Infrastructure 101

US infrastructure spending, decision-making and policy projections

June 10, 2020
Roadmap

- America’s infrastructure report card
- Infrastructure spending and decision-making
- Federal-state cost sharing
- Infrastructure policy going forward
In 2017, the ASCE estimated that the US would need $4.59 trillion by 2025 to maintain transportation infrastructure.

### 2017 American Society of Civil Engineers’ report card on America’s infrastructure

<table>
<thead>
<tr>
<th>Sector</th>
<th>Grade</th>
<th>Funding needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridges</td>
<td>C+</td>
<td>$2.04 trillion</td>
</tr>
<tr>
<td>Dams</td>
<td>D</td>
<td>$45 billion</td>
</tr>
<tr>
<td>Drinking Water</td>
<td>D</td>
<td>$150 billion</td>
</tr>
<tr>
<td>Hazardous Waste</td>
<td>D+</td>
<td>$7 billion</td>
</tr>
<tr>
<td>Levees</td>
<td>D</td>
<td>$80 billion</td>
</tr>
<tr>
<td>Ports</td>
<td>C+</td>
<td>$37 billion</td>
</tr>
<tr>
<td>Public Parks</td>
<td>D+</td>
<td>$114.4 billion</td>
</tr>
<tr>
<td>Roads</td>
<td>D</td>
<td>$2.04 trillion</td>
</tr>
<tr>
<td>Solid Waste</td>
<td>C+</td>
<td>$7 billion</td>
</tr>
<tr>
<td>Wastewater</td>
<td>D+</td>
<td>$150 billion</td>
</tr>
</tbody>
</table>

**Grading system**
- **A**: Exceptional/Fit for the Future
- **B**: Good/Adequate for Now
- **C**: Mediocre/Requires Attention
- **D**: Poor/At Risk
- **F**: Failing/Critical/Unfit for Purpose

**Qualifications**
- Capacity
- Condition
- Funding
- Public safety
- Innovation
- Operations
- Maintenance

Sources: American Society of Civil Engineers.

Slide last updated on: April 9, 2020
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Overview of federal funding and financing for infrastructure projects

Although state and local governments are typically responsible for funding infrastructure and transportation projects, the federal government provides financial support to localities in the form of grants, loans, and bonds.

Public sector capital investment, 2017
BILLIONS OF US DOLLARS

<table>
<thead>
<tr>
<th>Funding</th>
<th>Financing</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Funding involves the direct spending of resources on projects</td>
<td>- In contrast to funding, financing involves providing funds that will eventually be paid back</td>
</tr>
<tr>
<td>- The federal government funds state infrastructure projects through grant programs and trust funds, which sometimes collect revenue in the form of excise taxes</td>
<td>- The federal government uses financing mechanisms, including tax-exempt bonds, state revolving funds, tax credit bonds and direct federal credit programs, to support infrastructure projects in states</td>
</tr>
<tr>
<td></td>
<td>- Tax-exempt and tax credit bonds are issued by states and localities, while the federal government provides loans and grants</td>
</tr>
</tbody>
</table>

Sources: Congressional Budget Office.

Slide last updated on: February 28, 2020
Of types of infrastructure, highways receive the most funding from the federal government

Federal spending on transportation and water infrastructure, 2000-2017

PERCENTAGE OF TOTAL SPENDING, BY TYPE OF INFRASTRUCTURE

- Highways
- Aviation
- Mass Transit and Rail
- Water Resources
- Water Utilities

Sources: Congressional Budget Office.

Slide last updated on: April 9, 2020
Public spending on transportation and water infrastructure has decreased in the last decade

Public spending on transportation and water infrastructure, 2000-2017

Based on infrastructure-specific price indexes, in billions of 2017 dollars

Despite the US’ growing infrastructure needs, federal infrastructure spending has decreased more rapidly than state and local spending has in recent years.

