Economic Impacts of the Bipartisan Infrastructure Bill

Regional Economic Models, Inc.

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what does REMI say? ^{sm}

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what does REMI say? [sm]

About Us

We are the nation's leader in dynamic local, state and national policy modeling.

From the start, REMI has sought to improve public policy through economic modeling software that informs policies impacting our day-to-day lives. We were founded in 1980 on a transformative idea: government decision-makers should test the economic effects of their policies before they're implemented.

At REMI, we're inspired by a single goal: *improving public policies*.

Our Representative Clients

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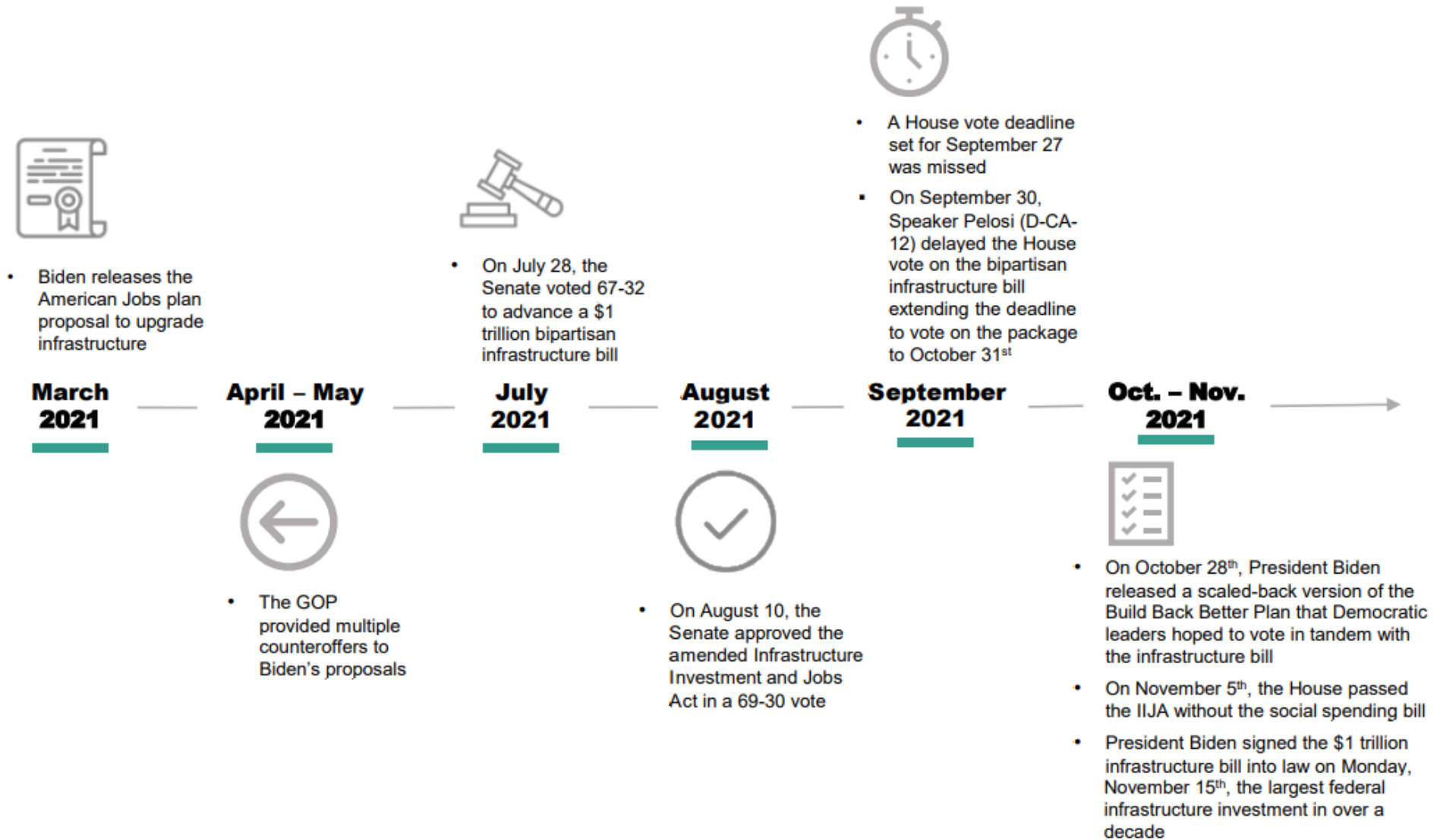
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Bipartisan Infrastructure Bill: Overview

- On July 28, the President and the bipartisan group announced agreement on the details of the Bipartisan Infrastructure Framework, which would make the largest long-term investment in our infrastructure in nearly a century.

- On November 15, President Joe Biden signed the $1.2 trillion Infrastructure Investment and Jobs Act (IIJA) into law, finalizing a key part of his economic agenda.

- The IIJA includes around $550 billion in new federal investment in America's roads and bridges, water infrastructure, resilience, internet, and more.

