

Rebuilding the Midwest's infrastructure: Driving equitable economic recovery in a world reshaped by COVID-19

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Executive summary

In the midst of a national discussion about the need to update our infrastructure, the Midwest is primed for a new round of investment. The agenda for the country and for the Midwest must reflect the realities of an economy and society shaped by longstanding structural, economic, racial, and geographic inequities, accentuated by the onset of the COVID-19 pandemic. At the same time, this moment offers a clear opportunity to ensure that a new infrastructure development plan capitalizes on the unique assets and economic opportunities inherent to each region to accelerate economic growth and spread its benefits to more people and places.

In the Midwest, this agenda includes several core components. It must adapt to the economic realities of the post-COVID-19 world. It must also contribute to innovation in a host of sectors—from manufacturing to product-delivery systems to health care—while enhancing the ability to organize state- and local-level infrastructure initiatives. Finally, it must dovetail with the urgent need and newfound political will to close gaps in equity and opportunity based on race, income, and geography. These priorities are broken down into five key policy areas:

- *Support economic growth and vitality in a reshaped post-pandemic world.* The agenda must account for post-COVID-19 economic realities: safer facilities, reoriented supply chains, and physically distanced work routines.
- *Drive economic convergence and inclusion through infrastructure.* The new agenda must reverse trends of community divergence with concentrated investment and focus on historically marginalized populations, as well as residents of communities isolated by geography—conditions brought into stark relief by the effects of the COVID-19 pandemic.
- *Build sustainable and resilient infrastructure for a changing climate.* With the backdrop of a changing climate, the agenda must capitalize on the Midwest's natural assets, which include an abundance of fresh water, while pursuing resilient infrastructure.
- *Enhance broadband to mark the Midwest as a leader in connectivity.* Local and state governments, with federal assistance, must expand broadband access and affordability to ensure economic opportunity and business growth for all Midwest communities.
- *Model sustainable and resilient transport and logistics systems.* By modernizing its network of airports, highways, railroads, ports, intermodal stations, and storage to support fine-tuned supply chains, the Midwest can fashion a more sustainable and resilient production and delivery system.

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Introduction

As outlined in the Chicago Council on Global Affairs report *A Vital Midwest: The Path to a New Prosperity*,¹ the Midwest possesses unique infrastructure needs and deficits, including some of the country's oldest (and, per capita, most expensive to repair) water, transportation, and related systems; a disproportionate share of US brownfields and other residuals of the industrial economy; and a decentralized patchwork of local governments that makes implementing coherent and affordable infrastructure solutions a challenge.

But there are also assets and concurrent economic opportunities, including those revealed by the coronavirus pandemic, on which new Midwest infrastructure development can capitalize. Doing so will require attention to updated patterns of work, improved production and distribution systems for both products and services, and broadband connectivity access.

Upgrading and enhancing the region's infrastructure can accelerate Midwest economic growth and contribute to newfound economic advantage. Infrastructure enhancements can:

- Leverage a robust supply-and-logistics network to pioneer the next generation of highly integrated, more resilient supply chains and logistics operations;
- Assist places currently isolated by geography, segregation, or poverty to successfully participate in a dynamic global economy;
- Overcome challenges created by a changing climate and ongoing technological disruption to help communities seize economic growth opportunities; and
- Provide the physical and lifestyle amenities that attract and retain workforce talent.

The coronavirus pandemic and social unrest sparked by the killing of George Floyd have only accelerated the urgency of these efforts. These events have signposted the need to reshape the policies and conditions that affect inclusion and opportunity, increasing the importance of new and different infrastructure to hasten recovery and build greater social and economic equity in today's changed economy.

Coronavirus-driven changes to social, work, and business patterns have also created dynamics that will shape infrastructure needs. More work in many sectors, from education to health care, will rely on communities' access to high-speed broadband. But the virus has also exposed the disparity in connectivity between different populations, making even more urgent the need to close divides in opportunity.

These changes are accompanied by potential shifts in the location preferences of businesses and professionals away from dense, highly urbanized economic hubs. These changes could represent new opportunities for many Midwest communities that offer an attractive quality of life, a lower cost of living, and an environment more conducive to physical distancing.

Supply chains and networks are also likely to be rearranged for greater redundancy, adaptability, and domestic control. This effort runs parallel to changes in sectors such as food delivery, transportation, and medical products and services. The Midwest, with its high concentration of world-class companies and universities, can provide a powerful innovation and production base for many products and services, facilitating renewed opportunity for the region to become a central player in a host of emerging sectors.

