

5.2.2.4

# **Estimate Trend Filters**

Project and Program Delivery Manual Chapter 5 Cost Estimating Originally Issued: 11-07-24 Revised: 12-20-24

Previous estimating tools were based on a broad average cost across all work types for bid items over a 2year period. That broad method worked well for overall programming but could be noticeably inconsistent project to project. iPDWeb allows for bid item pricing to be developed based on similar projects with the use of the **Estimate Trend Filters**. Estimate Trend Filters identify parameters and characteristics from past projects that have similarities to the current estimate. The bid items from these identified projects are then used to run a regression analysis to predict the pricing for items in the estimate. This allows for a more detailed analysis of the pricing for bid items. Trend filters can be set globally for bid items at the estimate level and further defined for each individual bid item with the Item Trend Lookup (See Chapter 5.2.2.4.5 Item Trend Filters In iPDWeb).

The program will automatically apply default filters that in most cases will identify sufficient past projects to develop cost data and will not require the user to adjust the filters. However, changes can be made by the user in situations where more detailed pricing analysis is required.

#### Figure 1: Filter Workflow



- The Estimate Trend Filter affects all divisions and all bid items that are added to the estimate. Filters are initially assigned by the program based on default settings.
- Each bid item has an individual filter, see below. These filters are originally set to match the Estimate Trend Filter but can be modified when necessary.

**NOTE:** Any changes to the Estimate Trend Filter will overwrite all filters at the Plan Item level. It is highly recommended to not change the estimate trend filter after modifications have been made to individual bid item filters to avoid the potential loss of work.

#### **Estimate Trend Filter**

The Trend Filter button is located on the main estimate page. Setting the Trend Filter at the Base Estimate level will apply the selected filters to all the plan items in all of the containers in the Base Estimate.

96-57-380-050-03	Name:	Base Estimate		Report
(364) - UNKNOWN PAVEMENT - GRADE AND NEW	Event:	BASE - Base Estiamte	0	Office Type: MasterWorks
MasterWorks	Note:			
Base Estimate	Manual Version:		Make Private:	
🗠 🗸 Roadway Items		Group by Level One  Group	by Level Two	Trend Filter 10/02/2022 - 10/02/2024
Q Roadside Items	Estimate Summary	(Read-Only):		
Erosion Control Items	Item Number	Description		



**NOTE:** Individual plan item filters can later be modified to allow for more detailed cost analysis.

Once you select the trend filter, a popup will appear giving filter option tabs for Main, Locations, Work Type, and Estimate Parameters. Each tab will have default settings applied to allow for a broad selection of bid items to be analyzed. The "Main" tab allows for projects to be filtered by date, bidders, item price, quantity, delivered by, and season of letting. The default filters are set as shown in the graphic but can be changed if needed.

Trend Filter		
Main Locations	Work Type Estimate Parameters	
	Item Trend Lookup Filter	-
* Begin Date: Min bidders per contract: Min Item Price: Min Item Quantity:	Max bidders per contract: Max Item Price: Max Item Quantity:	
Project Delivered By:		
	Adjust all years  Exclude the most recent year  Exclude all	
Bidders:	All bidders Awarded bidders Top three bidders	
Season of Letting:	Unassigned: Assigned: FALL (SEP21-DEC20) SPRING (MAR21-JUN20) SUMMER (JUN21-SEP20) WINTER (DEC21-MAR20)	
	Import Project Parameters OK Clos	•
	Import Project Parameters OK Clos	e

