III-21.01 General

Cost estimates will be required during the various development phases of a project. These phases would typically be scoping, documented CatEx, preliminary design, and final design or engineer's estimate. On larger or complex projects it may be necessary to develop some intermediate estimates.

The spec, code, description, and unit should match existing bid items verbatim and should be uppercase, as shown in the NDDOT – Historical Fact Sheet. Cost Estimates should be completed using the Roadway Inventory Management System – Highway Projects (RIMS#HP) program (NDDOT Mainframe). The designer should consult the "Cost Estimate Bid Opening Schedule Training Manual" prepared by the Programming Division for procedures for using the mainframe "RIMS#HP" program.

The lead designer should coordinate or combine the cost estimates of each Design Section and Division or District into one overall final design cost estimate. The total estimated cost must also be summarized by project number and funding source (federal, state, and local participation).

The final design cost estimate should be a separate attachment to the project plans. The estimate must include the item specification and code, description, unit, quantity, unit price, and total unit cost for each item. The total estimated project cost must be tabulated and shown on the bottom of the page.

The documented CatEx cost estimate is a matter of open record and it is often desirable to give the public a good handle of proposed project costs. The PS&E and final design cost estimate should be kept confidential until the contract has been bid.

III-21.02 Existing Bid Items

The Spec, Code, Description, Unit, and Unit Prices for existing bid items can be identified from the following sources or references:

- "Spec and Code List"
- NDDOT Historical Fact Sheet Inquiry
- NDDOT Project Listing Fact Sheet Inquiry

The "Spec and Code List" can be found on the web in spreadsheet format at:
https://www.dot.nd.gov/business/consultants.htm

The NDDOT Historical Fact Sheet Inquiry and Project Listing Fact Sheet Inquiry are only available through the mainframe "RIMS#HP" program.

III-21.03 Temporary Bid Items

Temporary Bid Items should only be used on conceptual estimates. Temporary bid items are intended to simplify and generalize groups of bid items or other items that are not directly bid; such as, intersection improvements or right of way acquisition. When using a temporary bid item, the appropriate spec number should be based on the type of work or product and the code number is usually "9999"; for example, 720-9999 - RIGHT OF WAY - L SUM.

III-21.04 New Bid Items

The Design Division – Traffic Section is responsible for maintaining the bid item data. If a new bid item is required, the designer should contact the Design Division – Traffic Section a minimum of two weeks before plan completion. The Design Division will assist with the creation of the new bid item and coordinate the inclusion of the bid item into the department computer systems.

III-21.05 Development of Unit Prices

The designer should review the unit prices for existing bid items, and develop a unit cost based on past similar type projects bid within similar regional areas and similar quantities.

- Past bid opening plans and proposals are available on the NDDOT website at: https://www.dot.nd.gov/business/bidinfo.htm

- Past abstracts of bids received are available on the NDDOT website at: https://www.dot.nd.gov/pacer/bidopenrptIndex.html

For new bid items, the designer should develop a unit cost based on estimated material, equipment, and labor costs.

III-21.06 Contract Bond

The designer may have the mainframe "RIMS#HP" program automatically calculate the amount of contract bond based on a percentage of the contract amount. If the designer is preparing an estimate by hand, the following guidelines may be used to determine the amount of contract bond.

Total Contract Amount	Contract Bond Amount by % of Total Contract Amount
0 to 100,000	2.0%
100, 000 to 500,000	1.5%
500,000 to 1,000,000	1.0%
Over 1,000,000	0.75%

III-21.07 Mobilization

The designer may have the mainframe "RIMS#HP" program automatically calculate the amount of mobilization based on a percentage of the contract amount. The designer may also estimate the amount of mobilization by hand based on the types of work operations such as structural, bituminous paving, concrete paving, etc.

III-21.08 Incidental Work

Generally, all work and materials should be paid for as separate bid items; however, some work and materials may be better suited to be made incidental to the bid item they are associated with. Typically an incidental work item will have a very short time of completion and cost compared to the pay item it is attached to. The following guidelines should be used to determine when work items should not be incidental to other pay items, and should be a separate pay item:

- The work item is not a specific component of another item that is estimated to exceed two thousand dollars.
- The work item quantity is variable and difficult to measure or determine by the contractor.
- When bid items and prices require evaluation.
- When the bid item is approved by the Director of Project Development.

The designer shall identify all incidental work in the plan notes and a separate project note shall be provided for each incidental work activity. Incidental items, where added for a specific project, are to be included in the plan notes.

The follow items have been identified and should be treated as such:

- Blotter Sand: Will be included in the price bid for other items on Seal Coat projects and on projects where the blotter material quantity is less than 300 tons (approximately). Blotter will be a pay item on all other projects.
- Tack Coat: Will be included in the price bid for HBP on projects where the HBP quantity is less than 1000 tons (approximately) or on urban concrete projects with HBP tie in. Tack will be a pay item on all other projects.
- Dowel Bars: Will be included in the price bid for the concrete on Reconstruction projects.
- Dowel Bars: Will be a pay item on CPR and Dowel Bar Retrofit projects.
- Sawing and Sealing: Will be included in the price bid for concrete on Reconstruction Projects.
- Sawing and Sealing: Will be a pay item on CPR and Dowel Bar Retrofit Projects.
- Prime: Will be included in the price bid for HBP on projects where the HBP quantity is less than 1000 tons (approximately). Prime will be a pay item on all other projects.

