

Measuring Performance

qm and more

May 14, 2021

p e r f o r m a n c e

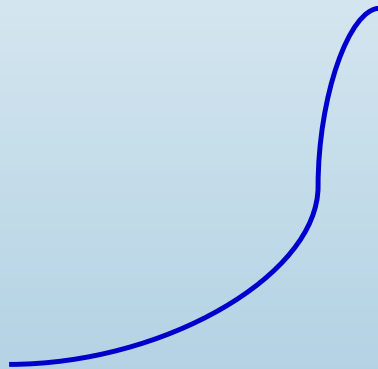
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expectations gap



performance expectations

expectations met



“What gets measured gets managed”

**It's wrong
and
Drucker never said it**

<https://medium.com/centre-for-public-impact/what-gets-measured-gets-managed-its-wrong-and-drucker-never-said-it-fe95886d3df6>

**Not everything that matters can be measured.
Not everything that we can measure matters.**



Expectation – a strong belief that something will happen or be the case in the future. Belief that something should be a certain way.

Measurement – the act or process of measuring; a figure, extent, or amount obtained by measuring: dimension

Performance – an action, task, or operation, seen in terms of how successfully it was executed. Process or manner of function or operation.

Quality – the degree to which a set of inherent characteristics fulfill requirements.

PMBOK 6th Edition

Quality Management

Actions Accomplished Include

- [Internet page](#)
 - QM Guide
 - Region Quality Plans
 - Other links
- [Design Quality Management \(sharepoint site\)](#)
 - Guidance and Resources
 - Region Quality Management
 - Statewide
 - Monthly Quality Reports
 - Quality Management Group Meetings



Quality Management

Change Orders

Estimating

Messaging

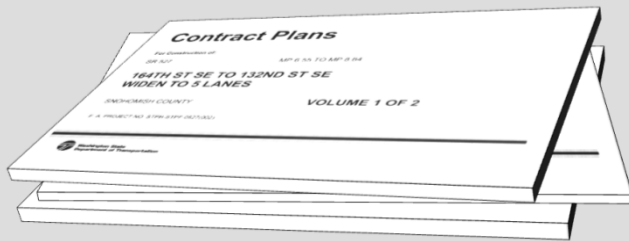


Data Set



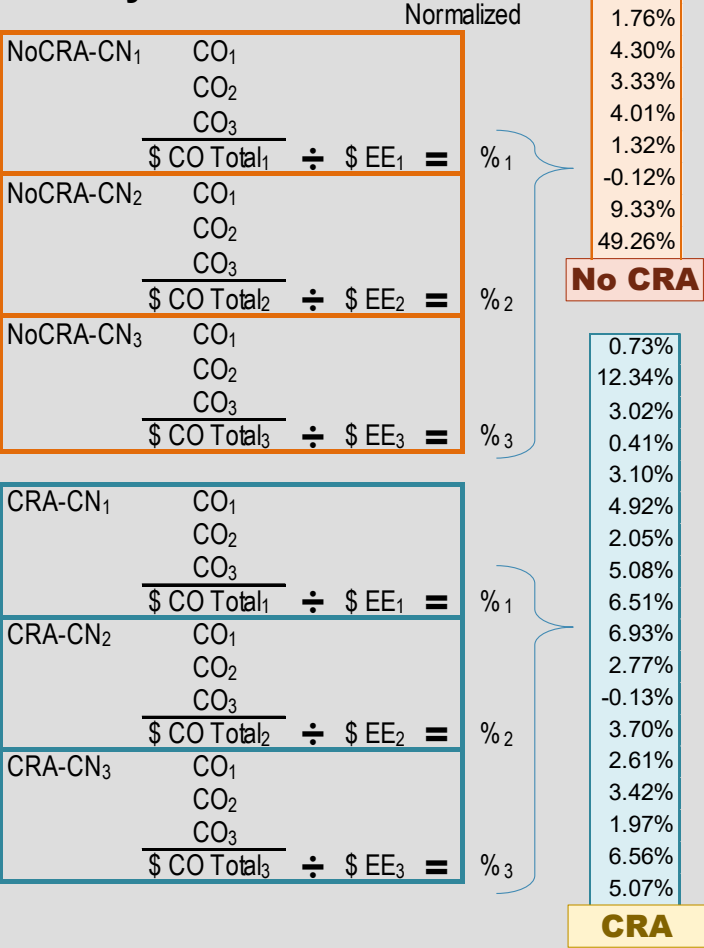
- Design-Bid-Build Contracts
- Engineer's Estimate $\geq \$10M$ & $\leq \$100M$
- Contract Completion Date ≥ 2016 & < 2020

