

One Convention Place
701 Pike Street, Suite 1200
Seattle, WA 98101
Tel: (206) 624-0100
Fax: (206) 749-2200

King County Tabula: Task 2—Implement Program Corrections, Modifications, and Improvements Related to Program Appearance and Cost Detail Presentation

TO: Mark Buscher, King County
Lisa Taylor, King County
Mark Lampard, King County

COPIES: Steffran Neff, Brown and Caldwell

FROM: Bruce Johnston, PE, Brown and Caldwell

DATE: January 7, 2009

PROJECT NUMBER: 135452.003.001

This memorandum pertains to revisions and updates to the King County Wastewater Treatment Division's Tabula cost estimating program, and specifically discusses Task 2: to identify and add additional unit costs to Tabula.

In discussion with King County, Brown and Caldwell has suggested possible changes under this current effort and will also recommend additional changes that King County should explore in advance of the next Tabula update.

King County provided the consultant with the following list of items to address in this release of Tabula. The italicized notes following the item indicate the consultant's response.

1) Corrections:

- a) Cost details are cropped at the right margin when printing from Tabula. *(Fixed)*
- b) When cost details are copied to the system clipboard, the subtotal that multiplies the mob/demob factor, ENR-CCI ratio, and inflation multiplier by the baseline (2005) subtotal incorrectly repeats the baseline subtotal. However, this subtotal is correct in the screen and printed cost-detail. *(Fixed)*
- c) From File-> About Tabula, the form header incorrectly reads "Tabula Rasa, Version 1.0." Change this to read "Tabula, Version 3.0" (see Revision b, below). *(Fixed)*
- d) In the cost details, the typographical error "ItemCost" needs to be corrected to read "Item Cost." *(Fixed)*
- e) *Additional typographical errors that were found were corrected.*

2) Modifications:

- a) Add a Print Preview option from the File menu, if time allows. *(Not addressed)*
- b) Add a date stamp to appear in all cost details as a header—this modification was recommended by consultants using Tabula, and would be useful for internal “housekeeping” practices. *(Completed)*
- c) Report the name of the party responsible for the cost estimate in the header (e.g., “By: Tt/KCM”). This modification would require an additional parameter to be provided by the user in the “Project” model input. *(Completed)*
- d) All subtotals and totals in the cost details should reference the year (e.g., Year 2010 Subtotal: \$3,200,100) *(Completed)*
- e) All unit costs and resulting item costs, as well as subtotals, should be prefixed with the dollar symbol on the cost details. *(Completed)*

3) Revisions:

- a) Change the official name from “Tabula Rasa,” which is almost never used, to “Tabula.” This simply requires replacing any mention of Tabula Rasa in the program, as well as the user and programming manual. *(Completed)*
- b) Change the “splash screen” graphic to read Tabula 3.0 (at startup and File->About Tabula). In the credits, it would be useful to list dates of the original and update versions, along with the responsible consultants (HDR in 2001, CH2M HILL in 2005, and Brown and Caldwell in 2008). *(Completed)*

Additionally, all costs and calculations were reviewed and updated to reflect current market conditions and values. Beyond this, King County’s top priority was to add a land value factor for easements based on municipality. Because King County has a diverse range of land values, adding this factor allows the cost estimations to be further refined based on the value of the land within the nearby area. This factor is applied to any easement costs in the “Tabula” models. The default value is based on the average land value for King County and is assumed to be 1.00. All the municipalities listed below are scaled based on the average land value in that area. The easement adjustment factor is discussed in more detail in the memo documenting Task 4.

A Note Regarding Future Updates:

During the course of this project, our cost estimating team found Tabula to be an effective and relatively accurate cost estimating tool. While the current tool tries to capture as many project costs as is practical, the program can always be improved by incorporating additional details into the calculations that further refine the cost estimates. Although beyond the scope of this project, our estimators felt that the following improvements could be made during the next revision of Tabula:

- a) Due to the wide variation of types of shoring (\$3–\$45/SF), providing two separate types of shoring (split rail system and sheeting) might provide more accurate estimates.
- b) Due to the wide variation in asphalt costs (\$6.50/SF for large long, full width lane overlay to \$43/SF for small, irregular areas), allowing the user to select the type of area to be covered might provide more accurate estimates.
- c) For waste haul, dump fees can cause the cost to vary significantly. Including this as an optional additional cost might provide more accurate estimates.
- d) Shaft backfill costs vary depending on whether the shaft is shallow and accessible via backhoe. Including a relative cost based on shaft depth might provide more accurate estimates.