



Industry Focus. Powerful Results.™



Design-Build Utilization

Combined Market Study
June 2018



Executive Summary

Design-build construction spending in the assessed segments is anticipated to grow 18% from 2018 to 2021 and reach over \$320 billion.

- Design-build is anticipated to represent up to 44% of construction spending in the assessed segments by 2021. Design-build spending in Manufacturing, Highway/Street and Education represent the greatest percentage of design-build construction spending by segment over the 2018-2021 period.
- The Mountain (6.3%), Pacific (6.1%) and South Atlantic (6.2%) census divisions are anticipated to yield the highest growth rates over the 2018-2021 period.

Owner's have traditionally employed design-bid-build as the project delivery method of choice. As owner needs and project demands have changed, owners have become increasingly likely to assess the option to employ alternative delivery methods.

- Owner selection of a project delivery method involves multiple factors. Overall, owners identified “delivery schedule” as the greatest influence of project delivery method selection. In addition, owner goals and objectives were identified to be highly influential in project delivery method selection.
- The education process for design-build has continued to expand. A continued emphasis toward educating owners and project stakeholders on the process and benefits associated with design-build will facilitate continued adoption and greater utilization.

From an industry perspective, alternative project delivery methods have become a more frequent option for both public and private owners. On the public side, enabling design-build legislation has been put in place to facilitate increased use. Private owners indicated utilizing design-build on projects presenting unique challenges.

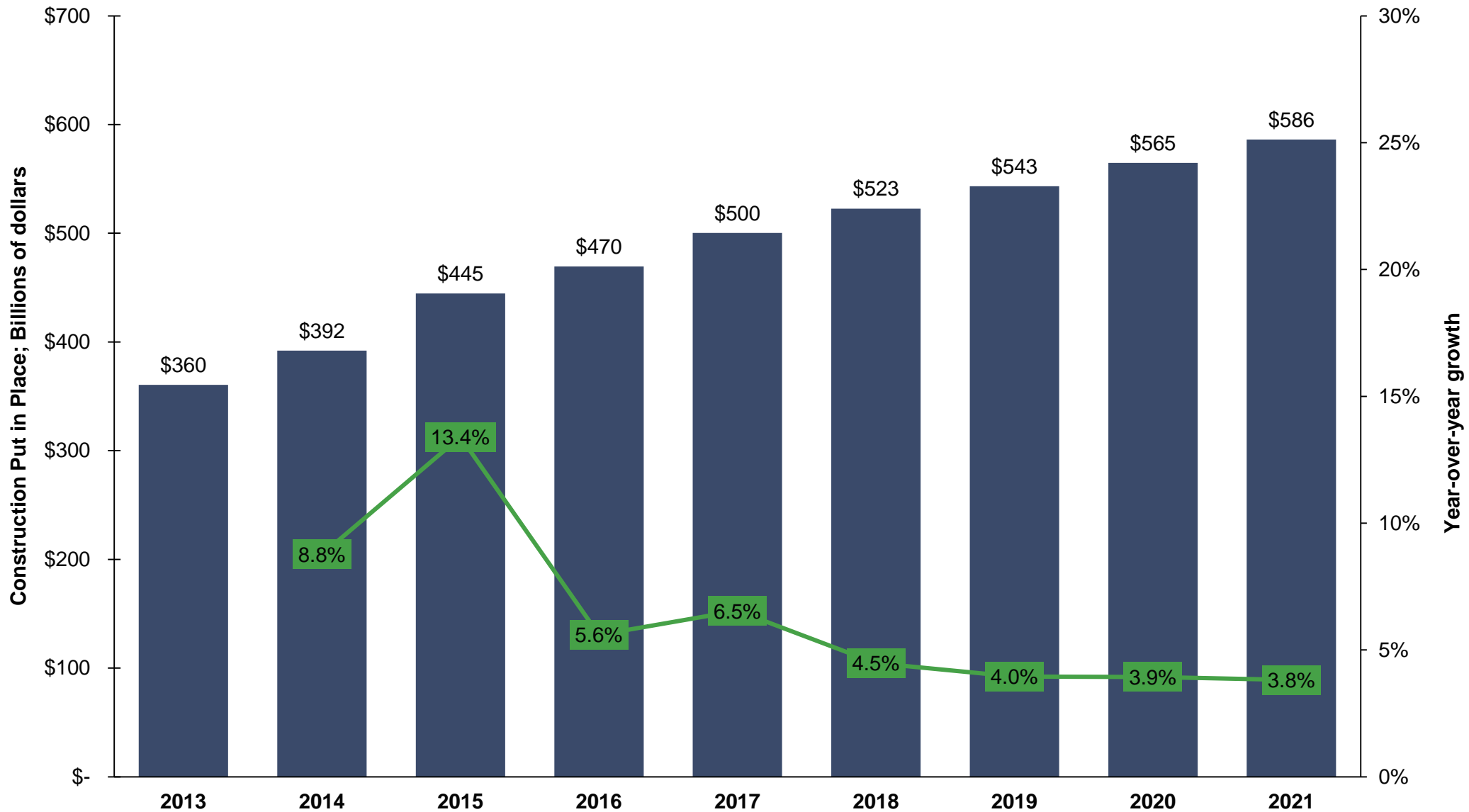
- Overall, owners indicated receiving significant value from design-build when employed on larger and more complex projects. These projects allowed for greater opportunity to provide project innovations and subsequent cost savings.
- In addition to larger and more complex projects, design-build utilization continues to expand into project sizes <\$25 million as owners continue to gain exposure to the benefits of design-build.

Total U.S. nonresidential construction spending is anticipated to reach over \$550 billion by 2020.

U.S. nonresidential construction put in place; 2013-2021

Billions of dollars

Source(s): FMI



Overall, design-build is anticipated to account for 45% of nonresidential construction spending over the 2018-2021 forecast period.

Market size comparison

Total combined spend, Rollup, 2018-2021 US\$

Total U.S. Construction Put in Place (CPIP)
\$5.4 Trillion

U.S. Nonresidential Construction Put in Place (CPIP)
Target Segments - \$2.2 Trillion

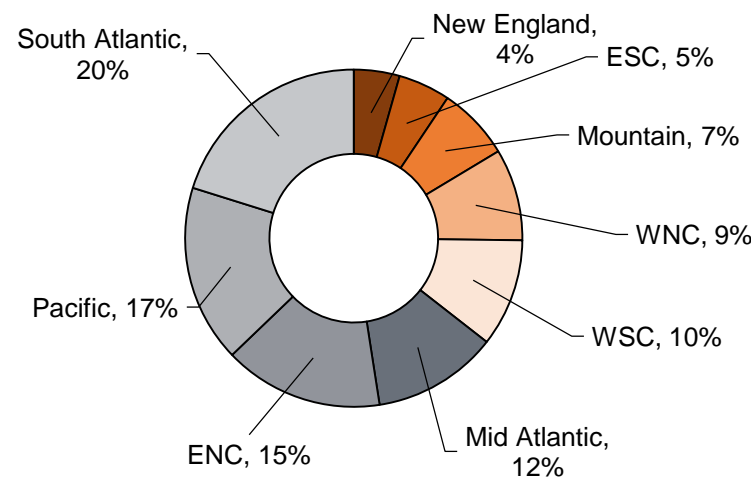
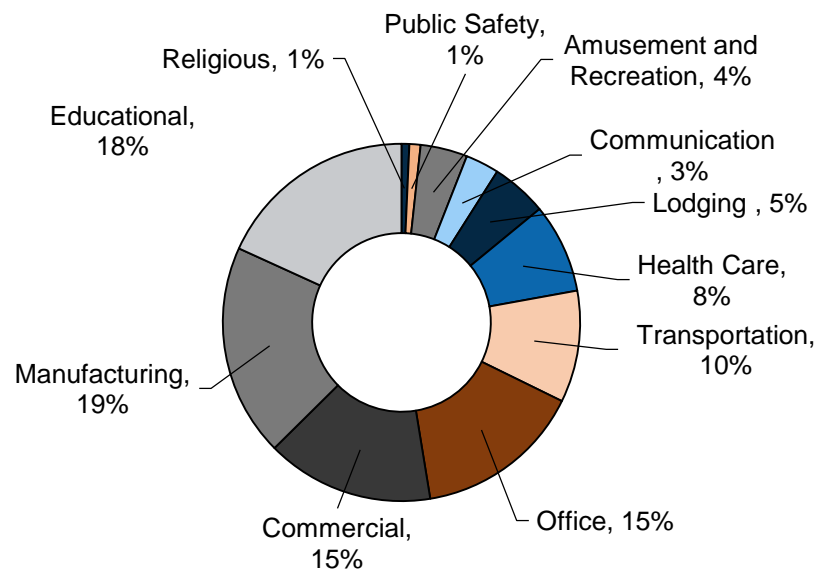
Design-build CPIP
\$990 Billion

Distribution of market

CPIP spending, 2018-2021

Segment breakout

Market breakout



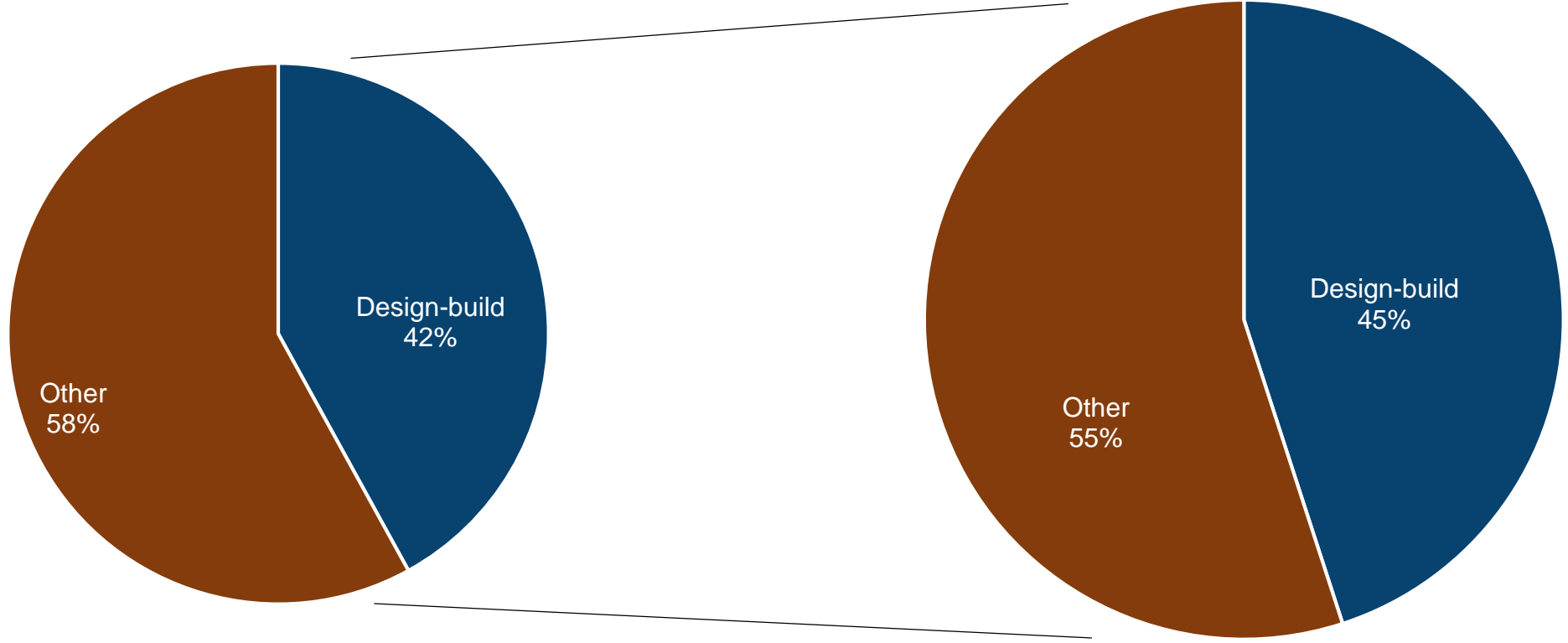
Design-build is anticipated to continue to gain market share over the 2018-2021 period.

