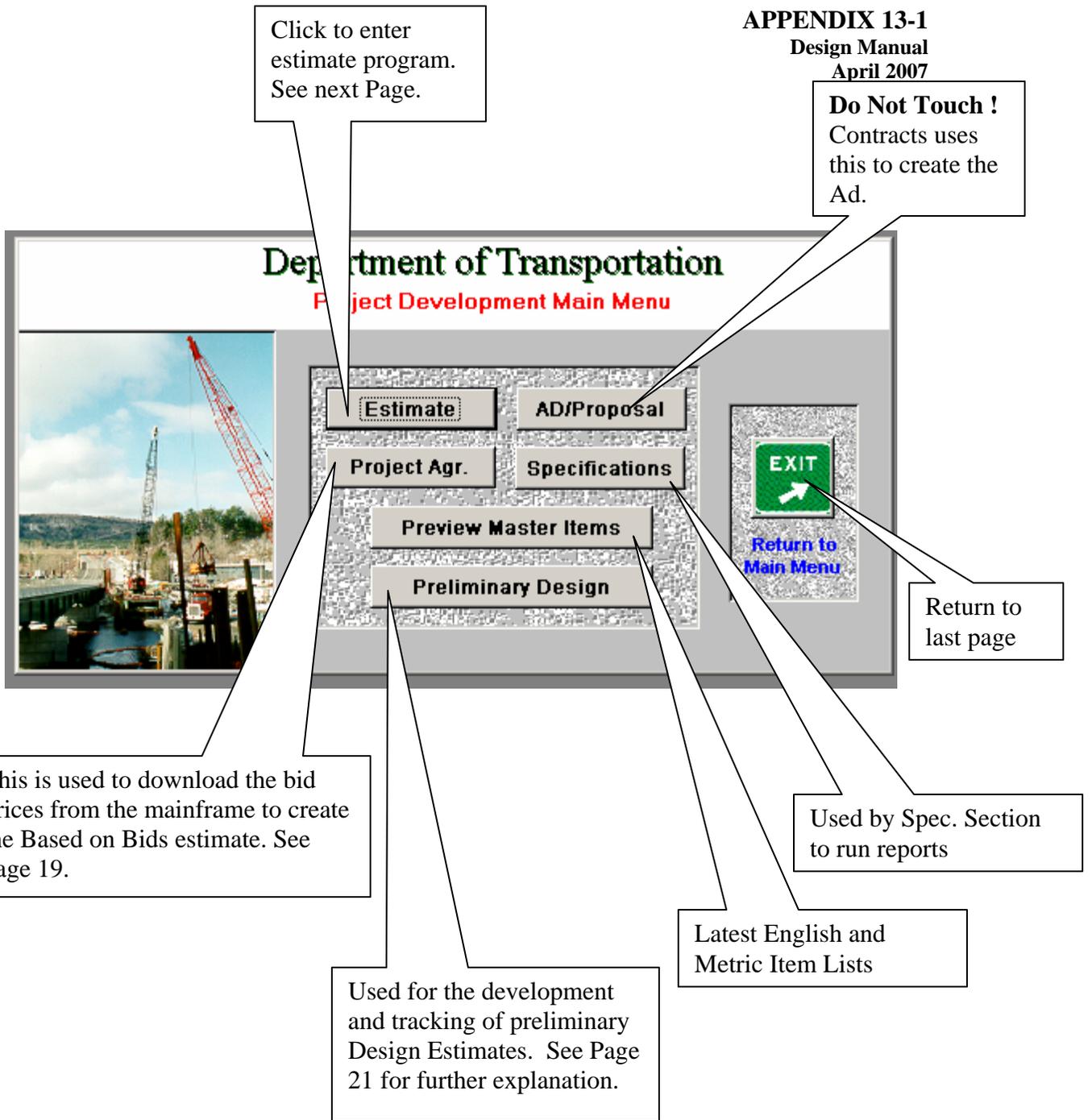


ESTIMATE GUIDELINES

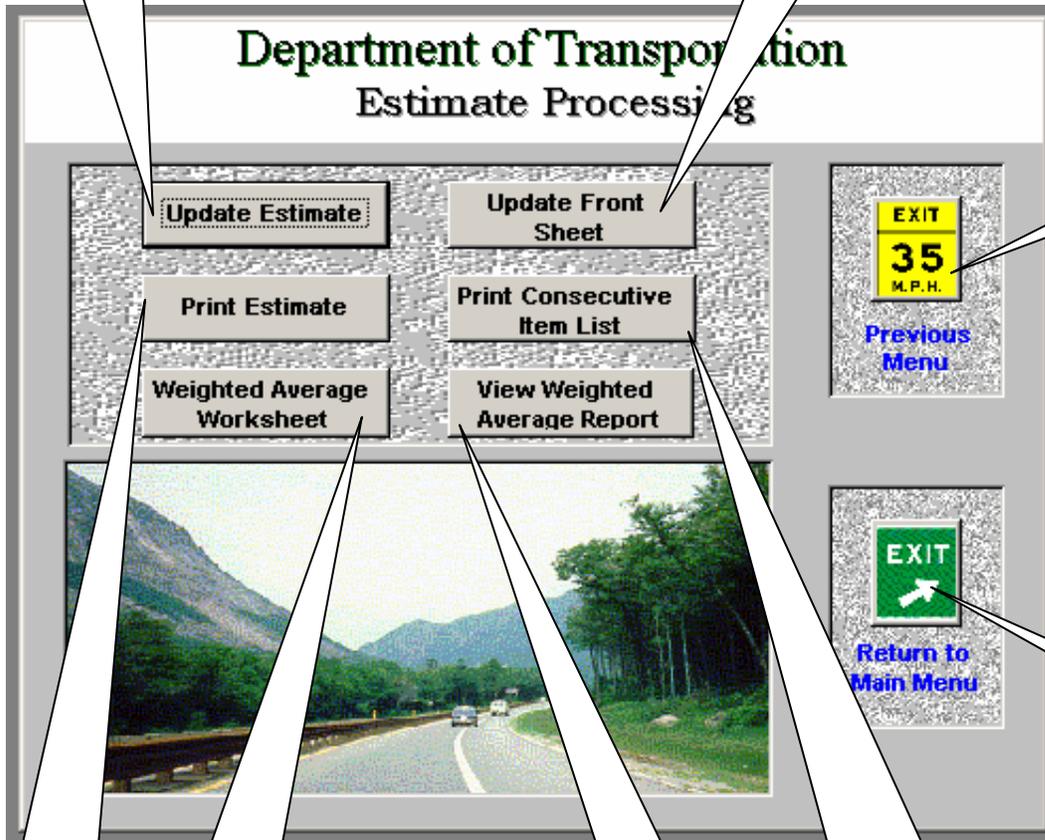
Estimates are prepared in a database located in **G:/database/bur34/Estwork32.mdb**.
The following is a guide on using the database and preparing an estimate.