Contract + Workshop + Change Orders

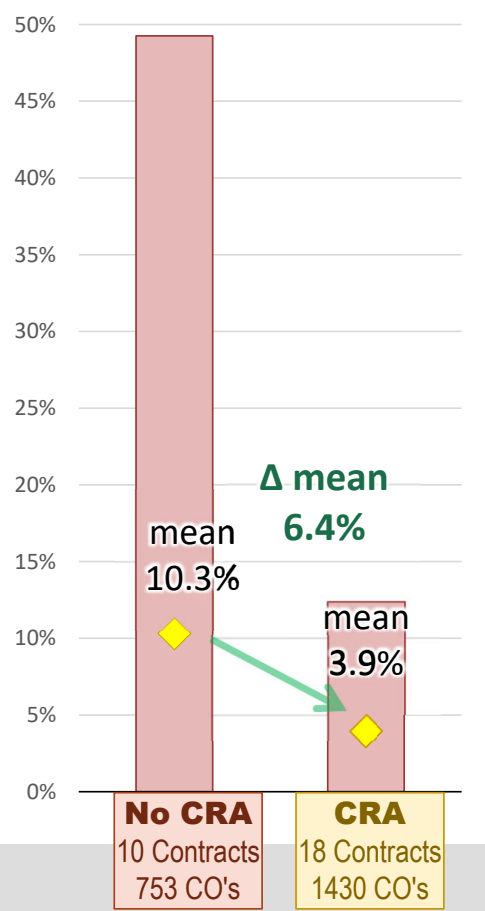


Contract Level Analysis

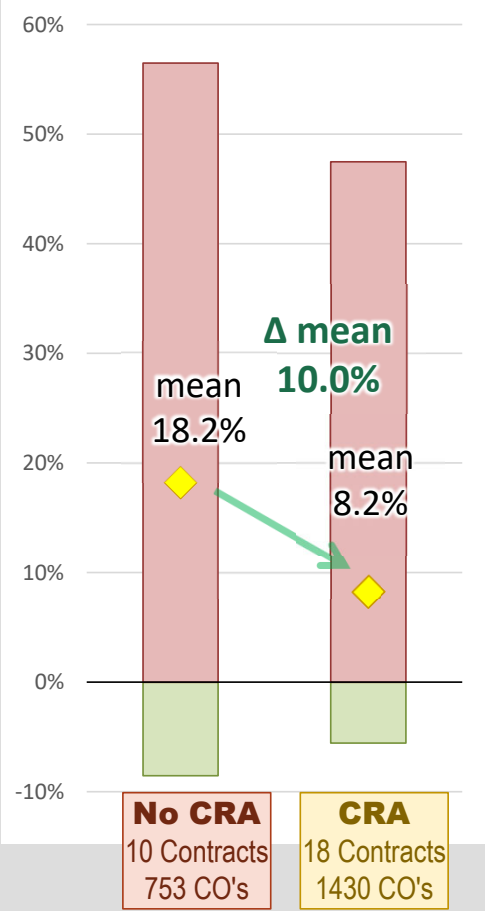
Analysis Schematic



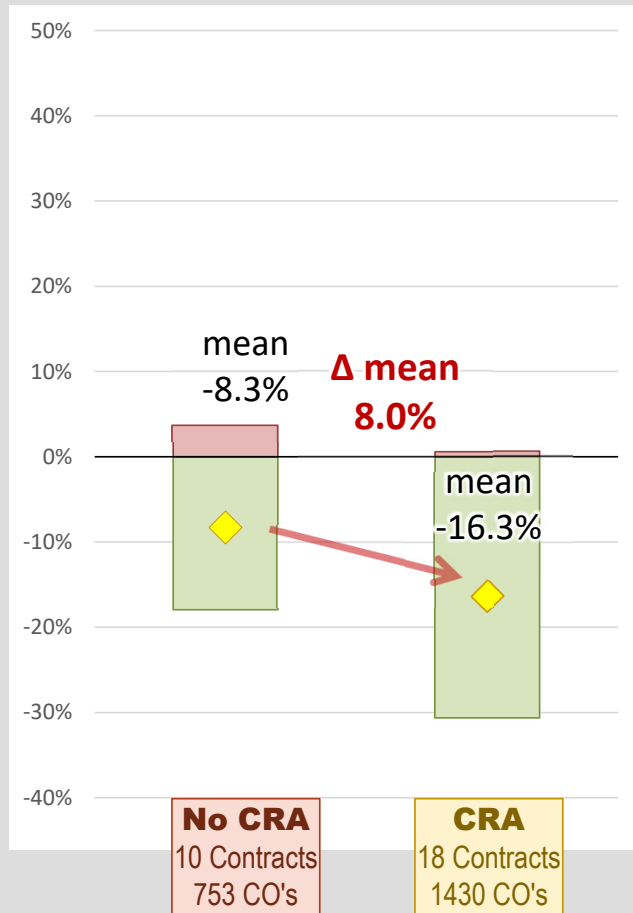
Total Change Order
Cost Range
as a **percent of Engineer's Estimate**



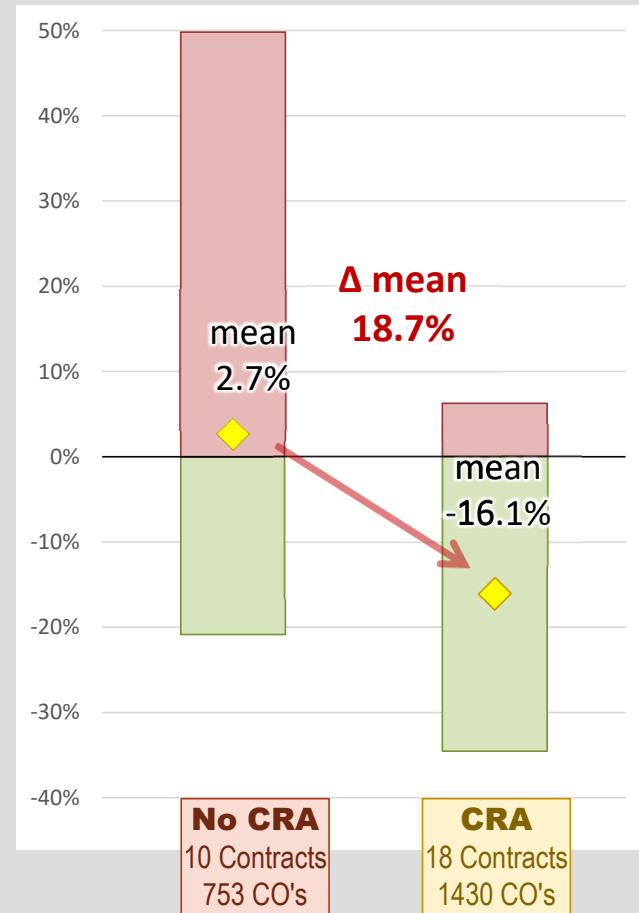
Total Change Order
Days Range
as a **percent of Original Days**