- It addresses clean drinking water, safer roads, modern public transit, and a reliable electrical power grid. It also makes the biggest investment in passenger rail since the creation of Amtrak and the single largest dedicated bridge investment since the construction of the interstate highway system.
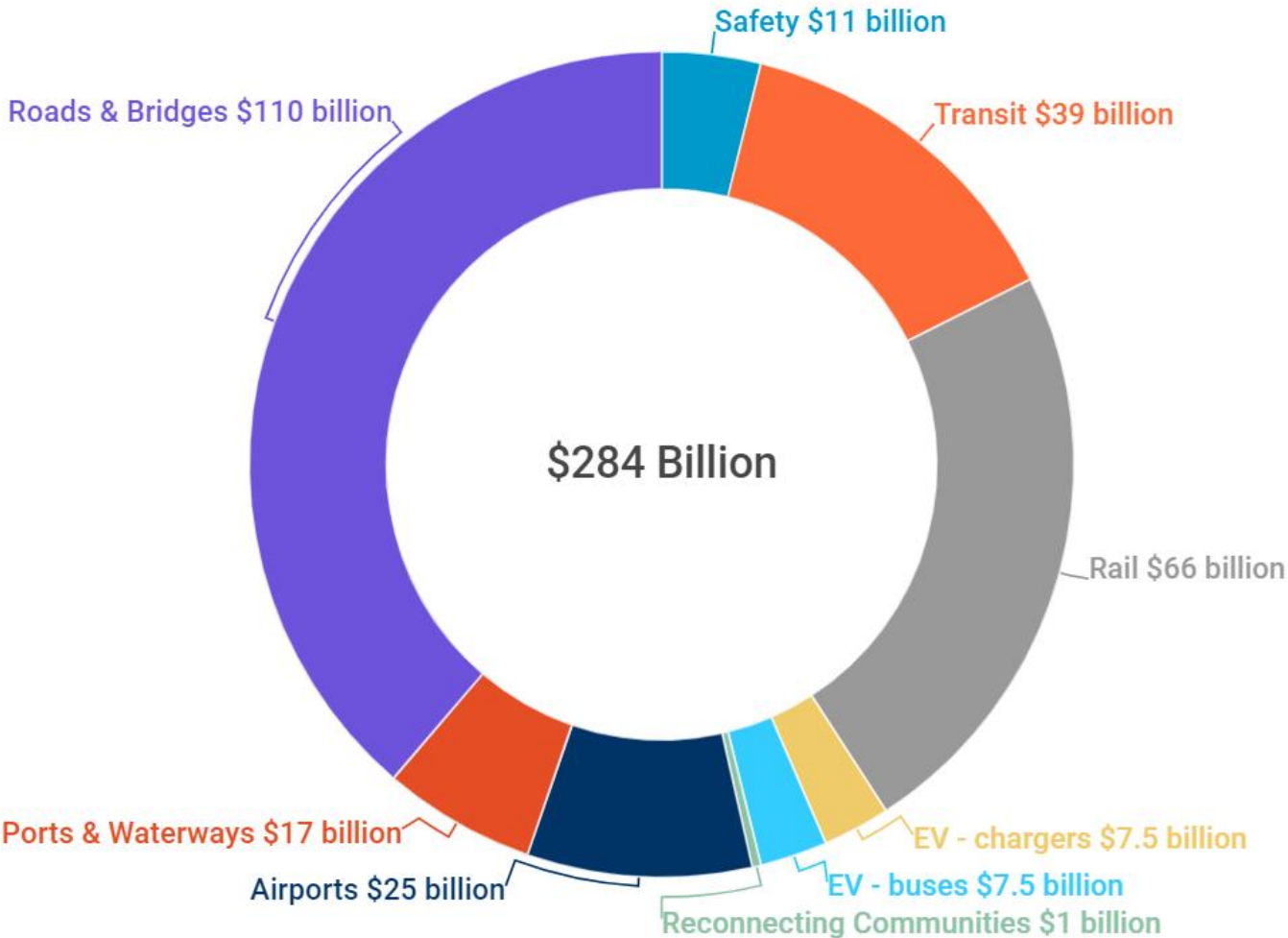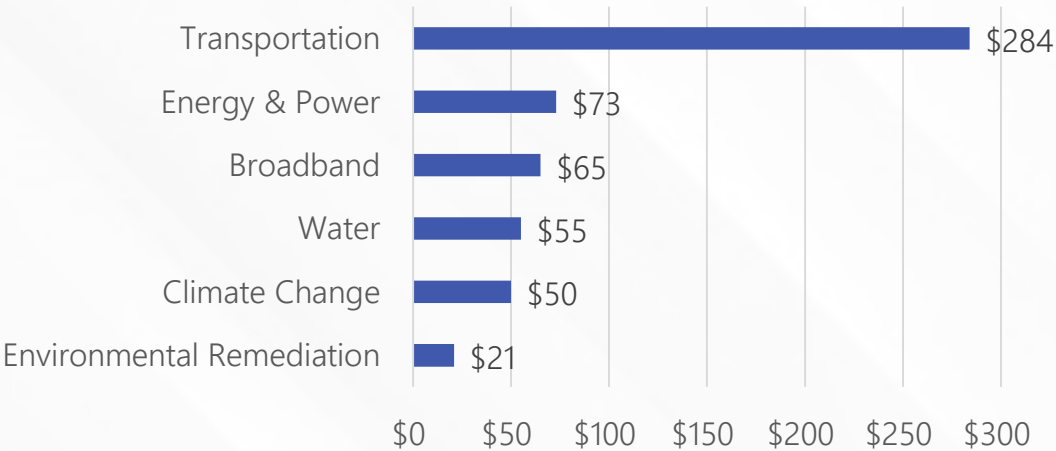
Bipartisan Infrastructure Bill: Timeline

