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2020 AGC/FMI Risk Study

Ryan Howsam and Sabine Hoover

With almost half of all construction spending to occur in just 20 metropolitan markets AND megaprojects projected to explode from less than 2% five years ago to 20% of total construction volume over the next 3 to 5 years, it's clear the cheese has moved... and having a clear strategy has never been more critical.



Scott Winstead, President
FMI Management Consulting

Megaprojects Forecast



Annual nonresidential megaproject CPiP is expected to **increase ~424%** over the next five years, **growing from \$47 billion to just over \$247 billion.**

Over the next decade, annual nonresidential megaproject spending is expected to **increase nearly 550%**, reaching just over \$304 billion.



Globally, less than 1 in 1,000 megaprojects achieve their promised business outcomes.

Australian Constructors Association

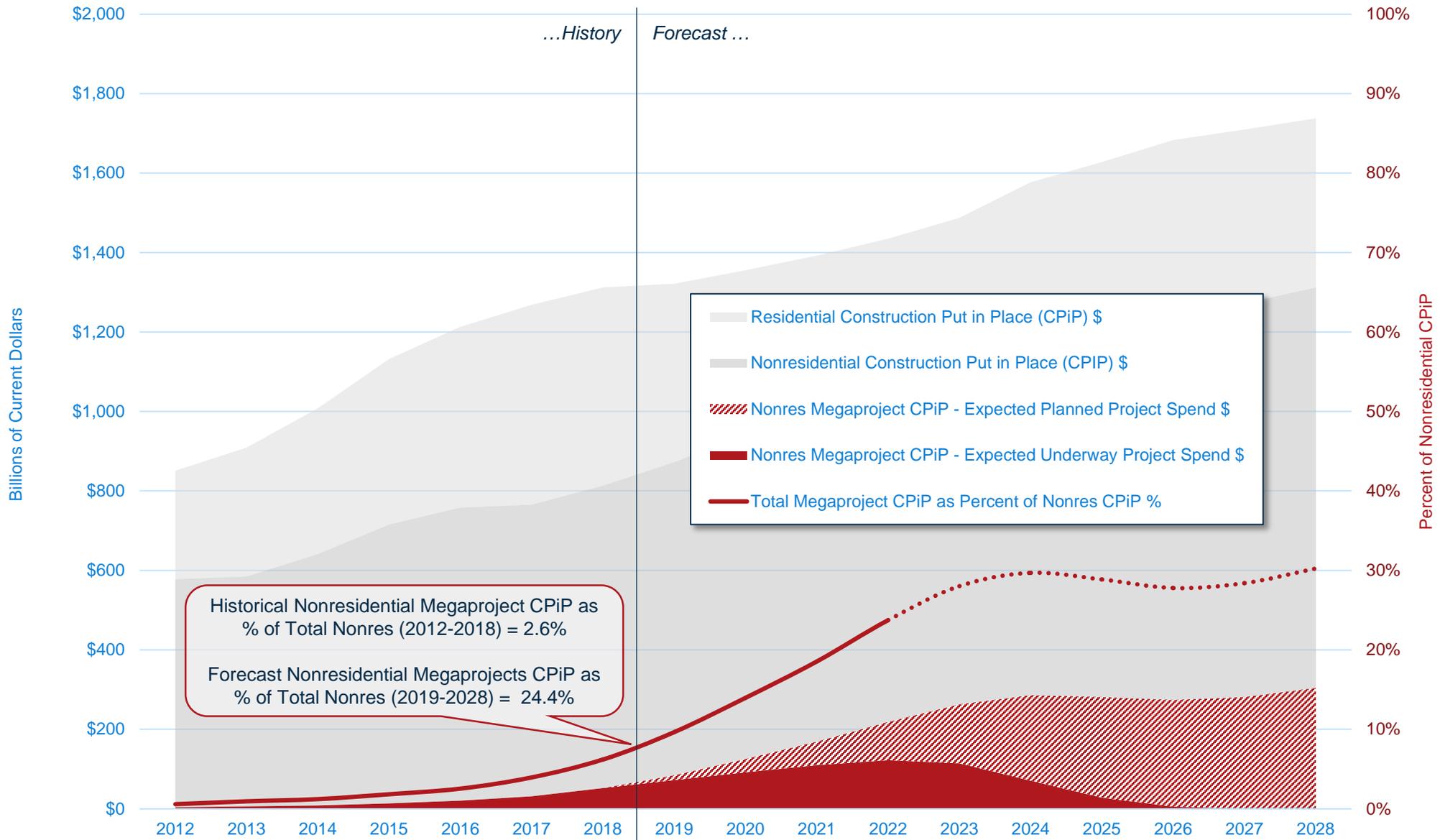
Megaprojects Forecast

Total annual nonresidential megaproject spend as a percent of nonresidential CPiP is expected to **increase from 6.2% in 2018 to 28% by 2023** and remain stable between 28% and 30% through 2028.