Distribution of delivery method utilization

Source(s): FMI analysis of multiple sources

2018-2021 CPiP: \$2,217B

2013-2017 CPiP: \$2,167B

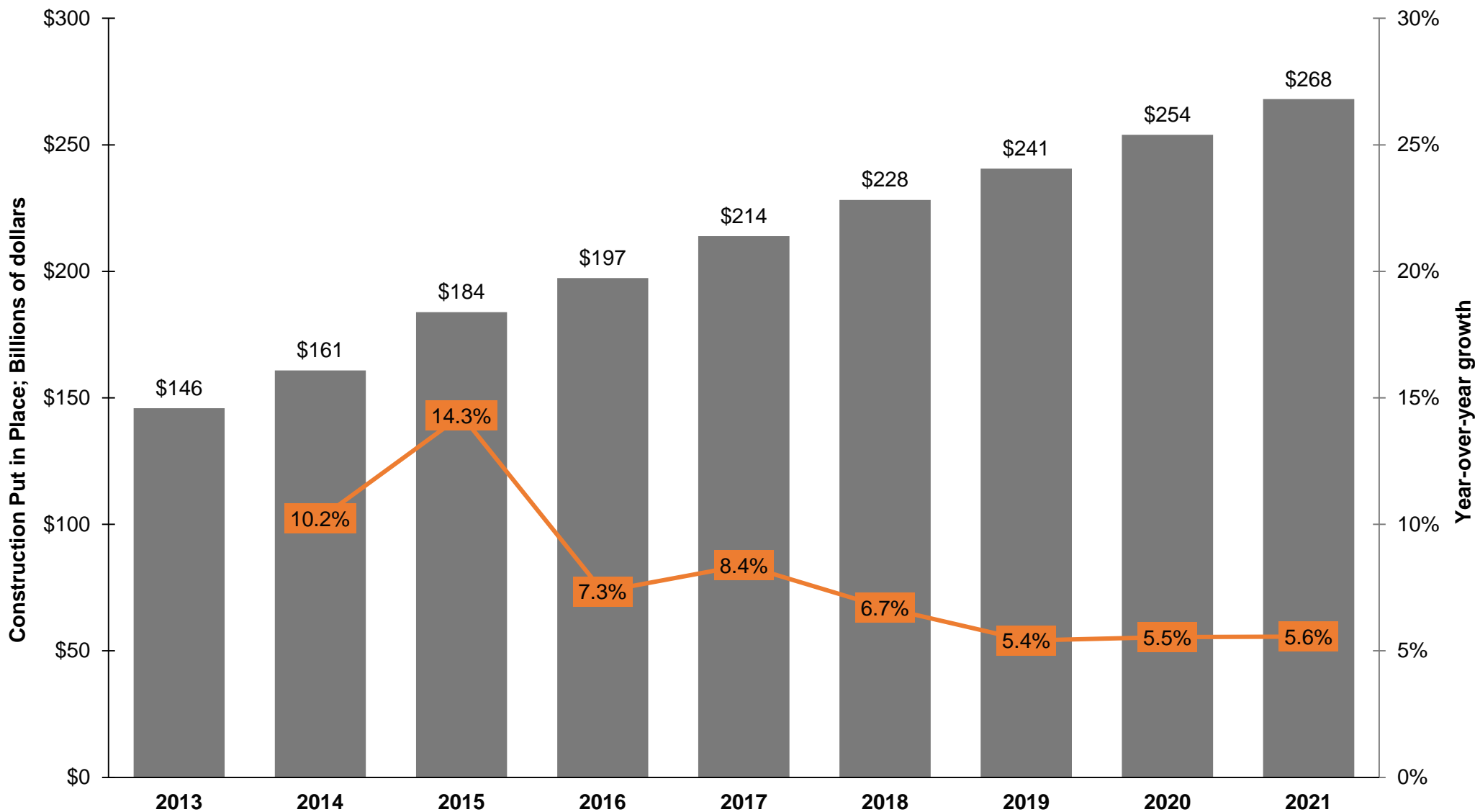


Design-build spending for nonresidential construction is anticipated to grow 17% from 2018 to 2021.

U.S. nonresidential design-build construction put in place; 2013-2021

Billions of dollars

Source(s): FMI analysis of multiple sources

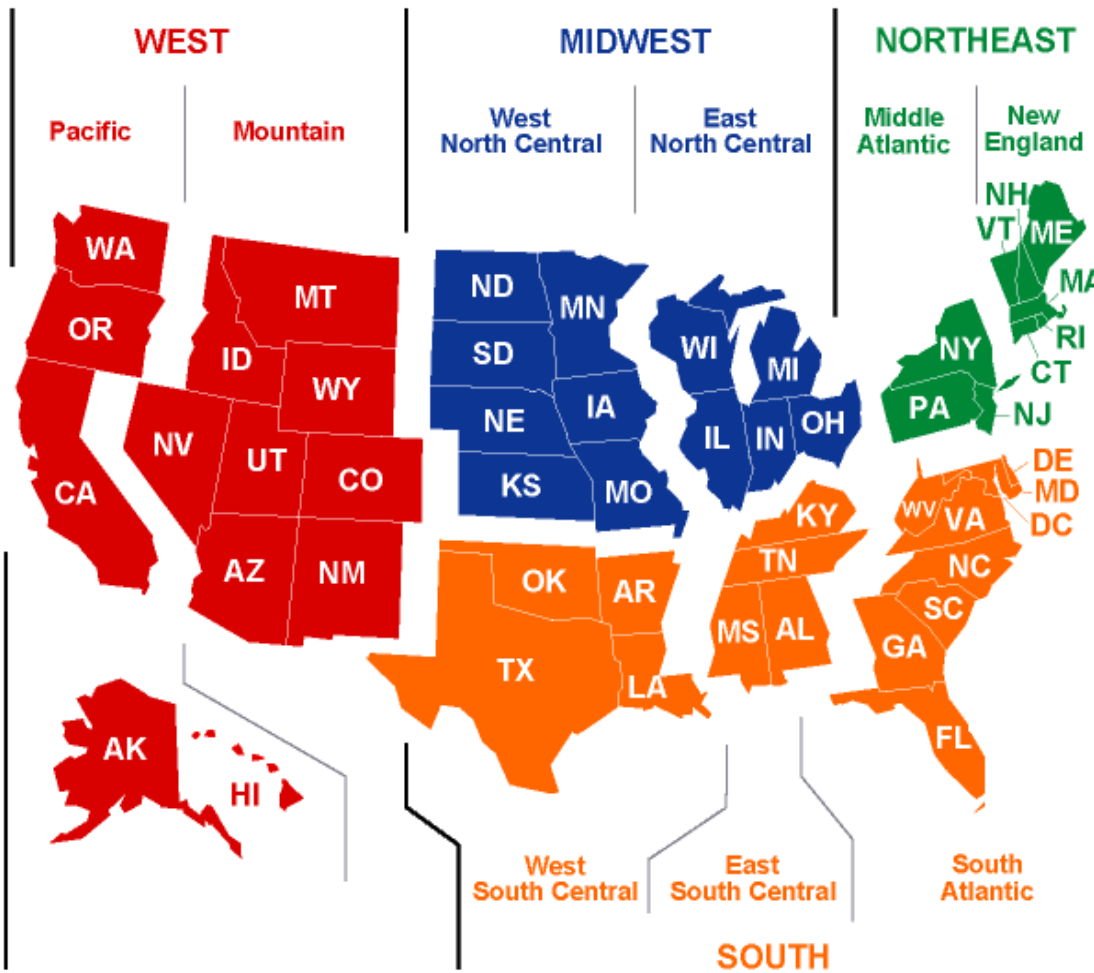


The Mountain census division is anticipated to yield the highest growth rate over the 2018-2021 period.

