

# Design-Build: Revolutionizing Project Delivery



**“Integration is Our Foundation”**

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**1.0**

**About DBIA**

# About DBIA & Design-Build

- **DBIA is the only organization that defines, teaches and promotes best practices in design-build.**
- **Design-build is an integrated approach that delivers design and construction services under one contract with a single point of responsibility.**
- **Owners select design-build to achieve best value while meeting schedule, cost and quality goals.**



# About DBIA & Design-Build

- Washington, DC-based nonprofit membership organization founded in 1993.
- Membership includes over 4,000 organizations and individuals who are leaders in the design and construction industry including:
  - Architects
  - Engineers
  - Public and private owners
  - General and specialty contractors
  - Manufacturers and suppliers
  - College and university faculty and students
  - Legal and financial professionals
- Members are committed to utilizing design-build and integrated project delivery methods to achieve high performance projects.





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**North Dakota's  
Infrastructure is at  
the breaking point**

# North Dakota's Unique Conditions Require Innovative Solutions



**Short Construction Seasons**



**Historic Floods**



# North Dakota's Unique Conditions Require Innovative Solutions



**The Energy Boom In North Dakota presents both opportunities and challenges.**



# The Energy Boom Has Presented Opportunities

- **Increased Oil Production (500% since 2006)**
- **Nation's 2<sup>nd</sup> largest Energy Producer**
- **Increased Tax revenues**
- **Increased Wages**
- **Low Unemployment**



# And Challenges

## Increased Pressure On Infrastructure

- **Roads**
- **Bridges**
- **Schools**
- **Water**
- **Waste Water**
- **Housing**
- **Jails**



# Transportation Infrastructure Challenges



- **Traffic has increased by 300% in some counties**
- **50% of the traffic in these area are heavy trucks**
- **Roads and bridges are deteriorating faster**
- **Some counties face severe capacity challenges**



# The Cost of a Booming Economy - Williston

- **\$150 Million – Regional Water System**
- **\$150 Million – Upgrading Airport**
- **\$100 Million – Four Lane Truck Route**
- **\$90 Million – Waste Water Treatment**
  