- Biden releases the American Jobs plan proposal to upgrade infrastructure

- On July 28, the Senate voted 67-32 to advance a $1 trillion bipartisan infrastructure bill

- A House vote deadline set for September 27 was missed

- On September 30, Speaker Pelosi (D-CA-12) delayed the House vote on the bipartisan infrastructure bill extending the deadline to vote on the package to October 31st

March 2021 — **April – May 2021** — **July 2021** — **August 2021** — **September 2021** — **Oct. – Nov. 2021**

- The GOP provided multiple counteroffers to Biden's proposals

- On August 10, the Senate approved the amended Infrastructure Investment and Jobs Act in a 69-30 vote

- On October 28th, President Biden released a scaled-back version of the Build Back Better Plan that Democratic leaders hoped to vote in tandem with the infrastructure bill

- On November 5th, the House passed the IIJA without the social spending bill

- President Biden signed the $1 trillion infrastructure bill into law on Monday, November 15th, the largest federal infrastructure investment in over a decade

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Source: Infrastructure, Investment, and Jobs Act Overview, American Bar Association

Bipartisan Infrastructure Bill: Appropriations

Infrastructure Funding by Sectors ($B)

Sector	Amount
Transportation	$284
Energy & Power	$73
Broadband	$65
Water	$55
Climate Change	$50
Environmental Remediation	$21

Roads & Bridges $110 billion
Safety $11 billion
Transit $39 billion
Rail $66 billion
EV – chargers $7.5 billion
EV – buses $7.5 billion
Reconnecting Communities $1 billion
Airports $25 billion
Ports & Waterways $17 billion

$284 Billion

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Bipartisan Infrastructure Bill: Funding by State

Infrastructure Bill: Funding by State

View: Total / Per Capita

$0 $10B $50B

State	Total	Highways	Bridges	Public Trans.	Water	Other
CA	$44.56B	$25.3B	$4.2B	$9.5B	$3.5B	$2.1B
TX	$35.44B	$26.9B	$537M	$3.3B	$2.9B	$1.8B
NY	$26.92B	$11.6B	$1.9B	$9.8B	$2.6B	$1B
FL	$19.1B	$13.1B	$245M	$2.6B	$1.6B	$1.6B
IL	$17.81B	$9.8B	$1.4B	$4B	$1.7B	$914M
PA	$17.8B	$11.3B	$1.6B	$2.8B	$1.4B	$701M
NJ	$13.51B	$6.8B	$1.1B	$4.1B	$1B	$508M
OH	$12.83B	$9.2B	$483M	$1.2B	$1.4B	$544M
GA	$12.34B	$8.9B	$225M	$1.4B	$913M	$900M
MI	$10.78B	$7.3B	$563M	$1B	$1.3B	$620M

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Grant Programs and Project Prioritization

- The bill includes several new grant programs (formula and competitive) and increased funding for existing programs. These grants can help state and local governments finance key infrastructure projects.

- A deeper understanding of federal grant programs can help state and local agencies internally assess projects and pivot their applications when exploring federal funding opportunities.

- Project prioritization, which often involves evaluating a project and assigning a score across different sets of performance measures, can help agencies determine how to allocate federal grants with maximum efficiency, in line with long-term strategic plans and goals.

