Tax-Exempt Lease
A public partner finances capital assets or facilities by borrowing funds from a private investor or financial institution. The private partner generally acquires title to the asset but then transfers it to the public partner either at the beginning or end of the lease term. The portion of the lease payment used to pay interest on the capital investment is tax-exempt under state and federal laws. Tax-exempt leases have been used to finance a wide variety of capital assets, ranging from computers to telecommunication systems and municipal vehicle fleets.

Turnkey
A public agency contracts with a private investor/vendor to design and build a complete facility in accordance with specified performance standards and criteria agreed to between the agency and the vendor. The private developer commits to build the facility for a fixed price and absorbs the construction risk of meeting that price commitment. Generally, in a turnkey transaction, the private partners use fast-track

construction techniques (such as design-build) and are not bound by traditional public-sector procurement regulations. This combination often enables the private partner to complete the facility in significantly less time and for less cost than could be accomplished under traditional construction techniques.

In a turnkey transaction, financing and ownership of the facility can rest with either the public or private partner. For example, the public agency might provide the financing, with the attendant costs and risks. Alternatively, the private party might provide the financing capital, generally in exchange for a long-term contract to operate the facility.

Appendix 2: List of Abbreviations.

3-C. Continuing, cooperative, and comprehensive.

AAA. American Automobile Association.

AFL-CIO. American Federation of Labor and Congress of Industrial Organizations

ARC. Appalachian Regional Commission.

ARRA. American Recovery and Reinvestment Act.

ASCE. American Society of Civil Engineers.

AWWA. American Water Works Association.

BAFED. Building America's Future Education Fund.

BATIC. Building American Transportation Investment Center.

BBO. Buy-Build-Operate.

BDO. Lease-Develop-Operate or Build-Develop-Operate.

BOO. Build-Own-Operate.

BOT. Build-Operate-Transfer.

CDBG. Community Development Block Grant.

CEDS. Comprehensive economic development strategy.

COG. Council of Governments.

CWSRF. Clean water state revolving fund.

DB. Design-Build.

DBM. Design-Build-Maintain.

DBFOM. Design-Build-Finance-Operate-Maintain.

DBFOMT. Design-Build-Finance-Operate-Maintain-Transfer

DBO. Design-Build-Operate

DBOM. Design-Build-Operate-Maintain

DEED. [Minnesota] Department of Employment and Economic Development.

DOE. Department of Energy.

DOT. Department of Transportation.

EAA. Economic Adjustment Assistance.

EDA. Economic Development Administration.

EDD. Economic Development District.

EDO. Economic development organization.

EDRG. Economic Development Research Group, Inc.

EDRP. Economic Development Research Partners.

EERE. Energy Efficiency and Renewable Energy

EUL. Enhanced Use Leasing.

EPA. Environmental Protection Agency.

FAA. Federal Aviation Administration.

FAST, Fixing America's Surface Transportation Act

FCC. Federal Communications Commission.

FHA. Federal Housing Administration.

FHWA. Federal Highway Administration.

FRA. Federal Railroad Administration.

FTA. Federal Transit Administration.

GAO. Government Accountability Office.

HOT. High-occupancy/toll.

HUD. Housing and Urban Development Department.

LDO. Lease-Develop-Operate.

LRTP. Long range transportation plan.

MAP-21. Moving Ahead for Progress in the 21st Century Act.

MPO. Metropolitan planning organization.

MTP. Metropolitan transportation plan.

NIMBY. Not in my backyard.

NHS. National Highway System.

O&M. Operations and Maintenance

OMM. Operations, Maintenance and Management.

PAB. Private activity bond.

PPP. Public-private partnership.

RFI. Request for information.

RPO. Rural planning organization.

RRIF. Railroad Rehabilitation and Improvement Financing.

RUS. Rural Utilities Service.

RTOIO. Regional transportation planning organization.

SGA. Smart Growth America.

SIB. State infrastructure bank.

SRF. State revolving fund.

TED. [Minnesota] Transportation Economic Development.

TIF. Tax increment financing.

TIFIA. Transportation Infrastructure Finance and Innovation Act.

TIGER. Transportation Investment Generating Economic Recovery.

TIP. Transportation improvement program.

TOD. Transit-oriented development.

TRIP. The Road Information Program.

UPWP. Unified planning work program.

USDA. Department of Agriculture.

VMT. Vehicle miles traveled.

WEF. World Economic Forum.

WPA. Works Progress Administration.

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