

Worksheet.” This action takes the user to the Inputs worksheet. Figure 30 depicts the Home Worksheet with the second box highlighted.

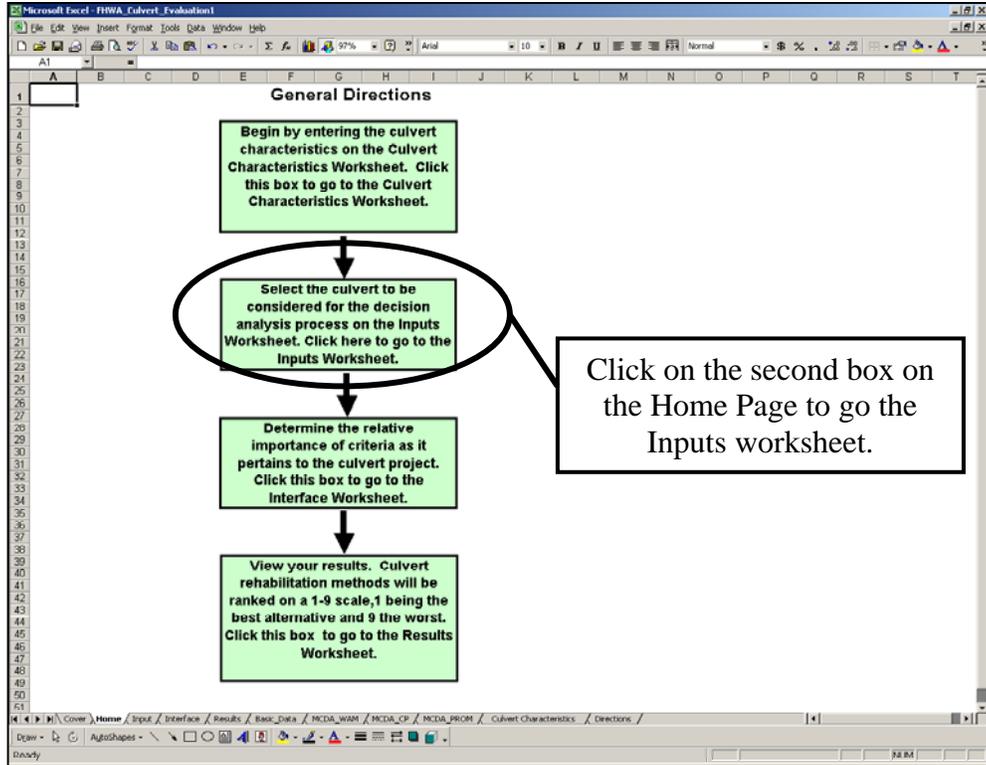


Figure 30. Screenshot. MCDA Home Worksheet.

8. Once the Inputs worksheet is activated, select the culvert pertinent to the current decision problem by clicking on the blue box, then the down arrow and choose the appropriate culvert, Culvert A-Culvert F. Figure 31 depicts the Inputs worksheet, accentuated in Figure 31 are the culvert selection area and the Return to Home button.