Engineer's Estimate To Prime Bid Amount



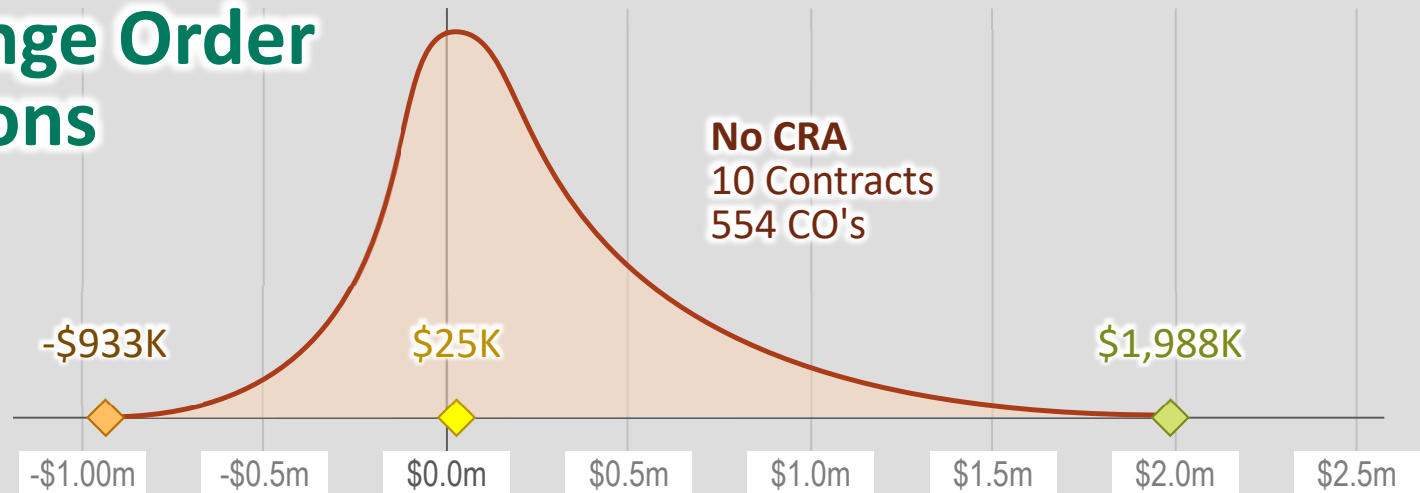
Engineer's Estimate To Net Payment Amount



