INEIGHT

InEight Estimate

Benchmarking with Data from InEight Control

Supplement guide to Benchmarking

InEight® **ESTIMATE**

InEight® **CONTROL**

Changelog

This changelog contains only significant or other notable changes to the document revision. Editorial or minor changes that do not affect the context of the document are not included in the changelog.

Rev	Date	Description
1.0	11-June-2022	Initial publication
1.1	12/22/2022	Revised by AC

Contents

Benchmarking Actual Costs from InEight Control

Benchmarking is the process of leveraging a company's past experiences to provide a level of assurance that any scope of work being estimated is either within an acceptable range of confidence or identifies a unit cost or productivity rate exceeding an acceptable value. Estimate can benchmark using as-estimated or as-built data. For users of Control, Estimate can pull as-built data points directly from Control, so estimators can more easily leverage information on productivity rates and unit costs achieved on past projects.
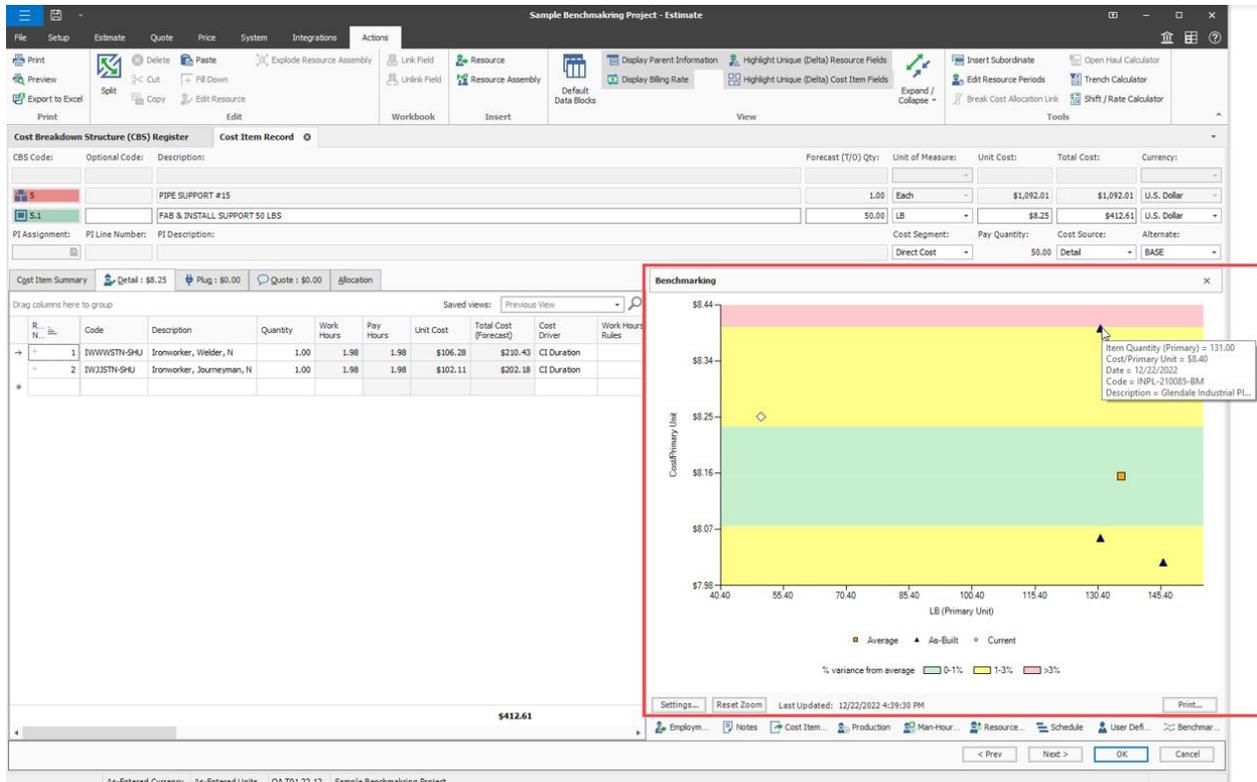
Benchmarking and Unit Costs

When benchmarking on as-built data from Control, cost items must have both actual cost and quantities claimed. Estimate uses unit costs for benchmark data points. Data points for Control cost items that incur costs with no quantities, or quantities claimed with no corresponding actual costs, have a unit cost of zero and cannot be benchmarked.