Finally, an infrastructure development program jointly deployed by federal, state, and local

authorities as a response to COVID-19 could directly accelerate the growth of businesses and living-wage jobs in the region, particularly in communities of color that have been hit hardest by both the economic and health impacts of the virus. To do so effectively, an agenda must reflect the newly heightened attention to social justice and racial equity that is reshaping the economic landscape.

This brief elaborates on the details of an enhanced and reformed Midwest infrastructure development agenda needed to drive the region's economic transformation. Its enactment will allow the region to make flexible adaptations to the forces driving change in lifestyle choices, consumer preferences, and business practices.

The infrastructure agenda for the Midwest must:

- Support economic growth and vitality in a reshaped post-pandemic world.
- Drive economic convergence and inclusion through infrastructure.
- Build sustainable and resilient infrastructure for a changing climate.
- Enhance broadband to mark the Midwest as a leader in connectivity.
- Model sustainable and resilient transport and logistics systems.

I. Support economic growth and vitality in a reshaped post-pandemic world

An economy reshaped by COVID-19 presents unique implications for infrastructure development that both accommodate new realities and take advantage of the opportunities presented post-pandemic. In broad strokes, these changes play out in several ways:

- New social, work, and business patterns entail distanced work, learning, and service delivery—enabled by access to high-speed internet.
- The gulf in opportunity between different populations and communities—ranging from the ability to learn and work remotely to reliance on low-paying front-line service jobs and public transportation—has been dramatically exposed during the COVID-19 crisis, accentuating already obvious differences in health risks and economic opportunity. These disparities are increasingly difficult for policy makers to ignore, making it more politically urgent to close opportunity gaps based on race, income, and geography. This urgency will be keenly felt in the Midwest, home to the largest share of segregated communities in the country, as well as to communities of color particularly hard-hit by both the health and economic impacts of COVID-19.
- Potential shifts in location preferences of businesses and professionals away from dense, highly urbanized economic centers will bring new opportunities for the many Midwest communities that have much to offer in terms of high-quality and relatively low-cost physical and lifestyle amenities.
- Supply chains may be rearranged for greater redundancy and more domestic control, running in parallel with moves to reduce reliance on far-flung supplier networks.
- The coming years will see game-changing innovations in manufacturing technologies, energy, water systems, and medical products and delivery. The Midwest is well positioned to discover, manufacture, and deploy these new products and solutions given

its robust research, engineering, medical, and manufacturing base.

In many hard-hit regions, including the manufacturing-intensive Midwest, the COVID-19-induced recession will likely drive further occupational automation and worker dislocation. As scholars at the Upjohn Institute have argued, even if jobs do return, a long layoff means workers' skills decay, adding to the need for retraining assistance.² As such, an infrastructure development program must go beyond reacting to changes wrought by the pandemic and be proactive in generating sustained improvement in skill building. The agenda must also include a worker upskilling and retraining component to support inclusive participation in a reshaped economy.

On the other hand, some industries will expand because of the crisis. Growth will come in healthcare, in the manufacturing of medical devices and supplies, and for businesses that support remote work and education, such as broadband installation and remote-communications software developers. Most of these positions require associate degrees or shorter-term certifications generally available at community colleges and technical-training institutions.

Indeed, areas that rely heavily on manufacturing may have greater need for support in creating many of the jobs that will emerge in an economic landscape reshaped by COVID-19. Employers in the region were already facing skills shortages in key occupations related to construction and building and laying of infrastructure; now those shortages are acute, according to infrastructure-sector experts from KPMG interviewed for this brief. There will also likely be a greater need to expand construction and skilled-trade training and apprenticeship programs and make them more racially inclusive.

An infrastructure development plan jointly deployed by federal, state, and local authorities

must directly contribute to the post-pandemic growth of much-needed new jobs and industries, as well as to the spread of economic opportunity and the inclusion of more people and places in the recovery.

II. Drive economic convergence and inclusion through infrastructure

The Midwest has some of the sharpest divergence in economic activity and opportunity, both between communities and within them. The region's sharp racial segregation serves to concentrate poverty and limit access to jobs, transportation, quality education and training, healthcare, and other enablers of economic mobility.³ Infrastructure development—from broadband to transportation to new amenities such as waterfront redevelopment—can connect residents and businesses to the broader economy and create assets valuable to support commerce, business, and job growth. Infrastructure development can also create jobs for isolated or marginalized populations within metropolitan communities, affording equitable access to good jobs, education, and training services that support full participation in a changed economy.