Individual Change Order Cost Distributions

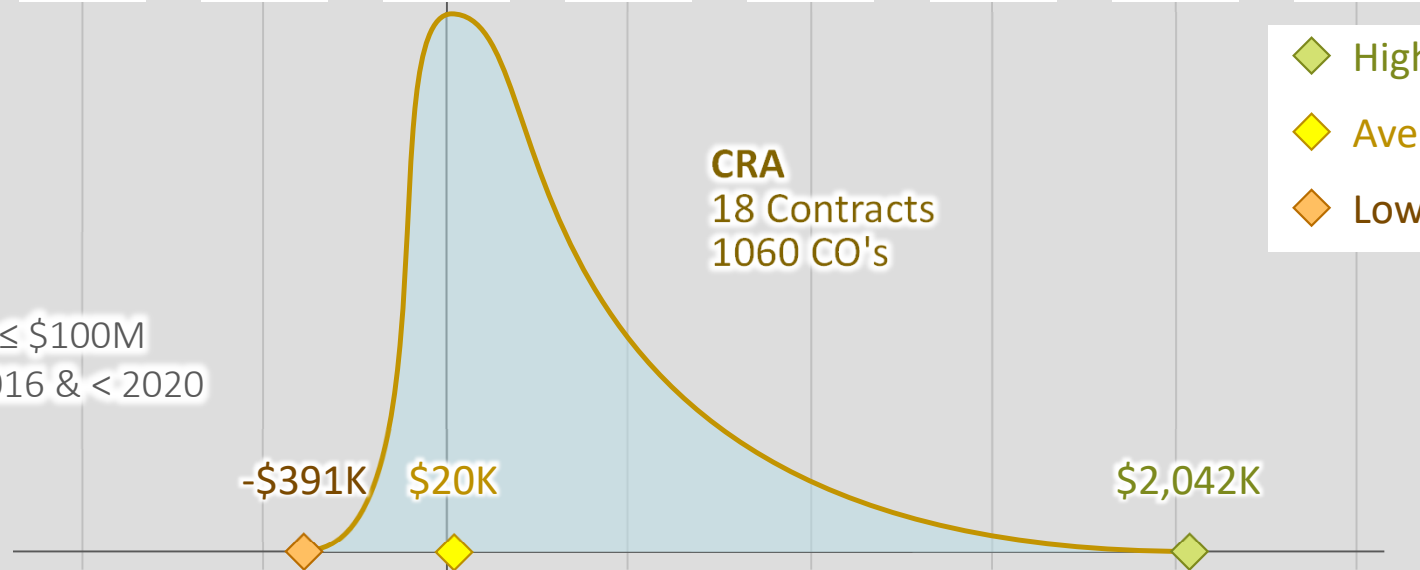
CO's > \$0 or < \$0

No CRA
10 Contracts
554 CO's



Δ Average = \$4,642

CRA
18 Contracts
1060 CO's



- ◆ Highest
- ◆ Average