Subordinate Cost Items

In Control, you should claim both costs and quantities at the lowest benchmark level you intend to use, so the cost items produce benchmarkable unit rates. Benchmark data points are generated for both subordinate and superior cost items in Control, and actual costs and man-hours automatically roll up to the superior cost items.

Superior Cost Item As-built quantities

As-built quantities for superior cost items are automatically calculated based on the percent complete of the subordinate cost items. If actual costs and quantities are being claimed on the subordinate cost items, no option is available to claim quantities on the superior cost item. The image below shows the Allow as-built option is unavailable for a superior cost item where claiming of both actual costs and quantities is being done on subordinate cost items.

If a superior cost item quantity is not being calculated, then no unit cost can be calculated and no benchmarkable data point can be sent to Estimate. This can be the result of the items budget not being set. To resolve this issue, ensure the budget is locked for the cost items in question.

The cost item's quantity is now derived based on Control's quantity roll up calculation settings and a unit cost is automatically calculated.

Setting up Benchmarking from InEight Control

Projects must be set to *Active* in InEight Platform > Project Details > **Status**. Projects that are set to *New* will not be available in Estimate.

Unit costs need to be present on Control cost items for benchmark data points to be useful in Estimate. To accomplish this, set the Allow as-built setting to *All* for the cost items that you want to generate benchmark data points for, and make sure actual costs, man-hours and quantities are claimed on the cost item.

In Control, select a field to use as the benchmark matching criteria. This field is used by Estimate in identifying the cost items to be used in generating the benchmark data points. The same key value can be used on multiple cost items and the benchmark data point produced will be a weighted average unit cost of all the items.

The following fields can be used as matching criteria:

- CBS Position
- Description
- WBS Phase Code
- Account Code
- Any CBS tag field, 1-25
- Any CBS user defined field, 1-15

The matching criteria field will be designated in Estimate. Fill in the applicable values to distinguish the cost items to be used as benchmarkable data point. Cost items with no values in the designated matching criteria field are not used in benchmarking.

In Estimate, benchmarking from Control can be activated by selecting Job Properties > Benchmarking > As-Built > Historical Data Source > **InEight Control**. This step is not needed for Estimate in the Cloud.

Next, define the Control projects that will be sources of benchmark data. For the Default Jobs filter, click **Edit**. In the Edit Filter dialog box, you can either specify the project IDs and or project names of the benchmarkable projects or create a filter criteria. It is good practice to modify either the project IDs or project names in Platform to designate them as benchmarkable projects.

In this example, the letters **BM** have been appended to the end of every benchmarkable project in Platform and a filter can be used to include all projects where the project IDs contains the characters BM.

NOTE: As-Estimated benchmark data comes from a data warehouse, where you can explicitly control the timing of updates to As-Estimated data. As-Built data from Control is live data and might change based on how frequently actual costs, man-hours and quantities are being updated in Control, and how often the benchmark data points in the estimate are refreshed.