U.S. nonresidential design-build construction put in place by census division

Billions of dollars

Source(s): FMI analysis of multiple sources



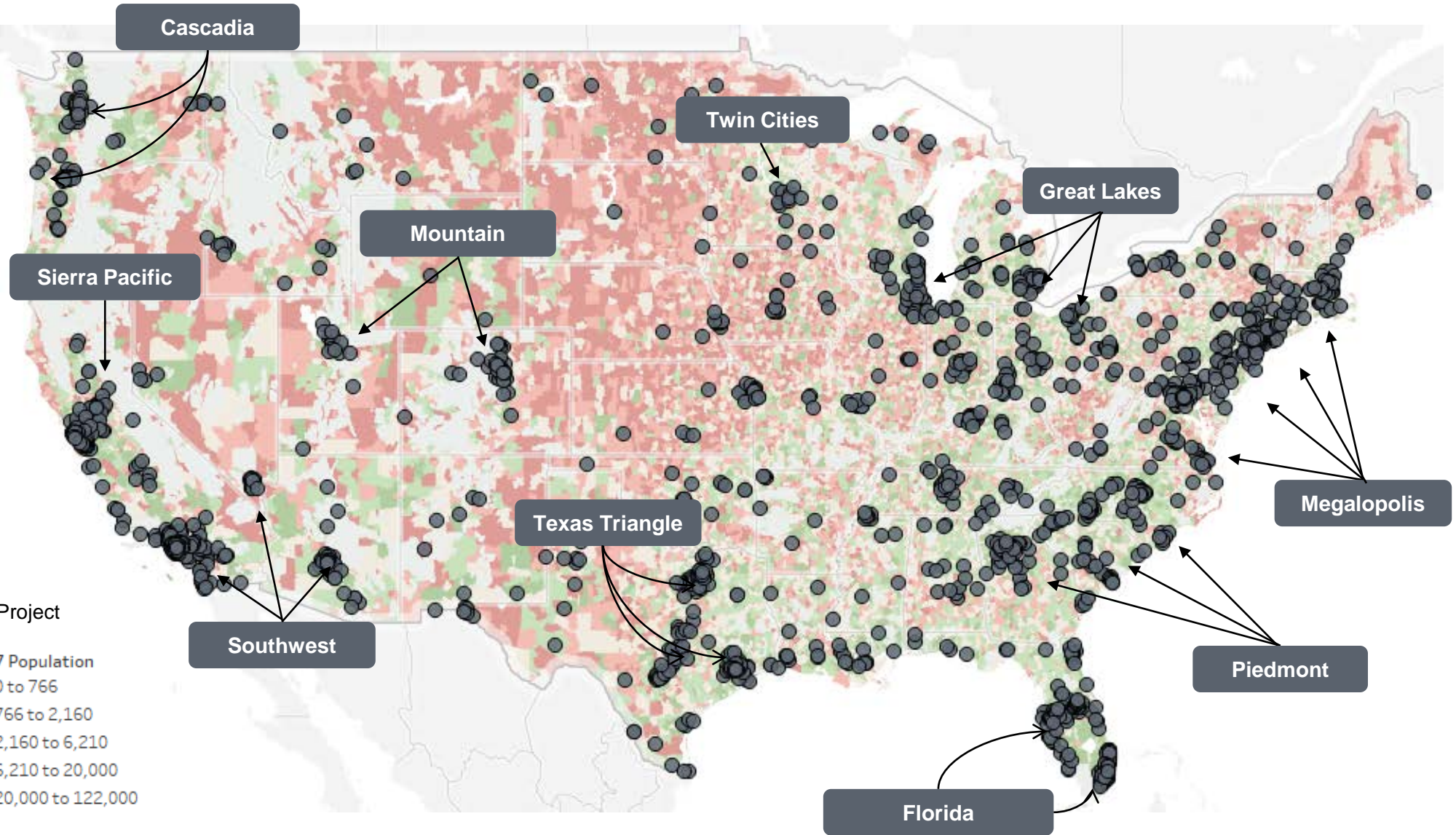
		<i>Billions of current dollars</i>		CAGR (18-21)
		2018e	2021f	
WEST	Mountain	\$16.8	\$20.1	6.1%
	Pacific	\$38.4	\$45.6	5.9%
MIDWEST	East North Central	\$34.1	\$39.8	5.2%
	West North Central	\$19.8	\$22.8	4.8%
NORTHEAST	New England	\$10.1	\$11.6	4.7%
	Middle Atlantic	\$27.9	\$32.4	5.0%
SOUTH	South Atlantic	\$45.9	\$54.6	5.9%
	East South Central	\$11.5	\$13.5	5.4%
	West South Central	\$23.7	\$27.8	5.6%
U.S. Total		\$228.2	\$268.0	5.5%

Construction activity is increasingly concentrated in a limited number of markets.

Nonresidential project locations across U.S. megapolitans

Projects completed, under construction or planned in past 12 months

Source(s): FMI analysis of multiple sources





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Trends and Drivers

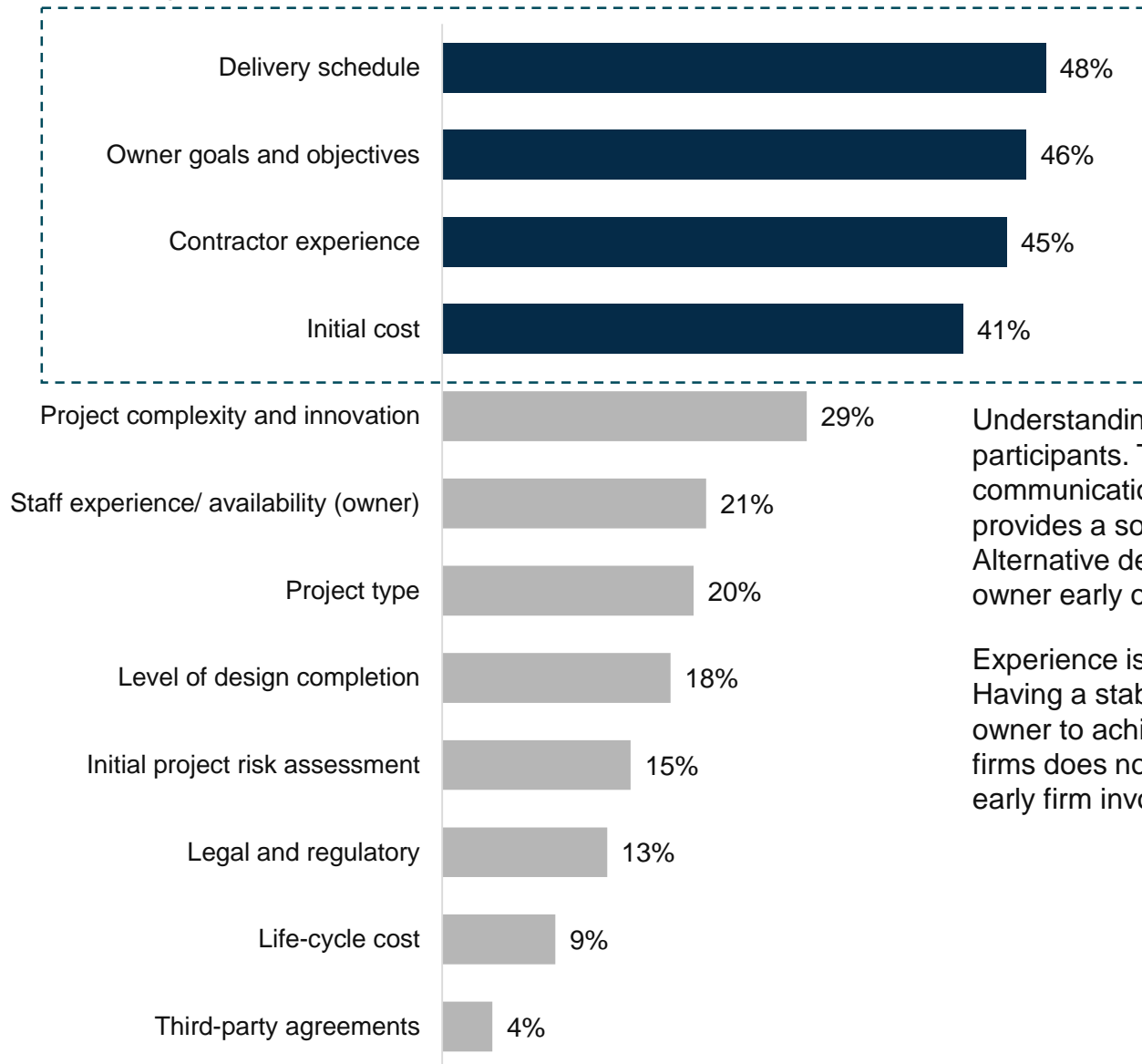
Delivery schedule, owner goals and objectives, contractor experience and initial cost were indicated to be extremely influential in the selection of a project delivery method.

Characteristics that were indicated to be extremely influential in the selection of a project delivery method.

Questions were answered on a 1 to 5 scale (1=not influential, 5=extremely influential)

Source(s): FMI Survey

Percentage of respondents that indicated extremely influential



The critical nature of the project has a major impact to selection, and owner's want to ensure that a timely delivery schedule is understood and provides adequate time to successfully deliver the project.

Initial cost is always a key factor in project delivery selection. The use of alternative delivery methods was indicated to provide the best avenue to achieve the originally identified cost.

Understanding the needs of owners is highly important for industry participants. The ability to get in early and develop strong communication and understanding of what the owner values provides a solid foundation for successful project delivery. Alternative delivery methods provide the ability to work with the owner early on and identify key areas of importance.

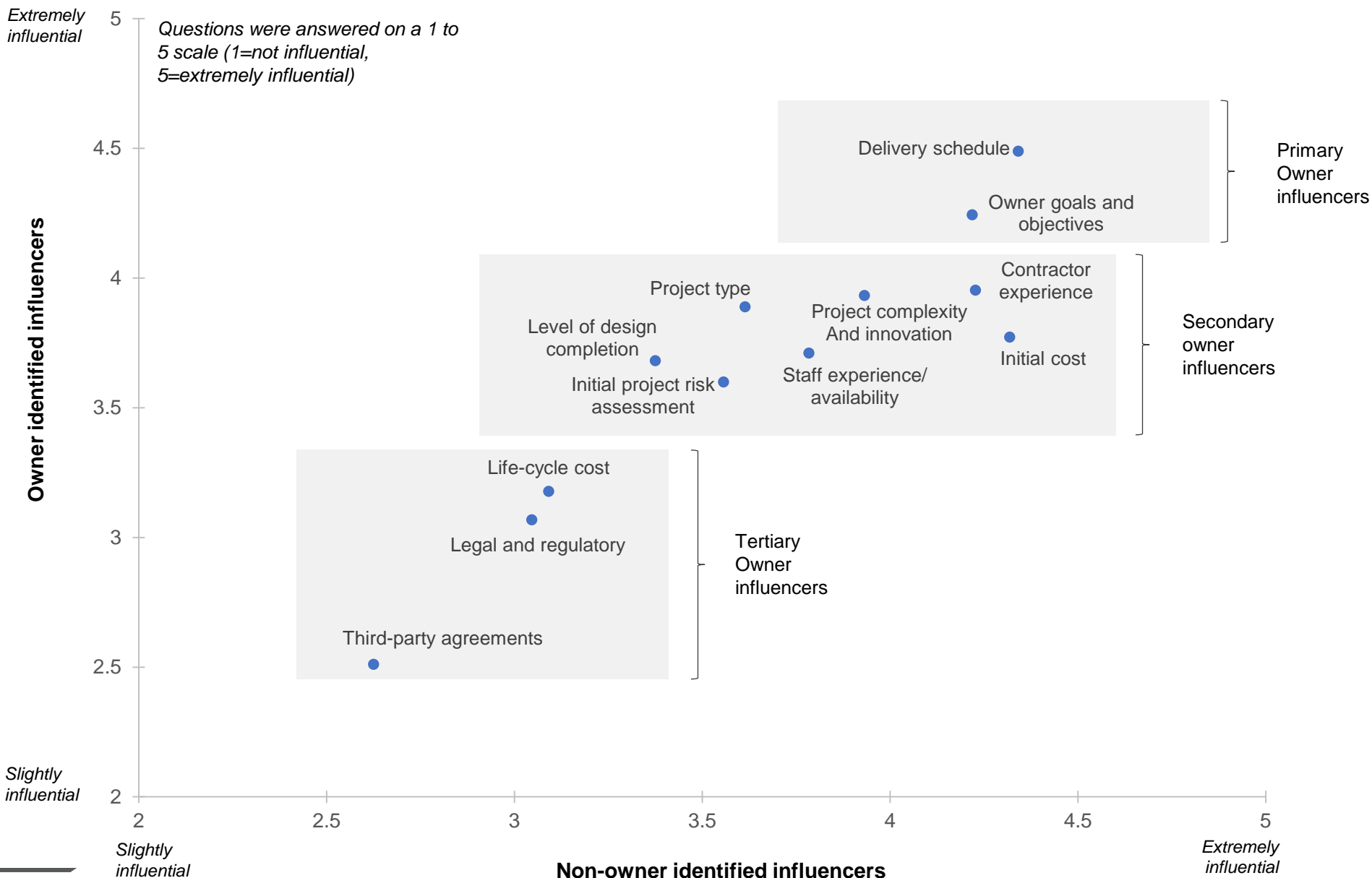
Experience is also a key factor in project delivery method selection. Having a stable of available firms to perform the work allows the owner to achieve the greatest results. A limited pool of experienced firms does not provide the owner with the added advantages of early firm involvement.