- **Typical Design-Build Cost Savings \$30-50 Million**



# Rising Construction Costs Compound Infrastructure Problems

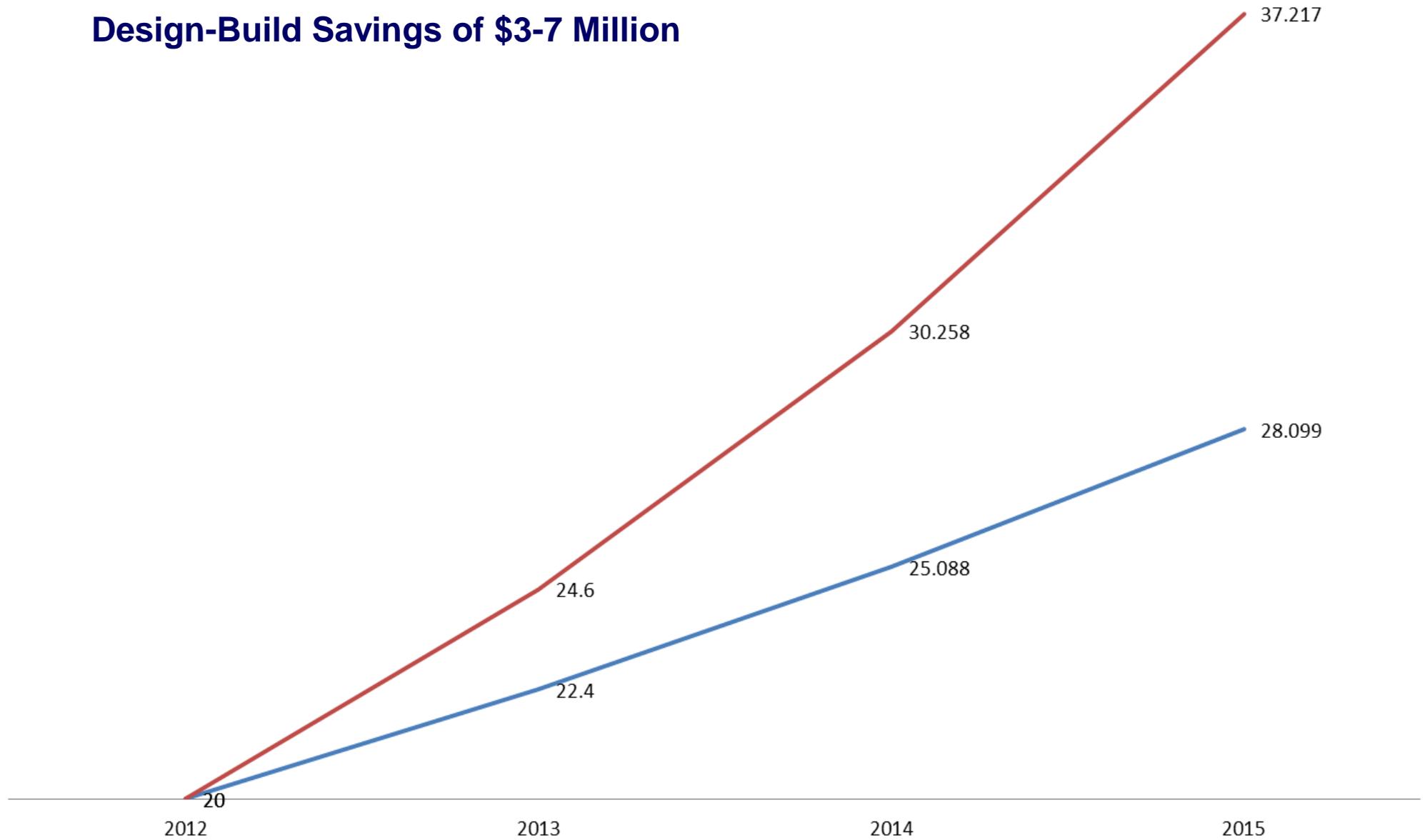
- **Construction Costs Increased 12%  
2001-2010**
- **Construction Costs Increased 23% in  
2011**



