

The PCA logo features the letters 'PCA' in a bold, white, sans-serif font. A white swoosh underline starts under the 'A' and extends to the right, ending with a registered trademark symbol (®). The background is a grayscale photograph of a large concrete bridge structure with arches, set against a cloudy sky and a rocky landscape with a river in the distance.

**PCA**®

*Since 1916*

America's Cement Manufacturers™

## PCA Spring Cement Outlook

Board Week, April 2021

Ed Sullivan, SVP & Chief Economist

# Presentation Focus

1. Putting the Forecast Into Context: 2020 Performance
2. IHME Covid-19 Projections, Impacts & Risks
3. Evidence of a Strong Recovery...So Far
4. 2021-2023 Macroeconomic, Inflation & Interest Rate Scenario
5. Growth Composition In the Context of Rising Interest Rates
6. The Biden Agenda Face Value: Infrastructure “America’s Jobs Plan”
7. Political Considerations & Alternative Scenarios
8. The Weighted Average Baseline Outlook
9. Questions & Answers

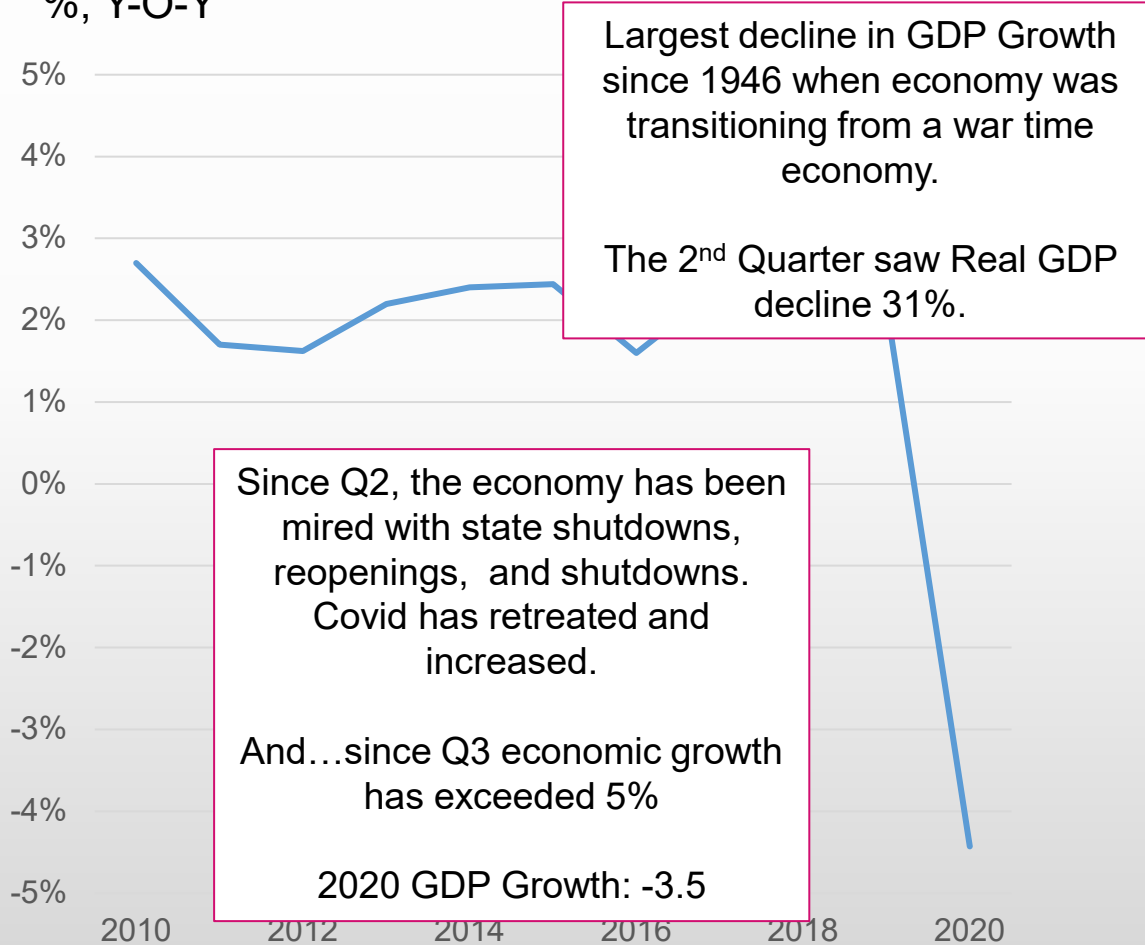
# Putting the Forecast Into Context

## 2020 Performance Data

# Economic Performance

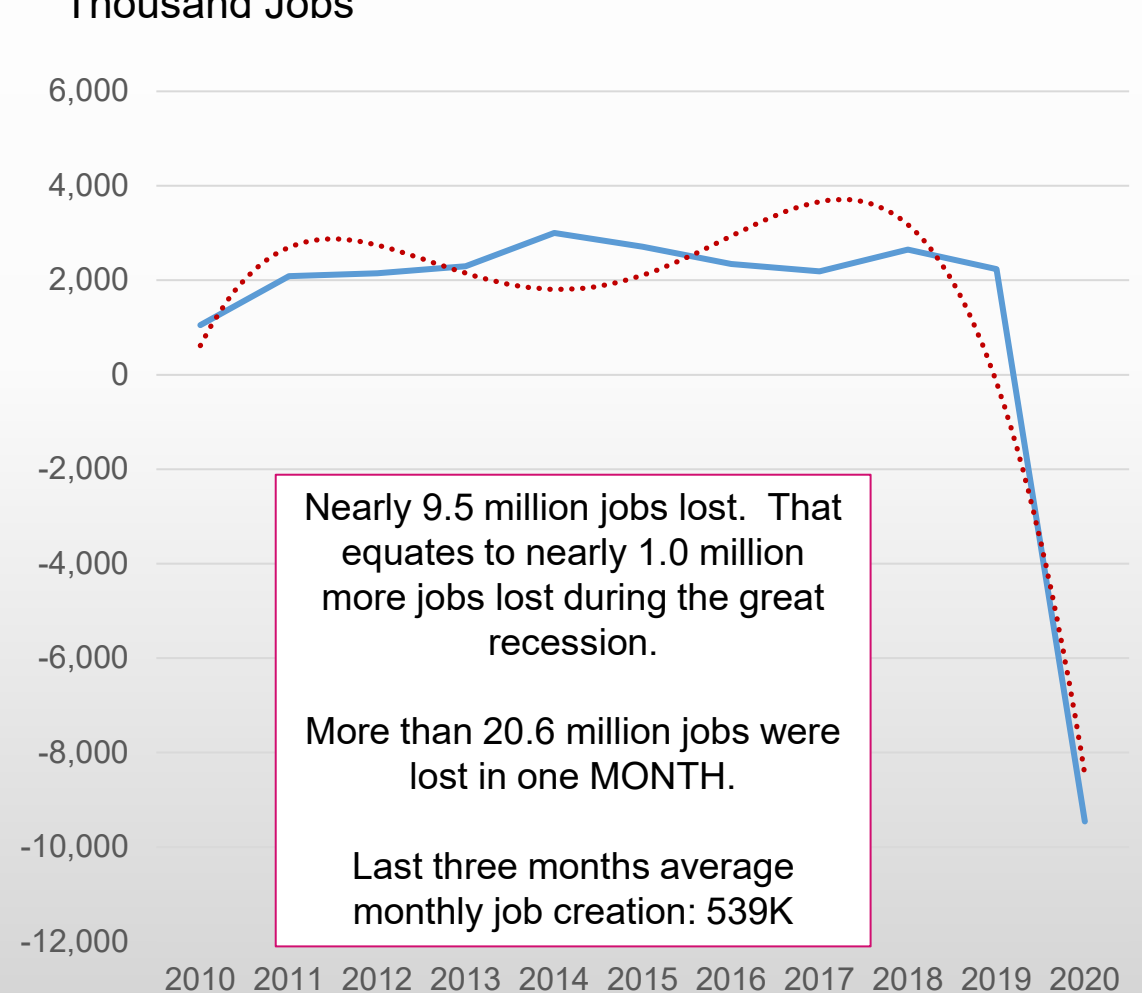
## RGDP Growth

%, Y-O-Y



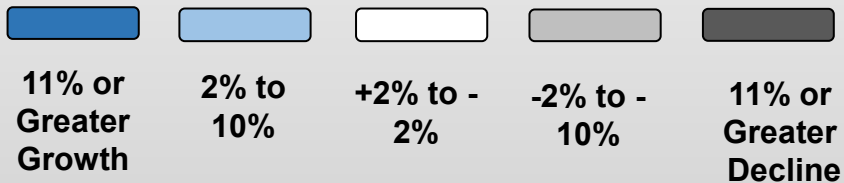
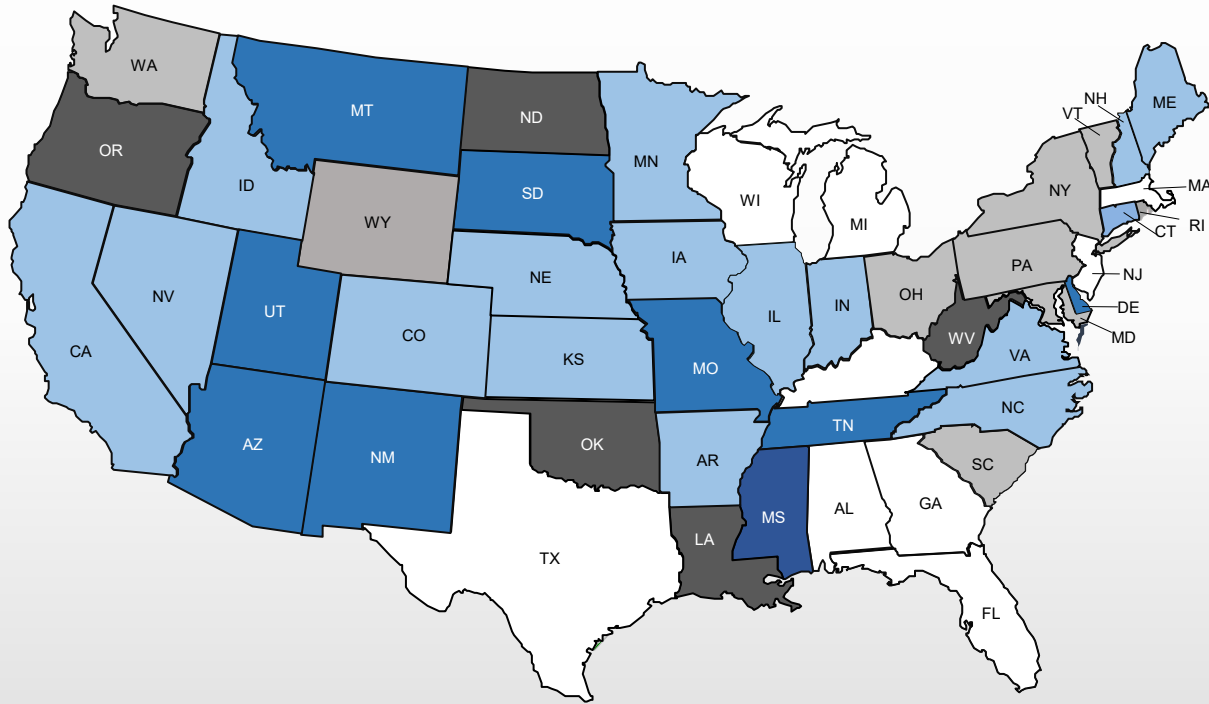
## Net Job Creation

