NORTH CAROLINA Department of Transportation

Preconstruction Finance Guide for Project Managers

Project Management Unit

Revision Date: August 2024

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Overview

The purpose of this guidance is to assist Project Managers in the complex tasks associated with the financial management of their projects. NCDOT has a responsibility to the taxpayers of North Carolina to ensure transportation projects are delivered efficiently in a transparent manner. By following this guidance, the Project Manager will enable the Department to meet responsibility expectations and maintain financial documentation for each step of the project delivery process. The document is divided into two sections: Funding Management and Contract Management. The guidance references NCDOT's Project Delivery Network (PDN).

While it is possible to maximize and print the entire guide, this guidance is intended as a living document and printing is not recommended. While the guidance is intended to be comprehensive, it cannot cover every potential issue. As users encounter issues not specifically mentioned, they are encouraged to discuss them with their supervisor and provide a summary of the issue and solution to NCDOT Project Management Unit staff for inclusion in updates of this guidance. For answers to specific finance questions, please contact the Project Management Unit at ProjectManagement@ncdot.gov.

Funding Management

1. Project Initiation

1.1.   Overview

The Project Manager's financial responsibilities begin when they are assigned a project.

Per the *Stewardship and Oversight Agreement on Project Assumption and Program Oversight by and Between Federal Highway Administration, North Carolina Division and The North Carolina Department of Transportation* (December 15, 2021), regarding project financing and development for federal aid projects, NCDOT must:

- Ensure that federal aid projects are in the State Transportation Improvement Program (STIP);
- Identify the proposed funding category;
- Develop a financial plan for projects with estimated costs between $100 million and $500 million;
- Perform consultant contract selection; and
- Approve consultant agreements and agreement revisions for Federal Non-Major Projects.

Designs developed by the Feasibility Studies Unit (FSU) are a valuable resource that should be reviewed. Express Designs (1FS2 of the PDN) provide an estimate of right of way (ROW) costs (1RW1), utility relocation costs (1UT1), and construction costs (1CS1) for one or more alternatives. Project cost information was used to decide which projects were included in the STIP. The information developed during Stage 1 of the PDN also outlines potential issues that may need to be addressed during Stage 2 activities. If, during project development, new alternatives are developed or the scope of the project changes, it may be necessary to have the project re-scored (1SP1).

For TIP projects*, the Project Manager will establish the preliminary engineering (PE) funding amount on an annual basis. This will be requested through Enterprise Business Services (EBS) and will be one of the factors (including project complexity and others) used in contract negotiations with the Professional Engineering Firm (PEF).

> * Some non-STIP funding sources are allocated by project, or by total PE cost, not annually.

1.2   References

- ☐ Project Initiation Guidance
- ☐ SharePoint Preliminary Engineering Site
- ☐ FHWA/NCDOT Stewardship Agreement
- ☐ Project Management Guidelines (The IPD)
- ☐ Construction Contract Decision Tool Matrix
- ☐ AFRA Training Presentation Project Delivery Network (PDN)
- ☐ NCDOT Overdraft Policy

1.3   PE Funding Deliverables

Deliverable	Task	Responsible Party	
		Activity Leader	**Additional Support**
PE Budget	*Develop initial PE Budget based on project cost estimate for upcoming SFY*	PM	Unit Head/Business Support
AFRA Geospatial Information	*Research geospatial information for federally funded Projects*	PM	Unit Head/Division Engineer
PE Funding Request	*Submit formal request for funding to start project development tasks*	PM	Unit Head/Business Support

1.4   Request PE funds

As per NCDOT guidance, each spring, the Project Manager is responsible for requesting PE Funds for the upcoming State Fiscal Year. These funds should cover all internal time and overhead to be charged to the project for all preconstruction work by all NCDOT units and any contracts with PEFs if appropriate. The approved request triggers the release of funds for the project in SAP, which will allow time to be charged to the project and invoices (if applicable) to be paid. No invoices can be paid if there is insufficient funding available.

Requests for STIP project funds are made via the Automated Funding Request Application (AFRA) (see Section 1.5). The Division of Planning and Programming (DPP) asks Project Managers to review projects' PE budget needs for additional funding annually - prior to the start of the new state fiscal year (i.e., before July 1st). Each May, Project Managers will need to determine if additional funding will be needed to cover PE costs through the upcoming fiscal year and request additional PE funds through AFRA before the June Board of Transportation (BOT) Meeting. The BOT meeting schedule can be found in AFRA. As the project advances, the Project Manager should also include requests for other phases, including right of way (ROW) and utilities, when appropriate.

All requests for funds should be submitted by the cutoff date for the next BOT meeting. The Project Manager should use the following procedure:

- Verify that the project is programmed in the STIP;
- Estimate the amount of PE funds to request for the project based on the above process;
- Request funds via AFRA (see "TIP Funding Request" Tile in EBS Portal);
- After the appropriate BOT meeting, confirm PE funding has been approved using SAP transaction ZPSR01.

1.5   AFRA Process for STIP Projects

For all STIP projects, both Centrally or Division Managed, the Project Manager will access AFRA through the EBS portal. AFRA is used for all funding requests from the initial request for PEF funds through ROW, utilities, and construction funding.

The AFRA Training Presentation provides a step by step guide through the AFRA process.

NCDOT

Important Notes on AFRA

- Select Sub-TIP, hit ENTER, select the phase, then select the WBS Element.
- Save requests before adding attachments (.pdfs only).
- Until "Submitted", the Project Management Funding Units don't see it.
- Notifies Project Manager when status changes occur.
- Notifications can be sent as .pdf or email.
- Allows approver to see the request once the request is submitted and saved.

1.6   AFRA Geospatial Requirements for Federal Aid Projects in FMIS 5.0

Pursuant to 23 CFR Part 630.108, all State DOTs must submit geospatial data for Federal-Aid projects funded in the Federal system (FMIS 5.0). In general, "geospatial data" refers to route ID numbers and beginning and ending mile points that identify where construction will take place. This information should be included when requesting initial funds on all phases of work – Preliminary Engineering, Right-of-Way, and Construction. Geospatial data can be entered in the comments field (as text) or uploaded as an attachment.

In FMIS, routes and mileposts are entered under "fund detail lines." The geospatial data is not associated with the project itself, but with specific funds and improvement types on each fund detail line. This allows FMIS to assign the funds to specific routes. Examples of route types are shown below.

Example: $134,400.00 Highway Safety (HSIP) funds have been authorized on a single fund detail line under Federal Project # 8675309. The work takes place on four (4) routes. All four routes must be reported in the system. FMIS uses the mile points to assign the funds to the different routes based on their lengths.

The system automatically divides the $134,400 between the routes:

SR 1247	4000 1247 027	Mile points 0.00 - 0.75	37.5% of funds = $50,400
NC 168	3000 0168 027	Mile points 0.00 - 0.50	25% of funds = $33,600
US 158	2000 0158 027	Mile points 7.91 - 8.41	25% of funds = $33,600
RMP-5767	8000 5767 027	Mile points 0.00 - 0.25	12.5 % of funds = $16,800


The Route IDs and mile points can be found by using the "MilePost Hatching" map in ArcGIS to verify the routes and mile points associated with Federal projects. FMIS pulls statistical data from the same system. Using a different system is likely to cause an error.

- Find the route and/or routes where the work is taking place and click on the center line.
- A pop-up box will appear with information about the route.
- Within the pop-up window, scroll down to locate the 11-digit route ID number(s).
- Close the pop-up box. Zoom in on the map to find the beginning and ending mile points. Use at least two decimal places for the mile points.

Route IDs and mile points must be as complete and as specific as possible within the limitations of the State's Linear Referencing System. The project's location should be represented by the ROUTE_ID, BEGIN_POINT, and END_POINT as referenced in ArcGIS. The BEGIN_POINT and END_POINT represent the limits of physical construction. The limits of physical construction should be limited to the area of permanent changes to the condition of the asset. It should not include locations of minor incidental work such as work zone traffic control devices.

Route Numbers are assigned using an 11-digit naming convention used by NCDOT. The Federal system generates statistical data based on these numbers. Each digit has a different meaning:
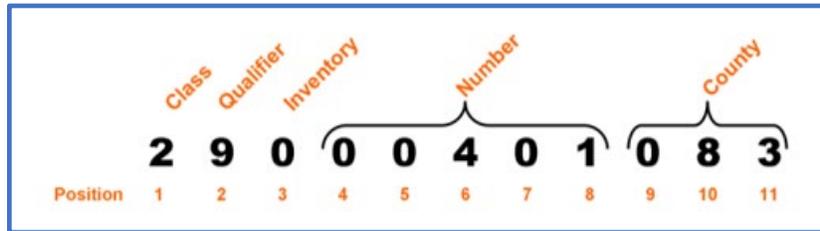
A key for the first three digits of the number is shown below. The last three digits of the route number are the SAP county code.

First Digit – Route Class

Value	Prefix	Route Class
1	I	Interstate
2	US	US Route
3	NC	NC Route
4	SR	Secondary route
5	NS	Non-system route (municipal or other)
6	SA	Other state agency route (State Parks, Wildlife Resources Commission, State Forests)
7	FED	Federal route (National Parks, Military, Fish and Wildlife Service, Indian Reservations)
8	RMP, RST, NML	Ramps, Rest Areas and non-mainline routes
9	PRJ	Projected route

Second Digit – Route Qualifier

Route Class	Value	Suffix	Route Qualifier
Primaries (I, US, NC)	0	None	Normal route
	1	ALT	Alternate route
	2	BYP	Bypass route
	5	EAST	East route (US-19 only)
	6	WEST	West route (US-19 only)
	7	CNCTR	Connector route
	8	TRCK	Truck route
	9	BUS	Business route
Other Routes (RMP, RST, NML)	0	None	Ramp
	1	None	Rest area
	9	None	Non-Mainline

Third Digit – Inventory Code

Route Class	Value	Inventory Code
Primaries (I, US, NC)	0	Inventory
	4	Non-inventory (southbound)
	6	Non-inventory (westbound)
	8	Inventory (clockwise)
	9	Non-inventory (counterclockwise)
All other routes	0	Inventory
	4	Non-inventory

Examples of certain types of projects/questions are discussed below.

Divided Highways, Ramps and Couplets
1. Dual Carriage Roadway (aka divided highways): Work occurring on only one direction of a dual-carriage roadway should reference the route ID number and mile points of that direction. Work occurring on both directions of a dual-carriage roadway should reference the route IDs and mile points for both directions.

> Example: Pavement rehabilitation on I-40 between SR 1158 (Huffman Mill Road) and NC 62 (Alamance Road) in Alamance County.
>
> *If the work takes place on both I-40 Eastbound and I-40 Westbound, then both route numbers and their associated mile points must be reported in FMIS.*
>
> ✓ I-40 Eastbound **1000 0040 001** Mile points 02.32 - 04.03 50% of funds ✓
> I-40 Westbound **1060 0040 001** Mile points 12.02 - 13.73 50% of funds
>
> *If the work takes place on I-40 Westbound only, then only the Westbound route number and mile points should be reported in FMIS.*
>
> ✓ I-40 Westbound **1060 0040 001** Mile points 12.02 - 13.73 100% of funds ✓

2. Ramps: Work occurring on a ramp should reference the route ID number and beginning and ending mile points of the ramp.
3. One-way Pairs (aka "couplets"): Each direction of a one-way pair has a separate route ID number in the State LRS, therefore separate directions on the same pair should be entered separately on the fund detail line.
4. Bi-directional Routes: Bi-directional routes are not divided. They have one route ID number in the State LRS and it includes both inventory and non-inventory data.

Route IDs and location data may change during project development. If the location data change as the project advances from one phase of work to the next, then the route IDs and mile points need to be revised in FMIS for all funds (new funds and existing funds).

> Example: Interchange improvements at I-40 and South Elm Eugene Street in Greensboro.
>
> *When this project was initially funded in FMIS (for preliminary engineering), the routes were entered as I-40 Eastbound and I-40 Westbound. However, when the project advanced to Construction, the work was shown to take place only on the I-40 Westbound ramps. Thus, the route information needs to be revised in the system to reflect the actual location of the work.*
>
> ✗ I-40 E 1000 0040 041 Mile points 14.92 - 15.40 50% of funds ✗
> I-40 W 1060 0040 041 Mile points 14.21 - 14.69 50% of funds
>
> ✓ RMP-4068 8000 4068 041 Mile points 0.00 - 0.05 45% of funds ✓
> RMP-4067 8000 4067 041 Mile points 0.17 - 0.23 55% of funds

In some instances, a single point can denote the project location. It is possible for the beginning and ending mile points to be equal, giving a length of zero (0). If a detail line has a single location with a length of zero, FMIS will assign 100% of funds to that location. This is only appropriate for work occurring at a single point, such as installation of a sign, crosswalk or signal.

Intersection improvements require roadway lengths greater than zero and should not be entered in FMIS as a single point. They also require more than one route number. Intersections and roundabouts must include all route numbers associated with the intersection (at least two routes) and mile point ranges that clearly identify the stretch of road where construction will take place.

Example: Improvements at SR 1008 (Market Street) and SR 1546 (College Road) in Greensboro.

✗ SR 1008	4000 1008 041	Mile points 4.04 - 4.04	100% of funds	✗
✓ SR 1008	4000 1008 041	Mile points 4.01 - 4.06	50% of funds	✓
SR 1546	4000 1546 041	Mile points 9.74 - 9.79	50% of funds	

Route ID numbers and mile points should be provided when an improvement is associated with a roadway, but not part of the roadway. For example, a Route ID and mile points should be provided for landscaping or pedestrian facilities along a stretch of road. The route ID and mile points should refer to the "inventory direction" (see the third digit "Inventory Code" in the route naming convention detailed above) in cases where an improvement applies to both directions of a dual carriage roadway, and costs are not easily allocated to one direction verses another.

If a route spans multiple counties, different route numbers and mile points are required for each county.

Example: Install broadband fiber on I-95 from the South Carolina Line to the Virginia State Line.

This work is associated with I-95 in eight counties. Therefore, eight different route numbers are required. Note: the work is associated with a roadway (but not on it) so only the direction of inventory route is provided.

I-95 Robeson	1000 0095 078	Mile points 0.00 - 38.66	21.43% of funds
I-95 Cumberland	1000 0095 026	Mile points 0.00 - 30.34	16.82% of funds
I-95 Harnett	1000 0095 043	Mile points 0.00 - 08.87	04.92% of funds
I-95 Johnston	1000 0095 051	Mile points 0.00 - 30.34	16.82% of funds
I-95 Wilson	1000 0095 098	Mile points 0.00 - 16.43	09.11% of funds
I-95 Nash	1000 0095 064	Mile points 0.00 - 25.23	13.99% of funds
I-95 Halifax	1000 0095 042	Mile points 0.00 - 23.00	12.75% of funds
I-95 Northampton	1000 0095 066	Mile points 0.00 - 07.50	04.16% of funds

Certain types of funding requests do not require inputs of geospatial data:

- Urban Required. This refers to Direct Attributable (DA) funds such as STBG-DA and TAP-DA. Direct Attributable funds require NCDOT to enter project statistics manually to ensure urban area codes are correct. However, if the project uses non-DA funds, in addition to DA funds, then geospatial data may be required for other detail lines.
- Off-roadway. Certain improvement types are considered off-roadway and do not require geospatial data in FMIS. Examples include Planning, Research, Bridge Inspections, Training, and Mitigation of Water Pollution due to Highway Runoff.
- New Construction. These routes and/or structures do not yet exist and do not have mile points in the State's Linear Referencing System, so geospatial data is not required.
- Statewide detail lines. This refers to projects where the County is entered as 999 Statewide.

2.   Spend Plan Projections

2.1   Overview

NCDOT has implemented procedures to ensure greater control over monthly project billings. For these procedures to be successful, projects are now required to develop a monthly proposed budget that looks at least six months into the future. The PEF should be ready to deliver budget projections through the fiscal year within two weeks of NTP, along with the draft Microsoft Project schedule.

If a project has been suspended, for any reason, project work should stop as soon as possible. The Project Manager Guidelines provide a review of Project Shelving Guidance. If a previously suspended project has been approved to restart, the Project Manager should coordinate with the PEF on a restart meeting. After the restart meeting, the PEF should be ready to deliver revised budget projections through the fiscal year within one month of the restart meeting, along with the updated draft Microsoft Project schedule.

2.2   References

- ☐ Scoping, Estimating, and Negotiations
- ☐ Scope of Services Generator
- ☐ NCDOT Workday Estimate Form
- ☐ NCDOT Project Shelving Guidance

2.3   Monthly Projection Deliverables

Deliverable	Task	Responsible Party	
		Activity Leader	Additional Support
Initial Firm/GESC/NCDOT Unit Outsource Costs	*Determine anticipated external costs*	PM	Unit Head/Business Support
Division Cost Input Processes	*Determine internal and GESC costs*	PM	Unit Head/Business Support Technical Discipline Experts
Updated Planning Costs in EBS	*Enter and maintain cost estimates in EBS*	PM	Unit Head/Business Support Technical Discipline Experts

2.4   Initial Production Firm/GESC Costs/Other Unit Outsource Costs

It is the Project Manager's responsibility to enter monthly cost projections for the project, including PEF, GESC, and other unit outsource costs. For TIP projects, this should include outsourcing costs only. For non-STIP projects, the cost plan should include ALL costs that will hit the WBS.

The PEF should develop a preliminary work plan, Microsoft Project schedule, and monthly expenditure to deliver the project within discussed timelines. The draft materials should be shared with the Project Manager and modified as required. Upon receipt of the approved schedule and monthly expenditure, it is the Project Manager's responsibility to track this information.

Budget information in the form of a Cost Planning Report is added to SAP using the following protocol. To enter a Cost Plan, the Project Manager should select one of the following measures:

1. SAP Transactions ZPSB45 (Mass Upload)
2. EBS Cost Planning Application (preferred for individual project updates)

NCDOT has developed job aids for the first two SAP methods (see below).

BUSINESS WAREHOUSE: COST PLANNING APPLICATION (Runs SAP CJR2 in the background)

This application is best used for entering and updating individual project costs.

> User Actions include:
>
> - Enter the WBS Element;
> - Select Plan Version: 32 ;
> - Select appropriate Fiscal Year;
> - View and enter each monthly period from 1 to 12 (this correlates with the State Fiscal Year, so 1 is July, 2 is August, …and 12 is June
>
> You must hit SAVE on each year before changing Fiscal Years, otherwise data entry will not be saved
>
> Note that cost planning is blocked on closed or inactive projects.
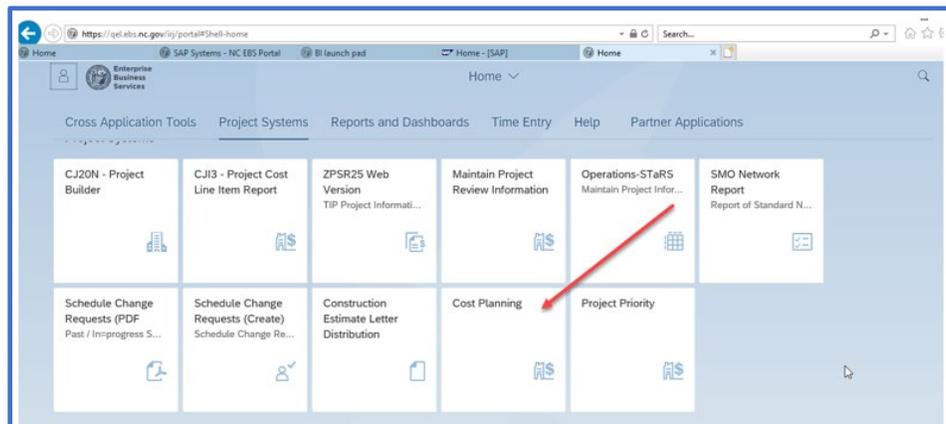
> System Status Explanation:
>
> - Closed - Cannot enter cost plans on project.

- • Created and Released - Open to cost planning.