# North Dakota Construction Costs

— Construction Costs at 12% growth    — Construction Costs at 23% growth

**Design-Build Savings of \$3-7 Million**





# An Infrastructure Perfect Storm

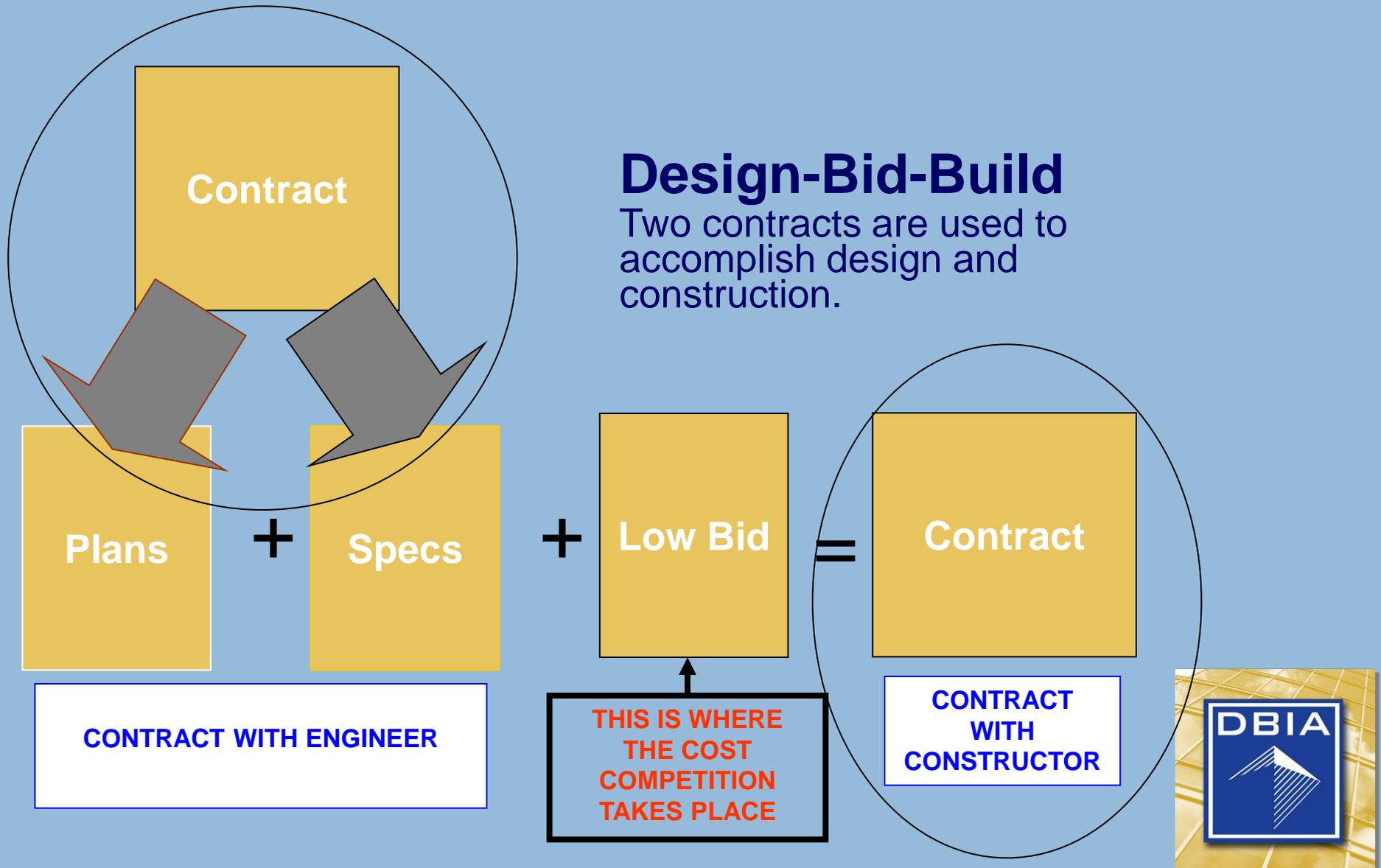




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**What is  
Design-Build**

# The “Traditional” Way – Design-BID-Build

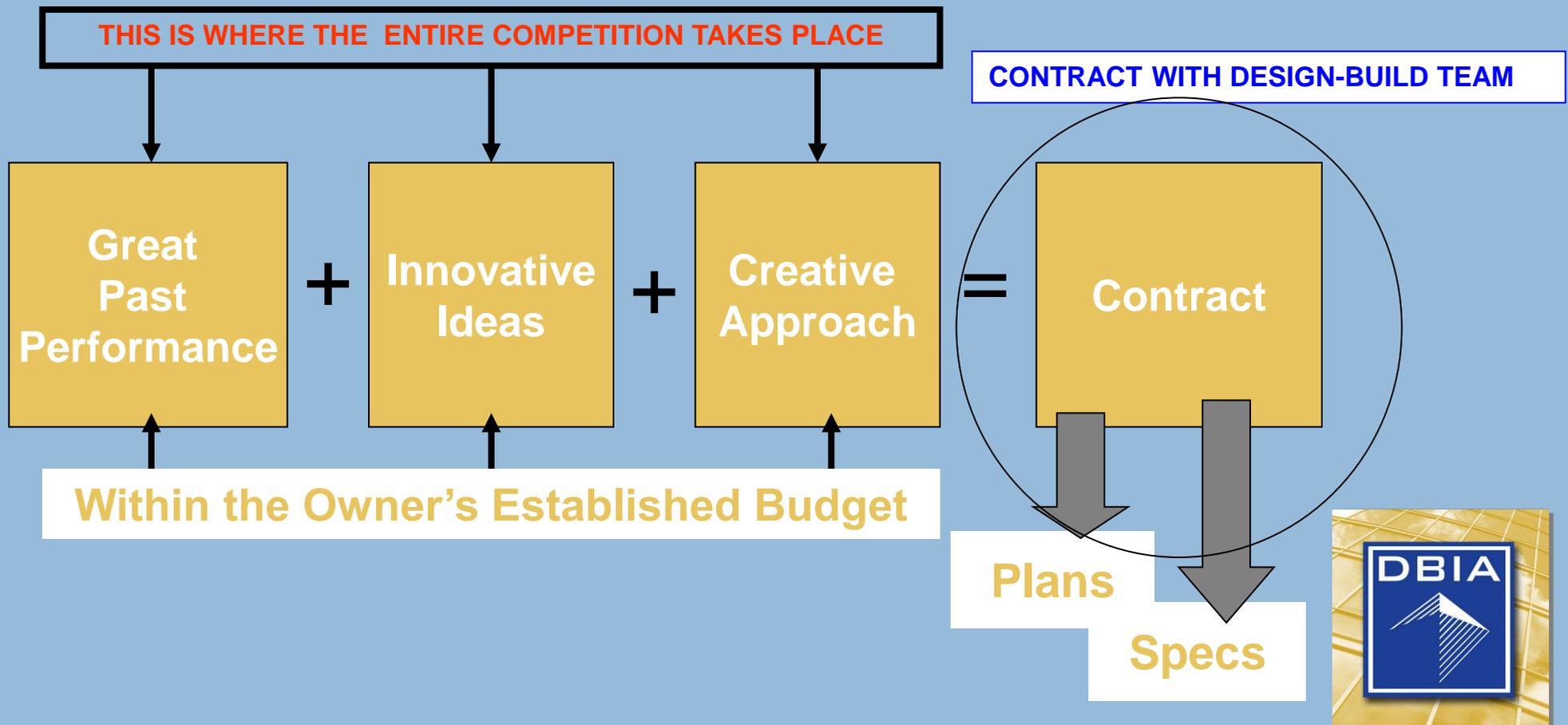


**Emphasis on Compliance:**

# The “Better” Way – Design-Build

## Design-Build...

a single contract is used to accomplish design and construction.



Emphasis on Behavior: **You are buying a Service**



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# Advantages of Design-Build

# Design-Build Meets Your Requirements

- **Significantly Faster Completion Time**
- **Lower Cost**
- **Higher Quality**
- **Greater Owner Satisfaction**
- **Reduces litigation, change orders and cost growth**
- **Meets budget constraints**
- **Puts people to work faster, finishes work faster, costs less**



# Design-Build Performance

(Comparison of Design-Build vs. CM-at-Risk vs. Design-Bid-Build)

- **6% Lower Cost**
- **12% Faster Construction Time**
- **33% Faster Project Completion**
- **Higher quality in all measured categories**

*SOURCE: Construction Industry Institute (CII)/Penn State Research comparing 351 projects ranging from 5K to 2.5M square feet. Projects were of various types and from various industries.*



# Comparison of Project Delivery Methods (CII/Penn State Study)

Metric	DB vs. DBB	CM@R vs. DBB	DB vs. CM@R
Unit Cost	6.1% lower	1.6% lower	4.5% lower