The Midwest's divergence in economic opportunity is compounded by its cheek-by-jowl governmental units whose differing tax bases lead to unequal abilities to pay for and maintain basic infrastructure. These differential capabilities lead to disparities in digital access, affordable transportation, and safe and affordable drinking water, the lack of which erodes economic outcomes and promotes continued divergence.

The COVID-19 pandemic brought these variances in economic and social conditions to the forefront, vividly illustrating that those most affected are poor, economically marginalized communities—predominantly people of color—whose lack of

access to health care and career opportunities makes them especially vulnerable. Protests in the summer of 2020 to confront both structural racism and policies that delimit economic opportunity based on race and income have spurred greater attention to and discussion about how to provide historically marginalized communities with equal rights and access to these basic services.

Without a new round of infrastructure development to aid in the recovery from the COVID-19-induced recession, the divergence of economic opportunity extant in the Midwest will worsen. More prosperous communities and populations that are equipped to live and work in physically distanced settings, as well as more likely to hold jobs that will survive the pandemic, will emerge even more advantaged. Therefore, it is paramount that a new infrastructure agenda delivers essential infrastructure to traditionally underserved populations and communities. Delivering infrastructure where it is most needed can help spread economic growth and opportunity to more people and places in the Midwest, stitch marginalized populations into the economic fabric of greater-metro communities, and help converge the growing gap in income and well-being.

Key issue areas

Three key issue areas must be focused on to drive economic convergence across communities.

Proliferation of multiple local governmental units. Many Midwest local governments saw their tax bases dwindle as their communities lost population in recent decades. With a narrowed local economy, diminished population, and lowered property values, many communities are stuck with infrastructure built for much larger populations.

A smaller population and reduced property assessments also undermine communities' ability to develop and deliver basic infrastructure for local populations, such as water and sewer systems and public transportation. Additionally, having multiple adjacent (and often small) political jurisdictions—usually with differential zoning, planning, fiscal conditions, and capacities—crimps the collective ability to plan, zone, and deliver a variety of services on a metropolitan- or labor-market-wide level.

Segregated communities, balkanized by race, that concentrate poverty. Fractured, often politically warring local municipal jurisdictions, cleaved by race, make the politics of regional infrastructure provision and financing increasingly challenging. This segregation compounds the impact of environmental racism, such as the location of hazardous materials, abandoned properties, and brownfields, which are more likely to surround poorer populations that are unable to move away. Additional disruptions, such as the COVID-19 pandemic, magnify these conditions, disproportionately affecting populations suffering health challenges from living in polluted areas, as well as low-wage and minority workers who comprise a higher percentage of front-line workers and often rely on public transportation.

Community economic divergence. As the Midwest economy has evolved from its agricultural foundations to food processing and industry—and now to a new, more urbanized knowledge-services base—many rural and industrial towns and cities have been left behind. It is likely that job and business losses due to the coronavirus pandemic will hit hardest in many of these Midwest communities. However, if the COVID-19 crisis encourages movement of people and businesses to smaller, less dense communities, it may provide

an opportunity to recover. Infrastructure policy and investment can assist this dynamic, aiding these places by leveraging assets that allow them to compete in today's economy. Such assets include lower costs enabled by better communications connections, lower density, and history- and place-based attributes, including parks, waterfronts, historic buildings and neighborhoods, and arts and cultural institutions.

Recommendations

Infrastructure strategies can be used to stitch marginalized populations into successful economic participation and facilitate equal opportunities for residents of all communities in the Midwest.

Reform metro-wide infrastructure planning and investment. A top priority is to reform infrastructure funding systems to reward regional and metro-wide infrastructure development planning and investment, as well as to incentivize the pooling of both tax base and spending infrastructure investment across multiple local political jurisdictions. Rather than attempting to reduce the number of governmental units—a tall task that has gained little traction—the region should work to plan across these jurisdictions. Federal and state funding could reward the creation of regional planning, finance, and management entities and empower public-private entities to raise nonregressive funds from investors for bridges, highway corridors, express lanes, broadband, water infrastructure, and so forth.

