

Future-Proofing American Air and Marine Transportation and Promoting Economic Recovery Through Infrastructure Improvements

Summary:

- The ongoing COVID-19 crisis is hurting the US air travel and marine shipping sectors, which are already threatened by climate change and insufficient funding for needed infrastructure.
- Federal support for these sectors as part of economic recovery efforts offers synergistic opportunities to promote near-term economic activity and environmental improvements while modernizing America's international gateways for the challenges of the future.
- Total federal spending of \$10.5 billion could generate 101,000 direct and indirect jobs.

"Simultaneously addressing the challenges of a pandemic, aging infrastructure, rising demand, and climate threats, funding American port and airport development represents among the smartest investments that Congress can make."

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The COVID-19 outbreak has dealt a heavy blow to US ports, airports, and their labor forces. The particularly severe impacts of the pandemic upon American air travel and its workers have made national headlines since the onset of the crisis,¹ with thousands of airport employees and workers in supporting industries having already lost their jobs.² The pandemic has also hurt American maritime transportation. Compared to 2019, cargo transiting US ports have declined by 12% in February and 18% in March,³ and ports nationwide report fewer work shifts and underutilized capacity.⁴

These sectors also face the looming threat of climate change, which will precipitate extreme weather and sea level rise. Over the 21st century, port facilities will be increasingly exposed to these threats,^{5,6} which can damage equipment and infrastructure, lower operational efficiency, and reduce the economic competitiveness of US ports.⁷ This is likewise true of airports. Extreme weather can disrupt flight operations and damage runways, terminals, and other infrastructure. For instance, the flooding of all three major New York area airports during Hurricane Sandy⁸ caused 20,000 canceled flights, \$2.2 billion dollars in total damages, and \$200 million dollars in lost airline revenue.⁹ And for airports in coastal cities, even modest sea level rise can threaten to flood runways, as twelve major US airports have a runway located less than 3.7 meters above mean sea level.¹⁰ The need for upgrades to guard against such impacts adds to already acute problems presented by America's increasingly outdated port and airport infrastructure and long backlogs of projects stalled by insufficient federal funding and policy support.

The threat facing these sectors is matched by their centrality to the US economy. Nationally, airports generate \$1.1 trillion in economic activity and support nearly 10 million US jobs.¹¹ With roughly a quarter of American yearly imports and exports by value traveling as airborne cargo,¹² US air transportation also plays a vital role in commerce. Meanwhile, waterborne freight provides essential access to world markets, carrying 75% of internationally traded goods by weight,¹³ by far the largest shares of any mode of freight transportation. Port activity supports

almost 31 million US jobs and the port sector represents a total economic value of \$5.4 trillion USD.¹⁴ Both sectors also anticipate considerable long-term growth. Global freight demand may triple by 2050¹⁵ and global air passenger ridership could double by 2037, with the US market adding 481 million passengers.¹⁶

Faced with the threats of the pandemic, climate change, and aging infrastructure, the aviation and marine shipping sectors represent a strong candidate for bipartisan, federally-funded economic recovery efforts. Support for these sectors can reduce the economic fallout of the current crisis by driving job growth across diverse regions of the country in the near-term while also preparing our transportation networks for tomorrow's challenges. Potential mechanisms for expanding and accelerating port and airport infrastructure projects are outlined below.

PORT INFRASTRUCTURE AND HARBOR MAINTENANCE

Total spend: \$9.37 billion, with \$9.3 billion from already-collected revenue
Total potential jobs: 66,000

Reform of the Harbor Maintenance Tax (HMT) as implemented by the recently-passed CARES Act (H.R. 748) represents a commendable initial step in combining economic stimulus with investment in port infrastructure. Lifting the Army Corps of Engineers spending limit on HMT revenue alleviates a key bottleneck, allowing important backlogged shipping channel modernization projects to proceed. Clearing more of the current backlog of \$20 billion dollars' worth¹⁷ of existing, shovel-ready projects will produce much-needed near-term economic activity in American harbors. A logical next step would be the unlocking of the full \$9.3 billion¹⁷ currently accumulating within the HMT trust fund, enabling this already-collected tax revenue

to be fully utilized for harbor maintenance. Relevant legislation includes the Full Utilization of the Harbor Maintenance Trust Fund Act (H.R.2440).¹⁸