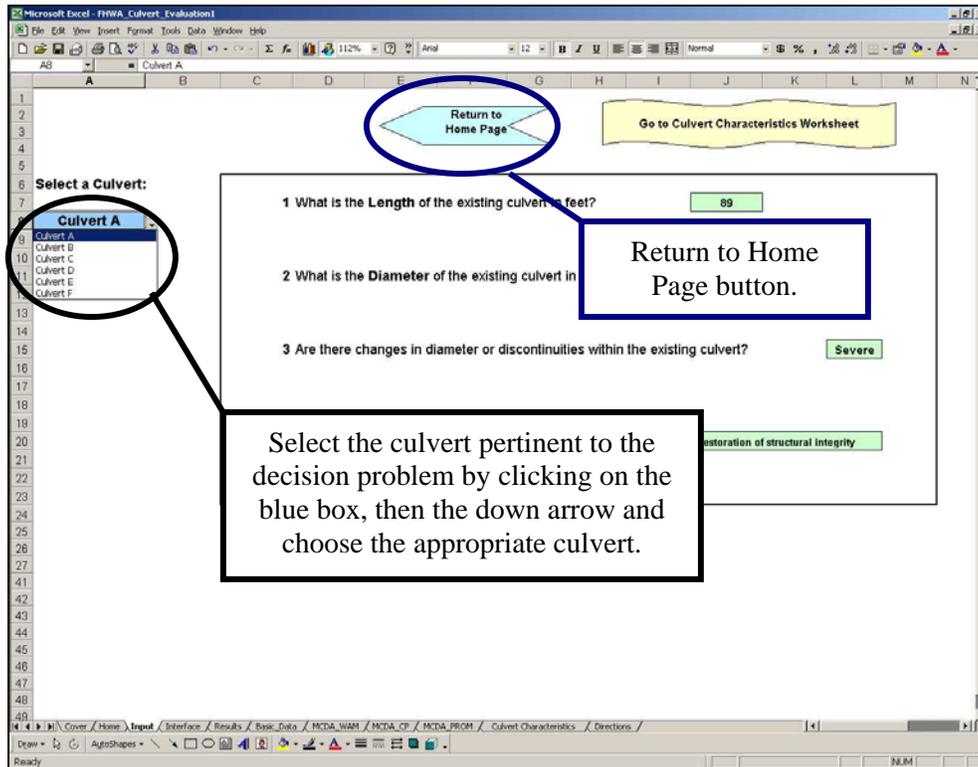


Figure 31. Screenshot. MCDA Inputs Worksheet.

9. Once finished selecting the applicable culvert, click the “Return to Home Worksheet” button to continue with the analysis.

10. Next, on the Home worksheet, click on the third box entitled “Determine the relative importance of criteria as it pertains to the culvert project. Click this box to go to the Interface Worksheet.” This action takes the user to the Interface Worksheet. Presented in Figure 32 is a screenshot of the Home worksheet with the third box highlighted.