Delivery schedule was the most influencing factor for owners when selecting a project delivery method.

Project delivery method influencing characteristics

Weighted average of responses

Source(s): FMI Survey



The majority of project delivery methods are selected during project programming.

When does your organization typically make its project delivery method decision?

Source(s): FMI Survey

Project development 13% of selections

- During this phase few decisions are made regarding which project delivery method will be used.
- Typically during this phase owners define the projects goals and objectives. In addition, owners will identify potential constraints/issues associated with the project. This process allows owners to review the project delivery methods available for their specific project type.

Project programming 74% of selections

- During this phase the majority of project delivery methods are selected.
- Owners can conduct a thorough assessment of the risks associated with the project and the resulting advantages/disadvantages of each project delivery method.
- The challenge is that a minority of owners have a formal risk management process, and most do not demonstrate a strong commitment to conducting a formal risk assessment. This is often due to the complexity of conducting a formal risk assessment.

End of final design 3% of selections

- Owners do not typically select a project delivery method at the end of final design. If they are aiming to utilize an alternative delivery method they will involve other stakeholders earlier in the process.

Other 12% of selections

- Depending on the needs and circumstances an owner faces, project delivery method selection may take place outside of the above mentioned times.

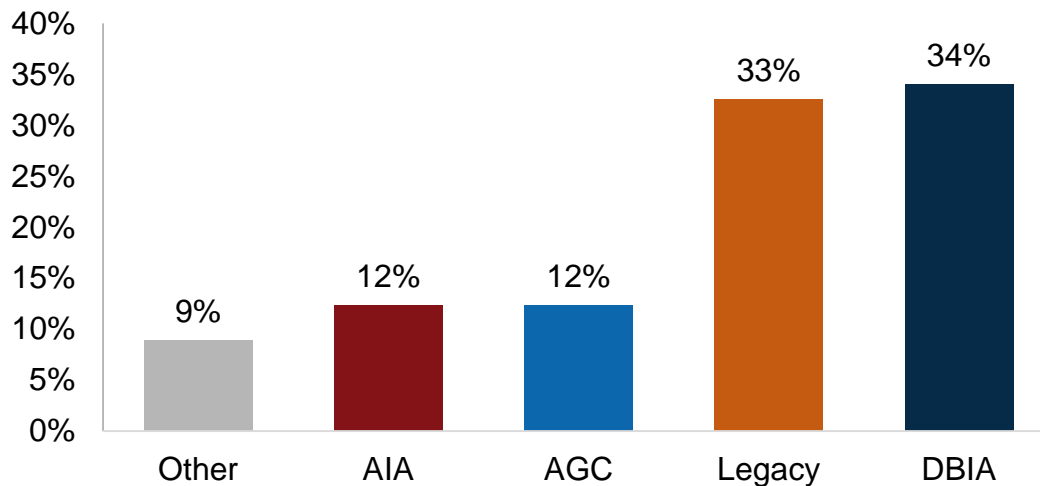
Familiarity with design-build is increasing as owners have become more knowledgeable on the process.

Design-build education process

- The education process for design-build has continued to expand. However, the lack in owner knowledge and understanding of the design-build process is a limiting factor for greater utilization.
- Once owners get a full understanding of the process and benefits associated with design-build they are more likely to continue to employ it as a preferred delivery method.
- DBIA is recognized as pushing the industry and increasing overall awareness of the process. It was stated that in the past five years there has been significant improvement in the push towards greater design-build utilization.

“DBIA has done a good job at getting all stakeholders involved for the industry.”

- Although DBIA is pushing the industry in the right direction, one-third of respondents identified DBIA as the source for project delivery methods and one-third of respondents rely on legacy information.



Market commentary

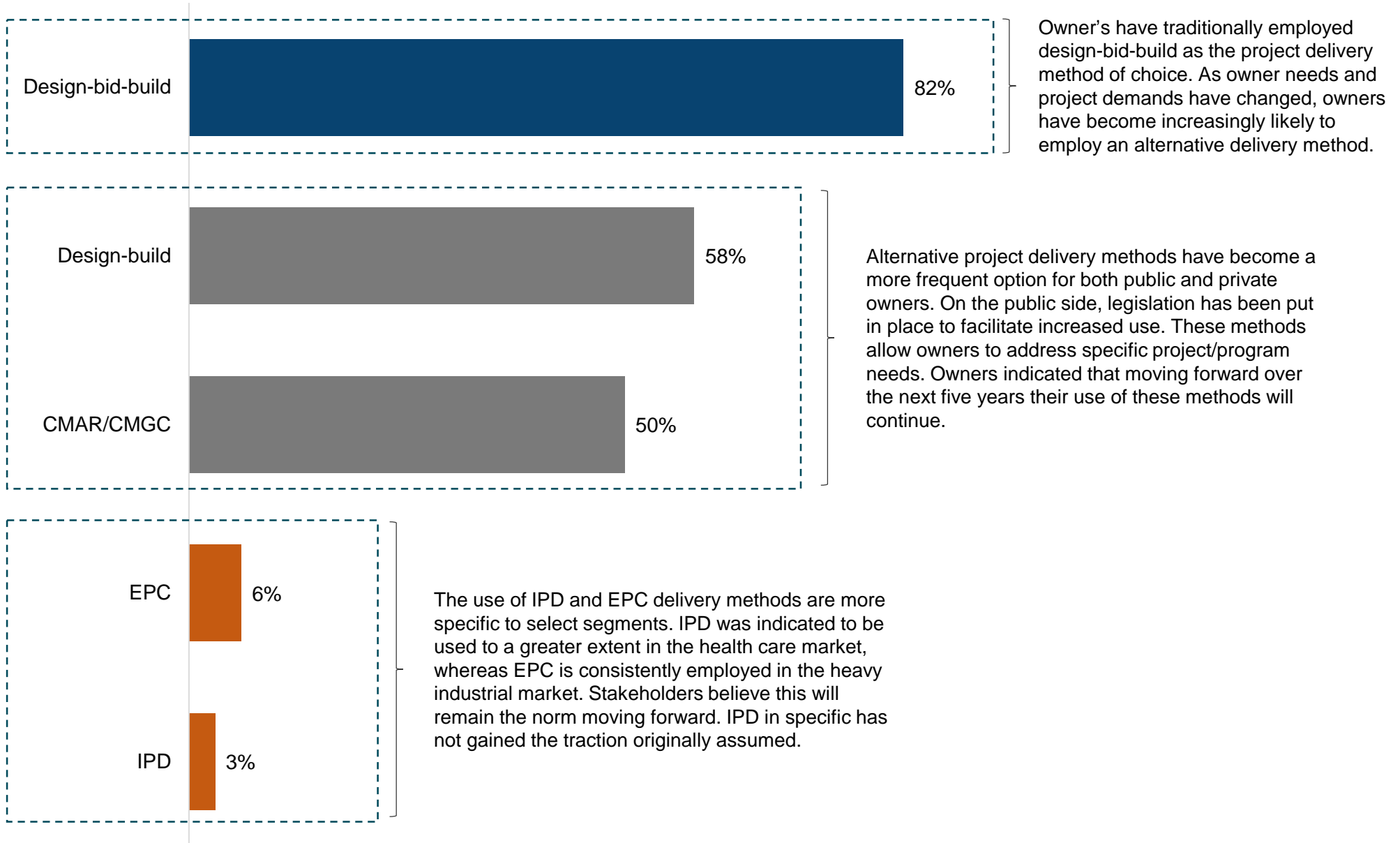
- *“It seems that some of the user community has design-bid-build engrained in their delivery method selection.”*
- *“We are seeing design-build used more frequently across public projects. It is nice to see this flexibility.”*
- *“There are challenges with having owners that are in the education process. They need to learn to trust the process.”*
- *“We don’t see a lot of the small municipalities taking advantage of design-build, but they might not be the best fit for that delivery method.”*
- *“Once you have lived through the low bid environment, it is not hard to see the benefits of design-build.”*
- *“Firms that are arguing for design-bid-build are the ones that don’t understand the process and the benefits of other methods.”*
- *“Design-build is not for everyone. If there is an owner that doesn’t understand it they should think twice before using it.”*
- *“Design-build is a great tool to use. I don’t think the construction community at large understands it or realizes how often it is used.”*

Over half of owners indicated using or anticipate using design-build in the next five years.

Which of the following project delivery methods has your organization used, or anticipates using in the next five years?

