Market Outlook Construction Forum

Summary

as of January 8, 2020

Presenters

- Richard Vermeulen, Co-CEO, Vermeulens
- Blair Tennant, Associate Principal, Vermeulens

Evolving Trends in Financial and Labor Markets

- expecting a minor decline in the coming quarter, generally flat escalation
- work backlogs have been depleting
- US dollar and NYSE are still very volatile
- crude oil is stabilizing, pricing is flat which is consistent with the construction labor market
- anticipating a construction slow-down in Q1 and Q2 of 2021 based on 2020 AIA Billings
- construction unemployment is relatively minor, only down 200,000 jobs nationally since February 2020
- unit rates will be held at 2020 values
- **3%-4%** escalation for new projects between Q3 2020 and Q2 2021
- margins offsetting cost increases in materials, labor, and construction efficiency
- design **add alternates in the 10% cost range**
- complex and occupied renovations: Will come at a lower premium (attractive in current market). Occupants can work/study from home

Escalation Forecast and Procurement Strategy

- contracting construction markets in most states
- construction remains local-market dependent
- put in place construction volume is at 2019 levels
- healthcare spending levels are looking good whereas education spending has declined
- low escalation for Q1 and Q2
- consider CM for preconstruction only until acceptable GMP is established. More attention on bid projects. Need to weigh quality of service with first costs
- **buying opportunity for early 2021**: plan and program '90 to 105'; will generate more aggressive pricing from the subs as they continue their hunt to fill up their backlogs. **Pricing to be flat to -5%**
- buying projects in **Q3/Q4** 2021 could have much more volume out for procurement. Expect pricing increases **2-4%**
- buying projects in **Q1/Q2** 2022 could continue to see more volume for procurement. Expect pricing increases **4-8%**

Trends to Watch in the Built environment

- forest reserves are much larger than current demand; home and wood prices will spur rapid growth in supply, already seeing a spike in wood prices
- mass timber and nonresidential design will accelerate timber adoption and technologies
- thoughts on establishing a framework for total benefit analysis in the built environment
- nature of the workspace is expected to change from cubical spaces to communal space (social and collaborative spaces)
- workspaces becoming attractive destination; anticipating an increase in the days people work from home, on average

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Design & Construction Market Outlook

Richard Vermeulen – Co-CEO
Blair Tennant – Associate Principal

North America's Construction Economist
vermeulens.com

Logistics

- Please mute mics except for those speaking
- Please keep camera function off
- Interim questions and comments via chat
- Thank You: slide deck, audio link
- “Situation Report” (Summary) Along with a Reminder
- Next session Monthly – January 8th

Agenda

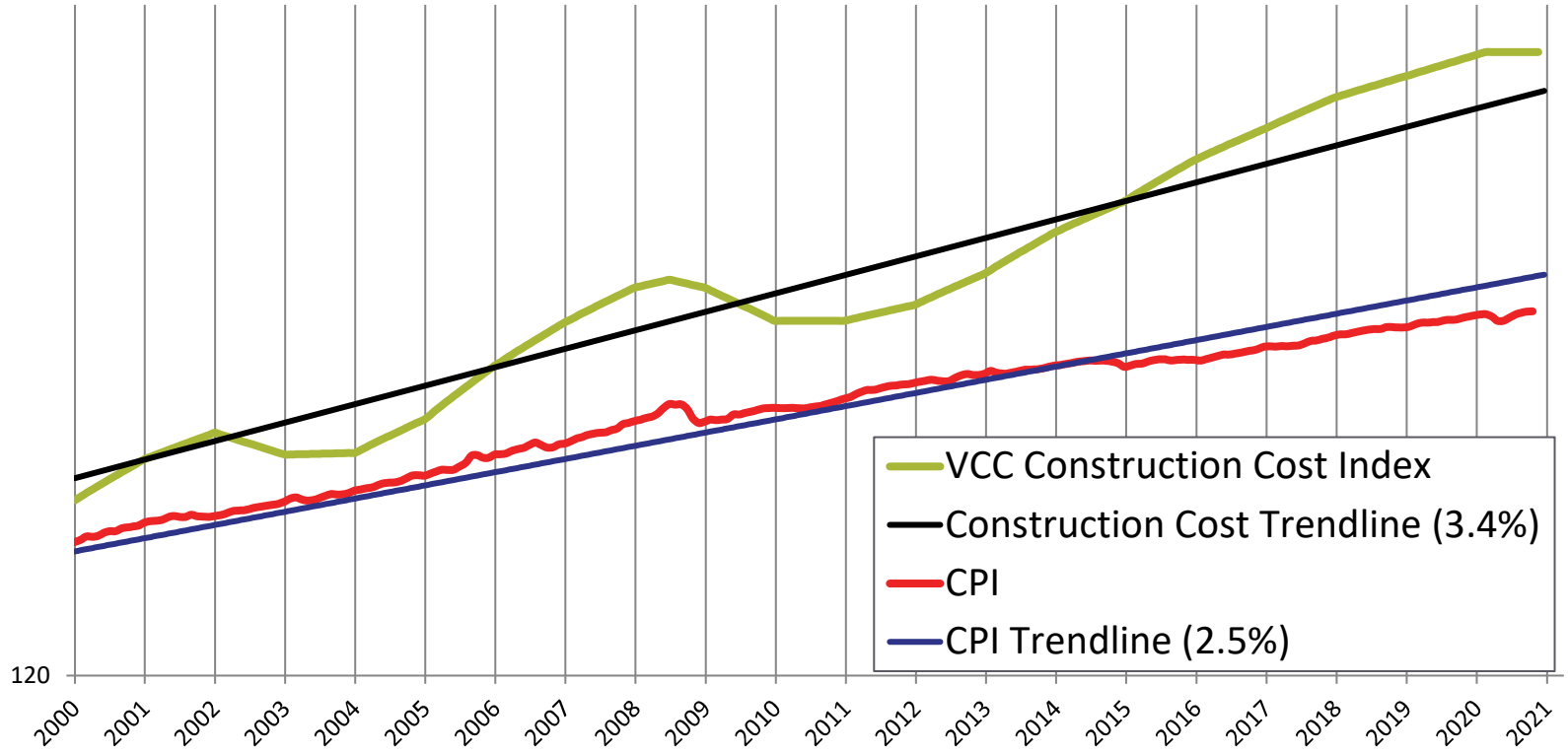
Evolving Trends in Financial & Labor Markets

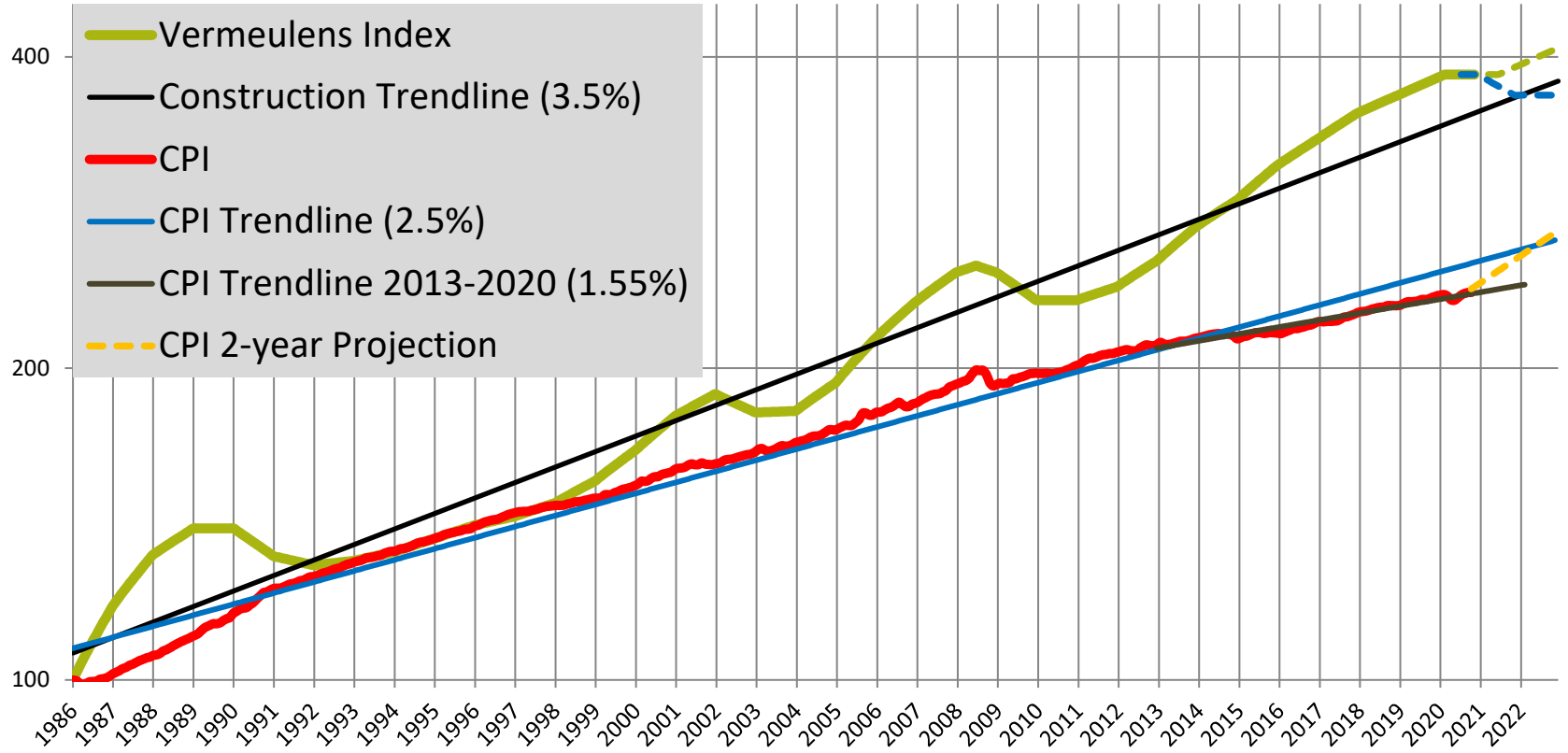
Escalation Forecast & Procurement Strategy

Trends to Watch in the Built Environment

Vermeulens Construction Cost Index

2000 - Current




Vermeulens Index
Construction Trendline (3.5%)
CPI
CPI Trendline (2.5%)
CPI Trendline 2013-2020 (1.55%)
CPI 2-year Projection
400
200
100
1986
1987
1988
1989
1990
1991
1992
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1997
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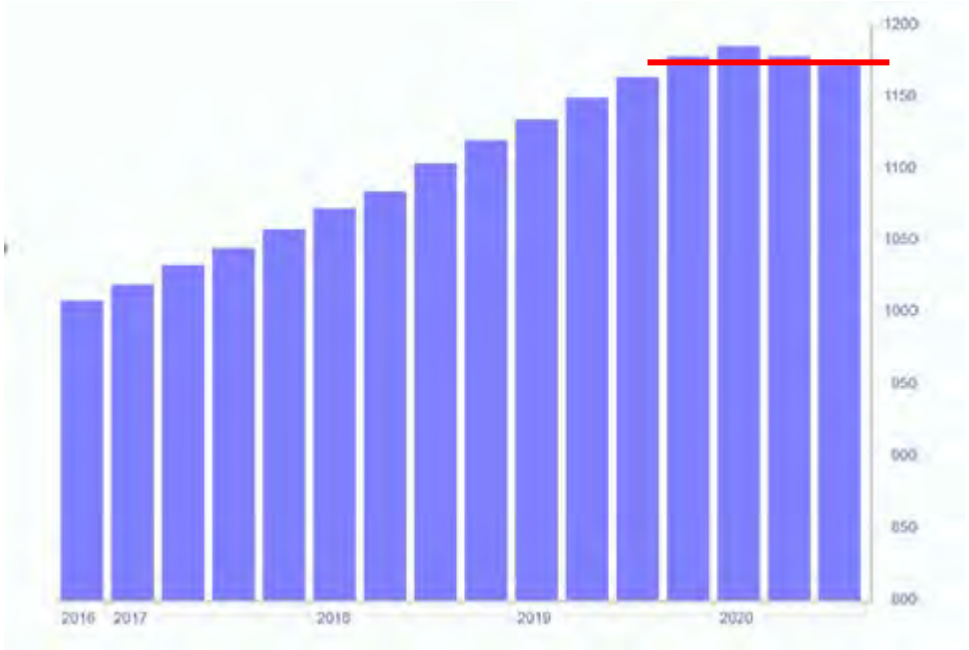
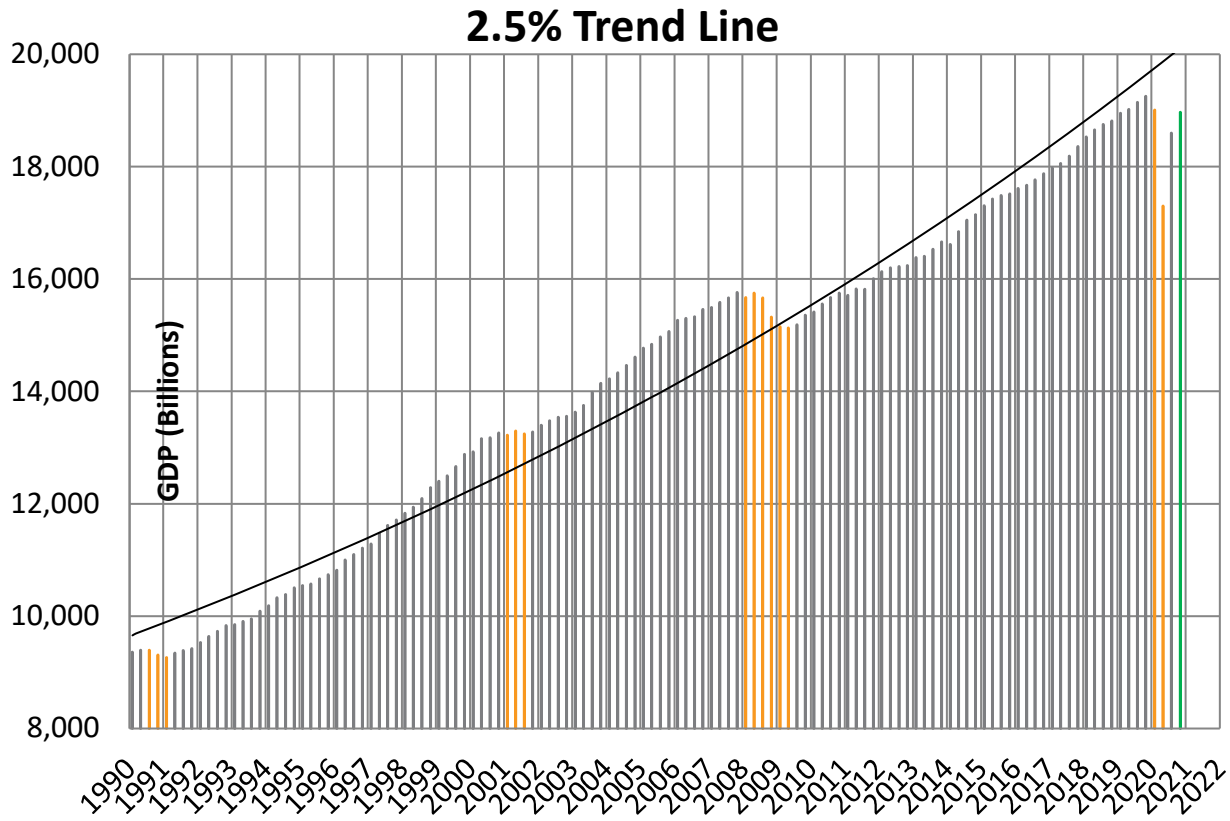
2017
2018
2019
2020
2021
2022

Cost Index



Turner

Quarter	Index	% Change
3rd Quarter 2020	**1171**	**- 0.51**
2nd Quarter 2020	1177	- 1.01
1st Quarter 2020	1189	1.02
4th Quarter 2019	1177	1.29