To enter Cost Planning data into SAP, the project must have been Created. It cannot be in Technically Complete (TECO) or Closed status. Note: If the project is open in another SAP transaction, an error message will be generated if the Project Manager attempts to input data. The other transaction will need to be closed before inputting cost information.
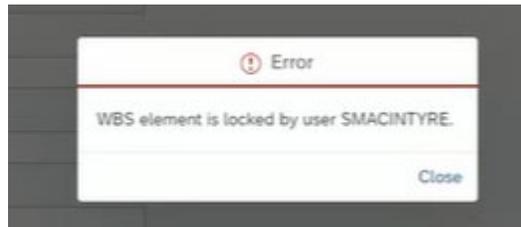
CJR3 -Checking for Values

A Project Manager can view each period's cost plan within the Cost Planning application.

They can also verify inputs and check for values entered using SAP transaction code CJR3. CJR3 can be used to look up the details of the transaction entered, including the name of the last user. To view cost plan details, the user should enter the following:

- • To view details, enter version 32;
- • From Period: 1;
- • To Period: 12;
- • Fiscal Year (that you wish to view);
- • WBS Element;
- • Fund Type: TF01 or HF01 [Trust Fund or Highway Fund], depending on the PE funding
- • And '55999999' in the Cost Element Field
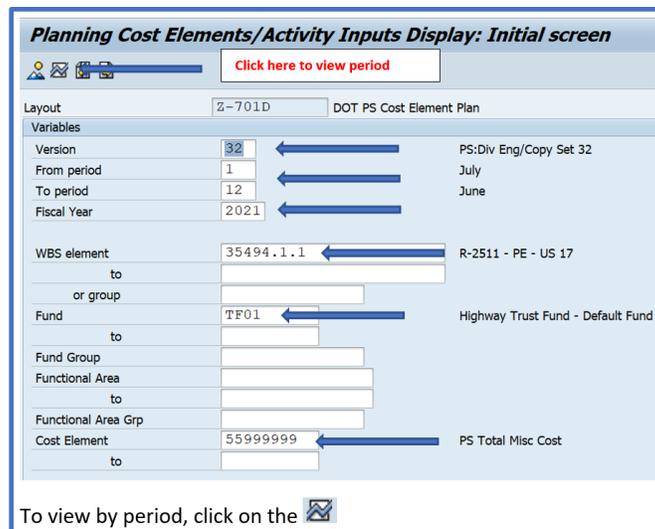
To see if PE uses HF01 or TF01, there are a few ways to determine this.

If there are any Purchase Orders tied to the project, the PM can query purchase orders using SAP transaction code ME23N, and look on the Account Assignment Tab.

ME23N (Account Assignment Tab)
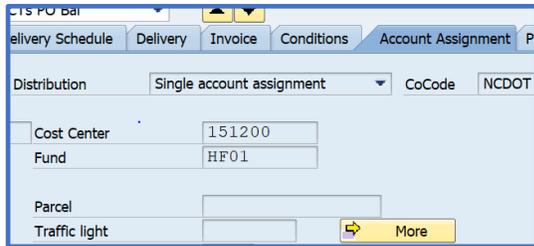
HELPFUL TIP: Since there are only 2 choices for Fund Type, if you are unsure, try one. If no cost plan exists, try the other fund type!

If not, use CJ20N or CJ13 to look up the WBS, then look on the NCDOT tab for the Fund Center.

Then query the Fund Center using SAP transaction code FMSC.

After entering the Fund Center, hit the green ENTER check mark. The next screen will show you the Fund Default Value.
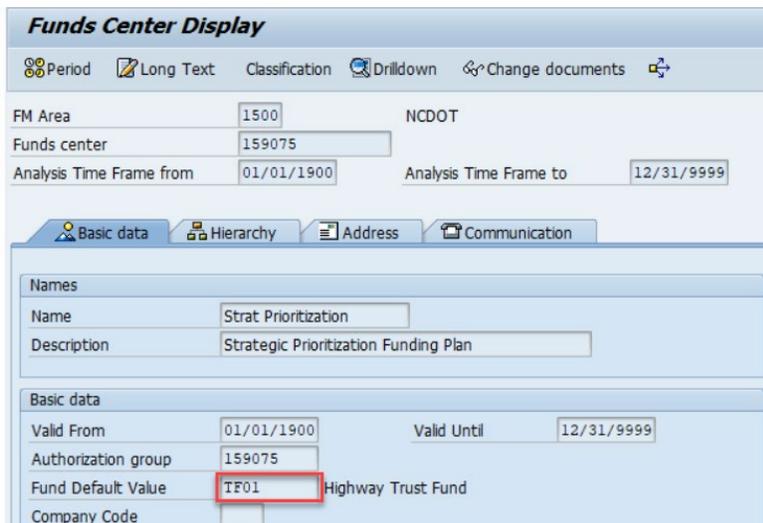
Use this in CJR3, above.

This is advised when running mass uploads or if multiple users entered on same project.

Note about Funds Center:

When using the Cost Planning Application, you don't need to know the Fund or Funds Center for the WBS. What is displayed on WBS Master Data populates automatically. The code was designed to grab from the WBS master data and automatically upload in the application.

However, when using the CJR3 transaction, you will need to know the Funds Center since it is not automatically uploaded

Business Warehouse: PE Project Priority Application

The PE Project Priority Application is used primarily for tracking project status and justification by divisions on whether to move forward with a project or to suspend the project. Once the project details are entered into SAP, the Project Manager can use the PE Project Priority Application to update project details, such as Bond Sale Date, Risk of Inactivity, and Status Recommendation. Also, querying by WBS and Sub-TIP is possible in this application.

Fields include:
- Description (Project location) - auto populated;
- Priority (Emergency, High, Medium, Low) - editable field;
- Bond Sale Date (if applicable)- editable field;
- Risk of Inactivity Date - editable field;
- Risk of Inactivity Description - editable field;
- Current Status - automatically populated;
- Status Recommendation- editable field;
- Move Forward To (based on shelving guidance) – editable field; and
- Status Recommendation Comments-

editable field.

PROJECT PRIORITY AND COST PLANNING REPORT

Purpose

This report tool provides data that can be used to compare monthly PE project projections to actual PE expenditures on TIP projects.

The data shown is that which was entered directly into mass upload ZPSB45 or individual Cost Planning and PE Project Priority. The data in the system, such as the cost plans or schedule changes, are updated at midnight the night of entry, so any data entered the same day that the report is run would not be visible.

Location:
- Go to EBS Portal-Business Objects Reports
- If not already marked as a Favorite, select "Categories."
- Then drill down to Corporate Categories, NCDOT, then Technical Services.
- Search Title "Project Priority & Cost Planning Report" (web intelligence report).
- Once you find the report, you can mark it as a FAVORITE to save steps next time. Then next time you go to Business Objects Reports, it should be listed under Favorites, and/or listed under Recent Documents.
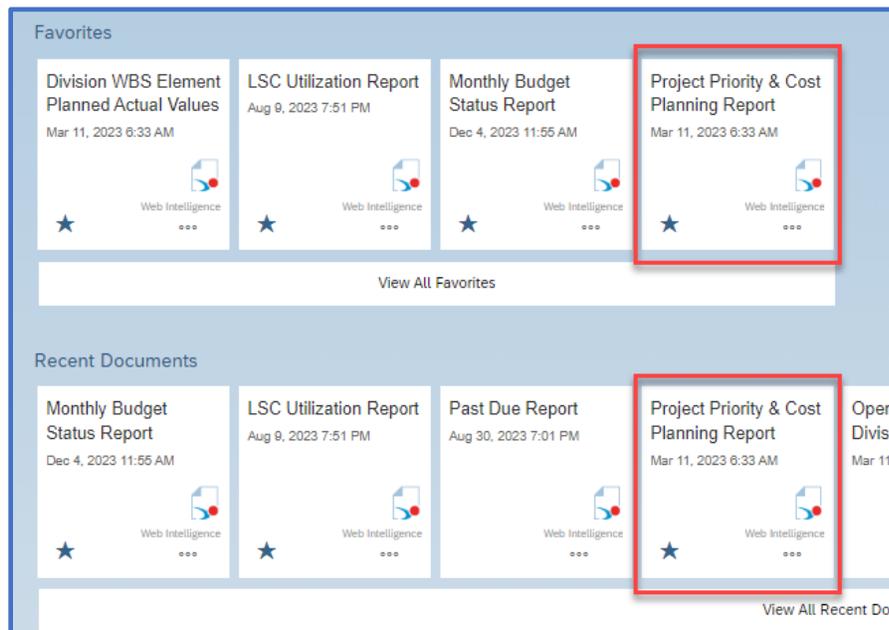

Once the report opens, a dialogue "Prompt box" will appear. Either you can enter specific known project data or click ok.

After the report runs, there are two tabs, "PE Project Priority" and "PE Projects with Move Forward". Both tabs show the same data, however the second tab separates the move forward projects that do not have projections or expenditures.

- Reminder, if the user goes back and enters the planned costs or if expenditures are posted, it will

show in report the next day.

PE Project Priority - Cost Planning   (Expenditures & Projections 2025)
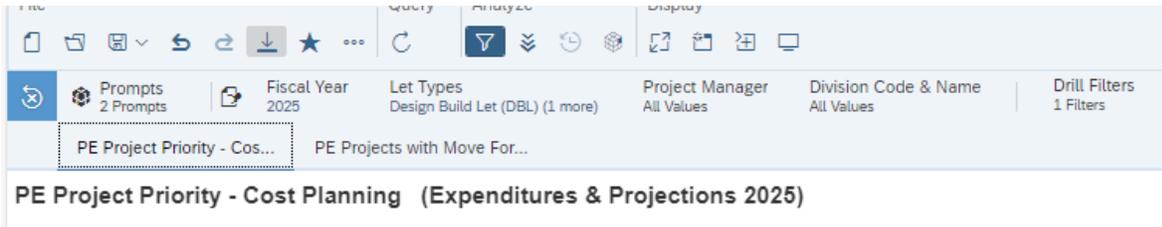
Rememer to change the Fiscal Year to the current FY to see the relevant data. There are several other default filters available, as shown above.

<u>Columns/ Fields in report</u>

The report details Project Data, Let Types, Priority Information, Project Commitments, Projections, and Expenditures.

Planning details entered into the Project Priority and Cost Planning Application will be displayed in the report.

Project Details

Column Heading	Heading Description
WBS	WBS element project identifier
TIP Sub Number	Sub-TIP project identifier
Project Description	Brief description from SAP
Division	Division project is located
County Name	County project is located
Project Manager	References SAP Senior Project Manager, if blank, then Project Manager, then Division Project Manager, then Division Bridge Manager. If no Project Manager is listed in SAP then this field will list "Vacant".
Let Type	Design Build Let (DBL), Division Design Division Let, Division Design Raleigh Let (DDRL), Raleigh Letting (LET), Division Purchase Order (DPOC), On Call Contract (OCC)
Grants Projects	Notes if project is tagged as a grant project in SAP
Bond Projects	Notes if project is tagged as a bond project in SAP
Bond Sale Date	Bond sale date if noted in SAP*
Let Date	Basic let date noted in SAP*
NTP Date	Notice to Proceed milestone denoted in SAP*
Doc Date	Environmental document milestone date denoted in SAP*
RPC Date	Roadway Plans Complete milestone date denoted in SAP*
Priority	Indicate the level of importance to moving forward with risks taken into consideration

Risk of Inactivity Notes	This is the explanation of inactivity date or reason the project needs to continue
Risk of Inactivity Date	This may be the date when the permits expire
Current Status	Active has Move Forward milestone from Schedule Management Office (SMO) • Suspended- is not active • Not started- created status, not funded, can put projections if know about to be released
Status Recommendation	Provides guidance to the Project Manager on whether the project is Active, Suspended, Completed, Not Started A place to provide guidance on the best place to begin shelving a project
Status Recommendation Comments	Provides reason for the status recommendation

*Milestone dates- the data in these columns identify a date. If the date has a "C" after it, that indicates that the milestone has been met and the date shown is the completion date. Otherwise, it can be inferred that the date is the basic or proposed date noted in SAP.

Financial Details- Projections and Actuals only show Preliminary Firm (PEF) Costs

Column Heading	Heading Description
Commitments	Allocated funds on Project WBS
Fund Remaining	Available funds remaining on the commitment, not expended. If Fund Remaining is negative that means project is in overdraft. The Project Manager should coordinate with the Division of Planning and Programming.
Expenditures	Total PEF project costs applied to WBS for that reporting period. Doesn't include internal expenditures.
Projections	Anticipated outsourced expenditures determined by Project Manager. It does not include internal costs. These do not include total anticipated project costs, only what is planned for that fiscal year selected.
Expenditures and Projections by State Fiscal Year Period	Expenditures - includes all PEF costs (multiple firms costs lumped together). Projections - includes PEF costs, not internal labor or other costs.

Key Points of Report

- Projections and Actuals only show external costs (i.e., does not include internal labor costs).
- Presents current data as of night prior.
- Set to refresh upon opening.
- Only for present TIP projects. A non-TIP project report is under development and will be available as a separate tab.

- Shows master data, Let TYPE, milestone dates, current status (based on the Move Forward milestone in SAP).
- Projects not yet started – If planning on an active project, but the project in the system is still in the "Not Started" status the reason might be because the project has not yet been funded. Therefore, the indicator has not been updated. In this case the project manager could still place cost plans on the project since they know it is about to get released.
- If Remaining funds are negative, the project is in overdraft.
- Fiscal Periods- FY21 and forward.
- For advanced data manipulation, the report can be exported to excel.
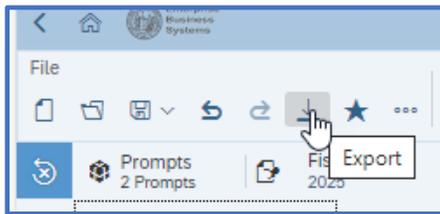
2.5   Division Cost Input Processes

Many Division Project Managers use a different system to batch upload project cost estimates. The first step is to create an Excel spreadsheet with new or revised cost estimate values by entering the WBS numbers and monthly costs (by fiscal year month, so July is Month 1 and June is Month 12) as shown below.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	WBS	1	2	3	4	5	6	7	8	9	10	11	12	
2	46972.1.1				15500	25000	25000	40000	55000	70000	80000	85000	85000	
3	46972.1.2				12000	61000	76000	86000	68000	68000	68000	78000	68000	
4	46976.1.1	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	15000	
5	46976.1.3				12000	27000	42000	47000	38000	38000	63000	63000	63000	
6	46978.1.1	16000	16000	16000	16000	16000	16000	16000	16000	16000	16000	16000	16000	
7	47436.1	100												

Save this as a Text (Tab delimited) (*.txt) file.
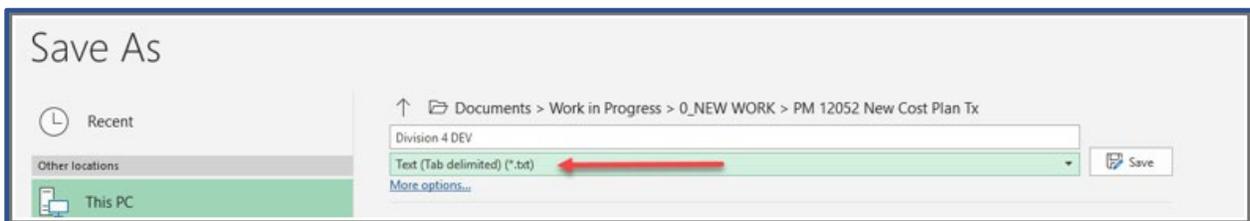
In SAP, run transaction ZPSB45. SAP will enter default values for the Fiscal Year, Periods, Cost Element and Version fields. It is possible to update the Fiscal Year, if needed. As shown below.
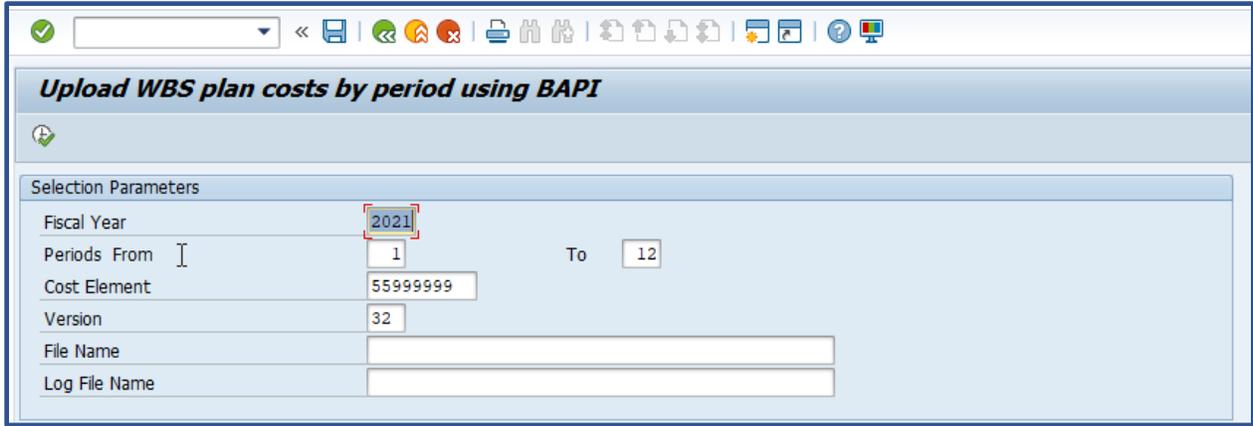
In the File Name click on the search icon and locate the previously saved text file with the estimated monthly expenditures (for example:\Users\USERNAME\Desktop\Division No. (just number, no period) FileNAME.txt). Copy the file location from File Name and Paste in Log File Name, in front of the file name enter ERROR as follows C:\Users\USERNAME\Desktop\ERROR Division No. FILENAME.txt. This will create a text document with the results of the upload.
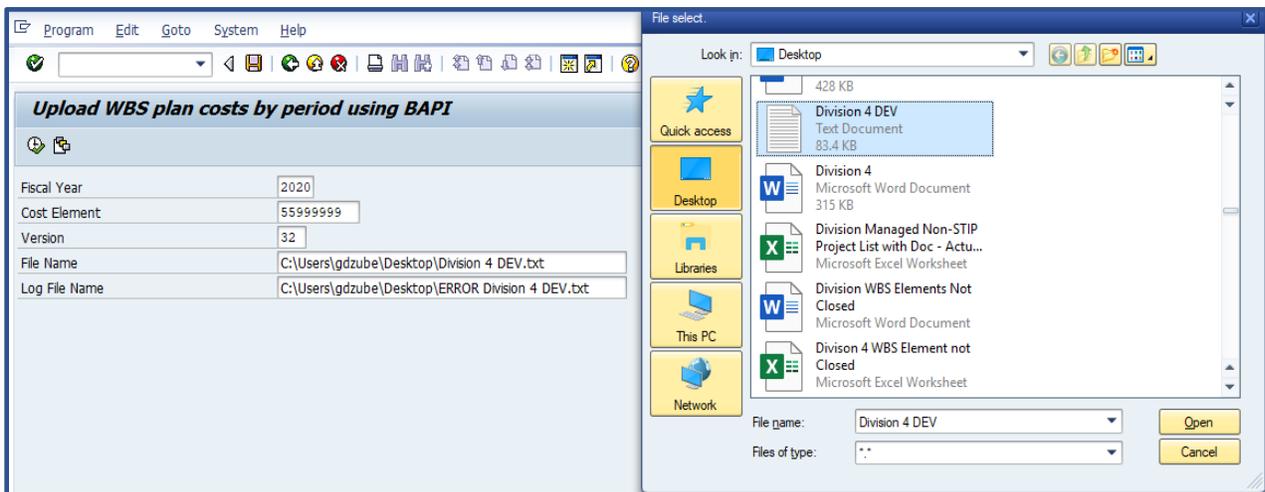

After processing, SAP will show a summary tab.
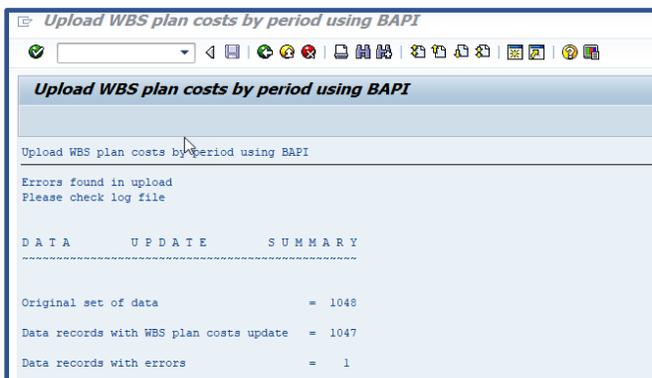
Go to the location of the error file (C:\Users\gdzube\Desktop\ERROR Division 4 DEV.txt in this example) to see details of the upload. If someone was working in a WBS Element an error message will be generated. The first line is an error due to the first row being column headers, to avoid this error, delete that row before uploading.
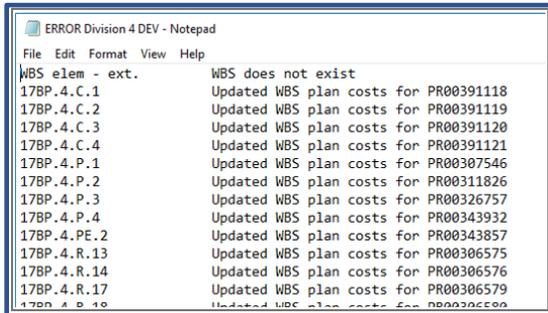
The below file displays an error due to WBS Elements being open in CJ20N, the error identifies the individual working on that WBS Element.
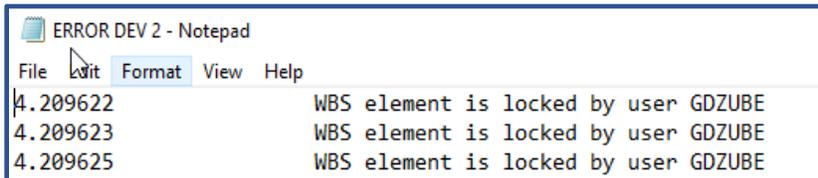

Note: The values entered into SAP using ZPSB45 will not display in this report until the following day. At that time, the report can be seen in the following screen:

Upon entering the report, the Project Manager should refresh the report for their Division.