Click to create or update the body of the estimate. This includes entering or changing items, funding codes, and project information. (See next page).

Click to create or update an estimate front sheet in Excel, (see page 11).



Return to previous page

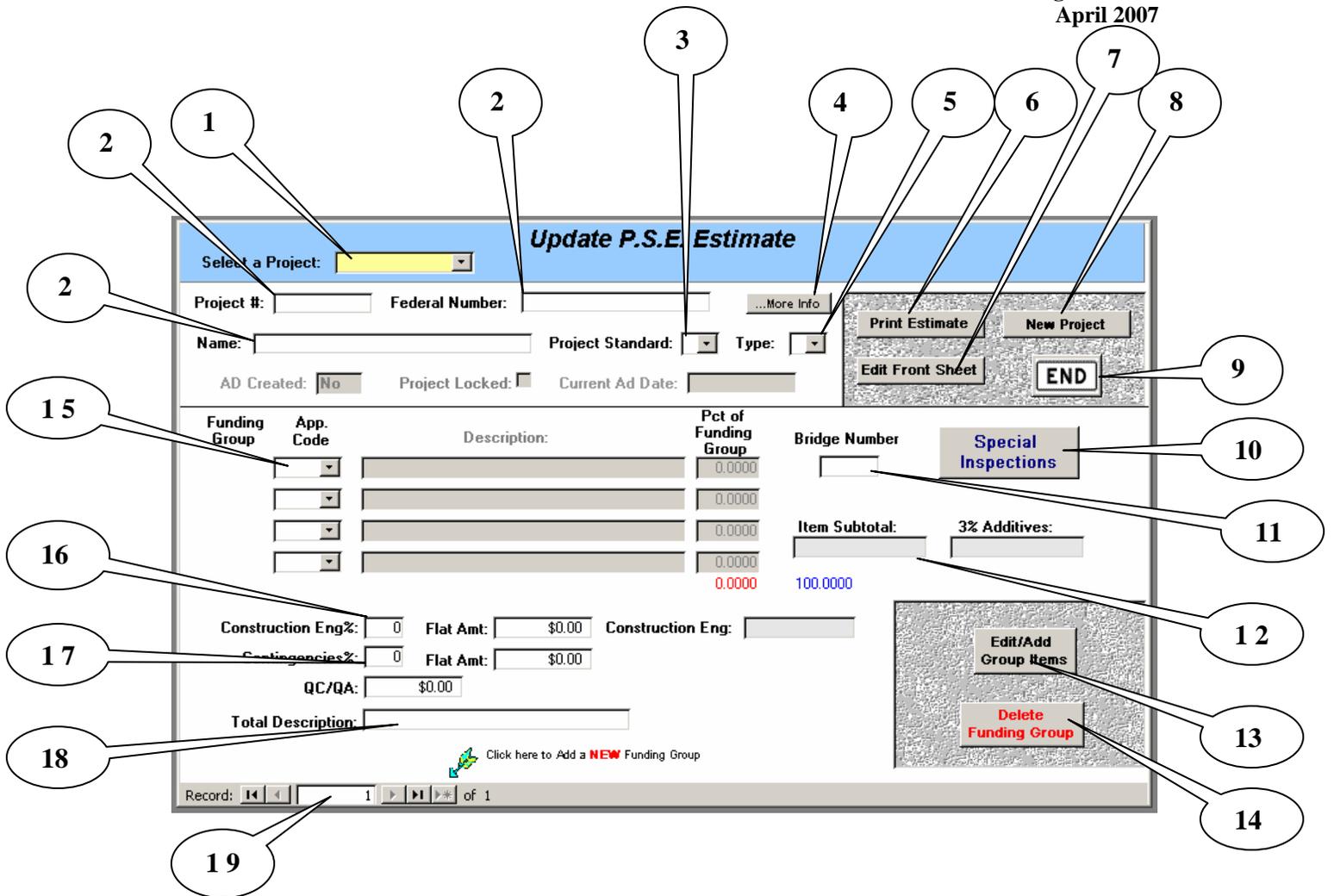
Return to first page

Click to print or print preview the body of any estimate

Use this worksheet to research prices. (See page 9 for further info).

Used by construction to evaluate Gas and Diesel usage.

Quarterly weighted average reports



1. Select a project from the list to start or update an estimate. When the Project Authorization (project slip) is processed by Project Programming, the project is added to this menu. When starting a new estimate for a project, sections 1-5 will need to be filled in prior to using the remainder of the form.
2. These boxes will be filled in automatically from the information provided on the project slip when the project is initiated.
3. Select appropriate Units (I – Imperial, M – Metric)
4. This button will bring up a separate window that contains the project snapshot information.
5. The bid prices in the estimate are used to generate the Weighted Average Unit Prices in the following categories:

Group A: Rural projects over \$750,000

Group B: Rural projects under \$750,000

Group C: Bridge projects

Group D: Urban projects

Group F: Signalization Projects

Group H: Special projects

Note: If you are doing an estimate without items (i.e. Modified Project Agreement Estimate for PE/ROW) this is all the information that needs to be entered before going to the front sheet. If you are just creating a front sheet style estimate go to page 11 after entering the above information.