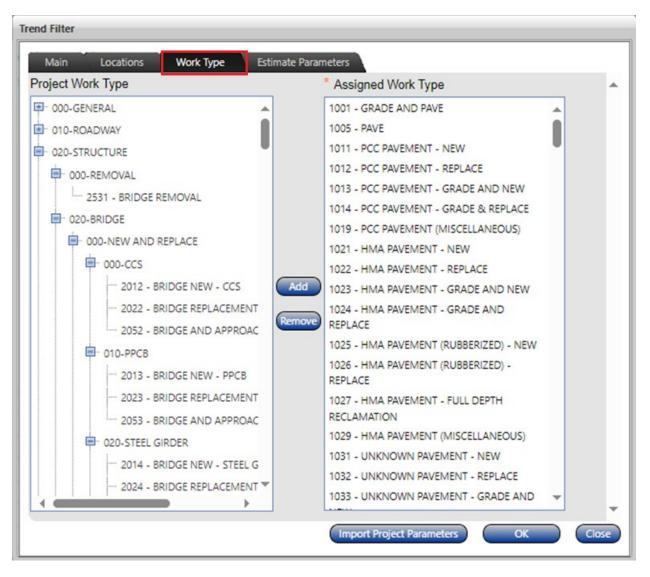
NOTE: The estimator should ensure the "End Date" field matches the current date to allow the most up to date pricing history. It is recommended to use a 2-year period for the Begin and End Date fields. For example, if the current date is 10/2/2024, the End Date field should be set to 10/2/2024 and the Begin Date field should be set to 10/2/2024.

**BEST PRACTICE:** Leave filters at default settings until after the first analysis of plan items to see the data set provided and to avoid the number of past projects used to calculate the unit price of the plan items to become too small to be considered useful.

The "Locations" tab allows for projects to be filtered by urban and rural, district, and county. The default setting has no filters applied for this tab to allow for maximum number of projects to be included. When both Urban and Rural are selected only projects that have both a rural and urban designation will be returned (this is an "and" function and not an "or" function).

Item Trend F	ilter		
Main	Locations	Work Type Estimate Parameters	
Urban: (		Rural:	A
	Unassigned:	Assigned:	
	DISTRICT 1		
	DISTRICT 2		
District:	DISTRICT 3		
	DISTRICT 4		
	DISTRICT 5	<b>•</b>	
	Unassigned:	Assigned:	
	O BRIEN		
	Statewide		
	undefined		
County:	Adair		
oounty.	Adams		
	Allamakee		
	Appanoose		
	Audubon	<b>•</b>	
	Renton	· · · · · · · · · · · · · · · · · · ·	
		Apply Filter to Division Reset to Estimate Filt	ter Lookup Close
		reserve Esumate ma	

The "Work Type" tab allows for projects to be filtered based on the assigned work type. The program will automatically assign all work types to capture the maximum number of projects to be analyzed. The assigned work types can be filtered down if desired.



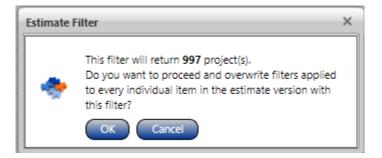
The "Estimate Parameters" tab should not be used at this time.

After all desired filters have been selected, click on the OK button. The program will now search out projects matching the chosen filters.

NOTE: Clicking OK will cause previous filters in all containers that have not been marked complete in the estimate to be reset to the current trend filter. This includes any filters that were previously changed for individual bid items.

Trend Filter	
Main Locations Work Type Estimate Parameters	
Project Complexity (\$ or day):	
Project Size:	-
Bridge Parameters	~
Roadway Parameters	<b>~</b>
	*
Import Project Parameters OK	Close

A dialog box will appear noting how many projects were found, as shown below.



If less than 10 projects are generated, then it will be necessary to go back and expand the filters to include more projects.

**BEST PRACTICE:** It is recommended to have a minimum of 10 projects in order to have sufficient data to generate unit pricing.

It is important to note that modifying the estimate trend filter will not affect estimates in containers that are marked "complete". If a container that has already been marked complete needs to be updated to match a revised trend filter, the user must first mark that container incomplete. To do this, right click on the container and select "Mark Incomplete".

iPDWeb				
Estimating Dashboard Cost Estim Search: 96-57-380-050-03	ating ×		Save	🗆 Pau
96-57-380-050-03	Division Header		June	0.00
(364) - UNKNOWN PAVEMEN (364) - UNKNOWN PAVEMEN (364) - O MasterWorks (364) - O MasterWorks (364) - O MasterWorks (364) - O MasterWorks		IE: Roadway Items		
✓ Roadway Items @ Roa ✓ Mark Inco	omplete Iternal		S Trend	Altern I Filter Da
Traffic Sign Items Traffic Signal Item	Use Suggestio Group by Level On			Price Up Cu
	Item Number 2101-0850001	Description CLEAR+GRUBB /		
	2102 2710270		WV. 200200W 2	

Next, ensure the "Use Suggestion" check box is marked. Click "Update Suggested Price" to get updated unit prices based on the revised trend filter.