U.S. Nonresidential Megaproject Spending, Historical and Planned Activity

Construction put in place forecast, 2012-2028



Historical Nonresidential Megaproject CPIP as % of Total Nonres (2012-2018) = 2.6%

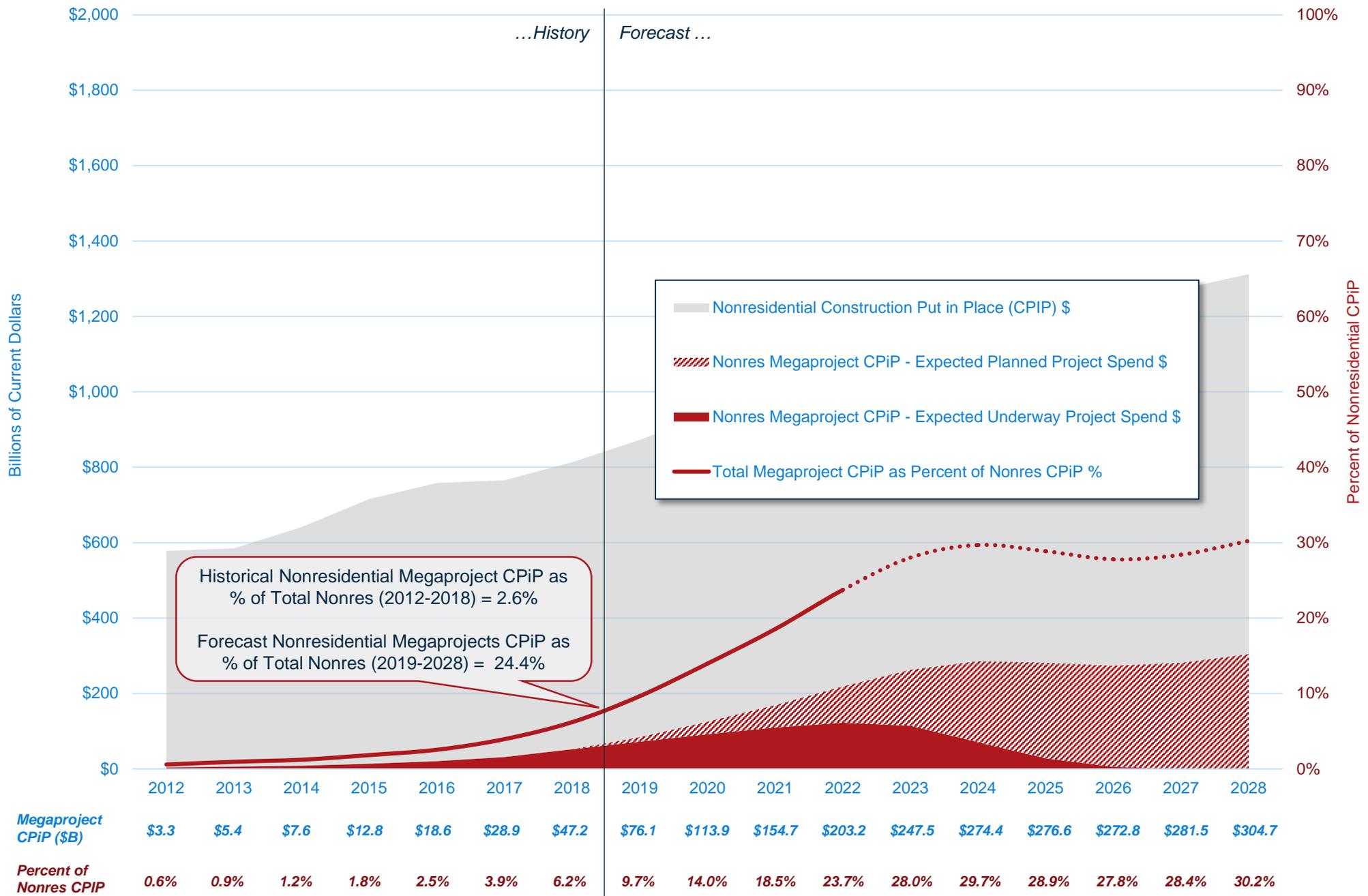
Forecast Nonresidential Megaprojects CPIP as % of Total Nonres (2019-2028) = 24.4%