6. The body (list of items, quantities and costs) of the estimate can be previewed and printed here. This also provides a “apples & oranges” summary for use in preparing final summaries.
7. This button is a link to the project front sheet, an excel file, that is further discussed on page 11.
8. Not for highway use.
9. Exit from this screen to the previous.
10. This area is used when special inspections are charged to a project. On the estimate they appear with Construction Engineering. If the work will be done by a Consultant, identify the Consultant by name or show “Consultant To Be Determined”. Examples of work shown here are, steel inspection, underwater inspection, overhead sign structure shop inspection, etc. See Sheet 7 for example.
11. When a bridge is included on a project, the body of the estimate for the bridge is kept separate from the roadway. If there are multiple bridges on a project, then there will be multiple bodies. This is when adding the bridge number is useful. It will identify which body goes with which bridge.
12. The information contained in “Item Sub-Total” and “3% Additives” is for information and is generated from the current items and prices in the body of the estimate. When computing Construction Engineering, the 3% additives need to be accounted for.
13. To add items or edit existing items in the body, enter here. For more discussion see pages 7 & 8.
14. You can add funding groups (19) or you can delete funding here. This will delete the entire funding group and associated items.

15. This drop down menu allows the selection of appropriation codes. These appropriation codes are obtained from the project snapshot and after selected here will show on the body the estimate.

Consult Project Programming to verify the Codes to be used and the separation of cost (percentages) for each Code. The Appropriation Code will also distinguish (Federally) Non-Participating work funded either by the State or by the municipality.

16. A good place to start is to use 10% Construction Engineering on projects with an item total equal to or greater than \$500,000. Use 15% Construction Engineering on projects with an item total less than \$500,000. On large projects or special projects such as Interstate 4-R, less than 10% Construction Engineering may be used (shown either by a % amount or by an estimated lump sum). On all projects this amount needs to be coordinated with the Section Chief and with the District Construction Engineer.

After the Construction Engineering amount is agreed to the 3% additives (12) need to be included and then rounded to a reasonable number.

17. For Preliminary PS&E Estimates, include an amount for “Contingencies”, if appropriate, to cover unknown costs, quantities that have not been checked or items not added to date. Normally, this would be approximately 10% or less of the item total, depending on the accuracy of the estimate. Delete “Contingencies” on the PS&E Estimate.

18. The body of the estimate will total all items at the end of the estimate. The description of the total can be added here. If nothing is added here the body will simply say “TOTAL”, if “Roadway” is added here the total will read “Roadway TOTAL”

19. This area allows you go to the different funding groups within the estimate. i.e. the Roadway section, bridge section, non-participating section. Be careful when you start to add or change items quantities etc. that you are in the correct section of the estimate. The 1,2,3..., etc. may not match the “funding group” listed above if the order of printing was switched after the funding groups were created.

Special Inspections

When this button is clicked the following screen will appear:

Enter in the information for any special inspection on the project.

Click to go to the previous page.

P.S.E. Estimate Processing
Edit Special Inspections
****READ ONLY MODE****

State Project	Project Name	Funding Group
11849	Holderness-Plymouth	2

EXIT
35
M.P.H.

Undo Changes

Cost:	<input type="text" value="\$60,000.00"/>
Description:	<input type="text" value="Structural Steel"/>
Cost:	<input type="text" value="\$15,000.00"/>
Description:	<input type="text" value="Precast Concrete"/>
Cost:	<input type="text" value="\$0.00"/>
Description:	<input type="text"/>
Cost:	<input type="text" value="\$0.00"/>
Description:	<input type="text"/>
Cost:	<input type="text" value="\$0.00"/>
Description:	<input type="text"/>
Cost:	<input type="text" value="\$0.00"/>
Description:	<input type="text"/>

Click to go back to the previously entered amount.

Edit/Add Group Items

By selecting (13) you will be prompted with the following;

Adding Project Items ✖

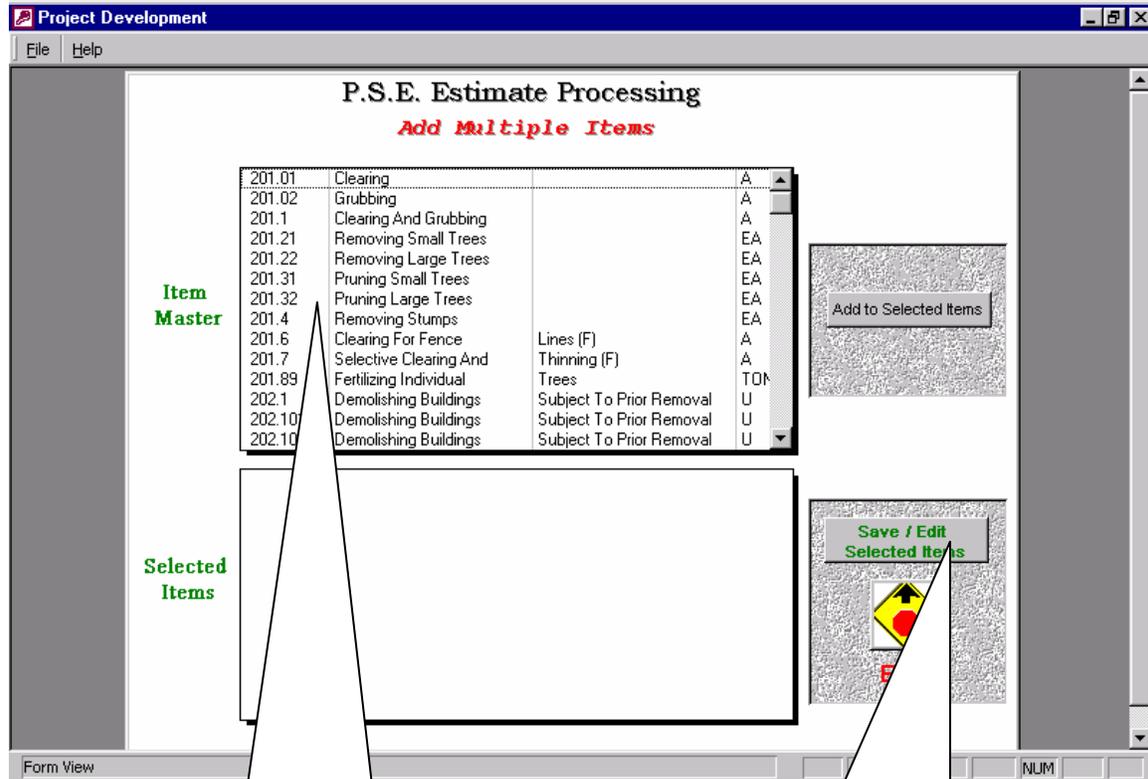
? Would you like to Add Multiple Items ?