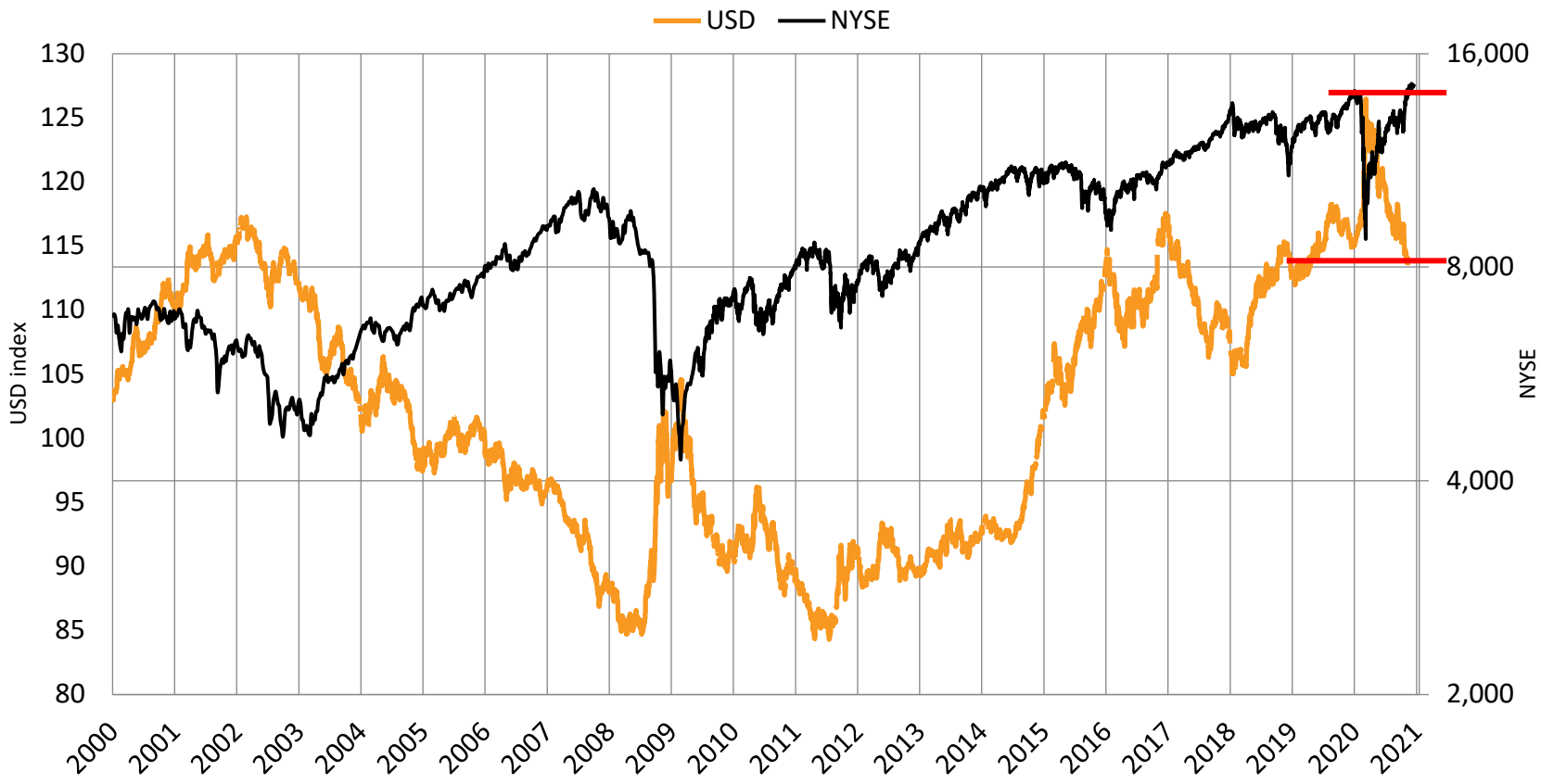


3.3% growth rate coming out of 2001/2002

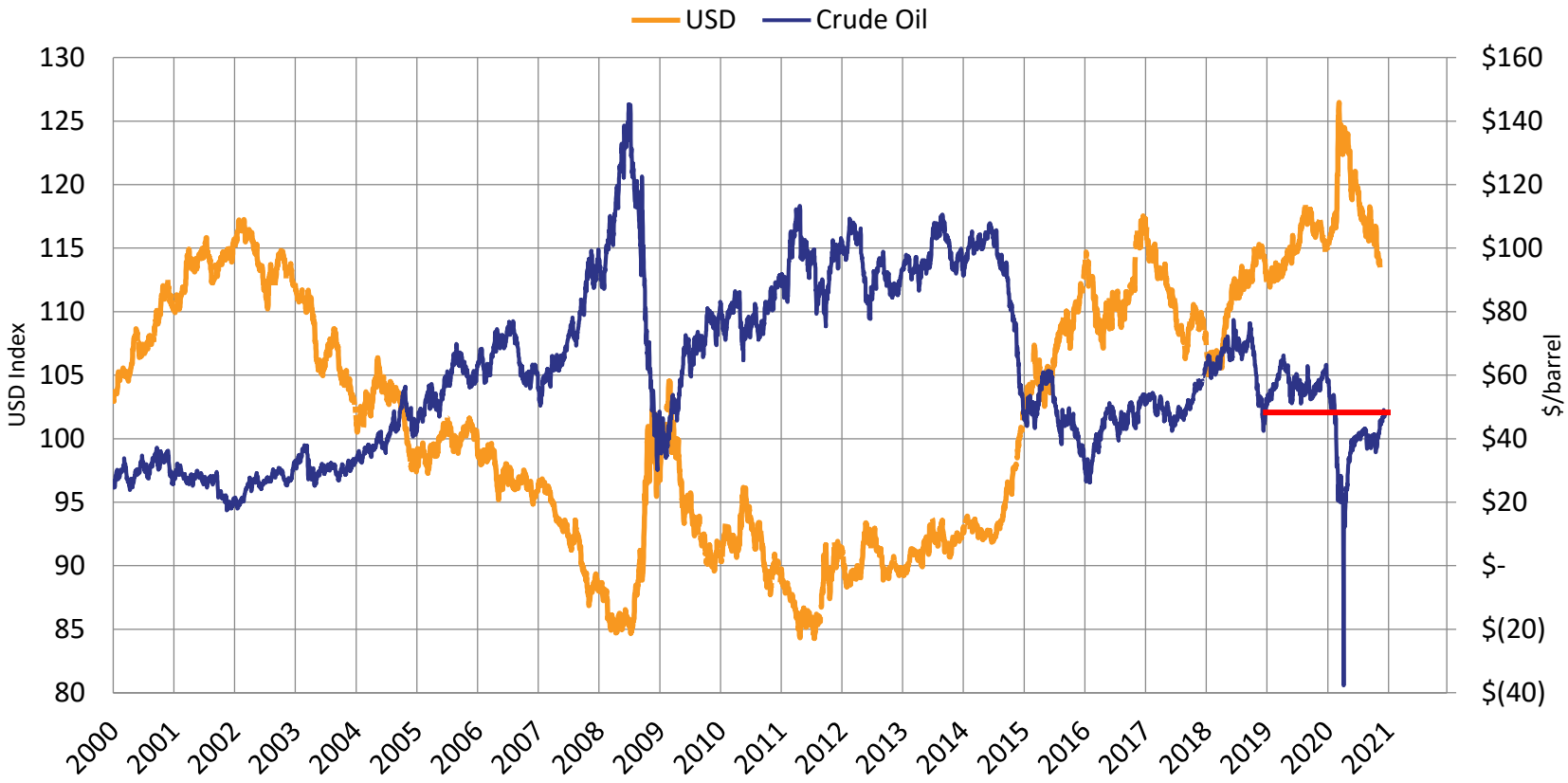
2.3% growth rate coming out of 2009/2010

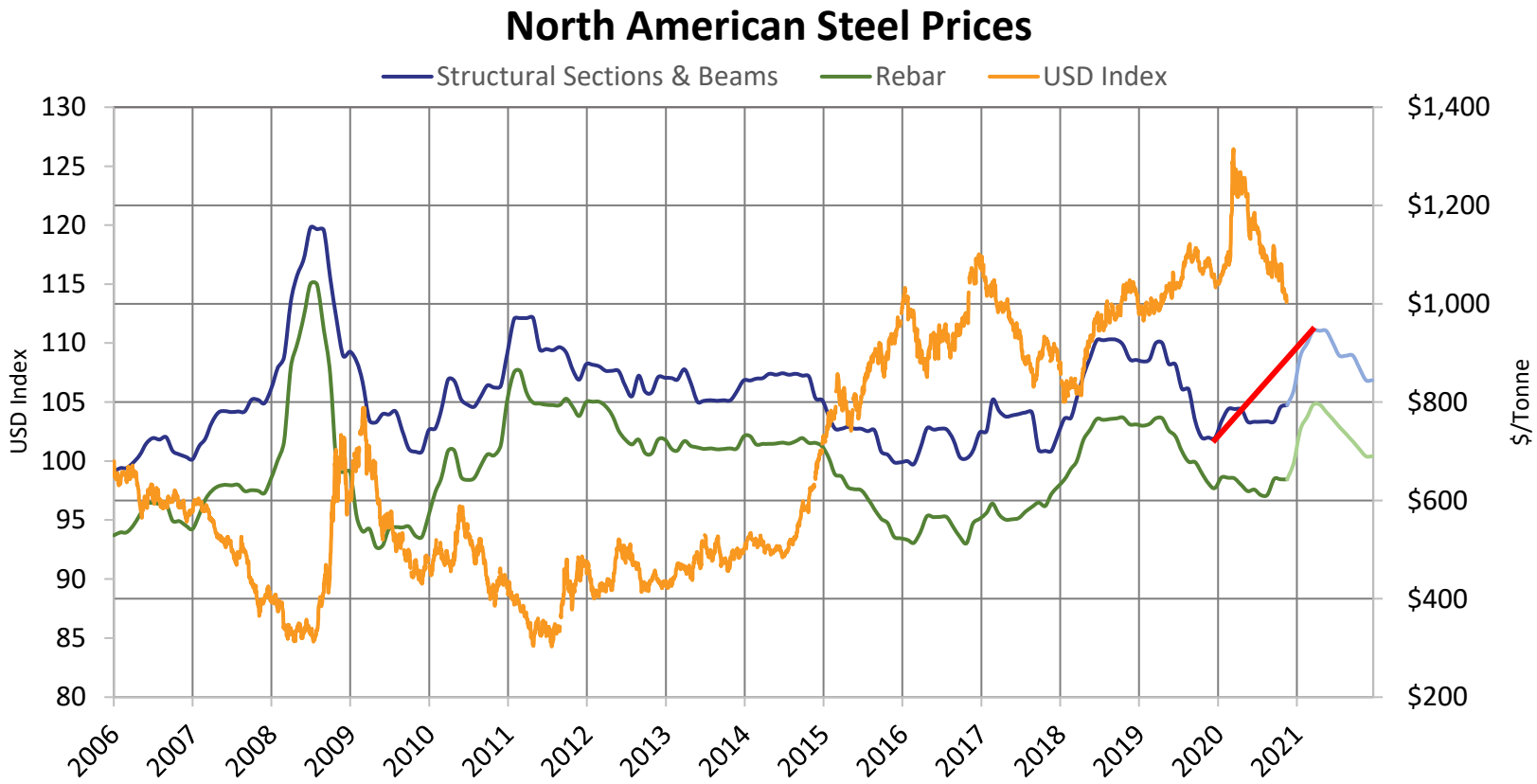
Roughly a 3% market contraction

US Dollar and NYSE

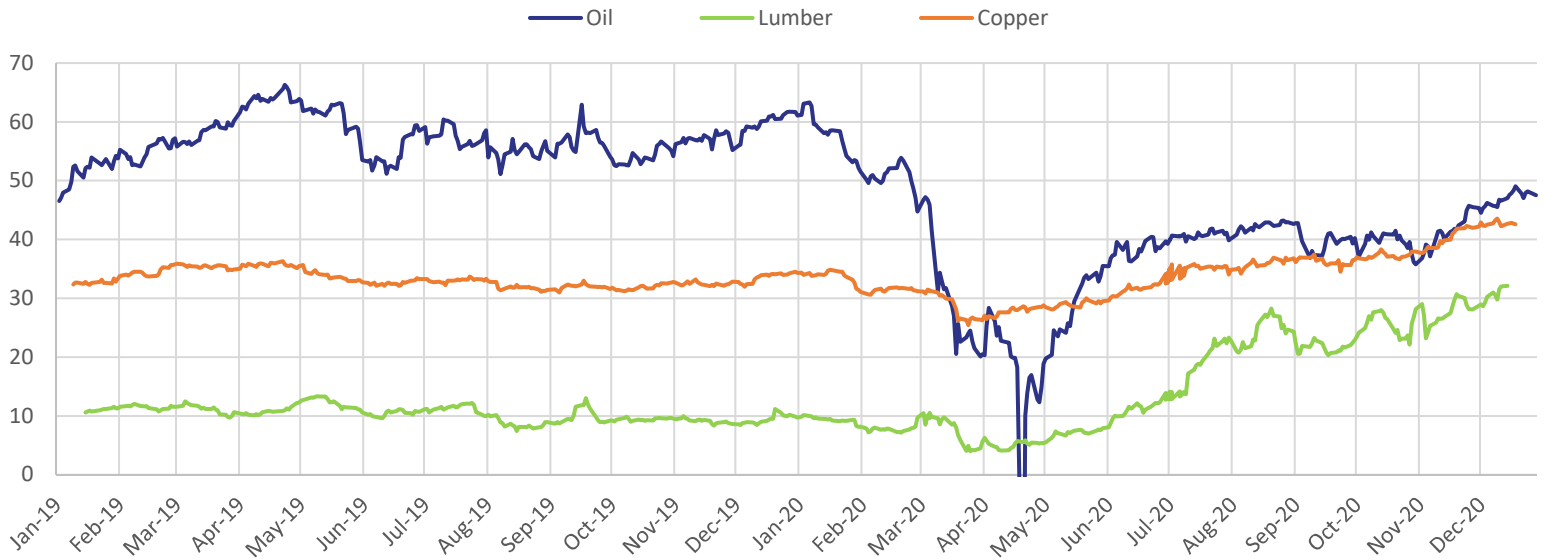


US Dollar Impact on Crude Oil

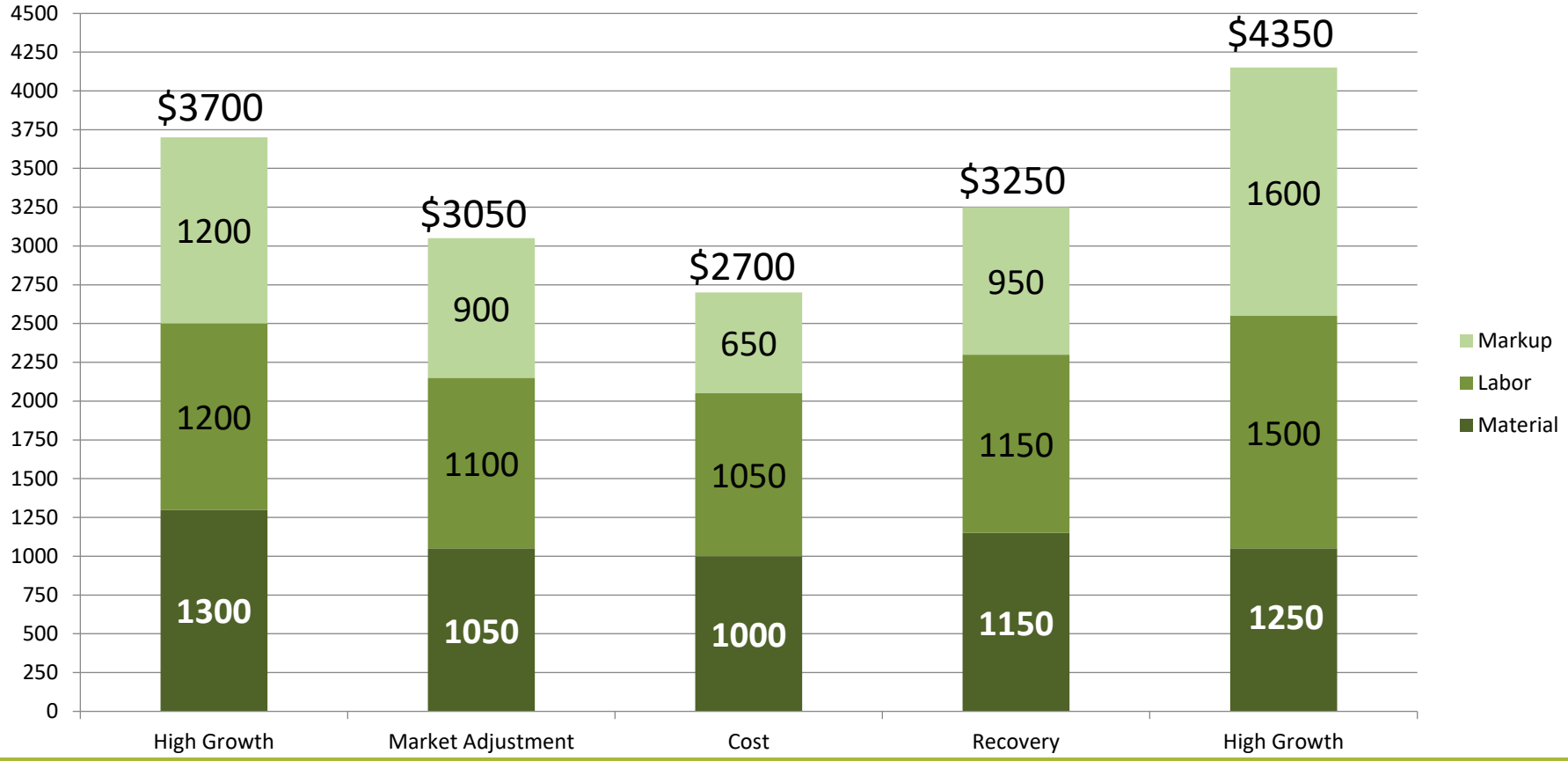



North American Steel Prices
Structural Sections & Beams
Rebar
USD Index
USD Index
$/Tonne
130
125
120
115
110
105
100
95
90
85
80
$1,400
$1,200
$1,000
$800
$600
$400
$200
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021