Owner respondents

Source(s): FMI Survey

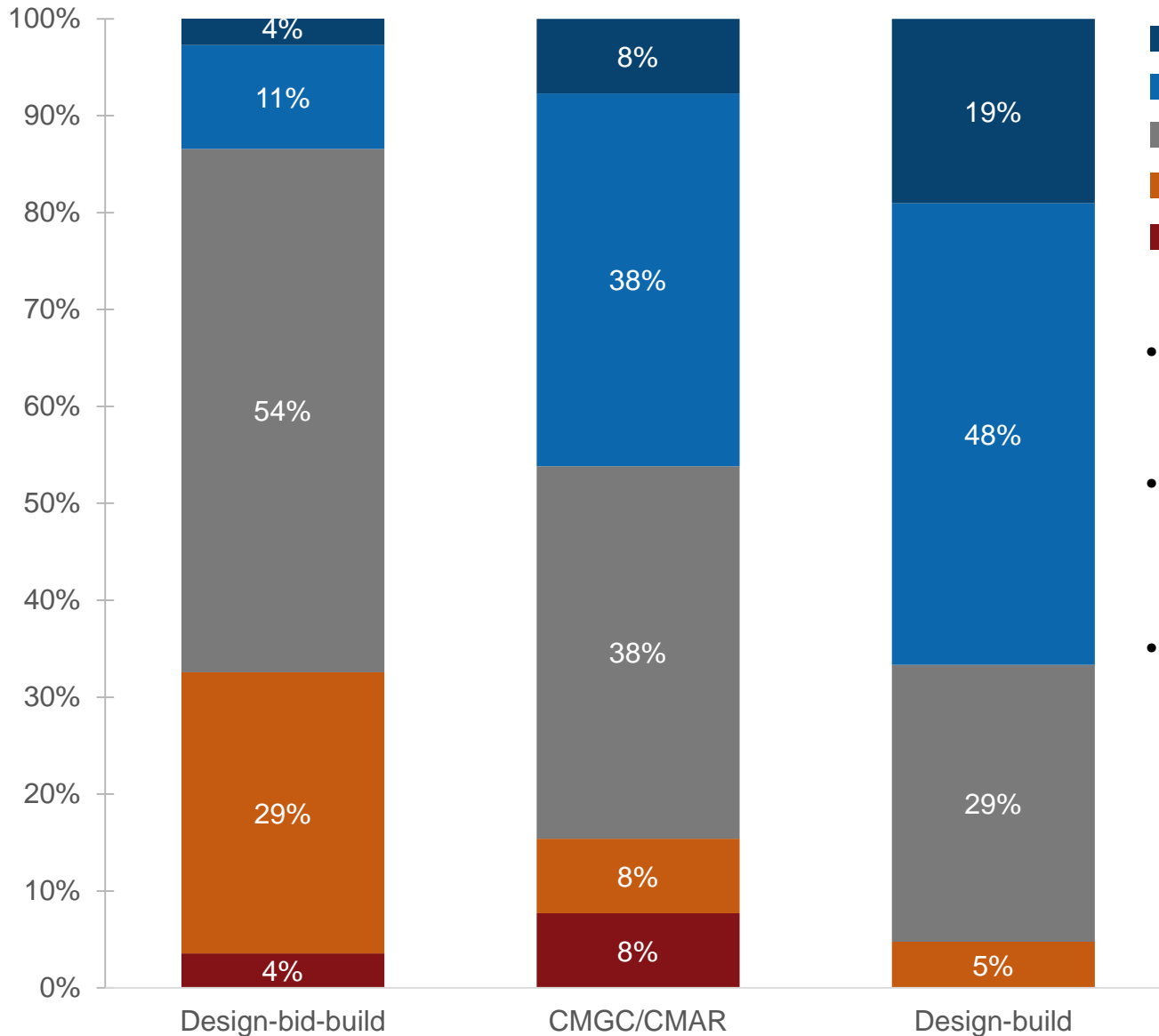


The majority of owners indicated design-build utilization will increase in the next 5 years.

From an industry perspective, how will the use of the following delivery methods change in the next 5 years?

Owner respondents; (1=significant decrease, 5=significant increase)

Source(s): FMI Survey



- Significant increase
- Slight increase
- Stay the same
- Slight decrease
- Significant decrease

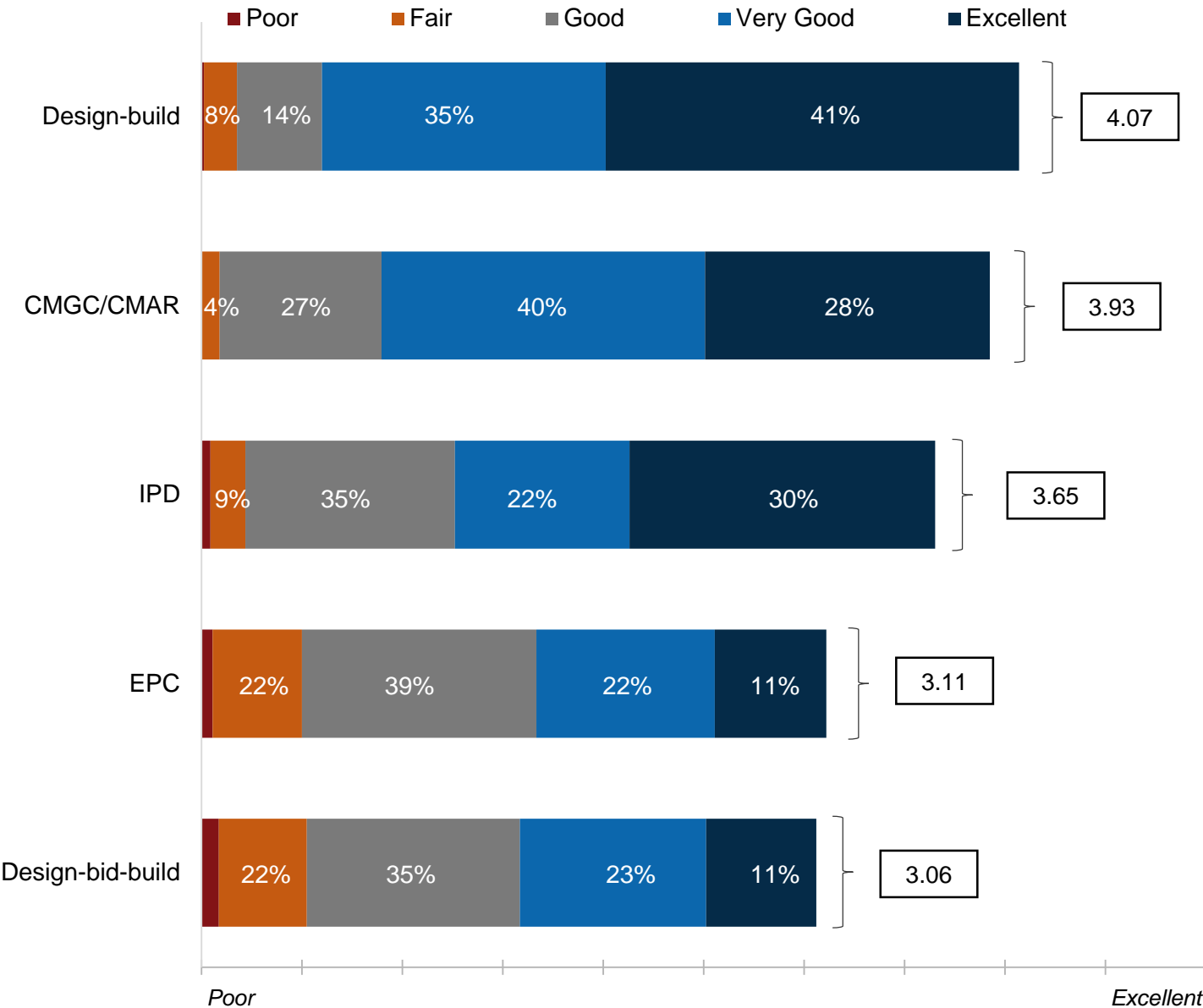
- Sixty-seven percent of owner respondents indicated an increase in the use of design-build in the next 5 years.
- Forty-six percent of owner respondents indicated an increase in the use of CMGC/CMAR in the next 5 years. However, 16% of owners see a decrease.
- Over 50% of owners believe the use of design-bid-build will remain the same. However, 32% believe there will be a decrease in use.

Experience with design-build was rated highest across all project delivery methods.

Experience with various delivery methods

Weighted average of responses; (1=poor, 5=excellent)

Source(s): FMI Survey



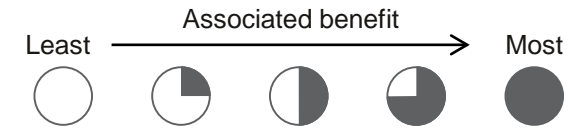
Market commentary:

- “We’ve found the use of design-build to be a good experience. It reduces our risk and the issues can be defined to the design-build team.”
- “CMAR seems to be less challenging from a legislative point of view. It doesn’t have the requirements that design-build does.”
- “In the Northeast CMAR is the dominant delivery method. Every once in a while we will have a design-build project come along.”
- “CMAR is beneficial when we want to have more oversight of the project. We can reach out directly to the architect.”
- “IPD doesn’t seem to have picked up or caught on outside of a few healthcare projects.”

Opportunities to innovate and the ability to fast track a project were identified as top benefits associated with design-build.

Which project delivery method do you most associate the following benefits with?

Source(s): FMI Survey



	More collaborative process for the owner	Fewer disputes	Final cost closest to budget	Greater project/ design control	Highest quality	Least project risk (for the owner)	More opportunities to innovate	More predictable/ manageable schedule	Most qualified service providers	Shorter procurement period	Ability to achieve design excellence	Early knowledge of cost	Ability to fast track project
Design-bid-build	○	○	◐	◑	○	◐	○	◑	◐	◐	◐	◐	○
Design-build	◑	◑	◑	◐	◑	◑	●	◑	◑	◑	◑	◑	●
CMGC/CMAR	◑	◐	◑	◑	◑	◑	◑	◑	●	◑	◑	◑	◑
Other (EPC, IPD)	◑	◐	◐	◐	◑	◑	◑	◑	◑	◑	◑	◑	◐
*Progressive Design-build	◑	◑	◑	◑	◑	◑	●	◑	●	◑	◑	◑	●

Progressive design-build is steadily growing in use.

Progressive design-build

- The progressive design-build process was seen favorably by stakeholders due to its qualifications-based selection process.
- Selection for progressive design-build is driven by contractor qualifications and fee. The limited design component during selection was indicated to significantly reduce the cost of pursuit.
 - Although limiting design during the pursuit phase reduces cost for pursuing teams, it also leaves the owner with less certainty around design. To address this, some owners have employed a hybrid approach that incorporates a preliminary design component in the selection process.
- Once a team is selected for the project the design component is pushed forward. The design-build team meets with the owner after they are selected and begins the design process. This was indicated to facilitate greater involvement from all parties involved on the project.
- Although progressive design-build is growing in use, there is limited legislation addressing the selection of design-build teams strictly on qualifications.