2003-2017 saw infrastructure spending decreases of 4.5% at the state and local level and 20.3% at the federal level; the total decrease in spending on infrastructure was 8.4%

$440.5 billion was spent on infrastructure in 2017

2.3 percent of GDP in 2017 was spent on infrastructure, down from ~2.5%

Sources: Congressional Budget Office.

Slide last updated on: June 29, 2020
Public spending on operations and maintenance is higher than spending on capital

Public spending on transportation and water infrastructure

BY CATEGORY OF SPENDING, IN BILLIONS OF 2017 DOLLARS

- Capital
- Operations and Maintenance

Spending on capital projects has fallen in the past decade, but spending on operations and maintenance continues to grow.

Sources: Congressional Budget Office.

Slide last updated on: April 9, 2020
Operations and maintenance comprises a greater portion of state and local infrastructure spending than federal infrastructure spending

Shares of public spending on transportation and water infrastructure, by category of spending

CONGRESSIONAL BUDGET OFFICE, 2017

- Federal
- State and local

**Capital**
($174 Billion)

- 41%
- 59%

**Operations and Maintenance**
($266 Billion)

- 10%
- 90%

Sources: Congressional Budget Office.

Slide last updated on: April 9, 2020
DOT program funding for Fiscal Year 2019

FY19 funding levels for Department of Transportation programs

**Highway Investment**
$46.35 billion for the Core Highway Program; $48.52 in total highway investment

**Capital Investment Grants**
$1.98 billion for Capital Investment grants to fund transit capital investments

**Airport Improvement Program**
$3.75 billion for funding airport safety, construction, noise mitigation and more

**INFRA Grants**
$856 million in proposed INFRA grant awards for highways, railroads, bridges, and ports

**BUILD/TIGER Grants**
$1 billion for investments in road, rail, transit, and port projects

Sources: Senate Appropriations Committee.
Slide last updated on: April 9, 2020
Traditional sources of revenue-generation supply the majority of state-level transportation revenue

**Fuel taxes**
All 50 states have some form of tax on fuel for motor vehicles; many states charge a flat fee per gallon, and while a number of states have increased their gas taxes in recent years, the federal gas tax has not been raised since 1993

**Sales taxes**
Some states charge an additional sales tax for purchasers, distributors, or suppliers of gasoline; state sales taxes on gasoline range from 2-7%

**Vehicle registration fees**
Every state charges a fee for registering vehicles, and most use those fees to fund infrastructure projects

**Traditional bond proceeds**
Many states offer traditional transportation bonds in which bondholders are repaid from general revenue derived from other methods

**Tolls**
As of 2009, there were about 150 tunnels, bridges, and roads in the US that required a toll

**General funds**
A majority of states fund state highways in part using general funds

Sources: National Governors Association.
**Due to rising costs and a lack of traditional infrastructure funding, state and federal entities are exploring new options**

**Methods of funding infrastructure projects**

<table>
<thead>
<tr>
<th>Non-traditional funding and financing methods</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private activity bonds (PABs)</td>
<td>PABs are tax-exempt debt financing instruments for infrastructure projects limited by annual federal guidelines</td>
</tr>
<tr>
<td>Federal credit assistance</td>
<td>The federal government can provide direct loans, guarantees, and lines of credit for major transportation infrastructure projects through the Transportation Infrastructure Finance and Innovation Act (TIFIA) loan program</td>
</tr>
<tr>
<td>State or national infrastructure banks</td>
<td>35 states currently have infrastructure banks due to the federal government’s expansion of eligibility and seed funding provisions in 1998. Creating a national infrastructure bank is a popular idea among Democrats that would allow the government to provide guaranteed loans, below market cost-credit and subsidized bonds</td>
</tr>
<tr>
<td>Public-private partnerships (PPPs)</td>
<td>PPPs establish a contract between a public agency and a private entity to work together on a transportation project. 26 states use a form of PPPs, but it is a more popular model internationally</td>
</tr>
<tr>
<td>Vehicle Mile Traveled fees (VMTs)</td>
<td>VMTs charge drivers directly for each mile they travel, replacing a transitional motor fuel tax</td>
</tr>
<tr>
<td>Better Utilizing Investments to Leverage Development (BUILD)</td>
<td>The BUILD grant program allows DOT to make investments in transportation infrastructure that “promise to achieve national objectives”</td>
</tr>
<tr>
<td>Rural Opportunities to Use Transportation for Economic Success (ROUTES)</td>
<td>The ROUTES program is a DOT initiative meant to address rural-urban transportation infrastructure disparities</td>
</tr>
<tr>
<td>Tax-exempt municipal bonds</td>
<td>Local governments issue tax-exempt municipal bonds to develop and maintain infrastructure</td>
</tr>
</tbody>
</table>