Location:
- Go to EBS Portal-Business Objects Reports
- If not already marked as a Favorite, select "Categories."
- Then drill down to Corporate Categories, NCDOT, Highway Division, All Divisions.
- Search Title "Division WBS Element Planned Actual Values" (web intelligence report).
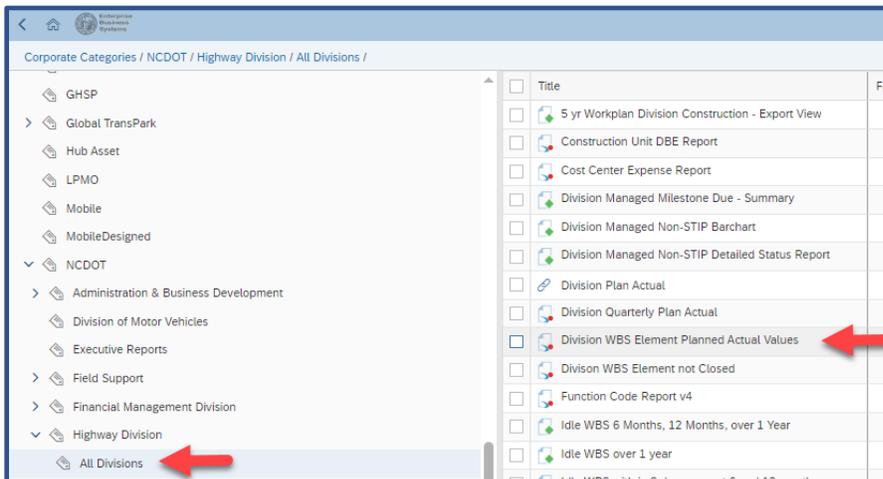
Verify the plan version is 32 and fiscal year is the State Fiscal Year you want to see plan and actual values for. If you are planning quarter 4, 2025 you will want to have fiscal year 2025. Select the Division you are planning for and click on the "OK" icon. This report will display WBS Elements that have any actual costs or planned costs for the fiscal year you identified in the selection above. This report will not have WBS Elements that do not have any planned costs or actual costs for fiscal year 2025.
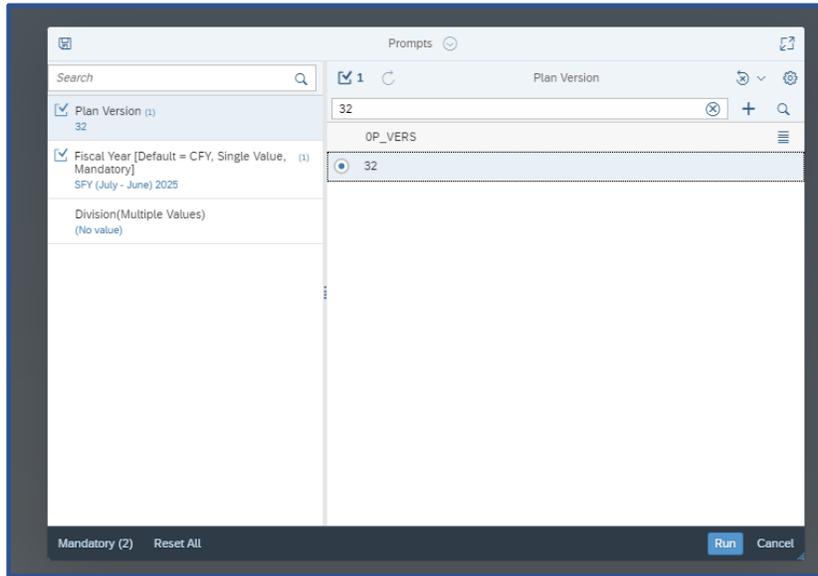
From this spreadsheet the Project Manager can view all previously planned costs compared to the actual costs. With this spreadsheet it is possible to delete the actual columns and the Description column and change the planned costs for quarter 4, then save as a Text (Tab delimited) (*.txt) file the same as identified on the image above.

| Division					Plan/Actual							
Div		WBS Element	Description	Project Type		Project Sub Type			Phase	Fund Center	Plan 001	Actual 001
4	Wilson	15BPR.108.1	Bridges 608 & 42 in Johnston Co.	300	Maintenance	310	Bridge Preservation		0100	157842		111.17
4	Wilson	15BPR.47	NC97 over Tar River.	300	Maintenance	310	Bridge Preservation		0610	157842		445097.15
4	Wilson	15RE.04	Division 4 Rest Area Face Lift / Repair	300	Maintenance	311	Roadside Environmental		0620	157843		14244.46
4	Wilson	15RE.16.3	Renovation of the Johnston County I-95 R	300	Maintenance	311	Roadside Environmental		0620	157843		12125.80
4	Wilson	16804.1051028	US 301 US301 PIPE_CULVERT	200	TIP Construction	801	Disaster		0600	157827	200.00	
4	Wilson	17104.1051012	SR 1003 SR 1003 ROADWAY	200	TIP Construction	801	Disaster		0600	157827	200.00	
4	Wilson	17104.1098014	US 301 US 301 ROADWAY	200	TIP Construction	801	Disaster		0600	157827	100.00	
4	Wilson	17104.1098017	NC 058 NC 058 PIPE_CULVERT	200	TIP Construction	801	Disaster		0600	157827	100.00	
4	Wilson	17104.1098018	US 301 US 301 PIPE_CULVERT	200	TIP Construction	801	Disaster		0600	157827	100.00	

CJI4- Check of Values and User

If using ZPSB45, to verify mass upload is correct use SAP Transaction code CJI4.

- Enter Version;
- Fiscal Year;
- Fund;
- WBS Element; and
- Cost Element. Same as above.

You can enter multiple WBS by clicking on the right arrow and entering or copying and pasting multiple values from excel spreadsheet. If copying from excel, click the clipboard, then execute.

For some projects, projects are entered into SAP in batch mode by the Project Manager or other NCDOT staff. Multiple WBS can be entered by clicking on the right arrow and pasting multiple items from the Excel Spreadsheet as per the diagram below:
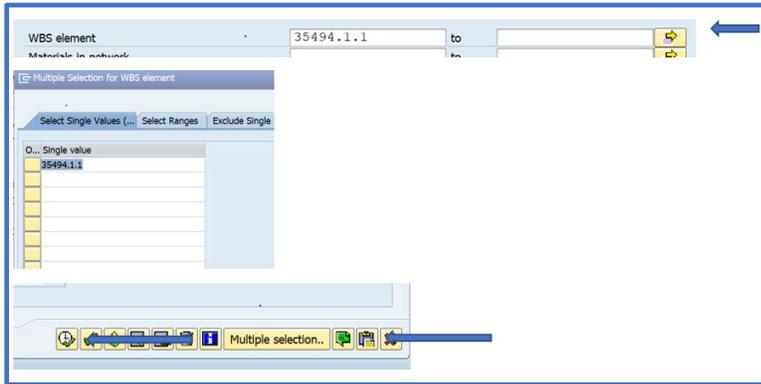
Once in the main screen, the user clicks the "Execute" button. To change the Layout, click on the "Rubics" icon. In Column Set look for "Define User" and use the arrows to move over to Displayed Columns. Click green check box to transfer details. Now you will be able to see who last updated projections.
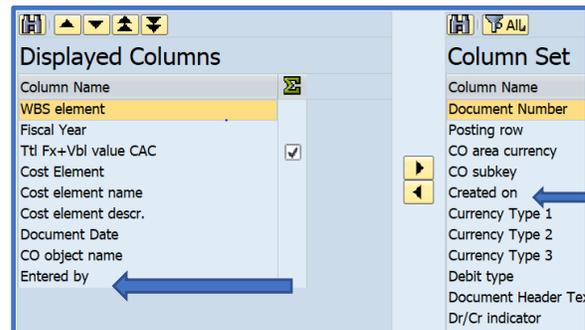
2.6   Update Cost Planning Application in the Enterprise Business Services (EBS) Portal

The Project Manager should have started a record in EBS for the project when developing the Notice to Proceed (NTP). The procedure to update costs is the same as that used to establish initial costs. Please refer to Section 3.4.

3. ROW and Construction Funding

3.1 Overview

NCDOT has specified that the responsibilities of the Project Manager extend through the letting of the project. For Project Managers that lack experience in this area, and to ensure that right of way (ROW) and construction funding are developed in a consistent way, NCDOT recommends that the following procedures be followed. Adequately preparing, documenting, and maintaining data on ROW and construction is huge factor in the overall success of a project. If the project can benefit from Advanced ROW Acquisition (2RW1), NCDOT can acquire ROW prior to completion the environmental document with state funds. In that circumstance, NCDOT can request federal funds to cover previous expenditures once the environmental document is completed.

In the "normal" process, ROW estimates require completion of the Environmental Document (end of Stage 2) and the ROW Authorization Package (3RW1). To begin Utility Relocations, Advance Utility Coordination (3UT1) and Complete Utility Coordination (4UT1) are required.

3.2 References

- ☐ ROW Consultation Guidance
- ☐ ROW Documentation Authorization
- ☐ NCDOT Right of Way Manual
- ☐ Division Let Contract Guidance
- ☐ Master Pay Item List
- ☐ Construction Revision Guidance

3.3 ROW and Construction Funding Deliverables

☐

Deliverable	Task	Responsible Party	
		Activity Leader	Additional Support
Request ROW and Utility Funds	*Review of Cost Estimates, Data input*	PM	Unit Head/Division Engineer Technical Discipline Experts
Request Construction Funds	*Review of Cost Estimates, Data input*	PM	Unit Head/Division Engineer Technical Discipline Experts
Monitor ROW/Utility Budget	*Review of Invoices and Pay Items*	PM	Unit Head/Division Engineer
Monitor Construction Budget	*Review of Invoices and Pay Items*	PM	Unit Head/Division Engineer
Pay Items and Quantities Tool/Construction Revisions	*Enter line items and quantities along with required supplemental information*	PM	Unit Head/Division Engineer
PEF Post Let Design/Permitting Assistance	*Creating new Cost plus Pos for revisions*	PM	Unit Head/Division Construction Engineer

3.4   Request ROW and Utility Funds

Prior to requesting funding, the Project Manager should ensure that updated cost information for ROW and utility relocations is available. An illustration of the cost estimate development process is shown below. As per the June 27, 2022 Cost Verification Memo all Central or Division-Managed projects that will be Centrally let should develop:

- A cost verification memo with updated ROW, utility, and construction estimates no older than 3 months should be provided 7 months prior to ROW authorization (i.e., prior to the project being added to the 6-month ROW list).

- A cost verification memo with updated construction estimates no older than 3 months should be provided 13 months prior to construction authorization (i.e., prior to the project being added to the 12-month let list).

- All Divisions are encouraged to follow this procedure for Division let projects.

Figure 1: EBS Portal

Figure 2: Cost Estimate Application

To request right of way (ROW) and utility funds, the Project Manager should ensure the following:

1. Complete Environmental Document. Note that a ROW Consultation may be required when the Environmental Document is more than one year old and/or there are major scope changes.

    - For federally funded projects, a reevaluation or supplemental environmental document

is required if the Environmental Document is more than 3 years old and/or there were any scope changes.

2. Obtain Location and Design Approval (LADA). This is required for all projects except those with a CE (federal) or MCDC (state) environmental planning document type. Requests for LADA vary depending on who is managing the project.

3. Previously for Centrally managed projects, the Project Manager coordinated at the monthly Six-Month ROW Review meeting with Planning & Programming-Project Management, Schedule Management, and Roadway Design. The Project Manager will provide necessary supplemental information (roadway title sheet, typical sections, etc.) to Roadway Design and they will submit the official request to Technical Services Director for approval.

4. In 2022, NCDOT revised the process detailed in Step 3. Under the new process, project managers for Centrally managed projects are required to directly request PE, ROW, and Utilities funds for STIP projects. This is consistent with the process for Division-led projects.

5. For Planning and Programming to authorize ROW and Utilities funding, the final planning document must be attached to the AFRA request.

6. Funds should be requested 2 to 3 months in advance.

It is the Project Manager's responsibility to verify that the TIP estimate documents are completed and updated in SAP. These documents may need to be referenced throughout the life of the project. ROW, utilities, and construction will have their own estimate document. Each will be uploaded to the appropriate WBS level for that phase and will be uploaded at different times. Work with each group to ensure the estimates are completed and uploaded correctly and in a timely fashion.

1. Log into the NCDOT EBS portal with your NCID username/password.

2. Access SAP through the ECC Production tile.

3. Enter or access transaction code CJ20N Project Builder and open your project.

- Access previously accessed projects by double clicking the project from the Worklist.   OR

- Use the folder icon to Open Project and enter either the Project definition, WBS Element or Network.

- The project will open in the upper-left window.
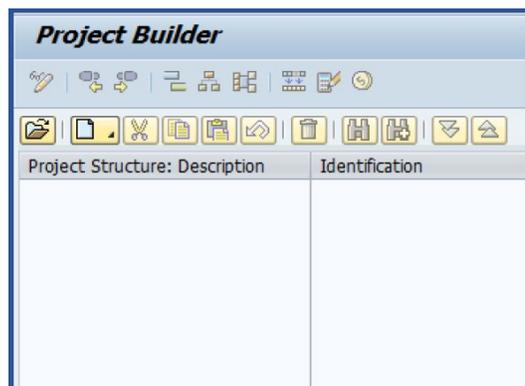
4. Click through the folder tree until you come to the ROW and CON level. For ROW and utility estimates, open ROW and for construction estimates, open CON. There may be multiple levels if sub-TIPs exist. Click once to highlight the TIP you need.

5. Click on the down-arrow button in the header of the window, directly to the left of Project Builder. Click on IXOS-Doculink at the bottom of the menu
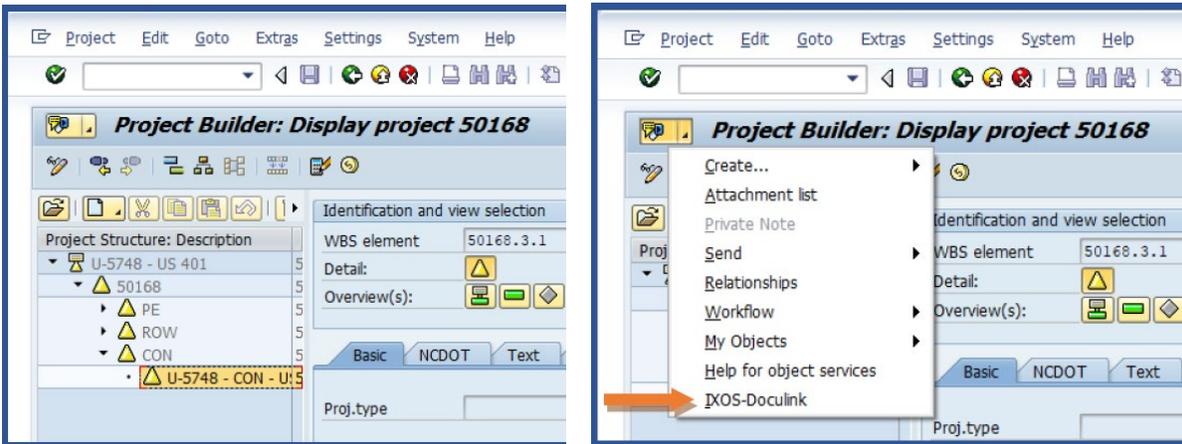
6. Open the folder tree for the selected WBS element and locate the Latest TIP Estimate Documents folder. The various cost estimates for the project are listed and can be accessed by double-clicking on the item.
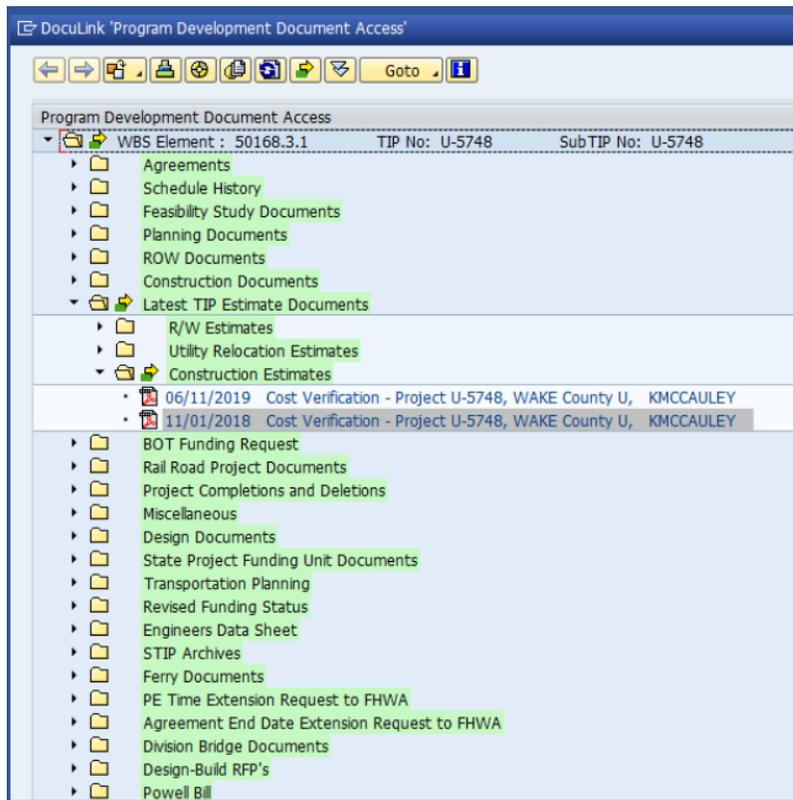
The Project Manager should ensure that ROW funds are programed into the appropriate fiscal year in the current STIP.

1. If a project, or a phase of a project, is not programmed in the current STIP, then the Project Manager should send a request to the STIP Unit. This is usually approved on "Item N" of the Board of Transportation Agenda. Please note that "Item N" only programs the project in the STIP and a funding request would still need to be submitted after "Item N" has been approved, resulting in a minimum of 2 months to obtain funding approval for the project phase.

2. Submit a schedule change request (SCR) to the Schedule Management Office (SMO) prior to submitting funding request if the project's ROW and LET dates are not consistent with the funding fiscal year in the current STIP.