- ◆ Lowest

Design - Bid - Build Contracts
Engineer's Estimate: $\geq \$10M$ & $\leq \$100M$
Contract Completion Date: ≥ 2016 & < 2020



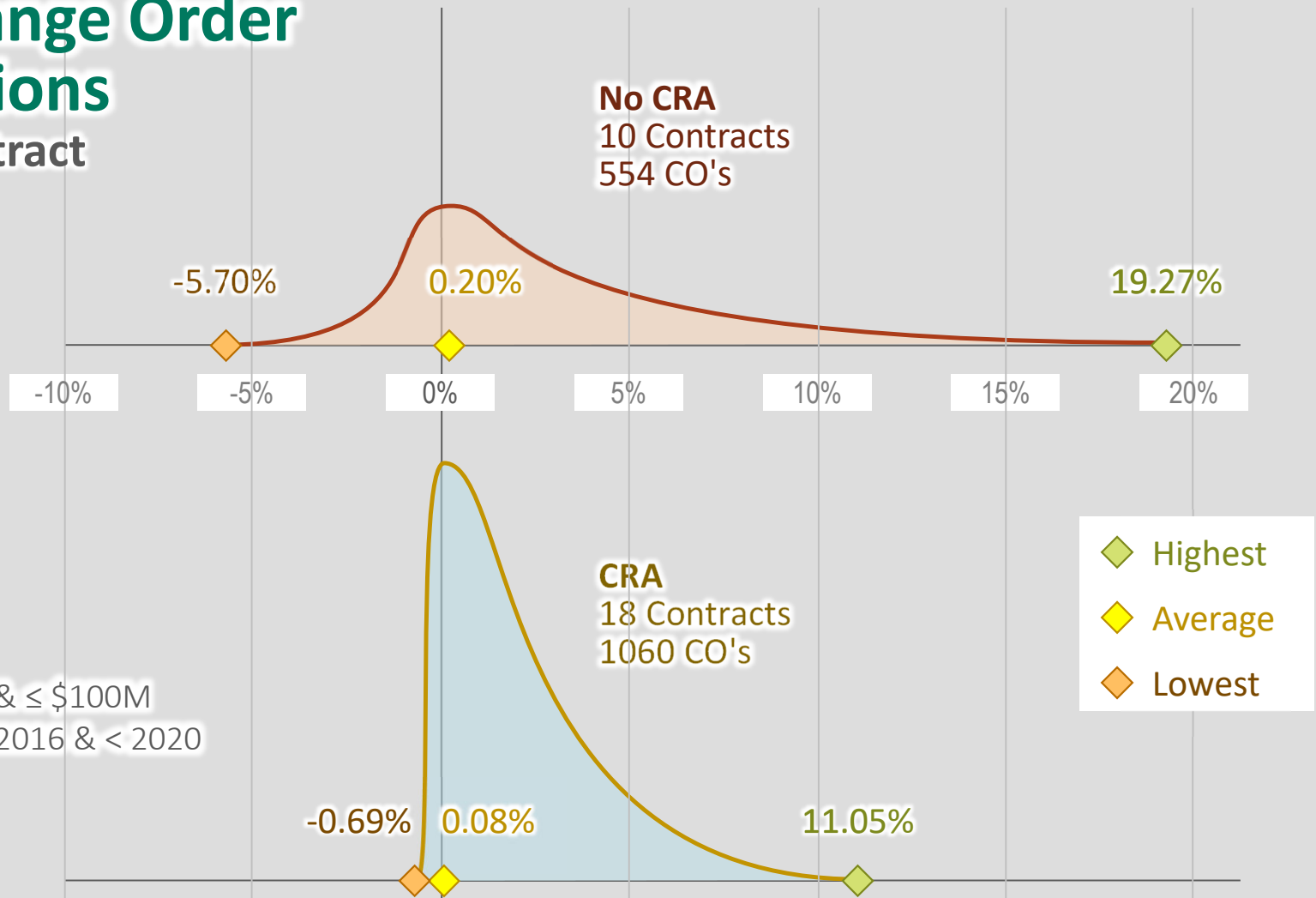
Individual Change Order Cost Distributions

