

# REMI ELECTION 2020: TRANSPORTATION & INFRASTRUCTURE POLICY

what does **REMI** say? <sup>sm</sup>

Presented by Regional Economic Models, Inc.

# Agenda

- Overview: Biden, Transportation, and the Economy
- Scenario: Modeling the Economic Impact of a Transportation Hub investment
- Case Study: Houston-Galveston Area Council High Capacity Transit
- Modeling Potential Economic Futures of Transportation Planning

# Biden, Transportation and the Economy

- Transportation investment: Jobs program, typically bipartisan
- Resistance to deficit spending
- Geographic and industry dimension: who benefits

# Transportation in a Biden Administration

- ❑ “Flexible federal investments”
- ❑ Providing access to public transportation in areas that currently lack access – 45% of Americans
- ❑ Includes: light rail networks, improving existing bus & transit lines
- ❑ Job creation within transportation sector
- ❑ Economic stimulation short term & long term

# Transportation as Stimulus

- Economic limitation of “stimulus” checks
  - ▣ Personal income holding up while output declines (unsustainable)
  - ▣ Economic effects due to consumption
- Transportation investment as economic stimulus
  - ▣ Investment demand: stimulus to supply chain
  - ▣ Long-term economic benefits: driven by productivity



# About REMI

**REMI's 35-year history of rigorous academic research and software development has led to the development of the the industry standard in macroeconomic research methodology:**

## **Input-Output**

Close analysis of inter-industry relationships

## **General Equilibrium**

Estimate of long-run stability of the economy allows for analysis of policy decisions

## **Econometrics**

Advanced statistical analyses underpinning the model

## **Economic Geography**

Effects of geographic concentration of labor and industry

**Integrated REMI  
economic modelling  
approach**



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# Transportation and Economic Development

Construction  
O&M

Employment  
Opportunities



Labor Accessibility

Commuting; Labor  
productivity



Intermediates Accessibility

Materials to  
factories

Final Goods Accessibility

Goods and  
services to  
consumers



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# Static vs. Dynamic Analysis

## Static Analysis

- Construction spending
- O&M spending

## Dynamic Analysis

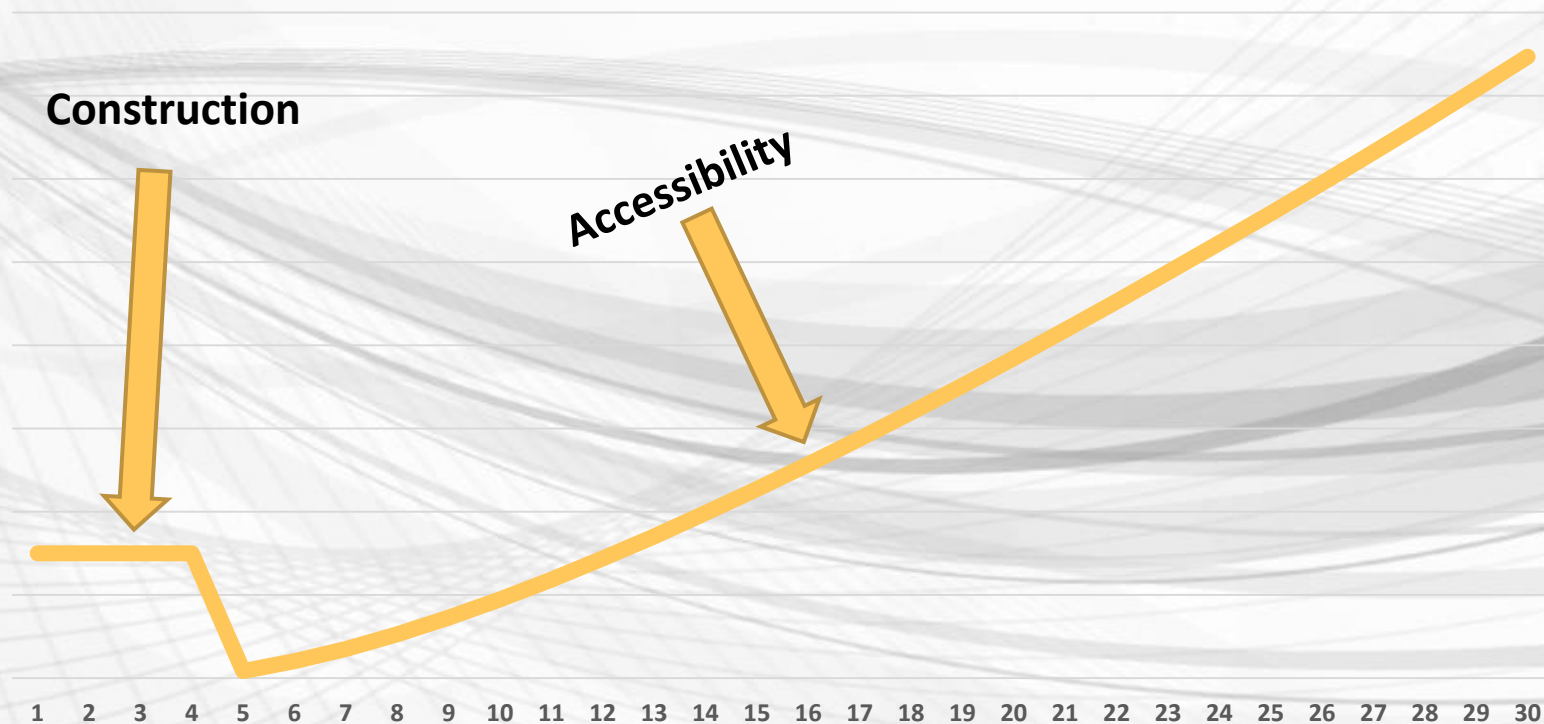
- Construction spending
- O&M spending
- Travel time savings
- Emissions savings
- Safety improvements
- Fuel expenditures
- Non-fuel VOCs
- Network speed improvements
- Access to labor
- Access to intermediate inputs