3. Update the ROW and utilities cost estimates if appropriate.

4. If it is necessary to acquire ROW, NCDOT must comply with the Uniform Act (49 CFR 24 - Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally-Assisted Programs). Most importantly, an owner must be notified that they are entitled to receive fair market value for their property and any appraisals must be reviewed and approved by NCDOT.

5. Hold the Field Inspection Meeting.

6. A funding request should be submitted no earlier than 3 months prior to the scheduled ROW date; however, 2 months is optimal. Otherwise, a SCR will be needed.

7. The ROW Certification Letter must be received by Project Management Unit (Not for Design-Build).

The Project Manager is responsible for ensuring that ROW funding is requested and approved by the BOT prior to distribution of ROW plans and ROW acquisition beginning in Stage 4. To minimize project delays, this request needs to be initiated prior to the BOT Agenda cut-off dates for the following month's BOT meeting. The Project Manager will access the AFRA through the EBS portal. This application allows the PM to request funding from Planning & Programming-Project Management (for any project phase). Please see Section 1.5 for information on AFRA data inputs.

3.5   Request Construction Funds

Depending on the size and scope, projects can be funded from a variety of sources such as Statewide Project Funds, Resurfacing Funds, Secondary Road Construction Funds, Spot Safety Funds or STIP Funds. Prior to advertising for bids, confirm that the Construction WBS Element(s) has been authorized/released for charges. This can be accomplished by verifying that the WBS Element System Status is R100 on the Basic Data tab using SAP transactions CJ13 or CJ20N. For projects funded in whole or in part with Federal funds, advertising prior to authorization by FHWA will jeopardize Federal participation. As per the NCDOT Chief Engineer's memo from November 15, 2021, the Department requires all projects, regardless of funding type, to be fully funded prior to advertising. This is in alignment with the existing 2021 Division Let Contract Guidance. "Specifically, this means the unique WBS element(s) assigned to a project must be funded, authorized, and released in user status R100 before the before the project can be advertised for bids.". Fund balances can be seen using SAP transaction ZFMINQ. Any deviation from this procedure requires prior approval from the Chief Engineer.

The Project Manager should ensure that the project meets the requirements to be funded for construction. For all projects:

- Verify that the project is in the STIP and that the Project Description is correct.
- Verify that all funding agreements are fully executed.
- Submit the mileposts of the project limits for all roadway construction projects.
- Location and Design Approval (LADA) letter must be submitted if the project environmental documentation is an Environmental Assessment or Environmental Impact Statement.
- Environmental documents must be complete and approved.
- Pre-Let (or Combined) Field Inspection has taken place.

FOR FEDERALLY FUNDED PROJECTS:

- As noted above, FHWA funding authorization is required prior to advertising the project.
- For Federally funded projects, a Construction Consultation is required if more than one year has passed since ROW acquisition was completed. See EPU website for guidance.
- Re-evaluation or supplemental environmental document is required if more than 3 years have passed since the environmental document was approved or if the scope of the project has changed.

PRIOR TO INITIATION OF CONSTRUCTION PHASE (FEDERALLY FUNDED PROJECTS):

- Construction funds must be programmed in the STIP for the appropriate fiscal year.
- Let date must be current in the schedule or a schedule change must be submitted to SMO.
- Environmental documents are complete and approved.
- All permits need to be approved. (Not for Design-Build).
- All agreements must be fully executed.
- A Purchase Order Contract requires a line item estimate.
- If a project was originally documented anticipating State funds, the requesting unit must obtain FHWA approval prior to requesting federal funds.

FOR STATE FUNDED PROJECTS:

- Construction funds must be programmed in the STIP for the appropriate fiscal year.
- Let date must be current in the schedule or a schedule change must be submitted to SMO.
- Environmental documents are complete and approved.
- All permits need to be approved. (Not for Design-Build).
- All agreements must be fully executed.
- A Purchase Order Contract requires a line item estimate.

When a project has progressed through the ROW phase and is scheduled in the STIP for construction, funds need to be requested by the Project Manager or the Contract Standards and Estimating Staff. For some Division Projects, Project Managers request funding authorization. To avoid project delays, the construction funding request needs to be initiated in sufficient time, noting state and federal funding request needs.

The Project Manager will access the AFRA through the EBS portal. This application allows the PM to request funding from Planning & Programming-Project Management (for any project phase). Please see Section 1.5 for information on AFRA data inputs.

After award of contract, since the contract award amount rarely matches the estimate that was used to request the construction funding prior to advertising, a WBS low bid adjustment must be done for each project. The contract award amount should be multiplied by 1.16 to account for engineering and contingencies (E&C) and compared to the initial authorization request. If the contract award amount plus E&C exceeds what was initially authorized, then a request should be submitted to the Division of Planning and Programming, Project Management to increase the funding on the construction WBS. Conversely, if the contract award amount plus E&C is less than what was initially authorized, then a request should be submitted to decrease the funding. This adjustment should be made through AFRA within 90 days of contract award.

3.6 Construction Pay Items and Quantities (PIQ) Tool

The Pay Items & Quantities (PIQ) Tool provides an easy way for DOT and PEF designers to enter their portions of the overall contract line items and quantities, along with required supplemental information. If issues are encountered using the tool, the Project Manager should send an email to PreconstructionHelp@ncdot.gov.

The PIQ Tool can be found by going to the project's SharePoint site, under Precon Tools on the left side of the screen,

Precon Tools
➜ Pay Items & Quantities
➜ Project Commitments
➜ Risk Assessment
➜ Submittal Tracker
➜ Avoidance and Minimization Tracker

The Project Manager is responsible for ensuring that funding sources (identified by Construction WBS) and categories are set up correctly and that the designers enter all the pay items and quantities. The basic process is as follows:

Set Up
- Update **WBS list** if more than one WBS to be used
- Update **Category list** to add individual Structures and non-Participating Utilities

Enter Pay Items
- Add individual **Pay Items & Quantities**
- PM ensures everything is ready for plan checking

Review
- Letting Admin reviews then exports Pay Items to AWP
- Structures adds additional information in AWP
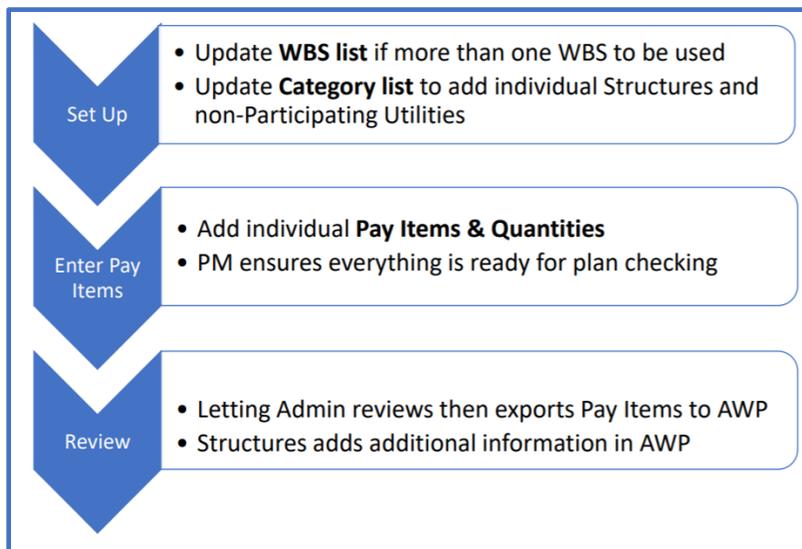
Using Discipline and Category helps the letting administrator group the long lists of pay items and quantities when doing plan checking & validation. The process is slightly different for Central and Division Projects:

- For Central Projects, designers use Discipline to show which design discipline is developing the plan sheets that call for these pay items.
- For Division Projects, designers may choose to narrow their choices between two disciplines – Roadway Design and Structures.

Pay item categories are preset for most disciplines, but structures items require the Project Manager or designer to add a separate category for each structure. To do this, on the home page of the Pay Items & Quantities tool choose [Category List] to modify the categories available for this project.
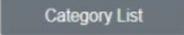
- Category 0000 for Force Account is the only category available for Structures by default. (Category 0001 is usually Roadway Items, though that is not used with the Structures discipline.)
- Add a 4-digit Category and a short Description for each structure that will have pay items, listing Culverts, Walls, then Bridges:
    - o   0001 Culvert 1 – 431200
    - o   0002 Culvert 2 – 431222
    - o   0003 Retaining Wall 1 – 431350
    - o   0004 Bridge 1 – 431188
    - o   0005 Bridge 2 – 431157.
- Add categories where DOT is non-participating in the funding (for example, if a utility or municipality will be funding this set of items, give it its own category.)
    - o   For example: under Utilities, we might add: 0002 NPAR (Duke Progress).

The Construction WBS identifies the funding source for the work to be done on the Construction project. The Construction WBS is initially shown as "WBS defined elsewhere". If there is only one funding source for the project, you can leave this as is. If there are multiple sources, each funding source must be added and the pay items must be assigned to the appropriate funding source.

To enter multiple funding sources, choose [WBS List] on the home page of the PIQ tool:

- Identify each different WBS with a different letter of the alphabet: A, B, C,…
- Remove "WBS defined elsewhere" and add the actual Construction WBS numbers for this project (as shown in the example below).
- WBS entries should be made in alphanumeric order to ensure the letters match with the corresponding list in AWP.
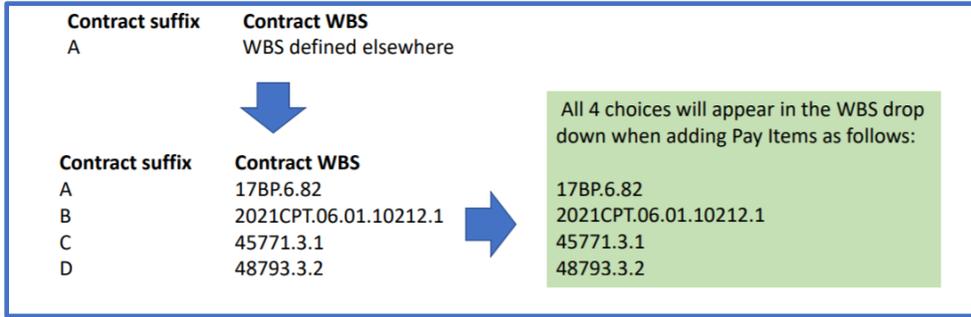
To add a pay item, go to the Preconstruction Project Site home page and choose Pay Items & Quantities from the left navigation bar. The tool will display all items and quantities entered so far for the project.

- To add an item, press the [Add Pay Item] button.
- First set the Discipline, WBS, and Pay Item Category choices – these will stay the same as you add new items until you change them.
- WBS will default to your selected default value, if applicable.
- Pay Item Category will default to 0000 Force Account for Structures and to 0001 Roadway Items for all other disciplines.
- Enter pay items either by beginning to type the Pay Item # or the Description until recognized.
- Type in the quantity and if prompted, a supplemental description.
- If this is not your last item, press save and continue and repeat the process until complete.

To enable the bidding contractor to bid on one of multiple alternate approaches, define each alternate separately:

- The contract element that has multiple approaches should be labeled with a 2-letter code, for example AA.

- Then, each option for that alternate will be labeled with a number.
- So, if there are three different acceptable ways to build the contract element called AA, different sets of items and quantities should be entered for AA1, AA2, and AA3.

As you enter the pay item, if it is associated with an alternate, check the "Is Alt Code?" checkbox, then identify the 2-letter label and 1-digit number associated with this alternative. For example, if there are two alternatives for noise walls (concrete or stone):

- Use BB for Noise Walls on this project.
- Use BB1 for pay items to build noise walls from Concrete.
- Use BB2 for pay items to build noise walls from Stone.

The PIQ is designed to align with the AASHTOWare Project Preconstruction (AWP), which is under development. The default initial settings for each Preconstruction project include the following:

- Assumption of one WBS.
- Default category of 0001 Roadway Items for all disciplines except Structures.

If additional WBS choices or Category choices are defined in the PIQ tool, you or the Project Manager will need to add the corresponding choices into the AWP tool.

Validating pay items and quantities: The tool automatically enters text in upper-case for the Supplemental Information and for skeleton items, it also ensures they are enclosed in parentheses. The Project Manager will enter initial validations in the PIQ tool in SharePoint, as it is easier to make changes there. It is possible to filter/sort/update items from the home page.

When exporting the pay items and quantities, you will need to specify the contract number for the proposal for which they will be imported into AWP. Once items are migrated to AWP, the Pay Items & Quantities in Preconstruction SharePoint Site should be locked. Designers can continue to add/update/delete pay items and quantities until the letting admin locks it down. Locking is offered at time of export and the Structures portion can be left open longer if desired.

HOW TO EXPORT INTO AWP FROM PIQ

- When ready, choose Export Pay Items.
- Ensure a future contract number is specified and you can choose to export All but Structures or Structures portions.
- On export, you may choose to LOCK that portion of the project so design PEFs and project managers will no longer be able to make changes using the PIQ tool (but you still can). Note - No UNLOCK function is provided!
- The export will download one XML file for each Discipline-WBS combination into your downloads folder, named using the contract number, the WBS letter code (if multiple WBS tasks are included) and the two-letter discipline code, e.g.:
    - C204123A-RW
    - C204123B-RW
    - C204123A-UT

- Import the XML files that were output from the PIQ tool into AWP for the specific contract. Once data are imported into AWP, all subsequent changes must be made in AWP.

3.7   Monitor ROW and Utility Budgets

The Project Manager is responsible for ensuring that ROW and Utility Funds are monitored to cover the time charged to the project for all ROW acquisition and Utility relocation work by all NCDOT units and PEFs, if appropriate. As per NCDOT guidance, Project Managers will calculate how much updated ROW and Utility funding they will need to cover existing overdrafts and anticipated estimate to complete, and then request the funds via AFRA (see Section 1.5). The Division of Planning and Programming (DPP) asks Project Managers to review projects' ROW and Utility budget needs for additional funding annually - prior to the start of the new state fiscal year (i.e., before July 1st). Requests will be sent out on May 1 and Project Managers will need to determine if additional funding will be needed to cover ROW and Utility costs and request additional ROW and Utility funds through AFRA by June 1.

3.8   Monitor Construction Budgets

The Project Manager will support the Division Resident Engineer, but the latter is the lead during the post let process.

3.9   Construction Revisions/PEF Post-Let Design/Permitting Assistance
CONSTRUCTION REVISIONS

When a potential construction revision is identified, the Division representative (typically the Resident Engineer) sends a revision request to the Project Manager. Upon receiving the request, the Project Manager coordinates with the requestor to understand the reason for the change and to determine next steps in completing the revision. This typically includes identifying the:

- Background details that led to the request;
- Limitations involved; and
- Expectations and next steps (e.g., timing for processing the request, process to revise the plans).

The Project Manager considers both the complexity of the revision and timing for completing the work to direct the affected Design Leads on how to revise the current version of the Let Plans. The Project Manager leads the coordination efforts and establishes the deadlines to revise, review, and comment on the construction revision.

- For a simple revision, the Roadway Design Lead modifies the current Roadway Design Plans, allowing time for all affected Design Leads to review and comment on the proposed changes. The Roadway Design Lead incorporates any comments/recommendations into the plans. Additional coordination may be needed to resolve any issues or conflicting information.
- If major revisions are needed, the Project Manager directs the affected Design Leads to revise their respective plans in parallel. Each Design Lead reviews the revisions, incorporating the changes into the Let Plans. Additional coordination may be needed to resolve any issues or conflicting information across the disciplines.

The tasks associated with this work will be performed on a cost plus basis and charged to the Construction WBS. The approved overhead and cost of capital rates will be the audited rates for the PEF. Due to the time sensitive nature of these services and the need to make qualified staff readily available with short notice, the Department may approve greater than 9 percent profit for this task.

POST DESIGN LET SERVICES

In the PDN NCDOT has included two post-letting activities for use during a project's construction phase:

1. 5CS1: Construction Revisions

2. 5UT1: Utility Construction Support

NCDOT has developed a standard scope for Post-Design Consultant Support Services. Please refer to that scope when developing a Post Design Construction Services Purchase Order. Tasks that may be required for these services include:

- Engineering Assistance, reviewing proposed design changes, site visits, or responding to contractor proposed solutions to particular field situations not covered by the plans or specifications;

- Plan Updates, including revised engineer's estimates, special provisions, and detail drawings to be signed and sealed by the consultant;

- Review of Shop Drawings; and

- Construction Claim Support, including serving as an expert witness in legal services if required by the department.

Contract Management

4. Procurement

4.1   Overview

The Project Manager is responsible for understanding what is needed to deliver a project and for working with other NCDOT units and PEFs to determine the scope, schedule, and budget of a project. It is the Project Manager's responsibility to determine the appropriate contract vehicle, work with the project team to develop the scope, develop the preliminary cost estimate, negotiate the fee, if necessary, and secure a NTP, which marks the end of Stage 1 of the PDN. The below section describes the processes and tools available to assist the Project Manager as they start this endeavor. In some cases, multiple task orders may be required, while at other times all necessary work can be scoped under a single task order. It is also important to remember that work on a project may be temporarily or permanently suspended for various reasons.

4.2   References

- ☐   Scope of Services Generator
- ☐   NCDOT Workday Estimate Form (Kitchen Sink Spreadsheet)
- ☐   Project Management Guide
- ☐   Cost Estimates
- ☐   Professional Engineering Firm Management
- ☐   Policies and Procedures for Procurement and Administration of Major Professional or Specialized Services Contracts
- ☐   NCDOT Directory of Firms
- ☐   NCDOT Expenditure Request
- ☐   NCDOT Task Order Training
- ☐   Maximum Allowable Non-Salary Direct Costs
- ☐   NCDOT Cost Verification Memo
- ☐   Updating Cost Estimates
- ☐   NCDOT Project Shelving Guidance

4.3   Purchase Order Deliverables/Tasks

Deliverable	Task	Responsible Party	
		Activity Leader	Additional Support
Contract Type Determination	*Determine if lump sum or cost plus contract is most appropriate*	PM	Unit Head/Division Engineer
Limited NTP	*Determine when a project manager should make use of a limited notice to proceed*	PM	Unit Head/Division Engineer
Scope of Work	*Determine appropriate tasks, scope templates, duration, and EPU effort*	PM	Unit Head/Division Engineer Technical Discipline Experts*
Initial Cost Estimate	*Circulate cost estimate for discipline input, coordination of review timelines*	PM	Unit Head/ Unit Head/Business Support Technical Discipline Experts

Correct Rates from CRS	*Determine if PEF is assigning appropriate staff to required efforts and current rates used*	PM	Unit Head/Business Support
Cost Comparison	*Determine Difference between NCDOT and PEF estimates*	PM	Unit Head/Business Support
Negotiations	*If necessary, negotiate to reduce differences between NCDOT and PEF scopes and estimates to acceptable levels*	PM	Unit Head/Division Engineer Technical Discipline Experts
Final Cost Estimate	*Revise scopes and cost estimates based on negotiations*	PM	Unit Head/Business Support
Chief's Requisition Requests Approval	*Enter request into Chie's Requisition Request SharePoint site*	PM	Unit Head/Business Support
Notice to Proceed/Purchase Order	*Issue NTP and receive executed NTP & RS-2s from PEF and subconsultants*	PM	Unit Head/Business Support
PO Close-out	*Determine if a PO is complete and what to do if some tasks not required.*	PM	Unit Head/Business Support
Evaluating Scope/Schedule/Budget Changes	*Determine if a suggested change is worth the required additional expenditures and schedule impacts the change would necessitate*	PM	Unit Head/Business Support
Multiple Task Orders/Additional PE Funds	*Evaluate project to determine if multiple task orders would be beneficial for NCDOT and PEF. Determine tasks for subsequent TOs*	PM	Unit Head/Business Support

*Technical Discipline Experts include appropriate NCDOT and General Engineering Services Contractor (GESC) staff

4.4   Contract Type Determination (Lump Sum versus Cost Plus)

It is important for the Project Manager to distinguish between the Limited Service Agreement and individual Purchase Orders (POs). A Limited Service Contract (LSC) is the umbrella contract between NCDOT and the PEF. The LSC will have an overall contract dollar cap. POs are associated with specific scopes of work to be done under the LSC. All POs between NCDOT and a PEF must include a payment method, which is the mechanism through which the PEF and its subconsultants generate revenue for the services and goods provided to NCDOT. While NCDOT's *Policies and Procedures for Procurement and Administration of Major Professional or Specialized Services Contracts* specifies multiple different payment methods that can be used when retaining a PEF for any of the professional or specialized services described in these guidelines; the two payment methods most commonly utilized are "lump sum" and "cost plus."