as a percent of Contract Bid Amount

CO's > \$0 or < \$0

Δ Average = 0.12%

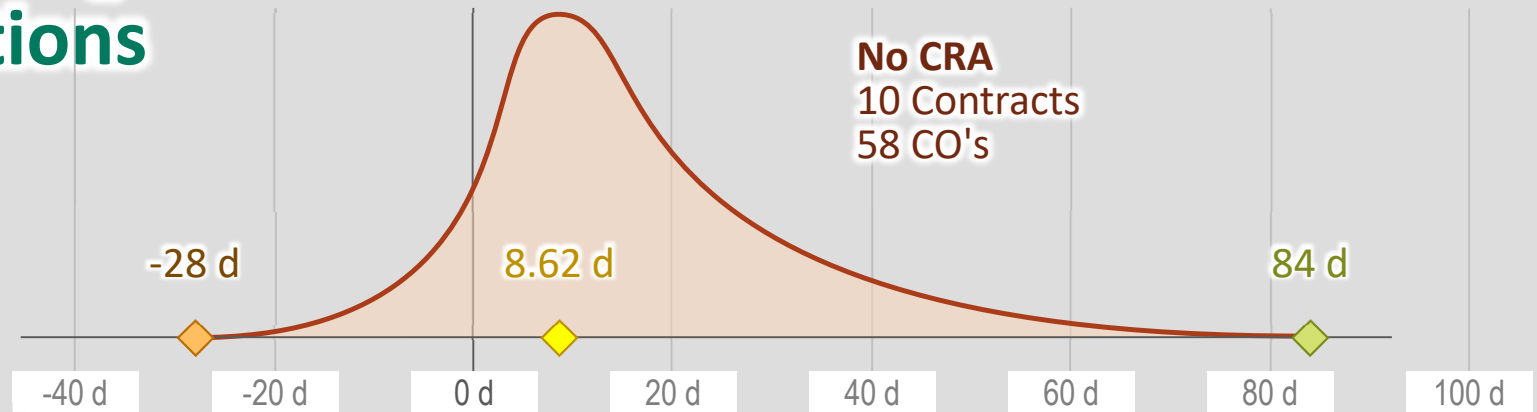
Design - Bid - Build Contracts
Engineer's Estimate: ≥ \$10M & ≤ \$100M
Contract Completion Date: ≥ 2016 & < 2020