Construction Speed	12% faster	5.8% faster	7% faster
Delivery Speed	33.5% faster	13.3% faster	23.5% faster
Cost Growth	5.2% less	7.8% more	12.6% less
Schedule Growth	11.4% less	9.2% less	2.2% less

Re: "Comparison of U.S. Project Delivery Systems," Mark Konchar & Victor Sanvido, *Journal of Construction Engineering and Management*, Vol. 124, No. 6 (1998), pp. 435-444.



# Comparison (continued)

Research Study	CII Penn State (US)	Reading DB Forum (UK)
Parameter	DB vs. DBB	DB vs. DBB
Unit Cost	6% Less	13% Less
Construction Speed	12% Faster	12% Faster
Delivery Speed	33% Faster	30% Faster



# Design-Build Utilization

- ❖ **Federal Agencies using Design-Build 75%+ :**
  - **Navy Facilities Engineering Command**
  - **Army Corps of Engineers**
  - **State Department**
  - **Bureau of Prisons**





## **US Census Bureau Headquarters**

Suitland, MD

Construction Start Date: 9/15/2003  
Construction End Dates: 12/15/2006  
Total project cost: \$315,000,000.00



# What are Federal Officials Saying about Design-Build

## ➤ Jag R. Bhargava, Deputy Director, GSA

*“With only four years between groundbreaking and full occupancy, we had to find a way of doing it. The only method I could think of was design-build.” On the new Census building.*

## ➤ Pete Swift, Deputy Chief, Design and Construction Branch

*“ We at the Federal Bureau of Prison have been doing design-build since the FAR regulations changed. Our primary reasons back then were that we would eliminate a lot of the claims we were getting and we had a large workload. Over the years we have not had a claim on any design-build project we have done.”*