Thousand Jobs

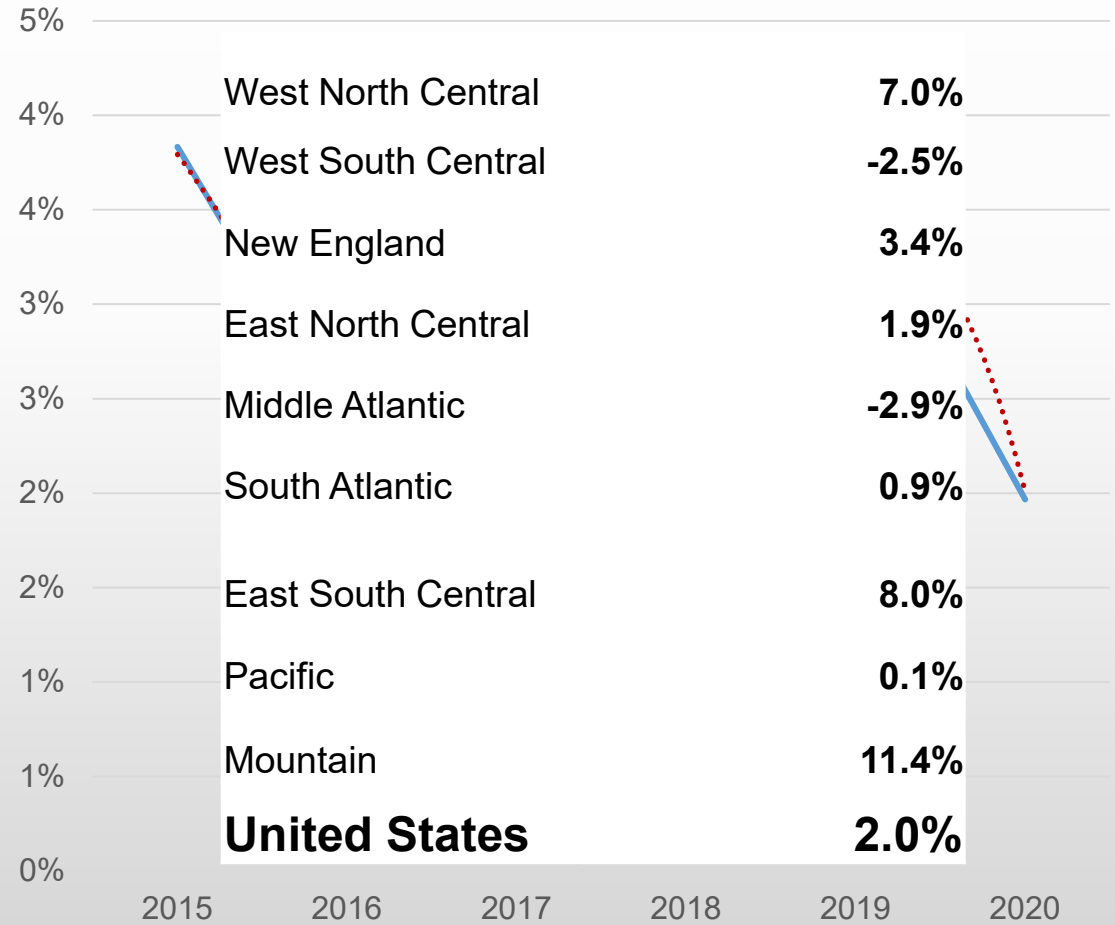


# Cement Consumption

## Cement Consumption %, Y-O-Y

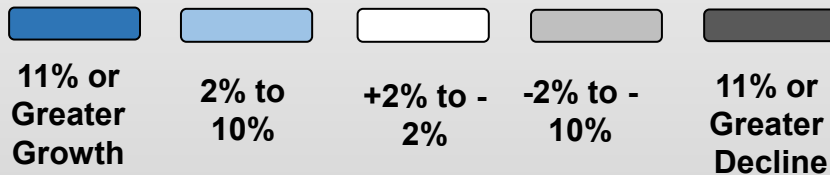
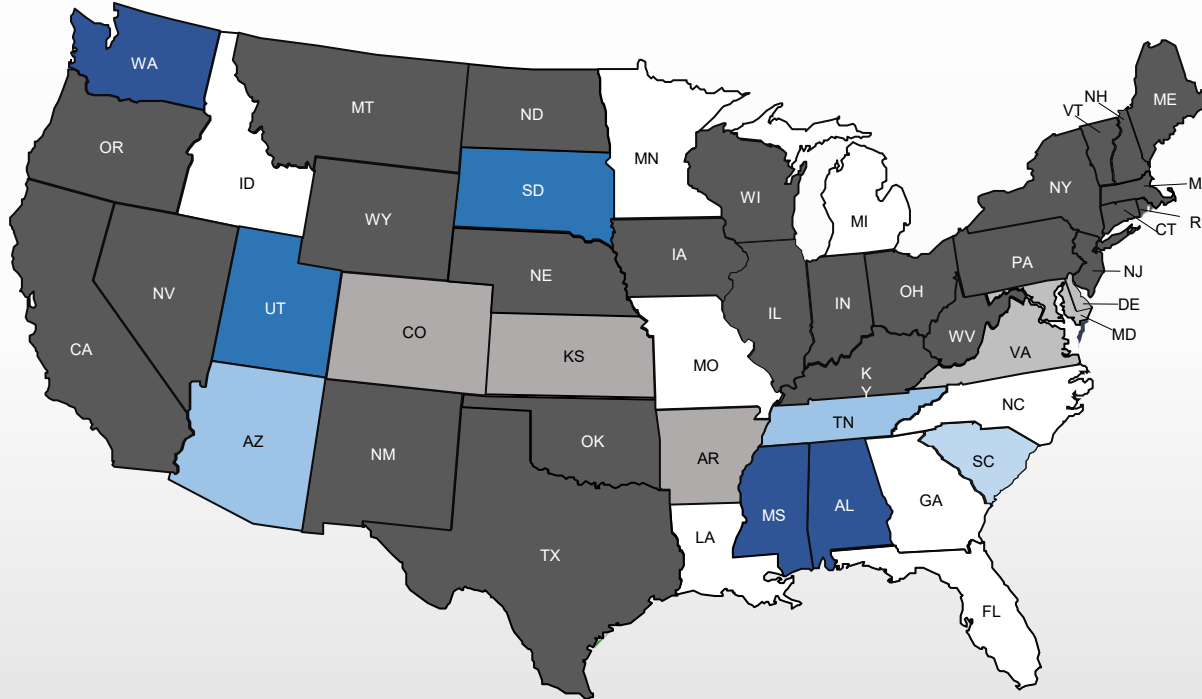


## Cement Consumption Y-O-Y, %



# Off to a Bad Start

February 2021 year-to-date



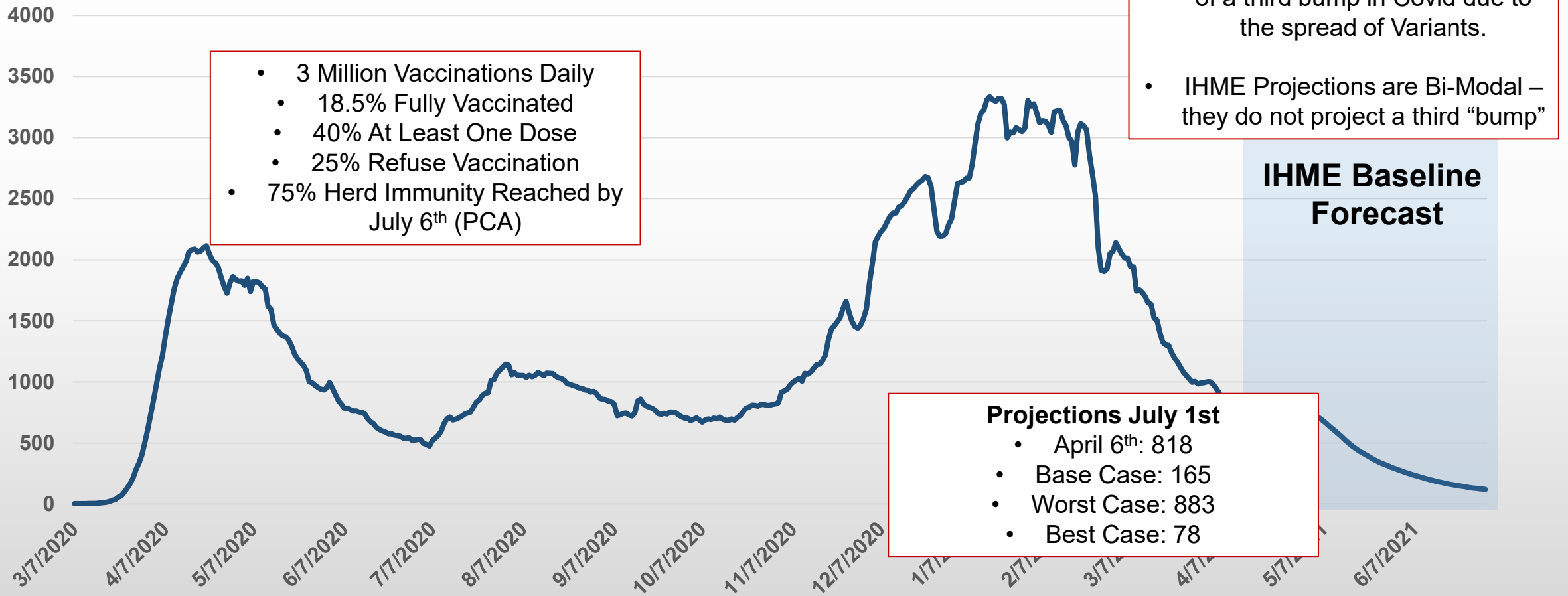
West North Central	-10.4%
West South Central	-12.5%
New England	-13.6%
East North Central	-27.7%
Middle Atlantic	-21.7%
South Atlantic	-2.0%
East South Central	-1.7%
Pacific	-10.2%
Mountain	-2.6%
<b>United States</b>	<b>-9.9%</b>

Despite PCA weather metric data to the contrary, cross-checks suggest declines are weather related - and not reflective of a structural decline.

# **Covid Data & IHME Projections**

# Confirmed & Projected COVID-19 Deaths

U.S. Coronavirus Deaths; 7-day moving average; IHME Projections





# Vaccine Impact on the Economy

Once the Vaccine is Mass Distributed....and herd immunity levels reached.....

It will:

- Result in a dramatic surge in consumer confidence.
- Encourage a return to many, but not all, Pre-Covid activities
  - Dining, movies, shopping, face-to-face interactions.
- Business will reopen, new businesses will emerge to fill voids created by the virus.
  - Perhaps encouraged by SBA support
- Investment uncertainty will decline.
- Economy will expand rapidly.
- Jobs growth will be strong.

This is largely based on consumers returning to pre-Covid patterns.

Given the severity and duration of the disruption...**full** restoration of consumer patterns may occur over several quarters.

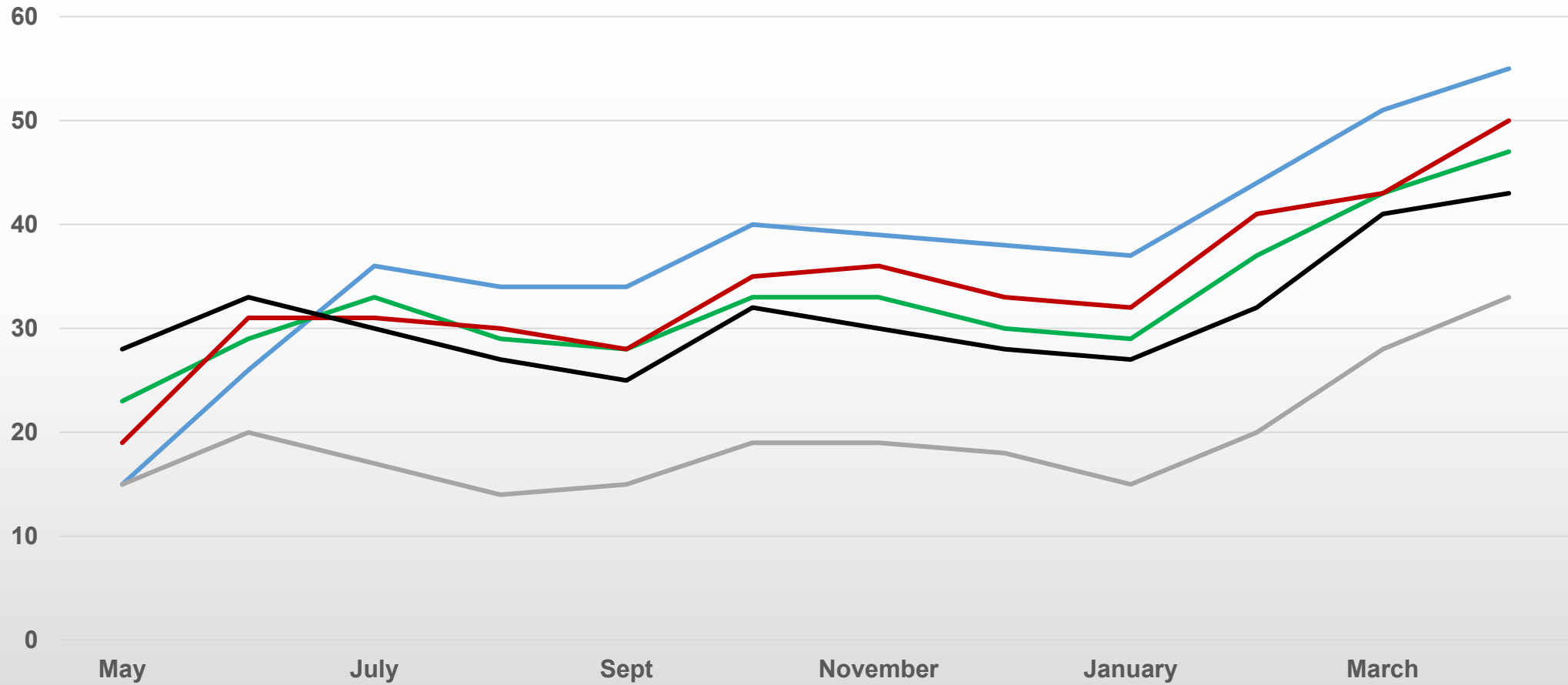
The process begins with consumers sense of safety and the achievement of herd immunity.

# **Evidence of a Strong Recovery**

# Consumer Comfort

Morning Consult, % All Adults

- Pace of Vaccinations Accelerates
- Covid-19 Daily Death Rates Drop

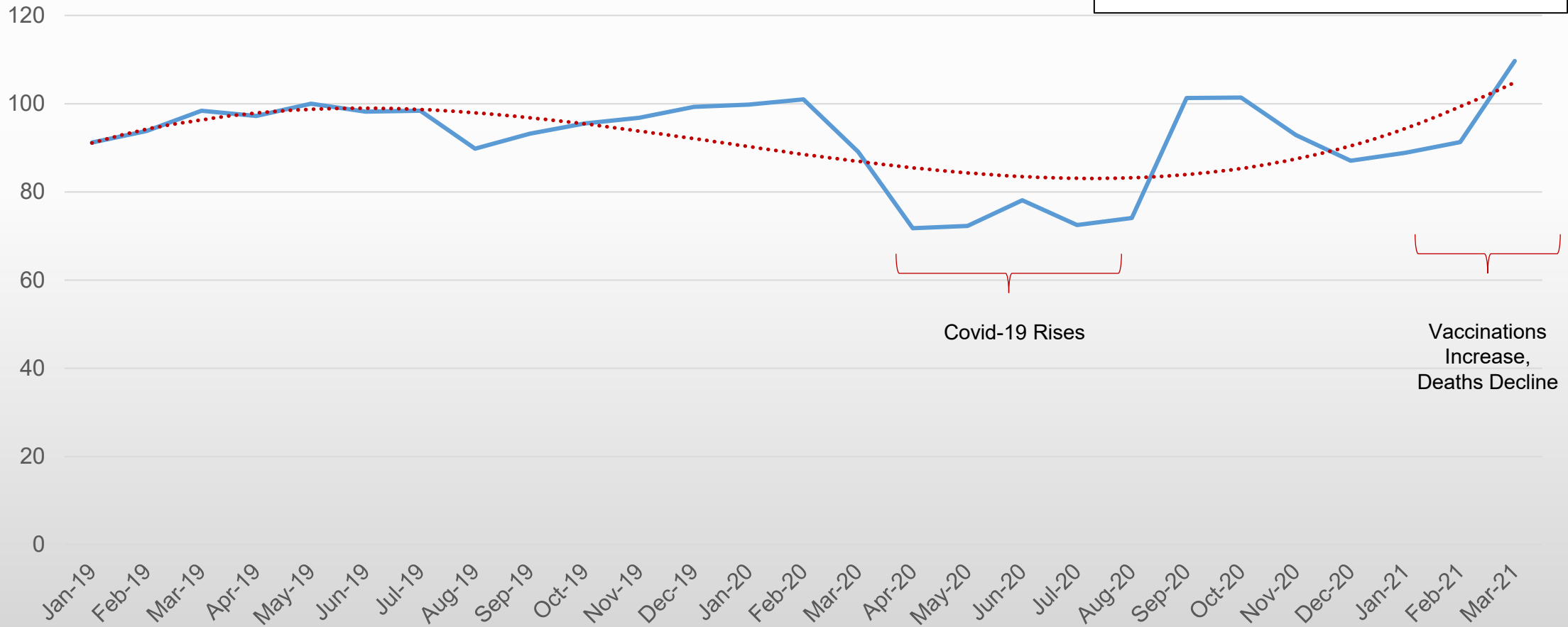


**Public Socializing**   **Dining Out**   **Shopping**   **Travel**   **Sport/Concert Event**

# Consumer Sentiment

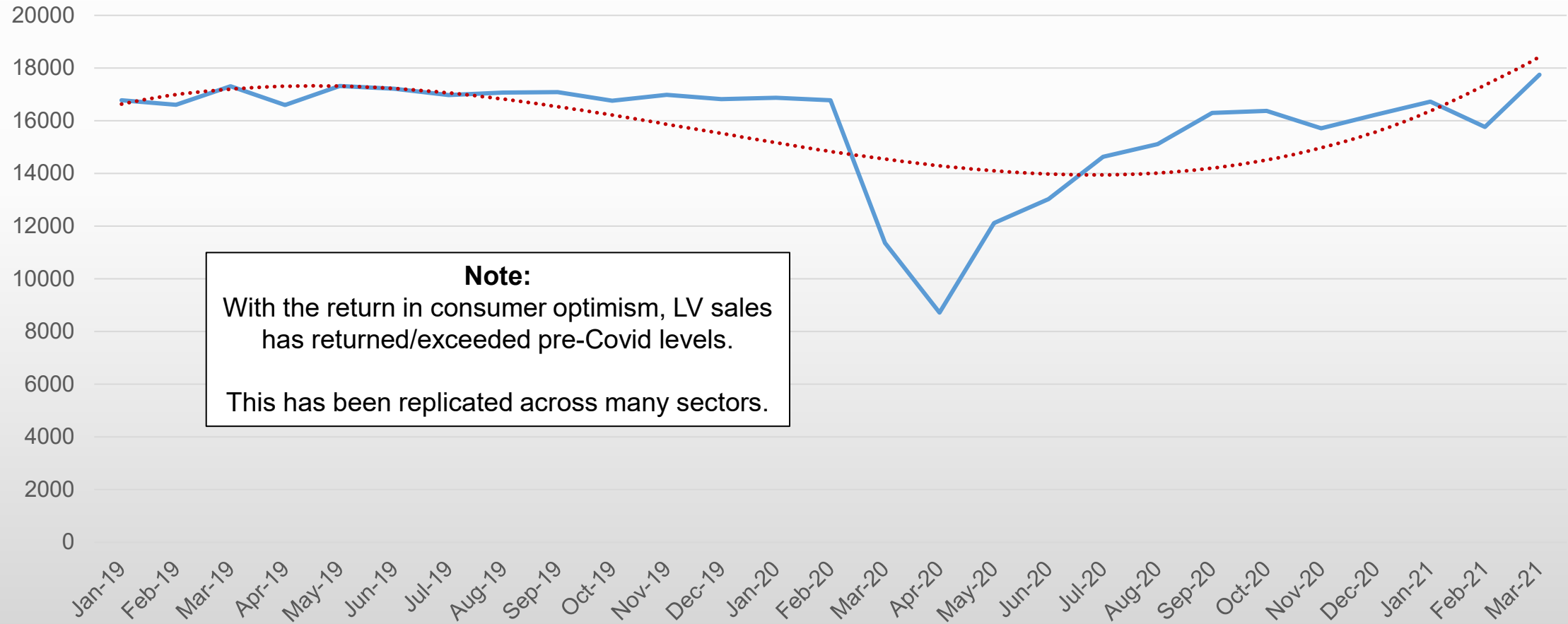
## Composite, University of Michigan

**Note:**  
Vaccinations & Reductions in death rates have recently resulted in the highest level of optimism since the start of the pandemic.  
  