Individual Change Order Day Distributions

CO's > 0 d or < 0 d

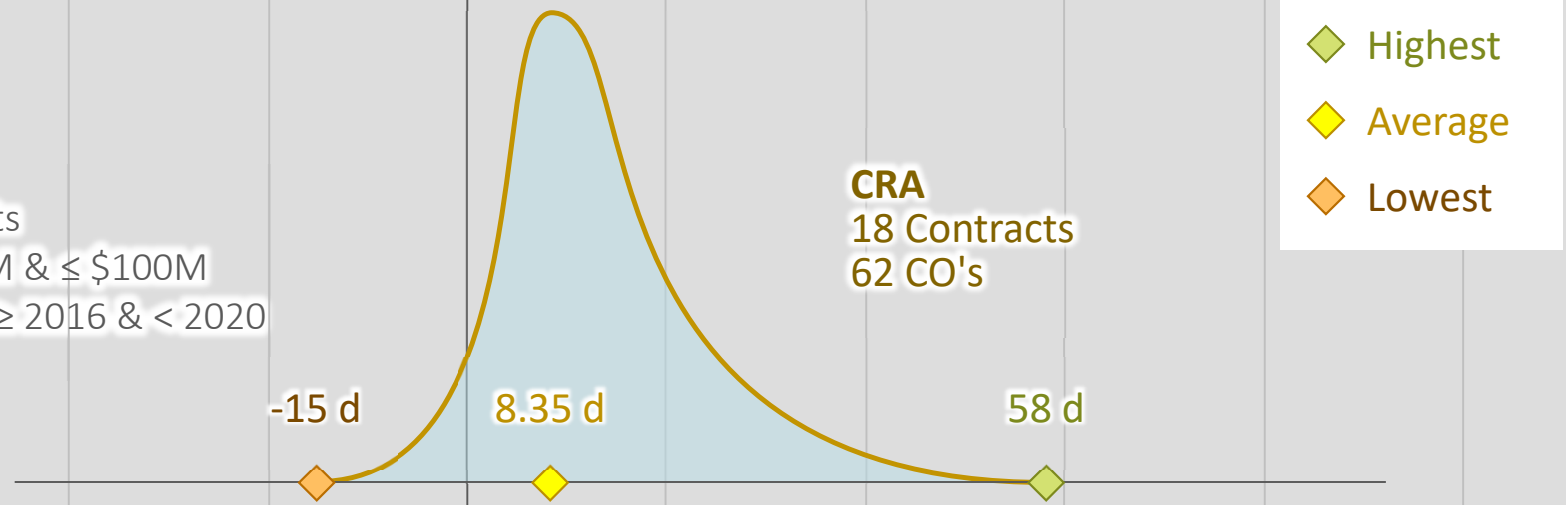
No CRA
10 Contracts
58 CO's



Δ Average = 0.27 d

Design - Bid - Build Contracts
Engineer's Estimate: $\geq \$10\text{M}$ & $\leq \$100\text{M}$
Contract Completion Date: ≥ 2016 & < 2020