## **Pentagon Renovation**

Arlington, VA

Construction Start Date: 9/14/2011

Construction End Dates: 2/7/2011

Total project cost: \$1,662,000,000.00



# What are Federal Officials Saying about Design-Build?

## ➤ Joseph Gott, Chief Engineer and Director of Capital Improvements, NAVFAC

*“ At NAVFAC, we do about 75 percent of new construction design-build. The largest reason we select a project for the design-build delivery vehicle is the single point of accountability and responsibility. We have an A/E and a design-build constructor on the same team and have a contract with one company.”*

## ➤ Paul Parsonneault, Construction Management Team Leader, Military Programs Branch, USACE

*“ There was no way possible to execute an historically large mission using the traditional delivery system. We determined that, in terms of the Army, the default delivery system is designed-build...Primarily because we can deliver more quickly, we can leverage the innovation of industry to provide us with the most cost effective solutions to our requirements.”*





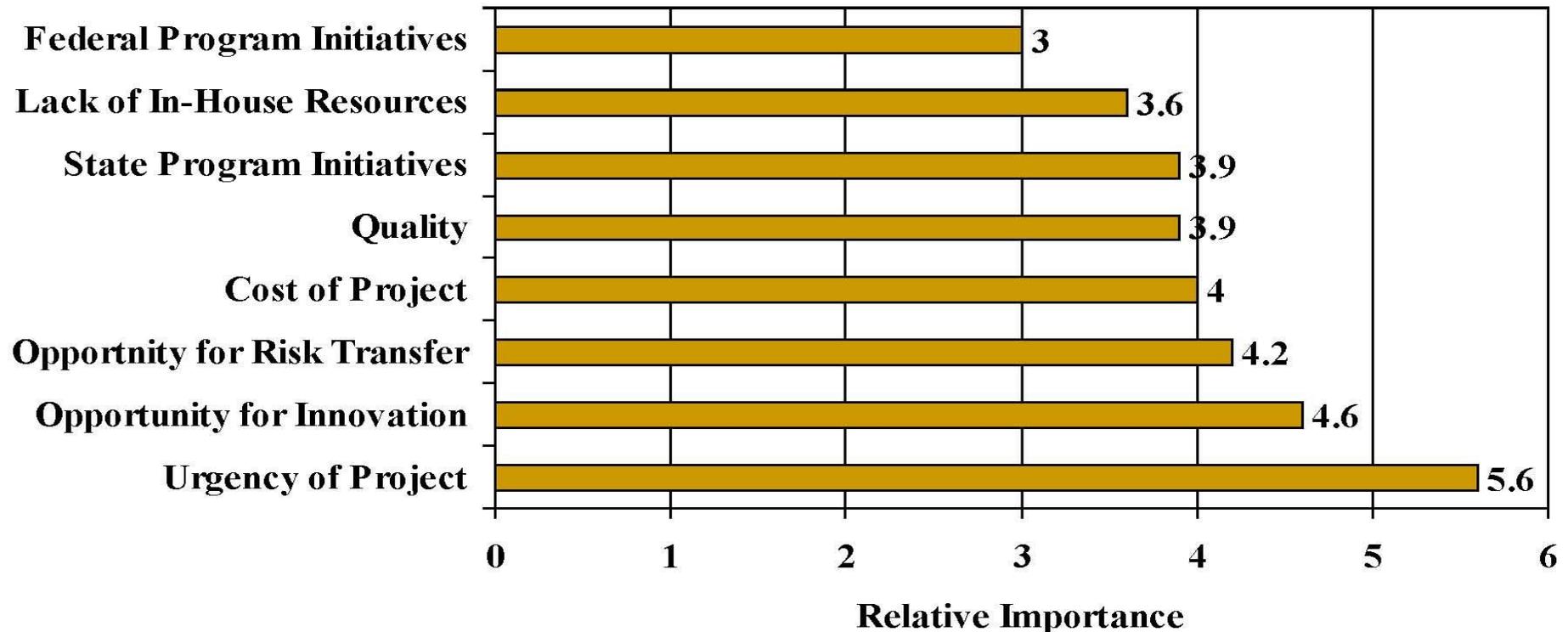
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**Design-Build at  
the State Level**