Require inclusive goal setting and incorporate equity-based performance metrics. Public-private leadership coalitions and infrastructure funding streams can prioritize inclusive goal-setting and performance monitoring of systems for job training, access to transit, and other infrastructure to ensure

they serve historically marginalized populations.⁴ Developing goals and metrics of success that work for local communities also requires the inclusion of residents and local organizations in the planning, development, and decision-making process—on the part of both government and private-sector partners.¹ States and communities can also consider issues such as the location of new infrastructure as a catalyst to spur job growth, encourage economic activity, and set more aggressive targets for the participation of marginalized populations in new infrastructure-related jobs, job training, and small-business contracting.

Prioritize infrastructure dollars to mitigate hazards affecting low-income and minority populations. Both public- and private-sector leadership must look first to ameliorate hazards and poor health and safety conditions that differentially affect marginalized populations. In addition, investments in new mobility options and infrastructure must support essential workers who rely on public transportation, as well as provide relocation assistance for those displaced by new development.

Incorporate infrastructure investments into a new place-based “Communities in Transition” package. National, state, and community strategies and funding should turn increasingly to place-based economic development. This development should prioritize communities differentially affected by job and business loss due to the COVID-19 pandemic, in addition to those that possess the most extreme and long-lasting equity gaps.⁵

¹ For example, companies such as EmpowerBus—which recently ended its service because of COVID-19-related challenges—teamed up with community partners and employers to address transportation barriers in Ohio communities by providing transportation to and from work, education, or health care facilities.

Establish infrastructure policy and funding that allows for flexibility. Small and medium-sized communities must make the most of the assets of today's economy, such as flexible infrastructure funding that allows for spending on assets that leverage place-based economic development advantages. This can include waterfront renewal, historic preservation, arts and culture amenities, and related place-making.

III. Build sustainable and resilient infrastructure for a changing climate

The Midwest, like all regions, will experience the negative effects driven by climate change,⁶ such as incidences of major flooding, temperature increases, and the reduced long-term viability of agricultural yields. However, a relatively temperate weather system, an abundance of fresh water, and a location that is elevated and far from an ocean coast make the Midwest a relatively stable location that can help set the pace for climate change amelioration, resilience, and sustainability.

Additionally, several of the region's large corporations, such as General Motors and Procter & Gamble, are ranked among the country's leading private and public users of clean energy.⁷ Their progress has been driven by several factors, including new business opportunities as a result of leaning in to sustainable practices, the development of new natural-gas reserves, and the pressure of changing consumer demands.⁸

Properly preparing Midwest communities for the future entails adequately addressing how climate impacts exacerbate existing vulnerabilities, as well as modeling energy conservation and amelioration strategies to build secure, adaptable, and resilient infrastructure.

Key issue areas

Four key issue areas drive how the region must address infrastructure development within a changing climate.

Leadership in sustainability and resilience innovation. The Midwest's well-developed competencies can accelerate the introduction of new product and service offerings. These competencies include expertise in research and development, prototyping, and productive capacity in emerging sectors such as clean energy, smart water, and new mobility systems. The Midwest also educates an outsize share of the country's science, technology, engineering, and math (STEM) graduates, who can be employed to create more resilient local community design and infrastructure.⁹ The experience of the COVID-19 pandemic will nurture economic growth in other areas, such as automated supply chains, autonomous mobility, and medical-product service and production. The infrastructure development agenda in the region must include needed grid modernization to better support high-end artificial-intelligence applications, many of which are imperiled by even brief power outages or surges.

Modeling of sustainable and equitable community development while managing growth. In the coming years, the Midwest is primed to become a locus for business development and population growth—particularly if a key focus is developing and modeling cutting-edge sustainable use standards and practices. Indeed, as all regions, governments, and communities contend with the effects of climate change, the Midwest's natural and built assets endow it with an opportunity to become a hub for new sustainable community and business systems and technologies. These could include advanced storm-water management systems that reduce cost and risk, or energy-use management systems for

large-scale production and commercial facilities. State and regional water financing and regulatory bodies can refashion sustainable-use standards and management and financing tools to encourage new water-technology development. This can begin with a regional review process of regulatory practices along key criteria, as well as broader state and community goal-setting around sustainable and equitable community design, reflecting values and hitting performance metrics related to community carbon footprints.

The effect of climate change challenges on infrastructure planning. The Midwest possesses advantages for long-term production and business location, with access to abundant fresh water, a strong logistics network, and less risk for extreme weather events. Yet Midwest leaders must plan and anticipate the impact of climate change on the Midwest to make use of these advantages. This impact includes drought and deluge cycles and flooding disruptions of rail, truck, and shipping supply chains. If the Midwest can organize around these climate change–driven risks, it can consolidate its relative position of advantage. The infrastructure plan for the region must identify which sectors and communities are likely to have the largest needs. Moreover, the region should develop a modified, reformed water-management system, as well as plan for the implications of revamped water use and logistics infrastructure—such as dams, levees, and allowable uses of both surface water and aquifers.

