

# Massachusetts School Building Authority

Steven Grossman  
*Chairman, State Treasurer*

John K. McCarthy  
*Executive Director*



## Massachusetts Association of School Superintendents Executive Institute

July 19, 2013

[www.MassSchoolBuildings.org](http://www.MassSchoolBuildings.org)



# Building Construction Costs

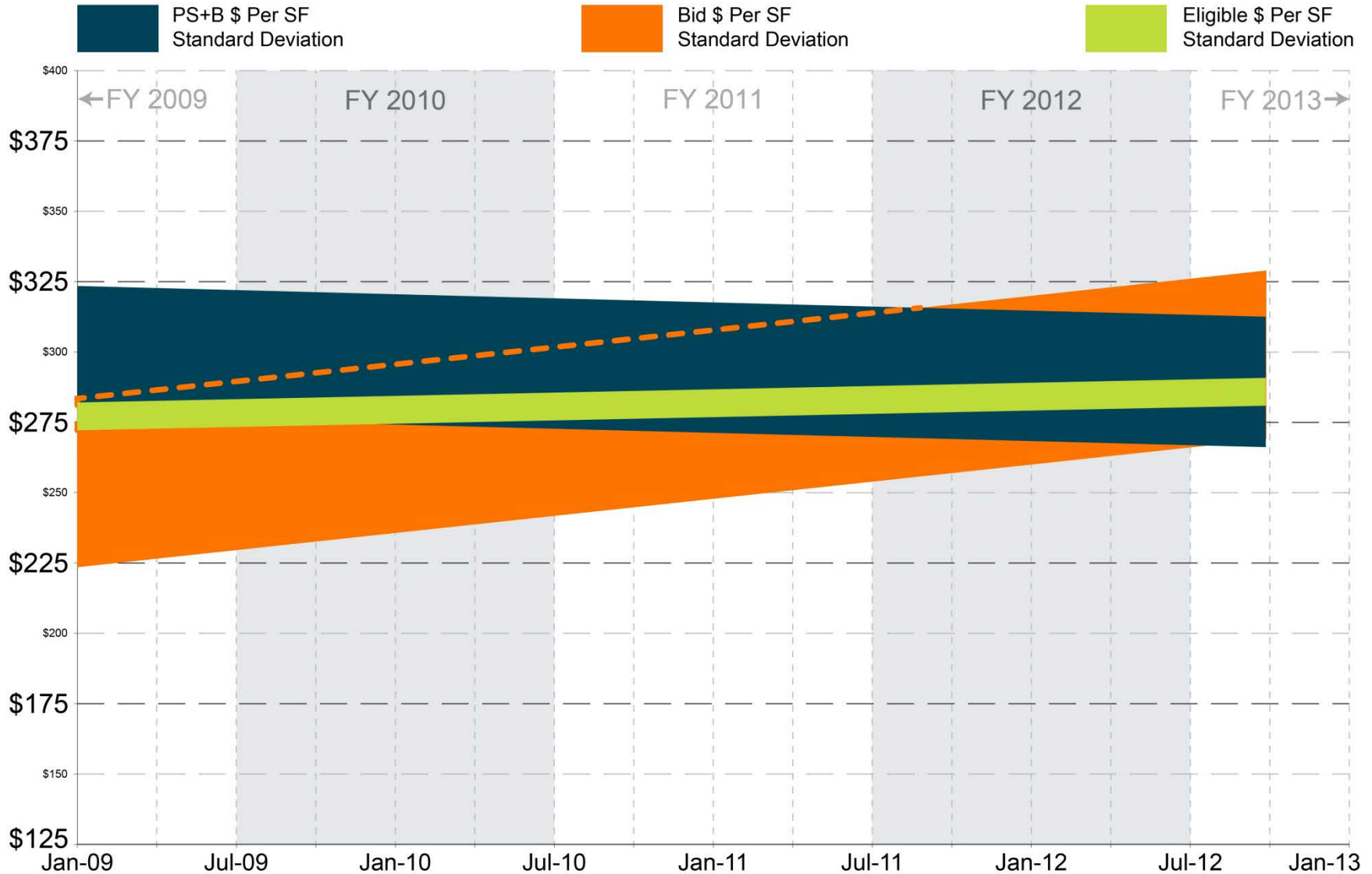
Marked Up Building Only Construction Cost		2009 (9)*	2010 (12)*	2011 (5)*	2012 (12)
Schematic Design	Average	\$250	\$243	\$240	\$270
	Range	\$229 - \$271	\$218 - \$268	\$231 - \$249	\$245 - \$295
Bid Results	Average	\$209	\$231	\$236	TBD
	Range	\$181- \$236	\$205- \$257	\$228 - \$244	TBD