Key Transportation Grant Programs

The bill reauthorizes highway, transit and rail programs for five years and provides supplemental funding for new and existing transportation programs.
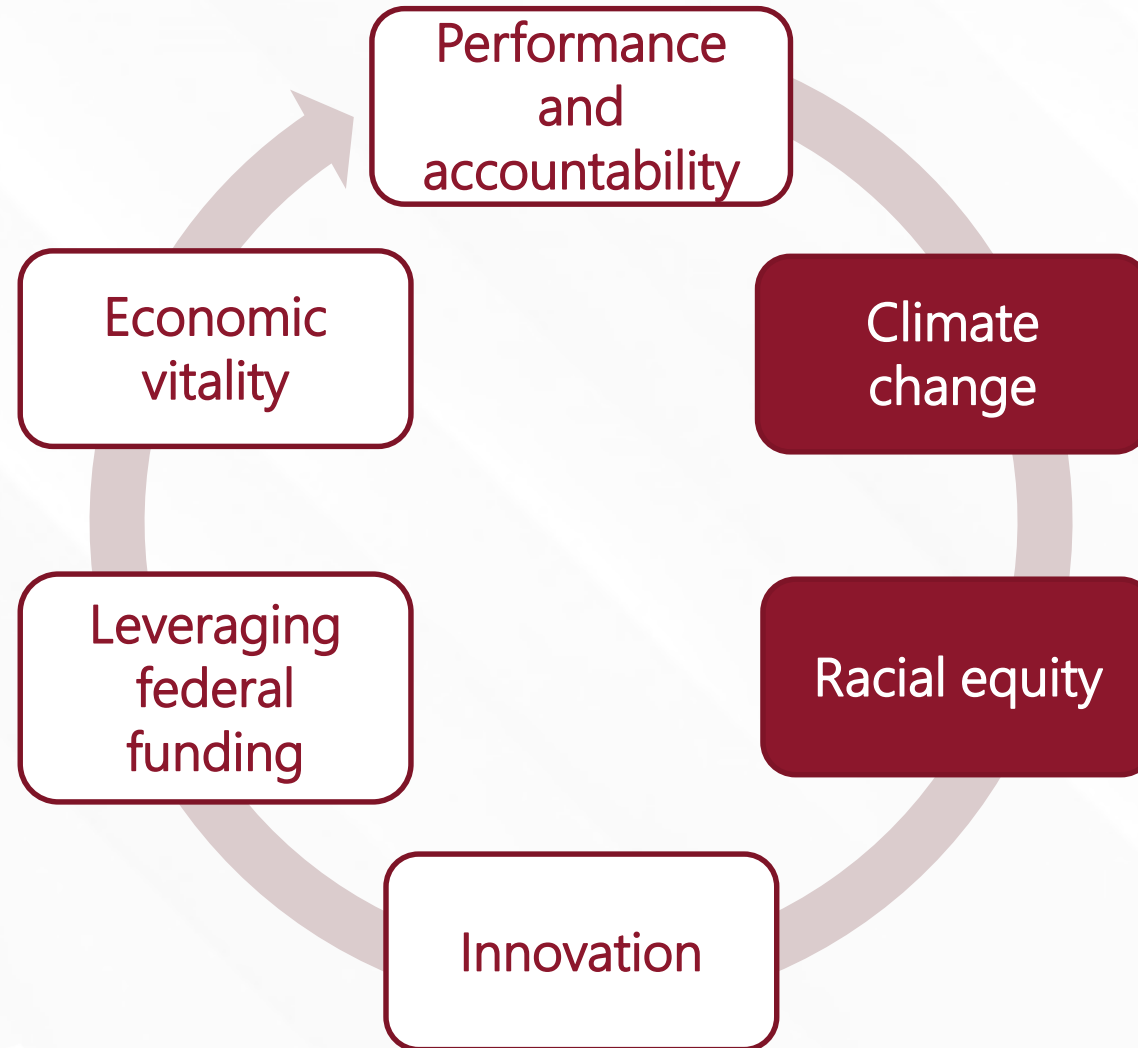
Infrastructure for Rebuilding America (INFRA) Grant Program

- $8 billion is available that funds highway and rail projects of regional and national economic significance. $4.8 billion is made available in the base bill text and a supplemental $3.2 billion is appropriated.
- U.S. Department of Transportation announced $905.25 million in proposed awards to 24 projects in 18 states.
- INFRA grants may be used for up to 60 percent of future eligible project costs. Federal assistance other than an INFRA grant may be used to satisfy the non-Federal share of the cost of a project receiving an INFRA grant, but the total Federal assistance may not exceed 80 percent of future eligible project costs.

Source: U.S. Department of Transportation

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INFRA Grant Selection Criteria

Performance and accountability

Climate change

Racial equity

Innovation

Leveraging federal funding

Economic vitality

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Key Transportation Grant Programs (continued)

Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grants

- $1 billion multimodal, merit-based, competitive discretionary grant program for surface transportation infrastructure.
- Previously known as TIGER and BUILD.
- Subject to appropriation, the bill authorizes $7.5 billion to boost funding for this program.
- U.S. Department of Transportation announced on November 19, 2021, nearly $1 billion in grant awards to 90 projects in 47 states, the District of Columbia and Guam.

Source: U.S. Department of Transportation

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RAISE Grant Basics (continued)

REMI

Eligible Cost Share/Match

Federal cost share up to 80% in urban areas

Federal cost share up to 100% in
• a) rural areas and
• b) planning grants in Areas of Persistent Poverty

Minimum Awards

$5 million for projects in urban areas

$1 million for projects in rural areas

No minimum for planning grants

Maximum Award

$25 million per project

$100 million per State

Not more than 50% of funding will be awarded to projects located in urban and rural areas, respectively

Source: U.S. Department of Transportation

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RAISE Grant Basics (continued)

Partnership

Safety

Innovation

Environmental Sustainability

State of Good Repair

Quality of Life

Economic Competitiveness

Primary selection criteria

Secondary selection criteria

Source: U.S. Department of Transportation

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RAISE Grant Basics (continued)

What Projects Compete Well?

- Project demonstrates clear, direct, significant, and positive local or regional impact relative to the merit criteria.

- The benefits appear reasonable and justifiable.

- Project has specific timeline for completion.

- Presents a clear story walking through the challenges addressed by the project and details the project impact.

- Results in good-paying jobs, improves safety, applies transformative technology.

- Explicitly considered climate change and racial equity in the planning and design stage.

- Emphasizes improved access to reliable, safe, and affordable transportation, particularly for underserved and overburdened communities.