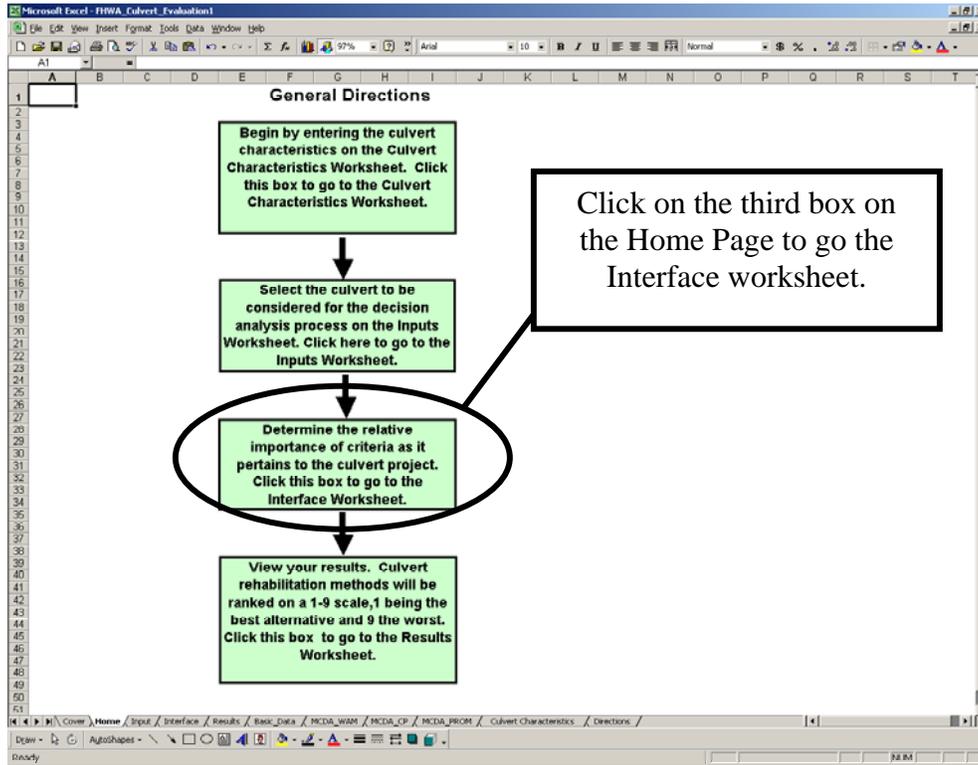


Figure 32. Screenshot. MCDA Home Worksheet.

11. Delimitate the relative importance of the criteria as discussed in Section 5.3.1. Relative importance factors must be on a scale of 1 to 4, 1 being the least important and 4 being the most important. Enter relative importance factors in the columns labeled G1-G3 in the “Relative Importance” box. It is convention to leave the values in column G1 equal to 1; this provides the user with a consistent comparative scenario where all decision criteria are of equal importance. Figure 33 presents a picture of the Interface worksheet. Highlighted in Figure 33 are the areas pertinent to determination of relative importance factors.

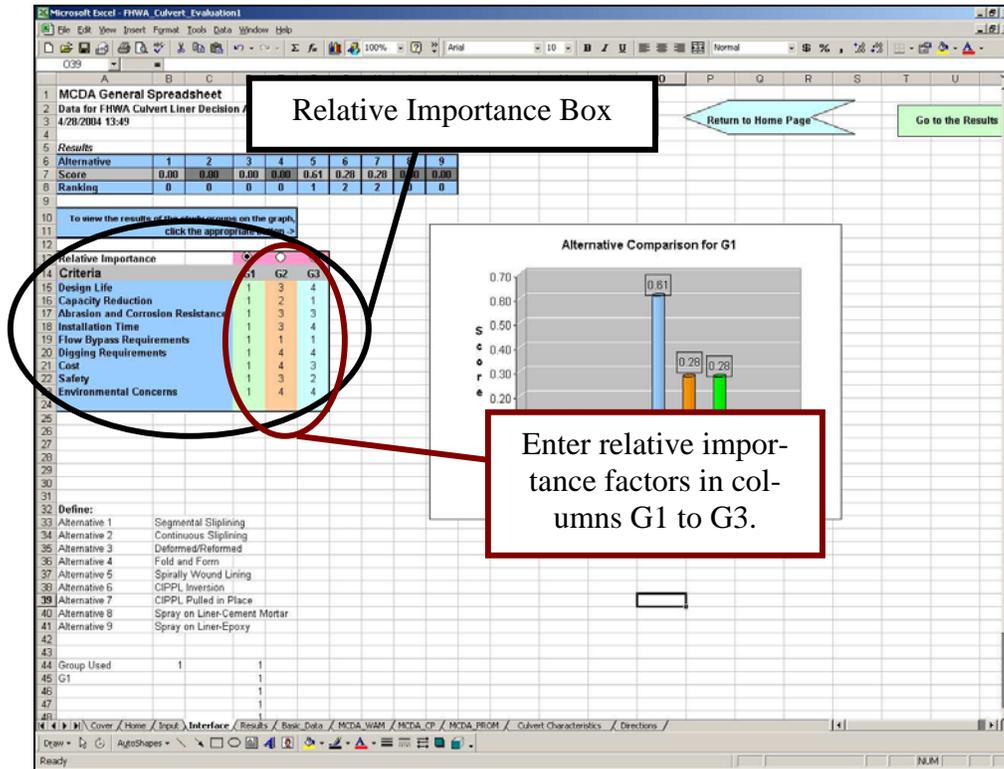


Figure 33. Screenshot. Interface Worksheet and Relative Importance Determination.

12. Navigation between the various relative importance scenarios is done by selecting the circle on top of the appropriate columns labeled G1 to G3.