- Testing: On QC/QA and HBP Superpave projects will be included in the price for the HBP.
- Topsoil: Will be paid as specified in the spec book.
- Asphalt Cement: Will be included in the price bid for the HBP on projects where the HBP quantity is less than 1000 tons (approximately). Asphalt Cement will be a pay item on all other projects.
- Flagging and Pilot Car: Will be included in the price bid for other items for Chip Seal Coat projects only.
- Flagging and Pilot Car: Will be a separate pay item for Slurry Seals, Micro-Surfacing, and all paving projects.

III-21.09 Engineering Cost

The designer should use 10% engineering plus 5% contingency (total of 15%) for documented CatEx and other preliminary reports.

The designer should use 10% engineering for final plan estimates.

III-21.10 Project Prefixes

The project number typically begins with a prefix which categorizes the highway system, type of work, and NDDOT/FHWA interaction or involvement. Projects often have more than one prefix and project number. These prefixes may be used in conjunction as one project number, or they may be used separately as entirely different project numbers. Additionally, each project may have several funding sources (federal, state, and local participation) and different participation rates based on the prefixes and items of work. Examples of multiple project prefixes or numbers include: NH funds for a paving project combined with TE funds for a bikeway. Examples of multiple participation rates would include mainline paving versus service road paving and city fund only items.

The Programming Division or Local Government Division will determine the appropriate funding prefix and participation ratios based on NDDOT policy and guidelines. The designer should discuss and coordinate the project numbers, participation rates, and pay items with the respective Divisions for incorporation into the documented CatEx report, final plans, and cost participation and maintenance agreements (CPM).

Appendix I-13 B summarizes the project prefixes and FHWA involvement.

III-21.11 Sub Projects

Sub projects are created within “RIMS#HP” to be used when different funding and cost sharing splits occur. The quantities are entered into sub projects separately for bidding and cost sharing

purposes. NDDOT Designers and Technical Support contacts shall request and coordinate sub projects for "RIMS#HP" cost estimates by contacting the Programming Division.

III-21.12 Tied Projects

There are additional requirements that must be followed when two or more projects are tied together as a single job for bidding purposes:

- Any bid items common to two or more tied projects shall have the same unit costs.
- Contract Bond and Mobilization shall be split between all applicable projects on a pro-rated basis. For example, if the largest project contains 80% of the total project cost and there are two additional smaller tied projects, each worth 10%, the Contract Bond and Mobilization will be split between the three projects as 0.80 L Sum, 0.10 L Sum and 0.10 L Sum.
    - This splitting requirement will be waived for any job where the child project(s) percentage is less than 5%, and those percentages will be added to the largest percentage project. For example, three tied projects with an 80%, 16% and a 4% split, the contract bond and mobilization for the child project less than 5% shall be added to the parent project numbers as 0.84 L Sum and 0.16 L Sum.
- Tied projects should be coordinated on a case by case basis to determine if any other bid items such as field labs, field offices, traffic control, etc. should be allocated between the projects.

III-21.13 Alternates and Options

Some projects will require the use of bidding alternates or options for specific items. It is important to know the difference between alternates and options, so projects can be bid appropriately:

- **Alternates**: Alternates indicate that the Contractor does not have to bid all alternatives. The Contractor is able to bid only on the alternate they choose. Alternates should be labeled alphabetically (Alternate A, Alternate B, Alternate C). A common example would be bidding alternates for Interstate reconstruction outside shoulder pavement material (HBP Alternate or Concrete Alternate). However, inside interstate shoulders are not candidates for shoulder alternates.

- **Options**: Options indicate that the Contractor must bid all options so the Owner can consider the price when deciding to select an option that was bid. Options should be labeled with numbers (Option 1, Option 2, Option 3). A common example may be bidding pipe material options for storm sewer.

III-21.14 Cost Estimate Review Team

Approximately one month prior to the Plan Complete Date for a given bid opening, the internal NDDOT Cost Estimate Review Team will meet and review the upcoming project's cost estimates. The Team will make recommendations on unit prices for various items on a project by project basis.

III-21.15 Vertical Clearance "RIMS#HP"

When creating a new cost estimate for a project within mainframe "RIMS#HP", the designer or Technical Support contact must input any structures within the limits of the project into the "Edit Vertical Clearance" within the mainframe "RIMS#HP" cost estimate program. All structures must be entered using the corresponding Structure ID's that are available within "RIMS#HP". This will identify structures that need to have the vertical clearance surveyed during construction for actual structure vertical clearance when the project is completed.

III-21.16 Consultant Cost Estimates

Consultants should submit cost estimates (typically in excel format) to their Technical Support contact when PS&E and final plans are submitted. Once received, the Technical Support contact will enter the cost estimate into mainframe "RIMS#HP". All cost estimates need to be free of spreadsheet rounding errors and the bid items shall match the exact spec, code, and spelling of NDDOT bid items. If new bid items are needed, the consultant shall make a request to the Technical Support contact early as possible so that the Technical Support contact can coordinate the potential new bid item creation within mainframe "RIMS#HP".