LUMP SUM CONTRACT

The NCDOT's *Policies and Procedures for Procurement and Administration of Major Professional or Specialized Services Contracts* defines "lump sum" as follows:

> *A fixed price, including labor, overhead, non-salary direct costs, and fee for the performance of specific services.*

The lump sum payment method should only be used under the following circumstances:

   a) The scope of services can be clearly defined;
   b) A list of specific, tangible deliverables can be developed, based on the scope of services; and

c)   The effort (number of hours) required to produce each deliverable can be reasonably estimated based on known facts.

A well-defined scope of services greatly reduces the likelihood that amendments or supplements to the Purchase Order or Task Order will be required.

Sub-Article IV.C of the NCDOT's *Standard Contract* states the following regarding lump sum payments:

> *Payment (partial payment for lump sum task orders) will be made to the CONSULTANT on a monthly basis upon submission of a Progress Report/Project Schedule, an invoice stating the percent of completion of each task (for lump sum task orders) and appropriate supporting documentation.*

It is expected that all active projects will be billed by the PEF on a monthly basis. Once the appropriate documentation is submitted to the Department, as required by the contract, lump sum payment will be made, based on the invoiced amount, matching the cost of the PEF's efforts during that month. The Project Manager will review the supporting documents to ensure that the efforts invested by the PEF are commensurate with the amount invoiced.

COST PLUS CONTRACT

The Department's *Policies and Procedures for Procurement and Administration of Major Professional or Specialized Services Contracts*, defines "cost plus" as:

> *A method of compensation based on the actual allowable and documented cost for labor, overhead, cost of capital, and other non-salary direct costs incurred by the Firm performing the work plus fee.*

This type of contract is suitable where the general magnitude of services is known but the scope of services or period of performance cannot be defined clearly and NCDOT needs more flexibility in expediting the work without excessive amendments to the contract.

All contracts that utilize cost plus as a payment mechanism will be capped to a maximum (or "not-to-exceed") amount that is estimated by considering, as the definition above states, a known general magnitude of services for a specified length of time.

The cost plus payment method is typically best employed with a Limited Services Contract (LSC) under which the Department may require certain services rather than tangible deliverables. An example of the services that could be provided when utilizing an LSC with a cost plus payment mechanism include: a General Engineering Services Consultant (GESC) providing staff augmentation, project or program management services, or providing support to a Technical Services Unit. In such cases, and as the definition above implies, the character and magnitude of the services to be provided are known and can be defined, but the exact timing and duration of these services cannot be reasonably foreseen.

Once the need to retain a PEF under a cost plus payment method arises, the estimation and negotiation procedures are the same as the lump sum method with the key difference being that the Department and PEF negotiate an estimated number of hours based on the description of services to be provided by the PEF rather than negotiating a fixed number of hours for a specific deliverable.

For example, the Department may have a need for one additional full-time equivalent ("FTE") (the

consultant would provide one staff with up to full time availability) to conduct design reviews for various projects for a period of one year. While the activities conducted during a design review may be known and definable, both the Department's and PEF's project managers may not know the number of projects to be reviewed during that year. In such cases, to establish a not-to-exceed fee under the contract, both the Department and the PEF may agree on a reasonable number of projects that may be expected during the term of the contract. In the event the number of design reviews is less than the number originally established, the PEF only gets paid for the time invested in such design reviews. However, if the number of design reviews is higher, then the Department may have to supplement the not-to-exceed amount.

The cost plus contract method reimburses the PEF based on the number of hours worked rather than on a deliverable basis. This allows the Department to add resources and staff as needed, rather than committing to additional permanent staff. It also allows for PEF flexibility in dealing with rapid-response tasks, as it reduces the time needed to secure resources.

CONTRACT TYPE ISSUES

The most common issue that has a negative impact on the efficient delivery of a lump sum contract for the Project Manager and the PEF is scope creep. "Scope creep" is generally defined as additional work outside of the agreed to scope of services that are not part of the contractual requirements of the executed contract. Scope creep often appears as continuous requests for activities, deliverables, or tasks that are typically small in nature, but when combined may amount to substantial additional work. These can include requests by stakeholders or the Project Manager, with the thought that the PEF's incurred costs in performing such small tasks outside of the contract or task order parameters is negligible when compared to the total cost of the contract. The PEF may accede to such requests with the thought of "pleasing the client," thinking that it may lead to more work with the Department in the future.

If left unchecked, scope creep benefits none of the parties involved, as the PEF usually must take staff out of production roles for deliverables that are contractually required, which may, in turn, cause a delay in submitting such deliverables. The PEF also incurs additional unforeseen costs that may end up eroding its profit. From the Department's perspective, and in addition to potential project delays, scope creep may lead to additional unforeseen expenditures through a supplement to the contract.

To mitigate this potential risk, it is extremely important for the Department's Project Manager to actively manage the scope of services as negotiated with the PEF and avoid unnecessary additions.

Other issues that may impact the performance of a lump sum contract include underestimation of required resources, inefficient use of resources by the PEF, or reduction of scope once the lump sum contract has been negotiated.

For the Project Manager, lump sum and cost plus contracts require some differences in contract management. For a lump sum contract, the Project Manager is focused on deliverables. They will need to closely monitor the progress report and ensure that the percent complete reported seems accurate based on the stage of the project. For example, has the PEF started billing for final design when concept level designs are still in development? Scope creep may require additional submittals, design changes that require additional level of effort, or additional meetings or submittals to address new concerns. For cost plus contracts, the Project Manager will need to review not only the progress report, but also the time sheets of the PEF. Are the persons used and the hours spent commensurate with the assigned task? The danger of scope creep on a cost plus contract is that due to requests or inefficient execution, the project

cap will be reached prematurely.

For the PEF, lump sum contracts offer incentives to work more efficiently, as that has the potential to increase PEF profits. Cost plus contracts offer a set profit per hour billed, so there is less opportunity to increase revenue through efficiency. However, cost plus contracts minimize the need for supplements, which reduces potential PEF overhead costs and allows for in-demand services for the client which increase the percentage of the PEF's time that can be focused on billable work.

4.5   Limited Notice to Proceed

NCDOT uses various types of contracts with assignments issued on a task order basis. However, in the interest of expediting project delivery, firms sometimes begin work once the details of the scope of services for the task order are determined but are awaiting the completion of the negotiation process and formal Notice to Proceed (NTP). While it is anticipated the process from scoping to NTP will occur within 30 days, exceptions may occur and justify the need for a Limited NTP. It is hoped that limited NTPs will be only rarely required; however, if, for example there is a need to perform out of scope work required to meet the project schedule, this approach may be justified. Please refer to the following website for the current Limited NTP procedure.

The NCDOT Business Unit, Division Engineer, or delegate may issue a Limited NTP using the language below with a maximum value of $50,000. If you have questions about this process, please contact your supervisor. Limited NTPs are anticipated to be short duration arrangements, no longer than 30 days. Limited NTPs may be directed/approved by NCDOT management (Director of Technical Services/Division Engineer) and may not always be an available tool for the Project Manager. Below is an example of a potential limited NTP email:

> *This email will serve as your limited Notice to Proceed (not-to-exceed $50,000) to begin work on the above-mentioned project with the understanding that we will work through the authorization of the Purchase Order and all other project setup documentation. This amount is considered a portion of the final NTP amount and not additive to the final NTP amount. We anticipate having a formal Notice to Proceed sometime in the near future*.

It should be noted that Limited NTPs may present some challenges for PEFs. Limited NTPs do not allow the PEF to bill for work completed. This may lead to accounting issues for some firms and financial difficulties for smaller PEF firms.

In addition, issues may arise during scope of services and cost estimate submittals/negotiations, while the PEF is completing work under a Limited NTP. For example, a PEF may expend hours to complete a task under the Limited NTP that, in the Department's opinion, are greater than the level of effort for which the task should have been budgeted by the PEF. For this reason, to effectively use a Limited NTP, the Project Manager and the PEF should be in general agreement on the anticipated level of effort for any task completed prior to formal NTP.

4.6   Scope of Work

Prior to developing the scope of work, the Project Manager should review the information that is available about the project. Is there an Express Design, Feasibility Study, or Project Scoping Report? If not, it may be useful to develop an initial cost plus contract with a small not-to-exceed amount (generally less than

$20,000) to allow the selected PEF to gather basic project information, conduct a site visit, and prepare a preliminary environmental features map.

Next, the Project Manager should look at the proposed schedule of the project. When are ROW and construction scheduled? This will help the Project Manager and PEF understand how to properly schedule project milestones.

The next step is to determine what issues will factor into the scope and budget needed for the project. When developing a scope of work, the Project Manager should consider the following:

- Disciplines involved;
- Complexity of the project;
- Controversy of the project;
- Likely timeframe for developing the environmental document and associated designs; and
- Project Manager preferences for coordination and project management/administration.

NCDOT procedures require technical discipline input, as needed. For example, if the project is likely considered a Type I under NCDOT's Traffic Noise Policy, the Noise and Air Quality Group would need to review the scope of work and cost estimate for this work. The amount of technical discipline involvement should also be considered when developing a scope of work. For example, to what extent will the Public Involvement (PI) group be involved in a project? Will the PEF do all of the work for PI review or will tasks be shared between the PEF and PI? Finally, the Project Manager should know which unit will review designs (ex. Division vs. Central review) and these units will also need to have input on the scope of work relative to number of review cycles, unit specific process requirements, etc. Guidance on which technical experts will need to review certain disciplines is under development.

It is important to consider the needs of the specific project. While, in general, a bridge replacement project is less complex than a widening project, specific issues for a given site can require additional work to ensure NEPA/SEPA compliance and that designs are sufficient. Specifically, are there known issues with endangered species or cultural resources? Do traffic volumes present problems for project Y-lines? Does the horizontal or vertical alignment of the existing facility require substantial modifications to meet current design standards? Are there substantial impacts to waters of the US? The answers to these questions and others will factor into the time and budget requirements of a project.

Controversy may arise at any point in the project development process; however, a Project Manager may be able to anticipate controversy based on answers to the following questions:

- Will the project limit access to critical resources?
- Will the project likely require substantial relocations?
- Are there environmental justice concerns?
- Have past projects in the area proven controversial?
- Are substantial changes in access considered?
- Has the area undergone substantial recent development without planning controls in place?

The timeframe for project development is also important to consider. If project documentation is anticipated as a CE or MCDC, it is reasonable to anticipate that the environmental document and designs can be developed within a year and be covered by a single task order. If a project is more complex or if

crucial decisions need to be reached before completion of the environmental document or design, using multiple task orders may allow greater cost control and limit uncertainty that tends to increase PEF cost estimates. For such a project, scoping individual task orders to major milestones may be the most practical way to structure a purchase order.

Scoping of project management/administration is often an issue in scoping and negotiations. Each project has its own needs; for example, a bridge replacement on a road that can be temporarily closed without placing a burden on the community will generally require less coordination than a new location project with relocations and new stream crossings. Regular communication is a necessity for keeping a project on track, but methods for this coordination may vary from regular emails to formal weekly meetings with presentations, agendas, and meeting minutes. Achieving this understanding with the PEF prior to developing the scope and estimate not only makes for more efficient scoping and negotiation, it also sets a collaborative tone for the project.

In addition to project coordination, NCDOT has monthly reporting needs. The PEF will need to prepare and update Microsoft Project schedules, labor projections, and progress/status reports. Draft and final work products will need to be placed on SharePoint and/or to the ATLAS Workbench. Budget projections are also required.

It is important to note that any of the above issues might change as the project develops. Changes may require additional scope or a reduction of scope. Communication with the Project Team is key to maintaining project efficiency and delivery.

The PEF is responsible for ensuring that any subconsultant firm recommended for use is included in their anticipated contract vehicle. If not, it is their responsibility to ensure acceptance of the proposed subconsultant and addition of the subconsultant onto the main consultant agreement. The Project Manager or technical group leads may engage subconsultants under different contract vehicles, especially to provide specialized services.

Article I.C.4. of the contract states: "The CONSULTANT shall notify all subconsultants under this contract of ALL new work assignments made by the DEPARTMENT to the CONSULTANT regardless of any particular subconsultant's engagement level under a particular task order. This notification information may be requested by the DEPARTMENT in the form of a report." The Prime firm should submit evidence of this notification (e-mail, letter, report, etc.) to the PM before the Scoping Meeting. This documentation will be maintained by the PM in the project file.

Prior to the development of the scope and cost estimate, the Project Manager should meet with the PEF, participating subconsultants and other members of the Project Team, as appropriate, to discuss the project scope and schedule. The Project Manager will determine the invitee list and format of the meeting, and in some cases may be a formal kickoff for the project. At the conclusion of the meeting, there should be either no remaining ambiguity as to scope development or a plan should be in place to expeditiously address any issues. It should take no more than 10 business days from the initial meeting for development of the scope and task list by the PEF and approval by the Department.

Once the parameters of the project have been agreed upon with the PEF, the next step is to develop the written scope of work and task list spreadsheet. Please refer to the Scope of Services Generator and the NCDOT Workday Estimate form.

The Scope of Services Generator provides general requirements for each discipline. The Project Manager should expect the PEF team to modify the scope template to include project specific information, especially for lump sum contracts. The scope should detail assumptions including the number of alternatives to be evaluated; the number of meetings and methods of stakeholder outreach that will be used, and any project specific issues that require additional efforts. Items in the scope templates that are not required should be deleted/marked through. The number of staff attending meetings and the number of field trips should be specified. If the scope lacks specifics, the PEF is essentially saying they will be delivering the environmental document and designs without subsequent requests for supplements. Conversely, if a scope is overly narrow, it may indicate that supplements will be needed for any unanticipated issues. When reviewing the draft scope, the Project Manager should coordinate with the PEF to resolve any questions before cost estimates are prepared.

When developing the task list estimate, there are some items that may be left out or, in some instances, mistakenly added twice. For example, the PEF and Project Manager should ensure that labor for developing the public meeting maps is only included in the Roadway tab.

The PEF should only include required tabs in the cost estimate. The guidance on preparing a cost estimate that follows will describe each step the Project Manager will take when developing the estimate. It is the PEF's responsibility to ensure the initial task list uses the current NCDOT Workday Estimate form and that PEF information included in the task list is correct.

It may be useful to request that the PEF estimate direct costs when developing the draft task list. Direct costs include paper (handouts, plots, attendance sheets, etc.), meals and hotels for overnight trips, postage, and other miscellaneous items. Achieving agreement on directs will prevent them from being an impediment if negotiations are needed. The Project Manager should review the draft direct expenses, if included, and discuss any issues with the PEF when providing comments on the scope and task list. It is generally a good practice for the PEF to document when concurrence on the scope and task list is achieved, as it is tracked by NCDOT. This can be done via email.

4.7   Initial Cost Estimate

Once concurrence is reached on the scope and task list, the PEF and the Project Manager or their designee will develop initial cost estimates. These should be done independently, as a properly developed scope should require no further discussion when estimating costs. Some disciplines have developed very regimented task lists for items, others allow for more flexible scoping. This should be taken into account when developing the initial cost estimate. For Roadway tasks, design tasks associated with the PDN Stage 2 tasks should use the Roadway tab. For PDN Stage 3 work and beyond, the Roadway tab should be used.

The Project Manager should circulate the approved task list and scope to the appropriate individual technical discipline experts so they can prepare their cost estimates. Unless there are specific issues, these experts should prepare cost estimates within five business days. Any issues that would preclude delivery of the cost estimate to the Project Manager within that timeframe should be disclosed to the Project Manager when the initial estimate request is made. The Project Manager should prepare the Project Management (PM) tab cost estimate with help as necessary from their supervisor/GESC and NCDOT Environmental Policy Unit staff.

As per NCDOT Technical Services Division January 2018 directive:

*NCDOT will, in accordance with Federal Law and Department Policy and Procedures, use the respective firm's actual salary rates during the negotiations of task orders. Once details of the scope of services are determined, the NCDOT Business Unit/Division, or its representative, shall prepare a cost estimate for the work which includes the level of effort for each classification of staffing required. Level of effort for each classification will then be negotiated. The cost of the scope of work will then be a result of the negotiated effort, the firm's actual salary rates, the firm's approved overhead rate, and the fee. Please note, the NCDOT Business Unit/Division **must prepare an in-house cost estimate for all work required** [emphasis included], and in the appropriate level of detail which will allow for negotiations of level of effort for each major task.*

HOW TO PREPARE A COST ESTIMATE

The following steps describe how the scope and workday estimates are prepared for each task order. Normally, after the scope and task list have been agreed upon, the PEF will fill out the form and supply an estimate without further input from the Project Manager. Once the Project Manager receives the task list, it should be circulated to those technical discipline experts responsible for each discipline, who will fill out their tab(s).

1. In preparing the initial task list, the PEF should download the latest Workday Estimate form (Kitchen Sink Spreadsheet). The form is the Department's preferred method for estimating costs. The form is used because it:
   - Allows for verified calculations;
   - Merges all unit estimates and provides a consolidated task order total cost;
   - Auto-populates many spreadsheet fields; and
   - Is a consistent product used by NCDOT, PEFs, and subconsultants.

   As this is an Excel Spreadsheet, it is important to be careful in editing the form and ensuring numbers are entered correctly to ensure totals are valid. Unused items should be hidden, as per form instructions, not deleted.

   It is very important that NCDOT units, PEFs, and subconsultants use the current form. The PEF is responsible for ensuring the most recent form is

   used. However, it is good practice for a Project Manager to always start your review of the PEF task list by checking the "Form Last Updated" field on Discipline Selection (sheet 1_.

2. The PEF will select the Disciplines that will be required for this task order
   - Go to the Discipline Selection Worksheet (the green, first tab on the spreadsheet).
   - If the spreadsheet is in

   protected view, click "Enable Editing" and/or "Enable Content" to allow data input.

- Chose the disciplines needed by clicking the appropriate "Yes" box(es) in Column A. Once a discipline is selected, the box will turn green and a tab for that discipline will be added to the spreadsheet.
- If a discipline is initially selected but later the decision is made to remove the task, it can be removed by clicking "No."
- In general, for each discipline selected, two tabs will be added, one for labor and another for expenses specific to that discipline.
- Subconsultants can use the sub version of the form.
- Unused disciplines will not be included.

3. The PEF will enter data in the Overall Summary tab (sheet 2). The green fields on the sheet should be filled in. Some items with green fields have pulldown menus. Items with yellow fields will be populated from other tabs.

4. The PEF will fill in the Acct Initiation Request. Some information (in the yellow fields) will be carried over from the Overall Summary tab. The Project Manager should ensure that the contact information for NCDOT and the PEF are correct.

5. The Project Manager should review the PEF Classification Sheet. The Task List provided by the PEF firm should include the firm name and staff for each discipline, as well as the overhead rate, assumed fee, and cost of capital. In the example below, the firm selected four staff of various grades to assist with the PMU task. Note the rates, as they will be used and multiplied by the hours for each task to prepare the cost estimate. For example, it is reasonable to assume that most mapping work would be done by the GIS technician, while the project manager and very senior staff would handle such tasks as agency meetings or deliverable reviews. If the Group Leader is serving as the project manager for the PEF, the Section Head would be involved with reviews of their work and would be available to NCDOT on an as needed basis for other items. Think about the difficulty of the project. As the Project Manager, do you anticipate a need to involve your supervisor at certain points in the process? If so, it is probably appropriate to have

some degree of involvement by the PEF's supervisor at the same time. Also, look at other supporting staff. They may be used to develop mailing lists, draft materials for meetings, and sections of reports, with the (PEF) project manager serving mainly in a leadership/review role.

It is important to note the overhead, fee, and cost of capital, as well as the individual rates. It is the PEF's responsibility to ensure these are correct. The Project Manager will need to review the rates in the Check Rates Guidance Section that follows.