To set the Default Cost Item Matching Criteria, click Edit. This designates the fields used between both Control and Estimate in determining which Control benchmark data points map to the Estimate cost items.
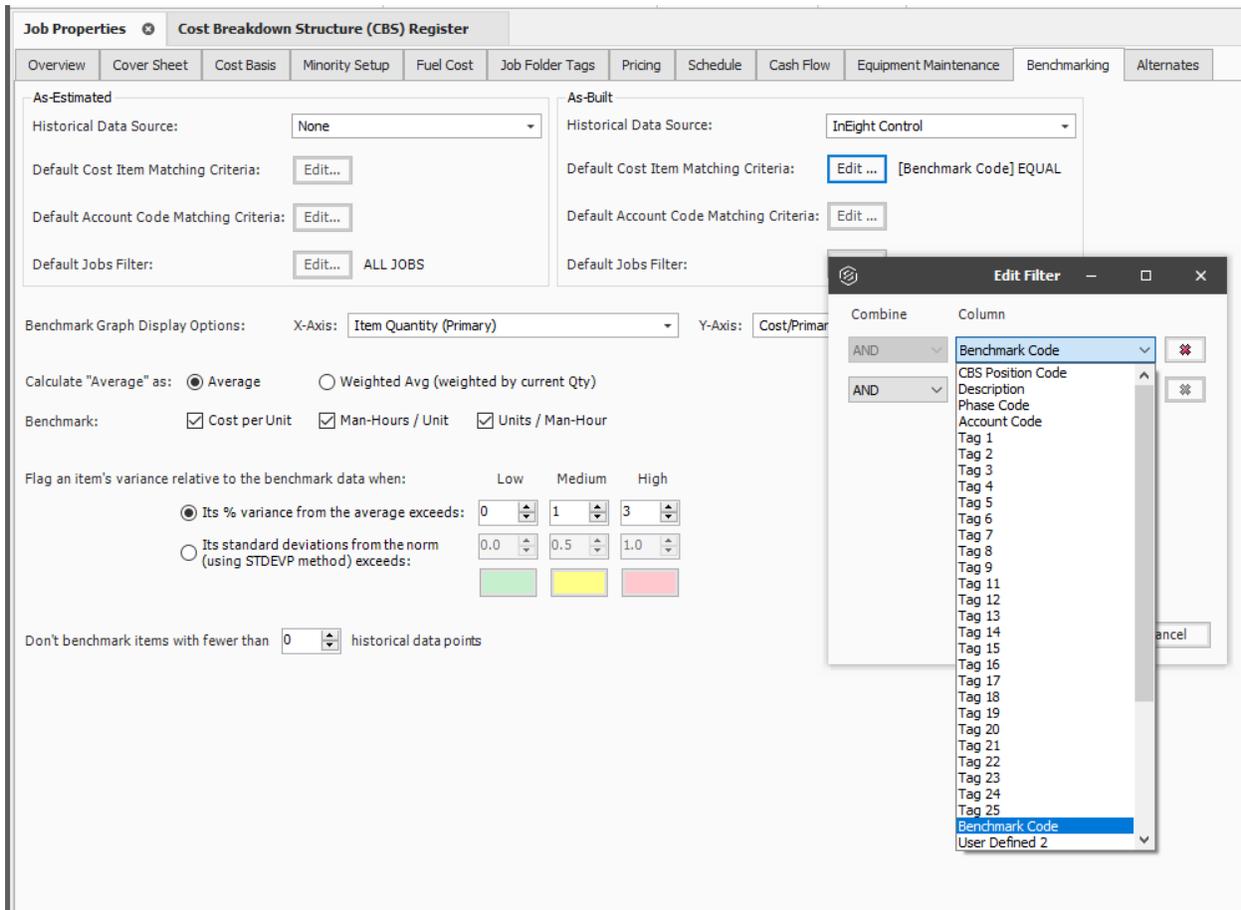
The ACS in Control does not generate benchmarkable data points from as-built data. Benchmarking on account codes in Estimate is not possible when using as-built data from Control, and the Edit button for Define Account Code Matching Criteria is disabled.

Benchmark using data from Control

In Estimate, after you create a cost estimate, ensure the field defined as a matching criteria field is populated with a value corresponding to the benchmarkable data points to be pulled from Control.