13. Determine the method of alternative ranking. Methods of alternative ranking are described in Section 5.3.3. Selecting WAM scores the alternatives on a more conventional scale, giving equal significance to each relative importance factor. CP will give more weight to the better performing alternative relative to the other alternatives. Choosing the PROMETHEE method scores each alternative in comparison to the other alternatives, PROMETHEE is a performance-based ranking. In the screenshot presented in Figure 34, the area where the method of alternative ranking is selected has been highlighted.

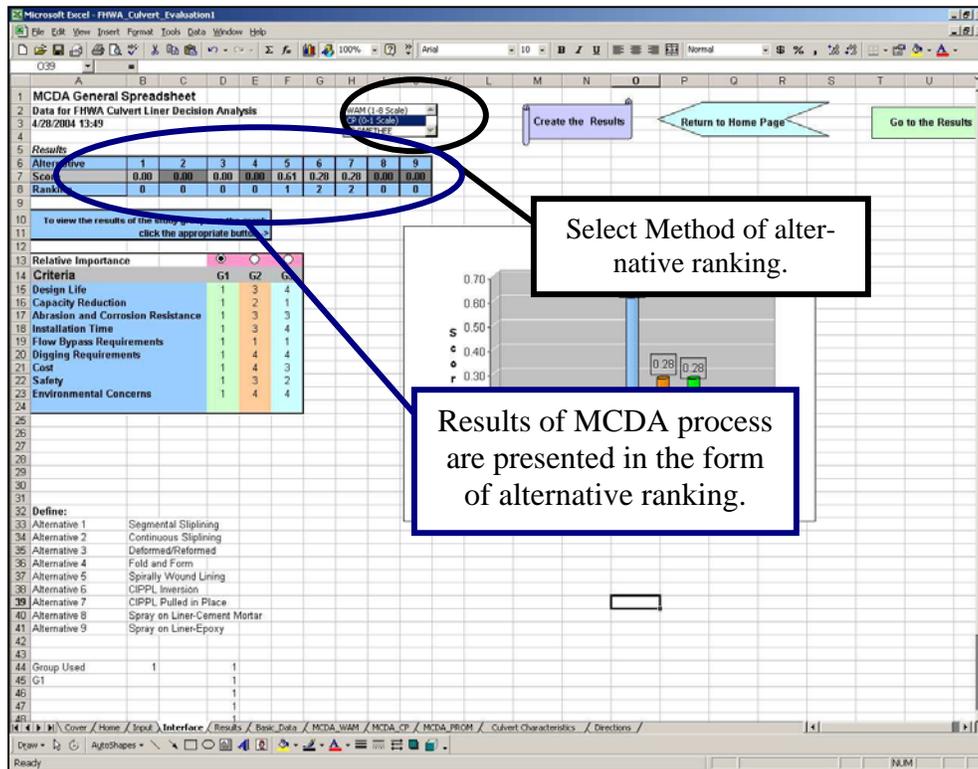


Figure 34. Screenshot. MCDA Interface Worksheet, Determine Method of Alternative Ranking.

14. Click the “Create the Results” button to save the scenario to the Results worksheet. All three (3) relative importance scenarios, G1 through G3, will be saved, though only one (1) decision analysis problem can be saved to the Results worksheet at a time.

15. Click the “Return to Home Worksheet” button. Navigation buttons pertinent to steps 14 and 15 are highlighted in the screenshot presented in Figure 35.