Source: U.S. Department of Transportation

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Other Selected Grant Programs

Energy & Environmental Programs

- Regional Clean Hydrogen Hubs: $8B
- Civil Nuclear Credit Program: $6B
- Weatherization Assistance Program: $3.5B
- Battery Processing Grants: $3B
- Carbon Capture Demonstration Projects Program: $2.5B
- Water Recycling and Reuse Projects: $450M
- Energy Efficiency Revolving Loan Fund Capitalization Grant Program: $250M
- Clean Water Infrastructure Resiliency and Sustainability Program: $125M

Broadband & Cybersecurity Programs

- Broadband Equity, Access & Deployment Program: $42.45B
- Affordable Connectivity benefit program: $14.2B
- State Digital Equity State Capacity Program: $1.5B
- Digital Equity Competitive Grant Program: $1.25B
- State and Local Cybersecurity Improvement Grant Program: $1B
- Rural and Municipal Cybersecurity Grant: $250M

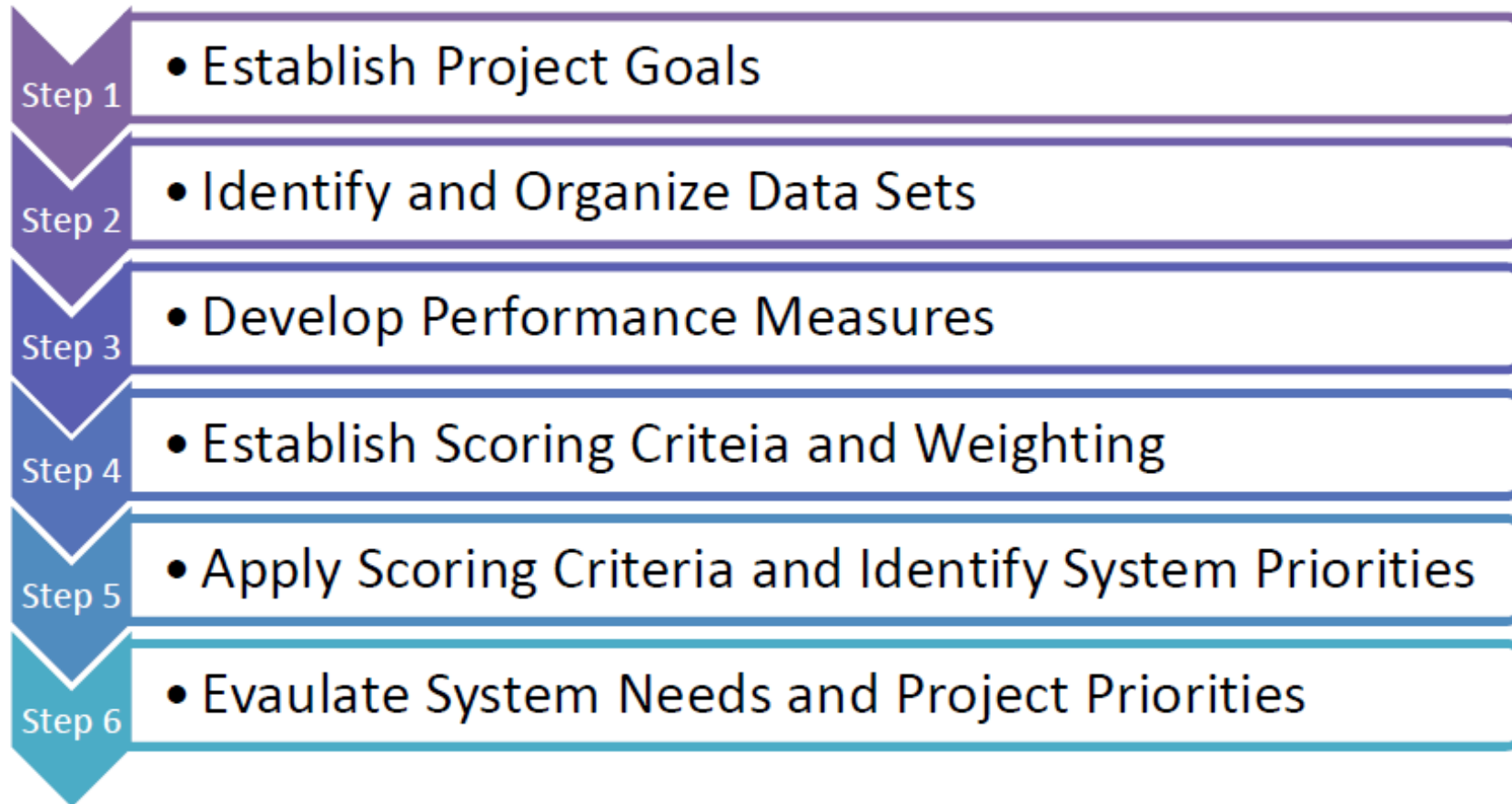Source: National Conference of State Legislatures, Akin Group

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Project Prioritization Framework

High Value, Low Effort
Projects within this category will allow for organizations to create significant value in a short amount of time.

High Value, Large Effort
Projects within this category require a substantial amount of effort, but also have a high value-add.

Low Value, Small Effort
Projects in this quadrant require more substantiated evidence before they are given higher priority.

Low Value, Large Effort
The opportunity cost of focusing on projects that expend little value can be substantial in hurting a regions long-term viability.

High

Low

Benefit/ Value

Small   Cost/ Effort   Large

- **Project prioritization** is the process of evaluating and selecting the initiatives that both align with an organization's objectives and maximize the performance with limited resources.