**FHWA:** TranSight is among the “best equipped to estimate *productivity* impacts”\*

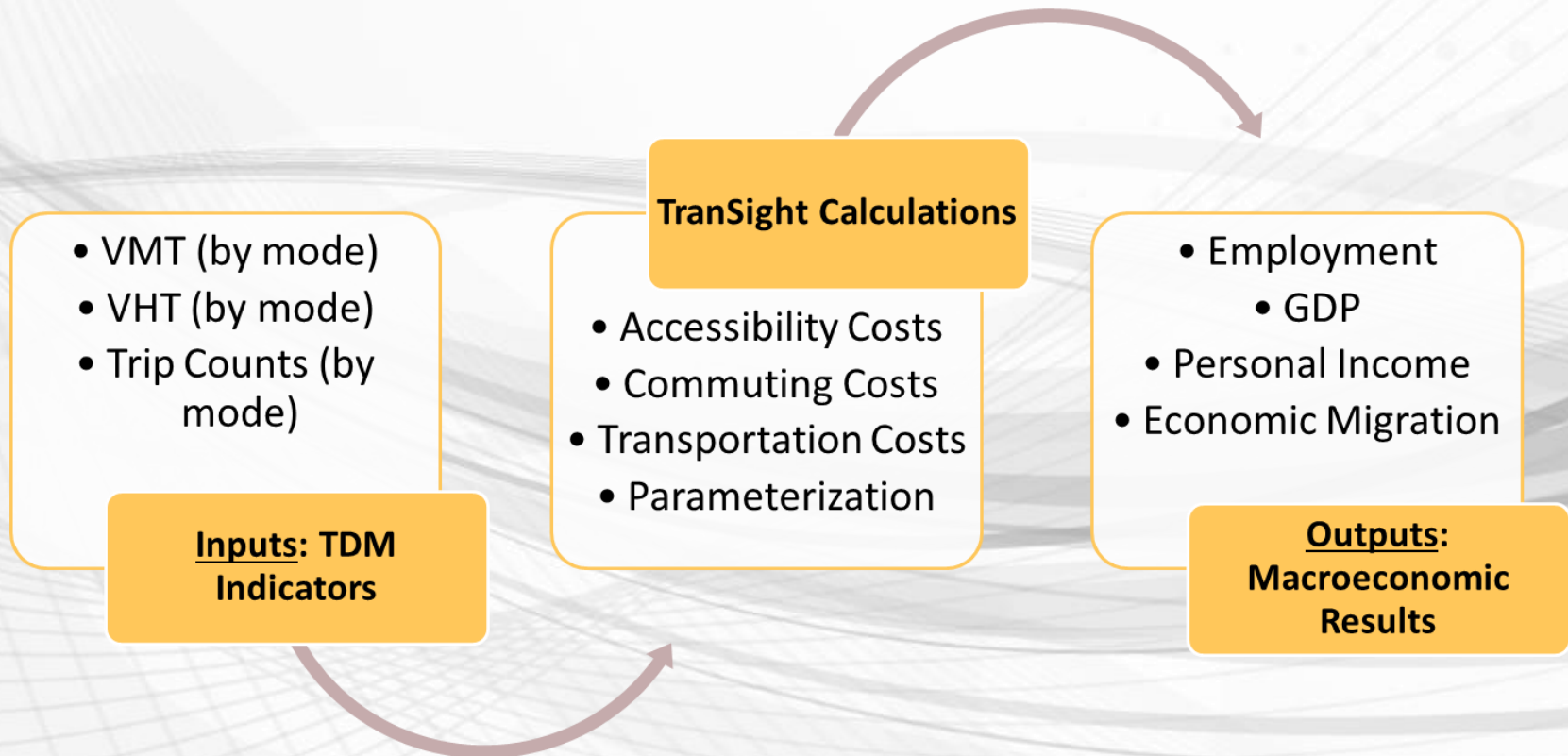


# Economic Impact Over a Project's Life Cycle

## Sample Project



# TranSight Process



# Applications of TranSight



Long-Range Planning

Project Prioritization

Transportation Finance

Economic Impact Analysis

Grant Applications

TIP and STIP Planning

Regional Transportation Plans

# Modeling the Economic Impacts of Transportation

- Critical role for economic modeling in transportation planning at the regional and national levels
- Allocation by population – lower, long term economic effect
- Partially a targeted investment in key transportation hub



# Scenario: Investing in a Transportation Hub: Chicago



- Hypothetical investment to improve the transportation network in the Chicago metro area
  
- Examine the economic impacts of the investment:
  - ▣ On the metro Chicago region
  - ▣ On the Midwest region
  - ▣ On the nation

# Model Demo

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# ECONOMIC IMPACT ANALYSIS FOR H-GAC'S HIGH CAPACITY TRANSIT (HCT) PROJECT



- The Houston-Galveston Area Council (H-GAC) High Capacity Transit Task Force sought to identify which High Capacity Transit (HCT) is needed to support economic growth, mobility and quality of life in the H-GAC region
- H-GAC used the REMI TranSight model to evaluate the economic impacts of certain HCT project investments into its RTP

[Houston-Galveston Area Council – Economic Impact Analysis for HGAC's High Capacity Transit \(HCT\) Project \[full PDF\]](#)

# ECONOMIC IMPACT ANALYSIS FOR H-GAC'S HIGH CAPACITY TRANSIT (HCT) PROJECT



- ❑ Six scenarios were analyzed (varying project capital and operating costs based on different service types)
  - ❑ Low scenario (lower-cost, lower-speed, i.e. Bus)
  - ❑ High Scenario (high-speed, i.e. rail)
- ❑ Scenarios were run through TDM to reflect network changes
- ❑ TDM results imported into REMI TranSight to evaluate impacts on economic activity and transportation efficiencies

[Houston-Galveston Area Council – Economic Impact Analysis for HGAC’s High Capacity Transit \(HCT\) Project \[full PDF\]](#)

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# REMI APPLICATION



- These benefits (VMT's, VHT's VTT's) are inputs to REMI TranSight
- TranSight generates estimates for travel time savings, accident cost reductions, emission cost savings, and vehicle operating cost savings
- TranSight estimates the number of jobs created, regional GDP increased, personal income changes, etc., from implementing the HCT project