Infrastructure designed for a knowledge economy. The Midwest changed how the world worked with the invention of the production assembly line, and it helped to alter the very landscape of communities with the mass production of the automobile. Today, the vast majority of the US workforce is no longer employed on farms or in factories, but in offices, labs, studios, classrooms, stores, and hospitals

as knowledge-service workers. And while the continued transition of economic activity to denser city regions could abate post-pandemic, information exchange and networking will continue to reshape the need for physical assets and transportation infrastructure in our communities.

Midwest communities can accelerate efforts to create places with the right conditions, including high quality of life, improved amenities, and mobility options that nurture, attract, retain, and connect talent—some of the most important factors that drive economic development. Increasingly, workers’ preferences include a convenient, connected lifestyle and a flexible work environment. According to infrastructure-sector experts from KPMG interviewed for this brief, Midwest employers’ ability to attract and keep talent is directly related to perceptions of high-tech, “smart-city,” and multimodal infrastructure for transportation (bikeways, walkways, scooters, and reliable public transportation). These preferences interact with the values of today’s younger workers, including a deep commitment to sustainability and social equity. As demonstrated by the sustained protests of racial injustice throughout 2020, many care deeply about facilitating opportunity for marginalized populations. Together, these priorities are putting quality of life, lifestyle, and values of sustainability and equity at the center of community economic development.

Creating the settings the future workforce prefers requires important new infrastructure—such as bike lanes, public access to nature areas and paths, and points to congregate around urban infrastructure and waterfronts—that are different from the highways that led to the auto-centric suburbs. Each acre of park, woodland, marsh, and wetland, and each mile of greenways, bikeways, and restored and reconnected lake- or riverfront real estate, is an economic-development engine for the Midwest. Every historic building and iconic factory converted

to office space or residences is a magnet. Every new mile of bike, bus, rail, and trolley line that reduces carbon footprint can spark new economic activity.

Recommendations

Infrastructure development strategies can be used to incentivize and reward resilient communities in the Midwest.

Increase applied R&D funding into “green-blue” sustainability innovation. The region must focus on infrastructure that supports carbon reduction, on smart food-growing systems that reduce water and energy use, and on new mobility options, such as autonomous delivery and transportation. The Midwest has the resources and capabilities to be the region that develops and deploys cutting-edge sustainability technologies at scale—most of these technologies have direct implications for enabling infrastructure. This will drive Midwest business growth and job creation and serve as part of a deliberate talent-attraction strategy.

Revise federal infrastructure investment performance metrics. Infrastructure performance standards can be used to reward state and community goal-setting in areas such as access to mobility options, energy use and carbon footprint, and sustainable and resilient designs. And given the new attention to closing equity and opportunity gaps, it is essential to reward projects that train and employ people of color and members of

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marginalized populations, as well as spur economic activity by, for example, siting new distribution centers and related infrastructure in communities of need.

Create incentives for state- and community-led development. At the state and community levels, infrastructure-funding incentives can be used to challenge the public and private sectors to set sustainable development and smart-city goals, and provide equitable access for all, in areas such as clean energy, clean water and water-efficiency standards, public health, broadband and internet access for homes and businesses, public transportation options and use, and green space and recreation.

IV. Enhance broadband to mark the Midwest as a leader in connectivity

The critical infrastructure of today’s economy consists of more than roads, bridges, sewers, and the like. Equally critical for the success of the Midwest’s many communities is the development of far-reaching, equitable, and reliable broadband internet that can fuse together far-flung communities and neighborhoods left behind in the transition to a globalized economy. To create a fair playing field, broadband access must be granted to all communities—especially marginalized communities of color—laying the groundwork for sustained competitiveness and more inclusive economic participation and growth across the Midwest.

The costs to bring such infrastructure to all areas of the Midwest are not small, but the gains are larger still. As demonstrated by the examples set by Valparaiso, Indiana, and Marquette, Michigan, building the broadband foundation to harness the power of the new economy can spur economic growth.¹⁰ Moreover, intentional efforts by civic and business leaders can induce competition between

internet service providers (ISPs), driving down costs, increasing margins, and attracting further private-sector investment. This can create a virtuous circle of prosperity and economic activity, enabling the community to invest in the lifestyle amenities that attract growing businesses with high-skilled workers—thereby supporting essential investments in education, job training, and transportation that enable equitable participation in the community’s reboot.