\* Costs exclude Site, Demolition and Abatement

\* Averages and Ranges are based on projects with SD and Bid Data only

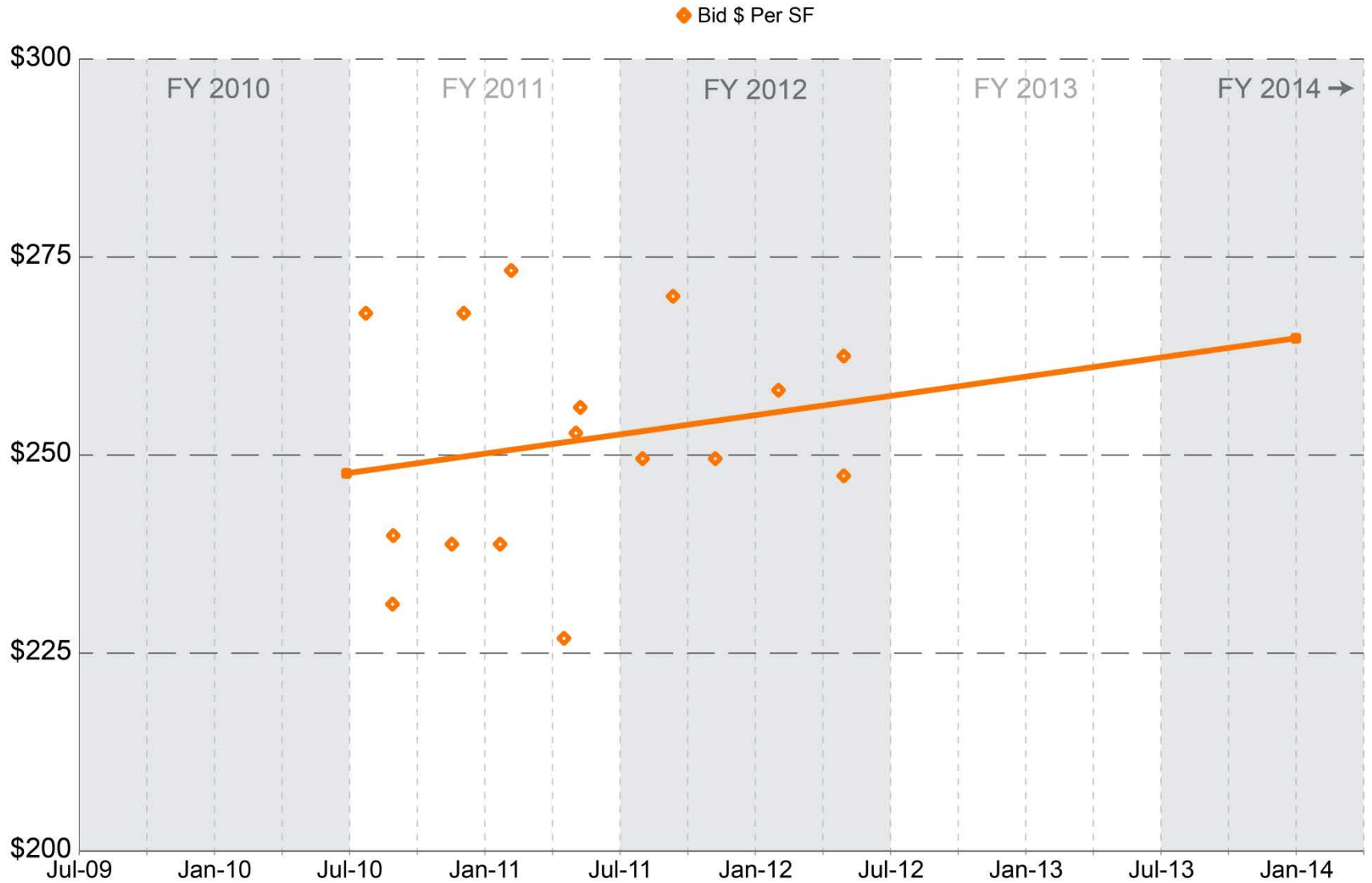


# Construction Cost Trends





# Construction Cost Trends





# Policy and Practices

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- Continue current policy of funding up to \$275/sf plus eligible demolition and abatement
- Conduct similar analysis with most recent available data and report findings in the Spring of 2014
- Annually conduct construction funding level analysis based on bid/GMP data from the two previous fiscal years

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## Change Order Analysis

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## Procedure Review

July 19, 2013



# MSBA Change Order Reviews

## CONSTRUCTION CONTINGENCY BUDGET

All Districts, All Core Program Model, New & Add/Reno Projects

MSBA POLICY	
New & Models	5%
Add/Reno	5-8%
Repairs	up to 10%





# MSBA Change Order Reviews

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OPM INPUT
Provides Copies of Change Orders to MSBA
Completes MSBA Standard Change Order Review Sheet
Reviews Data with MSBA Project Manager

# MSBA Change Order Reviews

## CHANGE ORDER REVIEW SHEET

OPM:  
Designer:  
Contractor:

DISTRICT  
School

Construction Type: new/add/reno/repair  
Reimbursement Rate: %  
Approx. % Complete & SC Date  
Delivery Method: DBB or CMR

PCO #	Description	Requested By	Net Added	Net Deducted	MSBA USE ONLY		Approximate Cost by Trade*						Reason for Change**					Comment		
					Ineligible for Grant Participation	Eligible for Grant Participation	Structural	Site	Utilities	Plumbing	Electrical	HVAC	Misc	Design Issue	New Scope Directed by Owner	Differing Conditions	New Scope Directed by 3rd Party		Misc.	
Change Order #001																				
Change Order #002			50	50	(2)	48	50			(2)	50	50		50			50	(2)		
0	Base Construction Contract Amount	1000	100	(2)	48	50	-	-	(2)	50	50	-	-	50	-	50	(2)	-	-	-
			10.00%	-0.20%	4.80%	5.00%	0.00%	0.00%	-0.20%	5.00%	5.00%	0.00%	0.00%	5.00%	0.00%	5.00%	-0.20%	0.00%		
					98	98								98		98				98
					9.80%	9.80%								9.80%		9.80%				9.80%

Original Construction Cost	1,000
Change Order Total	98
Adjusted Construction Cost	1,098
Total Change Orders as % of Original Cost	9.80%
Total Construction Contingency	70
Change Orders Eligible for Reimbursement, Subject to Reimbursement Rate and Audit	50
Change Orders Eligible for Reimbursement as % of Total Change Orders	51.02%
Change Orders Eligible for Reimbursement as % of Construction Contract	5.00%
Change Orders Eligible for Reimbursement as % of Construction Contingency	71.43%

<b>SITE CAP</b>	
Base Building Cost	800
Less Sitework & Demo	(20)
	780
	8%
<b>SITE CAP MAXIMUM</b>	62
PFA - Budget Site Costs	72
Budget Amt. Under/(Over) Cap	(10)
Proposed Eligible Site Change Orders	-

<b>FF&amp;E CAP</b>	
Furnishings	25,000
Equipment	25,000
Computer Equipment	25,000
Other F&E	
	75,000
Agreed Enrollment	100
FFE \$/student	750

<b>Change Orders Pending</b>	
CO #	\$0
CO #	\$0
Total	\$0

\* "Approximate Cost by Trade" is based on the general description of the work and/or primary subtrade(s) or subcontractor(s) involved in the change and does not necessarily reflect all trades included in or impacted by the change(s).

\*\* MSBA characterization of the reason for any change order is based on information provided by the district and/or its consultant(s) and is intended to reflect the proximate rationale for issuance of the change order and consequent eligibility for grant funding and is not intended to be determinative of the root causes of the change or serve as an assessment of ultimate responsibility for the change.



# MSBA Change Order Reviews

Approximate Cost by Trade*							Reason for Change**				
Structural	Site	Utilities	Plumbing	Electrical	HVAC	Misc	Design Issue	New Scope Directed by Owner	Differing Conditions	New Scope Directed by 3rd Party	Misc.