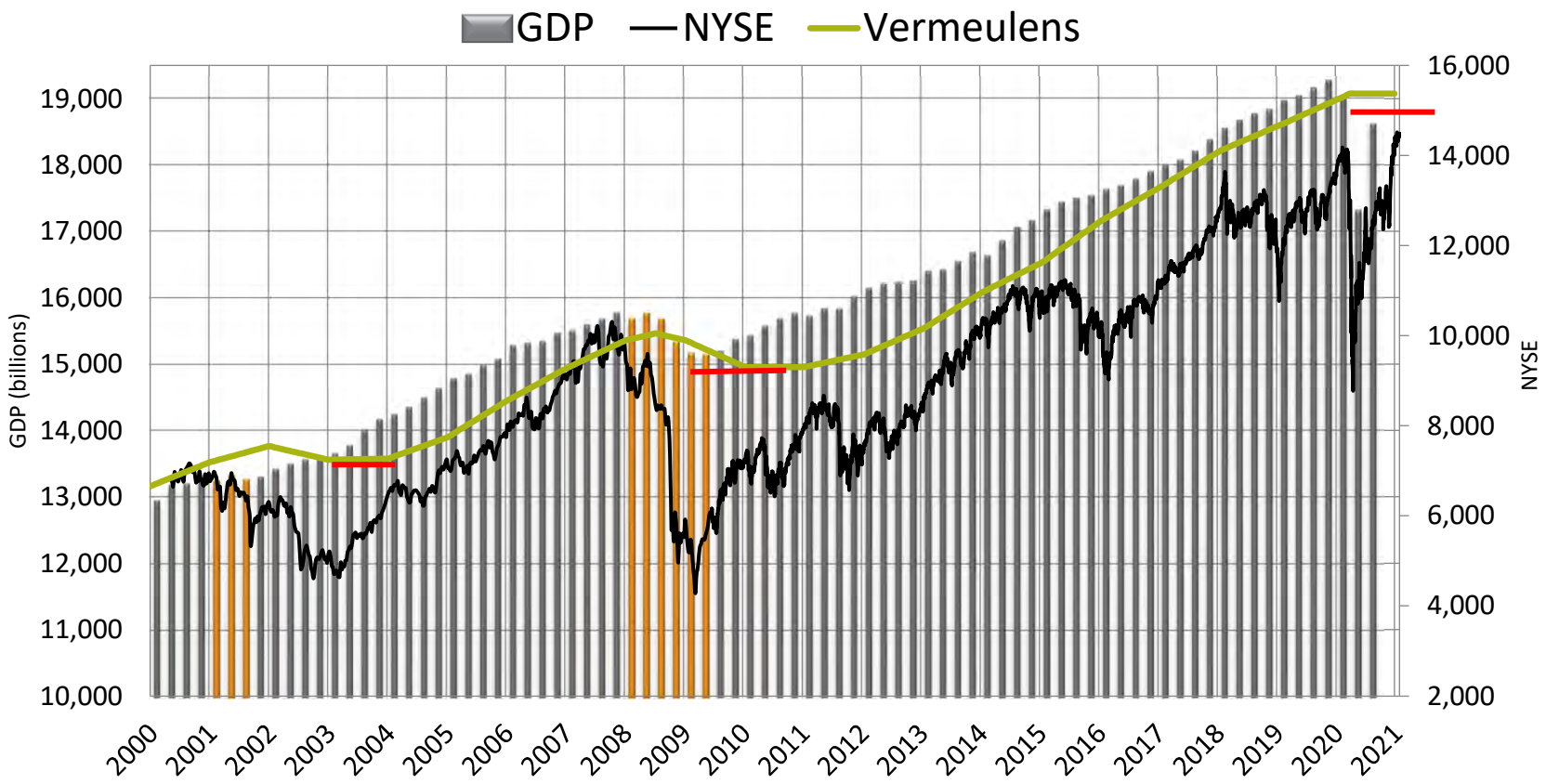
Commodities

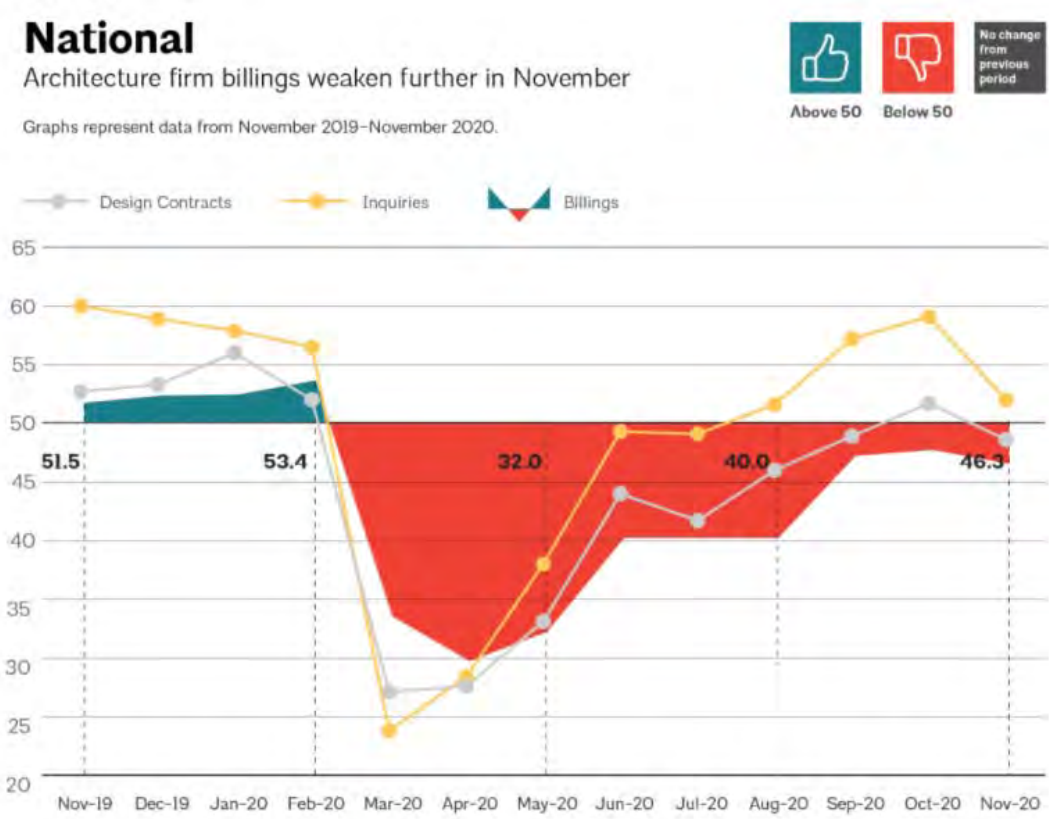


Structural Steel Pricing

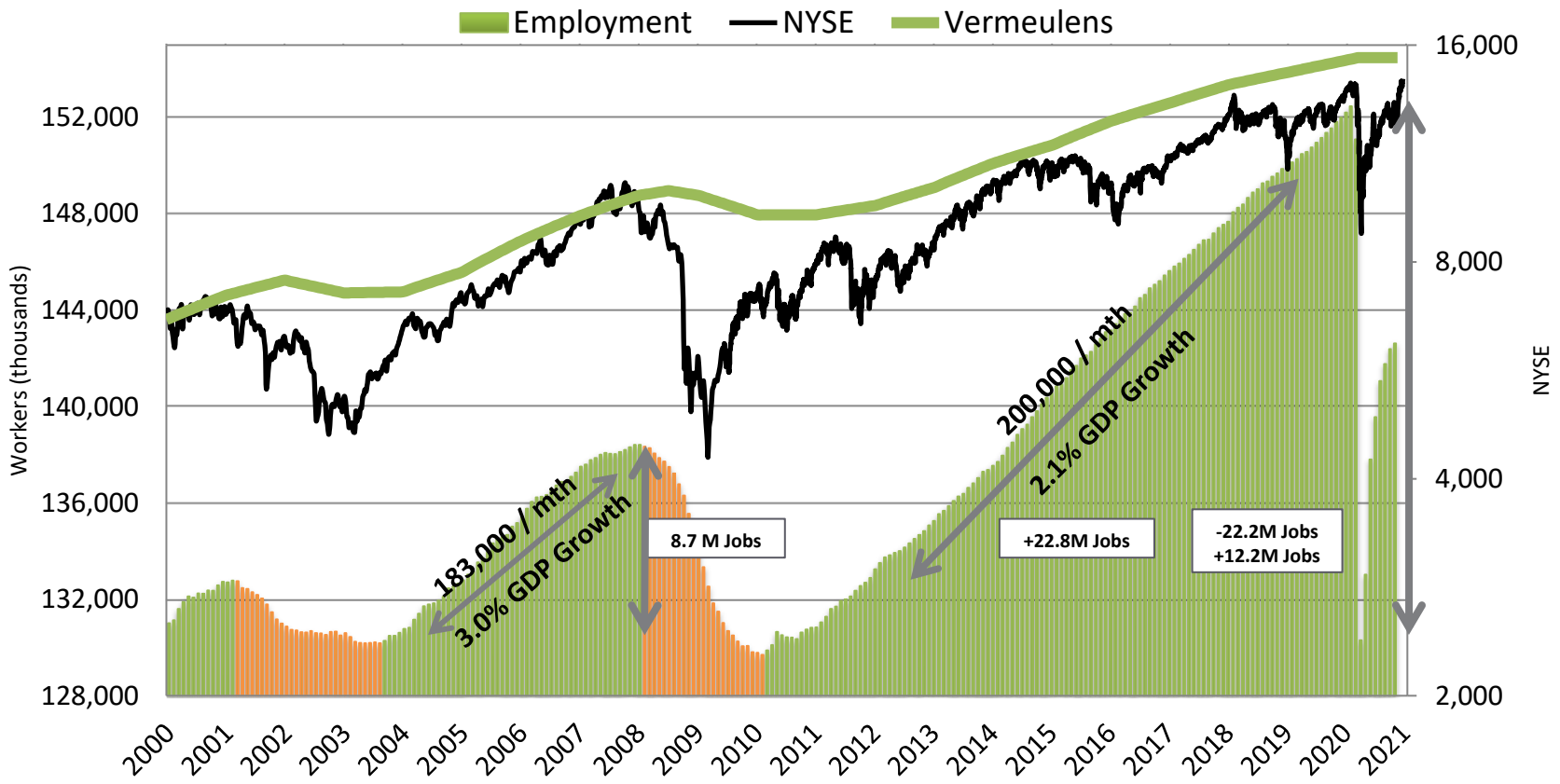


GDP (Billions) and NYSE



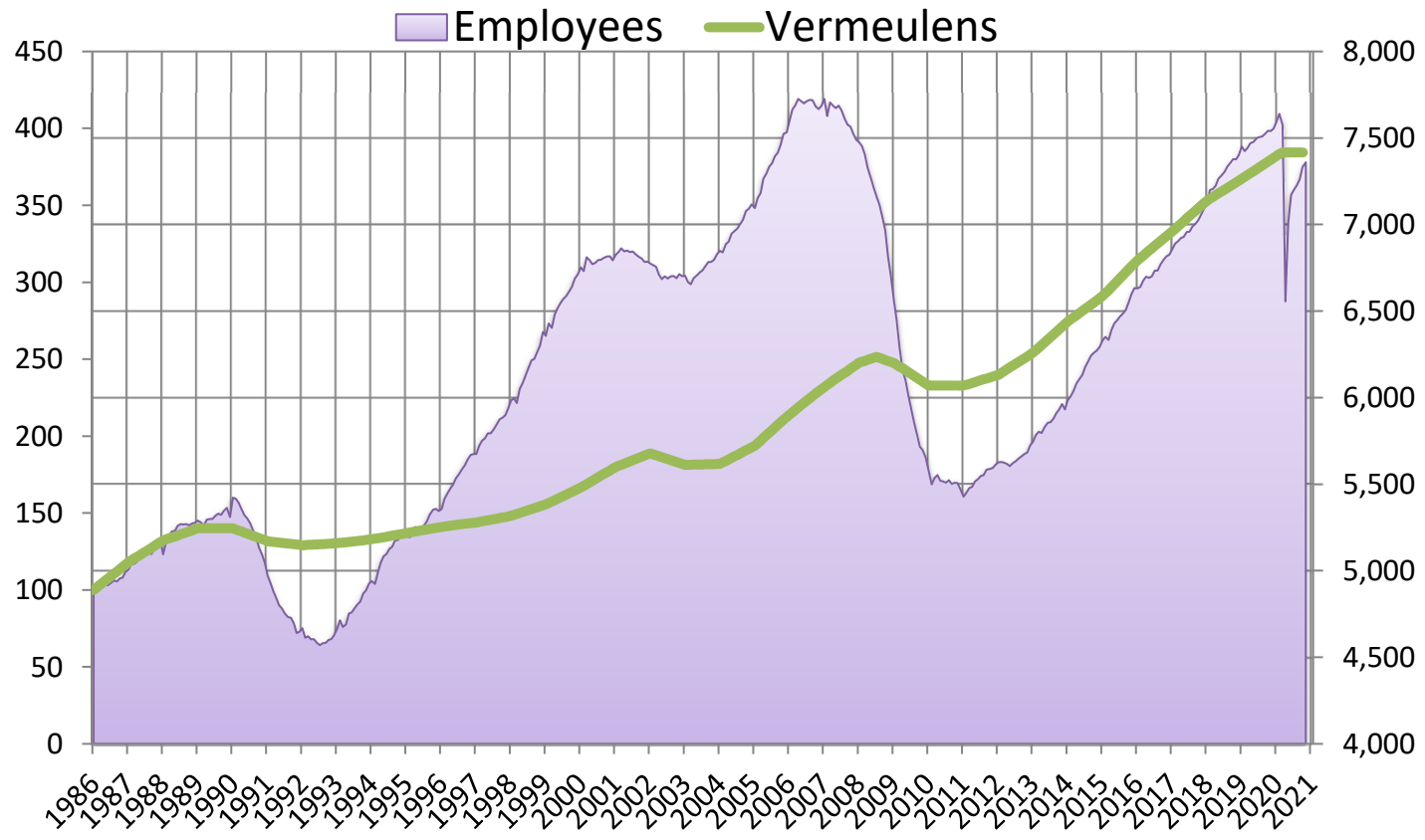

National
Architecture firm billings weaken further in November
Graphs represent data from November 2019–November 2020.
Above 50
Below 50
No change from previous period
Design Contracts
Inquiries
Billings
65
60
55
50
45
40
35
30
25
20
51.5
53.4
32.0
40.0
46.3
Nov-19
Dec-19
Jan-20
Feb-20
Mar-20
Apr-20
May-20
Jun-20
Jul-20
Aug-20
Sep-20
Oct-20
Nov-20

US Employment (In Thousands)



US Employment (millions)							
	Jan-08	Feb-10	Feb-10 to Feb-20	Feb-20	Apr-20	Nov-20	Feb-20 to Nov-20
Total nonfarm	138.4	129.7	22.7	152.4	130.4	142.6	-9.8
Total private	116.0	107.3	22.4	129.7	108.6	121.2	-8.5
Goods-producing	21.9	17.6	3.6	21.2	18.7	20.2	-1.0
Mining & logging	0.7	0.7	0.0	0.7	0.7	0.6	-0.1
Construction	7.5	5.5	2.1	7.6	6.6	7.4	-0.2
Manufacturing	13.7	11.5	1.4	12.9	11.5	12.3	-0.6
Private service-providing	94.1	89.6	18.9	108.5	89.9	101.0	-7.5
Trade, transportation, and utilities	26.7	24.5	3.3	27.8	24.5	26.9	-0.9
Business	29.3	27.0	6.3	33.3	30.4	31.8	-1.5
Education and health services	19.0	19.8	4.8	24.6	21.8	23.3	-1.3
Leisure and hospitality	13.5	12.9	4.0	16.9	8.6	13.4	-3.5
Other services	5.5	5.3	0.6	5.9	4.6	5.5	-0.4
Government	22.4	22.5	0.2	22.7	21.8	21.4	-1.3

US Construction Employment (Thousands)

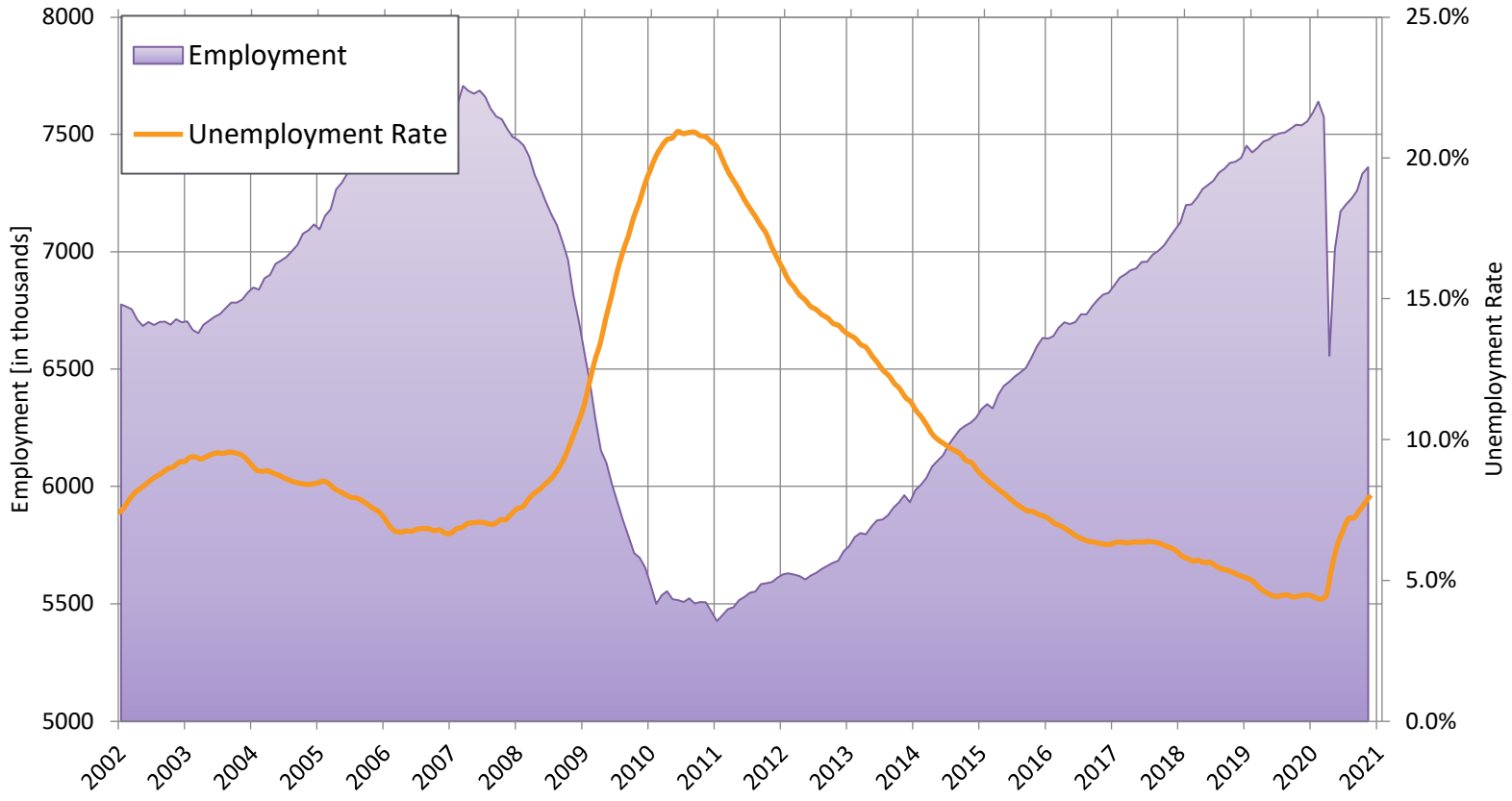


High to Low
Total
-8.7M (-6%)

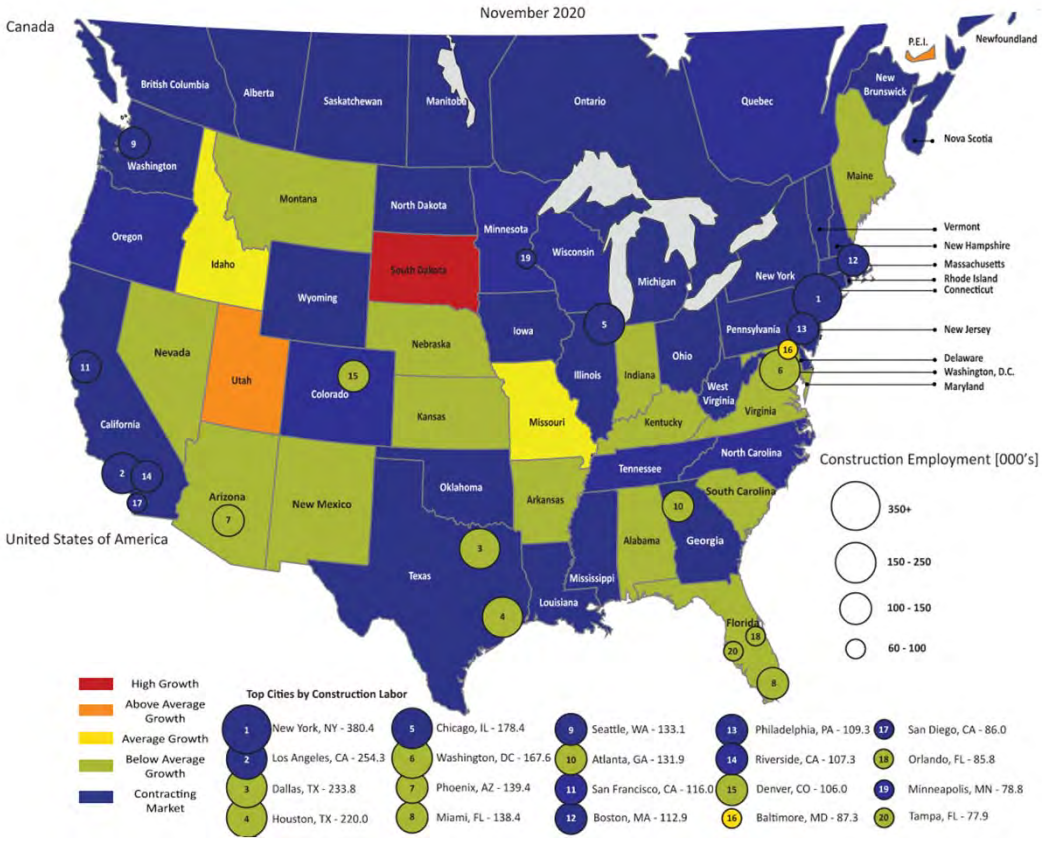
Construction
-2.3M (-30%)