# Making the Design-Build Decision

## Relative Importance of Factors Considered in Deciding Whether to Use Design-Build



# Urgency of Project



**35-W Bridge Minneapolis, MN**



**Rte. 42 Catskill Mountains, NY**

# Urgency of Project



**Harrison County/US  
Highway 90 Bridge  
Replacement  
Harrison County, MS**



**St. Bernard Parish Pump  
Station Rehabilitation  
New Orleans, LA**



# Urgency of Project



**Lincoln Road/I-15 Interchange  
Safety Improvement Project  
Lewis and Clark County, MT**

**Construction Started: March 15, 2005**

**Construction Completed: September 8, 2005**



# Opportunity for Innovation



**U.S. 17 Washington Bypass**  
Chocowinity, NC



**Inter-County  
Connector (ICC)**  
Montgomery  
County/Prince George's  
County, MD



# Urgency of Project



## Upper Blackfoot Mining Complex Water Treatment System

Lincoln, MT

Construction Start Date: 04/01/2008

Completion Date: 01/15/2009

Total Project Cost: \$4,444,000.00



# Opportunity for Cost and Time Savings



**Sea-to-Sky Highway  
W. Vancouver to Whistler, BC**



**US Hwy 52 (ROC 52)  
Rochester, MN**



# Opportunity for Cost and Time savings



I-229 Corridor  
Sioux Falls, SD



# Quality on a Tight Budget



## Mineta San Jose International Airport San Jose, CA

Cost: \$13,400,000.00



# Quality on a Tight Budget



**The Ramsey County Maplewood Library**  
**Maplewood, MN**



# Quality



**Jackson Hall, University of Minnesota**  
**Minneapolis, MN**



# Opportunity for Risk Transfer and Innovation



Final proposals for **Tappan Zee Bridge** will create more than 45,000 jobs. The state is using the design-build process to speed the construction timeline approved by New York state lawmakers last December