It should be noted that the standard fee (profit margin) is 9 percent, with a maximum of 15 percent. Based upon Department Policy and Procedures, the establishment of a fee shall be project-specific and shall take into account the size, complexity, duration, degree of risk involved in the work and schedule. In those rare circumstances when a fee higher than the standard fee is utilized, it must be justified by the firm and approved in writing by the PSMU Unit Head, the NCDOT Business Unit Head, or Division Engineer. This must occur prior to the cost proposal submittal using the Fee Negotiation Form. The signed documentation of the fee increase must be included in the purchase order package to obtain NTP (See section 2.12). Note the example shows both rates and individual names. Including PEF names and rates allows OIG-CURT to verify all rates. GESC firms reviewing estimates should not review the PEF's rates.

PM-Project Mgmt	Finley Engineering		777777			1.55%	9.00%	0.0127%
Project Mgmt	Section Head (E/A Man. –C)	(PS) Peter Sellers	$	90.35				
	Group Leader (E/A Sup. – A)	(GS) George Scott	$	60.00				
	Project Engineer (E–A)	(SH) Sterling Hayden	$	40.15				
	Community Planner (CP–2)	(SP) Slim Pickens	$	40.15				

6. The Project Manager will fill in the initial PM tab. It is NCDOT's policy that NCDOT or their designee must prepare an in-house cost estimate for all work required and in the appropriate level of detail to allow for negotiations of the level of effort required for each major task. The Project Manager should estimate the time required for the various tasks listed in the project scope. For most projects, not all rows will be included in the scope. For some projects, there may be a need to add a task in the green section of the spreadsheet (although that should have been done by the PEF prior to submittal). There should be no days included in the spreadsheet. In some cases, the PEF may include a note stating their assumptions. For example, the PEF may say in the description

		Employee	(PS)	(GS)	(SH)	(SP)
Hide Unused Rows / Hide Unused Columns / Unhide all Columns and Rows		Classification				
TASK DESCRIPTION			Section Head (E/A Man. –C)	Group Leader (E/A Sup. – A)	Project Engineer (E–A)	Community Planner (CP–2)
Project Management						
Project Management and Coordination			14.00	5.00	2.00	
Coordination with NCDOT PM			12.00	2.00		
Coordination with other NCDOT disciplines/units			4.00	4.00	2.00	1.00
Coordination with external stakeholders and agencies			1.25			2.75
Internal coordination with project team			5.00	5.00	2.00	1.00

of a public meeting (anticipate 4 staff will be needed). Some assumptions (for example the number of meetings per month and attendees) should have been discussed when preparing the scope.

In the example above, the Project Manager added time for the Project Management task. Note that in the PM tab, time is listed in days, so for tasks that should take approximately two hours, the Project Manager should enter 0.25 day. Note, not every staff member is included in each task. In the spreadsheet, some fields have a red "X" for number of staff involved, and the PEF should replace the "X" with their assumption. Most firms request at least two people for any field work. In this example, based on the project scale and location, the Project Manager anticipated that it would be possible to travel to, review, and return from the site in eight hours. Some field visits will take more than one day, depending on the distance from the PEF's office location.

DATE PREPARED:			3/33/33			REVIEWED BY UNIT HEAD ON:		4/58/33	
GENERAL PROJECT WORK:	ITEM	QTY		DESCRIPTION			UNIT COST		
	Travel:								
	Sedan		Trip(s) @			miles @	$0.670	$0.00	
	Carry All	2	Trip(s) @		325	miles @	$0.695	$451.75	
	Car Rental					days @	$50.00	$0.00	
	Gas for Rental					miles @	$0.200	$0.00	

7. The Project Manager or PEF should fill in the PM Expenses tab. As a best practice, it is useful to discuss the anticipated direct expenses and allow the PEF to fill in the direct expenses in the task list spreadsheet. The PEF is in the best position to know if they anticipate using a company or personal vehicle or if they will be renting a vehicle. In the scope discussion, there should be an approximate determination as to how many attendees are anticipated at a public meeting, how many people would be on the mailing list, or how many copies of the packet will be taken to Merger Meetings.

   The PEF and the Project Manager should review NCDOT's Maximum Allowable Non-Salary Direct Costs spreadsheets prior to developing the cost estimate for direct expenses. If the PEF provides an estimate of direct costs, the Project Manager should review each item, the assumptions in the scope and workday estimate, and negotiate as needed to achieve an acceptable direct expenses estimate. If the Project Manager decides to develop a completely independent estimate of direct expenses, it will likely be necessary to anticipate that additional time will be needed during negotiations.

8. Integrate other NCDOT discipline estimates into the estimate spreadsheet.
9. Once initial estimate is complete, Place 1 in the Overall Summary tab (as shown below) to assist with version control and lock initial estimate results. If a revised estimate is prepared, the version number should be updated as well.
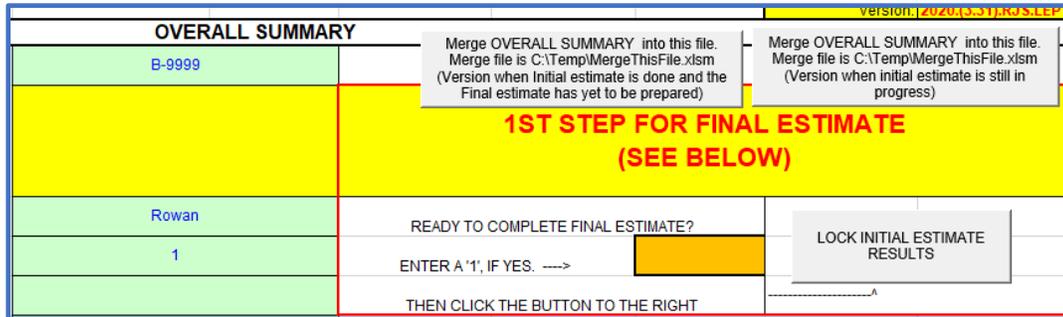
4.8 Check Rates in CRS – Hourly Rates, Overhead, Facility Cost of Capital

It is very important that NCDOT uses the currently approved consultant rates when developing cost estimates. It is the responsibility of the PEF to ensure that both their staff, current staff rates, and their subconsultant rates have been submitted to NCDOT. The Project Manager ensures PEF rates are current by checking NCDOT's Consultant Rate System (CRS).

Access to CRS has been granted to designated personnel in NCDOT Units and Divisions to view CRS data entered by PEFs. This information includes the firm's personnel salary rates, overhead rates, and cost of capital rates and is needed by Project Managers to complete manday estimates, verify rates for cost plus invoices, or to issue Notices to Proceed.

1. Log into the NCDOT EBS portal with your NCID username/password.
2. Access SAP through the ECC Production tile.
3. Enter or access transaction code ZMIN3 Display Vendor Classification.
4. Enter the Vendor number for the firm and press the enter key. The vendor number can be looked up several ways as shown below.

   - Open a web browser to NCDOT's [Directory of Firms](#) and search by firm name. Click on firm name to bring up detailed information. The vendor number is listed as the Reporting Number.
   - Click on the icon to the right of the entry box and do a general search by firm name. You may have to select between multiple entries to locate the correct office.
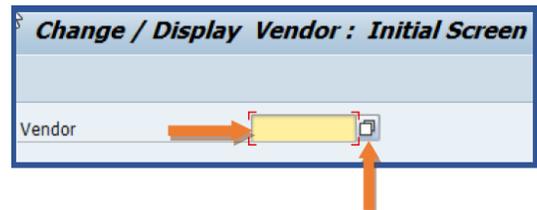
5. On the vendor Address Screen, click the next screen icon (right arrow) twice to get to the DOH Classification Data screen.

6. Click on the folder icon and select CRS Data from the drop-down menu to navigate to the CRS tab.
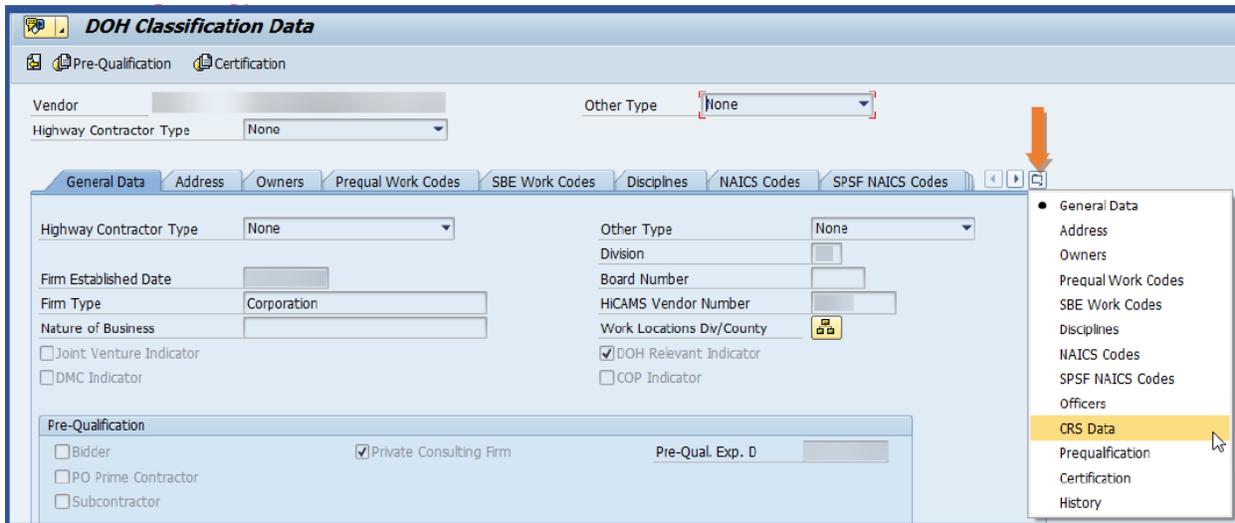
7. The upper portion of the CRS Data tab displays the home office/field overhead and cost of capital rates. The home office rates are typically used; however, if an employee is working as an embedded consultant with NCDOT office space and equipment, it may be more appropriate to use the field rates. The next full roster schedule date when CRS will be updated is also displayed.
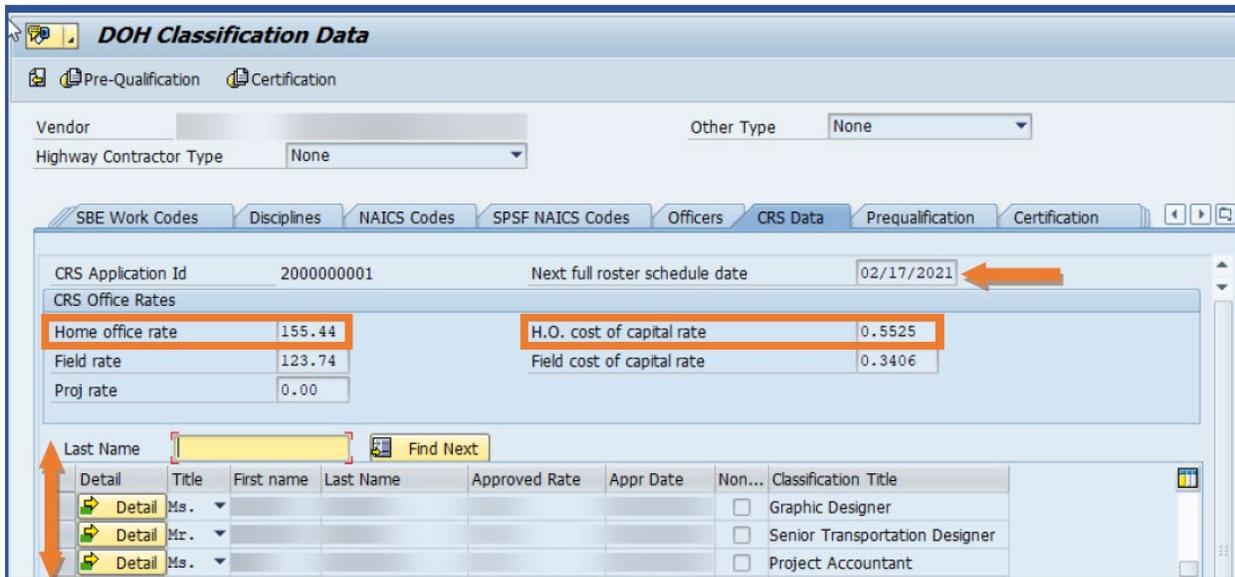
The middle-portion of the CRS Data tab shows the list of personnel and approved salary rates. Use the scroll bar or type in the Last Name field and select Find Next icon to locate and verify salary rates in the Approved Rate column. The effective date of the approved salary rate is shown in the Appr Date column.

The employee classification is shown in the Classification Title column. If additional information is needed on disciplines assigned to an employee, select the Detail icon next to an employee's name and the information will be displayed in the lower portion of the CRS Data tab.

4.9   Cost Comparison – Project Manager Role

Once the Project Manager and the PEF have completed their cost estimates, the scope and cost estimates are required to have independent review. The firm workday estimate must be within 5 percent of the NCDOT workday estimate by discipline. If not, the disciplines that exceed this amount must be negotiated. The Project Manager is responsible for reaching out to discipline leads and the PEF on the areas for which negotiations are needed. Negotiations should be determined based on the difference; in some cases, negotiations can be resolved by email, in other instances formal negotiation will be required.

Some groups develop cost comparisons using the NCDOT Workday Estimate Comparison Tool. NCDOT users can access the file here. This spreadsheet runs a series of macros that compare the prepared estimates. It requires that both cost estimates match and file names meet certain protocols (NCDOT estimate must end in DOT.xlsm and the PEF estimate must end in PEF.xlsm). The following steps are followed to develop the estimate comparison.

Process

1. Ensure you selected "DON'T UPDATE" when you opened this file. This file can reside in any location.
2. Select the icons below in the order that they appear

Start Here--->

- OPEN FILES NEEDED TO UPDATE THIS FILE
- CREATE DETAILS WORKSHEET TAB - STEP 1
- CREATE DETAILS WORKSHEET TAB - STEP 2
- CREATE DETAILS WORKSHEET TAB - STEP 3
- DELETE UNUSED UNIT WORKSHEET TABS
- REMOVE FORMULAS FROM UNIT WORKSHEET TABS
- FILTER DETAIL WORKSHEET TAB TO "RED" MANDAY TASKS
- HIDE UNUSED UNITS ON SUMMARY WORKSHEET TAB
- CLOSE FILES USED TO UPDATE THIS FILE

Upon completion of these steps, a master file is created: "TIP"="Firm"-Cost Comparison, which can be found in the user's C:\Temp folder (along with the NCDOT and PEF files used to create the comparison).

The NCDOT user will then save the created comparison file as an Excel macro-enabled workbook (do not use Excel 97-2003 as the type of Excel file).

Once the comparison has been completed, the file will show if the cost or workdays comparisons are outside acceptable limits.

- If workdays are less than 5 percent out of range and total cost is less than 10 percent out of range, the cell denoting the difference will be green, denoting no negotiations are needed.

- If workdays are 5 to 10 percent out of range and/or the total cost is 10 to 15 percent out of range, the cell will be yellow. Approval by the Business Unit Head/ Division Engineer or negotiations are required.
- If workdays are greater than 10 percent and/or total costs are greater than 15 percent out of range, the cell will be red. Approval by the Technical Services Administrator or negotiations are required.

When the cost comparison is finalized, it should be signed by the NCDOT employee who ran the comparison certifying, "that independent estimates were completed, negotiations were fair and equitable (if negotiations were needed) and confirm the NCDOT and firm estimates are within the above prescribed tolerances for workdays."

NEGOTIATIONS

Negotiations between NCDOT and the PEF are required if the firm workday estimate is not within 5 percent of the NCDOT workday estimate by discipline. In general, the Project Manager negotiates the PMU tab and other disciplines negotiate their tabs as needed. For some divisions, the Project Manager or other Division staff will lead formal or informal negotiation sessions to achieve concurrence on all budget items. NCDOT anticipates that negotiations can generally take place within three days of initial notification that negotiations are needed. Negotiations can be via email, call, virtual meeting, or teleconference.

The structure of negotiations can be treated with some flexibility. Some Project Managers or discipline leads will tell the PEF team if there are specific tasks in the estimate that have large differences in anticipated level of effort. This allows both sides to prepare and, in some instances, only negotiate in these areas. Other Project Managers or task leads feel that discussing each item works best for them. Both sides of the negotiation effort should bring examples from past projects or other data to support their positions.

A negotiation should be a conversation. Each side should describe how they envision what is needed to deliver the scope of work. In some cases, underlying assumptions are different, and adjustments to the scope may be needed. When this happens, the PEF normally updates the scope and supplies the updated document with the final, negotiated estimate.

Both sides should listen to the other side of the discussion, not just defend their assumptions. In the end, it is important for all parties to understand that while the negotiation process may be seen as a competitive step to execute a contract, the ultimate goal is to deliver quality projects to the general public in an efficient, transparent, and cost-effective way. To achieve this goal, a mutual understanding of the components of the estimated cost and the negotiation process is an asset that aids in achieving a reasonable cost for certain services.

As per NCDOT Technical Services Division January 2018 directive:

> *The firm manday estimate must be within 5% of the NCDOT manday estimate by discipline. The Business Unit representative may use sound judgement to exceed these limits up to 10% of mandays, provided that the Business Unit Head or Division Engineer co-signs the certification*

memo required herein. Any firm estimate that exceeds the NCDOT manday estimate by more than 10% will require approval by the Director of Technical Services.

It is strongly encouraged that the Project Manager and the PEF work to the extent practicable to reach an agreement. If negotiations on a scope of work are unsuccessful, the Project Manager and the PEF can appeal to the PSMU for assistance. Both NCDOT and the PEF have the right to walk away if negotiations prove unsuccessful. In such a situation, it is advised that both parties document the basis for failure to reach a compromise.

4.10   Final Cost Estimates

Upon completion of negotiations (if needed), the PEF should prepare final scope and cost estimates. The PEF should again review their staff, rates, overhead, and cost of capital to ensure they match the current rates in CRS. Most commonly, the PEF provides the updated scope and estimate to NCDOT. The Project Manager should review the PEF revised scope and estimate to ensure all agreed-upon changes have been made before the final cost comparison is provided to an independent party to verify.

4.11   Chief's Requisition Requests

The Chief's Requisition Requests web app is used to track spending. A training for use of the app can be found here. Each business unit/division has its own list to create entries and the Chief Engineer's Office has visibility to all Unit and Division lists.

Upon accessing the app, the user will choose the appropriate division/unit from a default list, which will access the appropriate requests.
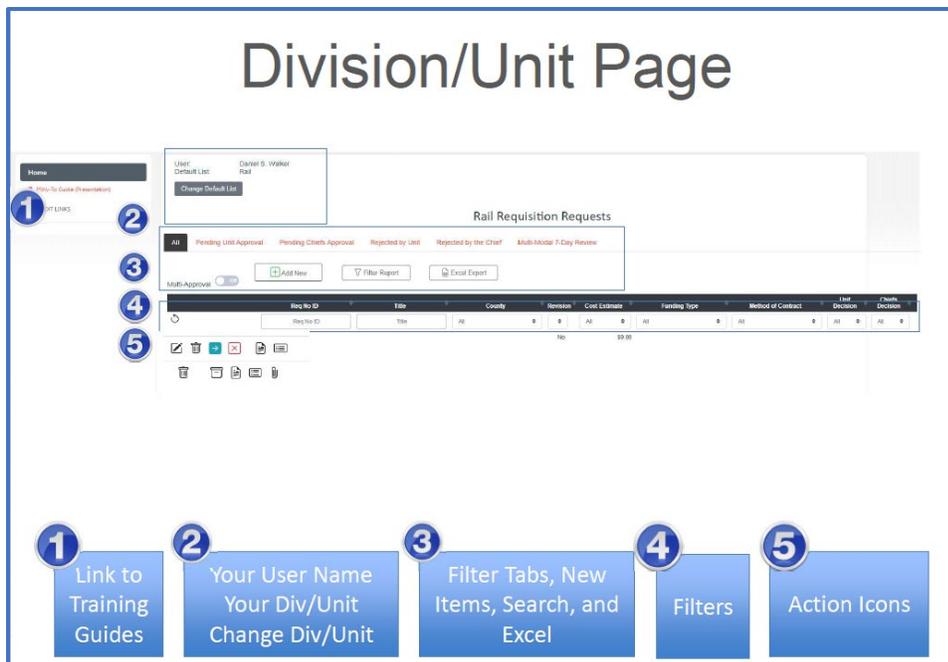
Once you have reached the appropriate Division/Unit page, the Project Manager will be faced with several choices.