Low to Current
Total
+22.8M (+18%)
-22.2M (-15%)
+12.2M (+9%)
Construction
+2.1M (+37%)
-1.1M (-14%)
+0.80M (+12%)

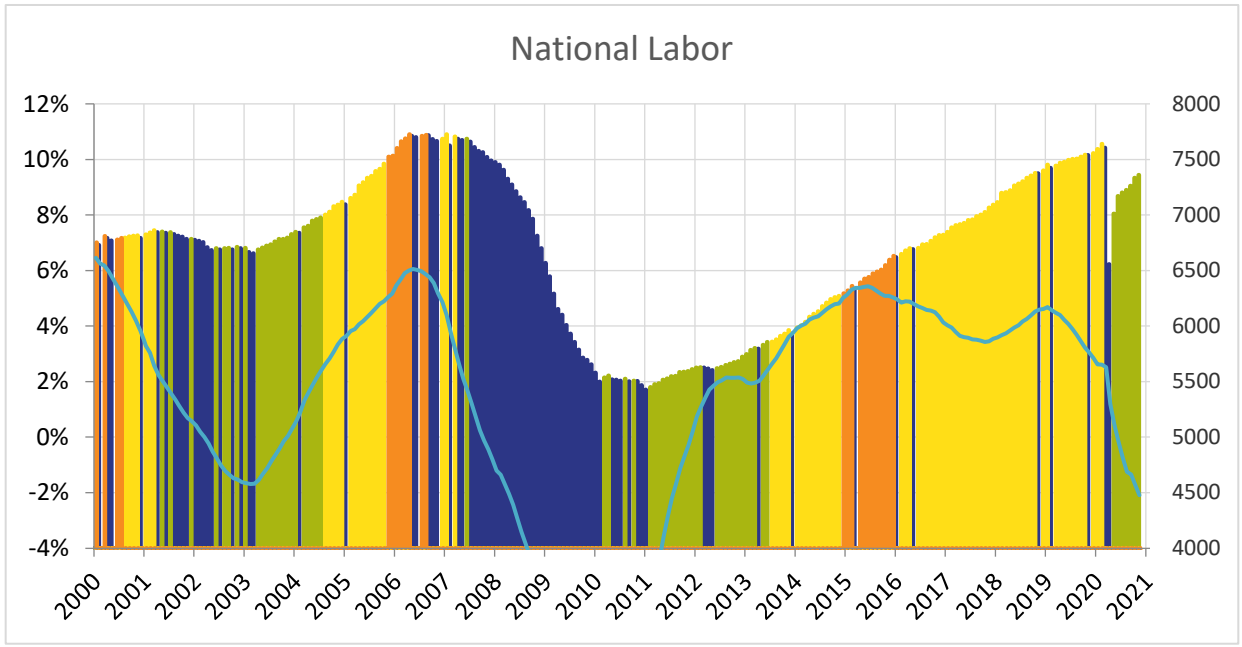
Construction Employment & Construction Unemployment Rate



Year-Over-Year Construction Labor Growth



May - National Construction Labor (Thousands)



Year-Over-Year Growth

- High Growth
- Above Average Growth
- Average Growth
- Below Average Growth
- Contracting Market

Market Expansion

National

(+41% -4%)

Year Over Year Growth – Statewide

November 2020 State Construction YOY Growth					
Rank	Feb-10	Feb-20	Nov-20	Job Losses	% Lost
1 California	604.5	875.7	869.7	-6.0	-0.7%
2 Texas	585.2	793.8	764.8	-29.0	-3.7%
3 Florida	383.1	580.2	562.5	-17.7	-3.1%
4 New York	319.3	379.1	378.8	-0.3	-0.1%
5 Pennsylvania	219.8	245.1	256.7	11.6	4.7%
6 North Carolina	187.3	227.1	226.4	-0.7	-0.3%
7 Washington	154.2	220.3	222.7	2.4	1.1%
8 Ohio	176.8	207.5	219.1	11.6	5.6%
9 Georgia	161.2	203.4	204.8	1.4	0.7%
10 Illinois	211.8	197.8	222.6	24.8	12.5%
11 Virginia	186.7	197.7	215.3	17.6	8.9%
12 Arizona	122.9	174.4	175.9	1.5	0.9%
13 Colorado	126.8	172.1	175.0	2.9	1.7%
14 Maryland	149.9	168.1	174.3	6.2	3.7%
15 Michigan	124.8	165.3	178.4	13.1	7.9%
16 New Jersey	135.7	154.5	151.0	-3.5	-2.3%
17 Massachusetts	109.4	149.3	152.4	3.1	2.1%
18 Indiana	117.8	140.5	152.2	11.7	8.3%
19 Louisiana	127.8	139.4	133.3	-6.1	-4.4%
20 Tennessee	103.4	125.6	128.3	2.7	2.1%

Year-Over-Year Growth

- High Growth
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Market Expansion

National

(+41% -4%)

Year Over Year Growth – Statewide

November 2020 State Construction YOY Growth					
Rank	Feb-10	Feb-20	Nov-20	Job Losses	% Lost
21 Missouri	115.2	120.7	138.4	17.7	14.7%
22 Wisconsin	99.8	114.8	128.6	13.8	12.0%
23 South Carolina	84.9	109.2	113.1	3.9	3.6%
24 Minnesota	91.8	108.4	123.5	15.1	13.9%
25 Utah	68.7	108.3	121.5	13.2	12.2%
26 Oregon	71.9	106.2	108.7	2.5	2.4%
27 Nevada	75.5	96.7	92.8	-3.9	-4.0%
28 Alabama	90.3	92.5	99.2	6.7	7.2%
29 Oklahoma	67.5	79.1	77.6	-1.5	-1.9%
30 Kentucky	72.3	74.7	83.4	8.7	11.6%
31 Iowa	63.8	65.1	74.1	9.0	13.8%
32 Kansas	56.0	61.4	65.9	4.5	7.3%
33 Connecticut	53.0	54.6	58.7	4.1	7.5%
34 New Mexico	46.4	52.5	48.6	-3.9	-7.4%
35 Arkansas	50.5	51.8	55.2	3.4	6.6%
36 Nebraska	45.8	50.5	53.7	3.2	6.3%
37 Idaho	33.5	50.1	56.9	6.8	13.6%
38 Mississippi	50.0	41.5	42.7	1.2	2.9%
39 West Virginia	33.3	28.4	34.0	5.6	19.7%
40 New Hampshire	22.2	27.4	28.1	0.7	2.6%
41 Montana	23.4	26.9	31.7	4.8	17.8%
42 Maine	24.7	26.7	31.6	4.9	18.4%
43 North Dakota	21.0	24.5	26.2	1.7	6.9%
44 Delaware	19.6	22.1	21.9	-0.2	-0.9%
45 South Dakota	20.5	21.9	25.6	3.7	16.9%
46 Wyoming	23.4	19.7	23.1	3.4	17.3%
47 Rhode Island	16.8	18.4	19.7	1.3	7.1%
48 District of Columbia	11.1	14.6	15.2	0.6	4.1%
49 Vermont	13.7	12.5	11.8	-0.7	-5.6%

Year-Over-Year Growth

- High Growth
- Above Average Growth
- Average Growth
- Below Average Growth
- Contracting Market

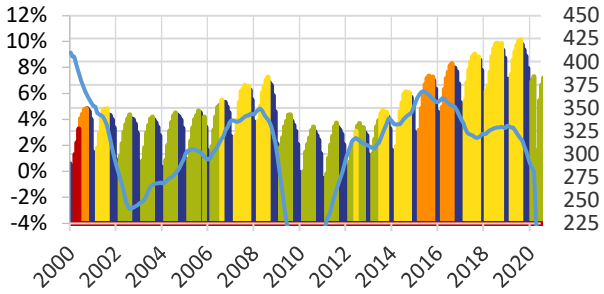
Market Expansion

National

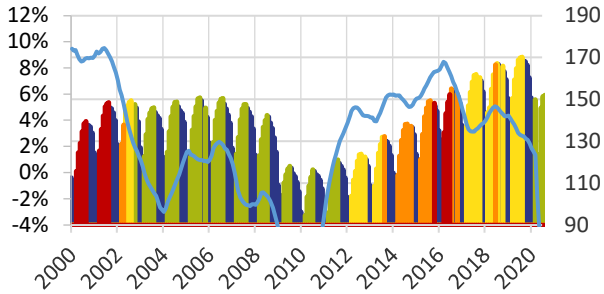
(+41% -4%)

May - State Construction Labor (Thousands)

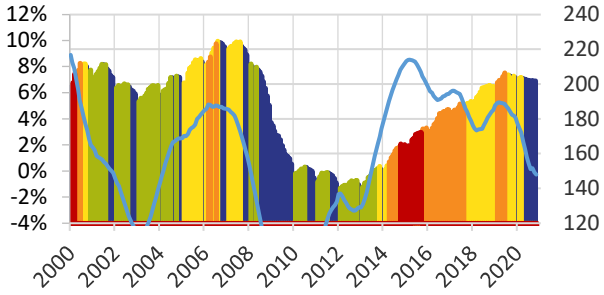
New York



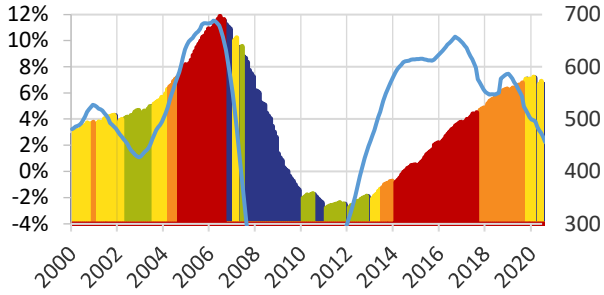
Massachusetts



Georgia



Florida



Year-Over-Year Growth

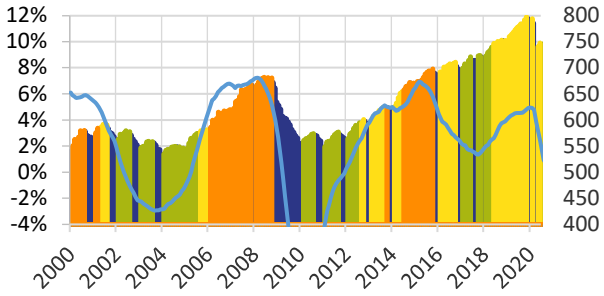
- High Growth
- Above Average Growth
- Average Growth
- Below Average Growth
- Contracting Market

Market Expansion

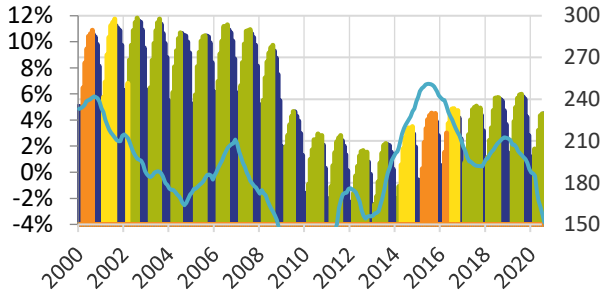
New York
(+40% +0%)
Massachusetts
(+62% +2%)
Georgia
(+47% +1%)
Florida
(+77% -3%)
National
(+41% -4%)

May - State Construction Labor (Thousands)

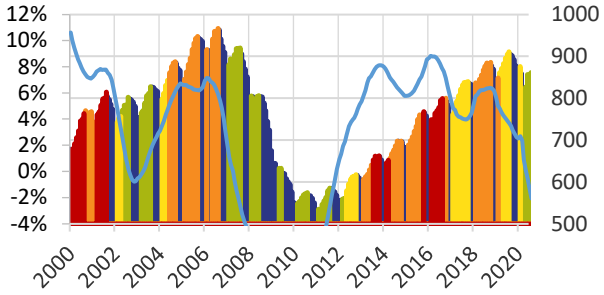
Texas



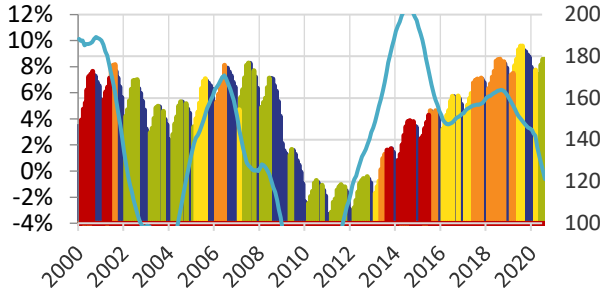
Illinois



California



Colorado



Year-Over-Year Growth

- High Growth
- Above Average Growth
- Average Growth
- Below Average Growth
- Contracting Market

Market Expansion

Texas
(+46% -4%)
Illinois
(+21% +13%)
California
(+64% -1%)
Colorado
(+68% +2%)
National
(+41% -4%)

Year Over Year Growth – Top Cities

November 2020 City Construction YOY Growth					
Rank	Feb-10	Feb-20	Nov-20	Job Losses	% Lost
1 New York	322.2	395.3	380.4	-14.9	-3.8%
2 Los Angeles	185.7	258.0	254.3	-3.7	-1.4%
3 Dallas/Fort Worth	167.4	235.7	233.8	-1.9	-0.8%
4 Houston	180.7	244.2	220.0	-24.2	-9.9%
5 Chicago	158.1	161.0	178.4	17.4	10.8%
6 Washington D.C.	146.2	163.6	167.6	4.0	2.4%
7 Phoenix	91.5	137.6	139.4	1.8	1.3%
8 Miami	98.5	141.5	138.4	-3.1	-2.2%
9 Seattle	90.4	131.6	133.1	1.5	1.1%
10 Atlanta	98.6	129.7	131.9	2.2	1.7%
11 San Francisco	85.4	123.6	116.0	-7.6	-6.1%
12 Boston	79.9	113.6	112.9	-0.7	-0.6%
13 Philadelphia	101.7	112.5	109.3	-3.2	-2.8%
14 Riverside	65.8	106.4	107.3	0.9	0.8%
15 Denver	74.6	108.9	106.0	-2.9	-2.7%
16 Baltimore	70.4	81.9	87.3	5.4	6.6%
17 San Diego	59.6	83.6	86.0	2.4	2.9%
18 Orlando	52.2	90.3	85.8	-4.5	-5.0%
19 Minneapolis	58.6	73.8	78.8	5.0	6.8%
20 Tampa Bay	57.8	82.3	77.9	-4.4	-5.3%

Year-Over-Year Growth

- High Growth
- Above Average Growth
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Market Expansion

National

(+41% -4%)

Year Over Year Growth – Top Cities

November 2020 City Construction YOY Growth					
Rank	Feb-10	Feb-20	Nov-20	Job Losses	% Lost
21 Portland	48.5	75.6	75.8	0.2	0.3%
22 Detroit	51.2	72.2	74.7	2.5	3.5%
23 Austin	40.5	71.6	71.8	0.2	0.3%
24 Charlotte	49.9	69.3	69.7	0.4	0.6%
25 Pittsburgh	56.8	70.1	69.5	-0.6	-0.9%
26 Las Vegas	59.9	74.1	69.4	-4.7	-6.3%
27 St. Louis	63.0	63.7	68.1	4.4	6.9%
28 San Antonio	50.5	68.3	67.2	-1.1	-1.6%
29 Sacramento	42.5	66.4	66.4	0.0	0.0%
30 Indianapolis	41.7	54.2	59.0	4.8	8.9%
31 Kansas City	41.4	52.7	58.2	5.5	10.4%
32 Nashville	31.9	48.6	52.0	3.4	7.0%
33 San Jose	33.6	51.2	51.4	0.2	0.4%
34 Salt Lake City	34.1	46.5	50.7	4.2	9.0%
35 Cincinnati	38.5	43.0	47.9	4.9	11.4%
36 Jacksonville	31.8	46.9	47.5	0.6	1.3%
37 Oklahoma City	38.6	47.9	43.4	-4.5	-9.4%
38 Raleigh	29.1	41.3	43.3	2.0	4.8%
39 Cleveland	32.7	37.4	42.6	5.2	13.9%
40 Columbus	29.9	44.0	42.2	-1.8	-4.1%
41 Virginia Beach	37.7	38.5	40.4	1.9	4.9%
42 Richmond	33.8	41.3	39.4	-1.9	-4.6%
43 Milwaukee	28.6	31.8	34.4	2.6	8.2%
44 Birmingham	28.9	31.9	33.4	1.5	4.7%
45 Louisville	28.2	28.7	28.5	-0.2	-0.7%
46 New Orleans	39.7	31.6	28.3	-3.3	-10.4%
47 Providence	20.6	25.2	27.0	1.8	7.1%
48 Memphis	20.9	23.5	24.2	0.7	3.0%
49 Buffalo	19.0	18.9	21.5	2.6	13.8%
50 Hartford	17.8	18.2	19.6	1.4	7.7%

Year-Over-Year Growth

- High Growth
- Above Average Growth
- Average Growth
- Below Average Growth
- Contracting Market

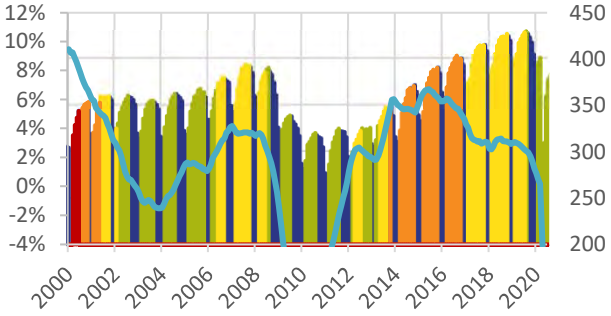
Market Expansion

National

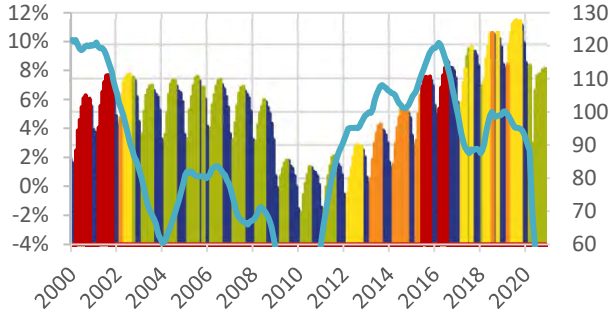
(+41% -4%)

May - City Construction Labor (Thousands)