Sources: National Governors Association.
Roadmap

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State and local governments outspend the federal government on infrastructure in every category of project

Public spending on infrastructure by type, 2017

<table>
<thead>
<tr>
<th>Project</th>
<th>Federal</th>
<th>State and local</th>
<th>Total spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highways</td>
<td>26%</td>
<td>74%</td>
<td>176.9</td>
</tr>
<tr>
<td>Water utilities</td>
<td>4%</td>
<td>96%</td>
<td>113</td>
</tr>
<tr>
<td>Mass Transit and Rail</td>
<td>23%</td>
<td>77%</td>
<td>74.6</td>
</tr>
<tr>
<td>Aviation</td>
<td>45%</td>
<td>55%</td>
<td>37.1</td>
</tr>
<tr>
<td>Water resources</td>
<td>35%</td>
<td>65%</td>
<td>28.7</td>
</tr>
</tbody>
</table>

Sources: Congressional Budget Office.

Slide last updated on: February 28, 2020
How states and localities utilize federal funding to help finance infrastructure projects

Types of federal assistance states use to finance infrastructure projects

- **Tax exempt bonds**
  Bonds that do not require the holder to pay federal taxes on the interest payments they receive

- **State revolving funds and infrastructure banks**
  State-administered funds that provide loans for infrastructure projects and are largely federally funded

- **Tax credit bonds**
  Bonds that provide a federal tax credit or a federal payment to the issuer or bondholder

- **Direct federal credit programs**
  Programs that give loans or guarantee loans to state and local governments for infrastructure projects

Sources of federal funds provided, 2007-2016

IN BILLIONS OF 2017 DOLLARS

- **Tax-exempt bonds**: 6.3%
- **State revolving funds and infrastructure banks**: 14.1%
- **Direct federal credit programs**: 12.5%
- **Tax credit bonds**: 67.2%

Sources: Congressional Budget Office.

Slide last updated on: April 9, 2020
The federal government supports 60% of state and local government spending on infrastructure projects

Federally supported financing of infrastructure projects, 2007-2016
AS A PERCENT OF CAPITAL SPENDING (CONSTRUCTION, LAND AND EXISTING STRUCTURES & EQUIPMENT)

- **Highways**
- **Mass transit***
- **Aviation**
- **Water utilities**
- **Total**

States use local revenues, collected through tolls, fuel taxes and user fees, to fund most of their highway projects.

The federal government helps states finance most of their investments in mass transit and aviation.

*Buses, subways and commuter rail systems

Sources: Congressional Budget Office.

Slide last updated on: April 9, 2020
# Federal share of infrastructure spending, by type