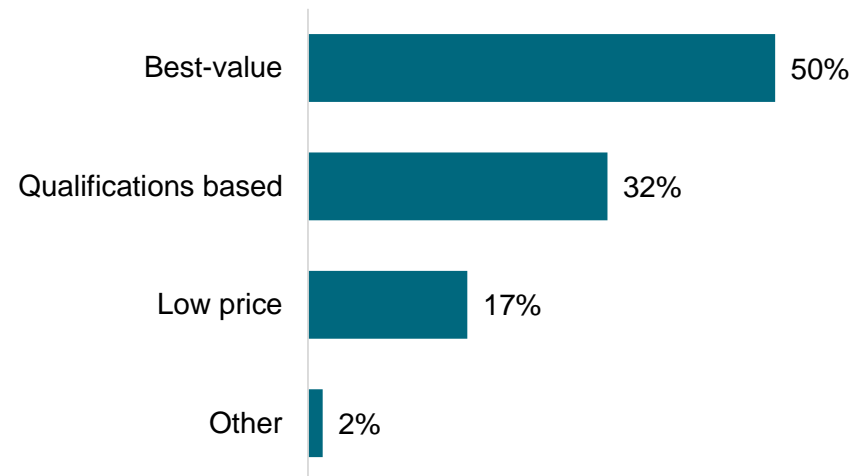
Traditional design-build

- Compared to progressive design-build, design-build was indicated to be more cost intense for pursuing teams due to the design component.
- However, the selection of a design-build team was indicated to be on a best value or qualifications basis over 80% of the time.
- Various agencies provide a stipend to teams not selected on a design-build pursuit. The stipend aims to alleviate the cost burden of pursuit for teams that are not successful.

Market commentary

- *“We’ve seen more projects using the collaborative design-build model.”*
- *“During the design phase on a progressive design-build project you are not designing in a vacuum. You are designing with the owner at the table.”*
- *“We’ve seen a couple different ways that the contract process is done. One was a qualification based selection, one was purely negotiated, and others have been a mix.”*
- *“It is difficult to justify picking a team in a fair competitive way when you are dealing with public money.”*
- *“Progressive design-build is the natural next step for owners using CM/GC.”*
- *“We see more and more owners trying to wrap their heads around progressive design-build. Water/wastewater owners are a little further down the road on this.”*

Design-build selection process





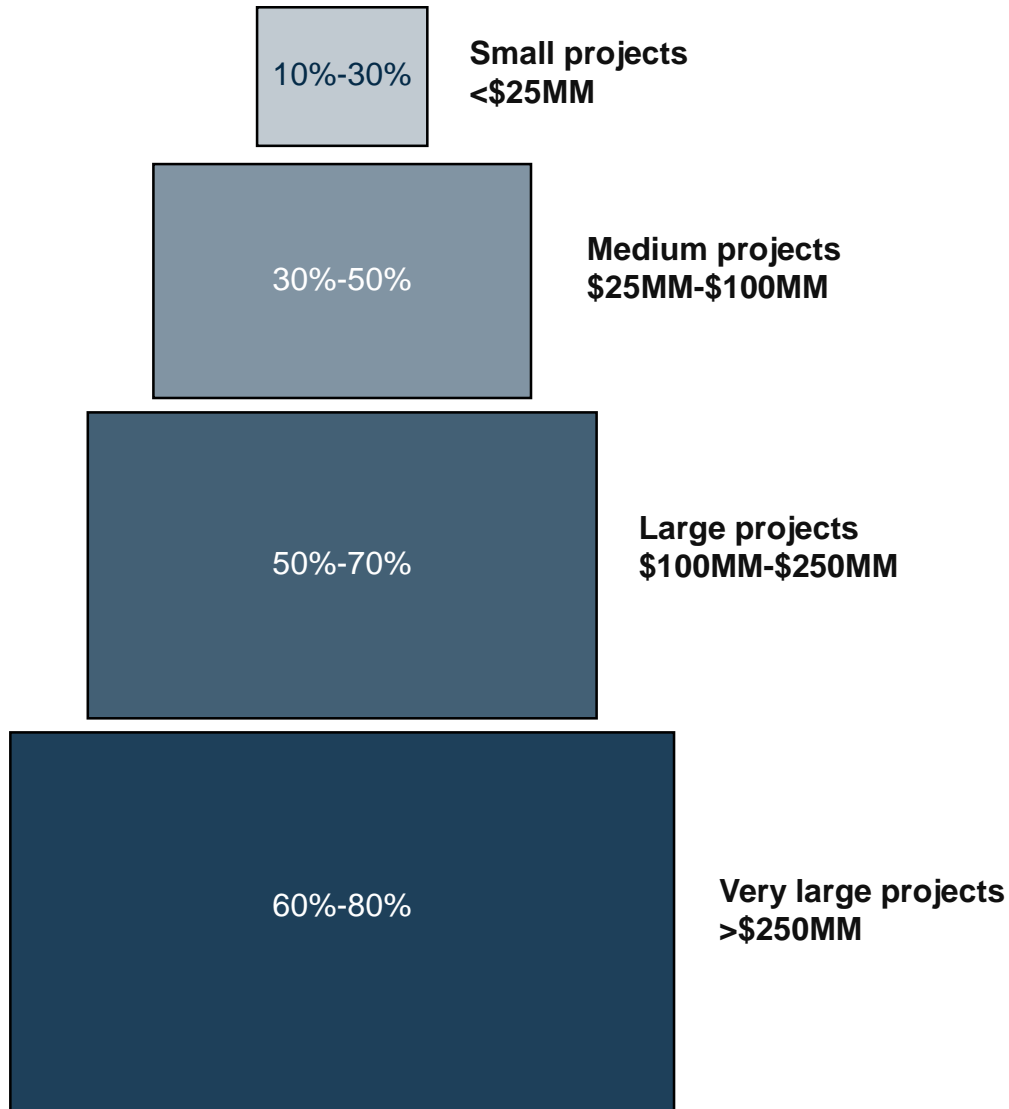
Progressive design-build is particularly interesting to us. We see this as a continued trend moving forward.”

-Public Owner

Design-build utilization continues to expand into project sizes <\$25 million as owners continue to gain exposure to benefits of design-build.

Likelihood of projects utilizing design-build by project size

Source(s): FMI analysis of multiple sources



“Historically, design-build has been used on large projects. Recently, we have seen a growing use of design-build on smaller projects.”

“When we have a multimillion-dollar project we look towards design-build. Generally, we believe that we get a better value for the investment with design-build.”

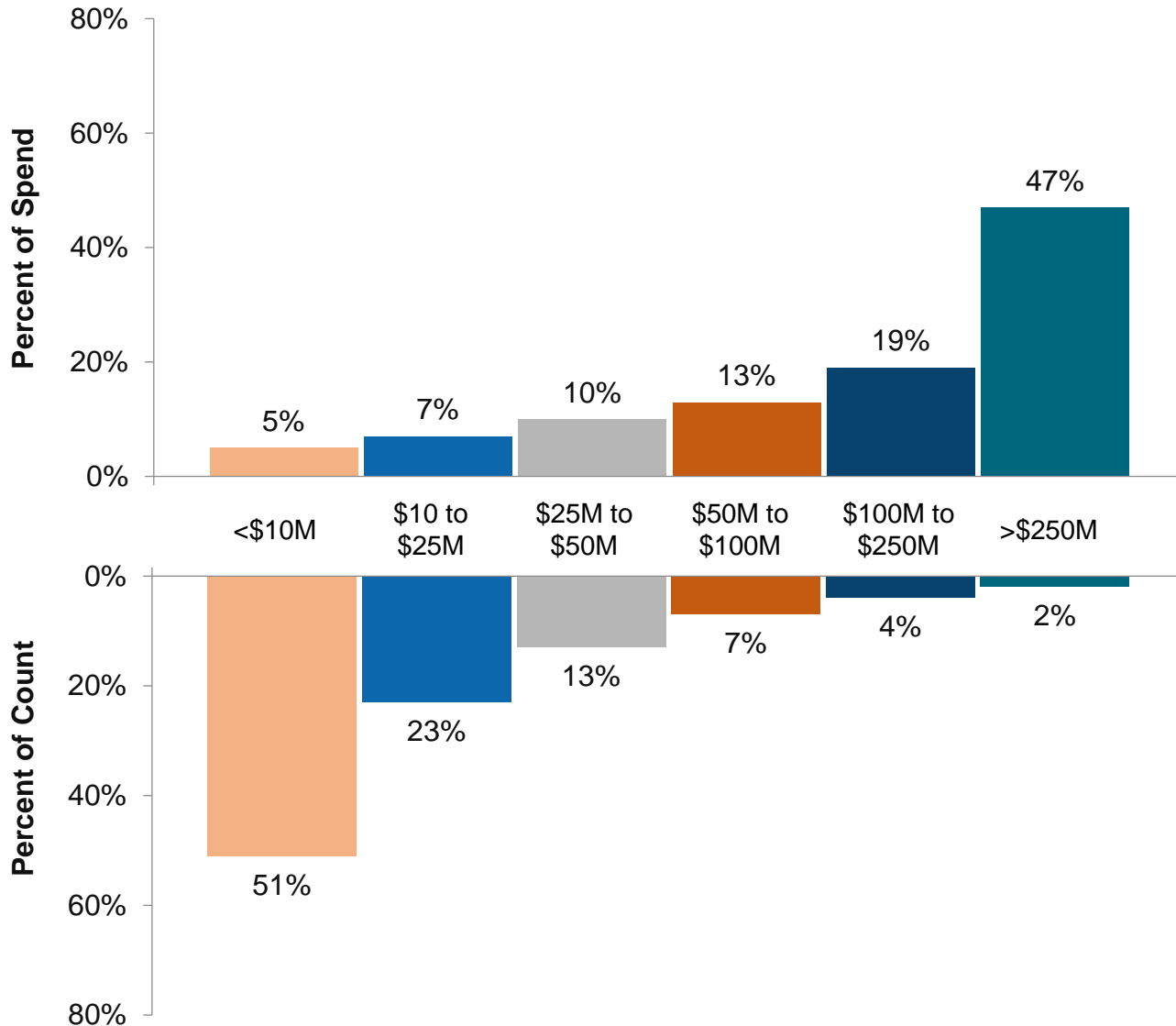
“We will continue to see bigger projects going design-build.”

A significant percentage of project spending aligns well with project size characteristics suited for design-build.

Distribution of nonresidential projects by count and spend

Projects completed, under construction or planned in past 12 months; not representative of yearly spending

Source: FMI Analysis of multiple sources



- Forty-nine percent of project spending is on projects >\$250M, where design-build was identified to have a 60%-80% of being employed. However, this only represents 2% of project count.

“A lot of times projects under \$10 million don’t have the complexity or rigorous time commitment that would drive them towards design-build.”