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Megaproject CPIP (\$B)	\$3.3	\$5.4	\$7.6	\$12.8	\$18.6	\$28.9	\$47.2	\$76.1	\$113.9	\$154.7	\$203.2	\$247.5	\$274.4	\$276.6	\$272.8	\$281.5	\$304.7
Percent of Nonres CPIP	0.6%	0.9%	1.2%	1.8%	2.5%	3.9%	6.2%	9.7%	14.0%	18.5%	23.7%	28.0%	29.7%	28.9%	27.8%	28.4%	30.2%



U.S. Nonresidential Megaproject Spending, Historical and Planned Activity

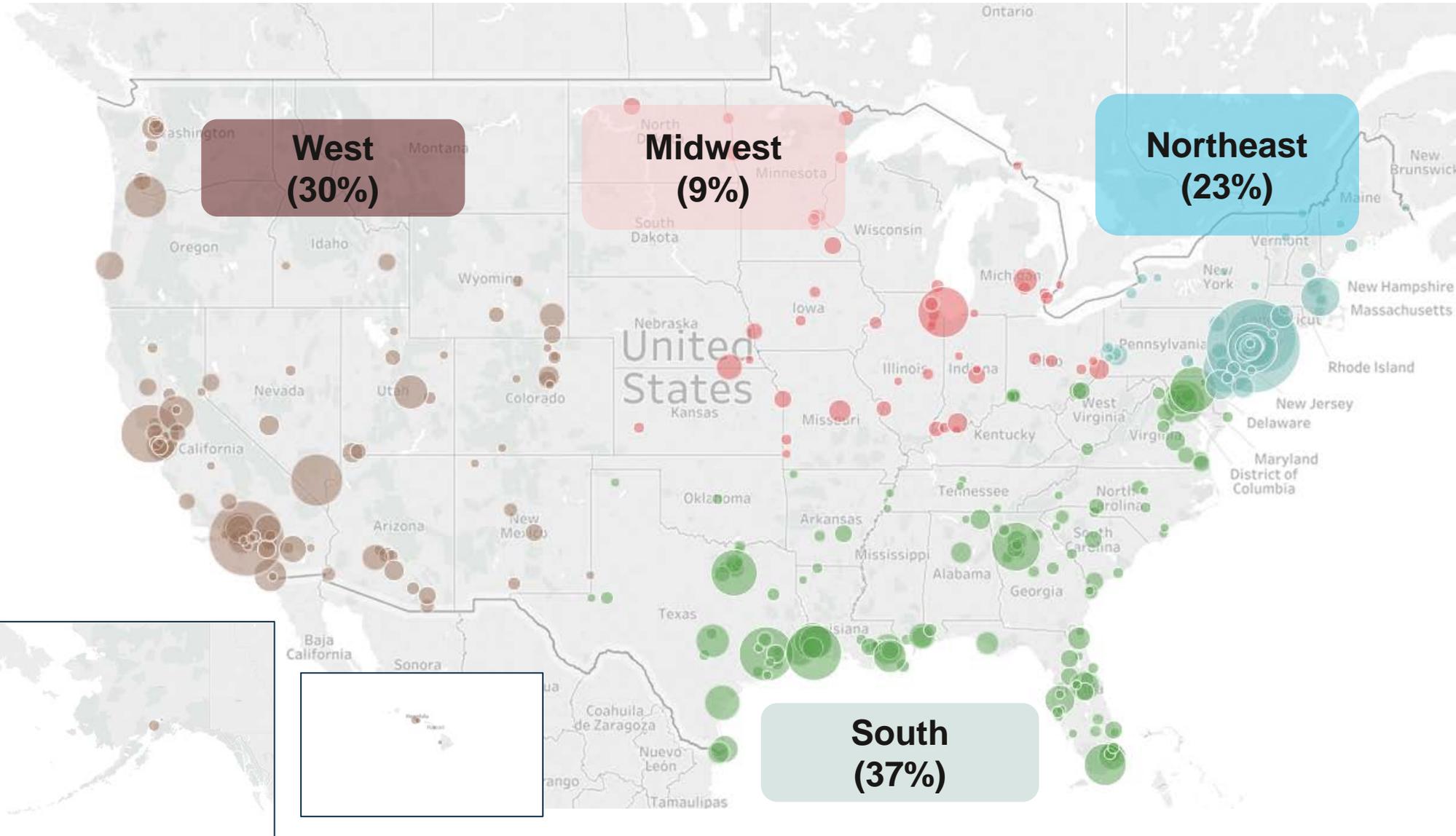
Construction put in place forecast, 2012-2028