# MSBA Change Order Reviews

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MSBA DETERMINATIONS
MSBA Eligibility Determinations and Completed Review Sheets Mailed to Districts
Copy to OPM
Copy to Designer



# MSBA Change Order Reviews

ELIGIBILITY CRITERIA
Typically Eligible Design Issues Differing Conditions
Typically Ineligible New Scope Owner Directed Third-Party Site Work > 8% Cap Significant Design Issues Schedule Related



# MSBA Change Order Reviews

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## MSBA PROCESS

Reviews Performed Quarterly

COs Reviewed Sequentially

Eligibility Ends Once Entire  
Contingency Budget is Committed  
– Regardless of Prior Eligibility



# MSBA Change Order Reviews

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## REIMBURSEMENTS

Make Reimbursements Upon  
Issuance of Determinations and  
District Submission of BRR

All Change Order Reimbursement  
Documentation Subject to MSBA  
Audit

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## Data

July 19, 2013





# Data Review– Basis of Analysis

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- **52 Projects over 75% Complete Reviewed**
  - 22 New, 17 Add/Reno, 8 Repairs, 5 Models
  - 31 DBB and 21 CM-R
  
- **828 Change Orders comprised of 6,297 PCOs**
  
- **\$1.66 B in Awarded Value**
  - Total COs = \$52.4 M or 3.2%
  - Ineligible COs = \$33.5 M or 2.1%
  - Eligible COs = \$18.9 M or 1.1%



# New Projects and Model Projects Change Order Summary

## New (22) and Model (5) Projects Change Order Summary

**Total Projects: 27 (Over 75% complete)**

Of the 27, 8 Projects are between 75% and 95%, 19 Projects are over 95%

		Total CO %			% Eligible CO's			Design Related CO's	Differing Conditions (Unforeseen)	Owner Directed	3rd Party
Total	Total	Low	High	Avg.	Low	High	Avg.	Avg.	Avg.	Avg.	Avg.
		27	0.66%	6.93%	3.17%	-0.15%	2.18%	0.92%	0.95%	0.53%	1.21%

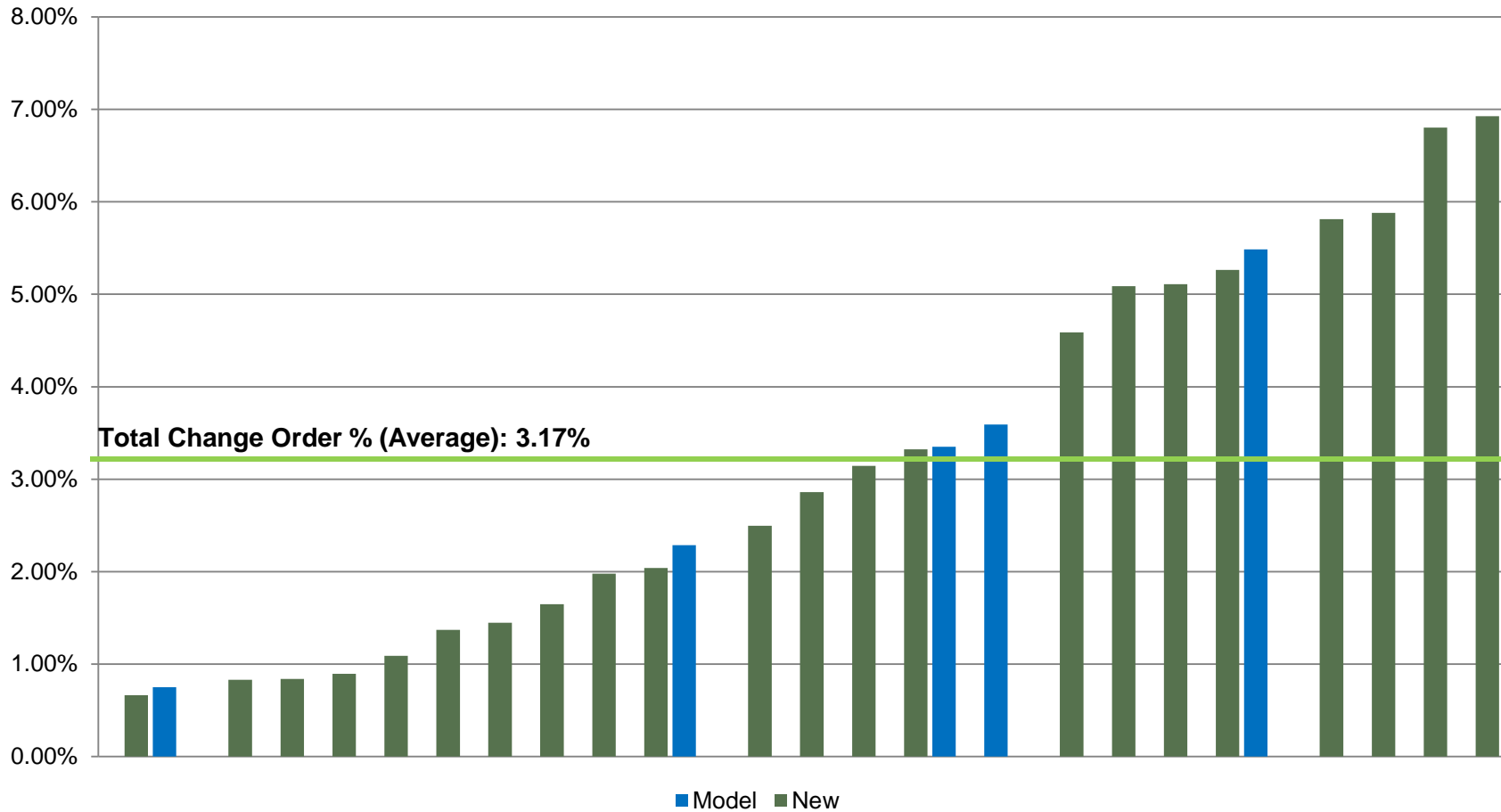
### Design Related Change Orders:

Model: 0.62%

New: 1.02%

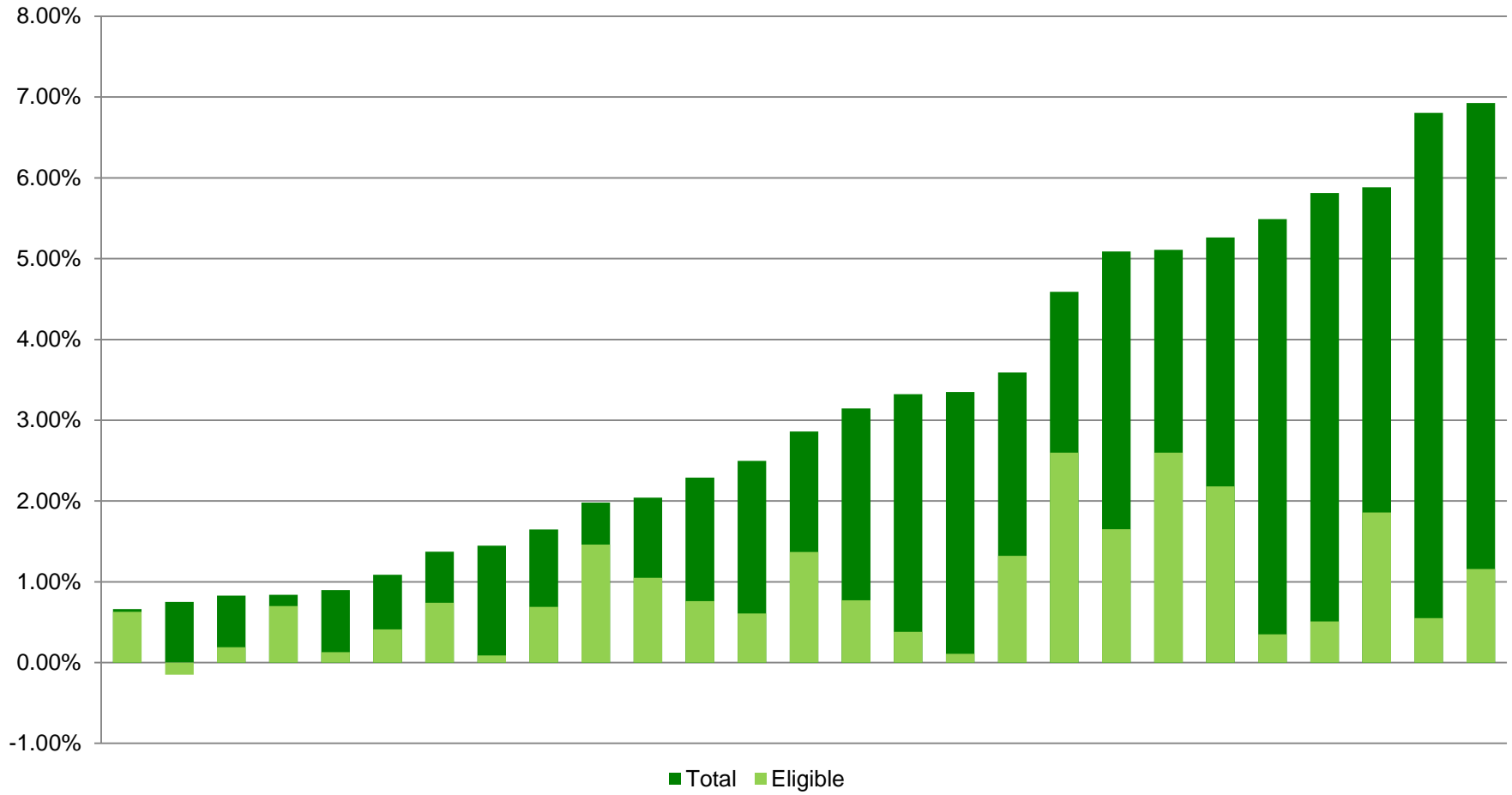


# New Projects and Model Projects: Total Change Orders (Average)



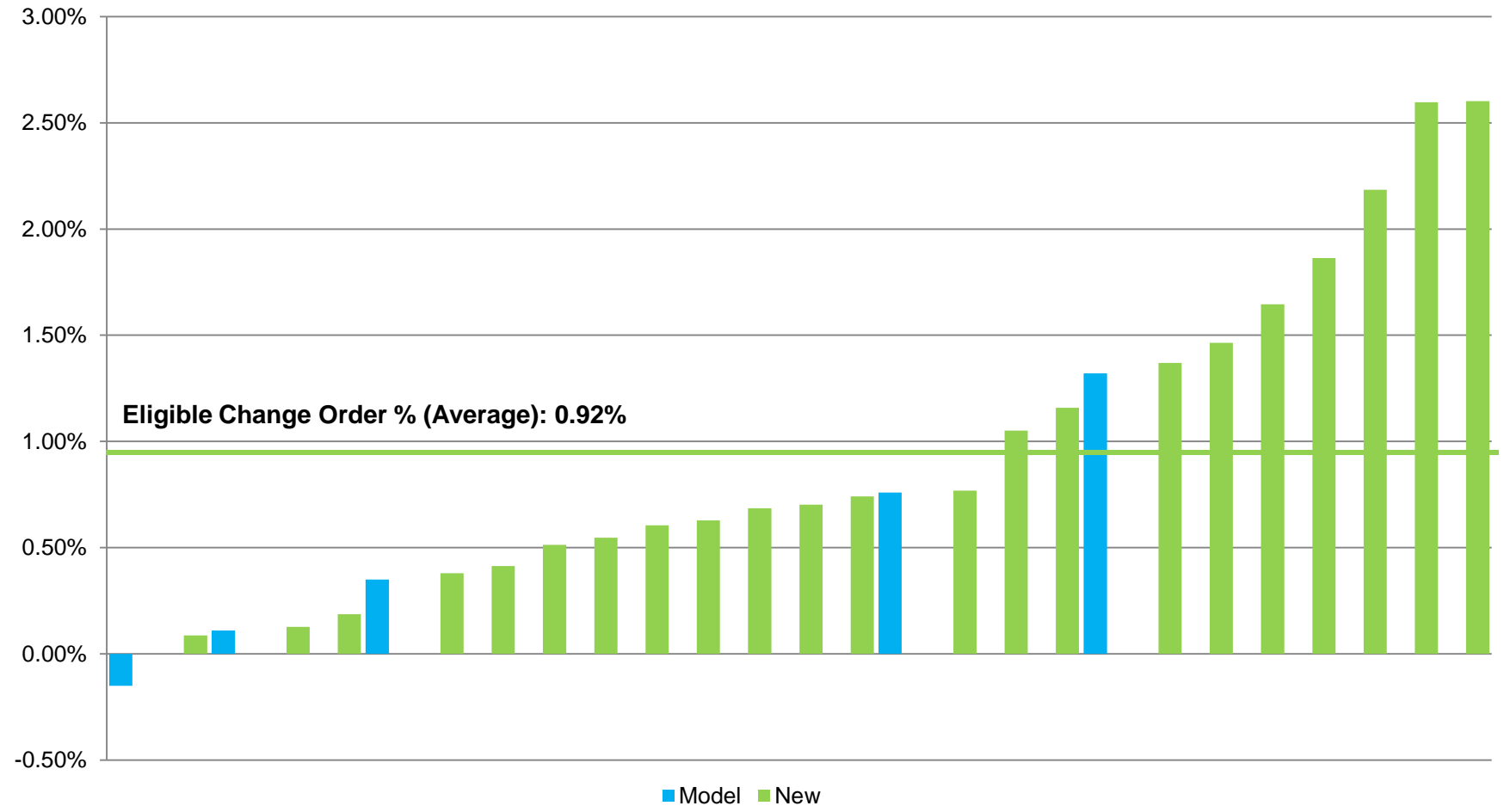


# New Projects and Model Projects: Total and Eligible Change Orders (Average)





# New Projects and Model Projects: Eligible Change Orders (Average)





# Addition and Renovation Projects Change Order Summary

## Addition and Renovation Projects