New York City



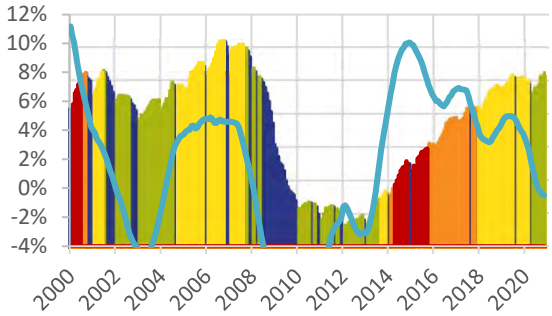
Boston



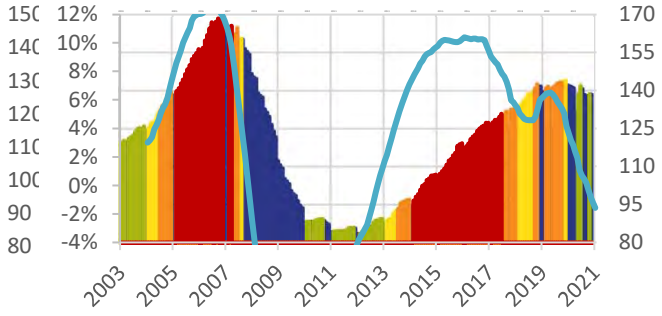
Year-Over-Year Growth

- High Growth
- Above Average Growth
- Average Growth
- Below Average Growth
- Contracting Market

Atlanta



Miami

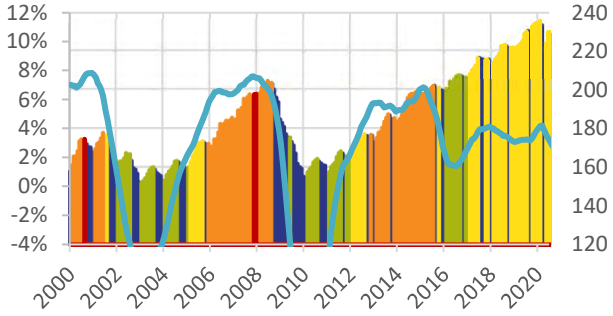


Market Expansion

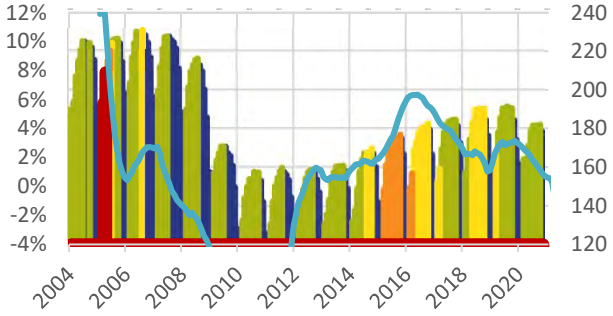
New York City
(+58% -4%)
Boston
(+66% -1%)
Atlanta
(+54% 2%)
Miami
(+69% -2%)
National
(+41% -4%)

May - City Construction Labor (Thousands)

Dallas/Fort Worth



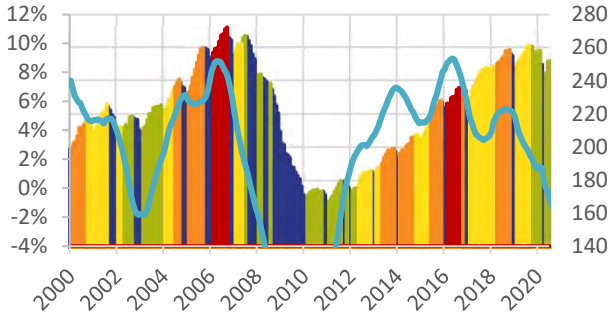
Chicago



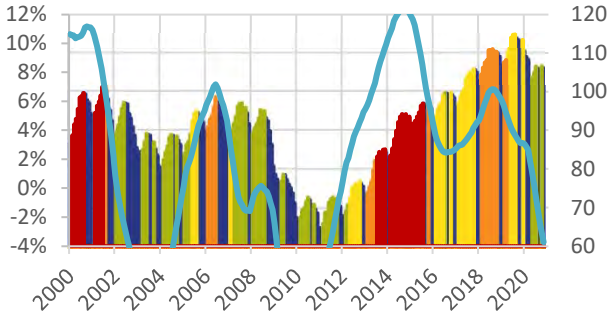
Year-Over-Year Growth

- High Growth
- Above Average Growth
- Average Growth
- Below Average Growth
- Contracting Market

Los Angeles

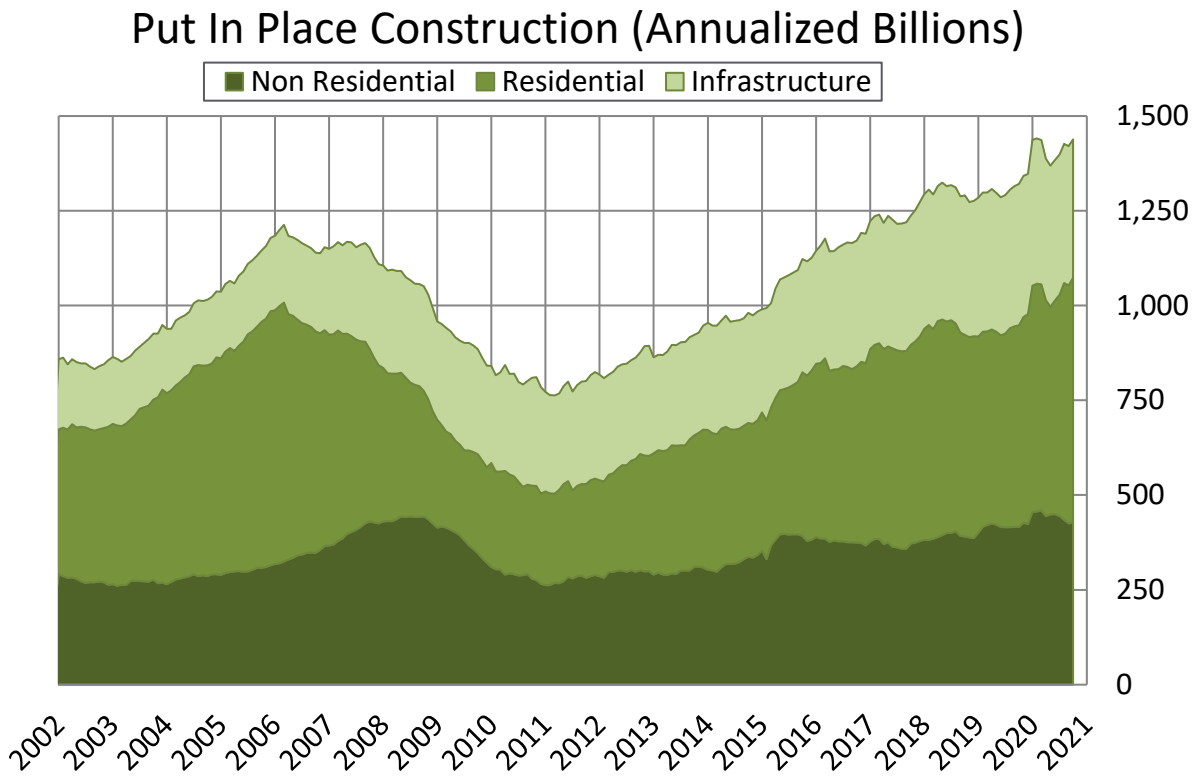


Denver

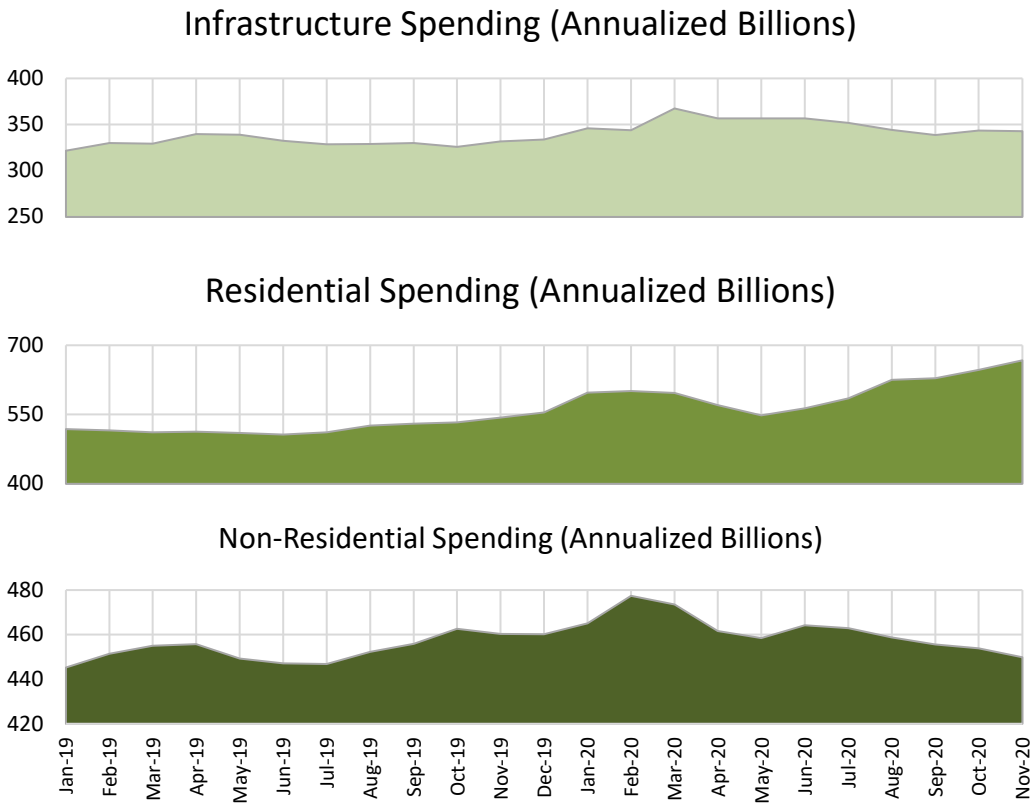


Market Expansion

Dallas
(+53% -1%)
Chicago
(+30% +11%)
Los Angeles
(+54% -1%)
Denver
(+69% -3%)
National
(+41% -4%)


Put In Place Construction (Annualized Billions)
Non Residential
Residential
Infrastructure
1,500
1,250
1,000
750
500
250
0
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021

US Construction Volume



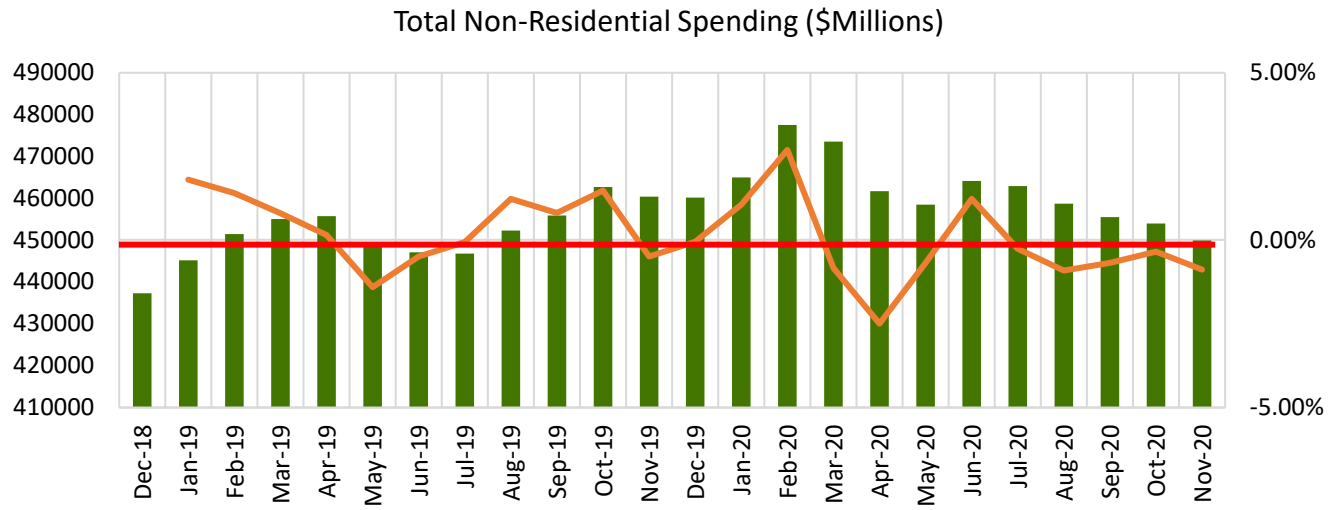
Low to Current

Total	+7%
Infra	+1%
Res	+22%
Non Res	+0%

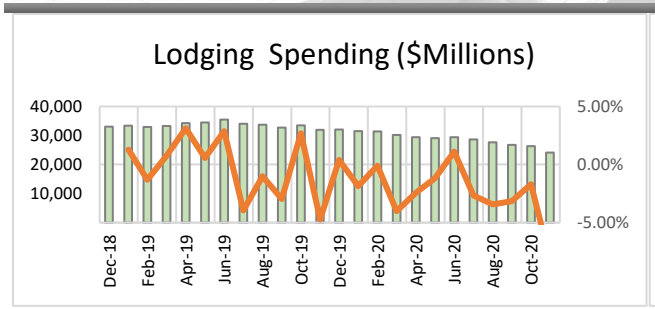
Peak to Low

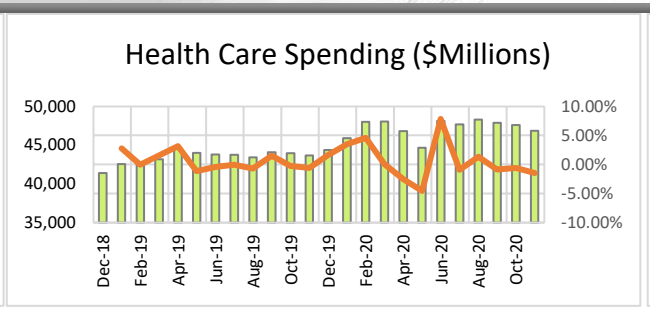
Total	-5%
Infra	-8%
Res	-9%
Non Res	-6%

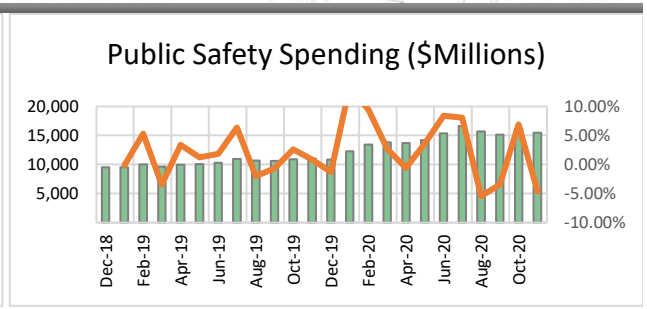
US Construction Volume – Non Residential

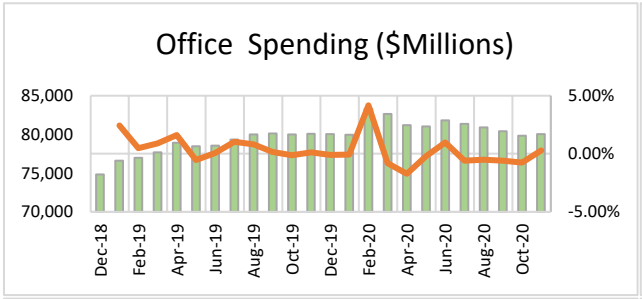


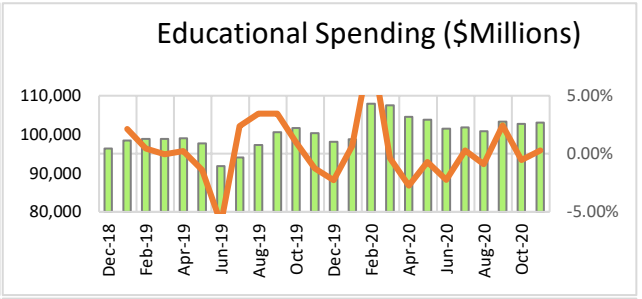
US Construction Volume – Non Residential