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Benchmark Code (UDF1)
⊟ 1	**STRUCTURAL GENERAL**	1.00	Each	$1,051.60	$1,051.60	
+ 1.1	MOBILIZE & DEMOBILIZE EQUIPMENT, TO...	1.00	Each	$1,051.60	$1,051.60	
⊟ 2	**PIPE SUPPORT #1**	1.00	Each	$526.30	$526.30	PIP_SPT
+ 2.1	FAB & INSTALL SUPPORT 10 LBS (SD-153...	10.00	LB	$7.65	$76.52	7746
+ 2.2	1/4" FILLET WELDS (FIELD WELDS) "	2.00	FT	$224.89	$449.78	7649
⊟ 3	**PIPE SUPPORT #2**	1.00	Each	$353.42	$353.42	PIP_SPT
+ 3.1	FAB & INSTALL SUPPORT 16 LBS	16.00	LB	$7.50	$120.03	7746
+ 3.2	1/4 FILLET WELDS (FIELD WELDS)	2.00	FT	$116.70	$233.39	7642
⊟ 4	**PIPE SUPPORT #7**	1.00	Each	$4,829.05	$4,829.05	PIP_SPT
+ 4.1	FAB & INSTALL SUPPORT 105 LBS	105.00	LB	$8.10	$850.50	7746
+ 4.2	3/16 TO 1/4" FILLET WELDS FAB	11.00	FT	$116.70	$1,283.65	7642
+ 4.3	CUT OFF & PREP AREA- EXISTING PIPE ST...	1.00	Each	$212.56	$212.56	
+ 4.4	T&B FLG. FILLET FULL PEN W8X31 TO EXI...	4.00	FT	$620.59	$2,482.34	7651
⊟ 5	**PIPE SUPPORT #15**	1.00	Each	$1,092.01	$1,092.01	PIP_SPT
+ 5.1	FAB & INSTALL SUPPORT 50 LBS	50.00	LB	$8.25	$412.61	7746
+ 5.2	3/16" FILLET WELDS STIFFINENERS	4.00	FT	$116.70	$466.78	7642
+ 5.3	DRILL 5/8" 4 EA.	4.00	Each	$26.55	$106.19	7768
+ 5.4	BOLT UP 1/2" BASE SUPPORT 4 EA.	4.00	Each	$20.42	$81.69	7786
+ 5.5	GROUT BASE SUPPORT	1.00	FT2	$24.73	$24.73	10015
⊟ 6	**PIPE SUPPORT #19**	1.00	Each	$728.58	$728.58	PIP_SPT
+ 6.1	FAB & INSTALL SUPPORT 26 LBS	26.00	LB	$7.50	$195.05	7746
+ 6.2	1/4" FILLET WELDS L3 TO 1/2" PL	1.00	FT	$116.70	$116.70	7642
+ 6.3	DRILL 5/8" 4 EA.	4.00	Each	$26.55	$106.19	7768
+ 6.4	INSTALL 1/2" HILITI KWIK ANCHOR BOLTS...	4.00	Each	$51.06	$204.22	
+ 6.5	BOLT UP 1/2" BASE SUPPORT 4 EA.	4.00	Each	$20.42	$81.69	7786
+ 6.6	GROUT BASE SUPPORT	1.00	FT2	$24.73	$24.73	10015
⊟ 7	**PIPE SUPPORT #22**	1.00	Each	$1,408.76	$1,408.76	PIP_SPT
+ 7.1	FAB & INSTALL SUPPORT 70 LBS	70.00	LB	$7.50	$525.14	7746
+ 7.2	1/4" FILLET WELDS L3 TO 1/2" PL	4.00	FT	$116.70	$466.78	7642
+ 7.3	DRILL 5/8" 4 EA.	4.00	Each	$26.55	$106.19	7768
+ 7.4	INSTALL 1/2" HILITI KWIK ANCHOR BOLTS...	4.00	Each	$51.06	$204.22	
+ 7.5	BOLT UP 1/2" BASE SUPPORT 4 EA.	4.00	Each	$20.42	$81.69	7786
	103				$38,943.27	

From the More Actions tab of the CBS register, click the **Refresh Benchmarks** button. The Refresh Benchmarks dialog box indicates the number of jobs found that meet the job matching criteria defined in Job Properties > Benchmarking. If this looks accurate, click **Refresh Now**; otherwise, click **Cancel**, and refine the Default Job Matching Criteria.

Change the CBS Rregister view to Benchmark. Benchmark data is now populated for the cost items where the matching criteria fields matched in the benchmarkable jobs.