Change Order Summary

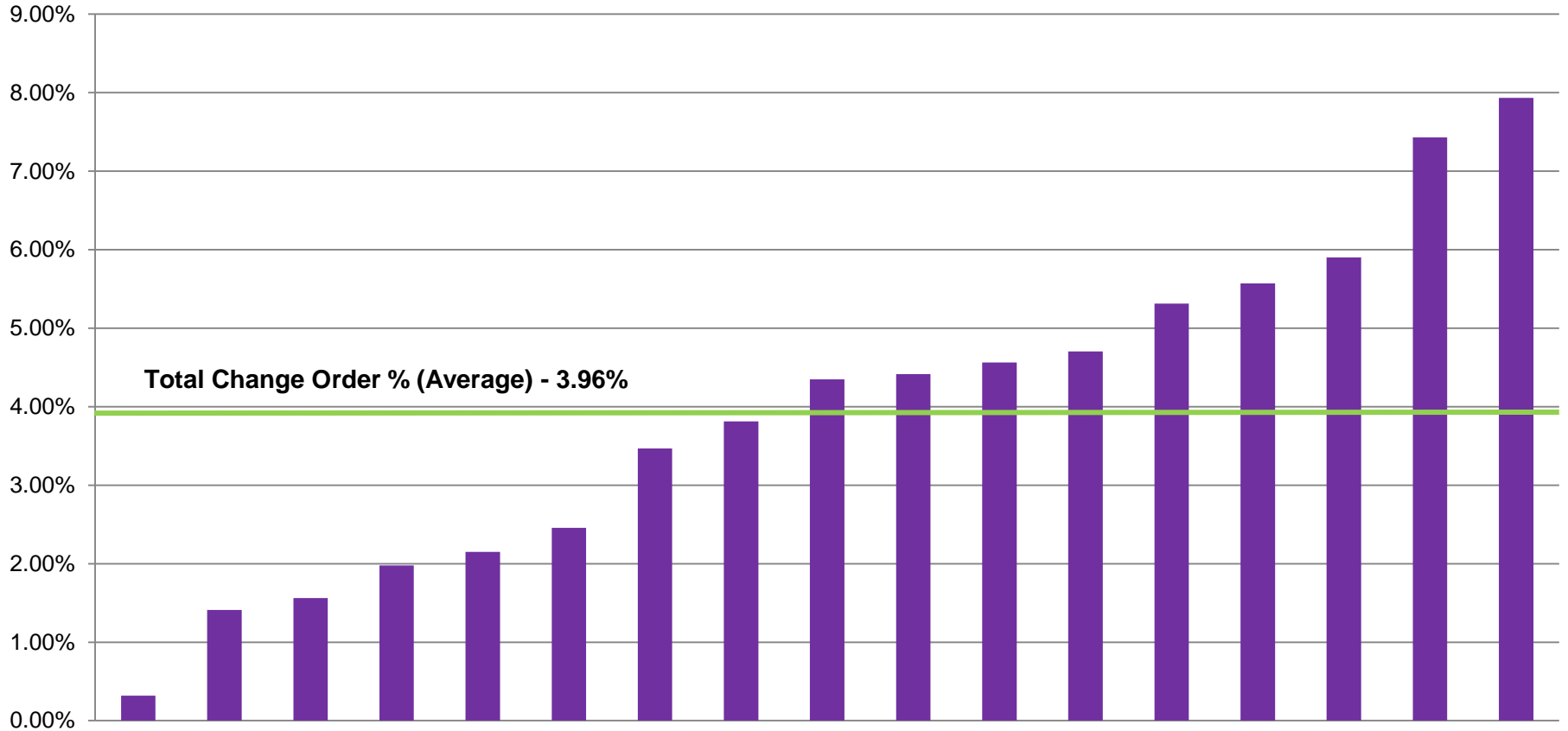
**Total Projects: 17 (Over 75% complete)**

Of the 17, 5 Projects are between 75% and 95%, 12 Projects are over 95%

		Total CO %			% Eligible CO's			Design Related CO's	Differing Conditions (Unforeseen)	Owner Directed	3rd Party
		Low	High	Avg.	Low	High	Avg.	Avg.	Avg.	Avg.	Avg.
<b>Add/Reno</b>	Total	0.32%	7.94%	3.96%	-0.02%	4.63%	1.77%	1.42%	1.41%	0.86%	0.17%