With continued gains in vaccinations a return to pre-Covid levels is expected during Q2 2021.



# Light Vehicle Sales

## SAAR



**Note:**  
With the return in consumer optimism, LV sales has returned/exceeded pre-Covid levels.  
This has been replicated across many sectors.

# Economic Performance

## Net Monthly Job Gains

Net Thousands

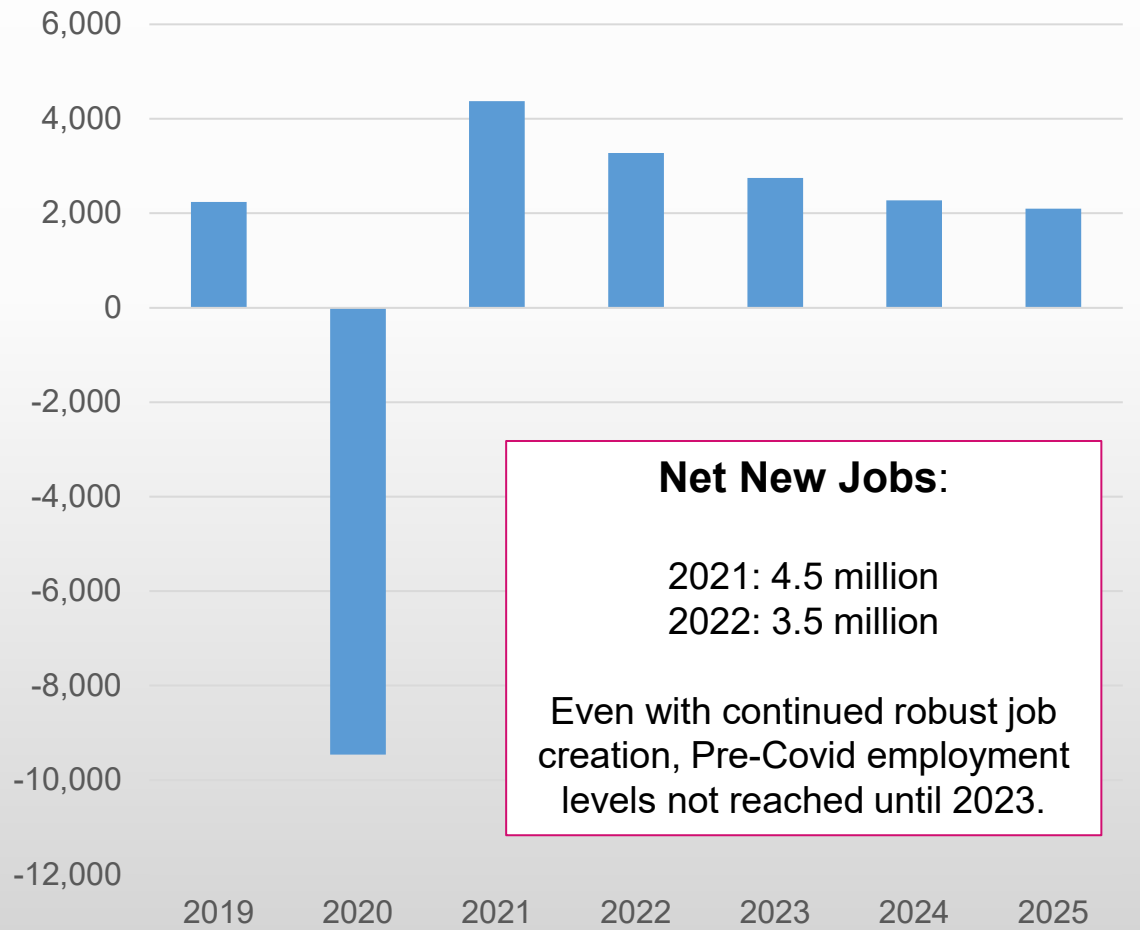


Employment is 8.4 million jobs lower than pre-Covid levels.

Millions have left the workforce. This blurs the unemployment rate. Without the reduction in workforce, **unemployment would be 9%.**

## Net Job Creation

Thousand Jobs



**Net New Jobs:**

2021: 4.5 million  
2022: 3.5 million

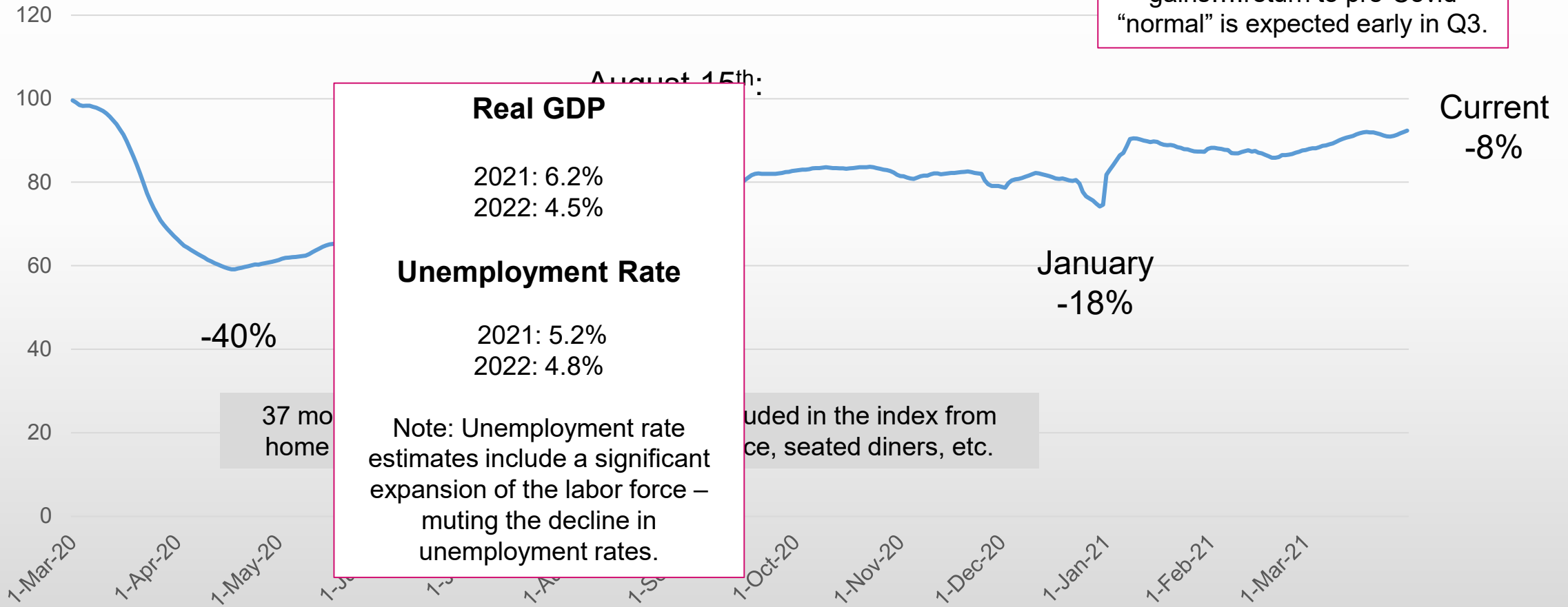
Even with continued robust job creation, Pre-Covid employment levels not reached until 2023.

# Back to Normal Index

Moody's-CNN Survey 100=March 1<sup>st</sup> 2020

**Back to Normal: July**

With continued progress in vaccinations, re-openings, growing consumer confidence, and sustained strength in job gains....return to pre-Covid "normal" is expected early in Q3.



# **2021-2023 Inflation & Interest Rates**



# Growing Inflation Concerns

## 2020

- Global Pandemic Unfolds
- Oil Prices Drop
- Massive Unemployment Materializes
- Consumer Demand Contracts
- Capacity Utilization Eases
- Inflationary Expectations are Reduced
- Federal Reserve Accommodative.
- US Covid-19 Vulnerability Prompts Weakening of Dollar
  
- Inflation Declines an Estimated 50 Basis Points
  
- Inflation Rate: 1.3%

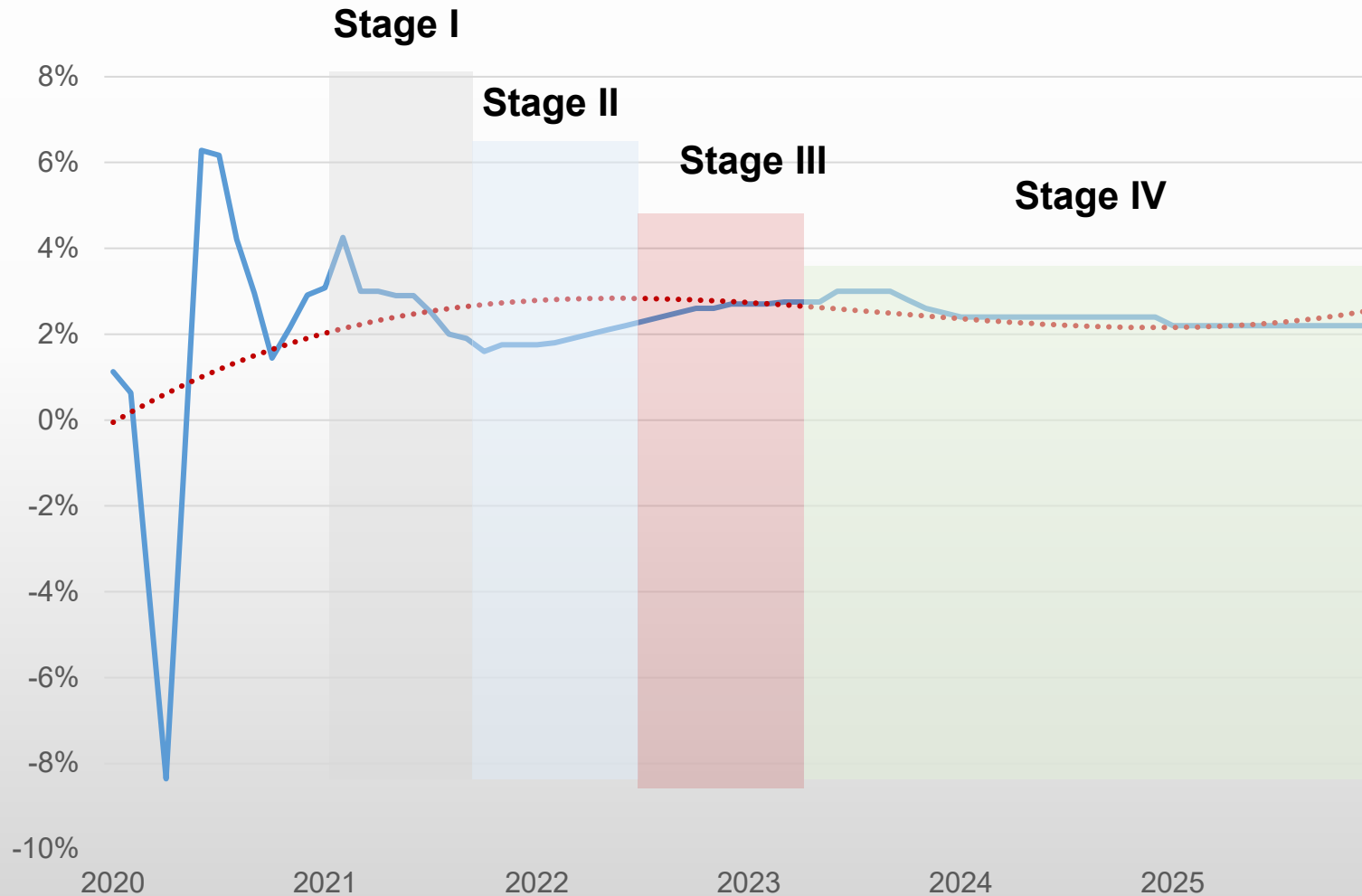
## 2021

- Global Increase Access to Vaccine Materializes in 2<sup>nd</sup> Half 2021.
- Consumer Demand Increase
- Capacity Utilization Rises But Slack Remains.
- High Inventories, Increased Iran Supply, Potential OPEC Production Significantly Neutralize Demand Pull on Oil Prices
- Unemployment Reduced to 6% by Year End – Still High and Holds In-Check Wage Increases
- Minimum Wage Slowly Phased In.
- Inflationary Expectations Rise Modestly.
- Federal Reserve Remains Accommodative.
- Reduced US Covid-19 Vulnerability Prompts a modest Strengthening of Dollar.
  
- Inflation Increases an Estimated 80 to 90 Basis Points – From Low Level.
  
- Inflation Rate: 2.0%

## 2022-23

- Much of Pandemic Has Passed.
- Pent-Up Demand Is Released.
- Unemployment Declines Below 5%.
- Phase in of Minimum Wage Limits Impact on Inflation.
- Capacity Slack is Reduced.
- Inflationary Expectations Rise More Aggressively.
- Federal Reserve Becomes Mildly Restrictive.
- US Dollar Strengthens.
  
- Inflation Increases an Estimated 50 to 70 Basis Points
  
- Inflation Rate: Above Fed Target Rate

# Inflation Rate Scenario, %



## Stage I

- Covid supply disruptions, increased demand create product specific shortages.
- Transitory not Structural

## Stage II

- Covid supply disruptions fade.
- Slackness that characterizes productive side of economy slowly recedes.
- Inflation eases.