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# Results

## Benefits and Costs of the HCT Project

Category	Units	NoBuild	2040Hway	HCT_Low	HCT_ML	HCT_MH	HCT_High
Total User Benefits	Billions of dollars (2018)	-57.0	-2.4	362.1	377.5	418.2	521.3
- Travel Time Savings	Billions of dollars (2018)	-57.5	-4.3	285.5	286.5	287.7	290.2
- Safety Improvements	Billions of dollars (2018)	0.0	2.0	76.7	91.1	130.5	230.6
- Others	Billions of dollars (2018)	0.6	-0.1	-0.2	-0.1	0.0	0.4
Project Costs	Billions of dollars (2018)	18.9	48.1	90.0	98.6	135.8	154.4
Project BC Ratio	-	-3.0	-0.1	4.0	3.8	3.1	3.4
Total Impact Benefits	Billions of dollars (2018)	-83.7	45.1	684.8	711.2	797.1	926.3
Impact BC Ratio	-	-4.4	0.9	7.6	7.2	5.9	6.0
Total Employment	Thousands (Jobs)	516.7	914.8	2049.7	2116.2	2393.7	2541.6
Annual Average Job Growth	Thousands (Jobs)	19.1	33.9	75.9	78.4	88.7	94.1
GDP	Billions of dollars (2018)	65.5	139.5	419.7	430.9	477.6	503.6
Output	Billions of dollars (2018)	136.7	292.4	888.6	912.1	1009.6	1063.7
Personal Income	Billions of dollars (2018)	-26.7	47.5	322.7	333.8	378.9	405.0

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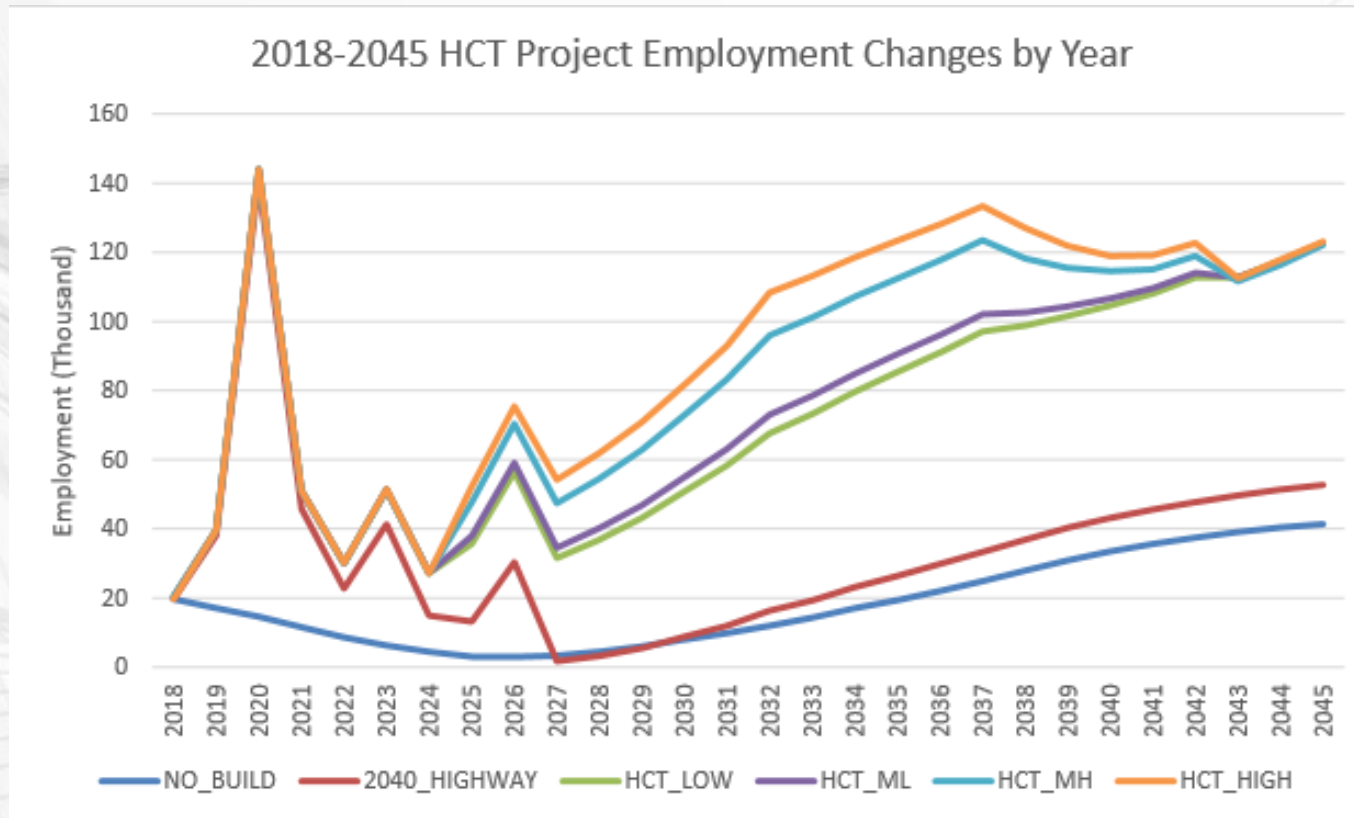
# ECONOMIC BENEFITS OF THE HCT PROJECT