The value of broadband to communities is particularly apparent as more work moves to virtual settings and the benefits of urban agglomeration are potentially lessened, with the COVID-19 remote-work experience changing long-held assumptions of work and lifestyle habits. Of course, the idea that a remote-ready workforce will reduce the willingness to congregate in cities is not new. Since the dawn of the internet age, experts and pundits have suggested that cyberconnectivity will allow people to live and work anywhere while still being connected. But the trends over the past several decades demonstrate that urban lifestyle assets have outweighed a desire to live and work anywhere, as leading cities around the country have seen sustained growth in housing demand.¹¹ Moreover, the economic agglomeration effects of concentrating talent in cities, such as innovative overlaps across sectors spurred by business incubators and technology clusters, are unlikely to reverse course.

Still, the COVID-19 pandemic is perhaps reorganizing aspects of this reality, regardless of the benefits of working and living in concentrated downtowns and urban centers. With personal and community safety top of mind, it is possible that trends toward less dense—yet virtually connected—communities may become more common, at least in the short- to medium-term.

But regardless of the trends of virtual working and learning, the current deficit of Midwest cyberconnectivity among populations in outlying neighborhoods, far-flung suburbs, and rural areas hampers growth in these communities. The difference in access across communities is stark: just 37 percent of Midwest counties meet or exceed the national average share of people with access to fixed broadband, and in 16 percent of Midwest counties, at least one-third of county residents lack such access.¹² The inequalities demonstrated by COVID-19 are obvious when it comes to distance-learning needs for students and telemedicine for outlying communities, but they are most notable in the divergent economic possibilities of remote work and in those working in the in-person service economy. This inequality is underscored in communities of color and those in poverty, where isolation and inability to work cause outsized disruption to both incomes and lifestyles compared with remote-ready communities.¹³

Key issue areas

Three primary issue areas must be addressed to mark the Midwest as a leader in connectivity.

The last-mile problem. There are two obvious ways to achieve connectivity: wired or wireless. Because of cost, it often may be more appropriate to transmit wireless signals in less populated areas, as opposed to connecting each house to the fiber network—often called the last-mile problem. Determining the correct fiber-optic use in an increasingly 5G-capable world is critical, but it is equally important to build the fiber background to make this possible, along with powering the network and the server-exchange transmission needed at the point of sensor. Some considerations for solving this issue suggest public-sector financing vehicles or reserving a component of broadband capacity for commercial use, which could help subsidize household connections.

The needs of private companies. Developing the digital infrastructure required for businesses to succeed requires attention from both the private and public sectors. Most notably, creating additional bandwidth and achieving cutting-edge network speeds is necessary as demand continues to increase, particularly in a more digitally reliant world in the aftermath of the pandemic. For companies to succeed, reliability and capacity are paramount, and finding ways to build the infrastructure that fits business needs and drives entrepreneurial activity in small and medium-sized cities and towns will go a long way toward providing a more equitable playing field.

The needs of households. Affordable internet access is often out of reach for many families attending virtual classrooms or completing online coursework, let alone transitioning to full-time remote work. While institutions and companies have the collective capacity to close digital equity gaps between geographies, as well as the ability to create the conditions for ISPs to develop broadband capacity, outlying neighborhoods and households often face insurmountable access costs. And limited competition among ISP providers also lowers quality and options for end users. The public and private sectors must play roles in the development of a solution.

Recommendations

Broadband connectivity solutions must be implemented to ensure economic opportunity reaches all Midwest communities, both for business attraction and retention and for individual end users.

Determine the access and service gaps to properly diagnose the need for state and federal funding. Federal policy makers should require the Federal Communications Commission (FCC) to report on access areas and the amount of households per census tract that have access. Similar

considerations for state government could center on aspects of federal legislation introduced in the House of Representatives, leading to a stronger understanding of access areas and underfunding.¹⁴

Develop federal policies directed toward underserved “broadband deserts.” The federal government should create a special subsidy to make it easier for providers to connect the last mile in rural and low-income areas, akin to an urban-rural digital opportunity fund that reaches more marginalized populations. Furthermore, future stimulus funding in response to the coronavirus pandemic should have a large component focused on closing the broadband equity gap.