Division Header		
* Name	: New Division	
Description	I: New Division	
Alternate	£ 🗌	Alternate Name:
Design Number	r. 💽 📀	Trend Filter Date Range: 11/21/2022 - 11
Use Suggestion	Update Suggested Price	Suggested Price Update Date: 11/21/2024
Group by Level One	e: Group by Level Two:	Current Total: \$127,000.00
Item Number	Description	
2102-2710070	EXCAVATION, CL 10, RDWY+BORROW	11

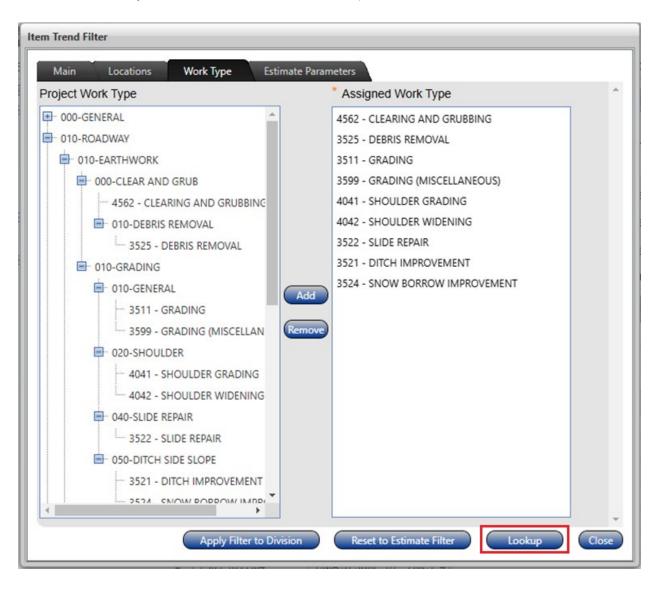
#### Item Trend Filter

Item trend filters will only affect the specific items selected. The other items will still be set to the estimate trend filter.

Select the desired item and right click and select the Item Trend Filter. The filter options are the same as the one for the estimates and the same best practices apply to the item too.

<b>i</b> ₽DWeb			S V
Estimating Dashboard Cost Estima	nting ×		
Search: 16-00-000-020		Save	🔵 🗆 Pau
■ S 16-00-000-020	Division Header		
(65) - PCC SIDEWALK/TRAIL		e: New Division	
🖽 📵 Office Of Design			
Office Of Bridges & Struct	Description	n: New Division	
Office of Right Of Way	A the second		A lt a un
(66) - RIGHT OF WAY	Alternate		Altern
(19) - PCC SIDEWALK/TRAIL (20) - RIGHT OF WAY	Design Number	er: 🛛 🥥 Tri	end Filter Da
(20) - RIGHT OF WAY	Use Suggestion	n: 🗹 Update Suggested Price Suggest	ted Price Up
(40) - PCC SIDEWALK HAIL	Group by Level One	e: Group by Level Two:	Cu
G CO2-EW number 1			
New Division	Item Number	Description	
D00-Field Exam 2017	2101-0850001	CLEAR+GRUBB	
🖽 🕒 D00-Field Exam 2017	2102-0425070	SPECIAL BACKFILL /	
🖽 🕒 D02-New Version	2102-0425071	SPECIAL BACKFILL 🧭	
🖃 🝚 D09-RCE	2102-27 📸 Add Item(	a(s) 3, WASTE 🖉	
DM5-New Version	2113-00 X Delete Iter	em(s) MAT'L, POLYMER GRID 🖉	
🖻 🐨 🔵 DM5-New Version	2115-01 🗎 Copy Item		
🖻 📵 Office Of Bridges & Struc	2212-02 El Item Trend	ION OF BASE	
(49) - RIGHT OF WAY	2213-7 SItem Trend	AIL BOX /	
	2303-1033382	HMA ST SURF, 3/8", FRIC L-2 🖉	
	2303-1033503	HMA ST SURF, 1/2", FRIC L-3 🖉	
	2303-1033504	HMA ST SURF, 1/2", FRIC L-4 🖉	

Once the desired adjustment has been made select lookup.