However, the HMT represents just one of several potential instruments the federal government could leverage to encourage port infrastructure development. A substantial backlog of existing infrastructure projects (\$98 billion total worth¹⁹) have been authorized by Congress through previous iterations of the Water Resources Development Act but lack the needed federal appropriations to proceed.²⁰ These authorized projects can fill important port infrastructure and climate resiliency needs. For instance, navigation projects to expand shipping channels will improve efficiency and safety for cargo vessels while also providing dredged material that can be utilized to improve coastal protection. Similarly, the U.S. Department of Transportation's (USDOT) Maritime Administration (MARAD)'s Port Infrastructure Development Program (PIRD) was funded at \$293 million in FY2019, only to be lowered to \$225 million for FY2020. Making additional funds available for the PIRD at a level at least consistent with FY2019 support would also drive progress on key projects that US ports have already identified. To further promote resilience, MARAD could particularly encourage grant proposals that defend port infrastructure against storms, winds, and sea level rise, or that accommodate new infrastructure to support low-carbon fuels.

Ultimately, however, promoting climate-resilient port infrastructure will depend upon accurate evaluation of climate risks. A 2008 EPA white paper²¹ discussing future climate impacts for US ports identified a strong need for detailed, local-level assessments of vulnerability — a need that has remained unmet to date. Previous studies of the Atlantic²² and Gulf³ coasts lack high-resolution projections that could allow US ports to confidently plan. Commissioning a nationwide study specifically focused on ports and waterways by the USDOT Center for Climate Change and Environmental Forecasting in collaboration with the National Oceanic and Atmospheric Administration (NOAA) would vastly improve the ability of ports nationwide — particularly smaller or rural facilities without the resources to

independently commission studies — to evaluate adaptation needs.

AIRPORT INFRASTRUCTURE

*Total spend: \$1 billion
Total potential jobs: 28,000*

Unlike the marine transportation sector, airport infrastructure has not yet received any direct support in the federal response to COVID-19. Although the \$10 billion allocated in the CARES Act (H.R. 748) toward airport efforts to contain COVID-19 represents essential assistance that also safeguards airport jobs, further potential to provide relief and long-term benefits for the airport sector remains untapped.

Currently, airport infrastructure improvement projects receive funding from two programs administered by the Federal Aviation Administration's (FAA). The Airport Improvement Program (AIP) provides federal funds to support airside infrastructure, including runways, taxiways, land purchases, and similar investments. The Passenger Facility Charge (PFC) allows airports to collect up to \$4.50 per passenger — funds that can be used more flexibly to pay for airside projects, terminal and road improvements, and interest on airport bonds — another key element of airport financing.

Raising the PFC cap would greatly increase the financial ability of larger airports to make long-overdue infrastructure upgrades. With many of the most-traveled airports in the US facing acute long-term climate threats, improving their ability to adapt will strongly benefit the nation. The \$4.50 cap on PFCs has not been raised since 2000, with the consequence that airports' infrastructure costs have significantly outgrown their ability to support them with PFC income. Congress has demonstrated bipartisan support for policy to raise the federal cap on PFCs. Relevant legislation includes the

Investing in America: Rebuilding America's Airport Infrastructure Act (H.R. 3791).²³ Under this legislation, airports could elect to raise PFCs beyond the \$4.50 limit, in exchange returning and foregoing all AIP support. Consumer research further suggests that increases in the modest charge would have few to no effects on passengers' ticket purchasing decisions.²⁴

Legislation to revise the federal limit on PFCs has often been accompanied by proposals to correspondingly decrease AIP funding, but this could disadvantage small, non-hub, and non-primary commercial and general aviation airports that provide important local economic activity and essential services like firefighting, pilot training, and crop management. Furthermore, annual AIP funding has consistently declined from \$3.7 billion in 2007 to \$3.35 billion today.²⁵ Given our airport network's aging infrastructure and a current environment in which airports cannot obtain sufficient federal support to meet more than half of their infrastructure needs,²⁶ provisions in H.R. 3791 and similar legislation that reduce AIP support would be counterproductive.