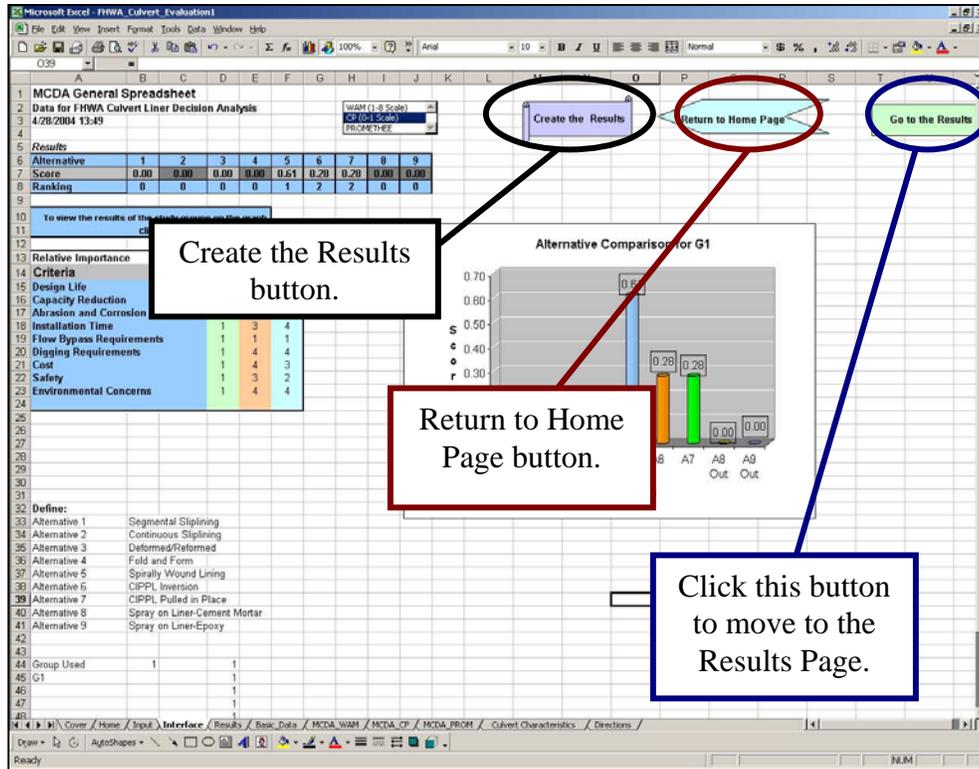


Figure 35. Screenshot. Interface Worksheet Navigation Buttons.

16. On the Home worksheet, click the fourth box, titled “View your results. Culvert rehabilitation methods will be ranked on a 1 to 9 scale, 1 being the best alternative and 9 the worst. Click this box to go to the Results Worksheet.” This process is highlighted in the screenshot presented in Figure 36.