Click "Yes" if you are entering many new items to the estimate or if this is the first time entering items. (see next Page)

Click "No" if you would like to edit existing item quantities, prices or enter just a few items to the estimate. Also click this button to delete items.

If you click YES the following screen appears.

This screen allows you to add many items to the body of the estimate



Double click on the items in the master list to add the item to the estimate. The item will appear in the Selected Items box.

Once you have completed entering items, click this button to save the items in the estimate. Exit will not save what was added.

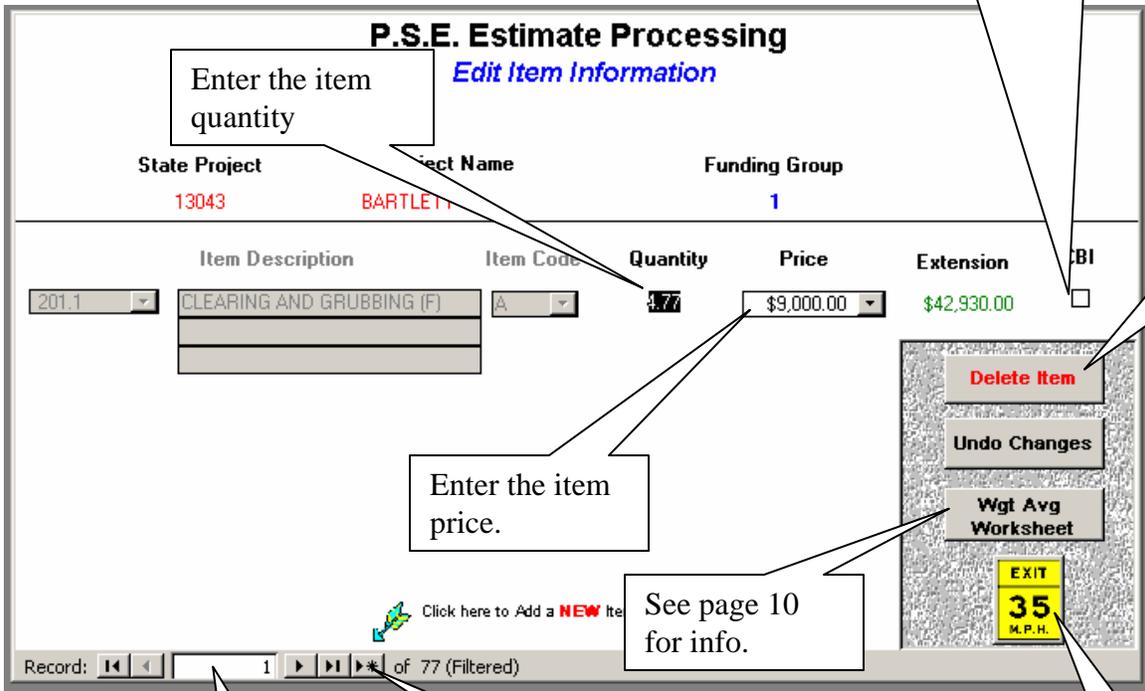
If multiple items are selected, using the “ctrl” button, the “add to selected items” button can be used to add the items in one step.



If you click **NO** the following screen will appear:

This screen allows you to enter quantities, prices, add or delete items to the estimate.

Check this box if the item is a Construction Engineering Bid Item (i.e., Field Office, Lab Trailer, etc)



Enter the item quantity

Click to delete the item shown

Enter the item price.

See page 10 for info.

These buttons allow you to scroll through all the items in the estimate

Click this button to enter in a Special item that is not in the master list. You will have to enter the item number and description.

Returns to previous page

When selecting prices from the drop down menu, use caution. Prices should be taken from similar past projects or from the "Wgt Avg Worksheet".

When **Wgt Avg Worksheet** is selected the following screen appears;

The screenshot shows the 'Weighted Average Worksheet' interface. At the top, there are filter controls for 'Item Number' (Between 201.1 And 201.1), 'Standard' (I), 'Type' (A), 'Unit', and 'Project #'. Below these are 'Dates' (Between 1/19/2005 And 1/19/2006) and 'Quantity' (Between 0.00 And 1,000,000,000.00). A table displays search results with columns: Item #, S, Type, Unit, Project #, Project, Quantity, A Bid, A Exc, B Bid, B Exc, and Bid Date. The table contains two rows of data. Below the table is a summary section with the following data:

Summary of Results	
Total Cost of all Items	\$83,033.00
Total Quantity of all Items	9.65
Average Unit Price	\$8,604.46
High Bid	\$10,200.00
Low Bid	\$8,440.00
# of Bidders	3

Callouts in the image point to various elements: 'Filtering criteria to research prices.' points to the filter fields; 'Close Window' points to a button in the top right; 'Clear Filters' points to another button; 'Search Results' points to the data table; and 'Summary of Results' points to the summary section.