CRA
18 Contracts
62 CO's



- ◆ Highest
- ◆ Average
- ◆ Lowest



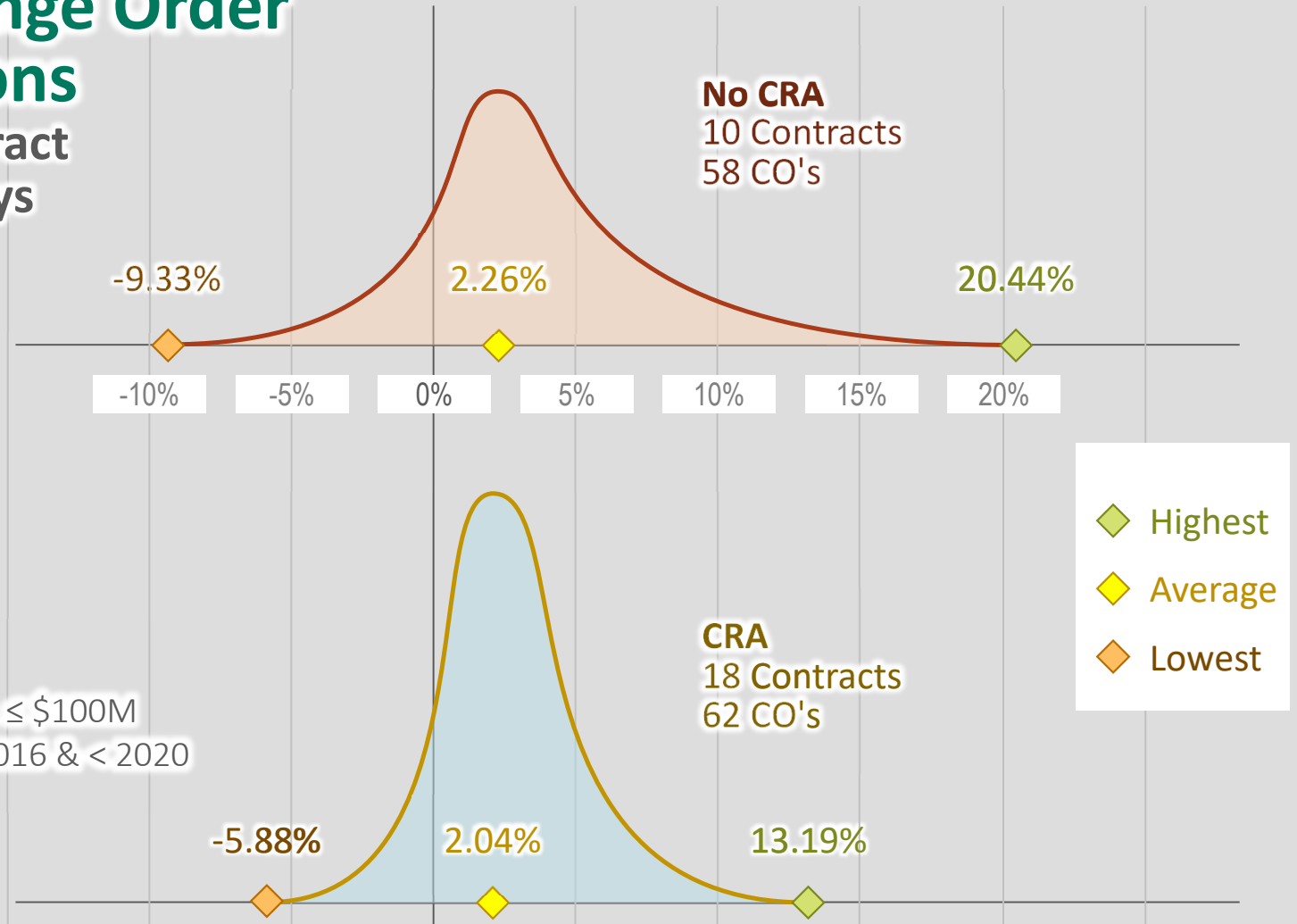
Individual Change Order Day Distributions

as a percent of Contract Original Working Days

CO's > 0 d or < 0 d

Δ Average = 0.22%

Design - Bid - Build Contracts
Engineer's Estimate: ≥ \$10M & ≤ \$100M
Contract Completion Date: ≥ 2016 & < 2020



CRA Findings

Formal CRA had a cost benefit of 18.3

-6.5% reduction in change order costs,

-1.3% reduction in schedule increases by change order

Formal CRA = ↑quality



Messaging



Public declaration of cost estimates

- **An estimate is a range, not a single number**
- **Total – everything – all in**
- **Year of Expenditure**

Leading Indicators



- **Project Management Plan**
 - scope, schedule cost, quality, **risk**, communications
 - integration, resource, procurement, stakeholder
- **Estimating – follow the process**
 - basis of estimate

Conclusions



**follow recommended practices
and
quality occurs**