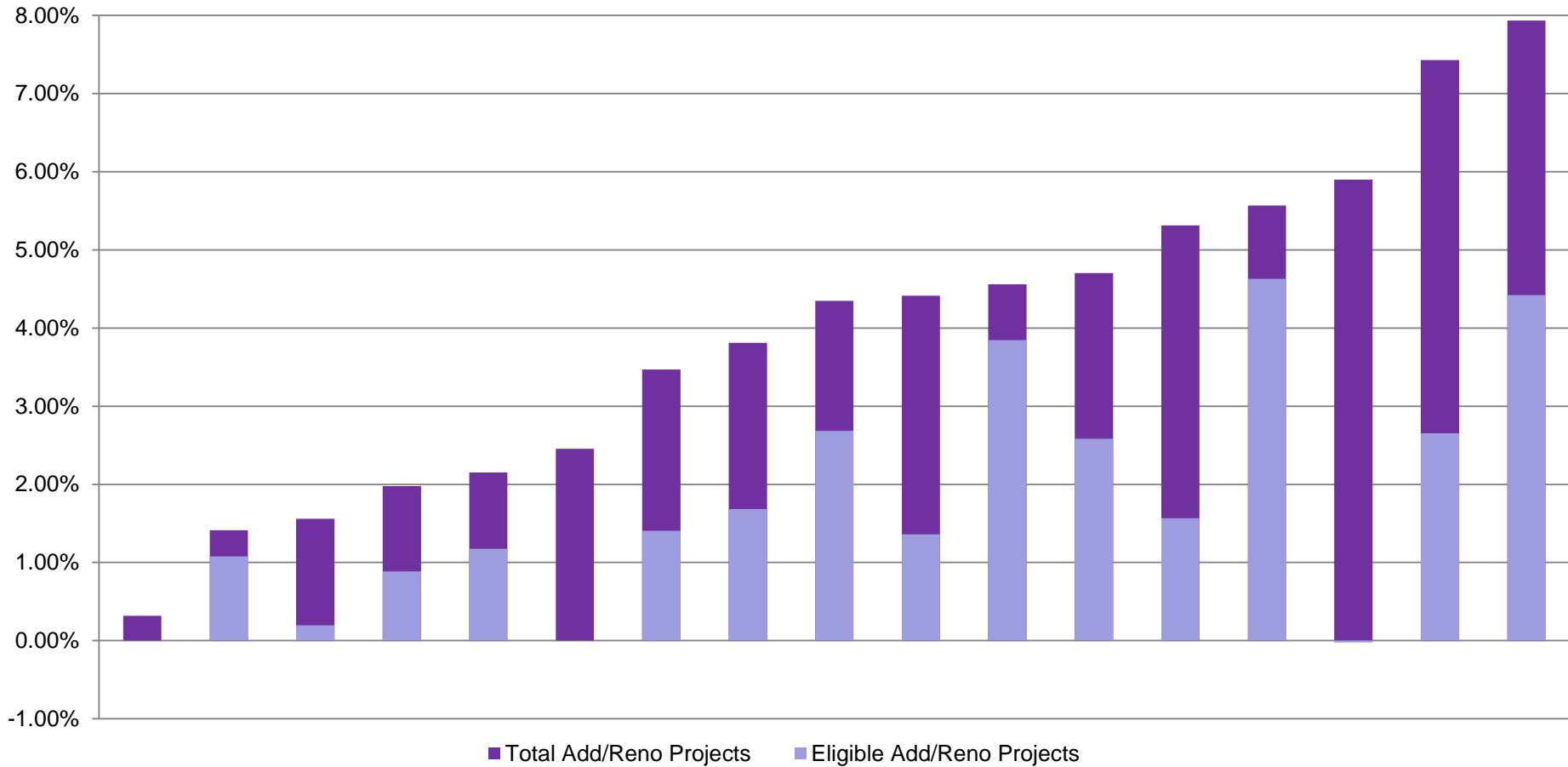


# Addition and Renovation Projects: Total Change Orders (Average)





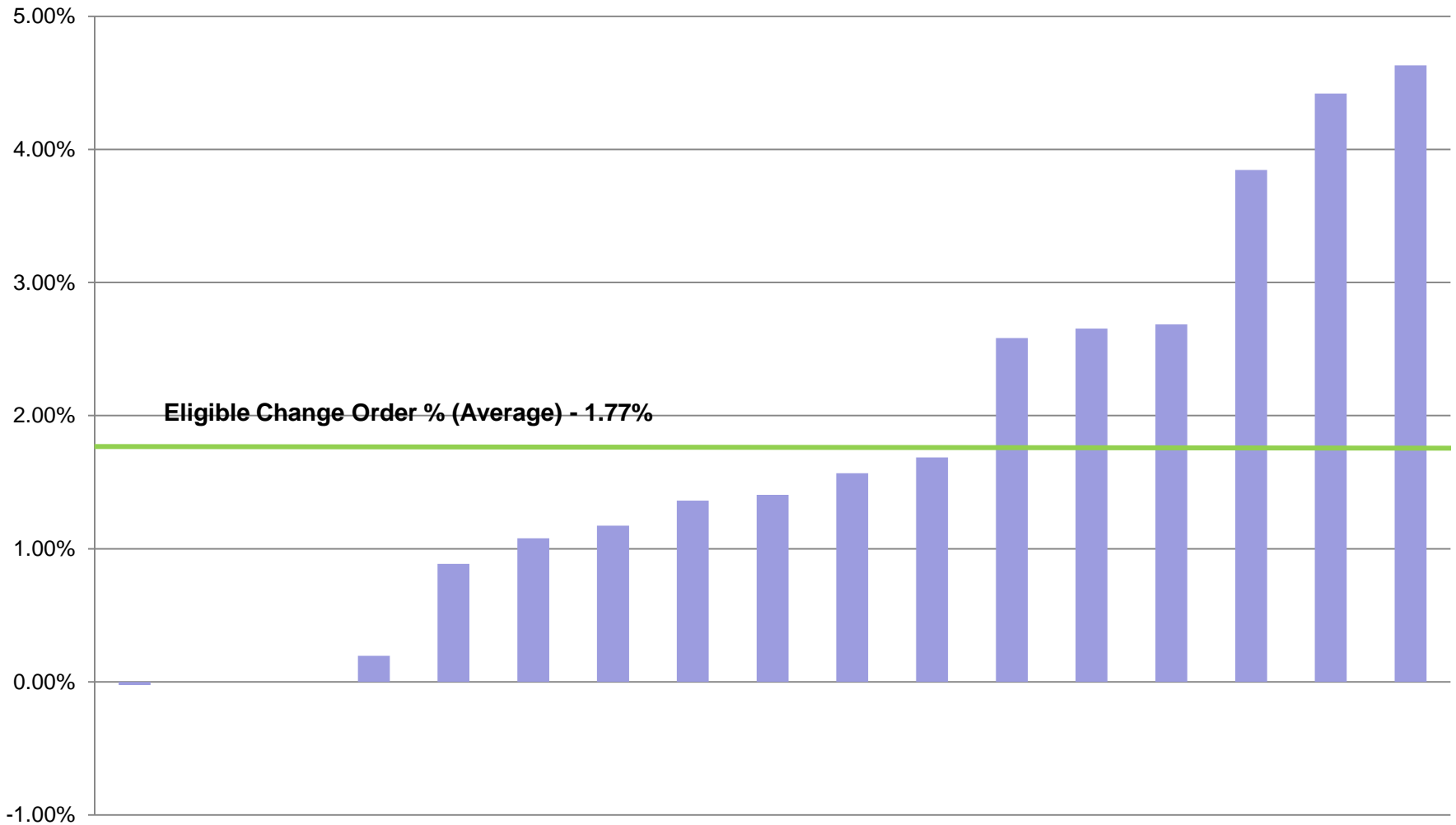
# Addition and Renovation Projects: Total and Eligible Change Orders (Average)







# Addition and Renovation Projects: Eligible Change Orders (Average)





# Repair Projects Change Order Summary

- This Category only includes Major Repair Projects. Accelerated Repair Projects and Green Repair Projects are not included in the data.
- All Green Repair Projects and Accelerated Repair Projects are capped at 5% Construction Contingency and 2% Owner's Contingency.