Review the results of the changes. Note the number of samples. If you are happy with the changes, click the accept button.

Project Number	Work Type	Route	Bid Date	Quantity	Unit	Let Unit Price	Unit Price (Todays \$)	Ex
ER-029-4(126)5706-78	3599-GRADING (MISCELLANEOUS)	I-29, N	05/18/2021	135.00	сү	\$25.00	\$0.00	C
ER-029-1(126)006-36	3599-GRADING (MISCELLANEOUS)	1-29	05/18/2021	5,625.00	CY	\$11.75	\$0.00	C
BRF-169-2(025)38-88	3511-GRADING	U.S. 169	09/20/2022	216.16	CY	\$11.50	\$6.87	C
NHSX-030-6(256)3H-86	3511-GRADING	US 30, E	10/19/2021	1,363.50	CY	\$16.00	\$14.22	C
IM-035-4(317)9713-77	3511-GRADING	I-35	07/19/2022	359.50	CY	\$30.00	\$17.92	C
NHSX-030-5(276)3H-85	3511-GRADING	U.S. 30	01/18/2023	286.00	CY	\$20.00	\$25.55	C
	Value: \$15.56 mples: 4 R <sup>2</sup> : 0.03 S	High	Value: \$21.74 Value: \$25.55 viation: 9.39 Item Trend (	Sugg	Low V	/alue: \$18.56 /alue: \$6.87 ange: \$0.58 - \$59	99.50	
# of Sa	mples: 4 R <sup>2</sup> : 0.03 S	High	Value: \$25.55 viation: 9.39	Sugg	Low V	alue: \$6.87	99.50	
# of Sa	mples: 4 R <sup>2</sup> : 0.03 S (€) 30 (€) 24 Skep 0 18 0	High	Value: \$25.55 viation: 9.39	Sugg	Low V gestion Ra	alue: \$6.87	99.50	

Notice the suggested price will be highlighted with red lettering for items with Item Trend Filters applied.

Item Number	Description	UOM	Qua	ntity	Unit Price	Use Suggestion	Suggestion	Suggestion Range	Ex
2101-0850001	CLEAR+GRUBB /	ACRE		2.350	\$6,446.85		\$6,446.85	\$5,483.20 - \$7,579.87	
2102-0425070	SPECIAL BACKFILL /	TON	Г	7,056.000	\$21.16		\$21.16	\$20.12 - \$22.26	
2102-0425071	SPECIAL BACKFILL /	CY		10,218.000	\$32.90		\$32.90	\$22.23 - \$48.70	
2102-2713090	EXCAVATION, CL 13, WASTE /	CY	Г	3,733.00	\$18.56		\$18.56	\$0.58 - \$599.50	
2113-0001100	SUBGRADE STABIL MAT'L, POLYMER GRID 🥓	SY	Г	5,600.000	\$3.07		\$3.07	\$2.82 - \$3.33	
2115-0100000	MODIFIED SUBBASE /	CY	Г	3,733.000	\$43.74		\$43.74	\$41.77 - \$45.81	
2212-0475095	CLEAN+PREPARATION OF BASE /	Mile	Г	11.830	\$483.59		\$483.59	\$112.02 - \$2,087.63	
2213-7100400	RELOCATION OF MAIL BOX 🖋	EA		1.000	\$227.82		\$227.82	\$167.42 - \$310.00	
2303-1033382	HMA ST SURF, 3/8", FRIC L-2 🖊	TON	Г	22.000	\$0.00		\$0.00		
2303-1033503	HMA ST SURF. 1/2". FRIC L-3 /	TON		22.000	\$76.24		\$76.24	\$67.03 - \$86.71	

## Chronology of Changes to Manual Section:

### 5.2.1.1.5 Estimate Trend Filters

11/07/2024	NEW
12/20/2024	Added information about "End Date" field
	Added information about how to update a container that was previously

marked complete with an updated estimate trend filter