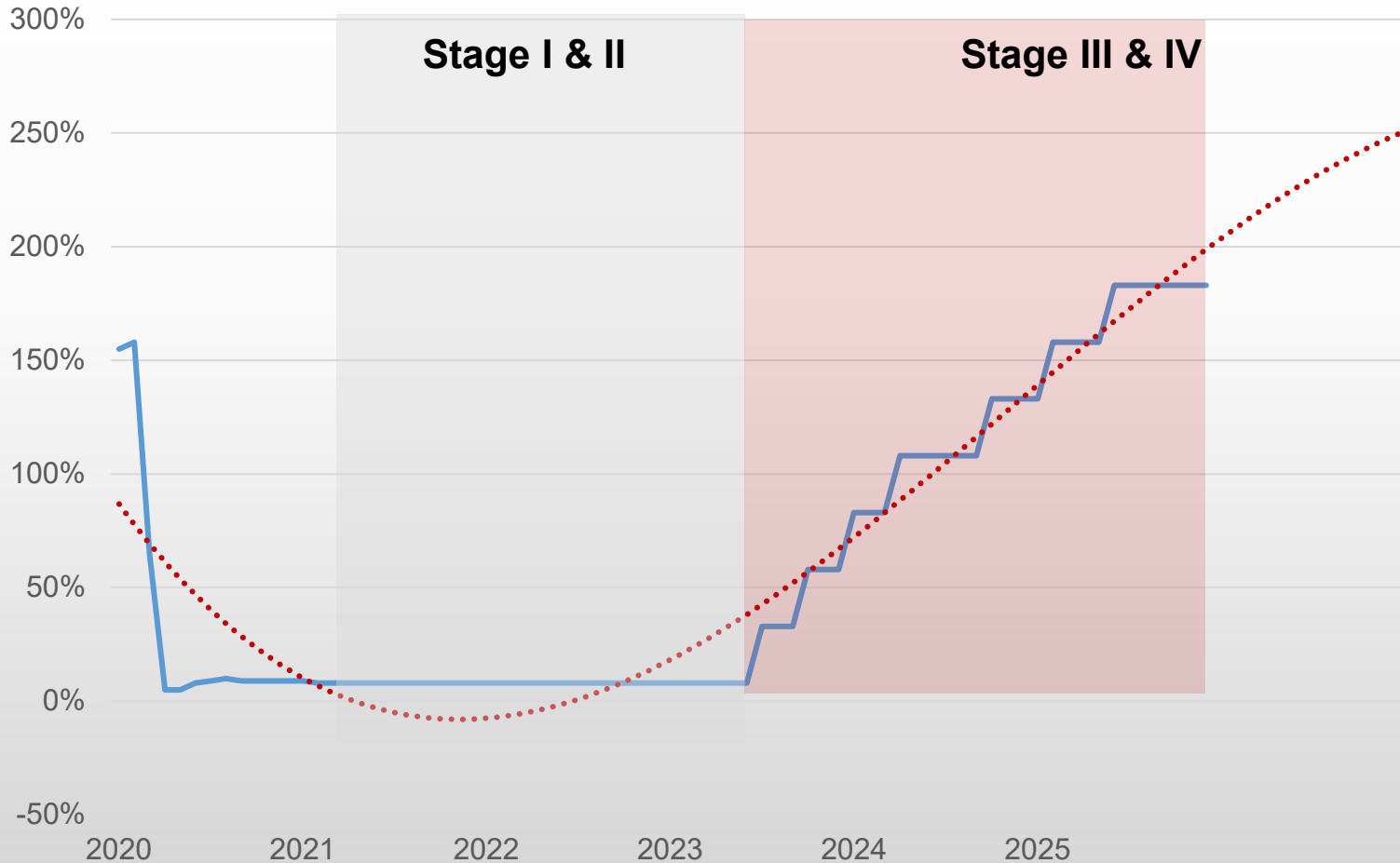
## Stage III

- Economy regains footing. Slackness disappears. Unemployment drifts below 5%.
- Inflation increases beyond Fed target Rate.

## Stage IV

- Fed reacts. Timidly at first. Inflation continues. Fed reacts more decisively.
- Fed Target Rate achieved 2024 & beyond.

# Interest Rate Scenario, %



## Stage I

- Covid supply disruptions, increased demand create product specific shortages.
- Transitory not Structural

## Stage II

- Covid supply disruptions fade.
- Slackness that characterizes productive side of economy slowly recedes.
- Inflation eases.

## Stage III

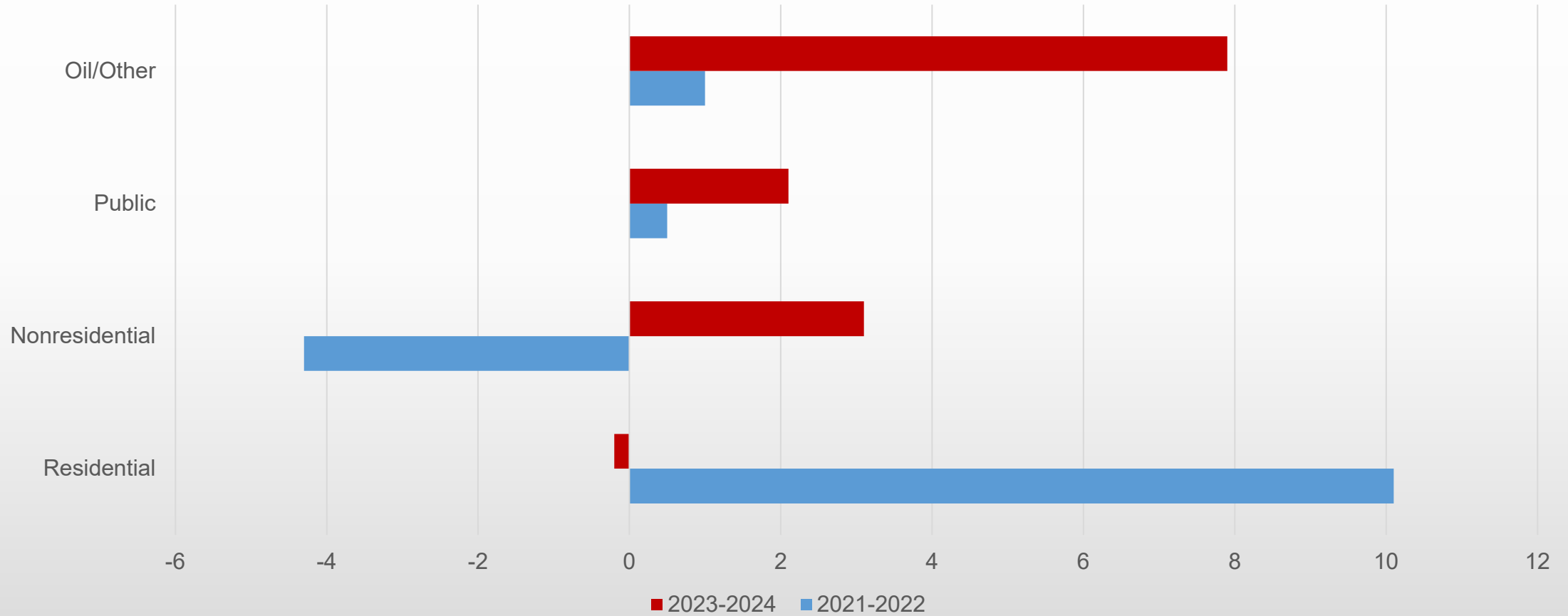
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- Inflation increases beyond Fed target Rate.

## Stage IV

- Fed reacts. Timidly at first. Inflation continues. Fed reacts more decisively.
- Fed Target Rate achieved 2024 & beyond.

# **Growth Composition In the Context of Rising Interest Rates**

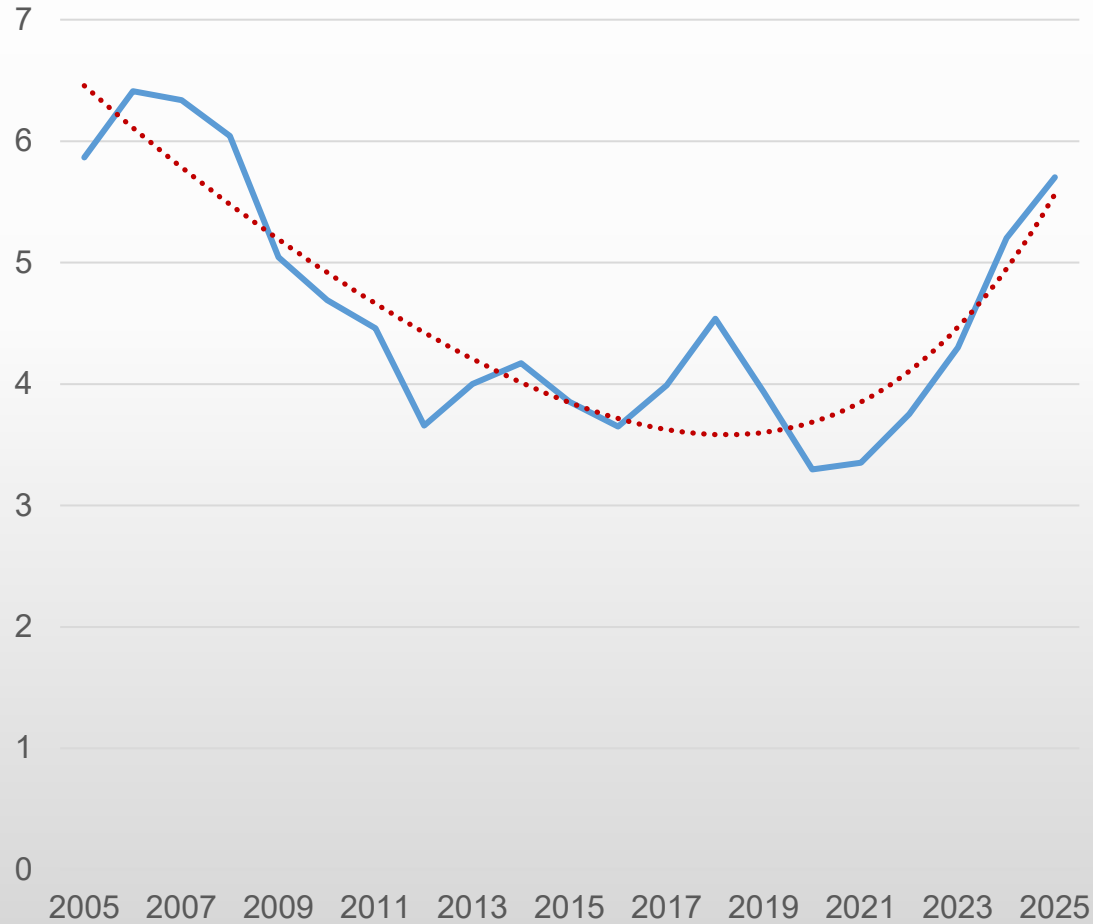
# Composition of Growth



# Residential Projection

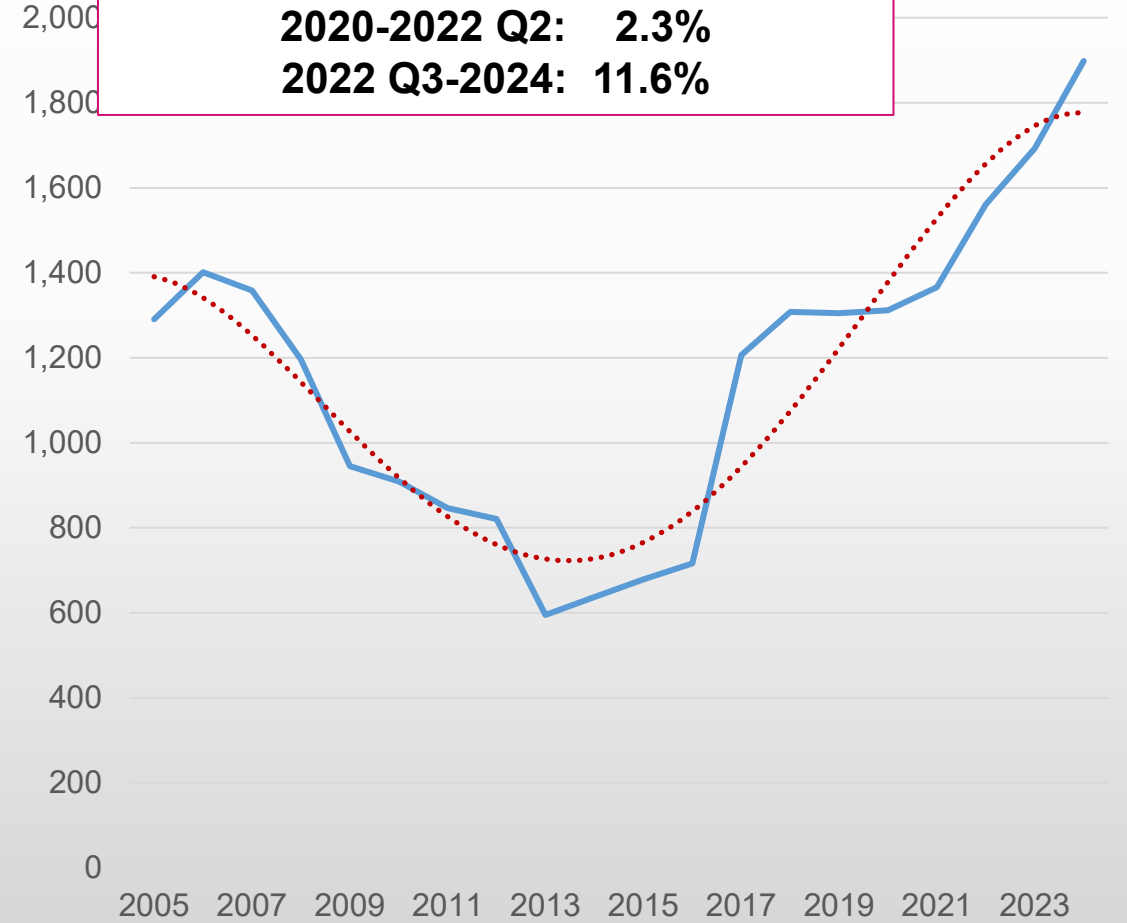
# Residential Cement Consumption

## Mortgage Interest Rates Conventional, 30 Year, %



## Monthly Payment Average Annual Increases %

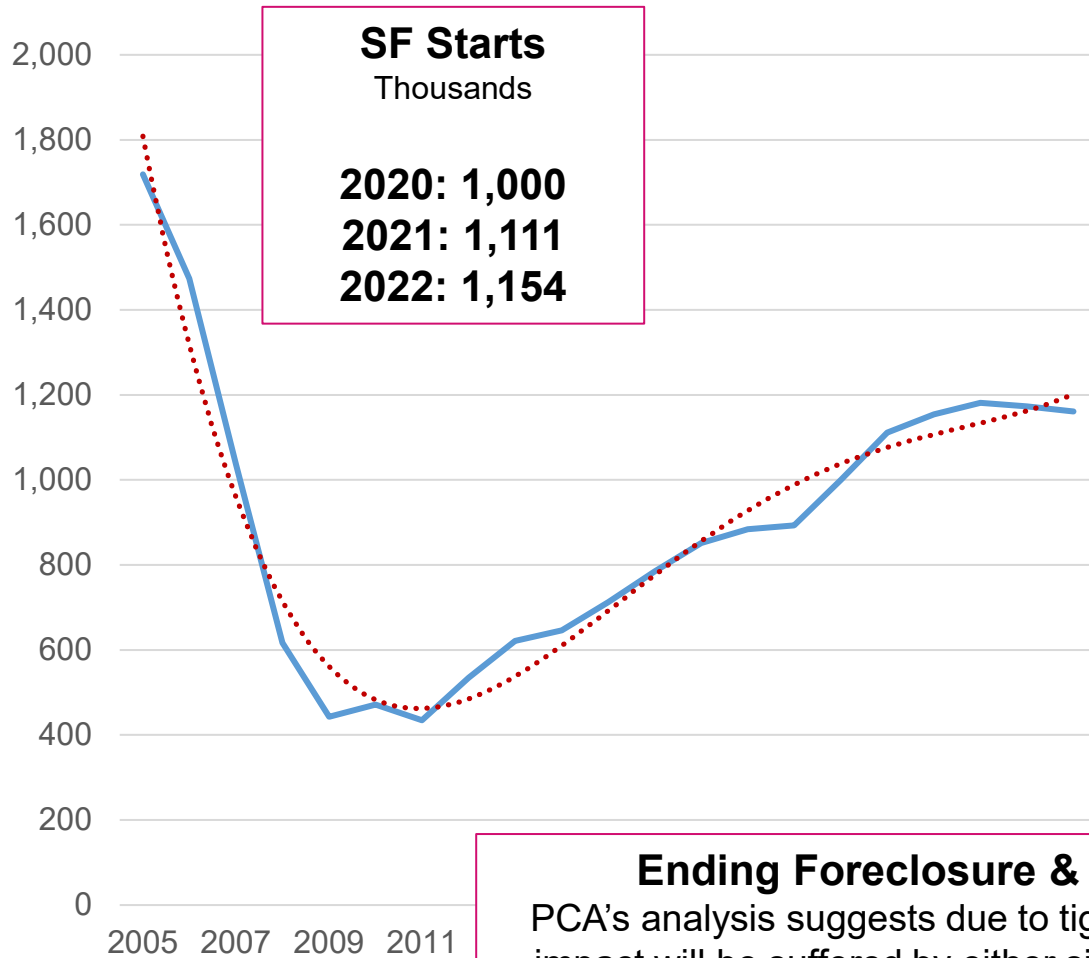
**2005-2019: 1.9%**  
**2020-2022 Q2: 2.3%**  
**2022 Q3-2024: 11.6%**