## Repair Projects Change Order Summary

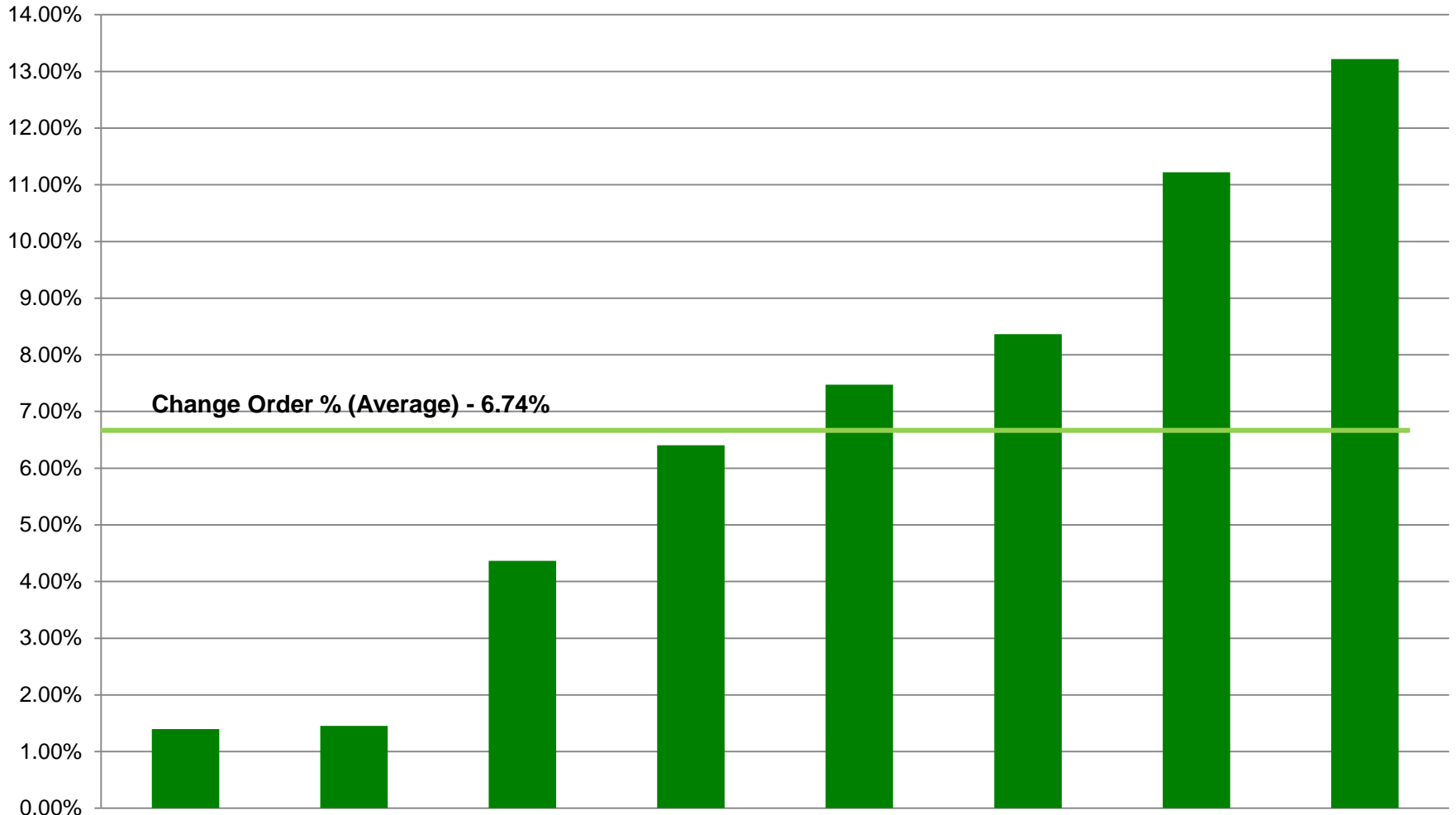
**Total Projects: 8 (Over 75% complete)**

Of the 8, 1 Projects are between 75% and 95%, 7 Projects are over 95%

		Total CO %			% Eligible CO's			Design Related CO's	Differing Conditions (Unforeseen)	Owner Directed	3rd Party
Repair	Total	Low	High	Avg	Low	High	Avg	Avg	Avg	Avg	Avg
		8	1.40%	13.22%	6.74%	.52%	8.23%	3.76%	2.13%	2.13%	2.18%