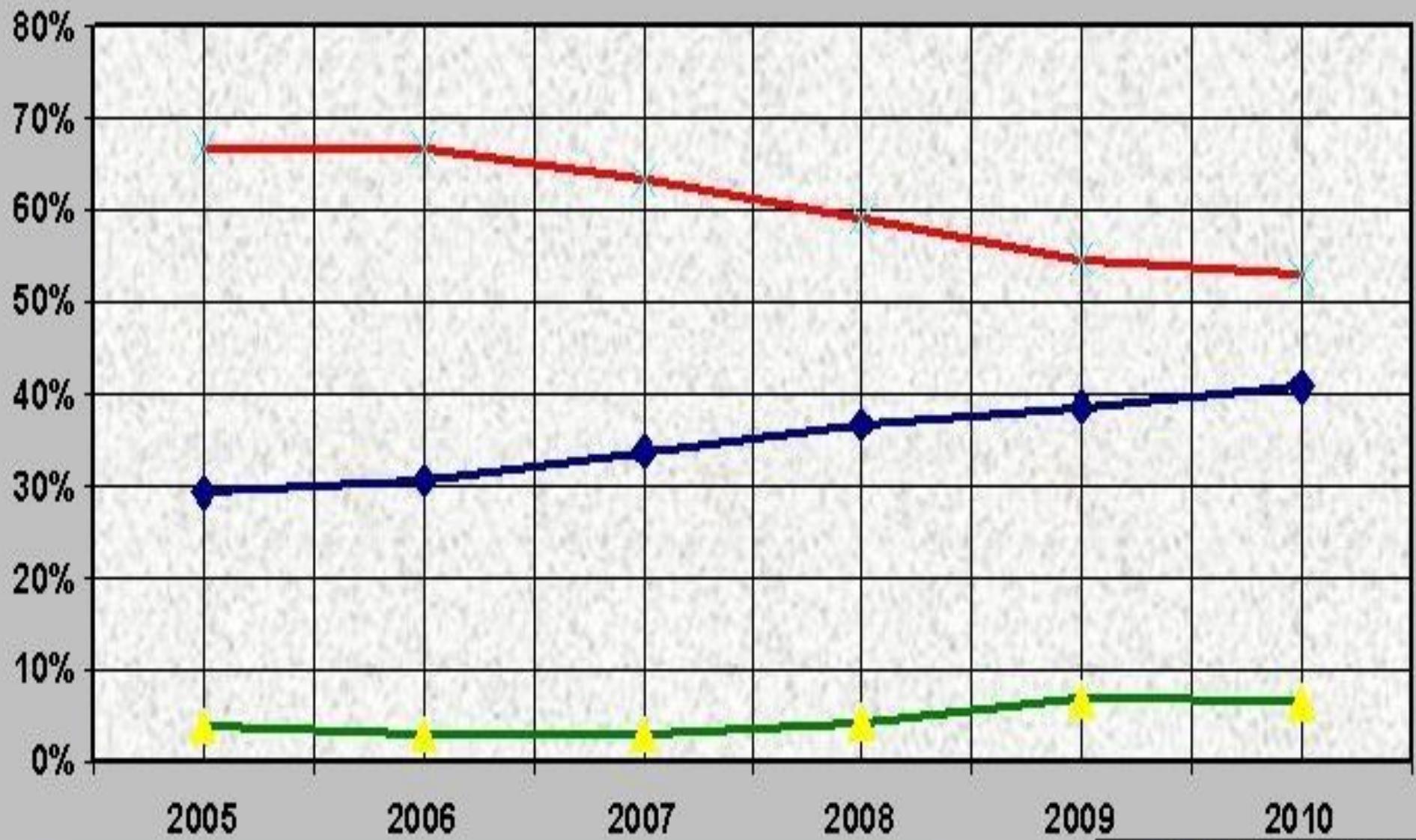




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**Where is the  
Industry Headed?**

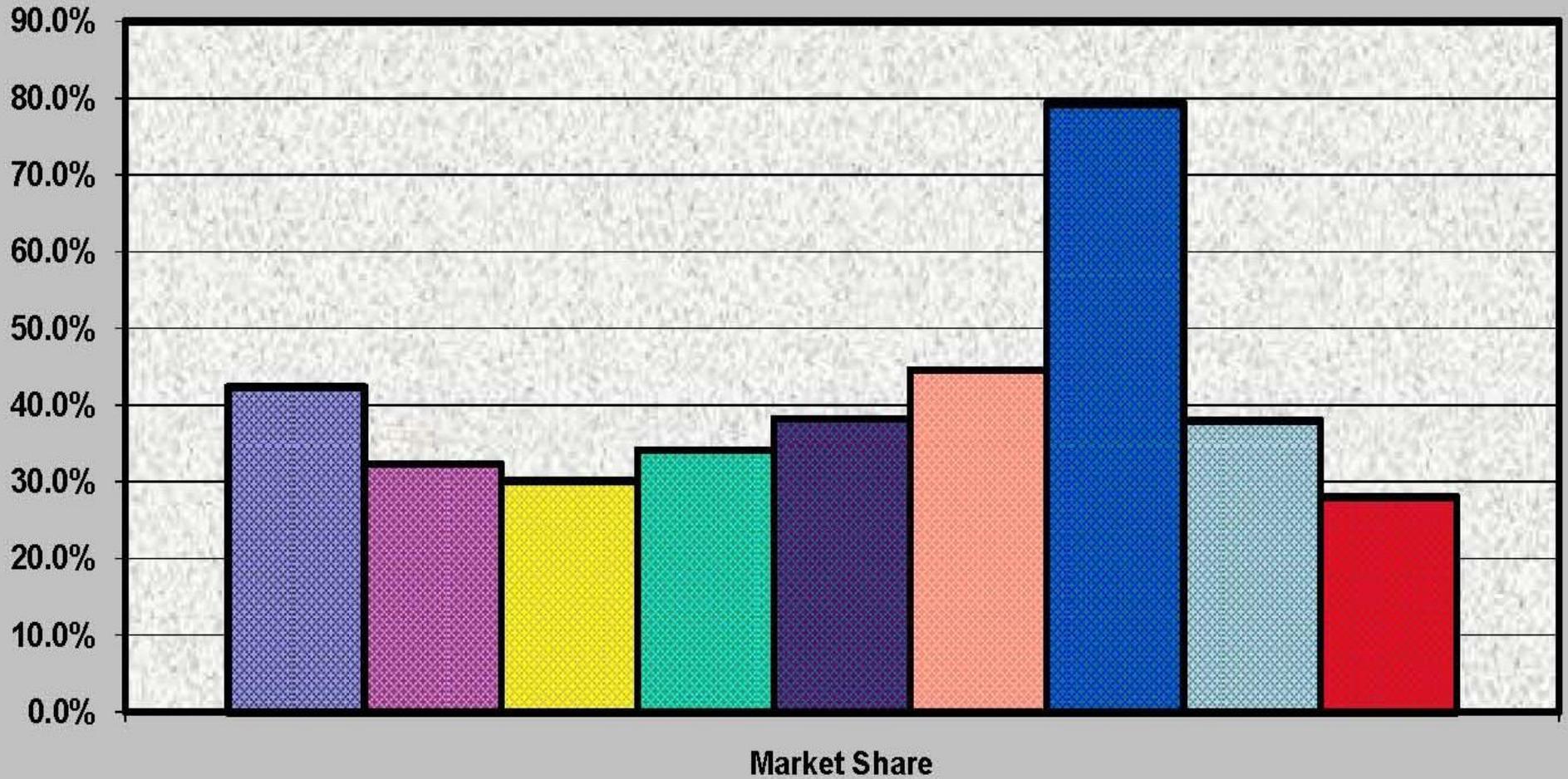
# Project Delivery Method Market Share for Non-Residential Construction