Develop a coordinated state and regional approach to digitize infrastructure connectivity. States should push for infrastructure spending across state borders to develop regional communications corridors akin to corridors on the West Coast and in the Northeast. These efforts could mirror recent broadband expansion efforts across Michigan’s Upper Peninsula and counties in northern Wisconsin.¹⁵

Push for creative, public-private collective financing for last-mile implementation. State governments should consider funding infrastructure grants to bridge fixed-cost delivery for companies to tackle last-mile connectivity, akin to Ohio’s House Bill 13, which will provide grants to offset construction costs to connect unserved households in Ohio.¹⁶ Moreover, state policies should be instated that allow for cooperatives to pool funds to create internet connectivity on a local level, as has been put forward in Colorado and elsewhere.¹⁷

V. Model sustainable and resilient transport and logistics systems

The Midwest sits at a unique confluence of North America's physical and economic geography. This position provides a natural advantage that has been leveraged since the 19th century by businesses and states in the region that found themselves at the crossroads of capital in the East and goods and materials in the West. Throughout the 20th century, the Midwest laid impressive networks of airports, railroads, roads, and bridges to capitalize on this siting. Beginning in the mid-20th century, as the proportion of international trade as a percentage of US economic output began to grow, the region found itself again at the confluence of continental supply chains, making more apparent the importance of its infrastructure foundation.

However, as much of this development occurred over a century ago and has been poorly maintained, today the state of the Midwest's physical infrastructure is lacking. The region is contending with some of the oldest and most costly to repair infrastructure, threatening supply chains and increasing transportation costs. And there are now two key forces that could further affect this change: still-substantial interstate and international trade flows, and the impending reshoring (or nearshoring to Canada and Mexico) of a number of industries and companies, following the effects of both the COVID-19 pandemic and growing political and economic competition with China.

Looking forward, the plan to modernize the Midwest's transport and logistics systems must be shaped by several considerations. First, the Midwest is still home to a large portion of the US manufacturing economy.¹⁸ As a sector, manufacturing relies heavily on transportation, logistics, and access to reliable and cost-effective energy. Second, the region's crumbling bridges

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must be core to the agenda, in addition to updating critical pieces of infrastructure for the supply chains and transportation needs of a today's economy, particularly large-load trailers.

Additional considerations include the issue of last-mile delivery, especially if consumer behavior changes because of the coronavirus. This includes more urban warehousing with smaller footprints and goods generally being held closer to end users. To accomplish this, the Midwest must rebuild and build anew intermodal centers to add on to the region's existing rail network, which is already a major advantage. But this rail network must be rethought to the region's advantage for a new economy; instead of bringing goods across the country to serve manufacturing and shipping or transport in other regions, it must focus on how best to implement short-rail or last-mile shipping needs for an economy that relies on faster deliveries and a more integrated, domestic supply chain.

Key issue areas

Modeling a sustainable and resilient transport system falls along five key issue areas.

Location and access to jobs. It is important to locate new logistics operations, supply depots, and warehouses in neighborhoods and communities that provide reasonable transport options for front-line workers. To accomplish this, it must become a public and private priority to bring more jobs closer to

those who need them most, while likewise providing training and support.

A redundant, multimodal logistics infrastructure plan. With increasing flooding due to climate change, the region can reconsider water transport to supplement and augment existing rail and road infrastructure and build more resilient logistical network efficiencies. To achieve this, well-developed shipping lanes, ports, bridges, and ferries on the Great Lakes and Midwest river systems need to be modernized, made more resilient, and conceived within an integrated, regional system. If business growth is enhanced in the Midwest, the transportation system must be engineered to be more resilient and provide greater redundancy in vital transport networks across rail, road, and water.

Updated rail links. Railroads have long been a unique advantage of the Midwest economy, but their use for short-haul and delivery within smaller geographies does not serve the economy of today. Short-trip rail services for moving goods within the Midwest could take advantage of an already robust rail network to meet the needs of integrated supply chains. Updating the rail network also requires attention to repairs and modernization, such as reconsidering track elevation for railroads adjacent to rivers and more susceptible to climate change–induced flooding.

Highway and bridge maintenance and repair for the future of logistics. Highways must be updated to provide for future capacity needs of automated driving and increased transport. As autonomous trucking looms, the Midwest must be prepared for increased road repair and capacity-related costs, as heavy truck use already creates larger repair costs for roads, interstates, and bridges. Moreover, congestion is a problem in some parts of the region, crimping growth and slowing production timelines.

