Instructions

This tool allows users to apply filters to five years of historical data from awarded proposals. It automatically displays statistics for the filtered data. The tool allows the user to gather information specific to their project by filtering the data according to several criteria including improvement concept, region, letting month, and total bid cost. Detailed instructions for using the filters are listed below.

Sheets

- This Instructions Sheet contains guidance for using the Similar Projects Tool.
- The Filters Sheet contains the visual filters to quickly sift through the information in the Data Sheet.
- The Results Sheet contains calculations of the filtered data results.
- The Data Sheet contains the original table of data.

General Steps

1. If needed, review these instructions.
2. In the Filters Sheet, select criteria for a list of contracts with similar characteristics as your current project.
   a. Select broader characteristics first, and then dial down to more specific characteristic if you still have a large list of projects.
   b. The number filtered results are shown in the sample size cell.
3. In the Results Sheet, review the results.
   a. These results can be used to estimate Mobilization, the Traffic Control item, and allowance items.
   b. The average number of bidders can be noted for the estimate documentation.
4. The Data Sheet contains other characteristics to dial down a shorter list of projects.
   a. The Data Sheet is linked to the visual filters in the Filters Sheet. Filters applied at either location will update both.
   b. Project information is provided including the Proposal Description.
   c. Item class percentages are included in this sheet.

For more detailed instructions, double-click in this text box and scroll down.
Filters
Select broader characteristics first. The filters sheet can be printed.

Visual Filters
A sample visual filter is shown on the right.

1. Criteria that will be filtered
2. Allows the ability to select multiple criteria
3. Removes the filter placed for that criteria
4. Scroll to find appropriate criteria
5. Clickable Tab which filters results

Sample Size
A sample size of 30 or more is recommended for reliable calculations in the Results Sheet. If there are fewer than 30, you may want to review the individual results in the Data Sheet.

Improvement Concept
Improvement concept identifies the extent of improvement for the controlling project of the proposal. Improvement concepts are listed and defined in PMM 5-10-5 starting on page 7 (DOT employees only). Improvement types are more generic and include multiple improvement concepts.

Select filters for Improvement Type first, then Improvement Concept.

Work Ratings
Work ratings establish the type of contractor able to bid on the proposal using amount spent on individual bid items associated with the various work ratings. Work ratings are defined on the Estimating – Work Classification Page of the Estimating Website. Contract work types are more generic and include multiple work ratings.

Select filters for Contract Work Type first, then Work Rating.

Region and County
Select filters for Region first, then County.

Project Size
Projects were divided based on the bid total. Each category has similar mobilization percentages based upon improvement concept. The smaller the project, the higher the mobilization percentage. The larger the project, the higher the percentage.
Urban/Rural
Projects listed as unknown may be rural or urban projects. When filtering for urban or rural projects, unknown should be selected unless there are enough projects filtered for urban or rural only.

Route
You may select between routes similar to a particular project such as county highways, interstate highways, state highways, or specific routes.

Let Calendar Year
You may select only the projects in the most recent years if there are enough projects.

Results
The Results Sheet contains mobilization and traffic control results, average number of bidders, and item class percentage totals.

Using Percentage Results
The percentage values are based upon the total bid price, not only for known items. The following example shows how to use these percentage values:

For a project with $2 million of known items (i.e. not including Mobilization and Traffic Control). The similar projects tool was used to find the percentages in this example. Mobilization is estimated at 5% and Traffic Control is estimated at 1% of the total construction estimate.

\[
Total = (\text{known items}) + (5\% \times \text{Total}) + (1\% \times \text{Total})
\]

Rearranging this equation, the following generic equation can be used to find the Total:

\[
Total = \frac{(\text{known items})}{(1 - \sum \text{percentages})}
\]

\[
Total = \frac{\$2 \text{ million}}{1 - (0.05 + 0.01)} = \frac{\$2 \text{ million}}{0.94} = \$2,127,659.57
\]

\[
\text{Mobilization} = 5\% \times \$2,127,659.57 = \$106,382.98 \text{ or } \$110,000 \text{ rounded}
\]

\[
\text{Traffic Control} = 1\% \times \$2,127,659.57 = \$21,276.60 \text{ or } \$21,000 \text{ rounded}
\]

This equation also may be used with any number of allowance items using Item Classification Total Percentages.
Mobilization and Traffic Control Results

The mobilization and traffic control results tables contain the sample size, expected range, and typical middle value. Mobilization is estimated as a percentage of the total project. In small projects, you may want to ensure your estimate is not below the lowest bid price. The Traffic Control bid item may be estimated the same way, or use the dollar values provided in the table.