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	ark Units/ variance)	Benchmark Units/ MH (std. dev.)	Benchmark Unit Cost (low)	Benchmark Unit Cost (high)	Benchmark Unit Cost (average)	Benchmark Unit Cost (% variance)	Benchmark Unit Cost (std. dev.)	Benchmark Data Points
1	STRUCTURAL GENERAL	1.00	Each	$1,051.60	0.00	0.00	$0.00	$0.00	$0.00	0.00	0.00	0
1.1	MOBILIZE & DEMOBILIZE EQUIPMENT, T...	1.00	Each	$1,051.60	0.00	0.00	$0.00	$0.00	$0.00	0.00	0.00	0
2	PIPE SUPPORT #1	1.00	Each	$526.30	560.44	23.15	$1,291.21	$2,372.52	$1,923.99	-72.65	3.04	3
2.1	FAB & INSTALL SUPPORT 10 LBS (SD-15...	10.00	LB	$7.65	100.54	7.45	$8.01	$8.40	$8.15	-6.16	2.92	3
2.2	1/4" FILLET WELDS (FIELD WELDS) "	2.00	FT	$224.89	110.08	9.89	$251.00	$262.50	$256.75	-12.41	5.54	2
3	PIPE SUPPORT #2	1.00	Each	$353.42	876.85	36.23	$1,291.21	$2,372.52	$1,923.99	-81.63	3.41	3
3.1	FAB & INSTALL SUPPORT 16 LBS	16.00	LB	$7.50	100.54	7.45	$8.01	$8.40	$8.15	-8.00	3.79	3
3.2	1/4 FILLET WELDS (FIELD WELDS)	2.00	FT	$116.70	110.56	11.73	$110.45	$147.22	$130.87	-10.83	0.93	3
4	PIPE SUPPORT #7	1.00	Each	$4,829.05	-33.22	1.37	$1,291.21	$2,372.52	$1,923.99	150.99	6.31	3
4.1	FAB & INSTALL SUPPORT 105 LBS	105.00	LB	$8.10	67.16	4.98	$8.01	$8.40	$8.15	-0.67	0.32	3
4.2	3/16 TO 1/4" FILLET WELDS FAB	11.00	FT	$116.70	110.56	11.73	$110.45	$147.22	$130.87	-10.83	0.93	3
4.3	CUT OFF & PREP AREA- EXISTING PIPE S...	1.00	Each	$212.56	0.00	0.00	$0.00	$0.00	$0.00	0.00	0.00	0
4.4	T&B FLG. FILLET FULL PEN W8X31 TO EX...	4.00	FT	$620.59	101.48	0.00	$662.50	$718.75	$690.63	-10.14	2.49	2
5	PIPE SUPPORT #15	1.00	Each	$1,092.01	223.87	9.25	$1,291.21	$2,372.52	$1,923.99	-43.24	1.81	3
5.1	FAB & INSTALL SUPPORT 50 LBS	50.00	LB	$8.25	100.54	7.45	$8.01	$8.40	$8.15	1.20	0.57	3
5.2	3/16" FILLET WELDS STIFFENERS	4.00	FT	$116.70	110.56	11.73	$110.45	$147.22	$130.87	-10.83	0.93	3
5.3	DRILL 5/8" 4 EA.	4.00	Each	$26.55	92.31	0.00	$27.25	$27.25	$27.25	-2.57	0.00	1
5.4	BOLT UP 1/2" BASE SUPPORT 4 EA.	4.00	Each	$20.42	216.67	0.00	$24.75	$24.75	$24.75	-17.49	0.00	1
5.5	GROUT BASE SUPPORT	1.00	FT2	$24.73	467.21	0.00	$67.33	$67.33	$67.33	-63.27	0.00	1
6	PIPE SUPPORT #19	1.00	Each	$728.58	260.34	10.76	$1,291.21	$2,372.52	$1,923.99	-62.13	2.60	3
6.1	FAB & INSTALL SUPPORT 26 LBS	26.00	LB	$7.50	100.54	7.45	$8.01	$8.40	$8.15	-8.00	3.79	3
6.2	1/4" FILLET WELDS L3 TO 1/2" PL	1.00	FT	$116.70	110.56	11.73	$110.45	$147.22	$130.87	-10.83	0.93	3
6.3	DRILL 5/8" 4 EA.	4.00	Each	$26.55	92.31	0.00	$27.25	$27.25	$27.25	-2.57	0.00	1
6.4	INSTALL 1/2" HILITI KWIK ANCHOR BOLT...	4.00	Each	$51.06	0.00	0.00	$0.00	$0.00	$0.00	0.00	0.00	0
6.5	BOLT UP 1/2" BASE SUPPORT 4 EA.	4.00	Each	$20.42	216.67	0.00	$24.75	$24.75	$24.75	-17.49	0.00	1
6.6	GROUT BASE SUPPORT	1.00	FT2	$24.73	467.21	0.00	$67.33	$67.33	$67.33	-63.27	0.00	1
7	PIPE SUPPORT #22	1.00	Each	$1,408.76	110.48	4.56	$1,291.21	$2,372.52	$1,923.99	-26.78	1.12	3
7.1	FAB & INSTALL SUPPORT 70 LBS	70.00	LB	$7.50	100.54	7.45	$8.01	$8.40	$8.15	-8.00	3.79	3
7.2	1/4" FILLET WELDS L3 TO 1/2" PL	4.00	FT	$116.70	110.56	11.73	$110.45	$147.22	$130.87	-10.83	0.93	3
7.3	DRILL 5/8" 4 EA.	4.00	Each	$26.55	92.31	0.00	$27.25	$27.25	$27.25	-2.57	0.00	1
7.4	INSTALL 1/2" HILITI KWIK ANCHOR BOLT...	4.00	Each	$51.06	0.00	0.00	$0.00	$0.00	$0.00	0.00	0.00	0