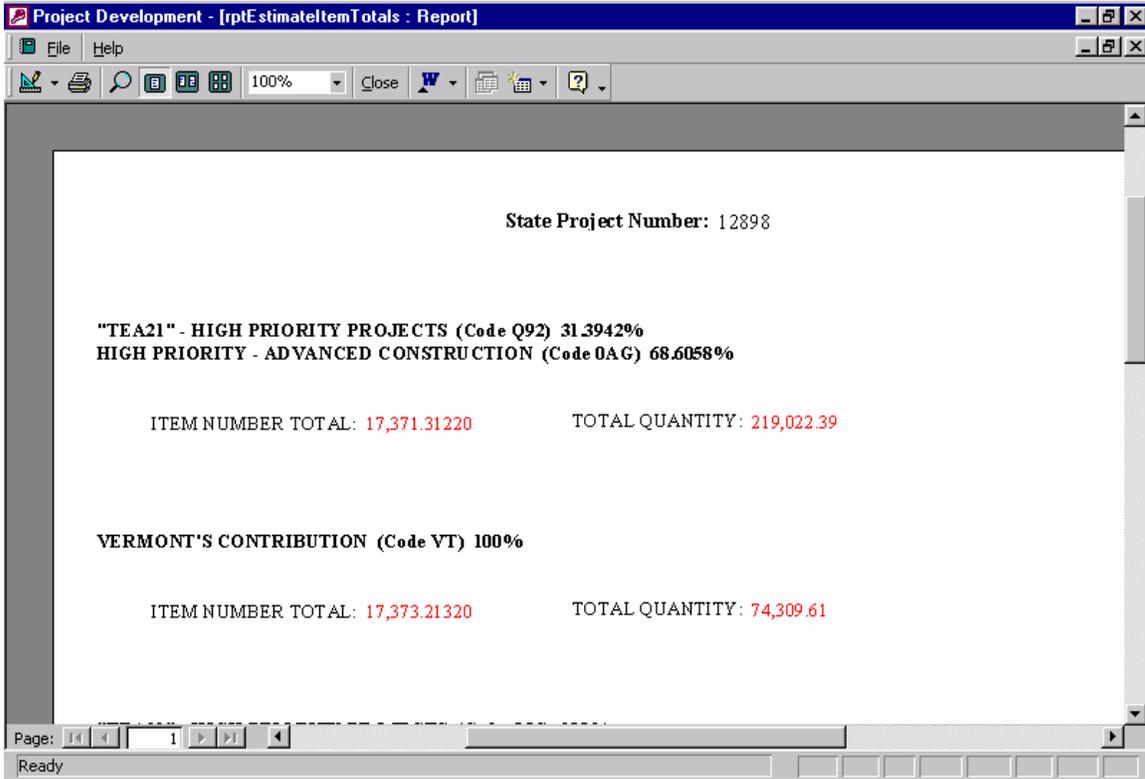
Note: Unit prices can be greatly effected by the quantity of the item. For example, a small quantity of Cold Planing will cost \$7/sy, where a large quantity could be as low as \$1.50/sy. You can filter out large or small quantities and high or low bid prices by checking the EXC box and any excluded bid prices will be shown in red.

The screenshot shows the 'Project Development' software interface. A 'Project Selection' dialog box is open, displaying the following information:

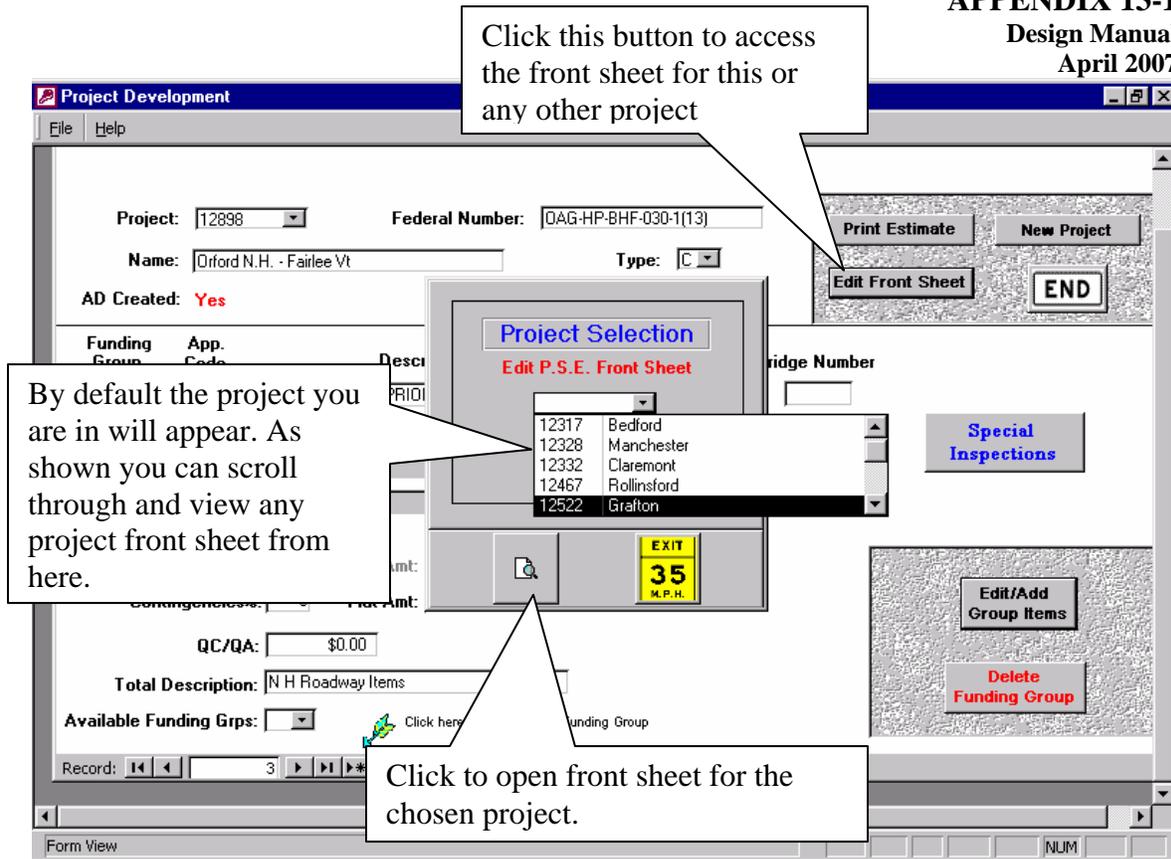
- Project: 12898
- Federal Number: DAG-HP-BHF-030-1(13)
- Name: Orford N.H. - Fairlee Vt
- Type: C
- AD Created: Yes
- Funding Group: 3
- App. Code: Q92
- Desc: "TEA21" - HIGH PRIOR
- Print P.S.E. Estimate
- Start Page Numbering at Page: 1
- Buttons: EXIT 35 M.P.H.

Callouts provide the following instructions:

- Clicking this button will result in the following action box**: Points to the 'Print Estimate' button in the top right of the main window.
- By default, the project number of the project you are in appears. You can choose any project estimate to view from the drop down list.**: Points to the project number '12898' in the dialog box.
- Enter the page number you would like the body of the estimate to start with. This will typically be 3.**: Points to the 'Start Page Numbering at Page: 1' field in the dialog box.
- Click to preview the estimate body**: Points to the magnifying glass icon in the dialog box.
- Click to exit back to previous page**: Points to the 'EXIT 35 M.P.H.' button in the dialog box.



When you close out of the estimate body print preview the above information is shown. It can be used to check the items and quantities between the estimate and summary sheets in the plans (i.e. “Apples and Oranges”).