# Housing Starts Outlook

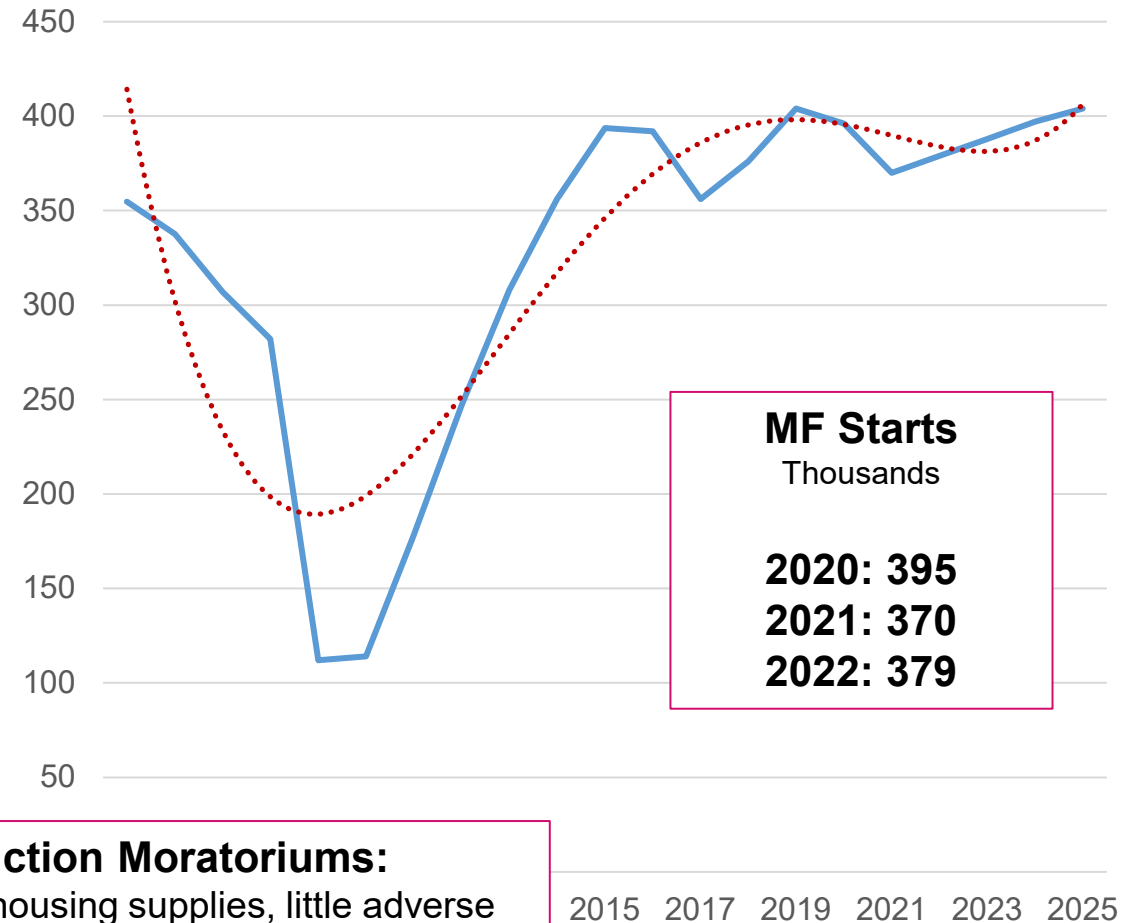
## SF Starts

Thousands



## MF Starts

Thousands



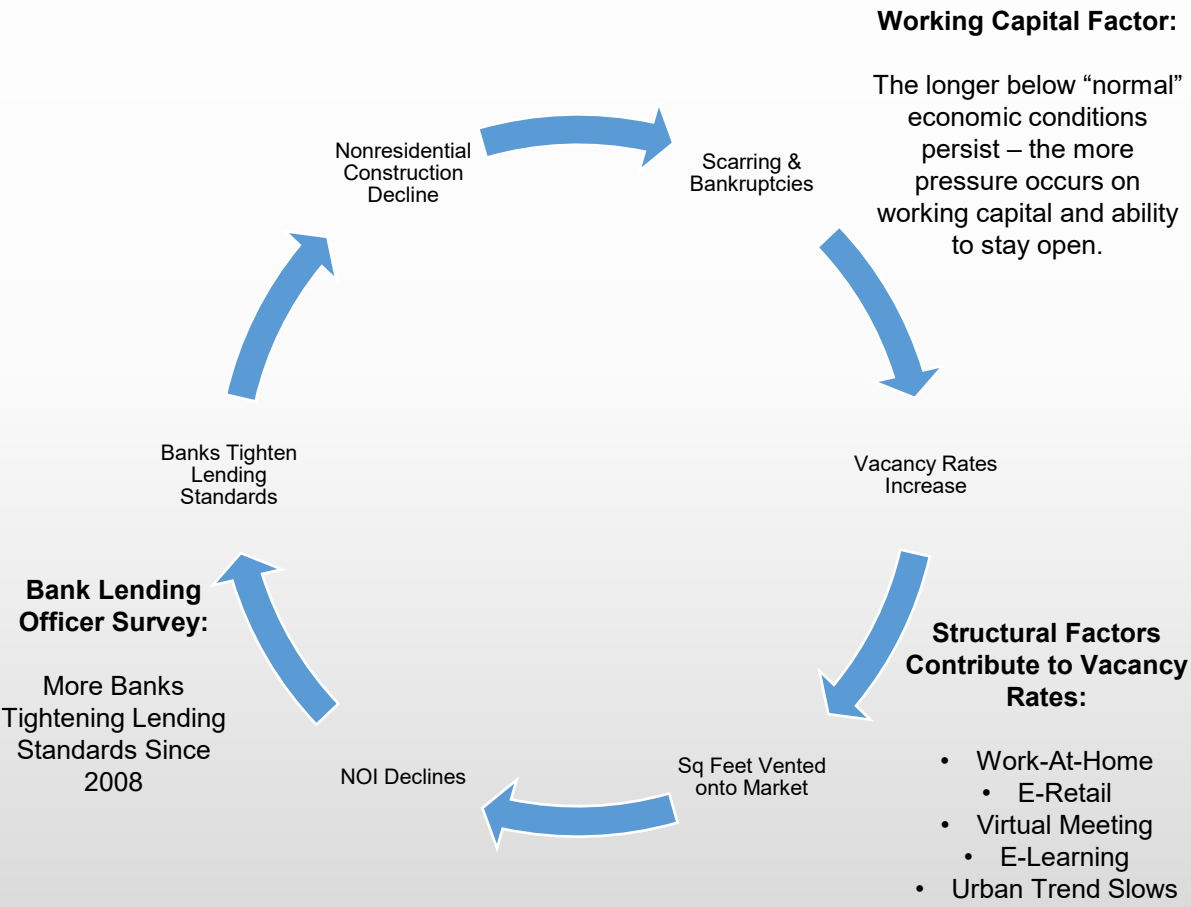
**Ending Foreclosure & Eviction Moratoriums:**  
PCA's analysis suggests due to tight housing supplies, little adverse impact will be suffered by either single and multifamily construction.

2015 2017 2019 2021 2023 2025



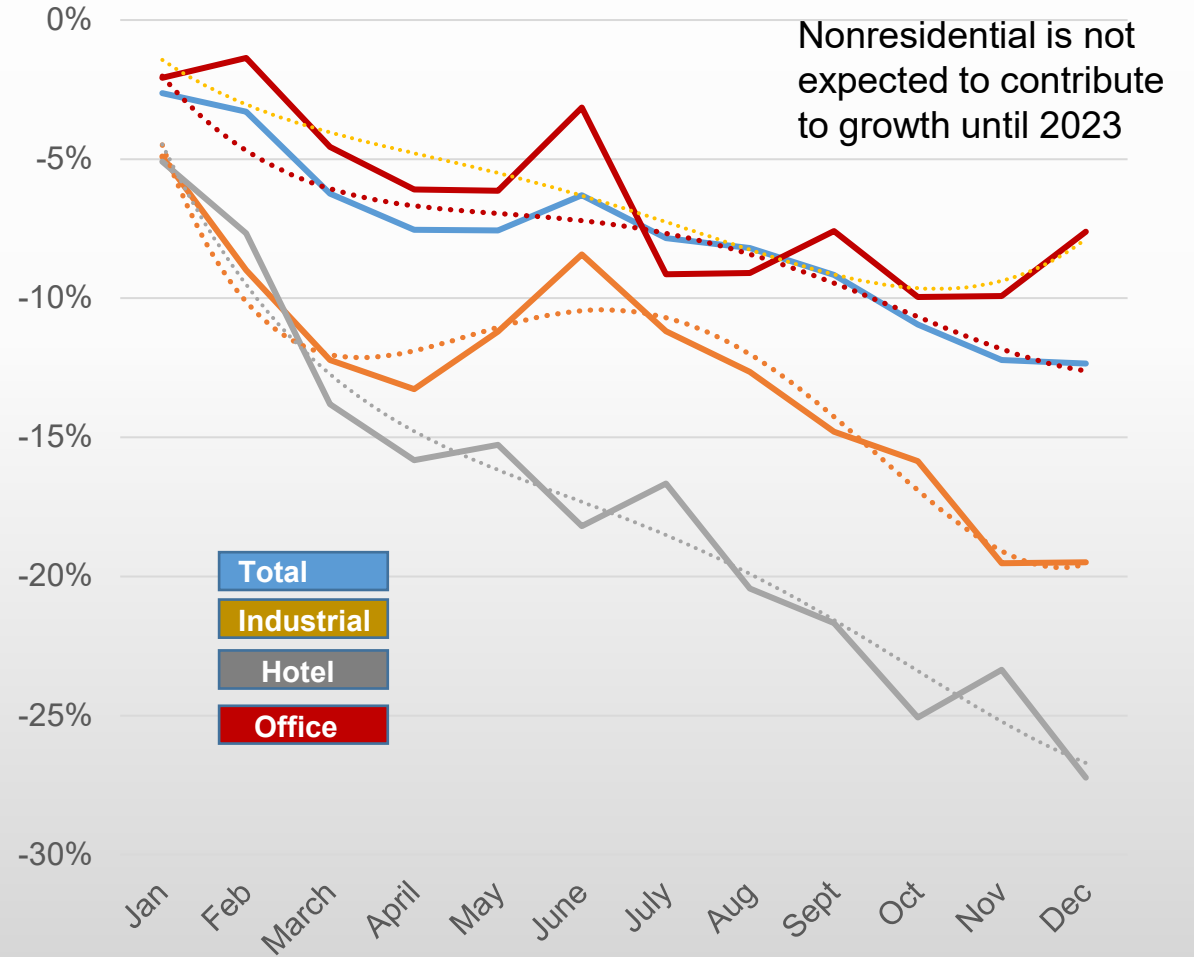
# Nonresidential Projection

# Nonresidential Recovery Process



# Nonresidential Construction

Real PIP, Y-O-Y Change

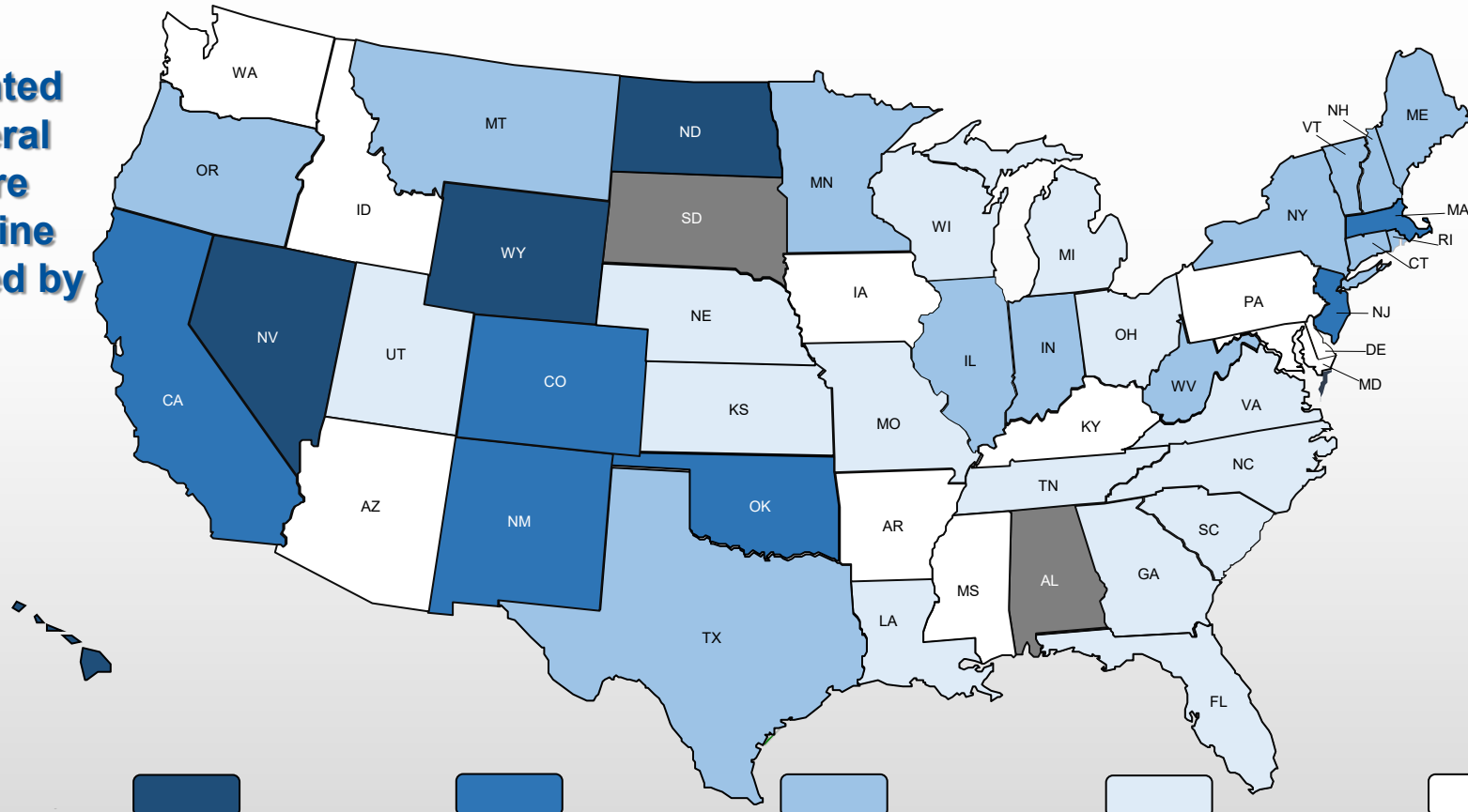


# Public Projection

# State Funding – FY2021

## Percent Declines in General Fund Tax Revenues from Pre-COVID Levels

On a state weighted basis, 2021 general fund revenues are expected to decline 12.3% as reported by state agencies