State and local financing structures and abilities. State and local government mechanisms for funding infrastructure investments vary, with some developing creative and effective public-private financing methods, such as public-private partnerships and infrastructure banks. In addition, the basic fiscal condition of states and municipalities varies widely and has taken a significant hit from the pandemic-induced recession. Post-pandemic federal infrastructure policy programs must both attend to the basic revenue shortfalls of state and local governments and incentivize effective public-private financing models.

Recommendations

To ensure the Midwest can compete in today's economy and realize its full potential, state leaders must find a common cause in creating the physical infrastructure foundation that will benefit the region in the coming decades.

Support the development of regional supply-chain planning. Midwest governors should collaborate in the planning and development of an integrated, regional system of intermodal freight and supply chains that builds in redundancy to better accommodate disruptions. Resilience across supply chains must no longer be looked upon as superfluous, but rather as an essential component that ensures supply chains are flexible enough to react to shocks to the system. This requires a region-wide audit of supply-chain capacity that makes clear the needs across the Midwest. A key component will be determining warehousing and storage needs, as well as how to connect to centralized intermodal capabilities to support just-in-time deliveries in production.

Collate state department of transportation plans to create a more resilient and redundant system. Automated transportation and delivery will

accelerate the need for the implementation of regional, intermodal freight supply-chain systems that create the resilience and redundancy needed to better accommodate disruptions and extreme weather events. Discrete projects at the state level are hampering growth, and the Midwest needs actionable system-level plans to achieve real regional results. This entails cutting across state lines and thinking long-term, which will go a long way toward the sustainability and resilience of the supply chain.

Reexamine the US-Mexico-Canada Agreement trade-corridor capacity. The Midwest must ensure the region maintains its competitiveness in international supply chains. As climate change may push logistics companies to reconsider location decisions, state and federal leadership must refocus the importance of cross-border trade to the health of the Midwest economy by emphasizing the geographic value of the region as a center of global trade flows.

Develop an appropriate funding structure for road expansion and repair. Policymakers must determine financing vehicles, such as public-private partnerships, that prevent regressive taxation and guarantee road repair and financing systems, such as a vehicle mileage tax used in Germany.¹⁹ This can be completed through both state and federal advocacy efforts.

Conclusion: An equitable Midwest infrastructure agenda

The United States has much at stake in a meaningful infrastructure agenda that is responsive to the unique needs and opportunities of regions across the country. Like other regions, the Midwest has economic deficits that this agenda can help overcome, including poorly maintained physical infrastructure that is among the country's oldest

and most costly to repair, the greatest concentration of industrial legacies such as brownfields, and a decentralized patchwork of local governments that challenges coherent local infrastructure solutions. The Midwest is also home to the most racially segregated metros and a large share of residents in rural areas and small towns still “unplugged” from a wired economy.

But there are also assets and economic opportunities on which a new round of Midwest infrastructure development can capitalize. These include the Midwest's robust production base and supply and logistics network, which places it in the epicenter of growth sectors such as medical manufacturing and the reconfiguration of supply chains for greater redundancy and adaptability. With a critical mass of world-class companies and universities and many scientists, engineers, and technically skilled workers, the region can provide a powerful innovation base for the businesses and well-paying jobs of an economic landscape reshaped by COVID-19. And with so many regional communities enjoying cost-of-living and lifestyle advantages, supporting infrastructure developments that connect these communities to the world can be a powerful accelerant of Midwest and national economic rebirth.

This report provides a road map for the incoming Biden-Harris administration—which is already prioritizing racial equity, economic recovery, climate action, and an effective response to COVID-19. With the new administration, Congress and state and local leaders must now fashion an infrastructure development agenda that supports the nation's and the Midwest's economic recovery and transformation and aids the region in making flexible adaptations to the forces driving change in lifestyle choices, consumer preferences, and business practices globally. ■

About the research

This report was conceived as a deep dive into the Midwest's infrastructure and an extension of the report *A Vital Midwest: The Path to a New Prosperity*, published in 2020.

Research for this report was conducted during 2020, and much of the report's success is in large part due to conversations and interviews with key sector stakeholders.

An early draft of the report was discussed at a private roundtable meeting conducted virtually on October 21, 2020, and cohosted by the Chicago Council on Global Affairs and KPMG. The discussion was conducted under Chatham House Rule.

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All statements of fact and expressions of opinion contained in this report are the sole responsibility of the authors and do not necessarily reflect the views of the Chicago Council on Global Affairs or of the project funders.

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