U.S. Planned Megaprojects by Region

Increasing urbanization is leading to **more complex and concentrated** design and construction activities.

Bubble size illustrates value of planned megaproject construction spending by county.





What Are Impacts on Today's Risk Environment?

Top risks remain consistent:

- Limited skilled/craft labor
- Limited field supervisors

NEW top risk:

- Design-related issues

What Are Impacts on Today's Risk Environment?

Talent issues are driving M&A activity among E&C firms:



Top 3 reasons for M&A activity:

- Increase internal expertise (**52%**)
- Enter new key markets (**48%**)
- **Increase available talent (43%)**

Leadership-Related Risks

55% of study participants **do not identify and develop** high-potential employees—a missed opportunity to create a sustainable leadership pipeline.



Source: 2017 FMI Talent Development Survey

Design-Related Risks

Most common methods for bringing design in-house include:

- Hire external designers and create new design team (42%)
- Transfer internal candidates to create new design team (27%)
- Purchase a design firm and keep as separate entity (12%)



Source: 2020 AGC/FMI Risk Survey

Design-Related Risks

In-house design is most effective for:

- Reducing change orders
- Improving the design timeline
- Improving design accuracy
- Reducing design-related risks
- Improving communication across design teams



Source: 2020 AGC/FMI Risk Survey

Where Does Technology Play?

Over half (56%) of AGC risk survey respondents stated that they have a technology strategy in place.

Source: 2020 AGC/FMI Risk Survey

Construction Company Mini-Pilot Results

50%+ Non-Compliance Baseline Rate

Observed Incident Rate
Per Client Criteria
54.55%

Total Observed Incidents
90

Number of Days Audited
7

Completed Audits
165

Summary

Criteria	Total Incidents	Incident Rate	Sample Size
PO. Employee Too Close to Energized Equipment	28	16.97%	165
PO. Employee Too Close to Live Loads	24	14.55%	165
PO. Housekeeping	16	9.70%	165
PO. Improper PPE	14	8.48%	165
PO. Pedestrian Safety	3	1.82%	165
PO. Spotting	2	1.21%	165
PO. Designated Zones Improperly Marked	1	0.61%	165
PO. Dust Control	1	0.61%	165
PO. Fall Protection	1	0.61%	165
PO. Ladder Safety	0	0.00%	162
PO. Traffic Safety	0	0.00%	165
Total	90	54.55%	165