States with high exposure to oil & tourism revenues are at most risk



# State & Local Allocation Scheme

\$Billions

**Total State & Local Government Aid: \$350**

**State Governments & DC: \$195.3**

Divided equally: \$25.5

Divided based on states' share of total unemployed Americans: \$169.8

**Counties & Cities: \$130.2**

Counties: \$65.1    Cities: \$65.1

Divided based on population

>50,000: \$45.6

<50,000: \$19.5

**Territories & Tribes: \$24.5**

Tribes: \$20

Territories: \$4.5

# Estimated Aid Sent to States

\$Billions

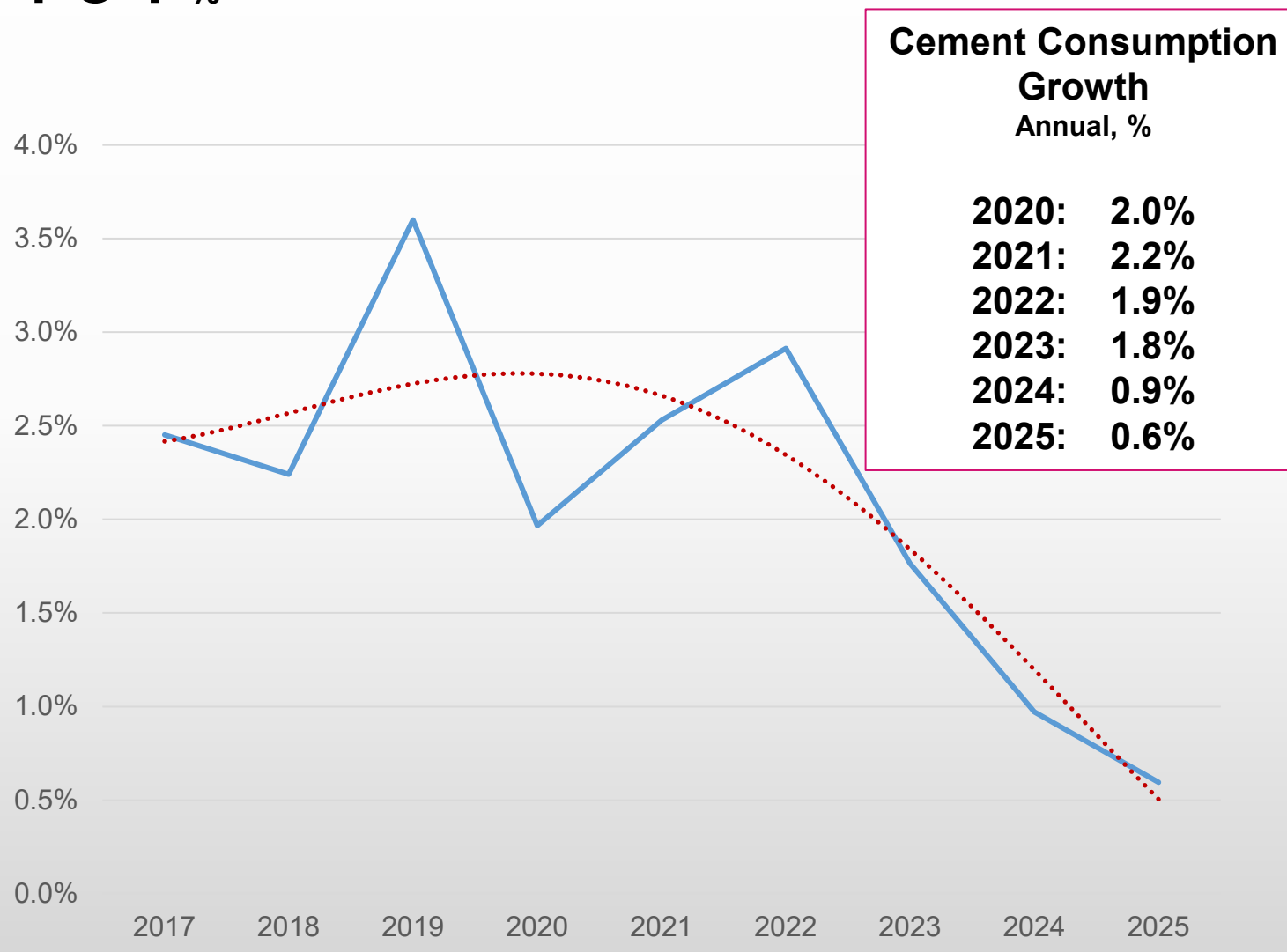
The legislation says the funds are to be distributed based on each states' share of total unemployed Americans. So I used BLS unemployment numbers to figure out the share. Each state and DC also starts out with \$500 million.

Alaska	\$ 0.89	Kentucky	\$ 2.26	New York	\$ 14.02
Alabama	\$ 2.12	Louisiana	\$ 3.12	Ohio	\$ 5.58
Arkansas	\$ 1.55	Massachusetts	\$ 5.38	Oklahoma	\$ 1.84
Arizona	\$ 4.46	Maryland	\$ 3.77	Oregon	\$ 2.69
California	\$ 28.31	Maine	\$ 1.08	Pennsylvania	\$ 8.08
Colorado	\$ 3.99	Michigan	\$ 4.98	Rhode Island	\$ 1.15
Connecticut	\$ 2.97	Minnesota	\$ 2.76	South Carolina	\$ 2.58
District Of Columbia	\$ 1.07	Missouri	\$ 2.67	South Dakota	\$ 0.74
Delaware	\$ 0.99	Mississippi	\$ 1.86	Tennessee	\$ 3.32
Florida	\$ 8.47	Montana	\$ 0.85	Texas	\$ 16.37
Georgia	\$ 4.78	North Carolina	\$ 5.43	Utah	\$ 1.33
Hawaii	\$ 1.61	North Dakota	\$ 0.80	Virginia	\$ 4.26
Iowa	\$ 1.45	Nebraska	\$ 1.04	Vermont	\$ 0.67
Idaho	\$ 1.01	New Hampshire	\$ 0.95	Washington	\$ 4.28
Illinois	\$ 8.33	New Jersey	\$ 6.25	Wisconsin	\$ 2.44
Indiana	\$ 2.84	New Mexico	\$ 1.88	West Virginia	\$ 1.35
Kansas	\$ 1.36	Nevada	\$ 2.56	Wyoming	\$ 0.75

# **Cement Consumption Outlook No Infrastructure**

# Cement Consumption Outlook: No Added Infrastructure

Y-O-Y %



## Late Years of Horizon

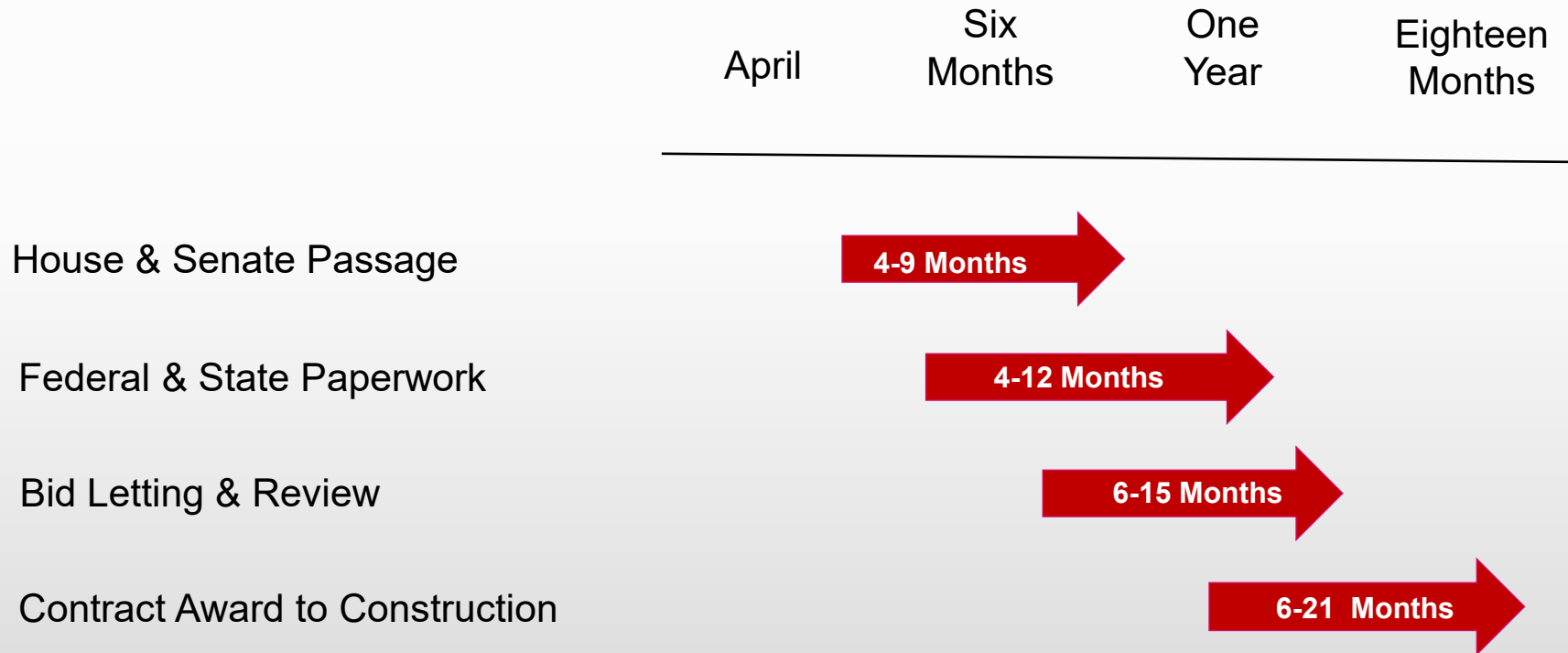
- Covid-19 accelerates structural trends that were in-place.
- Fossil fuel prices remain constrained.
- Interest rates increase.
- Private sector slows.
- Public sector growth largely a state phenomenon and supported by moderately growing economic conditions.

**Growth slows to 1% or Less**



# **Biden's American Jobs Plan Face Value**

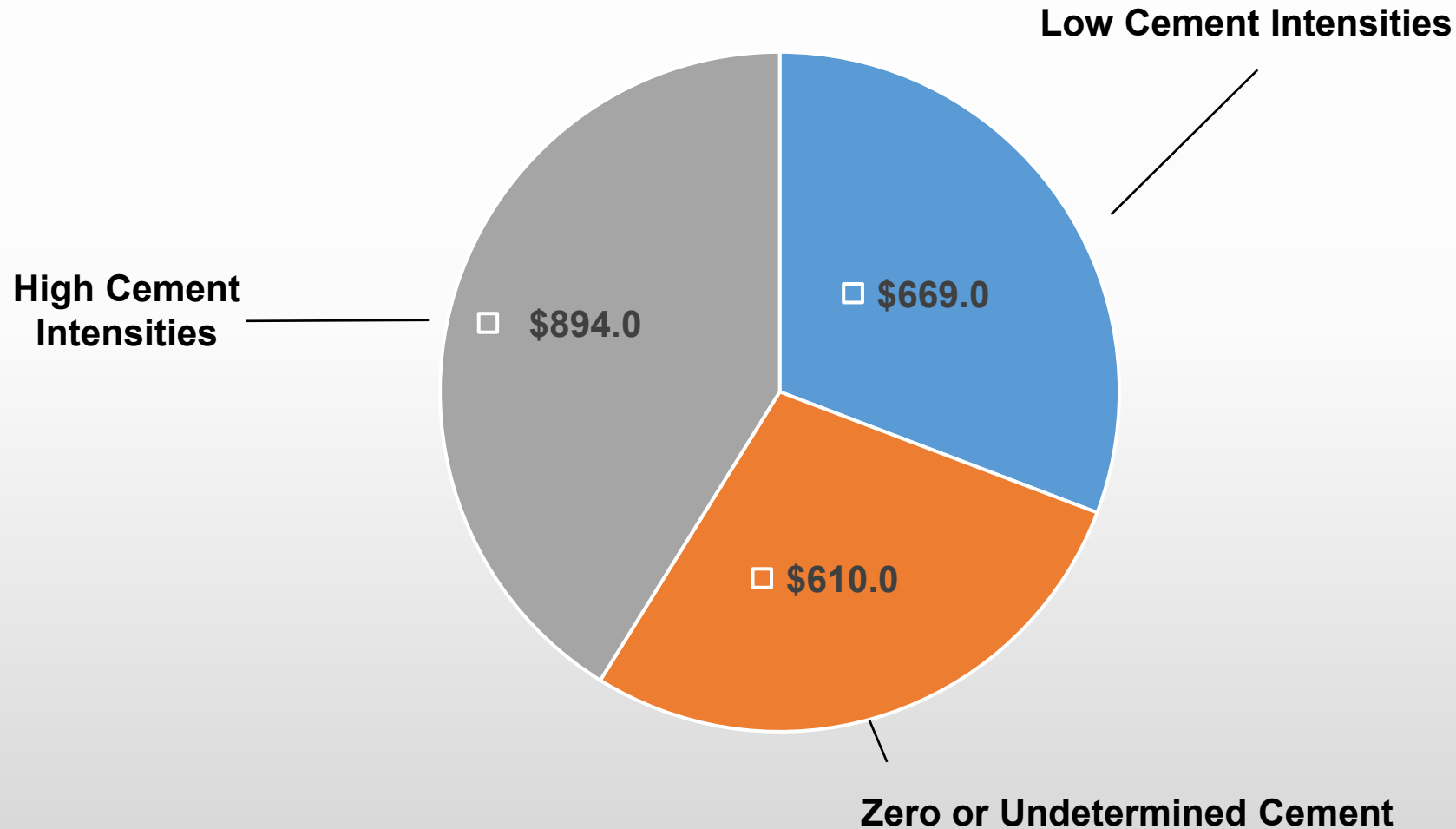
# After Congressional Passage: There Will Be a Wait for Pouring to Begin