The new format is intended to separate project related data from funding related data. In doing so designers can free themselves from having to incorporate funding codes, and instead concentrate on providing project parameter information and actual and programmed costs associated with PE, ROW, and Construction.

Description: The Description of the project should be the same as that used by the last project authorization form. If the project description has changed, then a new authorization form should be submitted to Project Programming

Current Advertising Date: The current advertising date is as listed in the “Greer Report”. For projects in the initial stages of development, the date would typically be the first week of the fiscal year in which the project is listed on the State’s Ten Year Transportation Improvement Program. For projects that are not in the Ten Year Program, the space should say “Constr. Not Funded”.

County Name: From the drop down list, enter the county in which the project takes place.

Project Type: From the drop down list, pick the type of project. This is used to further develop the weighted average unit prices.

Estimate Type: refers to existing estimate descriptions (i.e. Modified Project Agreement Estimate for PE and ROW, etc.). See estimate routing slip for estimate choices.

Note: The heading may include more than one title as appropriate, e.g. the PS&E Estimate may also request Authorization from FHWA for additional Preliminary Engineering or Right-of-Way as a “Modified Project Agreement Estimate for PE and/or ROW”.

Explanation of Estimate: Should include a brief explanation of why the estimate is being processed and what, in general terms, is being updated and why. The explanation should also include the previously programmed amounts if they change.

When running the Based on Bids estimate the explanation will include who the A bidder is, how much the contract with the A bidder will be for, and how much the engineers estimate was.

Project Detail: The format allows for better “detail” of the project scope. Include detailed information such as project length, typical section, and construction type; side road lengths, typicals, and construction type; bridge length, type, and type of construction; mitigation type, location, size, and type of construction; and other structures (ie. buildings, etc) type, location size, and type of construction; all will provide a basis for understanding what the project costs are purchasing, making comparisons with other seemingly similar projects more useful. Equally important, by updating the project detail as the design is developed and estimates are rerun, the designer and decision makers can track how the project scope has changed, and with it, project costs.

The degree of detail should reflect the level of design effort. Projects that are entirely conceptual are not necessarily expected to have side road and bridge information. Projects that are well along in design should have fairly accurate project detail, but need not be exact. If the scope of work on a portion of a project has changed in a meaningful way, the detail information should be revised.

For large projects, the Project Detail Spread Sheet can be expanded to allow for inclusion of more side roads, bridges, mitigation (wetland, noise barriers, etc.), or other structures.

Project Funding Requirements: should note any special funding sources, (ie, municipalities or other agencies and there associate DUNS number), funding limits (ie, agreed to caps on funds) associated with the project, or abrupt changes in funding status (ie, project going from strictly Betterment funding to Federal funding), all in an effort to provide communication between the designer, the lead person, Planning, and the Bureau of Finance and Contracts.

PE, ROW and Construction:

Within each category of Preliminary Engineering, Right-of-Way, and Construction, you can have Programmed or Authorized funds. The following are terms used to describe the status:

Authorized:

The term “Authorized” means that (Federally Participating) funds for PE, ROW and Construction can be spent. Use this term when requesting Authorization for Federal Aid for *PE, ROW and CONSTRUCTION*. When an amount is shown as Authorized, the amount Previously Authorized must also be shown in all areas where the term Authorized appears.

FHWA will not Authorize funds for ROW acquisition until:

- 1.) The “Resolution of Issues” from the Public Hearing is finalized; and,
- 2.) The ROW Purchase Plans are available.

The cost of ROW appraisal work is part of ROW Acquisition cost, not incidentals. To avoid re-work, check with the Right-Of-Way representative regarding possible changes to any right-of-way cost before running the estimate.

The request to Authorize Construction funds is made at the PS&E stage. Exempt projects (“X” in the Federal number) can request Authorization for any Force Account Work at the PS&E stage, i.e., by State Forces or by a Utility.

Non-Exempt (or overview) projects (no “X” in the Federal number) can request Authorization for Utility Force Account Work at the PS&E stage only with a fully executed Utility Agreement, i.e., signed by both the Utility involved and the NHDOT. For unexecuted Utility Agreements with accurate cost estimates for the utility work, FHWA will approve Authorization with the statement, “(Pending Receipt of Executed Utility Agreement)”. If there is not an accurate cost estimate of the utility work at the PS&E stage, the funds for Force Account Work by Utility will be Authorized when the agreement is executed at the after-bid stage. Until that time, show this work as Programmed. (See Appendix J for a summary outline of the Utility Agreement submission to FHWA.)

Note: If it is necessary to make changes to the PS&E Estimate after the project advertises and before the bids are opened, i.e. during the bidding process, a Revised PS&E Estimate is issued. Implement the following procedures when this takes place:

- Any change to the PS&E Estimate must be approved by the Director of Project Development.
- Changes to the PS&E Estimate must be coordinated and processed with an “Addendum” to the Proposal along with any changes to the plans which may require a “Revision After Proposal”. (Refer to Chapter 13 of this Manual for information regarding Addendums.)

- Unless a Federal project is Exempt, any change to the PS&E estimate must be approved by FHWA. This is normally done by their approval of the Addendum.
- FHWA will not normally Authorize additional funding when there is a change during the bidding process resulting in a Revised PS&E Estimate. Therefore, when the estimate after bids is prepared, the “Previously Authorized” amounts for construction would be those amounts Authorized from the PS&E Estimate, not from the Revised PS&E Estimate. (There are exceptions to this procedure, e.g. when the change during the bid process requires a substantial adjustment in the amount of funds Authorized.)

Advanced Construction is a technique which allows the NHDOT to advance the obligation of PE, ROW or Construction beyond the obligational limit of that year. The NHDOT can then determine when to convert the advanced funding to reimburse the Highway Fund, by either converting the entire project in a single year or partially converting over many years. In order to use this technique, there are many requirements. See Project Programming for this unique circumstance.

Programmed:

Use this term to show PE, ROW or CONSTRUCTION for which funding Authorization will be requested at some later date. Indicate the Fiscal Year (FY) in which the work is Programmed. (Federal fiscal years begin October 1, e.g., October 2, 2006 is Federal FY’07. State fiscal years begin July 1, e.g., July 2, 2006 is State FY’07.)