Audit Details - Last 90 Days Only

Show Passes

Includes Disagree PO's

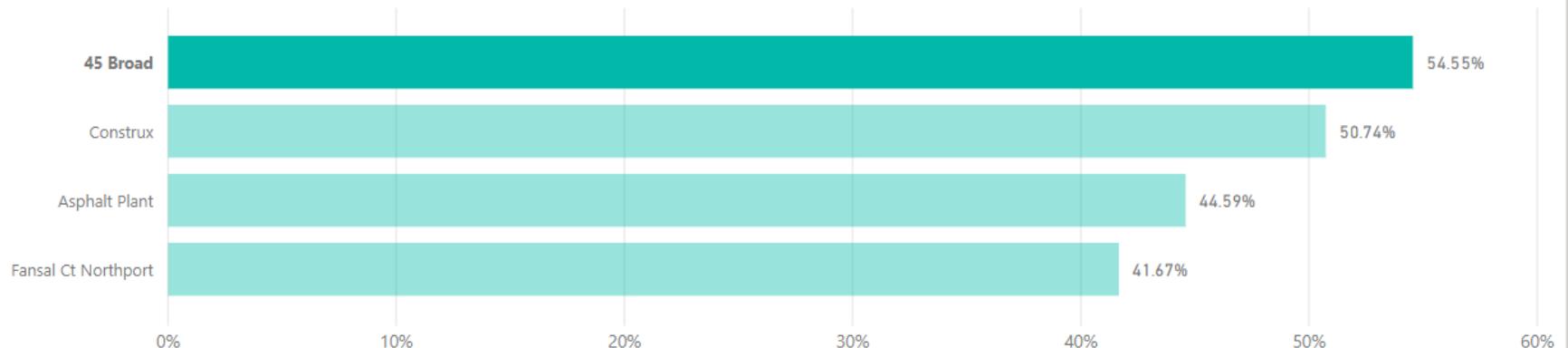
VideoStart	Link	Site	Camera	Criteria	# of Events
7/16/2018 2:19:59 PM	🔗	45 Broad	39 Outpost 2	PO. Employee Too Close to Energized Equipment	1
				PO. Employee Too Close to Live Loads	1
				PO. Improper PPE	1
7/16/2018 2:15:00 PM	🔗	45 Broad	01 Outpost 9	PO. Employee Too Close to Live Loads	1
7/16/2018 2:10:00 PM	🔗	45 Broad	Outpost 000033	PO. Housekeeping	1
7/16/2018 1:25:00 PM	🔗	45 Broad	37 Outpost 5	PO. Employee Too Close to Energized Equipment	1
				PO. Improper PPE	1
7/16/2018	🔗	45 Broad	01 Outpost 9	PO. Employee Too Close	1

Incident Rate Comparison

Compare



Trend



Microsoft Power BI Performance Reports

Construction Client – 90%+ Reduction in Highest Risk Behaviors at First Pilot Job Site, Which Was a Complex NYC High Rise Foundation Job

7/18/2018 11/30/2018



Observed Incident Rate
3.68%
Per Client Criteria

Total Observed Incidents
23

Number of Days Audited
18

Completed Audits
625

- Home
- Classic View
- All By Day
- Trailing 14 Days
- All By Week
- All By Month
- Last Week
- Feedback
- Video Availability
- Disagree Rate

CriteriaLevel
 Critical4 [C01-C04]

Site
All

Arrowsight

Summary

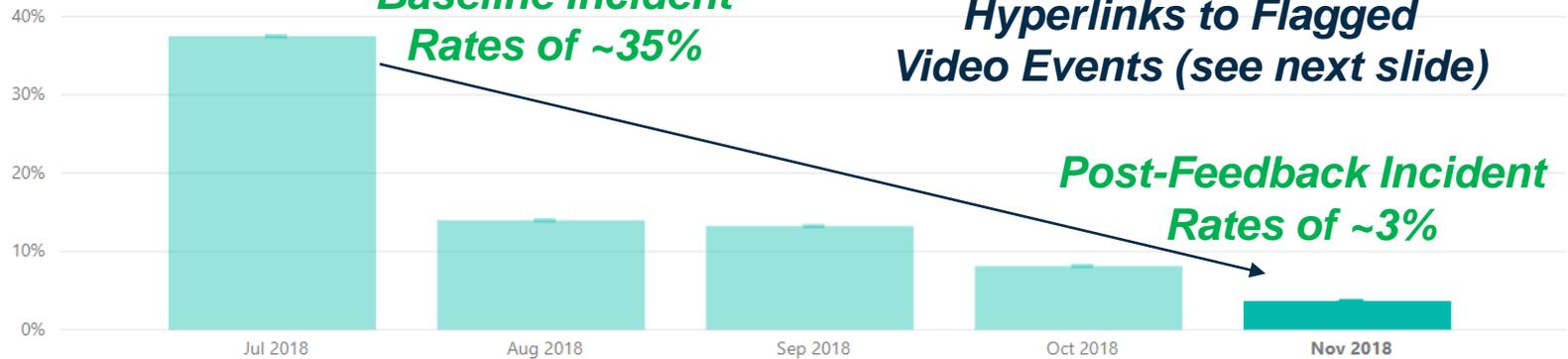
Criteria	Total Incidents	Incident Rate	Sample Size
PO. Employee Too Close to Live Loads	9	1.44%	625
PO. Spotting	8	1.28%	625
PO. Employee Too Close to Energized Equipment	6	0.96%	625
Total	23	3.68%	625