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Open a cost item and navigate to the Benchmark data block to view the scatter plot that shows various as-built data points designated with a blue triangle. Hover over the data point for a tool tip indicating further information about the data point, such as the name of the project, the date of the data, total quantity, and cost per unit.
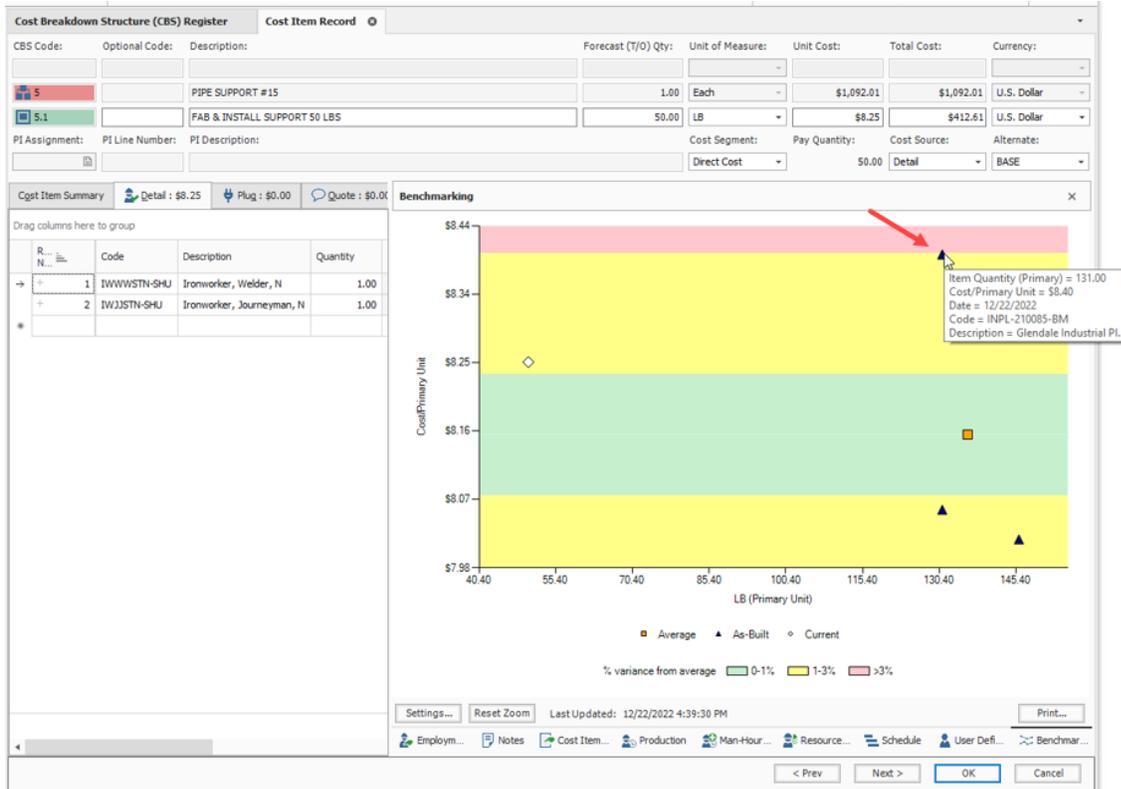
In the Benchmarking data block, click **Settings** to further refine the chart options.
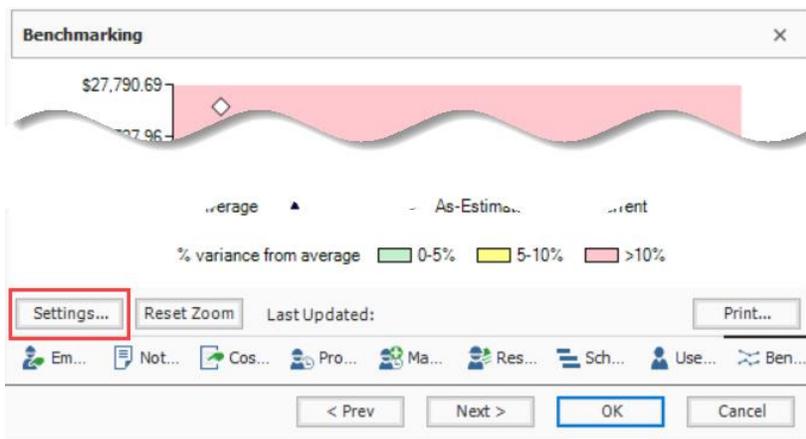
Settings include choosing which values to show on the horizontal or vertical axis, or manually choosing which data points to include in the scatter plot by removing any jobs that could potentially skew the range of reasonable values.

Click the **Print** button in the data block to produce a report or export the data.

Benchmarking Actual Costs from InEight Control