Average Construction Start: Early 2023

# Non-Traditional Infrastructure Investments

## Spending Segmented by Cement Intensities



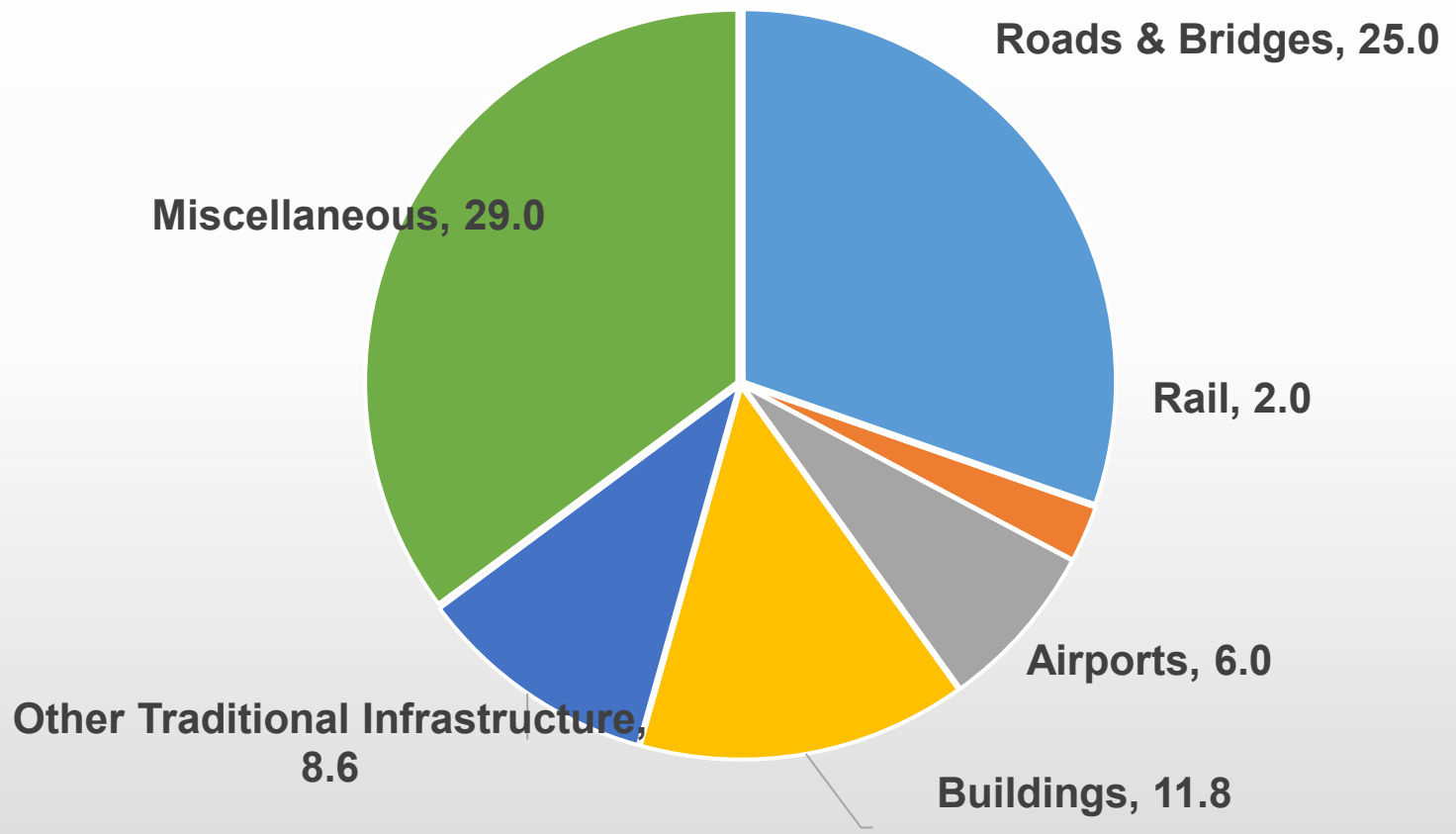
**Biden  
“Face Value”  
Infrastructure  
Scenario: \$**

**\$2.2 Trillion**

28% of spending has no impact on cement consumption.

59% of spending has little or no impact on cement consumption.

# Cement Consumption Estimates



**Biden  
“Face Value”  
Infrastructure  
Scenario:  
Cement  
Consumption**

**Programs Totaling  
82 MMT**

<b>Billion</b>	
\$115	<b>ROAD &amp; BRIDGES</b>
\$20	<b>ROAD SAFETY</b>
\$4	<b>COMMUNITY</b>
\$139	<b>TOTAL</b>

# Infrastructure Timing Distribution

## Highway & Bridges

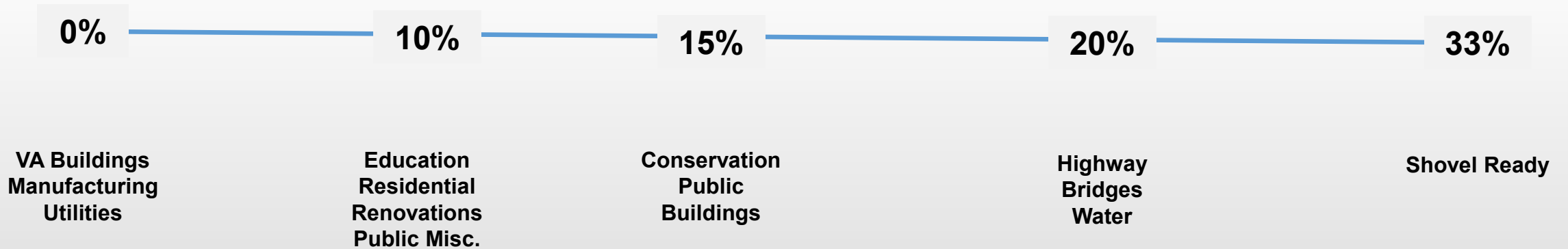
Process repeated across all 14 construction segments that are impacted by the Infrastructure Program

	Spending Allocation Billion \$	Fiscal Year Spending				Total Spent	Total Spent
		2023	2024	2025	2026		
		Year 1	Year 2	Year 3	Year 4		
<b>2023</b>	\$14	\$3	\$6	\$3	\$2	\$14	100%
<b>2024</b>	\$14		\$3	\$6	\$3	\$12	86%
<b>2025</b>	\$14			\$3	\$6	\$9	64%
<b>2026</b>	\$14				\$3	\$3	21%
<b>Total Spending</b>	\$70	\$3	\$9	\$12	\$14		

# S&L Sterilization

Percentage Foregone

TEA/SAFETY-LU:	31%
ARRA:	81%



# Biden Housing Initiative



# Biden's Housing Impact

## Over Full Horizon

Total	\$213 Billion	500,000 Units	5,960,00 Metric Tons
New SF	\$7 Billion	30,000 Units	810,000 Metric Tons
New MF	\$55 Billion	470,000 Units	4,000,000 Metric Tons
Rehabilitations	\$106 Billion	—————>	1,150,000 Metric Tons
Clean Energy & Insulation	\$45 Billion	—————>	---



# Tax Impact

# Biden Tax Impacts

**GDP Impacts Reflect Consensus of:**

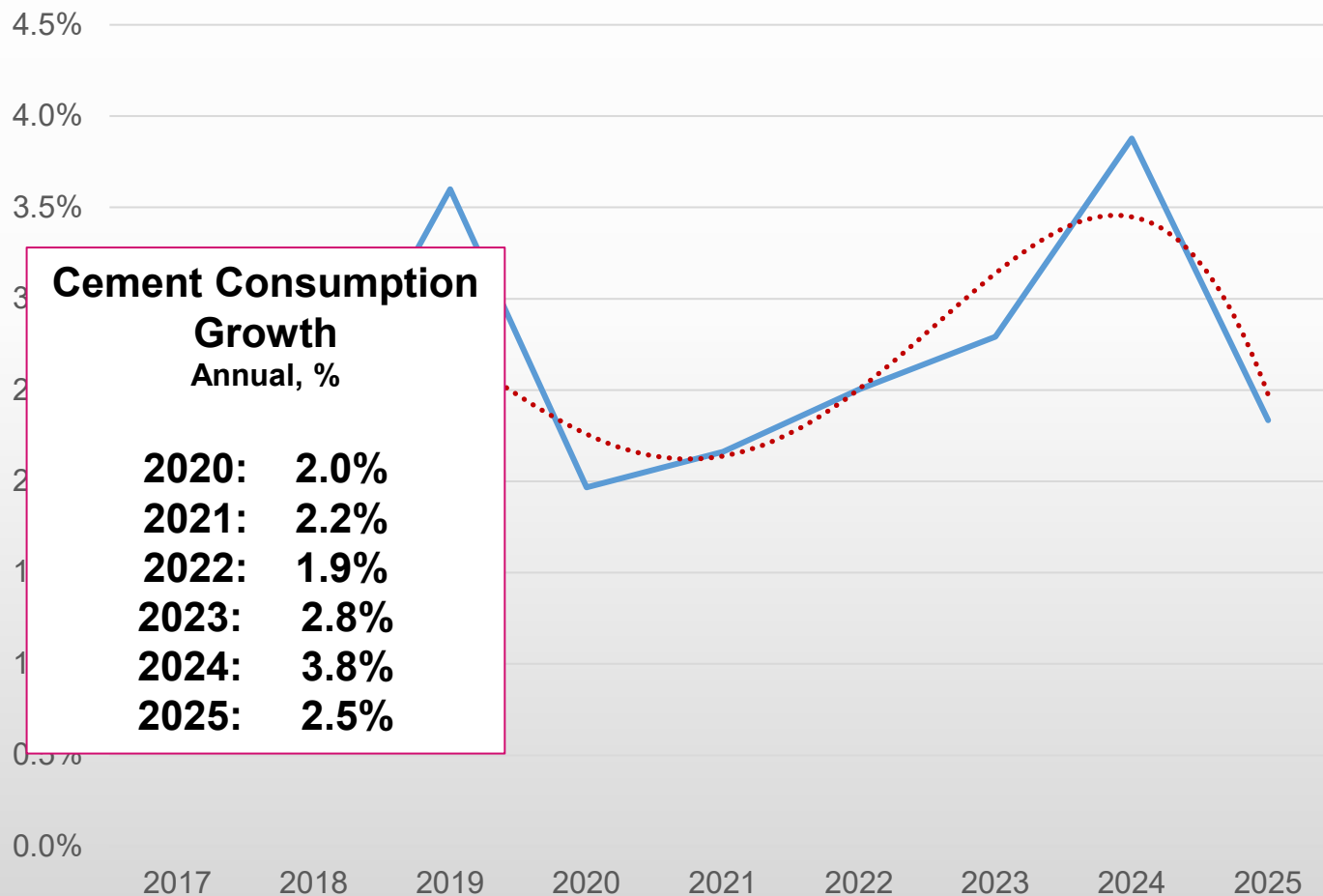
Tax Foundation, American Enterprise  
 Institute, Wharton

	Baseline				Tax Scenario				Net Impact			
	GDP Growth %	Jobs	Construction	Cement	GDP Growth %	Jobs	Construction	Cement	GDP Impact	Job Impact	Construction Impact	Cement Impact
2015		143,093	979	89,835		143,093	979	89,835	0	0	0	0
2016	2.9%	145,437	1,023	91,930	2.9%	145,437	1,023	91,930	0	0	0	0
2017	4.1%	147,625	1,050	94,184	4.1%	147,625	1,050	94,184	0	0	0	0
2018	2.9%	150,275	1,061	96,295	2.9%	150,275	1,061	96,295	0	0	0	0
2019	2.2%	152,513	1,046	99,762	2.2%	152,513	1,046	99,762	0	0	0	0
2020	-4.4%	143,055	1,064	101,724	-4.4%	143,055	1,064	101,724	0	0	0	0
2021	6.2%	147,432	1,079	104,273	6.2%	147,432	1,079	104,273	0	0	0	0
2022	5.3%	150,712	1,119	108,073	5.3%	150,712	1,119	108,073	0	0	0	0
2023	2.4%	153,462	1,140	109,492	2.0%	153,445	1,136	109,097	-75	-17	-4	-395
2024	2.4%	155,737	1,150	110,316	2.1%	155,636	1,143	109,669	-125	-101	-7	-647
2025	2.3%	157,837	1,162	111,152	2.0%	157,667	1,149	109,926	-175	-170	-13	-1,227

# **Biden Face Value Impact Summary**

# Cement Consumption Outlook: Infrastructure Face Value

Y-O-Y %



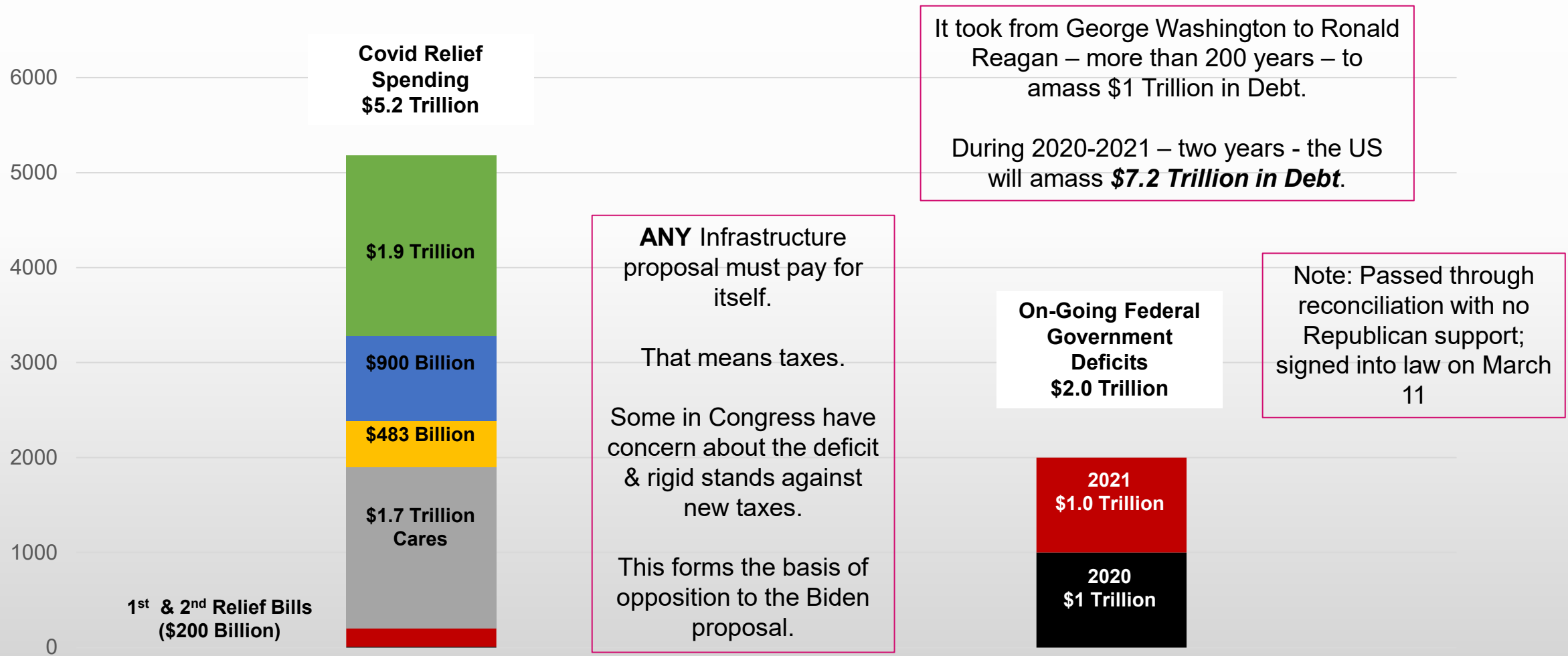
## Late Years of Horizon

- Private sector growth decays in the context of rising interest rates
- Public sector supports stronger growth rates during back end of the forecast.
- More than \$860 billion in the Biden Infrastructure plan contributes little or nothing to cement consumption.
- Adds 7 MMT to consumption by end of forecast horizon.