Audit Details - Last 90 Days Only

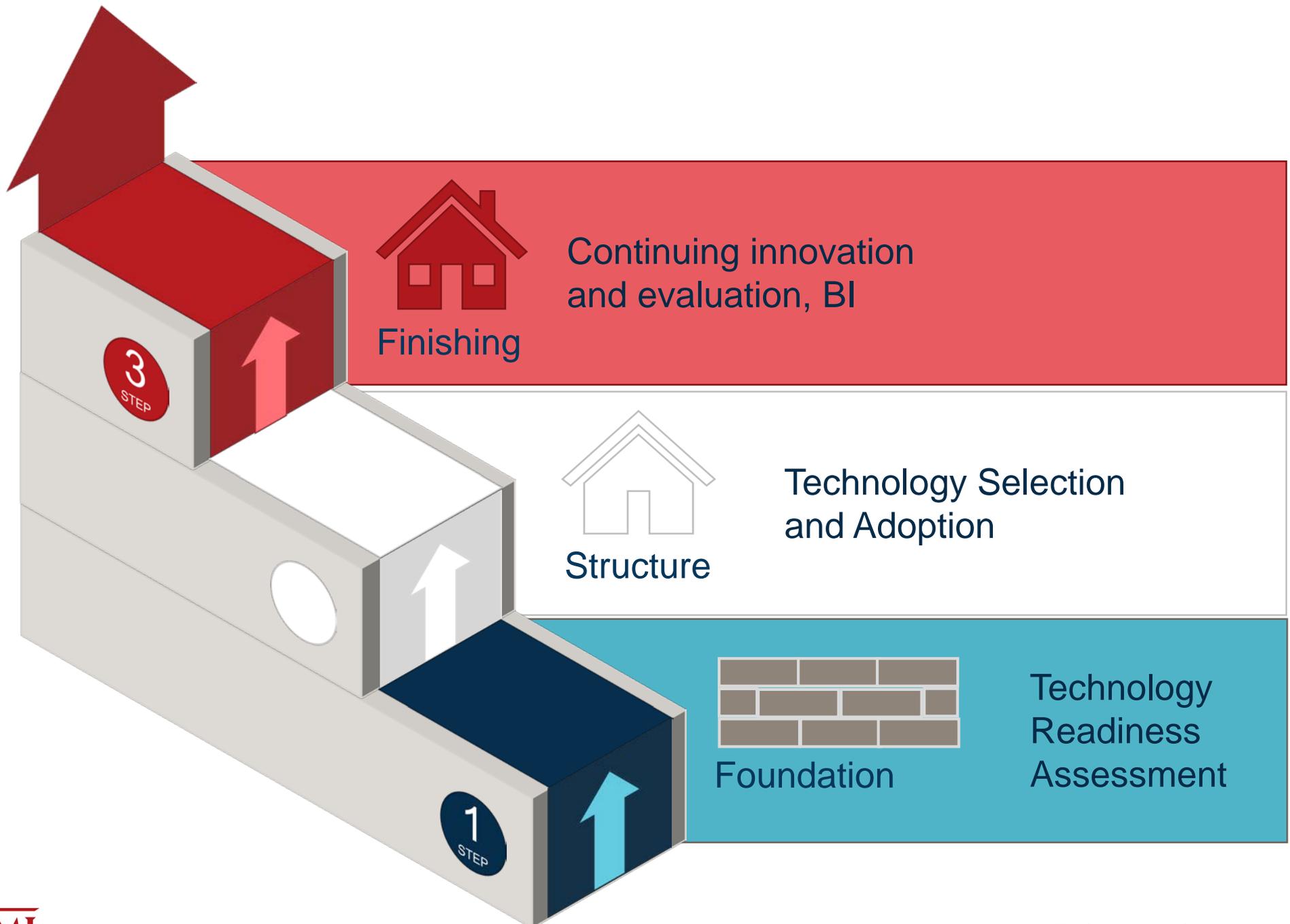
VideoStart	Link	Site	Camera	Criteria	# of Events
11/30/2018 10:23:45 AM	Link	45 Broad	A0205	PO. Employee Too Close to Live Loads	1
11/28/2018 2:14:52 PM	Link	45 Broad	A0205	PO. Employee Too Close to Energized Equipment	1
11/28/2018 11:30:52 AM	Link	45 Broad	A0205	PO. Employee Too Close to Energized Equipment	1
11/28/2018 7:59:39 AM	Link	45 Broad	A0202	PO. Employee Too Close to Energized Equipment PO. Spotting	1 1
11/26/2018 11:48:00 AM	Link	45 Broad	Outpost 5	PO. Employee Too Close to Energized Equipment	1
11/26/2018 10:04:00 AM	Link	45 Broad	Outpost 5	PO. Employee Too Close to Live Loads	1