The Project Manager should then enter the project information as shown below

It should be noted that it is possible to select multiple options for counties, funding types, and/or contract methods. The Project Manager should use the following process to upload attachments. Once attachments have been uploaded, use the following processes to view or delete attachments and complete the form.

NCDOT

Attachments

To upload an attachment
1. **Click Browse**
2. **Double Click** on your File
3. **Click on Save Changes**

If you want to upload multiple files, click on "Attachments" again and repeat the process.

You can also load multiple attachments in the window by dragging them from your file explorer into the attachment window.

Manage Attachments

Attachments for Test Entry #1

Upload File:

Report_37026_2055.pdf, Moisture Density Curve.png | Browse

Existing Documents

Selected Documents

Report_37026_2055.pdf

Moisture Density Curve.png

Save Changes
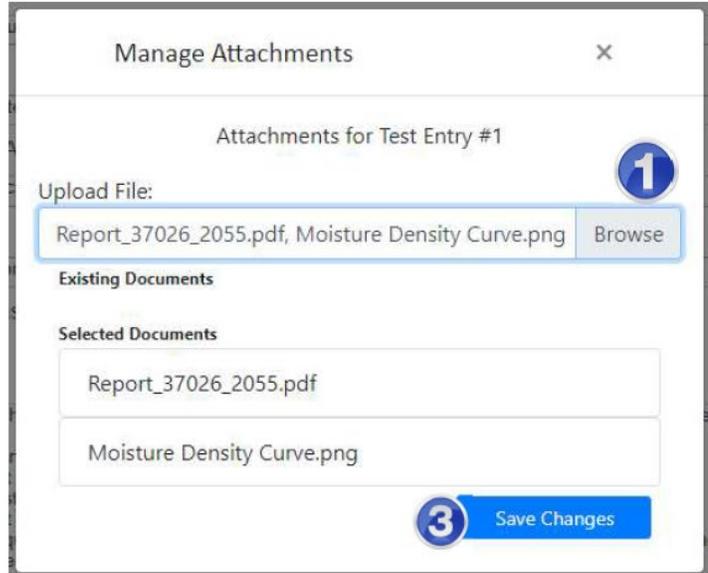
Attachments

To View and Delete attachments, **click** on the **Attachments button** in the bottom left of the page.
To **VIEW** attachments, **click** on the **blue linked file name**.
To **DELETE** an attachment, **click** on the **"Delete File" button** to delete them.

Manage Attachments

Attachments for Test Entry #1

Upload File:

No file chosen | Browse

Existing Documents
- Moisture Density Curve-76972.png Delete File
- Report_37026_2055-72327.pdf Delete File

Selected Documents

Save Changes

Estimated Let Date | 01/19/2021
Estimated Project Completion | mm/dd/yyyy
Revision Request
Revision Description

Attachments | Update Item | Close

Project Managers can filter entries to check approval status including purchase order rejections.
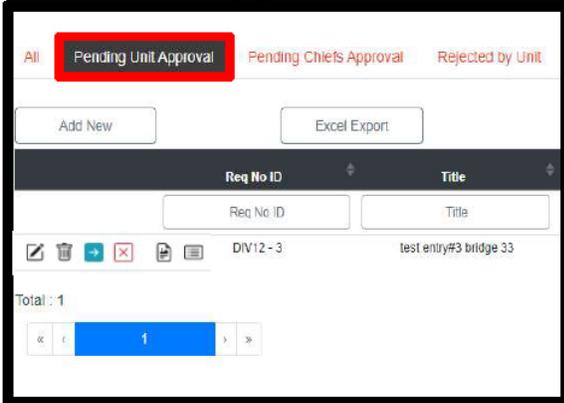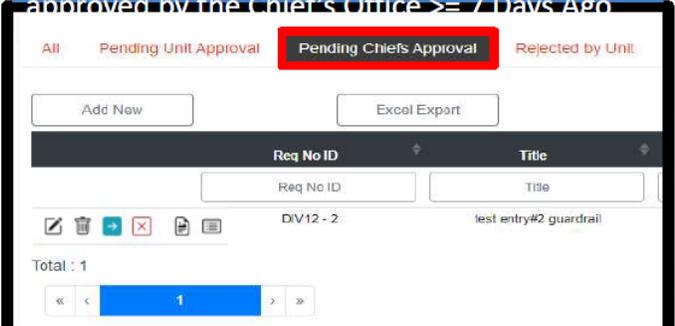
Text searches are also possible, including searches by project type. Press and holding CTRL allows the Project Manager to use multiple filters. Lists of filtered projects can be exported. Note that when using multiple filters, the Project Manager should use caution. For example, if a Project Manager selects projects in Bertie and Camden Counties, Administration as a funding type, and P-Card as a Method of Contract, the report generated will only include those projects that meet every filter condition. Be sure to de-select any filter that is not applicable.

Using text/choice Filters

Choice Filters

Funding Type	Method of Contract	Unit Decision	Chiefs Decision
Utilities		ed	Pending
Preliminary Eng	Purchases less than $25000	ed	Pending
	P-Card greater than $25000		
	Requisition/PO/Non-PO		
Bridge Program	State Forces	g	Rejected
	Supplemental Agreement		
Construction	Requisition/PO with Delegated Authorization	ed	Hold
	Employee Reimbursement		
Construction	Supplemental Agreement	Approved	Approved

You can sort all columns in Ascending/Descending Order. Some columns can be filtered individually by their choice and others can be filtered by a text search. When using these filters you can only filter 1 item at a time. To filter on multiple options, you will need to use the Filter Report function.

Filter Report

+ Add New	▽ Filter Report	⊞ Excel Export

Multi-Approval [Off]

	Req No ID	Title	County	Re
⟲	Req No ID	Title	All	
🖉 🗑 → ☒ 📄 ▤	DIV01 - 4	Entry #4	Anson	
🖉 🗑 → ☒ 📄 ▤	DIV01 - 3	A third div 01 entry	Alamance,Alexander,Alleghany,Yadkin	
🖉 🗑 → ☒ 📄 ▤	DIV01 - 2	Another Div 1 entry	Cabarrus,Caldwell	
🗑 🗄 📄 ▤ 📎	DIV01 - 1	Div 1 entry	Alleghany,Ashe,Beaufort	

Total : 4
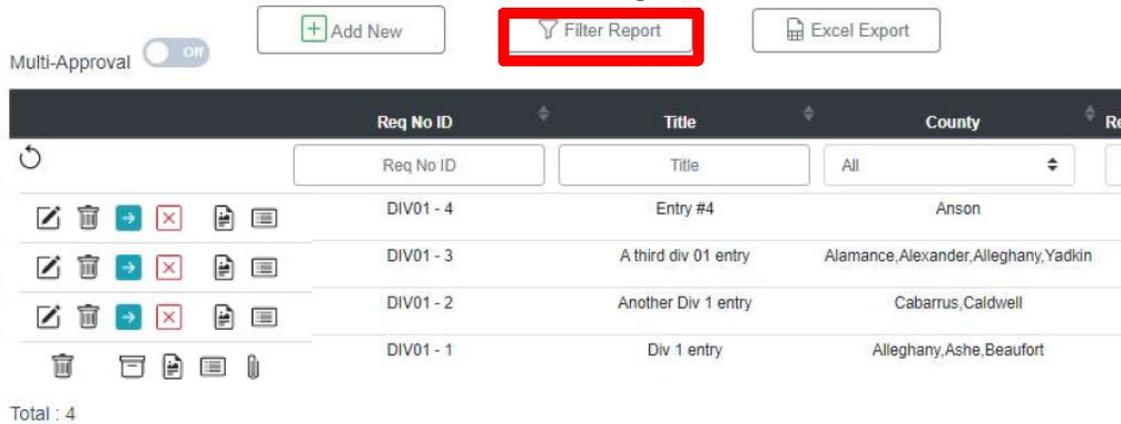
You can use the Filter Report button to generate a report based on multiple selections

Excel Export

Multi-Approval [Off]

[+ Add New]   [∇ Filter Report]   [🖥 Excel Export]

	Req No ID	Title	County	Re
↻	Req No ID	Title	All	
✎ 🗑 → ☒ 📄 ▤	DIV01 - 4	Entry #4	Anson	
✎ 🗑 → ☒ 📄 ▤	DIV01 - 3	A third div 01 entry	Alamance,Alexander,Alleghany,Yadkin	
✎ 🗑 → ☒ 📄 ▤	DIV01 - 2	Another Div 1 entry	Cabarrus,Caldwell	
🗑 🗄 📄 ▤ 📎	DIV01 - 1	Div 1 entry	Alleghany,Ashe,Beaufort	

Total : 4

You can use the Excel Export button to create an Excel spreadsheet of all the entries on the page(s). If you filter any results, then only the filtered results will be copied to the Excel spreadsheet. **ALL Columns** will be copied to the spreadsheet, those shown on the page and those not shown.

Action Icons

1. Refresh
2. Edit
3. Delete
4. Forward
5. Reject
6. Export PDF
7. View Details
8. Archive
9. View Attachments

This entry has been appr
now Read-Only
Items are changed to Rea
Unit Approves Items whe
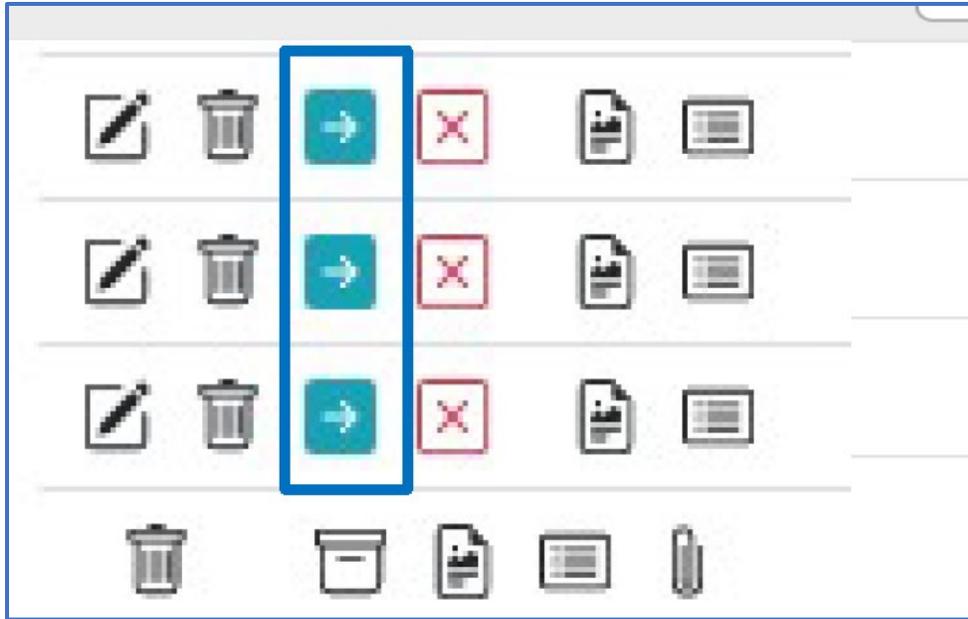
Forwarding Items

The new forwarding process allows sub-groups/sub-units to pass a new request through appropriate channels before being sent to the Unit Approver. In this process

- Anyone can forward any item in their Division/Unit
- Everyone who forwards an item will be included in the approval/rejection/hold email threads
- Each email lists on the bottom a list forwarding history for this request
- A review history will be available in the "Details" window, in the .pdf, and in all other emails.

APPROVALS & REJECTIONS

An email will be sent to the Creator and Unit Approver when entries have a Cost Estimate of $25,000 or less. An email will be sent to the Creator, Unit Approver, and Chief Approver when entries have a Cost Estimate greater than $25,000.

HOLDS

An email will be sent to the Creator, Unit Approver, and person who placed the Hold for any entry placed on Hold by the Chief's office.

MODIFICATIONS

An email will be sent to the appropriate business officer when there is a change to an approved entry with a Cost Estimate greater than $25,000. This includes any change made to the entry when the item is Pending Chief's Approval or has been placed on Hold.

4.12   Notice to Proceed/Purchase Order Generation

Notice to Proceed (NTP) is a formal, legally binding document between the Department and the PEF stating that the PEF may begin with the activities stated in the Contract or Task Order. A Project Manager will normally deal with task order NTPs. Within the context of a LSA task order, for example, NTP would be an authorization for the PEF to initiate the activities that are necessary for the completion of the task

order. With a Multi-phase Contract, NTP would be issued on a "phase" basis, allowing the PEF to initiate the activities for the phase for which the NTP has been provided.

The Project Manager should submit the following documentation package as one .pdf to issue the purchase order:

- Fully executed NTP;
- RS-2 forms for Prime and any Subconsultants;
- Certification Memo; TEMPLATE FOUND HERE;
- Cost Comparison Sheet;
- NCDOT final estimate;
- PEF final estimate;
- Fee Negotiation Form (if fee over 9 percent, see Section 2.7); and
- Scope (task order).

The Certification Memo is prepared by the business unit and notifies PSMU that the final negotiated cost proposal is consistent with the LSC's approved salaries and rates (rates include overhead, fee, cost of capital and non-salary direct costs). The business unit also verifies all computations, ensures the total mandays and fee are reasonable and acceptable, and provides the cost comparison sheet.

To comply with findings from NCDOT Office of the Inspector General's (OIG's) Audit entitled "Audit of Highway Planning and Construction, Highway Division Contract Pre-Award Process for the Period July 1, 2017 through June 30, 2019" and dated December 9, 2020, NCDOT Updated the Certification Memo on March 31, 2021. The new Certification Memo for Business Unit Division -- with PO-Completion PROCESS LIST is located on the PSMU Inside NCDOT site. The Cost Certification memo has been rewritten to include language for both Lump Sum and Cost-Plus Purchase Orders (PO) created under LSCs, and also includes a "process list" for PO completion that addresses OIG's findings from their audit. The new version of the Cost Certification Memo is required on all POs with NTPs issued beginning April 19, 2021, and PO packages submitted with other versions of the certification memo on and after this date will not be approved by PSMU.

A sample Cost Certification Memo is shown below:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

MEMO TO: Purchase Order File

FROM: Demorris Hukins
             Business Officer
             Technical Services

DATE: March 31, 2021

SUBJECT: U-4714/WBS Element 39078.1.1
             SR 1009 (John Street-Old Monroe) from SR 3448-SR 3474 (Trade St) to SR 1377
             Atkins
             LSC #:   7000017525
             PO #:   **6300062645**

Cost Certification Memo

The above-named Business Unit / Division has reviewed the final negotiated cost proposal and has determined that it is consistent with the firm(s) salaries and rates (overhead, fee, cost of capital, and non-salary direct costs) reviewed/approved by, and on-file with, NCDOT's Office of Inspector General. The above-named Business Unit / Division has also verified the computation of the Grand Total of the cost proposal, and that the development of a Lump Sum PO is consistent with the "Business Unit / Division PO-Completion PROCESS List" as shown on page 2 of this Cost Certification Memo.

The total mandays and fee for engineering services are reasonable and acceptable. The Cost Comparison sheet for this project is also attached.

For Cost-Plus POs only, as applicable: Cost-plus-overhead-plus-profit (cost-plus) purchase orders are issued to provide services with indefinite deliverables and indefinite quantities. The general magnitude of services is known, but the scope of services or period of performance cannot be clearly defined. Payment for a cost-plus purchase order will be based on the actual costs incurred and supported by appropriate documentation. Monthly invoices will include employee timesheets, documentation of direct costs and accompanying receipts, and invoices will be reviewed by Department personnel to confirm that hours, rates, and fees are based on those approved by NCDOT's Office of Inspector General. An NCDOT in-house estimate is not required for a cost-plus purchase order, and thus a cost comparison sheet may not be prepared. Task Orders will be assigned by the NCDOT project manager/business unit, and the NCDOT project manager/business unit will review monthly invoices, monthly timesheets of firm employees, and monthly progress reports.

The Purchase Order number shown above has been created and is ready to be reviewed and approved for use on this contract. If you have any questions, please contact Demorris Hukins at dhukins@ncdot.gov, 919-7076002.

RJS/dnh
Attachment

Cost Certification Memo
Page 2 of 2

Business Unit / Division PO-Completion PROCESS LIST
Item
1. Identify project needs, select and notify a firm from the list of the respective LSCs to address that need.
2. Scope the task order with the firm
3. Complete an independent manday and classification estimate for the task order and concurrently solicit a manday and cost estimate from the firm. The "NCDOT Scope and Manday Estimate Form" spreadsheet should be used to limit errors and to provide uniformity across projects and Business Units.
4. Create NCDOT manday and cost estimates, with a breakout of the various disciplines based upon the respective firm's salary rates, firm overhead and cost of capital rate. <u>INCLUDE</u> Name and Date (BOTH Preparer and Reviewer) on the Manday Estimate.
5. Ensure that the firm manday and cost estimates used are based upon salary, overhead, and cost of capital rates approved and on-file with NCDOT's Office of Inspector General. CRS (Consultant Rate System) is to be used for checking of consultant salary, overhead, and cost of capital rates. Use of the "NCDOT Scope and Manday Estimate Form" spreadsheet is very useful for detecting calculation errors.
6. Check the firm's estimate for usage of the appropriate subconsultants using the information attached to the appropriate parent-LSC or project-specific contract in SAP. SAP Transaction ZSUBAWARD should also be used to report subconsultants included on the initial LSC.
7. Negotiate the mandays and classifications with the firm. The firm manday estimate must be within 5% of the NCDOT manday estimate by discipline. The Business Unit representative may use sound judgement to exceed these limits up to 10% of mandays, provided that the Business Unit Head or Division Engineer co-signs the certification memo required herein. Any firm estimate that exceeds the NCDOT manday estimate by more than 10% will require approval by the Director of Technical Services.
8. Obtain Approval of the Expenditure Requisition in the SharePoint application by the Business Unit Head / Division Engineer and/or from the Chief Engineer's Office as appropriate based upon the amount.
9. Complete a Cost Comparison sheet containing all negotiated numbers.
10. Sign and Date (<u>BOTH</u> Preparer and Reviewer) the Cost Comparison sheet certifying that independent estimates were completed, negotiations were fair and equitable (if negotiations were needed) and confirm the NCDOT and firm estimates are within the above prescribed tolerances for mandays.
11. Complete a brief memo (see page 1 of this document) certifying that the final negotiated cost proposal has been reviewed and that the Business Unit determines it is consistent with the appropriate LSC's salaries and rates reviewed/approved by NCDOT's Office of Inspector General (whether in CRS –Consultant Rate System, or the latest rates on file elsewhere); as well as verify the computation of the cost proposal Grand Total. Use the file located here: **Certification Memo for Business Unit_Division -- with PO-Completion PROCESS LIST.docx** -- https://inside.ncdot.gov/TransportationServices/professional-services-management/Documents/Certification%20Memo%20for%20Business%20Unit_Division%20--%20with%20PO-Completion%20PROCESS%20LIST.docx
12. Create the Purchase Order in SAP under the firm's appropriate parent-LSC or project-specific contract. When the Purchase Order is created, it is important that line items be assigned for each discipline contained in the estimate with the appropriate cost center assigned to each line item.
13. Enter Subconsultant RS-2 Form information into SAP Transaction ZME_SUBCON.
14. Issue an official NTP letter and Subconsultant RS-2 forms to be signed by the firm.
15. Gather the fully-executed NTP letter and signed Subconsultant RS-2 forms
16. Assemble the fully-executed NTP letter, Requisition Approval, Subconsultant RS-2 forms, certification memo, Cost Comparison sheet, final NCDOT and firm estimates, and any other backup documentation, in this order, and attach the package to the Purchase Order in SAP.
17. Per the Office of Inspector General, PSMU will then approve the Purchase Order in the SAP workflow. This initiates the approval steps of the Purchase Order through SAP and Fiscal.