**Sample Size:** number of filtered results.

**Typical Middle Value:** Median; 50% of the filtered mobilization data is greater than this value, and 50% is less than this value.

**Expected Range:** first and third quartiles, or the remaining range of Mobilization percentages after 25% of the highest values and 25% of the lowest values have been removed.

<table>
<thead>
<tr>
<th>Mobilization Results</th>
<th>Traffic Control Project Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample Size:</strong></td>
<td><strong>Sample Size:</strong></td>
</tr>
<tr>
<td>1,540</td>
<td>1,540</td>
</tr>
<tr>
<td><strong>Expected Range (lower limit):</strong></td>
<td><strong>Expected Range (lower limit):</strong></td>
</tr>
<tr>
<td>3.3%</td>
<td>0.2%</td>
</tr>
<tr>
<td><strong>Typical Middle Value:</strong></td>
<td><strong>Typical Middle Value:</strong></td>
</tr>
<tr>
<td>5.7%</td>
<td>0.5%</td>
</tr>
<tr>
<td><strong>Expected Range (upper limit):</strong></td>
<td><strong>Expected Range (upper limit):</strong></td>
</tr>
<tr>
<td>9.2%</td>
<td>1.4%</td>
</tr>
<tr>
<td></td>
<td><strong>$2,000</strong></td>
</tr>
<tr>
<td></td>
<td><strong>$5,838</strong></td>
</tr>
<tr>
<td></td>
<td><strong>$25,000</strong></td>
</tr>
</tbody>
</table>
Average Number of Bidders
The average number of bidders based upon filtered results. Again, this value can be added to the estimate documentation.

| Average Number of Bidders | 3.5 |

Item Classification Totals
Item class percentage totals for all item classes are provided. Each bid item has an item classification, and there are 26 item classes. Middle Value is selected by default, but the Lower Limit or Upper Limit can be selected if a project has more or less emphasis in an item class.

Contingency Items can be estimated for preliminary estimates. This includes erosion control, landscaping, traffic control, signals, etc. Contingency items are lump sum items in preliminary estimates when standard bid items have not been quantified.

Asphalt Unit Price Graph
Filtered projects that contain HMA pavement items are shown on the graph. All HMA pavement item quantities are added together and the average unit price is provided in the graph and the Data Sheet.
Data

The Data Sheet contains a table of columns for all the various criteria and percentages in this tool. The filters in this table may be used. The Data Sheet is linked to the visual filters in the Filters Sheet. Filters applied at either location will update both.

Additional columns include:

- Proposal Length
- Let Date
- Proposal ID
- Controlling Project ID
- Proposal Description
- Low Bidder
- Total Bid Amount
- Mobilization Bid Price

The list of filtered projects are listed in the Data Sheet. The plans and specials of the projects listed as a design reference, and this list can be copied to the estimate documentation.

Detailed Filter Instructions

Clearing All Filters

1. All filters can be cleared by going to the Data tab in the Excel toolbar and selecting 'Clear'.

2. Additionally, if the spreadsheet is not saved when exiting, the filters applied during the session will be not be saved.

Filtering Text Columns

(Controlling Project ID, Proposal Description, Low Bidder, etc.)
3. To clear the filter, select the funnel icon next to the column heading and choose 'Clear Filter From "[column name]"', and press OK.

Filtering Number Columns
(Proposal Length, Let Date, Mobilization Bid Price, etc.)

1. Click the down arrow next to the heading of the column.

2. Select 'Number Filters' from the drop down menu. Choose the filter (eg. Less Than, Greater Than, Between, etc.).

3. Input criteria (eg. greater than 5 miles). Press OK; then, press OK.
4. To clear the filter, select the funnel icon next to the column heading and choose 'Clear Filter From "[column name]"', and press OK.

Tips and Tricks
If your project will contain an item that is not typically in a project, you can go straight to the Data Sheet and filter out all projects with a 0% item class percentage. Then, follow the rest of the recommended filtering steps.

If you seek specific project types that have consistent proposal descriptions, you can go straight to the Data Sheet and filter the Proposal Description using find text, such as “wide” and “Zoo IC”.

[Diagram showing filter options and search function]