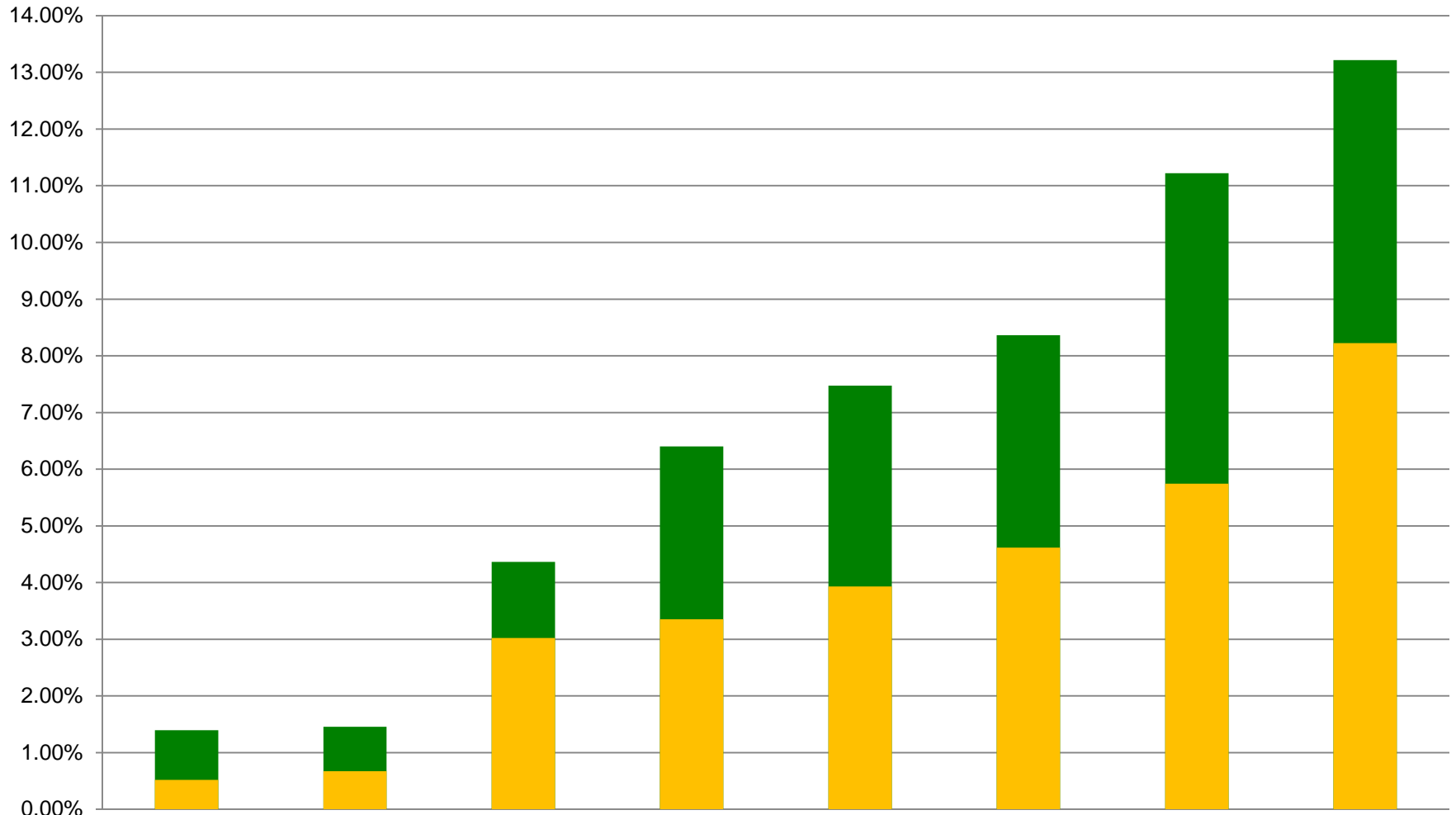


# Repair Projects: Total Change Orders (Average)



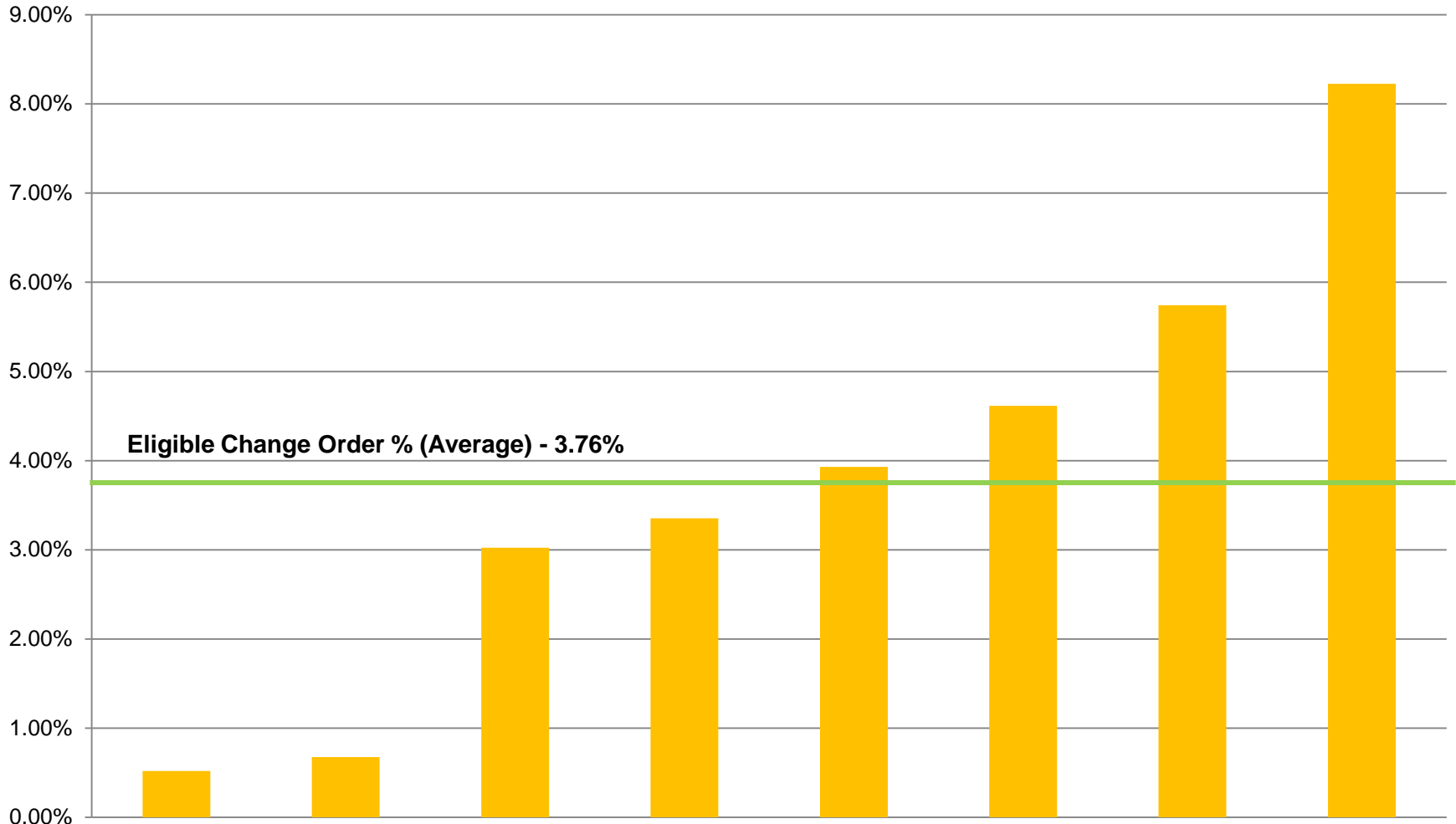


# Repair Projects: Total and Eligible Change Orders (Average)





# Repair Projects: Eligible Change Orders (Average)



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## Questions?

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