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Project Prioritization Framework

Step 1 • Establish Project Goals

Step 2 • Identify and Organize Data Sets

Step 3 • Develop Performance Measures

Step 4 • Establish Scoring Criteia and Weighting

Step 5 • Apply Scoring Criteria and Identify System Priorities

Step 6 • Evaulate System Needs and Project Priorities

Source: MnDOT

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Transportation Project Prioritization

Performance Goals

- Infrastructure condition
- Reduced project delivery delays
- Congestion reduction
- Safety
- Environmental sustainability
- System reliability
- Freight movement and economic vitality

Source: Project Prioritization Practices and Methods

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Transportation Project Prioritization

Why agencies need prioritization?

- Maximize spending efficiency with limited budgets

- Better return on investment with performance measures considered

- Allow evaluation of spending choices in line with long-term plans and goals

- Offer better information to involve stakeholders

- Provide transparency for the public and the decision-making hierarchy

- Lead to the successful delivery of projects

Source: Project Prioritization Practices and Methods

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Case Study: Louisiana

Project Name: LA 1 Improvement Project Phase 2

Applicant Organization Name:
Louisiana Department of Transportation and Development

Urban/Rural: Rural

INFRA Grants Awarded: $135 million

Project Description:
- Phase 1 and 2 include the construction of 19.3 miles of elevated highway between Golden Meadow and Port Fourchon.
- Phase 1 has already been constructed with 11 miles of elevated highway open to traffic.
- Phase 2 seeks to build the remaining 8.3 miles of elevated highway from Golden Meadow to Leeville.
- Protect against hurricanes, tropical storms, and even minor storms and high tides.

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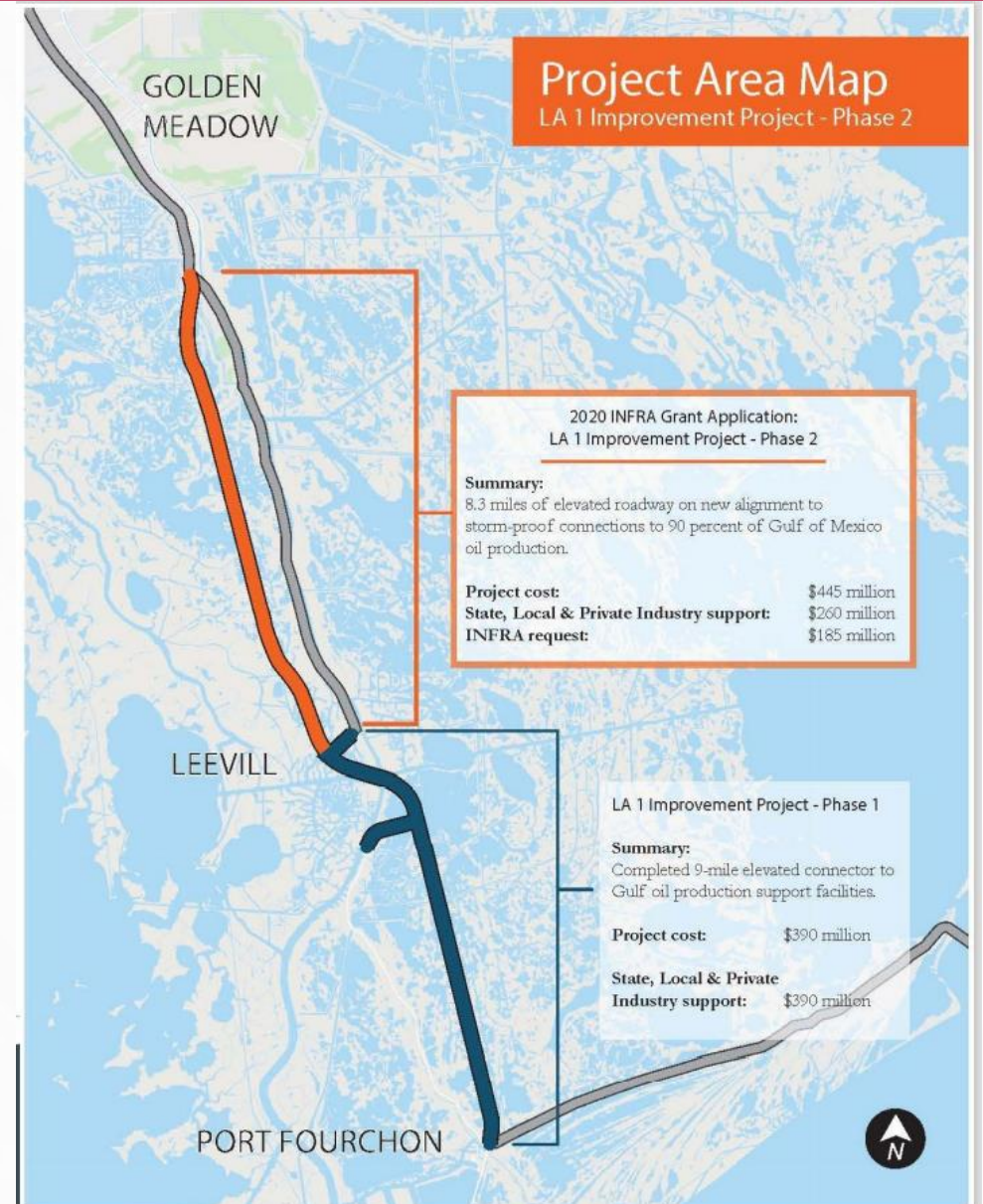
Case Study: Louisiana (continued)

How REMI can help?