Note: Programmed amounts on the estimate should approximately equal the future year funding amounts shown in the latest version of the STIP. If these amounts vary substantially, check with Project Programming whether a STIP Amendment is necessary.

On larger and more complex projects, the amount of future year funding should be tracked by Project Programming for STIP purposes on a separate form kept current as each estimate is processed. As an example, show the information on the estimate as:

Programmed:

Preliminary Engineering	50,000.00	FY 2008
Preliminary Engineering	50,000.00	FY 2009

Design is no longer responsible for showing the funding codes on the front sheet of the estimate. Project Programming takes care of this when the estimate is routed through them.

The entries of Preliminary Engineering must be identified by who does the work, either by the State or by Consultant, individually listed. Also, describe briefly the nature of the Consultant work (Wetland Delineation, Highway/Bridge Design, etc.) and the Agreement amount. If work under Statewide contract is charged to the

project, it must also be included, listing the Consultant on this project. To identify such Consultant work that must be shown on the estimate, a copy of the “Notice to Proceed” for Consultant work is forwarded to the Lead Person and to the Section Chief responsible for running the estimate by the Bureau monitoring the work.

Note: Preliminary Engineering and Right of Way charges must be Authorized by FHWA prior to beginning work, unless approval for non-participation has been obtained from the Director of Project Development in advance.

Preliminary Engineering is initially estimated at 10% of construction cost. All of this amount can be Authorized “up front” for a single fiscal year or it can be split up over 2 or more fiscal years with a portion Authorized and the remainder shown as Programmed.

If it’s necessary to increase PE, a projection is made of what it will cost to complete the design. Estimate the percent complete for the different categories of State PE using the WCC and proportionately increase it to account for the remaining cost for State PE. Contact those involved to verify their remaining expected charges. Sub-total this cost, increase it by 3% (additives), i.e., overhead, and round it to an even amount. Next, add the Consultant *Agreement* amount, not the Consultant expenditures to date, to obtain the total cost for PE. It’s not uncommon for the Consultant amount to increase over the design life of a project, therefore, make sure that the Consultant Agreement amount is current.

As a convenient check of current expenditures for PE and ROW, access the Project Cost Detail available through the intranet. This will provide a snapshot of expenses by section and a total for State expenditures and additives along with Consultant expenditures and the amounts under Agreement with FHWA.

When calculating Non-Participating PE, include only expenditures, i.e. do not include “additives”.

Whenever an entry is shown as Authorized, the total amount (not the amount of Federal Aid) “Previously Authorized” must also be shown. This is normally obtained from the previous estimate, Project Tracking or the “Request for Federal-Aid Program Approval/ Authorization to Proceed”. If there is a question, check with Project Programming.

Show the “Roadway Total” and “Bridge Total” as separate line entries even if they are funded under the same Code. Other major items could also be entered separately. When this is done, the items must also be shown separately in the body of the estimate, e.g., a major wall structure, utility work, a building, etc. When more than one (1) Code for certain types of work is included, e.g., roadway, bridge, etc., each Code must indicate the percentage it represents of the total cost for that type of work (for accounting purposes), in the body of the estimate.

Estimate Processing and Routing:

The project manager, lead person, or design engineer completes the front sheet, attaches the items portion of the estimate (if available), attaches the routing slip, and

requests input from project manager, lead person, design engineer, bridge engineer, municipal engineer, and ROW engineer.

When routing the PS&E, the estimate shall have a PS&E checklist included with all appropriate information that is called for as part of the form. The latest version of this form can be found on the Project Programming website.

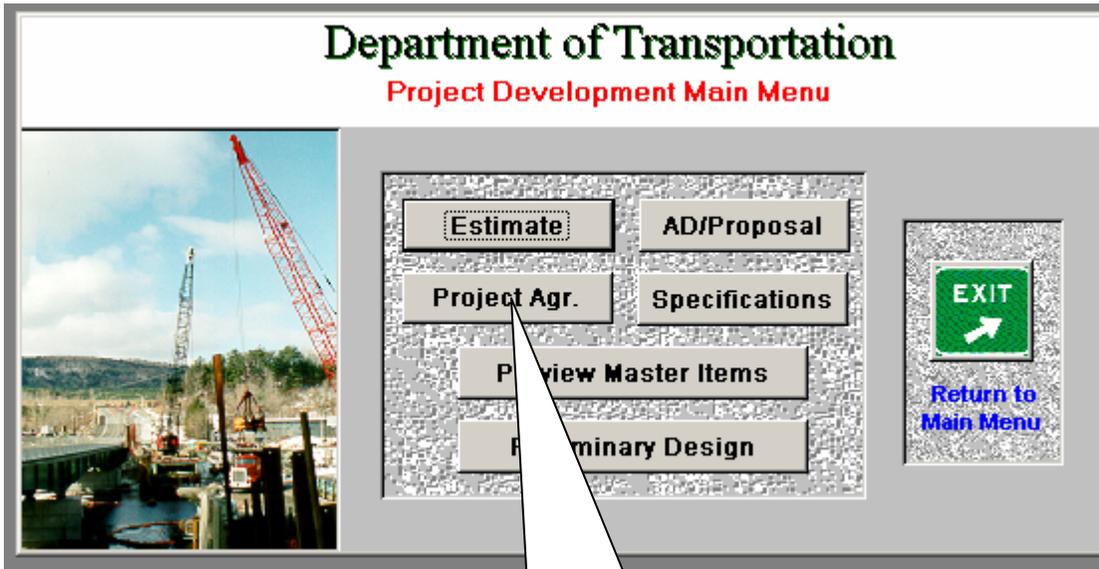
Following receipt of signoffs, the front sheet is signed by the Project Manager/lead person and forwarded to the Bureau of Finance, Project Programming section. Project Programming will review the estimate relative to general conformity and Project Funding Requirements and then attach the funding sheets and process the estimate.

Project Programming will forward the estimate (front sheet, items list, and funding sheets) to the Project Manager/lead person, as well as Finance and Contracts.

The Project Manager will review the completed document, and forward the document to the Design Engineer for distribution to Project Development bureaus.