<table>
<thead>
<tr>
<th>Mode</th>
<th>Federal government’s usual max % of total spending</th>
<th>Federal, state and local decision-making roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highways</td>
<td>80% of capital</td>
<td>• State and local governments choose projects, following federal rules and conditions</td>
</tr>
<tr>
<td>Mass Transit</td>
<td>80% of capital, 50% of operations</td>
<td>• State and local governments choose projects, following federal rules and conditions</td>
</tr>
<tr>
<td>Aviation</td>
<td>75% to 90% of capital</td>
<td>• State and local governments choose projects, following federal rules and conditions, Federal government designs the national aviation system</td>
</tr>
<tr>
<td>Water Transportation</td>
<td>40% - 100% of construction, 50% - 100% of operations</td>
<td>• Federal government chooses water projects with Congressional approval</td>
</tr>
<tr>
<td>Water Utilities*</td>
<td>Clean Water State Revolving Fund (CWSRF) Loan Program &amp; Drinking Water State Revolving Fund (DWSRF) Program • 80% for grants to states to capitalize SRFs</td>
<td>• DW/CW SRF programs: States select projects to be funded based on their federal allotment; subject to federal rules and conditions</td>
</tr>
<tr>
<td></td>
<td>Water Infrastructure Finance and Innovation Act (WIFIA)** • 49% of project’s eligible costs (for most projects)</td>
<td>• WIFIA: Federal government selects projects of national and regional significance that cost $20 million or more ($5 million or more for rural areas)</td>
</tr>
<tr>
<td>Rail</td>
<td>Generally 80%***</td>
<td>• Regulatory</td>
</tr>
</tbody>
</table>

*Includes numbers only for specific Water Utilities programs mentioned

***Additional funds are made available annually, but total federal assistance may not exceed 80% of project’s cost

***Estimate based on recent Federal Railroad Administration (FRA) grants and language in Amtrak’s FY21 appropriations request

Sources: Congressional Budget Office, Congressional Research Service.

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Department of Transportation Budget Highlights

Discretionary budget authority
BILLIONS OF US DOLLARS

<table>
<thead>
<tr>
<th>President’s Request</th>
<th>Enacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2020 21.4</td>
<td>FY2021 21.6</td>
</tr>
</tbody>
</table>

Key provisions of the FY21 presidential budget request

- $89 billion for the Department of Transportation, a $4.9 billion increase from 2020’s budget request
- Presents a “10-year funding and program authorization proposal for DOT’s surface transportation programs” amounting to $810 billion, including $69 billion in FY2021 (with $64 billion coming from the Highway Trust Fund)
- $1 billion for the FAA’s NextGen program
- $1 billion for the Better Utilizing Investments to Leverage Development (BUILD) transportation discretionary grant program
- $1 billion for the Infrastructure for Rebuilding America (INFRA) discretionary grants program
- $1.9 billion for Capital Investment Grants (CIG)
- $311 million in Transportation Infrastructure Finance and Innovation Act (TIFIA) program loan subsidies
- $1.47 billion in grants for Amtrak services
- $11.05 billion for Transit Formula Grants

Sources: Eno Center for Transportation, Department of Transportation.

Slide last updated on: April 9, 2020
Several committees have jurisdiction over US infrastructure programs

<table>
<thead>
<tr>
<th>Committee</th>
<th>Chair</th>
<th>Ranking member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senate Environment &amp; Public Works</td>
<td>John Barrasso (R-WY)</td>
<td>Tom Carper (D-DE)</td>
</tr>
<tr>
<td>Senate Commerce, Science &amp; Transportation</td>
<td>Roger Wicker (R-MS)</td>
<td>Maria Cantwell (D-WA)</td>
</tr>
<tr>
<td>Senate Banking, Housing &amp; Urban Affairs</td>
<td>Mike Crapo (R-ID)</td>
<td>Sherrod Brown (D-OR)</td>
</tr>
<tr>
<td>Senate Finance Committee</td>
<td>Chuck Grassley (R-IA)</td>
<td>Ron Wyden (D-OH)</td>
</tr>
<tr>
<td>House Energy &amp; Commerce</td>
<td>Frank Pallone (D-NJ-6)</td>
<td>Greg Walden (R-OR-2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*Retiring</td>
</tr>
<tr>
<td>House Transportation &amp; Infrastructure</td>
<td>Peter DeFazio (D-OR-4)</td>
<td>Sam Graves (R-MO-6)</td>
</tr>
<tr>
<td>House Ways &amp; Means Committee</td>
<td>Richard Neal (D-MA-1)</td>
<td>Kevin Brady (R-TX-8)</td>
</tr>
</tbody>
</table>