- Travel time savings
  - ▣ More transit users results in less congested highways facilities for remaining drivers
  - ▣ Transit improvements result in reduction of door-to-door trip time for all transit users
- Safety benefits from the reduced risk crashes
- Other cost savings to the transit patron
- Increased personal income due to the additional economic growth and wages received by the region's workforce

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# Results

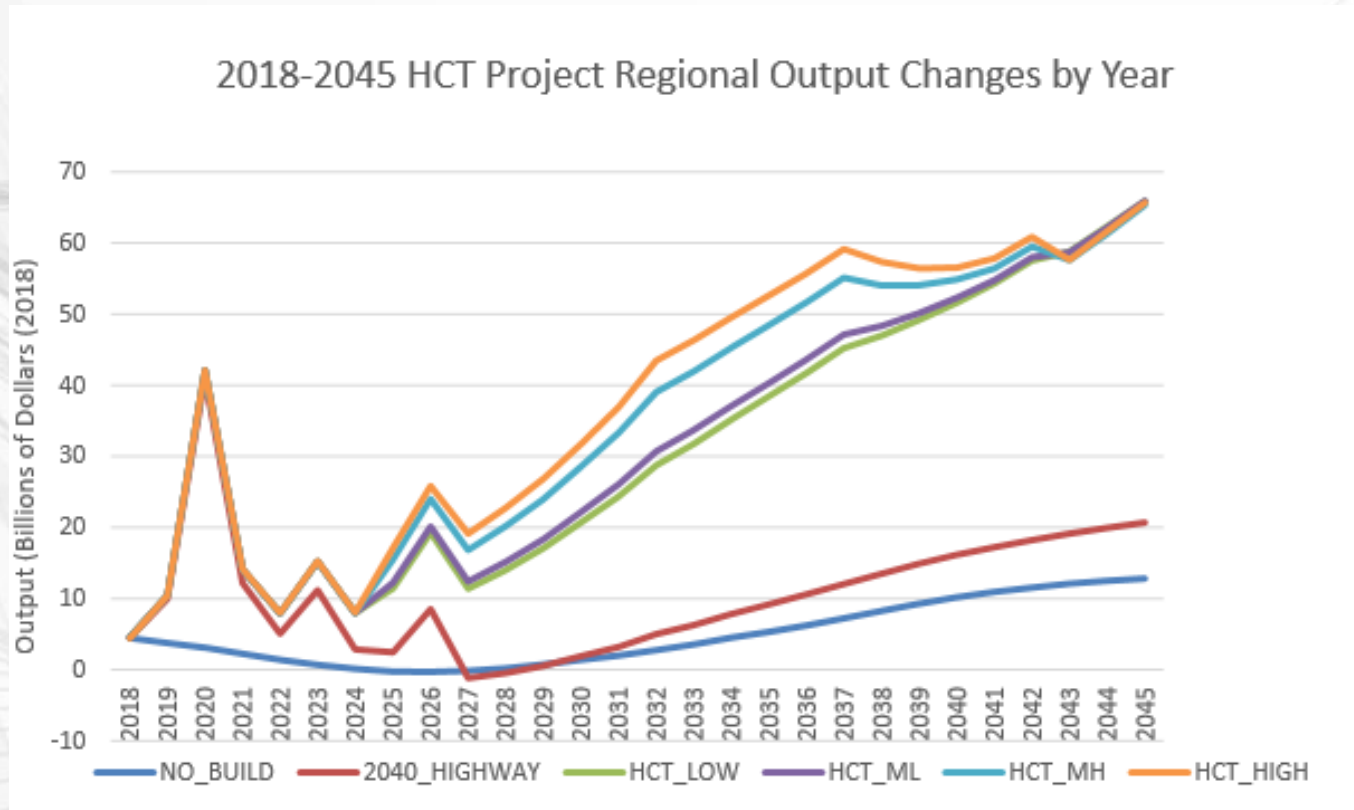


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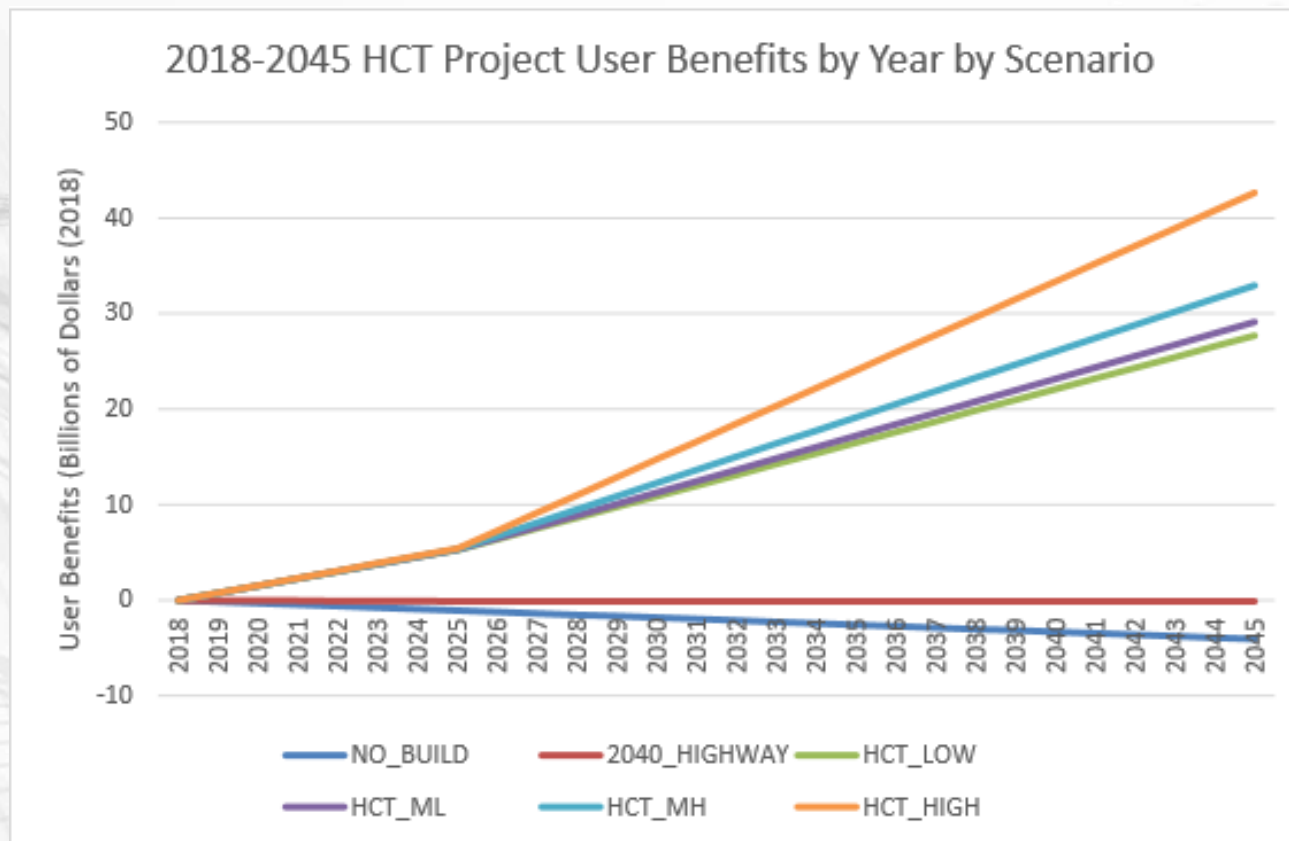
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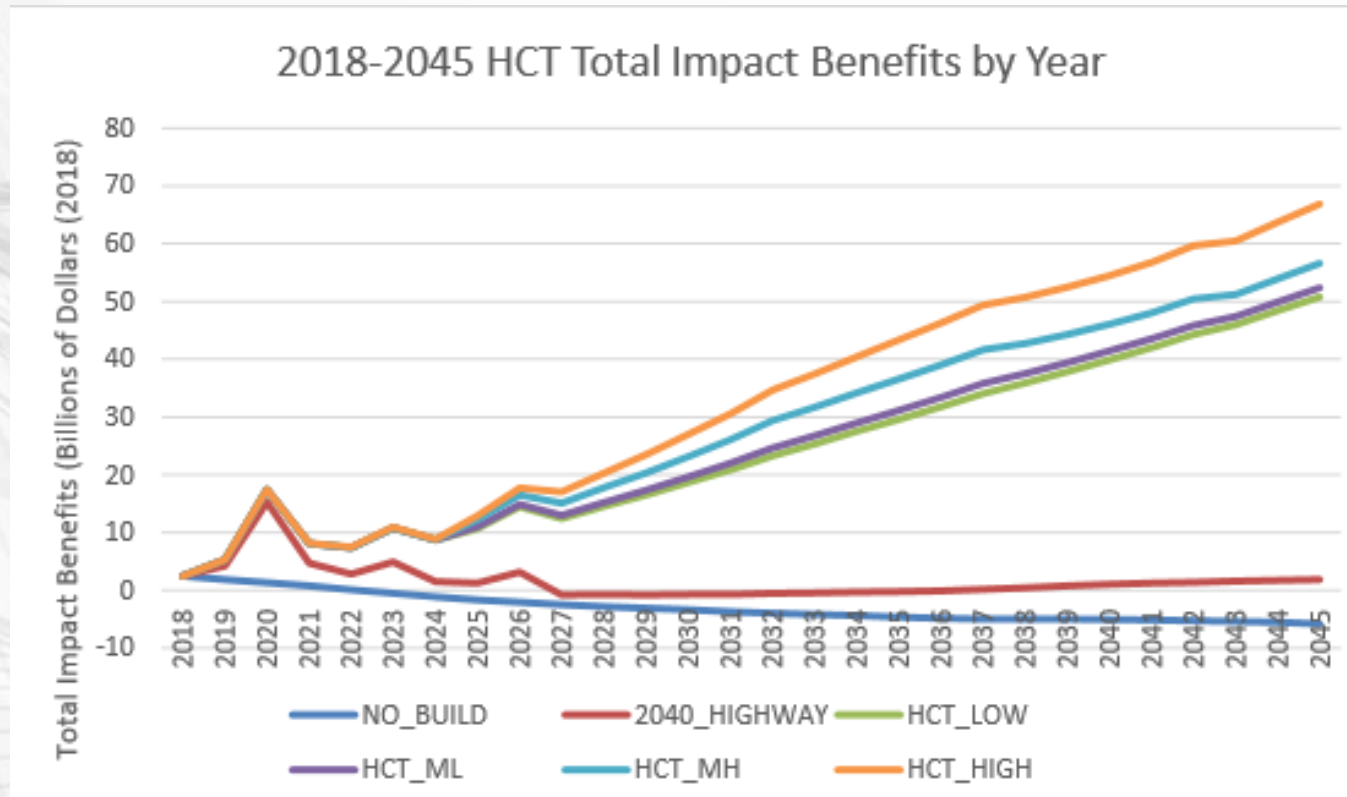
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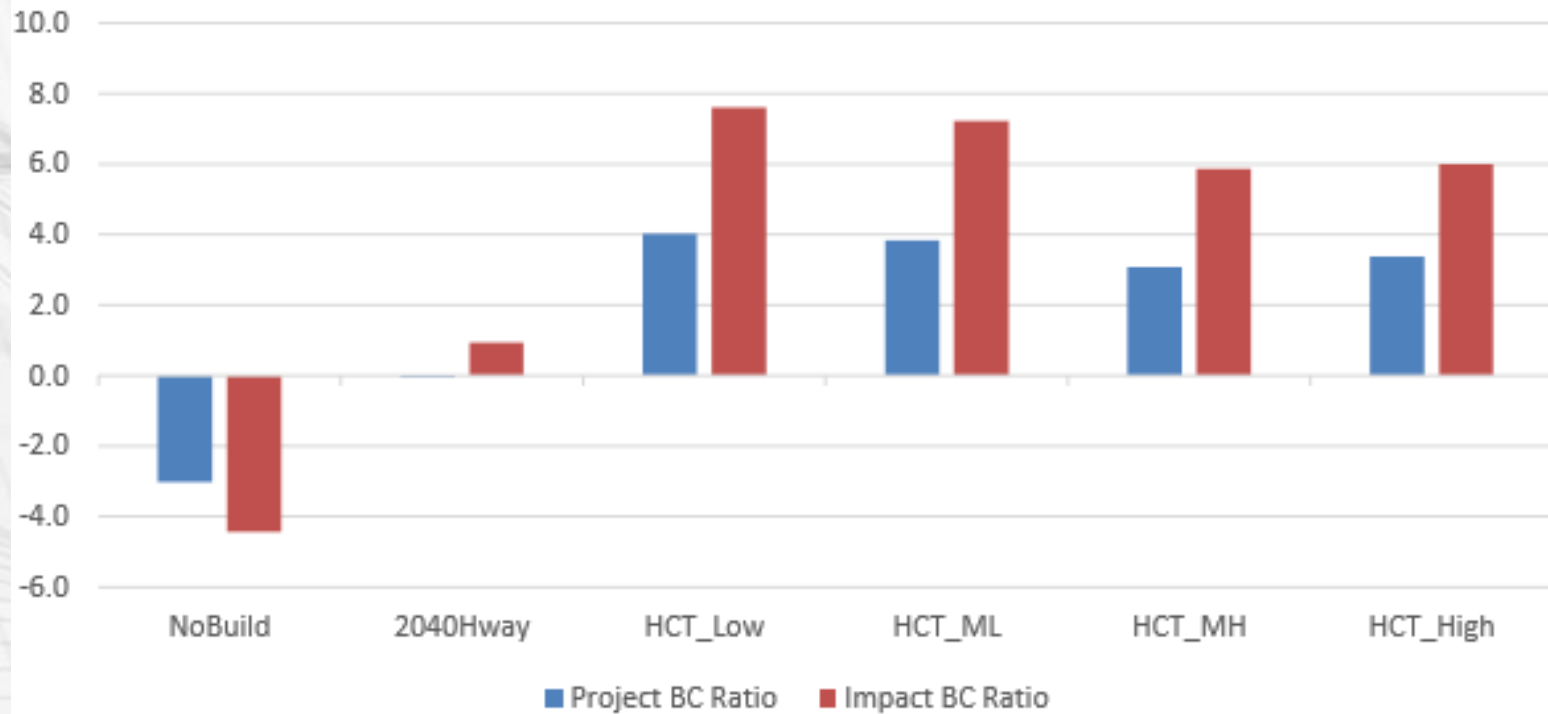
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# COVID-19: Modeling Potential Economic Futures



- COVID-19's economic effects and uncertainty have caused the need for updated forecasts and information
- Changes must be reflected in decision-making process
- Using various national forecasts to drive regional forecasts amid unpredictability

# COVID-19: Modeling Potential Economic Futures



- *“My prediction will be that 50% of business travel and over 30% of days in the office will go away.” – Bill Gates, NY Times Dealbook Conference*
- Uncertainty around commuting patterns, residency changes, and travel
- Scenario: hypothetical residence adjustment if locational patterns change in the Chicago metro area

# Model Demo

# Looking Ahead

- Potential challenges:
  - ▣ Political context of polarization
  - ▣ Large-scale economic problems requiring many solutions
- Transportation and infrastructure can play critical role in economic recovery and long-standing economic vitality
- Potential to provide near and long term economic benefits for regional economies and the nation as a whole