# WLP Industries Road Construction DSS Nathan Wittmaack, James Lindgren, Karen Paulsen

# **Introduction**

The WLP Road Construction Cost DSS helps planners, estimators, and engineers assemble a quick and reliable estimate for road construction costs for most small towns in the Midwest. Using some basic information gathered during a site survey the user can produce an estimate within minutes. Using the information in the estimate will give city planners the information they need to determine the feasibility of the project and develop the necessary budgets that will be used to fund the project. The estimate is not a formal bid.

To produce an estimate a site survey is necessary to determine the scope of the project and gather initial data. The information is entered into the program to produce an estimate. Several different estimates can be generated in order to provide multiple options for the client. The current program is not designed for roads which would include bridgework or multi-lane highways.

# How it works

The WLP DSS is a model driven DSS designed to integrate all of the basic components of any road project into your estimates. All of the guess work is taken care of. Using prices that you provide on the pricing worksheet, the DSS will calculate the total cost for your next road construction project. The inputs and decision variables are listed in the User Guide below.

#### **Design and Development**

The WLP DSS was designed using Microsoft Excel and Visual Basic. The user friendly screens are easy to maneuver through. We believe that we were successful in developing a DSS that included many of the features we learned in class. We included buttons, spinners, sliders, check boxes, and input boxes. All of the information is then passed to the Summary page where we utilize VLOOKUP and IF functions to complete the estimate.

There are endless additional features that could be added if we were going to develop this for commercial use on a large scale. For example, we could have added an automated set up capability that would allow the user (company) to customize the vendor name, address, preparer names, etc.

Data validation was included to make sure that fields are not left blank. Additionally, Nate added data validation for to check for whether storm sewer was included in the project. If so, the storm sewer fields are required on Screen 3. He also added code that would change the dimensions on screen 2 based upon the surface type selected.

# Maintaining your WLP DSS

Maintaining your WLP DSS is simple.

To update the prices:

- 1. Open the WLP workbook
- 2. Click Disable Macros
- 3. Click Format, Sheet, Unhide, OK
- 4. Update the prices as needed
- 5. Click Format, Sheet, Hide
- 6. Save the workbook.

We recommend designating a primary support person and a backup person for the DSS. The primary support person is responsible for maintaining the price list, preparer list, and any other enhancements that may be desired. It is important to document any changes made to the system should it be necessary for someone else to make changes.

# WLP Industries Road Construction Estimate DSS User Guide

System Requirements: Windows 98 or above, with Microsoft Office XP or higher

#### **Instructions**

To get things started, simply click the **WLP icon** on your desktop.

A box will appear:



Click the **Enable Macros** button.

Click Begin Road Construction DSS.

# Screen 1

WLP Industries Cost Estimator				X
		E	timate Number:	New
WLF	<b>P</b> In	dus	strie	S
	Road Construction	Estimate Builder		
State of the local division of the local div	Customer:			
	Address:			
	Contact:			
	Phone Number:			
1 346 3	Prepared By:		٠	
State and the				
		Carnos	Proceed	

All fields are required in order to proceed.

- 1. Enter an Estimate Number or click "New" to generate one.
- 2. Enter **Customer** name.
- 3. Enter Customer Address, City, State and Zip
- 4. Enter the **Contact** person's name.
- 5. Enter the **Phone Number** for the contact person
- 6. Using the drop down box, select a **Preparer's Name.** Alternately, you may enter the initials of any preparer not listed.

# Screen 2:

WLP Industries Cost Estimator		×
WLP	Surface Type:	Asphalt C Concrete C
	Included:	Curb and Gutter Storm Sewer
	Dimensions:	Width:
Back		Cancel Proceed

- 1. Using the radial buttons, select a **Surface Type**
- 2. If you select **Asphalt**, you may also select either of the following two options:
  - a. Curb and Gutter
  - b. Storm Sewer
- 3. If you select **Concrete**, you will have the option of selecting:
  - a. Storm Sewer
  - b. Note: Curb and Gutter is automatically included when Concrete is selected
- 4. Once you have selected a surface type and options it is time to select the road dimensions.
  - a. Asphalt options include:
    - i. Widths of: 22, 23, 24 and 25 feet
    - ii. Thickness of 6" and 7"
  - b. Concrete options include:
    - i. Widths of: 27, 28, 29, and 30 feet
    - ii. Thickness of 7" and 8"
- 5. To return to the previous screen, click the **Back** button.
- 6. To cancel the program, click the **Cancel** button.
- 7. To proceed to the next screen, click the **Proceed** button.

Screen 3:		
WLP Industries Cost Estimator		×
WLP	Salvage Stone Base:	SY
	Earth Work:	CY
	Strip and Respread Topsoil:	CY
	Subdrain:	LF
	Subgrade Prep:	SY
	Core out Unstable Subgrade:	CY
	Additional Stone:	CY
	Paving:	LF
	Storm Sewer: 42"	24" UF
	Driveway Repair:	÷ EA
	Seeding:	AC
	Storm Structures:	EA
	Erosion Control:	EA
	Utility Accomodations:	EA
Back	Cancel Save Current Estimate	Proceed

- 1. Enter the following information:
  - a. Salvage Stone Base (SY)
  - b. Earth Work (CY)
  - c. Strip and Respread Topsoil (CY)
  - d. Subdrain (LF)
  - e. Subgrade Prep (SY
  - f. Core out Unstable Subgrade (CY)
  - g. Additional Stone (CY)
  - h. Paving (LF)
  - i. Storm Sewer (LF) for each of the following:
    - i. 42" storm sewer
    - ii. 24" storm sewer
    - iii. 18" storm sewer
    - iv. 15" storm sewer
  - j. Driveway Repairs (EA)
  - k. Seeding (AC
  - 1. Storm Structures (EA)
  - m. Erosion Control devices (EA)
  - n. Utility Accommodations (EA)
- 2. To return to the previous screen, click the **Back** button
- 3. To cancel the program, click the **Cancel** button.
- 4. To save the estimate, click **Save Current Estimate** button. This will save a copy of the quote to your desktop. The name of the file will be the Customer Name followed by the Estimate Number.
- 5. To proceed to the next screen, click the **Proceed** button.

# Screen 4:

WLP Industries Cost Estimator	🔀
WLP	Administrative Costs Estimation
	Contingency %:
alter same have a second	Engineering:
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	Legal:
	Surveying:
Back	Cancel Save Current Estimate Proceed

- 1. Using the scroll bar, enter the **Contingency** percentage.
- 2. Enter an estimated amount for Engineering.
- 3. Enter an estimated amount for Legal
- 4. Enter an estimated amount for Surveying
- 5. To return to the previous screen, click the **Back** button
- 6. To cancel the program, click the **Cancel** button.
- 7. To save the estimate, click **Save Current Estimate** button. This will save a copy of the quote to your desktop. The name of the file will be the Customer Name followed by the Estimate Number.
- 8. To save and proceed to the next screen, click the **Proceed** button.

# **The Estimate**

- An estimate will automatically be created based upon the information you have entered.
- To print the estimate, click **File**, **Print**, select your printer, and click **OK**.
- To make changes to the estimate or change any of the variables, click the **Start** worksheet in the workbook. Note: all of the data that was entered has been saved to the worksheet to allow for easy updates.