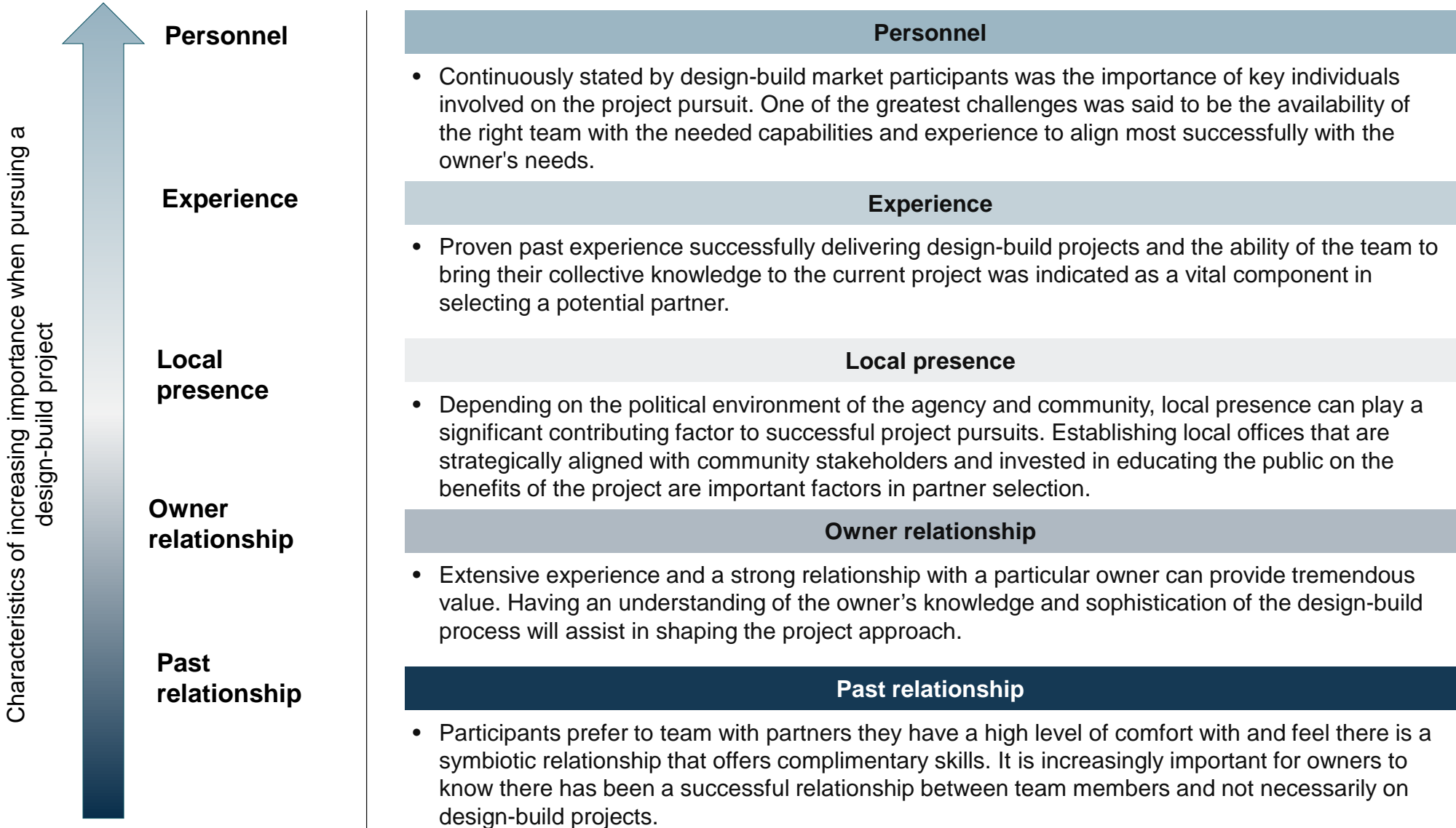
- Other delivery methods (e.g., CMAR) are more common due to a consistent use on projects <\$50 million.
- These projects represent a significant percentage of project count which can create a perception that these delivery methods represent a greater percentage of the market.

“CMAR seems to be used most by volume of projects. Design-build is a more complex delivery method and some owners are not comfortable with it.”

Five factors were identified as being important when assessing a design-build project pursuit.

Design-build project pursuit factors

Source(s): FMI analysis of multiple sources

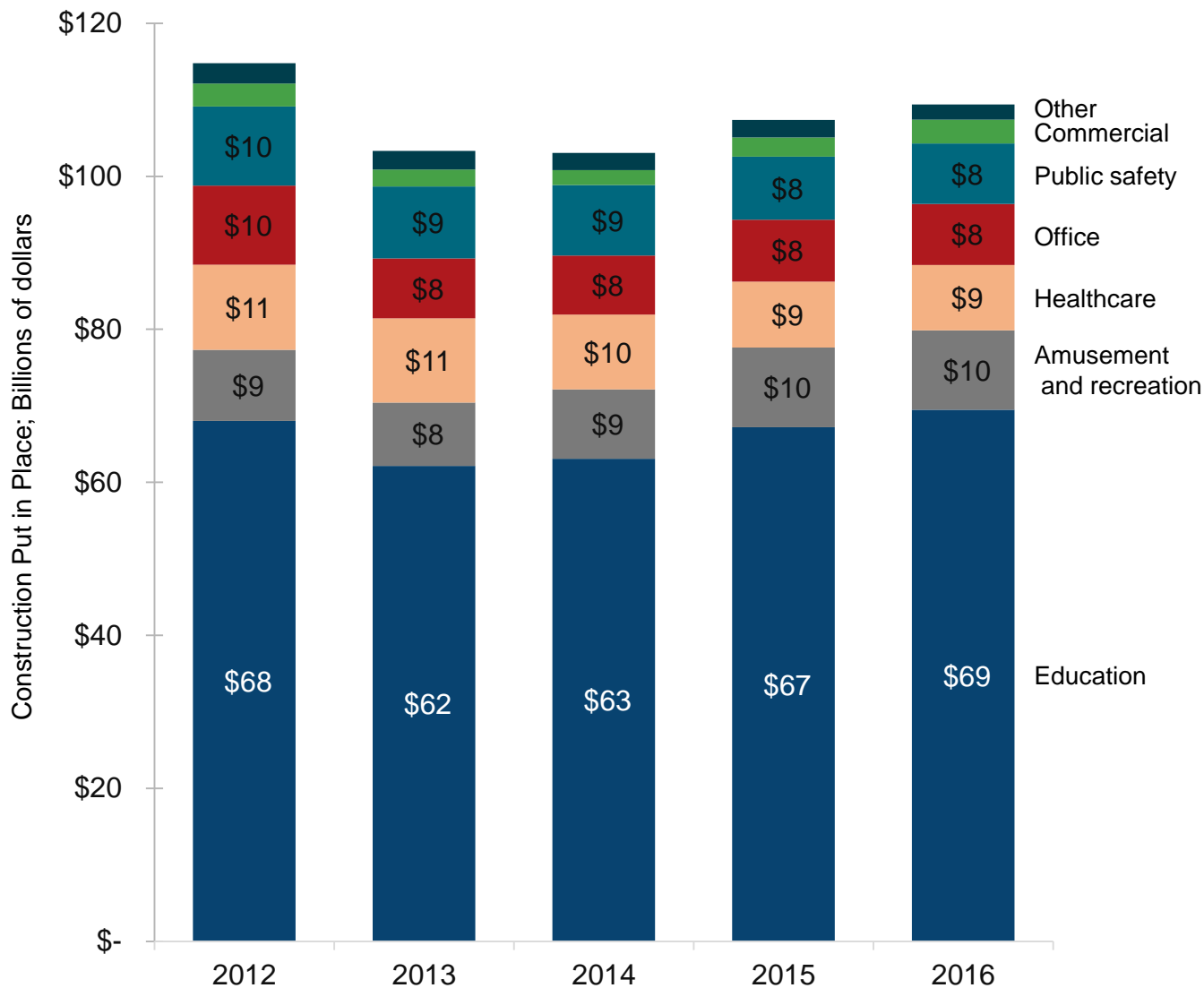


Despite limited construction growth, the nonresidential public construction market continues to increase its utilization of design-build.

Historical public construction spending

Billions of dollars

Source(s): FMI analysis of multiple sources



- Public projects were indicated to be increasing utilization of design-build. The education market in particular is experiencing greater utilization of design-build.

“Recently, we’ve been involved on more large public institutional projects utilizing design-build.”
- In the federal market, utilization of design-build allows agencies to capture dollars in the current year rather than needing to wait a full budget year to receive funding for a project.

“On the federal side, we have seen a significant trend in the shift toward design-build.”

“NAVFAC and the Army Corp are the two largest DOD builders that utilize design-build.”



Design-build is no longer an alternative method. It is a main part of how we delivery our program.”

-Public Owner

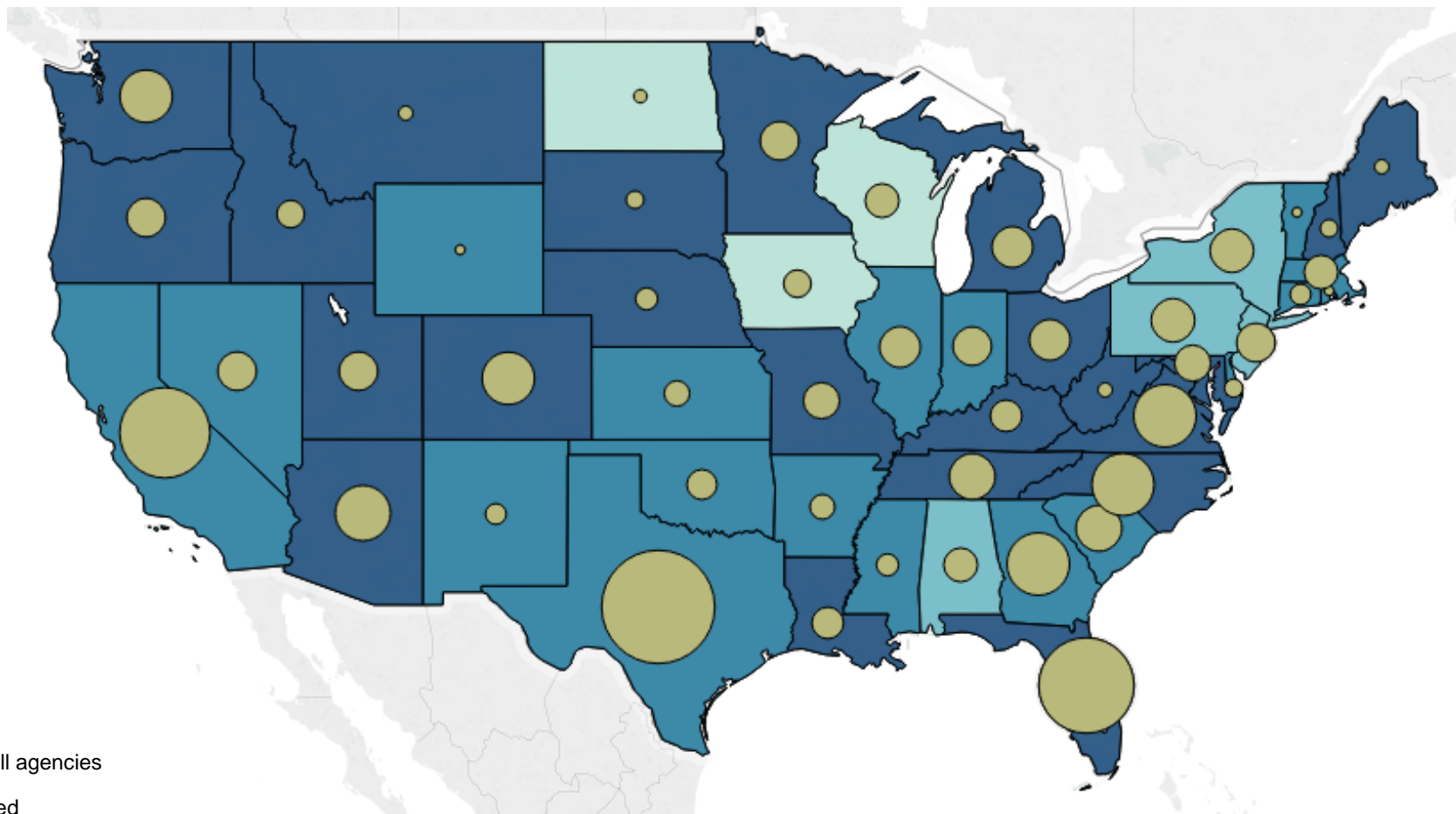
Forty-three states have full or widely permitted authorization to utilize design-build for public agency projects.