- REMI Tax-PI was employed to analyze the avoided oil and gas production loss resulting from LA 1 – Phase 2
- **Analysis period:** 2029 through 2058
- Annual estimates of avoided production loss based on NOAA forecasts of LA 1 closures.
- **2029 avoided production loss:**
  - ✓ 1,019,665 barrels of crude oil valued at $78,954,523 (2018 $)
  - ✓ 1,563,601 thousand cubic feet of nat. gas valued at $5,404,025 (2018 $)
- **2058 avoided production loss:**
  - ✓ 17,894,590 barrels of crude oil valued at $2,074,411,502 (2018 $)
  - ✓ 29,797,917 thousand cubic ft. of nat. gas valued at $166,791,176 (2018 $)

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Case Study: Louisiana (continued)

How REMI can help?

Economic Impacts Summary

Year	Louisiana			United States		
	GDP (2018 $M)	Personal Income (2018 $M)	Employment	GDP (2018 $M)	Personal Income (2018 $M)	Employment
2029	141	65	1,017	227	102	1,649
2058	4,082	1,929	21,117	6,013	1,916	30,569
2029 - 2058	20,160	10,285	---	28,555	8,660	---

Tax Revenue Impacts

Revenue Sources	Louisiana			United States		
	2029	2058	2029-2058	2029	2058	2029-2058
Personal Income Tax ($2018 $M)	1.7	50.6	250.0	18.8	499.1	2,370.1
Corporate Income Tax (2018 $M)	0.2	6.1	30.2	2.3	60.1	285.6
Oil & Gas Royalty Tax (2018 $M)	0	0	0	56.9	1,506.3	7,153.0
State Sales Tax (2018 $M)	2.2	62.5	308.4	0	0	0

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Case Study: Transit Infrastructure

Measuring the Economic, Equity, and Environmental Contributions of Transit Infrastructure

- It is important to understand how transit drives economic, equity, workforce, and environmental outcomes, and how Metropolitan Planning Organizations (MPOs), Regional Planning Commissions (RPCs), Departments of Transportation (DOTs), and other agencies can leverage Federal funding to spur economic recovery in the short-term and transformational growth in the medium- and long-terms.
- KPMG and REMI collaborated to explore these issues using the REMI model and rigorous quantitative analysis.
- This project conducted analysis on the benefits of transit investments:
  - Economic growth with a focus on the productivity and job growth from transit efficiencies.
  - Equity and workforce development benefits, including access to work and workforce training for lower-income and disadvantaged individuals and higher labor force participation.
  - Environmental benefits from the reduction in carbon emissions and air pollutants.

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Case Study: Transit Infrastructure

Investment 1: Bus Electrification

- Replace WMATA's bus fleet entirely with electric buses
- Expand service to account for the implementation of Bus Rapid Transit (BRT) along critical routes
- Expected to yield a substantial reduction of emissions and operating costs

Investment 2: Fixed Guideway Transit

- Complete the Purple Line, a 16-mile-long transit connection between Maryland's Montgomery and Prince George's counties
- 21 stations connecting major residential and employment centers
- Divert car trips to transit and reduce the negative externalities from car travel

Investment 3: Improved Bicycle Infrastructure

- Significant expansion of the bicycle trail and lane network
- Based on 2015 Bicycle and Pedestrian Plan for the National Capital Region
- Focus on transportation contributions, which expected to result in a shift of some of the car trips to bicycles

Case Study: Transit Infrastructure

	Bus Electrification		Fixed Guideway Transit	Bicycle Infrastructure
	Construction and O&M Only	Full Scenario		
Net Capital Cost ($M)	$1,983	$1,983	$489	$833
Net O&M Cost ($M)	$179	$179	$1,299	$0
Total Cost ($M)	$2,161	$2,161	$1,788	$833
Contributions				
Jobs created (total, job-years)	8,122	11,590	32,748	7,819
Jobs created (annual average)	812	1,159	3,275	782
Share of jobs without Bachelor's degree	78.59%	76.14%	74.72%	78.08%
Share of jobs benefiting ethnic/racial minorities	49.04%	50.04%	64.60%	49.27%
Increase in GRP ($M)	$858	$1,306	$3,297	$830
Increase in Disposable Personal Income ($M)	$515	$980	$1,924	$515
Emissions Avoided (monetized average)	$1,500,000	$1,500,000	$750,000	$310,000
Emissions Avoided (monetized, 2031)	$2,000,000	$2,000,000	$839,000	$600,000
Contributions per Dollar Spent				
Jobs created per $1 million in spending	3.76	5.36	18.31	9.39
GRP per dollar spent	$0.40	$0.60	$1.84	$1.00
Labor Income per dollar spent	$0.24	$0.45	$1.08	$0.62
Average wage per job created	$63,408	$84,556	$58,752	$65,865
Emission reduction efficiency	0.093%	0.093%	0.026%*	0.072%
Emission reduced per $1 million in spending, 2031	$925	$925	$255*	$720