Analysis by RSMeans Business Solutions a div of Reed Construction Data

- ◆ Design - Build
- ◆ CM-at-Risk
- ◆ Design-Bid-Build

## Market Share of Design-Build by Building Categories for last 5 years by Dollar Value



Commercial Community Educational Government Industrial  
Medical Military Apartments Retail

# Design-Build in Minnesota

**All state agencies, counties cities,  
Metropolitan Sports Commission,  
and are authorized to use design-  
build. (MSA § § 383B.158 -  
383B.1585)**



# Design-Build in South Dakota

**Design-build is authorized for all public agencies. (SDCLA § 15-18b-20)**



# Design-Build in Montana

- **Alternative project delivery contracts (design-build, construction management and contractor management) are authorized for state, county, municipal construction projects, airports, counties, and sewer districts. (MCA § 18-2-501-503)**
  - **Design-build is authorized for DOT contracts. (MCA § 60-2-111-112; 60-2-137)**



# Design-Build in Wyoming

- **All state, city, county, and local governments are authorized to use design and construction management delivery methods. (Wyo. Stat. § 6.6.101-107)**



# The Design-Build Advantage

- **Significantly Faster Completion Time**
- **Lower Cost**
- **Higher Quality**
- **Greater Owner Satisfaction**
- **Reduces litigation, change orders and cost growth**
- **Meets budget constraints**
- **puts people to work faster, finishes work faster, costs less**





**7.0**

**North Dakota at  
a Crossroads**

# Design-Build in North Dakota

- The DOT is authorized to use design-build on one signal light and one box culvert project.(NDCC 24-02-47)
- The state water Commission is authorized to use design-build for construction of the Devils Lake Outlet. (NDCC 61-02-23.2)
- Municipalities and political subdivisions are authorized to combine price and technical evaluation selection process. They must choose the lowest and best bid. NDCC 44-08-01.1
- **North Dakota has virtually no authorization for the use of design-build**



# Changes to Bidding Laws Will be Challenged

- **Powerful, entrenched interests will oppose any changes to the status quo, they muddy the water with “urban myths”**
- **Design-build doesn't fit there business plan**
- **Work will go “out of town” contractors and design-firms**
- **Small firms cannot compete**



# The Road to Design-Build

- **Changing the current bidding laws**
  - **Build a Design-Build Coalition**
  - **Find the Right Model**
- **Industry & Owners making the transition**
  - **Identify a Point Person within DOT Now**
  - **Technical Support**
  - **Training Contractors and Consultants**
  - **Training For Key DOT Personnel**



# Questions ?



# Does North Dakota Need Design-Build?

**If you have infinite supply of time, money and attorneys you probably don't need design-build...**



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