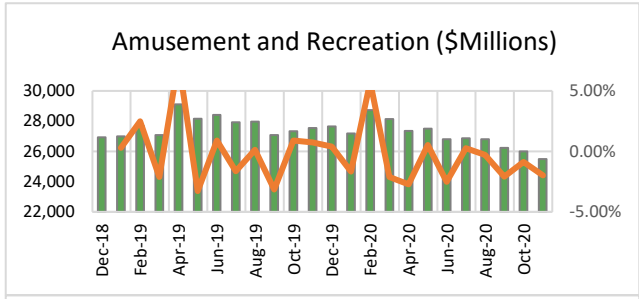


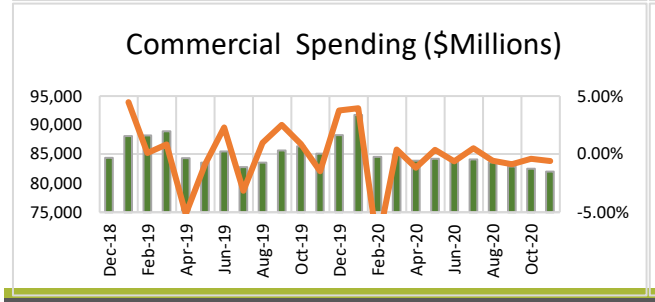


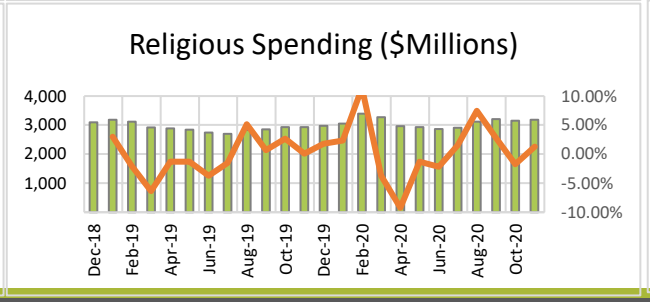


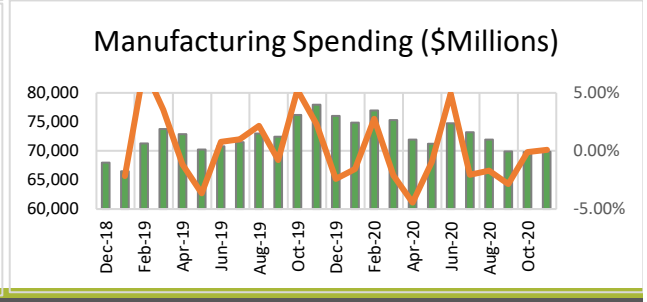




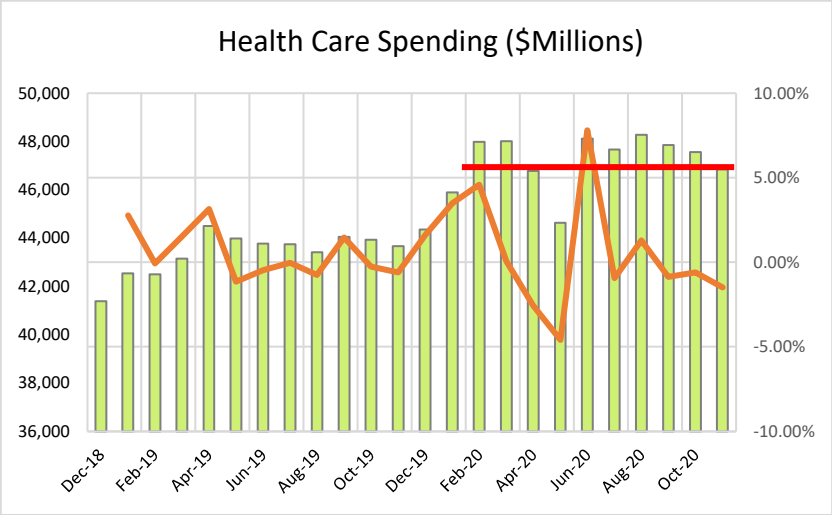


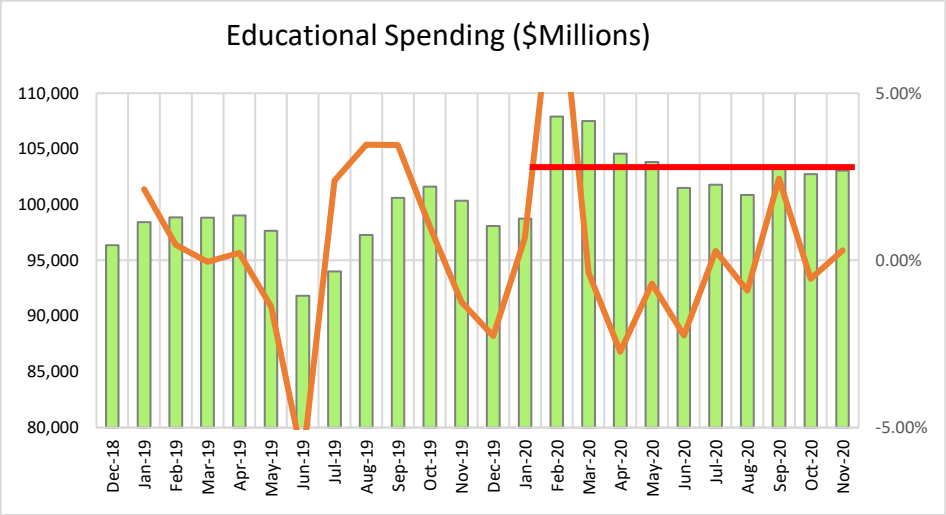


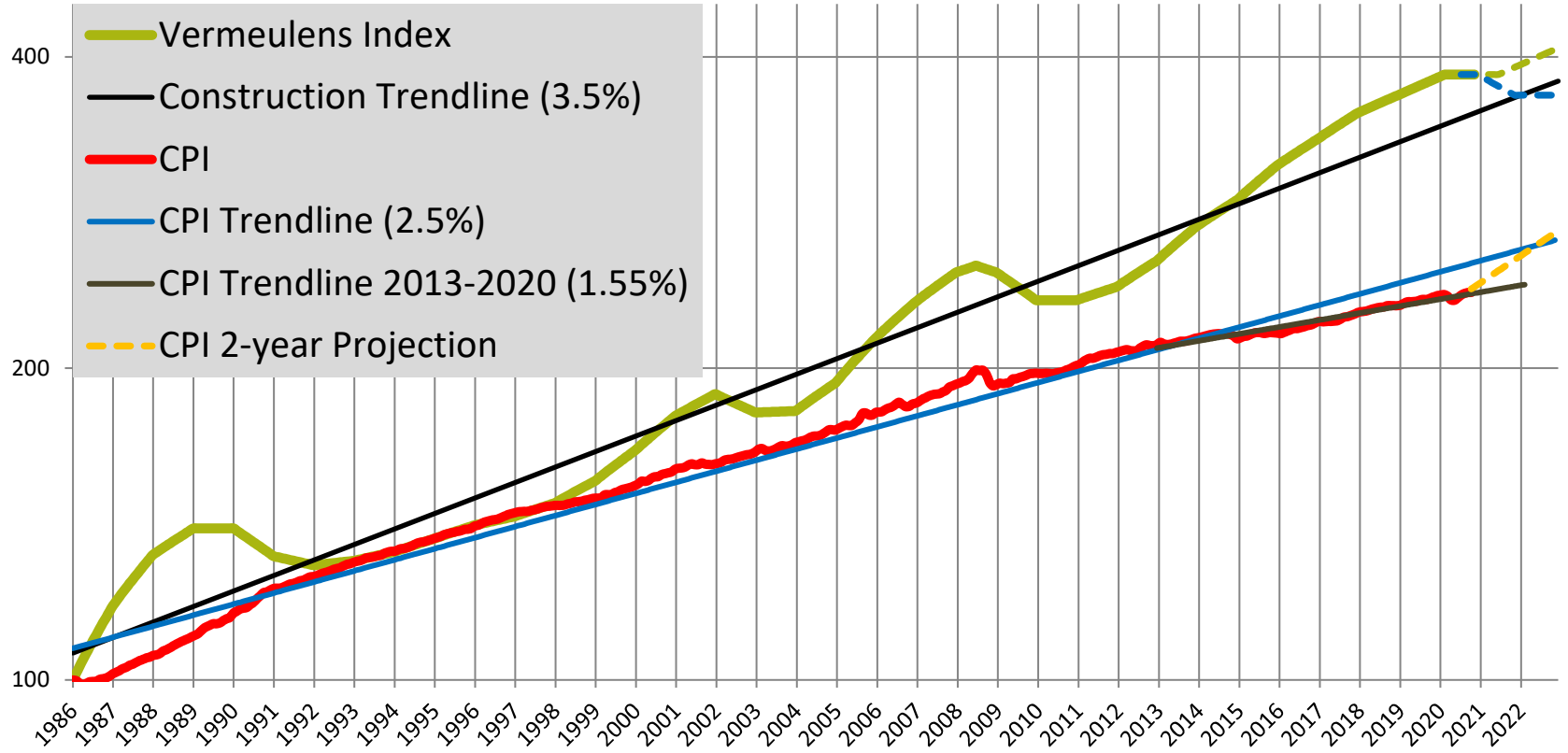




US Construction Volume – Non Residential






Vermeulens Index
Construction Trendline (3.5%)
CPI
CPI Trendline (2.5%)
CPI Trendline 2013-2020 (1.55%)
CPI 2-year Projection
400
200
100
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022

- Escalation low for Q1 & Q2
- Buying opportunity for early 2021: Plan and Program ‘90 to 105’
- Consider CM for preconstruction only until acceptable GMP is established. More attention on **Bid Projects**. Need to weigh quality of service with first costs.
- **Limited/Strategic** Early Procurement Packages (only for occupancy improvement)
- Watch Job Creation for Continued Growth

Recommendation

- Buying projects in **Q1/Q2 2021** will generate more aggressive pricing from the subs as they continue their hunt to fill up their backlogs. Expect pricing to be **flat to -5%**

- Buying projects in **Q3/Q4 2021** could have much more volume out for procurement. Expect less bid coverage as sub backlogs have been building up from Q1/Q2 2021. Expect pricing **increases 2-4%**

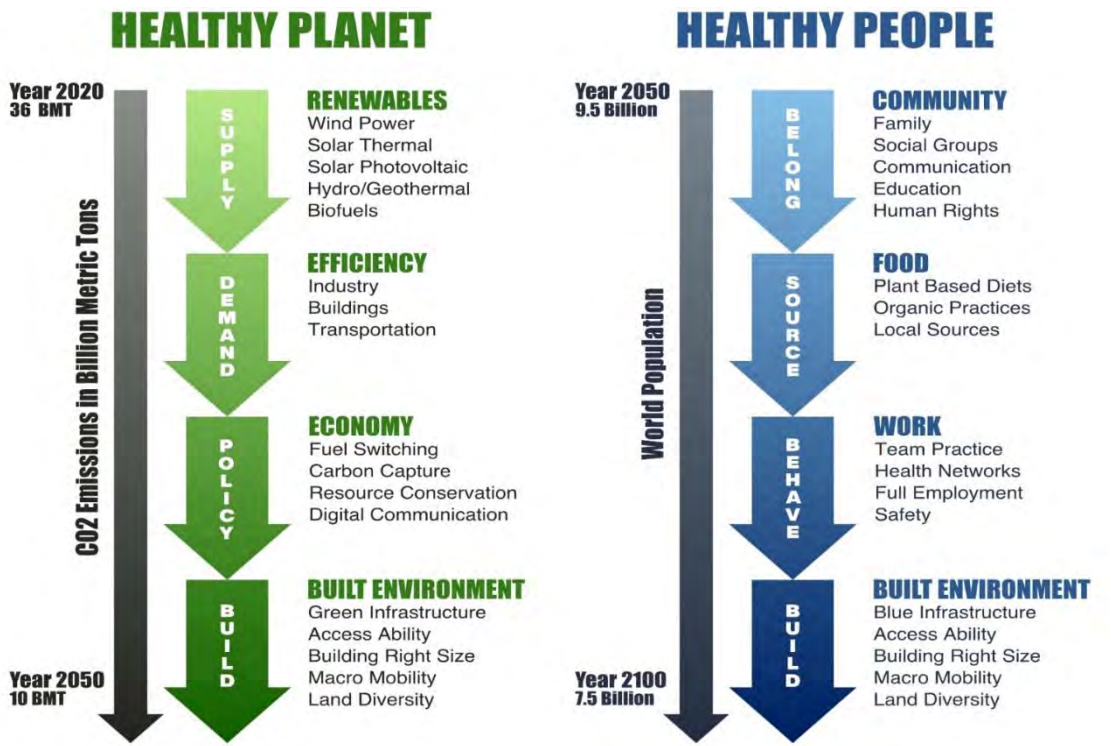
- Buying projects in **Q1/Q2 2022** could continue to see more volume out for procurement. Expect **pricing increases 4-8%**

Escalation Forecast

- Unit rates will be **held at 2020 values**
- **3%-4%** escalation for new projects between Q3 2021 and Q2 2022.
- **Margins offsetting cost increases** in materials, labor and construction efficiency
- **Design add alternates** in the 10% of cost range.
- Complex & Occupied Renovations: will come at a lower premium (attractive in current market). Remove occupants to distance/remote work
- Summer Slammers: Can extend schedules – no acceleration costs
- Continue Design and get Shovel Ready

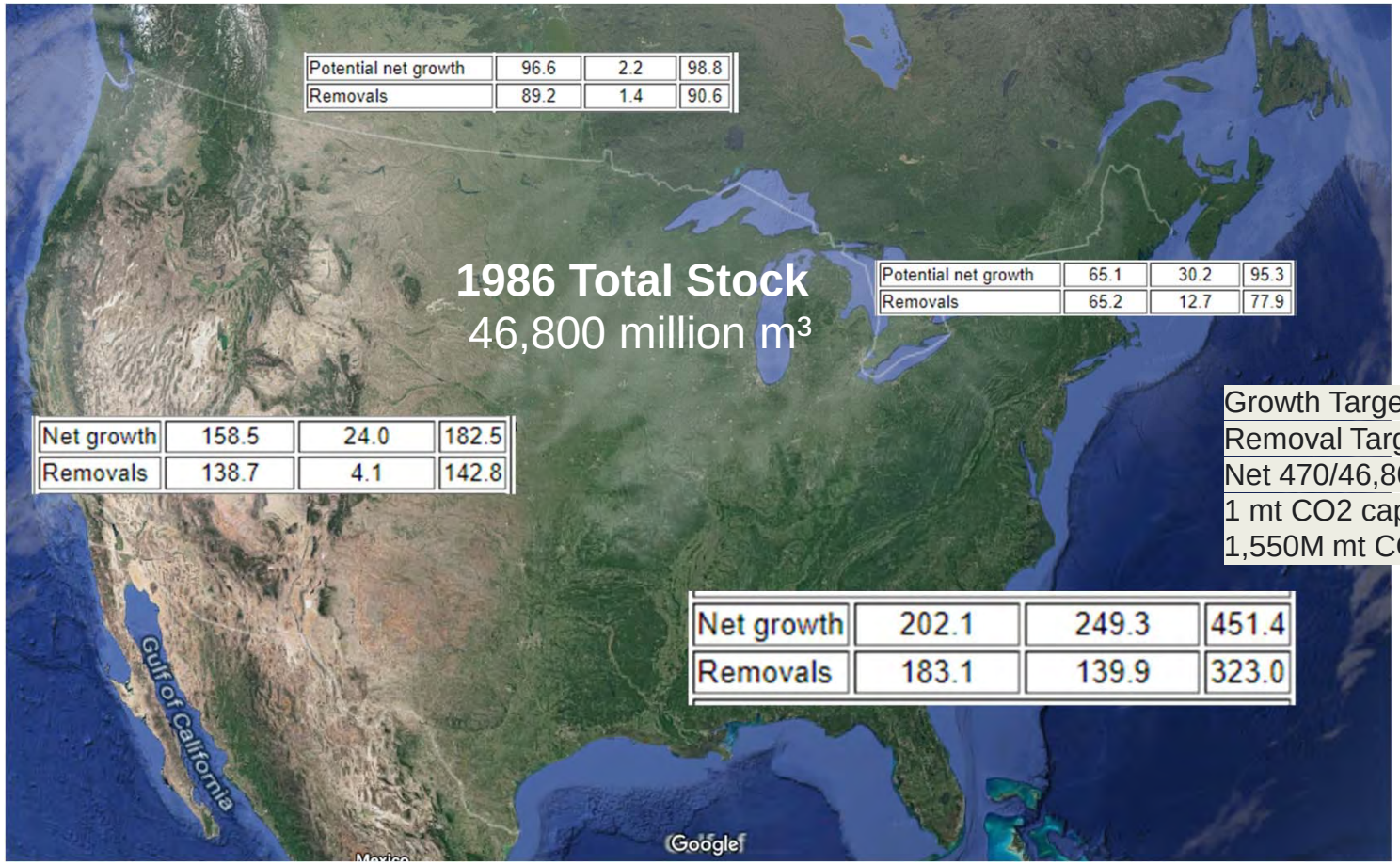
VERMEULENS

2021 Trends to Watch in the Built Environment



VERMEULENS

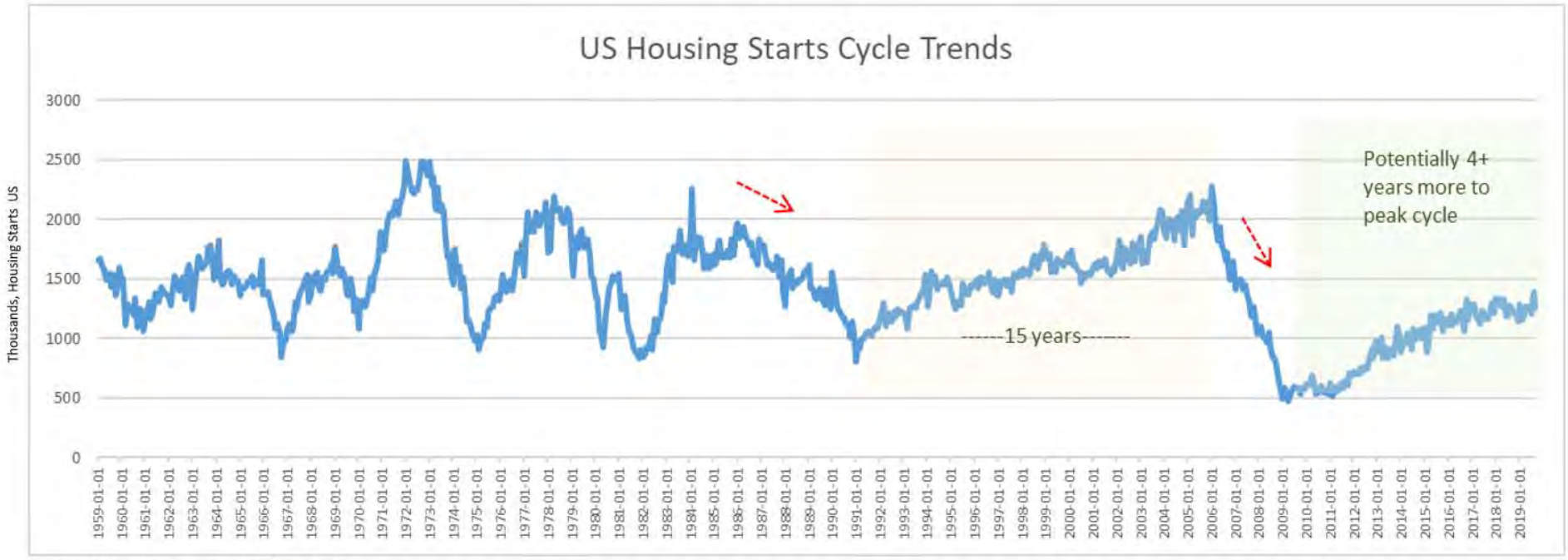
Growth in forest resources are much larger than current demand.