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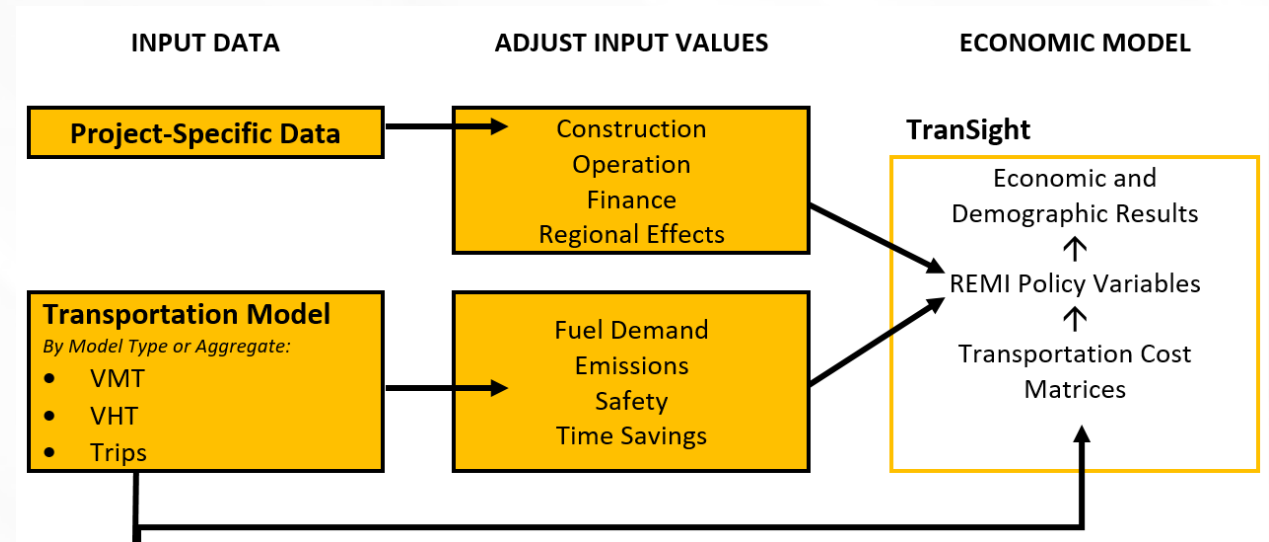Live model demo & notable results

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Model Simulation: REMI TranSight

TranSight is the premier software solution for comprehensive evaluations of the total economic effects of transportation policy.

Grounded in over 20 years of modeling experience, decision-makers depend on TranSight to forecast the short- and long-term impacts of transportation investments on jobs, population, income, and other economic variables

INPUT DATA	ADJUST INPUT VALUES	ECONOMIC MODEL
Project-Specific Data	Construction Operation Finance Regional Effects	TranSight Economic and Demographic Results ↑ REMI Policy Variables ↑ Transportation Cost Matrices
Transportation Model By Model Type or Aggregate: • VMT • VHT • Trips	Fuel Demand Emissions Safety Time Savings	

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Model Input and Assumptions: Bus Electrification

Assumptions	
Timeline	Analysis period: 2022-2031 Electrification completed in 5 years (2022-2026) Construction of BRT conducted concurrently
Funding	Entirely paid for with Federal funding
Initial Costs	Expended evenly through the five-year fleet replacement period

Input	Components
Manufacturing costs (2020$)	Vehicle and charging facility costs
Construction costs (2020$)	Charging facility installation and BRT construction costs
O&M cost savings (2020$)	Difference between the O&M costs of the existing fleet and the costs of operating an expanded electric bus fleet (fossil fuel annual operating costs – electric annual operating costs – fast charger O&M and fossil fuel annual fueling costs – electric annual fueling costs – BRT operating costs)
Change in energy consumption (billions of BTU)	Difference between the fuel consumption (CNG/hybrid/clean diesel/diesel/electric fuel economy x share of revenue miles) for the existing fleet and the fuel consumption for an electric bus fleet

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Infrastructure Bill

- The 1.2 trillion infrastructure bill will put $550 billion in new funds into transportation, broadband, utilities, and more. The bill includes a number of new grant programs and increased funding for existing programs.
- Basics on key transportation grant programs are introduced, along with selection criteria that reflect the priorities for creating good-paying jobs, improving safety, applying transformative technology, and explicitly addressing climate change and advancing racial equity.
- Project prioritization can help agencies determine how to allocate federal grants with maximized efficiency.

Bus Electrification Scenario

- Supports 1,159 jobs annually, a total increase of $1.3 billion in GRP, and add a total of $980 million in Disposable Personal Income.
- Provide substantial job opportunities to minority groups, with 50% of jobs created benefitting racial and ethnic minorities. Hispanic workers see largest employment gains.
- Provide more job opportunities for workers with lower educational attainment; 76.1% of the newly employed will not need a bachelor's degree (relative to 62.51% of the total D.C. Metro Area workforce).
- Cut down carbon emissions by 25,403 metric tons ($1.5 million) per year.

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