Trend of Incident Rate

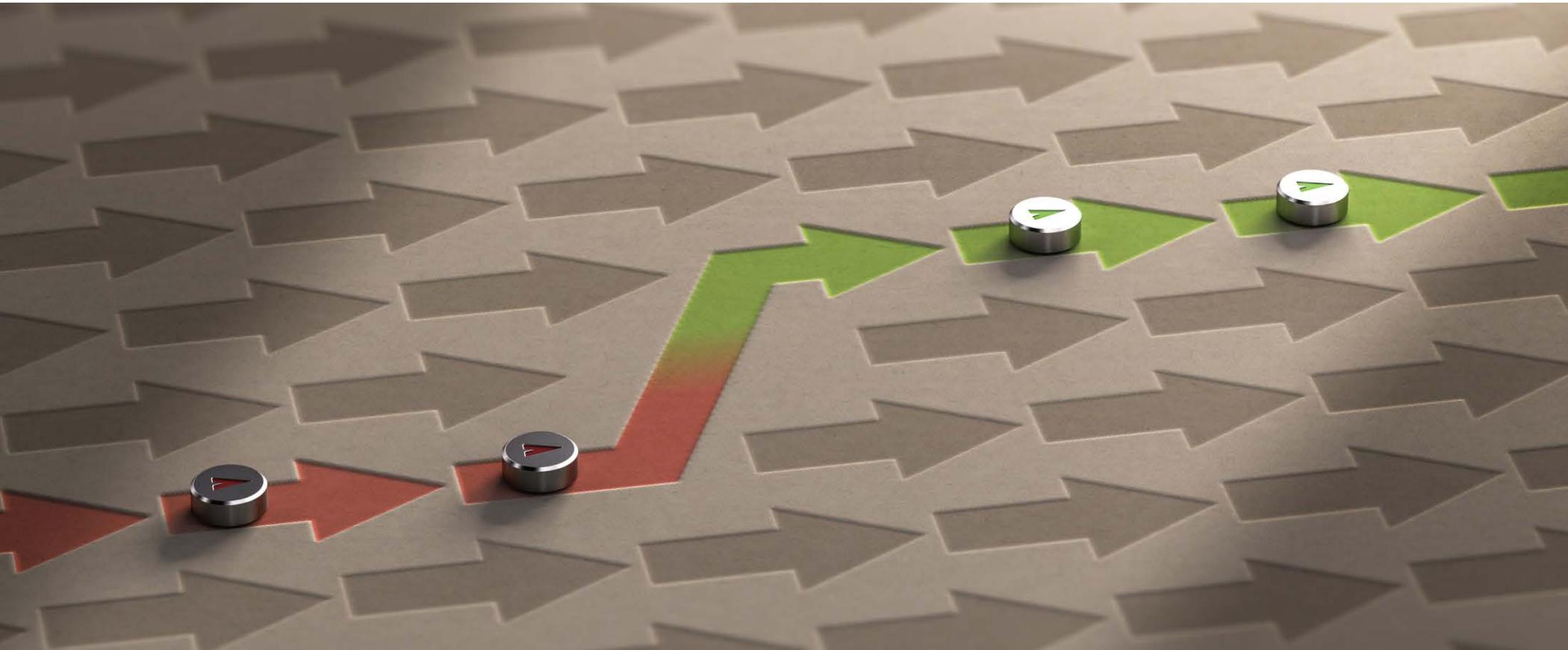
Compare
 Trend



Technology Strategy Process



The evolving role of the Risk Manager...



Questions & Discussions



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Privately-held firm with deep implementation capabilities dedicated to the Built Environment, including *Energy*

175+
Professionals

6
Offices

65+
Years in
Business

35+
Years of
Investment Banking

500+
Annual Client
Engagements

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