Growth Target 1,470M m3
Removal Target 1,000M m3
Net 470/46,800M m3 = 1% per year
1 mt CO2 captured per m3 wood
1,550M mt CO2 gas/diesel emissions

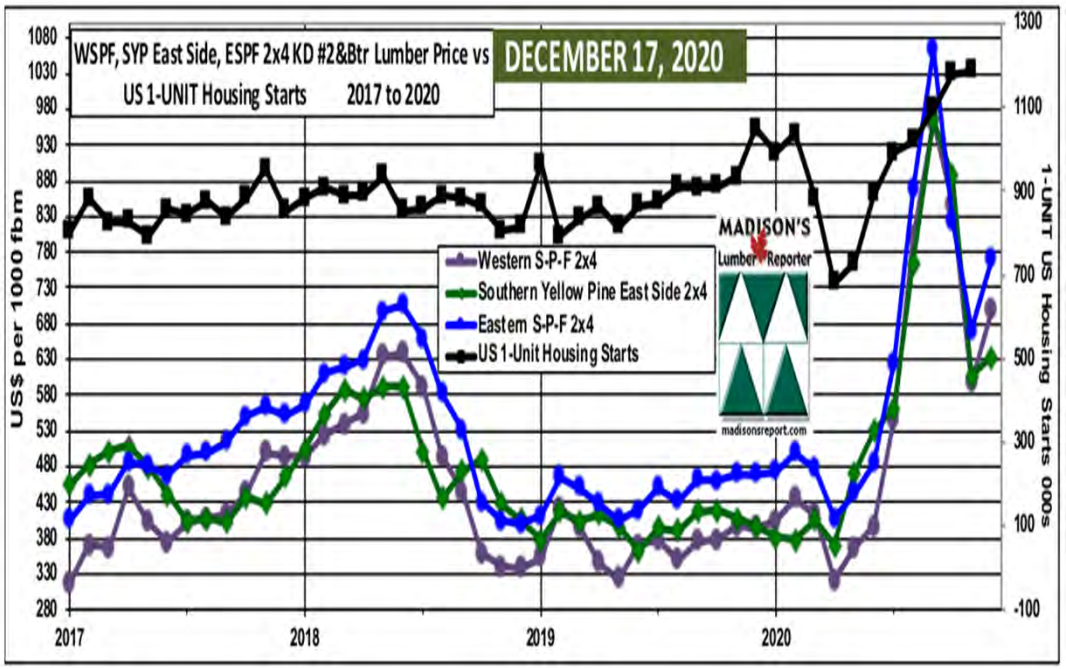
VERMEULENS

Work from home will up demand for single family and personal space



Sources: US Census, Federal Reserve, DuckerFrontier Analyses

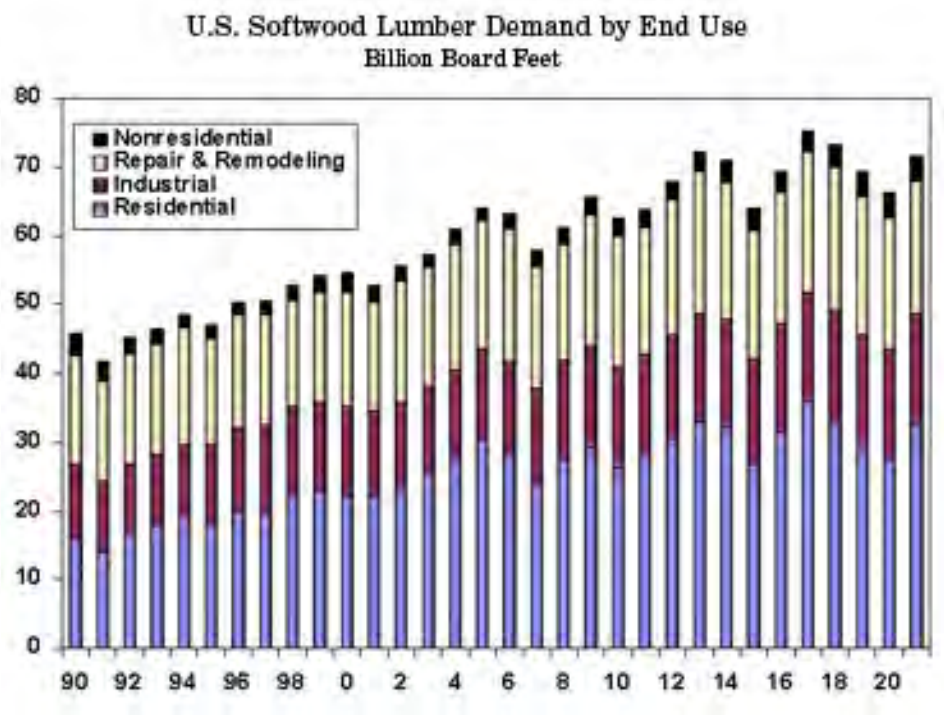
Home and wood prices will spur rapid growth in supply.



Nonresidential Construction

VERMEULENS

100M m3 -

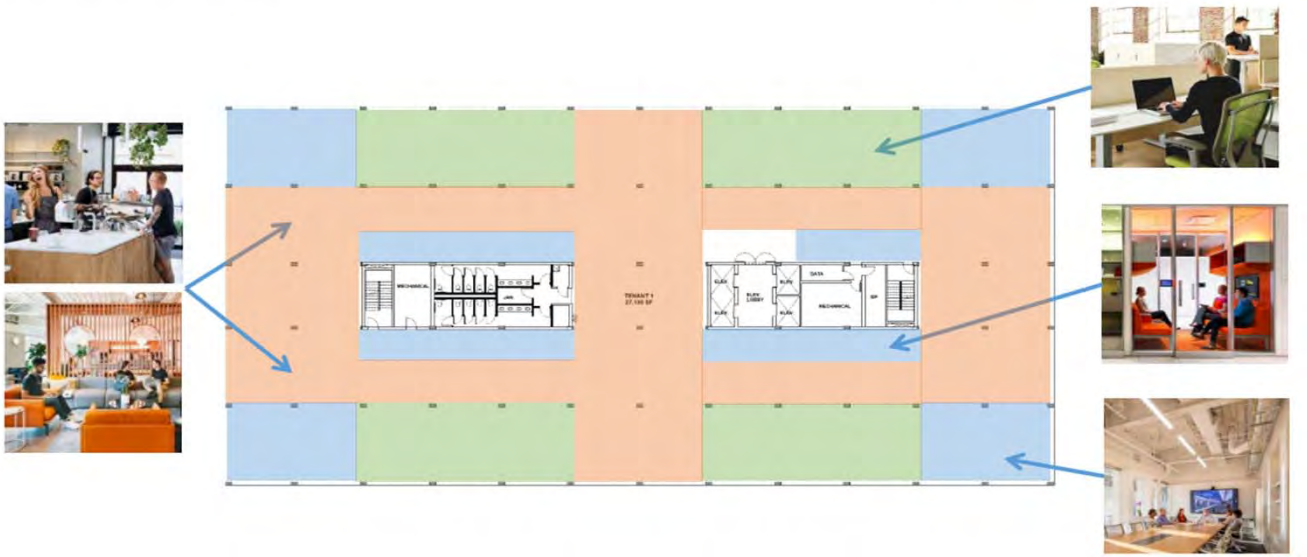


Mass Timber Nonresidential design will accelerate timber adoption and technologies.

"Given the market for new construction, there is enormous potential to use mass timber in non-residential construction," says Kenneth Bland, American Wood Council who estimates that "probably tens of thousands of mass timber buildings," dating back to the mid-1800s, are still in use across the country.

Office Construction

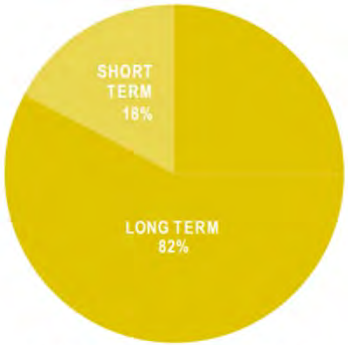
WORKPLACE: ALLOCATION



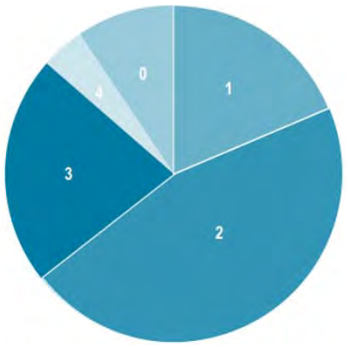
THE SURVEY

130 COMPANIES PARTICIPATED

- Remote Work is here to stay
- Choice is the Future
- Over 50% of people have a more positive view of remote working



IMPACTS OF WFH ON THE FUTURE WORKPLACE?



AVERAGE EXPECTED WFH DAYS/WEEK

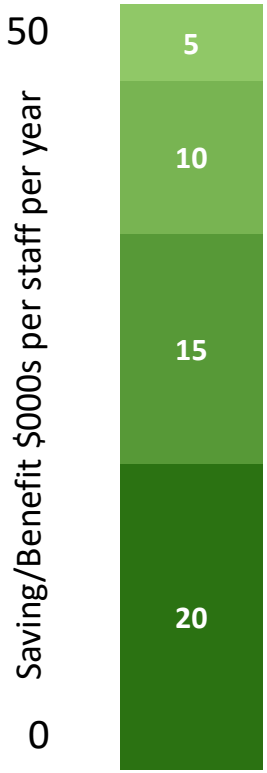
86% SAY 1-3 DAYS/WK

Flex time and work from home will transform our work/social environment

Office Construction

Total Benefit – Administrative Office

VERMEULENS



Space/ Access

Reduce from 266 to 116 square foot per staff
Headquarters and office brought together on campus
Parking, grocery, restaurant, retail amenities on campus
Commons building and site

Efficiency

Consolidate from 14 to 4 buildings
Utilization of amenity space
Mileage reduces 5,000 average miles per staff per year
Parking reduce $800 to $1,700 per staff per year

Wellness

Unify brand and workflows
Support virtual business platforms
Learn and play brought on campus
Sense of place and space
Listen to staff before determining workspace

Mobility

Commuting to/from/between work reduces from 480-720 hours per year per staff to 100-200 hour per staff per year

Ambulatory Re-Optimization Plan

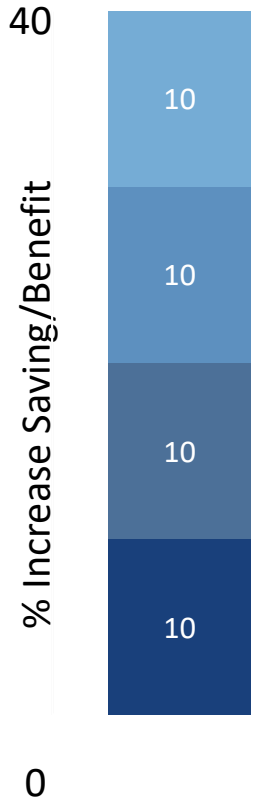
Vision – improve response and conserve resources through integrated and distributed models

Mission - consolidate footprint, implement and expand telehealth, identify impact and benefits of virtual care

Outcome - significant benefits for access to care, improved patient experience, staff and provider wellbeing, and reduced operational expenses to the health system

VERMEULENS

Total Benefit – Ambulatory (health outcomes excluded)



Access
- Patient convenience, distributed model
- Telehealth
- Optimal hours of operation
- Market strategy and awareness

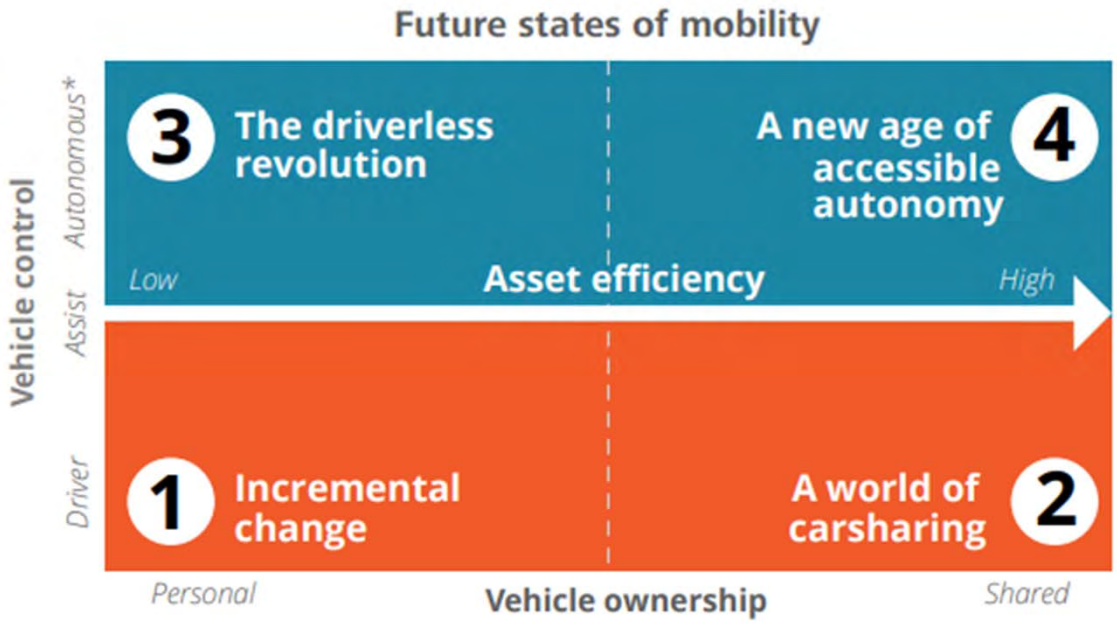
Efficiency
- Optimal patient flow
- Unified provider scheduling and ancillary services
- Operating expenses

Wellness
- Provider and staff wellbeing
- Consistent experience
- Patient as partner
- Strategic plan for population health and community-based service needs

Space
- Align care models and clinical space
- Reduce duplication
- Minimize redundancy and operational cost
- Standardize office space in clinical care

Extent to which autonomous vehicle technologies become pervasive:

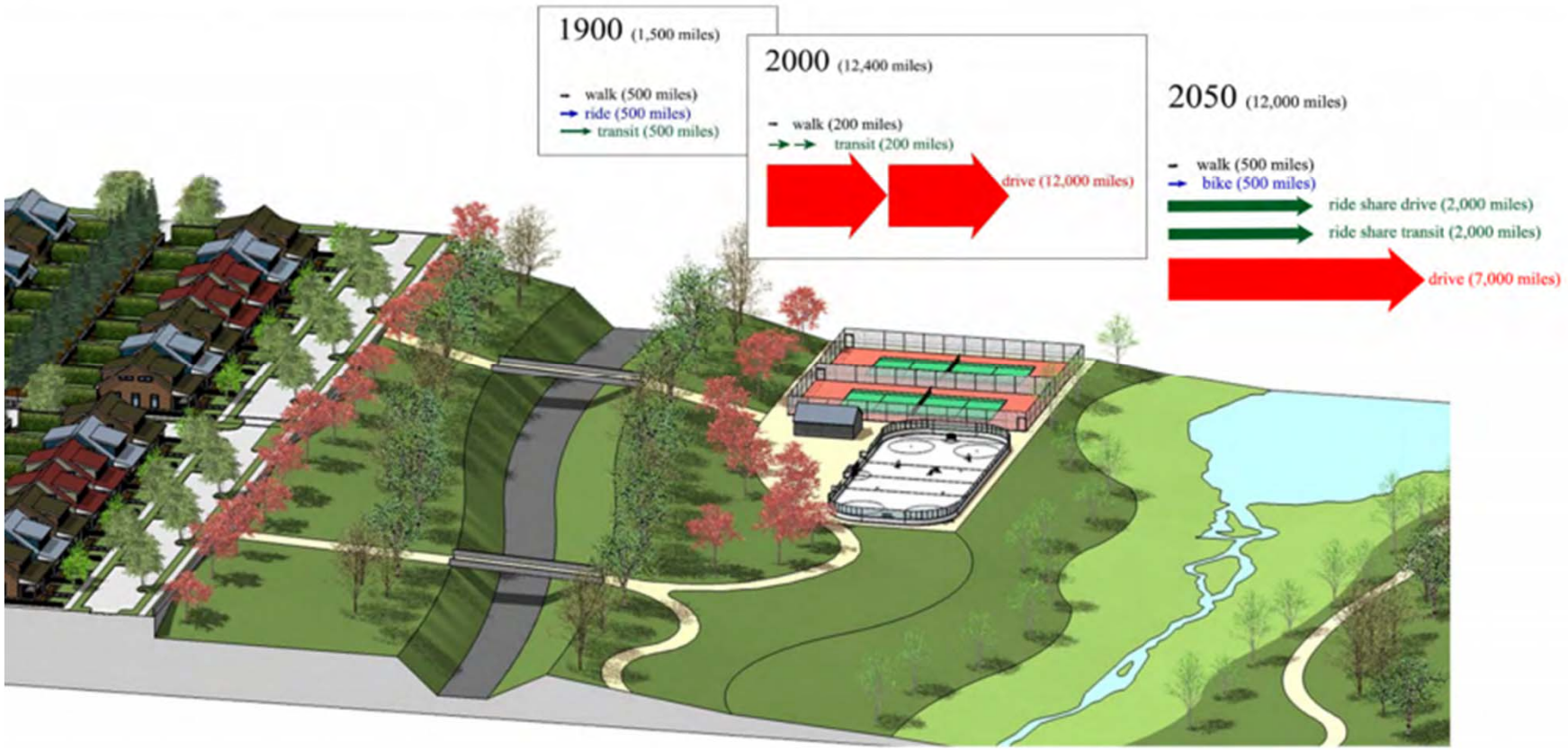
- Depends upon several key factors as catalysts or deterrents—e.g., technology, regulation, social acceptance
- Vehicle technologies will increasingly become "smart"; the human-machine interface shifts toward greater machine control



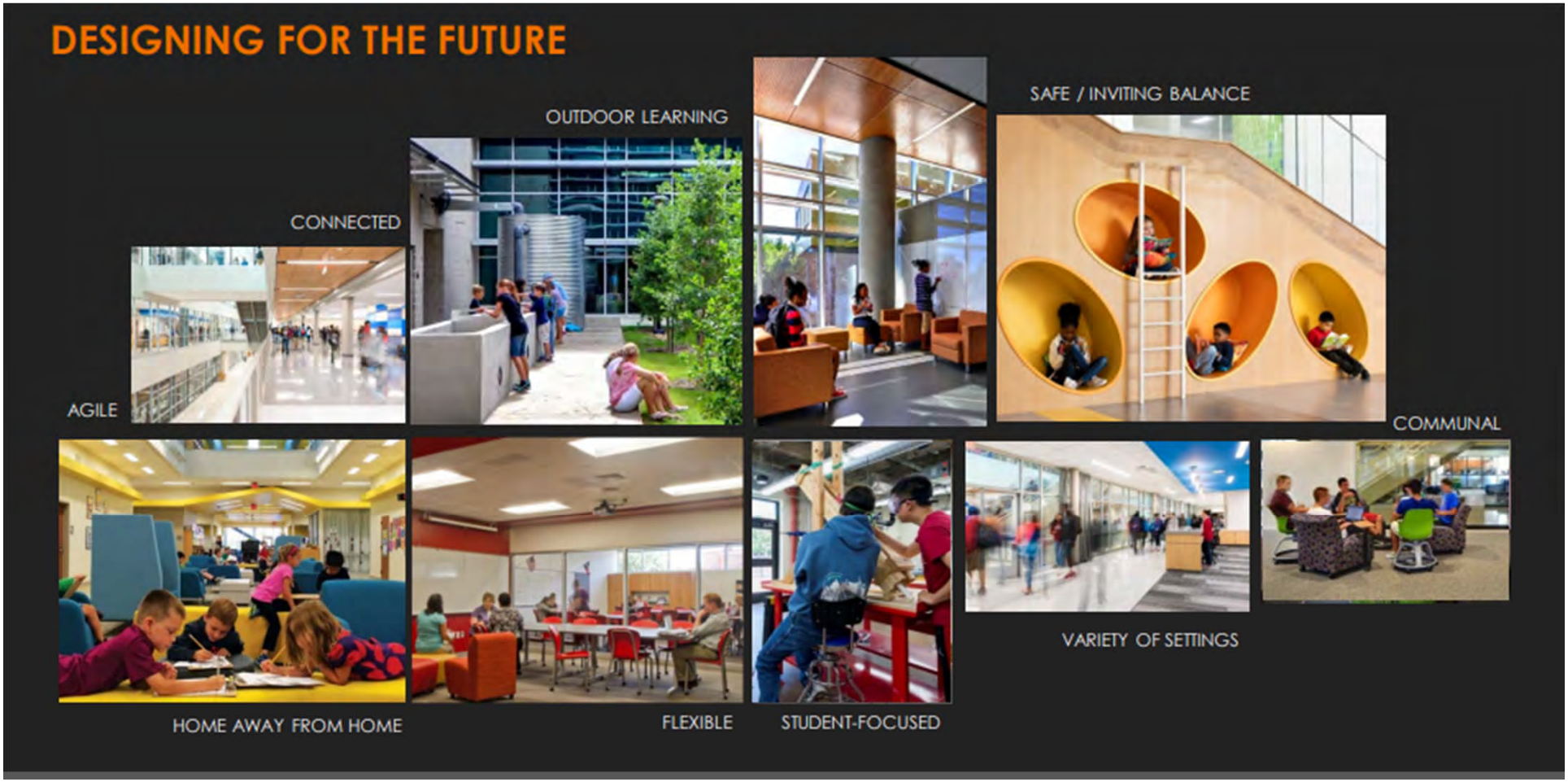
Extent to which vehicles are personally owned or shared:

- Depends upon personal preferences and economics
- Higher degree of shared ownership increases system-wide asset efficiency

Infrastructure



Education – K12 Transformation



LEARNING ENVIRONMENT MODES

COLLABORATE

Working with one or more people to achieve a goal, such as collectively creating content, brainstorming, etc.