In an effort to maintain some standardization over the format for the front sheet, the excel template for the front sheet will be the responsibility of the Bureau of Finance and Contracts through the Project Programming section. The person preparing the estimate will be able to add to (or subtract from) the number of lines or detail cells required to characterize the project description and scope, as well as listing vendors (PE), Service (ROW), and Type of Work (Construction).

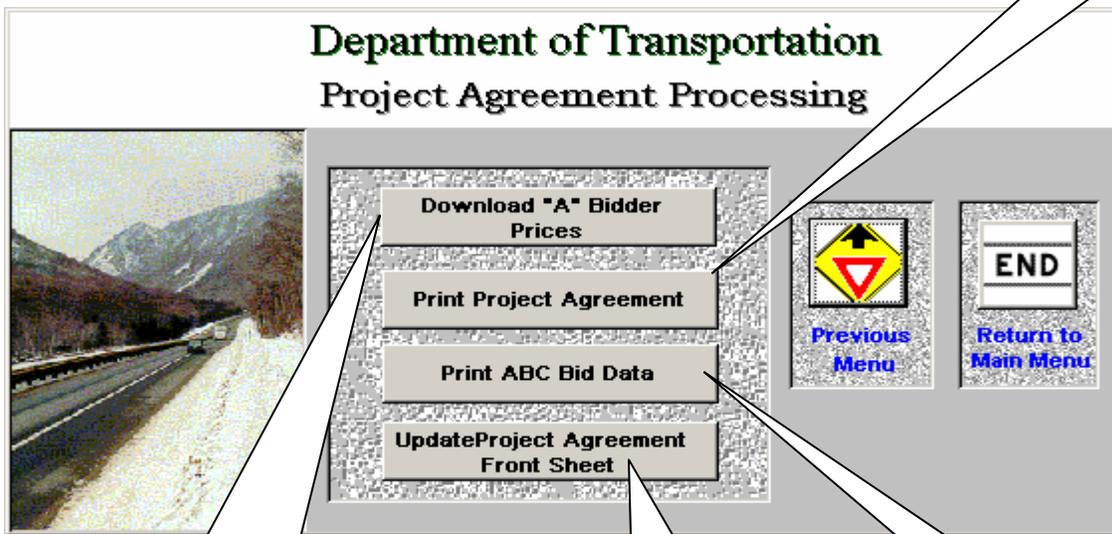
After the PS&E is completed and the bid schedule run by contracts, the estimate will be locked to prevent changes to the estimate until after the bids are received. Once bids are received and entered into the computer, they can be downloaded into the estimate so the “Based on Bids” estimate can be run. First the estimate must be unlocked by Contracts. Then from the Main Menu select Project Agr.



Click this button to start the process of running the based on bids estimate.

Click to Preview or Print the Estimate with Bid Prices

The following screen appears.



Click this button to begin download of A bidder prices

Click to go to the Project Front Sheet.

This will print ABC bid prices.

When Download A bidder prices is selected, the following box will appear:

From the drop down list choose the project you want to download the A bidder prices from.

Department of Transportation
Project Agreement Processing

Download A Bidder Prices

Project to Download:

Project to Update:

Previous Menu

Return to Main Menu

EXIT
35
M.P.H.

Once the above information is entered click here to download the bid prices.

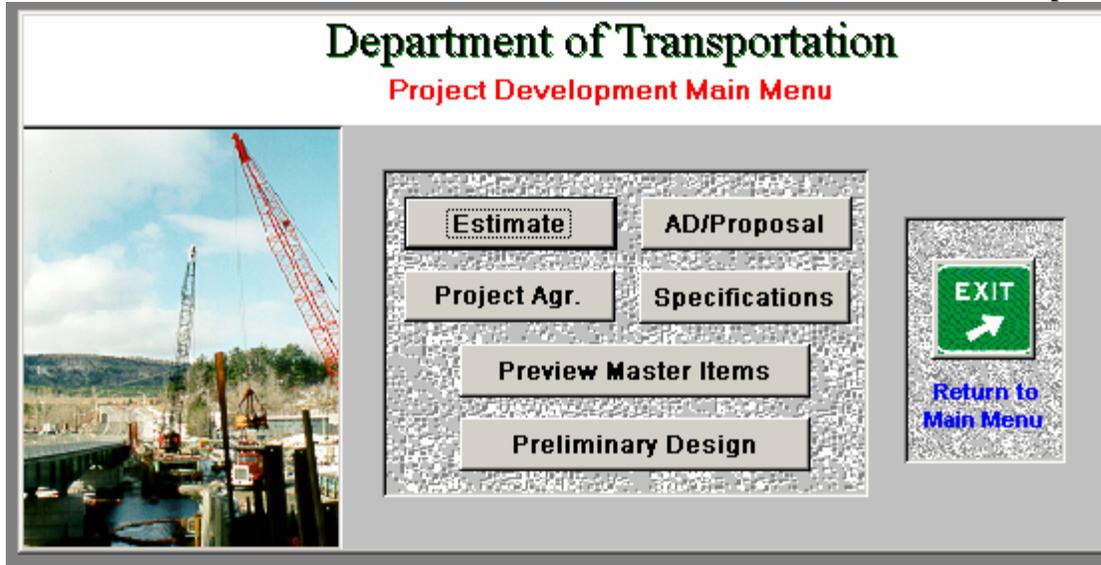
From this drop down list enter the project you want the prices downloaded into.

Form View

NUM

Note: In the **majority** of cases both the above project numbers will be the same. There are some cases where the two project numbers will not be the same. Examples are: If you advertise two or more projects, with different project numbers, in one contract (some building demolition contracts are done this way). The way the bid prices are keypunched in the computer room is by the first project number. So the project to download from will always be the first project number shown in the proposal. Then enter the project number to download into for the first project; then again for the second project, etc., until the bid prices have been downloaded into all the separate projects.

If for any reason the bid information (item numbers, quantities, etc.) does not exactly match that shown in the estimate, an error message will occur preventing the download of the A bidder prices. This must be rectified before the bid prices can be downloaded.



The Preliminary Design section is a relatively new section to the database. When a preliminary estimate is generated, many item quantities are not known, therefore percentages are used to approximate the project cost. This database was developed to track these percentages to be sure they stay up to date and the estimates are as accurate as possible. Preliminary Design is developing this section and is specific for their needs, therefore, for additional information, a Preliminary Design representative should be consulted.