Design-build authorization and construction spending by state

Combined spending for highway/street and water/wastewater

Source(s): FMI analysis of multiple sources

- Forecast highway/street and water/wastewater construction spending through 2021 is concentrated in states permitted to utilize design-build.
- Three states indicated limited use of design-build for construction project delivery.



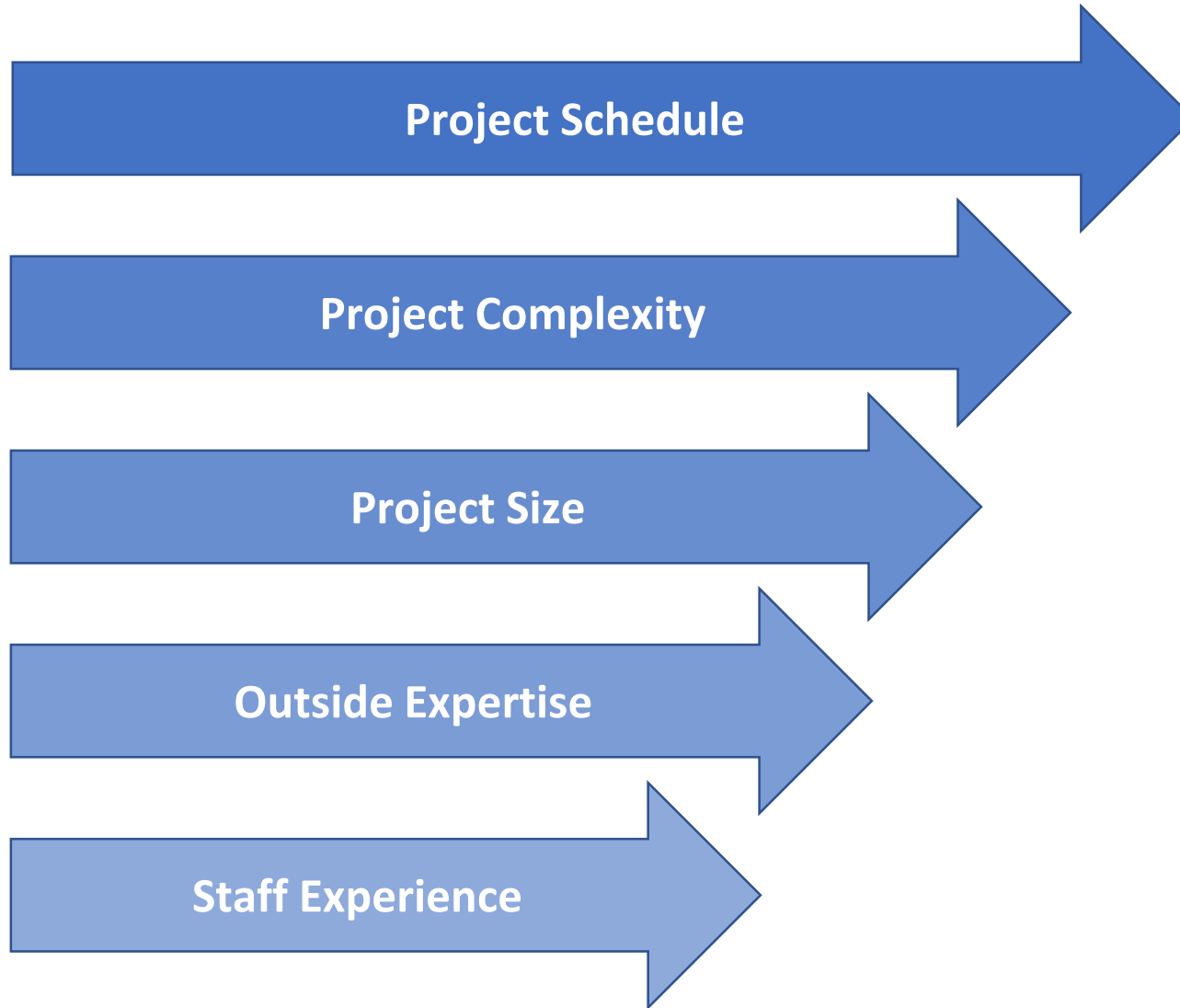
- Design-build is permitted by all agencies
- Design-build is widely permitted
- Design-build is a limited option
- Design-build is limited to one political subdivision, agency or project

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Five factors were identified as significant drivers of design-build utilization for highway/street and water/wastewater projects.

Factors influencing design-build utilization

Source(s): FMI analysis of multiple sources



“Acceleration is one of the more governing factors for selecting design-build. We want to get the work out on the street fast and create jobs.”

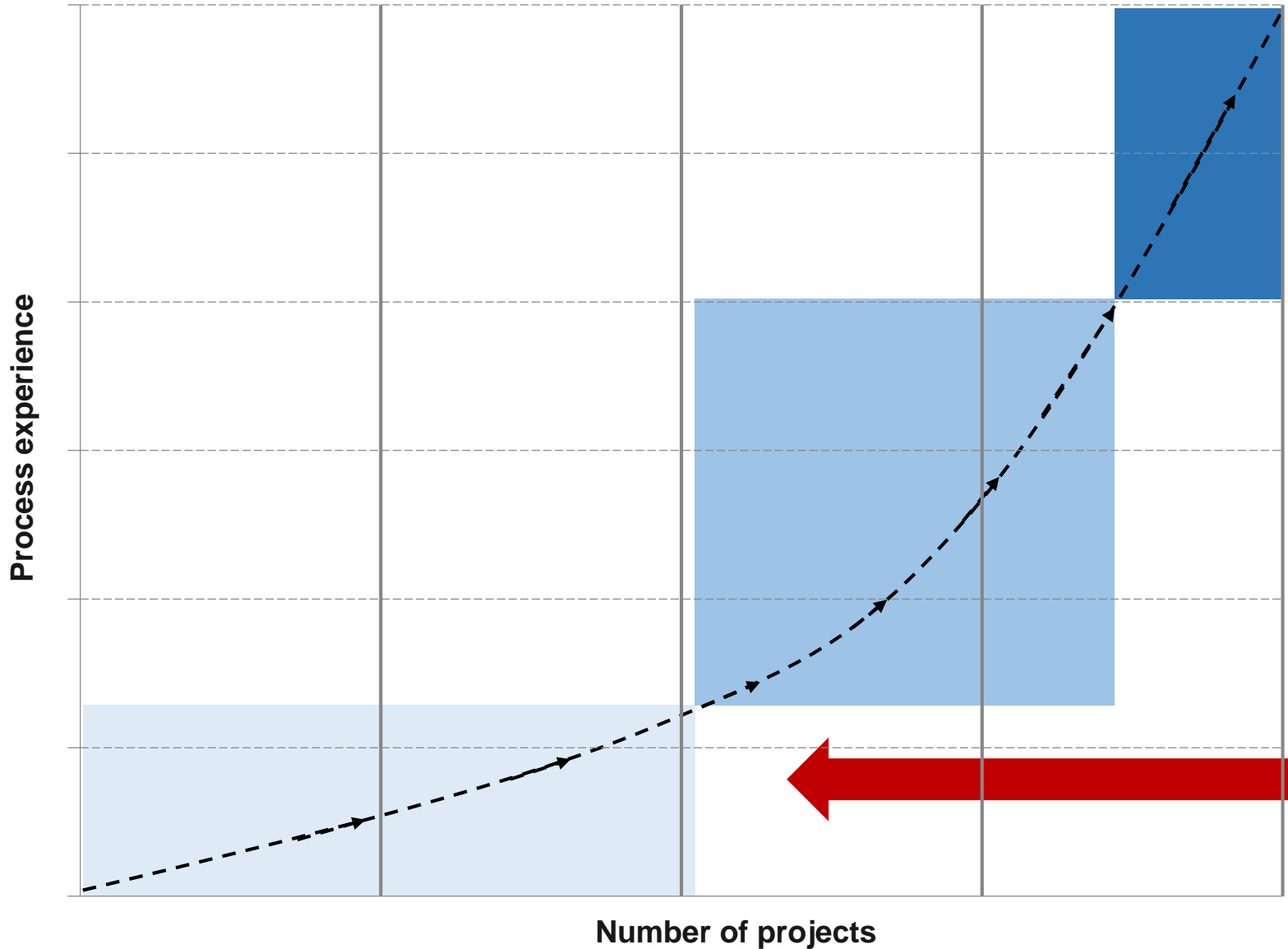
“Design-build projects are typically larger and more complex, which requires risk management.”

“New construction for design-build is more challenging and requires greater risk. They tend to be bigger cost projects.”

Owners consistently employing design-build are more likely to select project teams based on value and innovation.

Design-build experience/learning curve

Source(s): FMI analysis of multiple sources



Consistent use of design-build

- Alignment on critical success factors.
- Strong understanding of what risks can be transferred and which can be internally managed.
- Internal champion of the design-build process.

First time user of design-build

- Require guidance and education on the benefits and values associated with the process.
- Illustrating the appropriate level of risk to be transferred and managed is important for these owners to understand.