**Growth increases to 3% annually.**

# The Political Assumptions

# Covid-19 Relief Spending & Debt



# Compromise Scenario

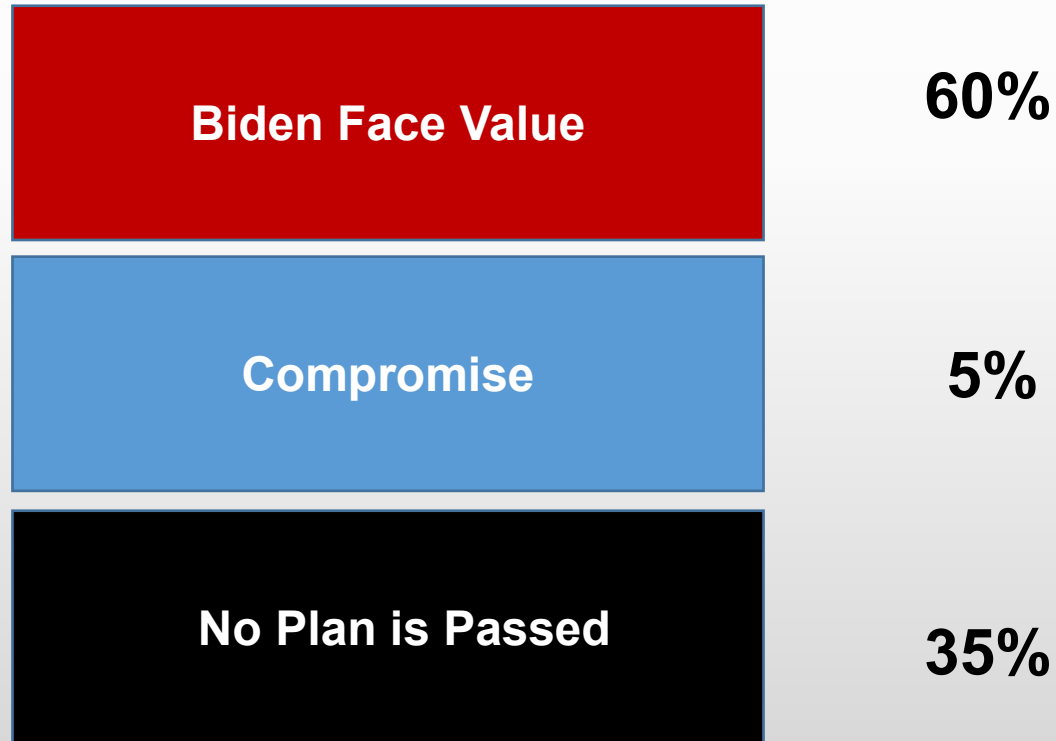
- Ditch the contentious Biden tax increases.
- Scrap the expanded definition of “Infrastructure”.
- Focus on expanding commitment to traditional infrastructure programs and
  - Fast Act
  - WRDA
  - Army Corps Projects
  - FAA Reauthorization
- Assume a 25% expansion in each program.
- Net Impact: + 4.6 MMT annually, 4.1 MMT after sterilization assessments.

## Cement Consumption Growth Annual, %

<b>2020:</b>	<b>2.0%</b>
<b>2021:</b>	<b>2.2%</b>
<b>2022:</b>	<b>1.9%</b>
<b>2023:</b>	<b>2.1%</b>
<b>2024:</b>	<b>2.7%</b>
<b>2025:</b>	<b>1.3%</b>

# Adjusting for Political Risks

## Potential Outcomes Considered



**NOTE:**  
Regardless of which political outcome materializes, it will not have any substantive impact on cement consumption until 2023.  
That implies that this source of risk to the forecast is not present during 2021-2022 time period.

**Base Case =  
Weighted Average of  
the Three Scenarios**

**Note:** The \$1.9 Trillion “America Rescue Plan passed through reconciliation with no Republican support; signed into law. Reconciliation will be in force for the Infrastructure bill.

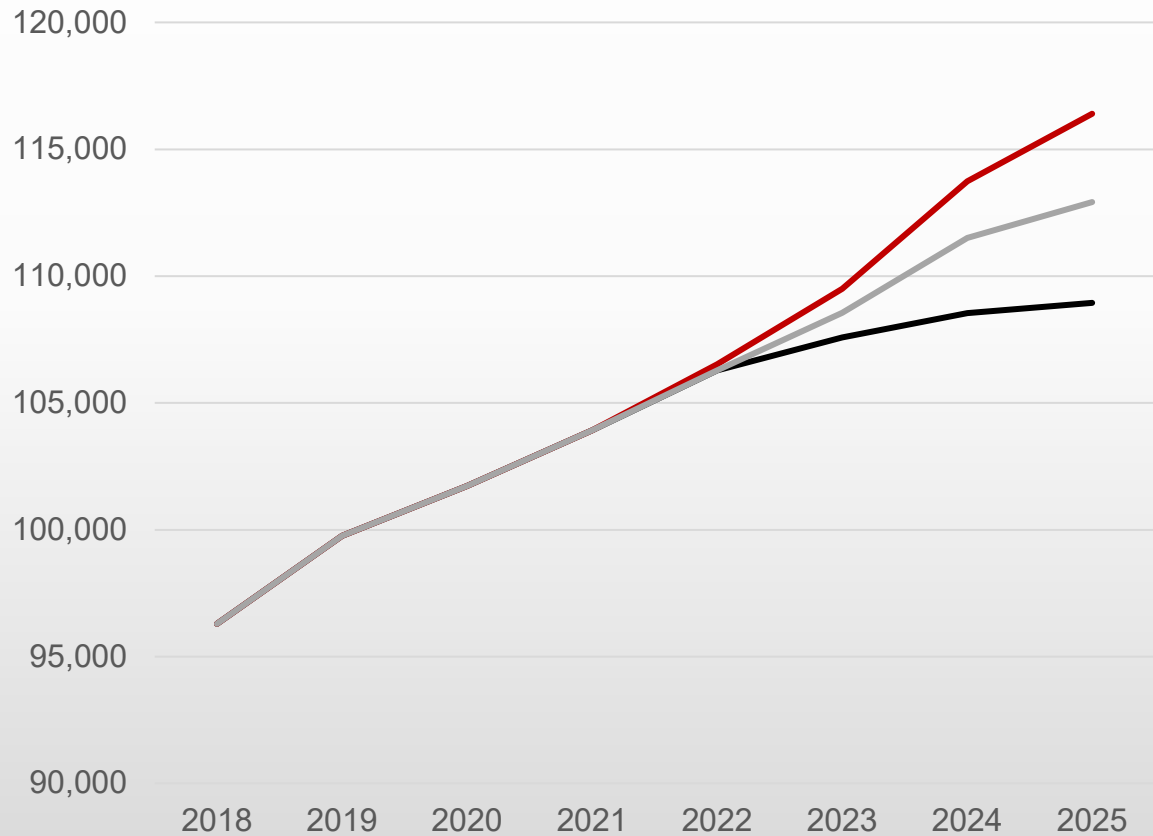


# Summary

# The Political Scenarios: Summary

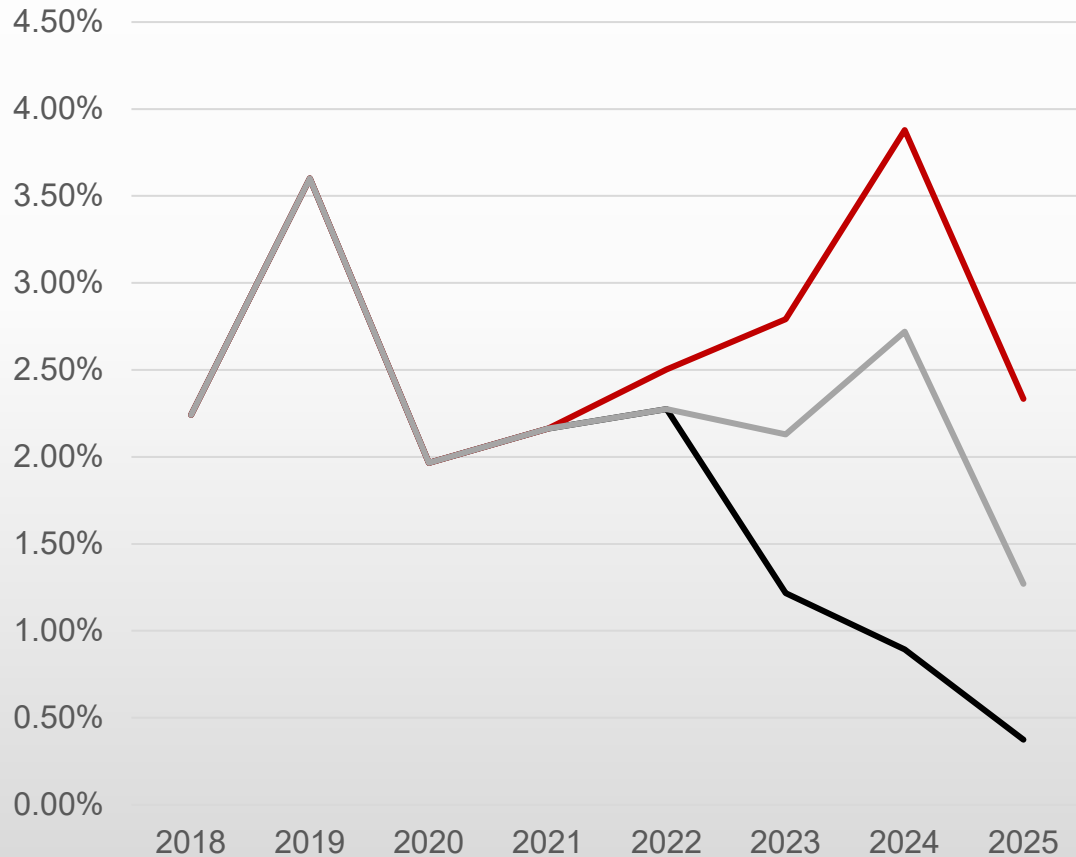
## Total Cement Consumption

Metric Tons



## Cement Consumption Growth

Y-O-Y % Change



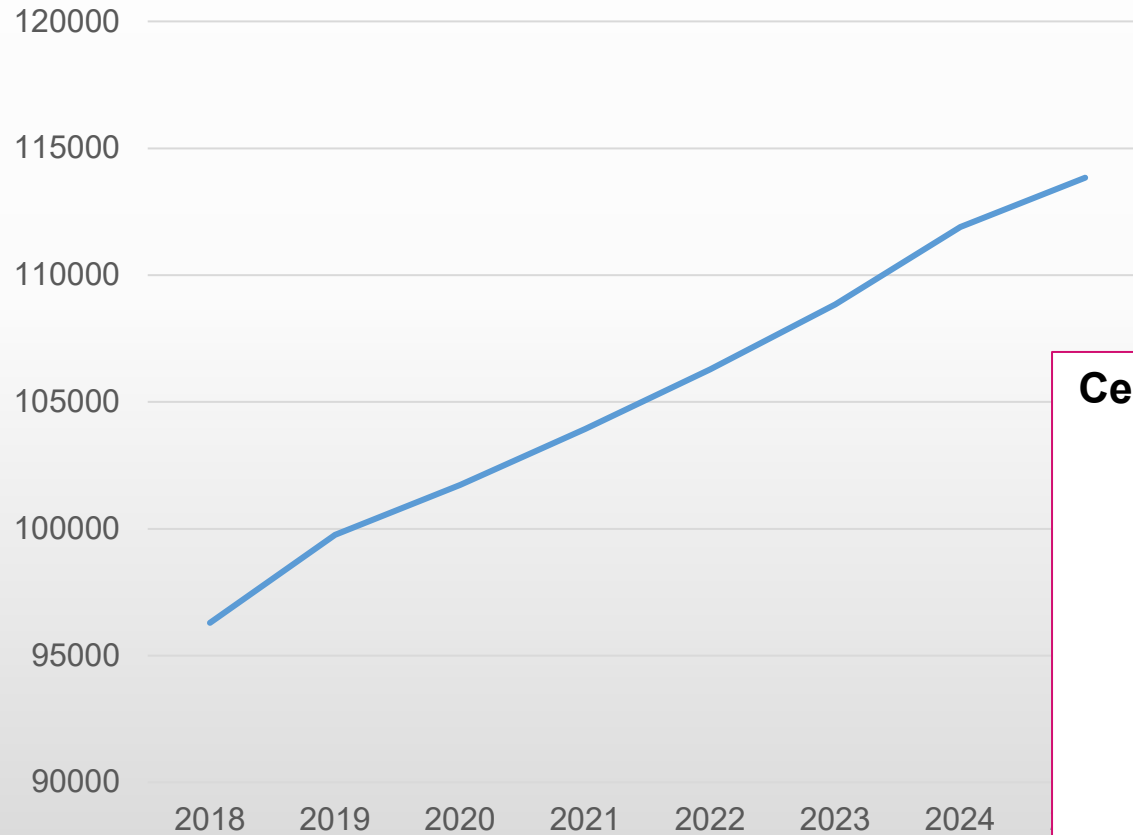
Biden Face Value
Compromise
No Infrastructure



# Weighted Average Baseline: Summary

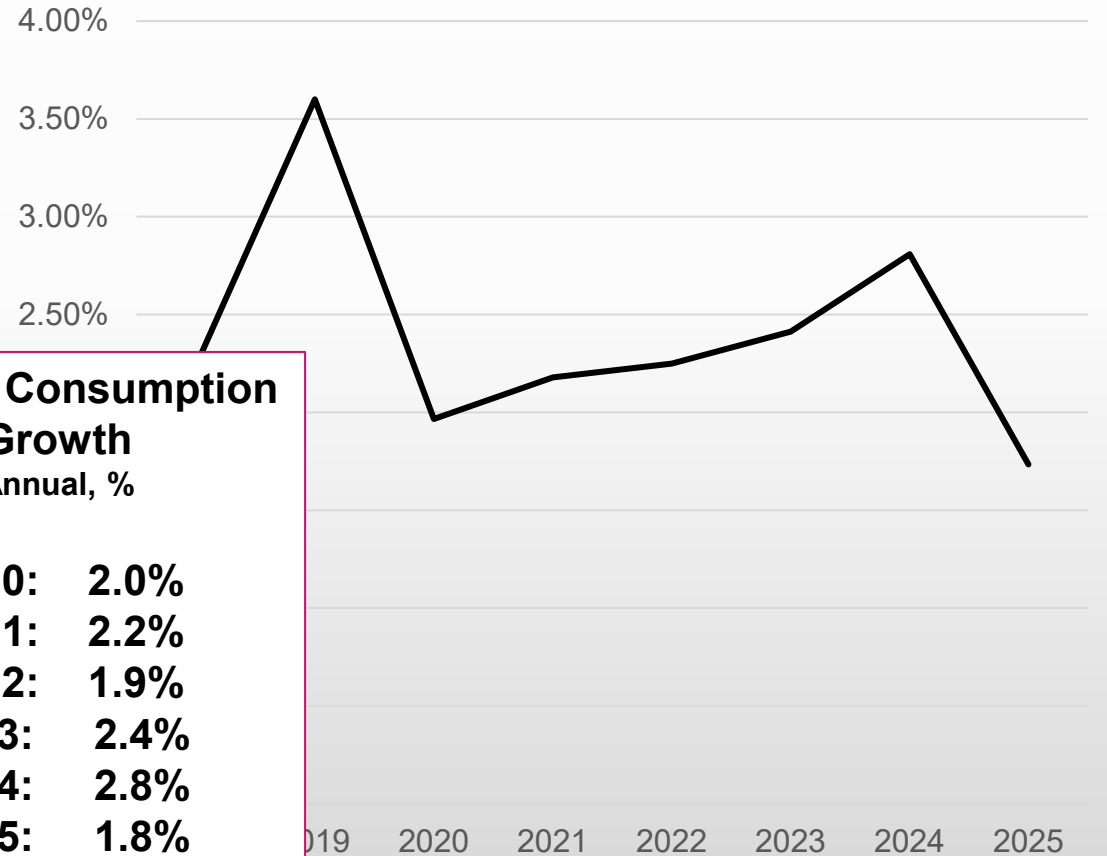
## Total Cement Consumption

Metric Tons



## Cement Consumption Growth

Y-O-Y % Change



Cement Consumption Growth Annual, %	
2020:	2.0%
2021:	2.2%
2022:	1.9%
2023:	2.4%
2024:	2.8%
2025:	1.8%

The PCA logo features the letters 'PCA' in a bold, white, sans-serif font. A white swoosh underline starts under the 'A' and extends to the right, ending with a registered trademark symbol (®).

**PCA**®

*Since 1916*

America's Cement Manufacturers™

## PCA Spring Cement Outlook

Board Week, April 2021

Ed Sullivan, SVP & Chief Economist