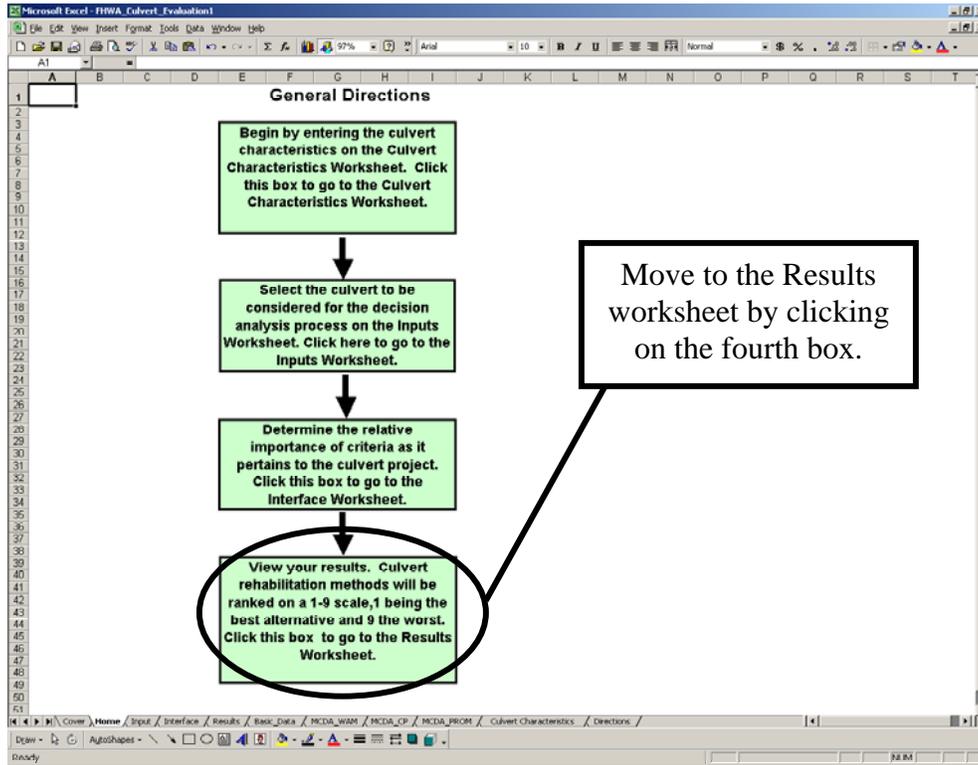


Figure 36. Screenshot. MCDA Home Worksheet, Navigates to the Results Worksheet.

17. Results are displayed in two (2) charts on the Results worksheet. A score and ranking of the alternatives is provided first for all three (3) relative importance scenarios. Secondly, a chart was provided to inform the user of eligibility of a criterion for consideration. If an alternative was eliminated the chart reads “Out” in the appropriate column. It is then seen which of the four (4) required culvert characteristics’ limitations caused an alternatives exclusion. The Results worksheet is presented in Figure 37.

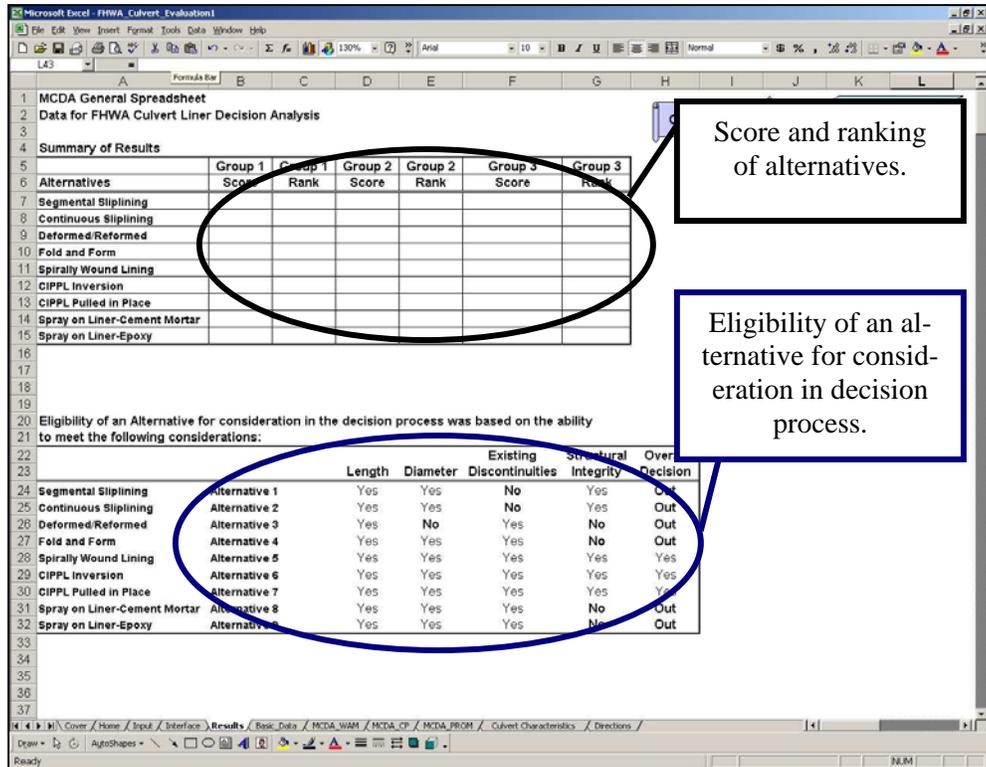


Figure 37. Screenshot. MCDA Results Worksheet.