Flex Learning Areas

Small Group Rooms

FOCUS

Uninterrupted time to concentrate and attend to 'heads-down' work

Workstations/Offices

Quiet Rooms

Outdoor Learning

SOCIALIZE

Informal opportunities to come together and share knowledge

Café

Library

Outdoor Terrace

LEARN

Building knowledge, whether in a classroom or a structured conversation with peers

Classrooms

Flex Learning Areas

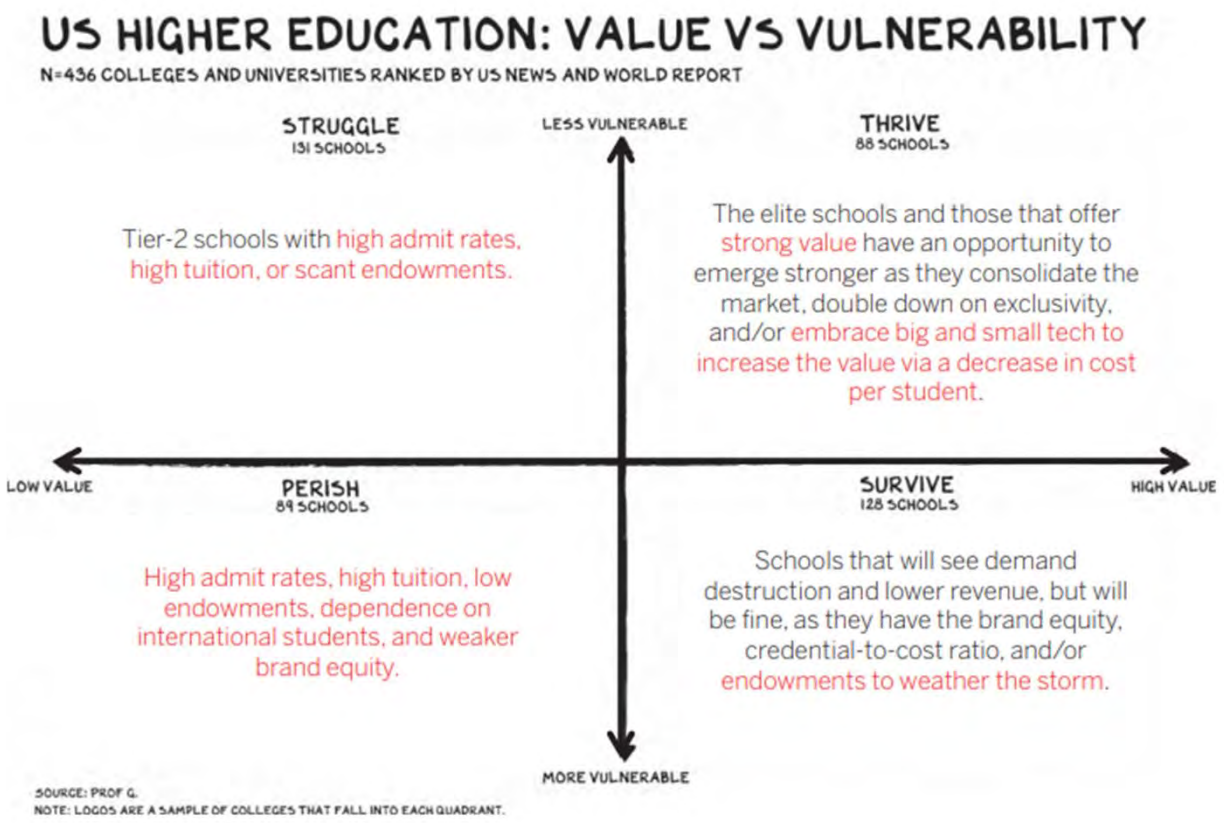
REJUVENATE

Downtime for your brain and body to refresh and recharge

Meditation/Privacy Areas

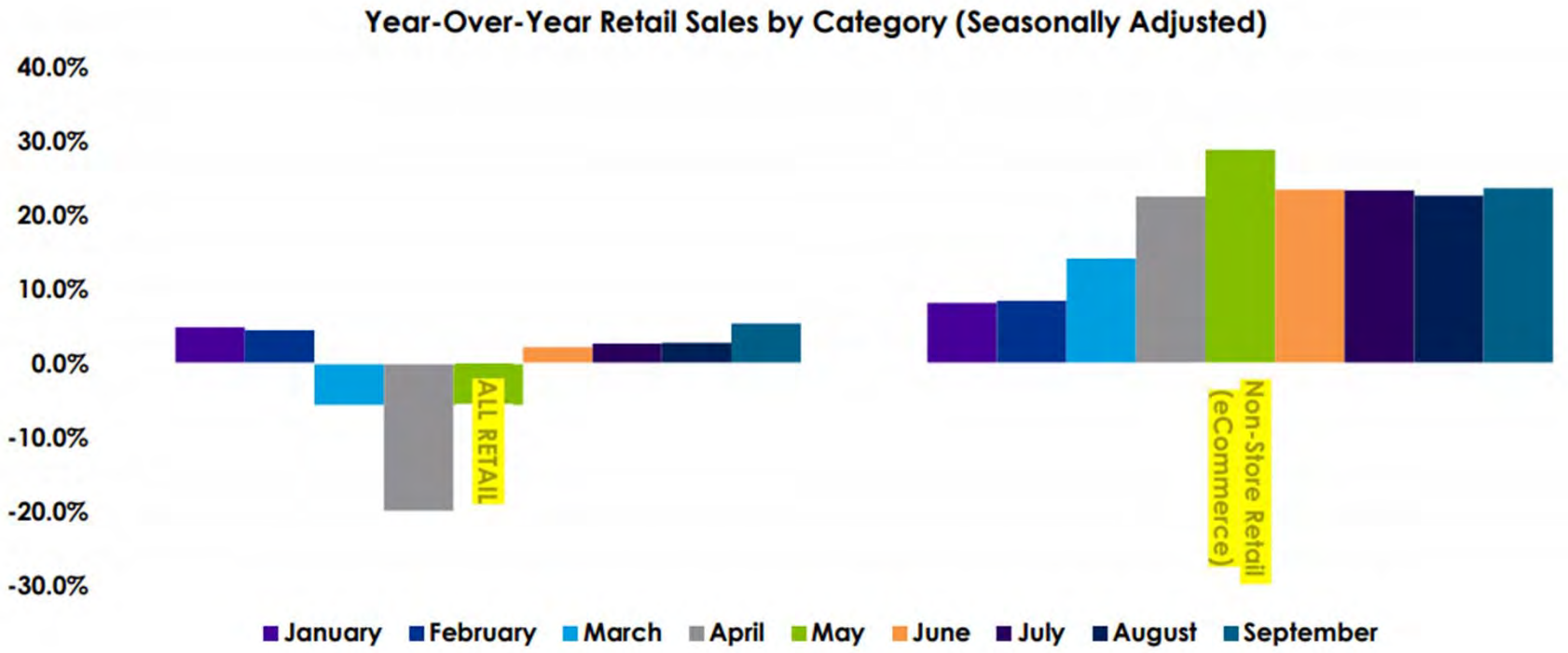
Exercise/Fitness Areas

Higher Education Overbuilt?



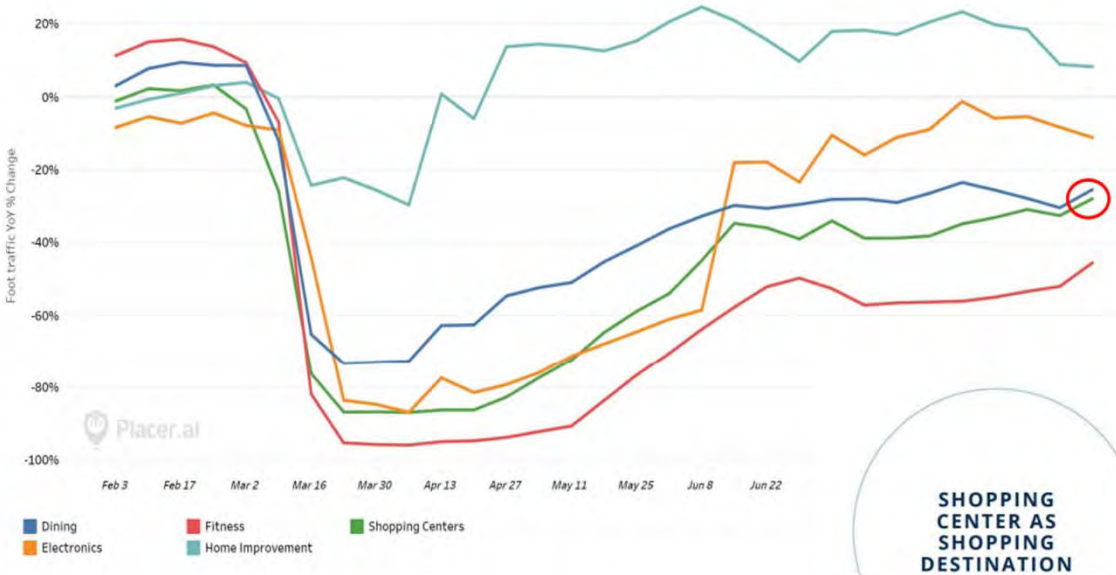
Higher Education – Keep the Best, Get Rid of the Rest

Retail – E Commerce to Grow then Stabilize



Retail – Mix of Trends

TRAFFIC COUNTS: CATEGORY MIX TRENDS (US DATA)



YESTERDAY

OWNER / DEVELOPER AS LANDLORD

TOMORROW

OWNER / DEVELOPER AS "LIFESTYLE ARCHITECT"

Monetary Policy – The New Normal

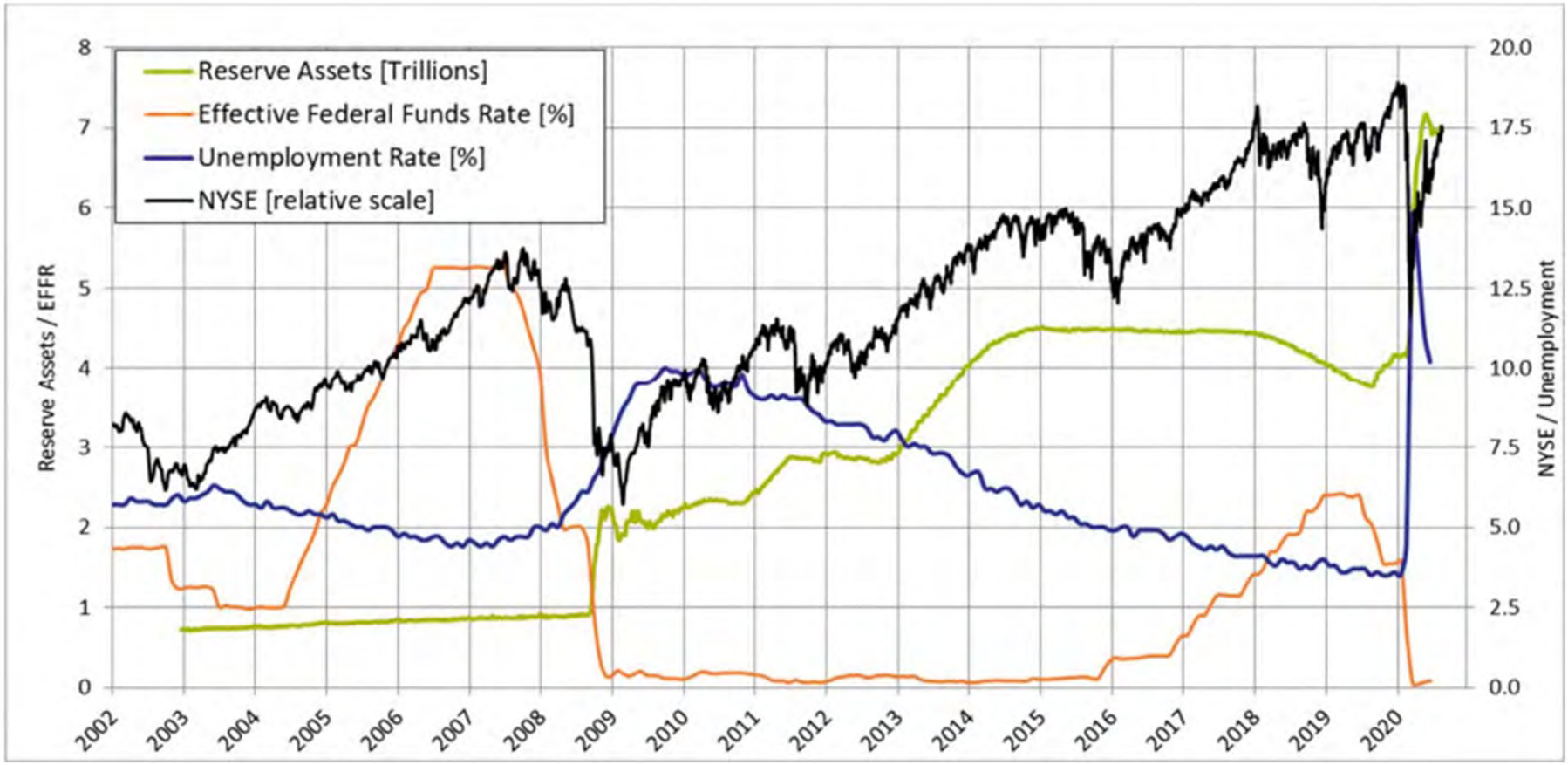
High Labor/Low Inflation

Targeting 2 percent leads to sub 2 percent average

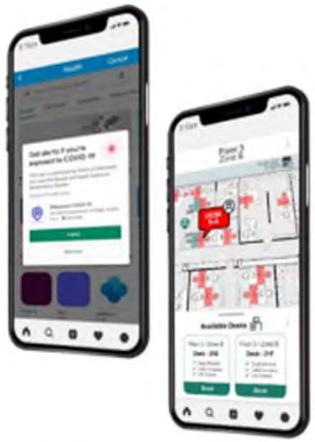
our revised employment statement says that our policy decision will be informed by our "assessments of the ***shortfalls* of employment from its maximum level"** rather than by "*deviations* from its maximum level" as in our previous statement

our new inflation statement indicates that we will seek to achieve inflation that ***averages* 2 percent over time**. Therefore, following periods when inflation has been running below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time

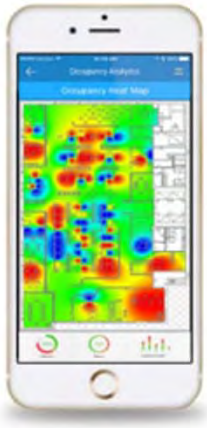
Monetary Policy – Rapid Response



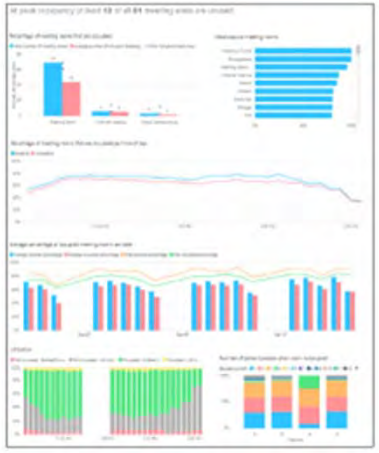
HVAC Systems – Higher Acuity



- Entry instructions
- Wayfinding
- Workstations appropriately spaced apart



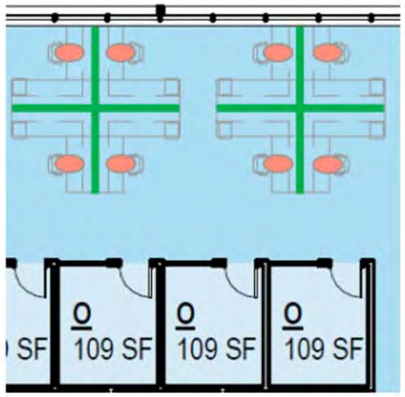
- Generates usable data
- Right time cleaning / sanitization

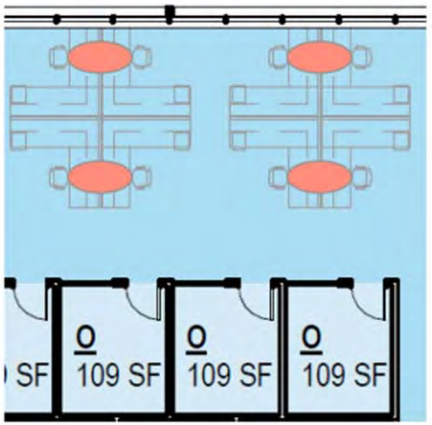


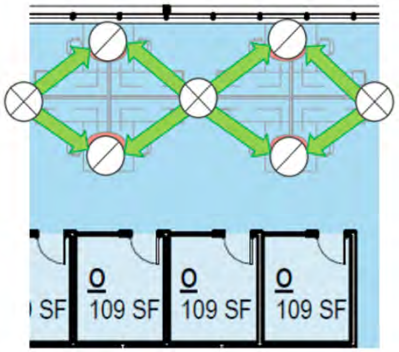
- Contact tracing
- Space utilization
- Wells-Riley Equation

HVAC Systems – Separation

- People exhaling towards each other is undesirable
- Private offices likely don't risk transmission
- HVAC systems can push COVID plumes towards people
  - Case Study: Restaurant –Guangzhou, China







COVID Plume
Cubicle Partition

COVID Plume
Supply Grille
Return Grille