In fact, supplemental AIP funding represents a powerful lever to drive near-term job creation and economic growth while investing in the long-term future of US air travel. Approval of a one-time additional supplemental AIP fund of \$1 billion, with a minimum of \$500 million designated for priority consideration of small, non-hub, and non-primary airports would bring FY2020 federal AIP support (total: \$4.75 billion) to a level consistent with that funded in FY2007 (inflation-adjusted) while promoting crucial progress on the national backlog of airport infrastructure projects. The \$1 billion supplemental AIP fund would also benefit from requiring grant applications to incorporate detailed planning for energy efficiency and to ensure the resilience of upgraded infrastructure to climate impacts over this century.

Improving the resiliency of US air travel will also involve encouraging innovation in flight operations and services like weather prediction. Investing in research to improve the efficiency of domestic air traffic management and the accuracy of weather forecasting can increase the

ability of the US air travel system to respond to disruptions and reduce inefficiencies. Relevant programs include the FAA's Aviation Research Grants Program and the FAA's Center of Excellence for the Partnership to Enhance General Aviation Safety, Accessibility, and Sustainability (PEGASAS).

POLICIES TO JOINTLY IMPROVE PORT AND AIRPORT INFRASTRUCTURE

Total spend: \$383 million
Total potential jobs: 7,000

A number of policies can simultaneously benefit both the airport and marine freight sectors while offering societal benefits. For instance, because ports and airports disproportionately favor diesel-powered equipment,²⁷ retrofitting or replacing equipment drives economic stimulus while also generating climate and public health-related co-benefits.

The US EPA manages grants through the bipartisan Diesel Emissions Reduction Act (DERA), which has provided longstanding support for replacing older airport and port equipment.²⁸ Allocating additional funding to at least the full originally-requested amount of \$100 million (current funding of \$87 million) would significantly increase the number of funded proposals.

DERA has long been recognized for its support of American businesses and domestic job creation, as cleaner engines, retooling, and alternative vehicles supported by DERA grants are typically provided from American manufacturers.²⁹ DERA assistance carries important follow-on economic and environmental benefits, with the EPA estimating that every \$1 of funding generates \$2 in fuel savings and between \$11 to \$30 in improved public health.³⁰ For these reasons,

DERA grants have proven popular, with requests regularly exceeding availability by 7:1 for national grants and by 35:1 for DERA's rebate program.³¹

Other relevant policy includes the America's Transportation Infrastructure Act (ATIA) (S. 2302),³² which would dedicate \$370 million to reduce air pollution and emissions at ports through electrification of equipment, efficiency improvements, and other projects.

Efficient and resilient port and airport operations also depend upon interconnections between ship, air, road, and rail infrastructure. Important mechanisms for multimodal transportation infrastructure development include the BUILD grant program and the Transportation Infrastructure Finance and Innovation Act (TIFIA) program. The latter mechanism is of particular importance, focusing upon larger-scale projects that some vulnerable American ports and airports may require to satisfactorily adapt to climate impacts. As TIFA awards are relatively large, they can create significant local economic activity over the multi-year lifespan of the infrastructure improvement project. TIFIA appropriations are set to expire after FY2020. Extending federal support for these programs would further aid investment into robust transportation infrastructure.

At a time of national crisis, federal policy support for port and airport infrastructure projects, resiliency, and new equipment provides not only important relief for these sectors but also drives key progress toward meeting the country's future needs. These upgrades will create high economic value over both the near-term and the long-term. Simultaneously addressing the challenges of a pandemic, aging infrastructure, rising demand, and climate threats, funding American port and airport development represents among the smartest investments that Congress can make.

Methodology:

Job calculations use multipliers of 8.34 direct and 8.63 indirect jobs created per \$1,205,800 of federal spending on construction (IMPLAN) and 18.3 direct and indirect jobs created per \$1 million of spending on durable manufacturing (EPI). The

66,000 jobs figure for ports assumes that half of the \$9.3 HMT trust fund is utilizable in the near term for port and navigation projects. The 28,000 jobs figure for airports assumes that raising the PFC cap allows airports to generate an additional \$1 billion in revenue for infrastructure upgrades.

ENDNOTES

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