All POs issued by NCDOT must be approved by OIG. The OIG's office reviews each task order. If errors are found, the NTP process must be restarted, and no invoices will be paid until such time as the scope, estimate, and NTP form are correctly filled out and all required information is provided. While the PEF is responsible for ensuring their information is correct, the Project Manager should carefully review all materials that will directly pertain to a task order.

OVERVIEW OF THE PO APPROVAL PROCESS

1. After negotiation and final estimates are completed and submitted by both NCDOT and PEF's Project Managers, the PO is created and signed by the NCDOT Unit Business Officer or appropriate Division designee. The NTP is then sent to the PEF; the Project Manager will be copied on this email.
2. Once the firm receives the NTP, work can begin; however, invoices cannot be paid until the PO approval process is complete. The PEF must return the signed NTP to the NCDOT designee on the initial email.
3. The NCDOT Unit Business Officer or appropriate Division designee makes a PDF of the signed NTP package, as denoted above.
4. Notification from OIG on NTP status is placed in Workflow. The Project Manager should check SAP to ensure the packet is complete and track NTP approval.
5. There is a 3-step approval process in SAP:
   - Approval of PO by PSMU;
   - Approval of PO by External Audit (OIG- Consultant, Utility, Railroad, and Turnpike); and
   - Approval of PO by Fiscal CM (Accounts Payable).

PROCEDURE

1. Log into the NCDOT Electronic Business System (EBS) portal with your NCID username/password.
2. Access SAP through the ECC Production tile.
3. Enter or access transaction code ME23N Display Purchase Order and enter the PO number 63000xxxxx.
4. SAP normally holds the last PO that was viewed. To access a different PO, select the "Other Purchase Order" button and enter a new PO number in the "Pur. Order" Field.

5. There are 3 sections in the SAP window that contain data:
   - Header;
   - Item Overview; and
   - Item Detail.

   Make sure the Header block is expanded by clicking on the expand/collapse button to the left of the section title.

6. In the Header section, go to the "Release Strategy" tab. The three rows correlate directly with the 3-step approval process:
   - PSMU (the purchasing group is identified in the first row, but PSMU has delegated approval);
   - OIG-CURT; and
   - Accounts Payable.
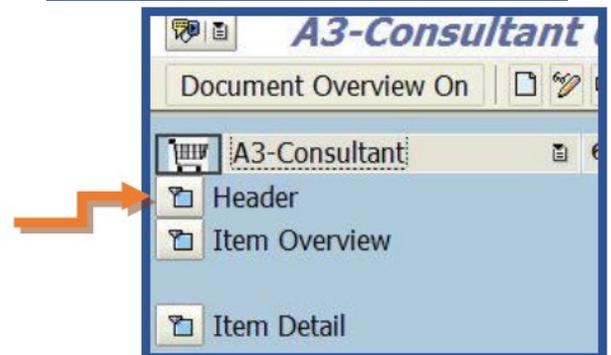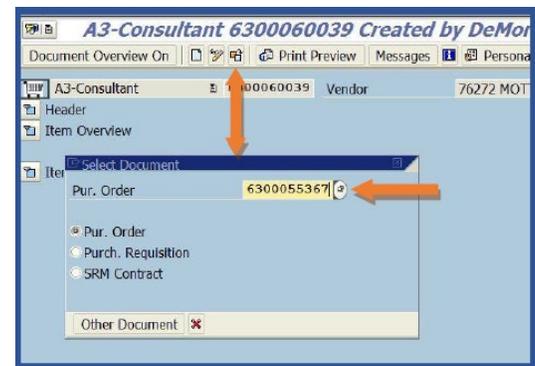
The "Status" column will show a green check when a step is approved or a yellow triangle when a step is pending. In this example, the PO is fully approved. The three boxes directly correlate with the 3-step approval process: approval from PSMU, OIG, and Accounts Payable. In this example, the PO is fully approved.
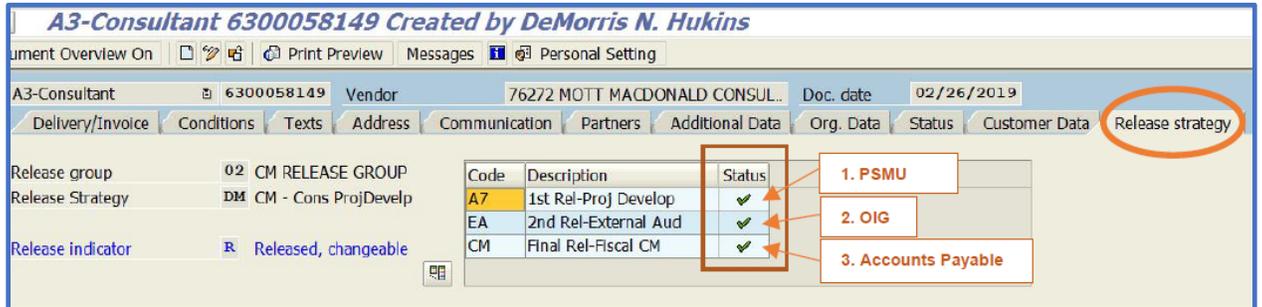
Until a PO is fully approved, no invoices for the PO can be paid. This is important to remember when processing a supplemental to an existing PO.

7. A yellow triangle on the "Status" column indicates that an approval is pending for that step. In the example above, the invoice is awaiting approval from external audit.
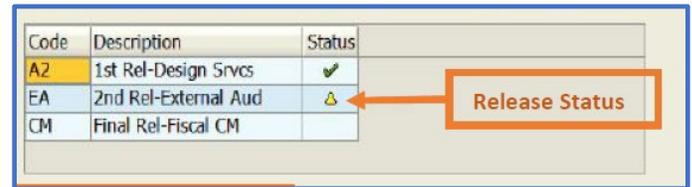
8. The workflow overview contains information on who created the PO, who approved the PO, when the PO was approved, and if the PO has been rejected. In this example, the PO was created on 5/1/2020 and Dan Shuller in PSMU approved the first step on 5/4/2020.
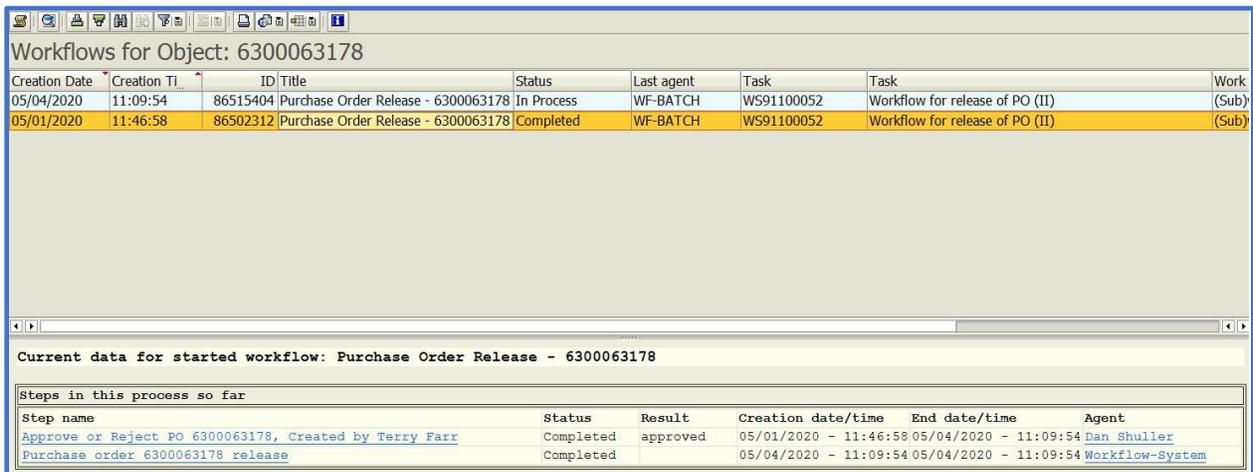
In some cases, the PO is rejected. If a PO is rejected, the Business Officer will contact the Project Manager to correct the errors. Commonly, when this happens, the cost estimate or cost comparison will need to be revised and the NTP delayed. In addition, the Business Officer will need to update SAP.

PROJECT MANAGER STEPS AFTER A REJECTION NOTIFICATION

a. If a rejection occurs, the Project Manager shall coordinate with the Unit Business Officer or Division designee to ensure that all the issues are being corrected.

b. If there are issues with the PEF's workday estimate, the Project Manager will coordinate with the PEF to make corrections.

c. The Project Manager will make appropriate revisions to the in-house estimate, including adding missing paperwork, etc.

d. After revised estimate(s) are received, the NCDOT Unit Business Officer or Division designee will make necessary revisions to the NTP and go into SAP and "Complete Work Item". This step puts the PO back into the approval process by notifying the person that rejected the PO that the work item has been completed and the reason for the rejection has been addressed.

The following are commonly cited as to why a PO is rejected:

- Salary rates used in the estimate are not approved in SAP Consultant Rate System (CRS).
- An employee is on the estimate, but their salary is not yet approved in CRS.
- Incorrect overhead rate was used and/or exceeds the maximum allowable rate approved by OIG (rate is usually updated annually).
- Incorrect cost of capital was used and/or exceeds the maximum allowable rate approved by OIG (rate is usually updated annually).
- Incorrect fee percentage was used or increased fee approval documentation was not attached.
- Dollar amounts in the estimates, cost comparison, and/or NTP do not match (a one penny rounding discrepancy in Microsoft Excel between the NTP and estimates or other documentation will cause the PO to be rejected).
- Backup documentation to explain cost amounts is missing.
- No signature on NTP letter.

- No signed Subconsultant RS-2 form included, even if no subconsultants are being used for the PO.

4.14 Close-out Purchase Order

A PO may reach completion, be suspended, or be canceled prior to reaching all agreed upon activities or deliverables. If a project is suspended, the Project Manager should look at the contract to determine which tasks are underway or completed as well as the probability the project will be restarted. The Project Manager should note that any outstanding PO tasks are part of NCDOT's contracted backlog. For projects that have been cancelled, or if the project has been suspended for Departmental budget reasons and/or the project is unlikely to be restarted in the near future, the Project Manager, with input from their supervisor, may determine that it is most appropriate to close the PO. At this point, the Project Manager should review the latest progress reports and the scope and determine which items have been completed and discuss with the PEF the percent complete of all uncompleted tasks. The Project Manager should ask the PEF to follow NCDOT's Project Shelving Guidance, ensuring that the work NCDOT has paid for is provided to them; current and pending decisions are documented; and any deliverables to the project SharePoint site are uploaded.

The PEF should indicate that a PO is complete on the last invoice by marking "Final Billing." For projects that have reached a completion of the PO, the Project Manager should review the scope of work and determine if there are any scoped items that were not required or have yet to be finalized. For a lump sum contract, the PEF is entitled to the full task order amount if the scope of work has been delivered to the client's satisfaction. For a cost plus contract, the PEF is only entitled to the necessary hours billed through the end of the project stage. The Project Manager should ensure that all deliverables have been uploaded to the ATLAS Workbench or the Project SharePoint site as appropriate.

When a project construction contract is awarded, the Project Manager should review all outstanding POs. The Project Manager should coordinate with the PEF before closing any outstanding POs that are specific to PE. For projects with continuing commitments, the WBS element that the PO charges to can be shifted to Construction as appropriate. For example, on Design Build projects, after LET, the ongoing PE work should be charged to the construction WBS using the 5P16 function code – DB Post Let Precon Act.

4.15 Evaluating Scope/Schedule/Budget Changes

Often during project development potential changes to the project are suggested. These may include altering the project limits, developing new alternatives, or other additional stakeholder coordination activities. If the change requires modification to existing scopes of work, it is important that the project team evaluate the proposed change in terms of the overall benefits versus the impact of the change on the scope, schedule, and budget of the project. The Project Manager will complete a Scope/Schedule/Budget change form and submit the form to their supervisor for approval. The development of the form and its subsequent approval ensures that there is documentation that the modification was fully considered prior to implementation.

In some cases, either due to outside influences or discovered fatal flaws, a project may need to be temporarily or permanently shelved. If this occurs, the Project Manager should follow NCDOT's Project Shelving Guidance. For projects that are temporarily suspended, there may be financial considerations when they restart. Upon shelving a project, the Project Manager should discuss with the PEF the factors that went into the shelving decision and the likelihood that the project may be restarted at a future date.

The PEF should discuss with the Project Manager any anticipated issues with restarting the project at a potential future date.

Projects with lump sum POs that have been suspended by the Department for greater than 18 months should be re-scoped and re-negotiated. The Project Manager should only consider pulling back from a contract with a PEF if the firm no longer can meet prequalification requirements to proceed.

The Project Manager and Project Team members should review the project conditions that have likely changed, work products that may need updated, identification and on-boarding of new project team members, re-engaging project stakeholders, and changes in scope for transitioning to the PDN, incorporation of Quality and Risk Management and other project specifics. In most instances terminating the existing PO and starting a new PO may prove to be the preferred option for these re-negotiations. The Project Manager should consider if a cost plus or lump sum agreement would be most applicable given the current status of the project. Note that changes to staff rates and overhead alone do not justify a supplement to an existing PO.

Regardless of the current contract vehicle, when the restart occurs, the Project Manager should reach out to the PEF team to evaluate issues that may factor into a successful restart of the project. The Project Manager should ensure that their supervisor is aware of any potential restart issues that may impact project scope, schedule, and budget.

4.16   Request for Additional PE Funds/Multiple Task Orders

A single task order may not be sufficient for project completion in all cases. For example, it may be reasonable to develop one task order for the environmental document and Alignment Defined (Stage 2) design, and another to develop Plan-in-Hand (Stage 3) designs. At the beginning of Stage 2, there is still substantial uncertainty about what will be required to finalize the project with regards to major hydraulic crossing structures, municipal agreements, bicycle and pedestrian accommodations, risk management and constructability concerns, pavement design, etc. It is also the case that project managers or task leads or PEF staff may change. In this case, sequential task orders can minimize consultant risk (and costs).

In other cases, the need for additional work that was not originally anticipated may require a change in the amount of funding provided for an existing task order. Such circumstances may include, for example, lengthening the project limits to include additional drainage considerations; acquiring additional ROW due to expanding project limits; expanding the scope of work to address deficient drainage features; or the discovery of unknown conditions that require further study, among many others. Such revisions to the executed contract may also be to reduce the scope of services, which may include, for example, reducing the length of a highway project because of unforeseen funding cuts.

The mechanism to legally manage such revisions to the contract or task order is through an amendment. An amendment is essentially an attachment to the contract or task order in which certain contractual clauses are revised to accommodate the new conditions of the scope of services. As previously stated, purchase orders/task orders are issued under contracts. An amendment may also include a revision to the cost of the services, goods or deliverables to be provided by the PEF to the Department. Depending on the situation, the price may be higher, in the case of an expansion to the scope of services, or lower if there is a reduction in scope of services. Certain circumstances may require the scope of services to be

revised, but if such revisions do not materially impact the amount of effort to be conducted by the PEF, the overall task order price may not be impacted.

Amendments are also commonly referred to as supplements as the intent of most amendments is to supplement the existing contract or task order with additional funds to cover an expansion of the scope of services. Supplements can be added to a task order, as long as the not-to-exceed cap of the overall contract is not exceeded. If a proposed expansion of the scope of work would require an increase for the overall contract, the contract cap can be increased contingent on BOT approval.

In all cases, both the Department's Project Manager and the PEF should individually analyze the revisions to the scope of services to determine the amount of effort to be added to or removed from to the existing task order. An individual analysis by both Project Managers will allow for a better and more reasonable estimation of costs, as well as a better and more effective negotiation process.

It is important to note that the use of supplements generally leads to an increase in the Department's Project Manager administrative and management efforts. Hence, it is important for the Department's Project Manager to obtain an accurate initial estimate of the cost of services to be provided by the PEF.

In addition to a supplement to an existing task order, it may be necessary to issue a supplemental purchase order on a different LSC. For example, it may be necessary to develop a scope using an LSC for another technical unit, or a new LSC for Central or Division project work may have been issued and it has been determined that would be the appropriate contract vehicle to use. Note that the details of billing for a project with multiple purchase orders may require coordination with your business unit.

The Division of Planning and Programming (DPP) asks Project Managers to review projects' preliminary engineering (PE) budget needs annually - prior to the start of the new state fiscal year (i.e., before July 1st). Requests will be sent out on May 1 and Project Managers will need to determine if additional funding will be needed to cover PE costs through the upcoming fiscal year and request additional PE funds through AFRA by June 1. If the project is in overdraft, then the request should include the overdraft amount along with the additional funds needed to cover costs for the following year. Project Managers do not need to wait on the annual requests from DPP. Project Managers should be proactive in requesting additional funding in AFRA to avoid future overdrafts.

4.17   NCDOT Overdraft Policy NEW SECTION

NCDOT developed an updated overdraft policy based on the [September 15, 2022 Policy Memorandum](#).

"In accordance with N.C.G.S § 136-16.10, the Chief Financial Officer (CFO) shall allocate funds at the beginning of each fiscal year to eliminate all overdrafts and ensure financial accountability and integrity of NCDOT financial operations throughout the year.

STIP project management will ensure appropriations are allotted to cover financial obligations of the project. This will ensure the organization has properly managed, classified, and disclosed NCDOT's financial position.

Division Engineers will ensure projects in their respective division are funded to meet financial obligations. Measures will be followed to proactively prevent the existence of overdrafts from occurring. Projects shall not be in Overdraft status without the approval of the Chief Engineer or designee (due to extenuating circumstances). The CFO or designee will monitor the existence of overdrafts and formulate a plan for coverage throughout the year. A quarterly report of overdrafts will be prepared and reported accordingly."

If additional funding on a project is required, processes and procedures have been communicated to all areas on the appropriate protocols to follow to request additional funding on a STIP project. In this evaluation for additional funding, another project planned in the STIP could be impacted. Overdrafts are expected to be infrequent occurrences. However, should circumstances dictate the necessity for a WBS to go into overdraft status, the following must occur:

1   The Division Engineer must submit an Overdraft Waiver Request to a Deputy Chief Engineer; and

2   A Deputy Chief Engineer will review the Overdraft Waiver Request for consideration.

If approved, the Deputy Chief Engineer or designee will notify the CFO.

No Overdraft Waiver Request will be approved that has an adverse impact on the Spend Plan or cash position.

5.　Invoicing

5.1　Overview

Once a project enters Stage 2 of the PDN, PEFs should provide invoices for active projects on a monthly basis and ensure that key invoice components are verified. These include ensuring that:

- The PEF name and remittance address match NCDOT records;
- A unique invoice number is provided for each invoice submitted; and
- Invoice numbers must have 16 or fewer characters.

NCDOT has standard invoicing documents for lump sum and cost plus task orders. It is anticipated that PEFs will utilize these templates to allow Project Managers to more easily process invoices.

It is critically important for the Project Manager to monitor invoices. The PEF should facilitate the Project Manager review of the invoice to allow scope, schedule, and budget to be adequately tracked. These activities include:

- Ensuring the invoice is complete, including timesheets for cost plus contracts;
- Ensuring that, for cost plus contracts, all staff billing to the project are approved to work on the project;
- Verifying the project number and other project-specific details are correct;
- Conducting a consistency check between the progress report and the invoice; and
- Verifying that the invoice is in line with the monthly cost estimate previously provided by the PEF.

Consultant invoices should be submitted within 30 days from the performance period (the month in which the activities took place) and paid within 30 days from invoice receipt by NCDOT (which includes review and approval by the Office of Inspector General and Accounts Payable). The Project Manager should work with the PEF and Business unit to alleviate any discrepancies in the invoice or progress report.

5.2　References

☐　Scoping, Estimating, and Negotiations
☐　Invoices and Payment Memo, January 2018
☐　NCDOT PEF Invoicing Requirements
☐　Processing Consultant/Agency Invoices
☐　NCDOT Progress Report Template
☐　NCDOT Lump Sum Invoice Template
☐　NCDOT Cost Plus Invoice Template

5.3   Invoicing Deliverables

Deliverable	Task	Responsible Party	
		Activity Leader	**Additional Support**
Review of Consultant Invoices/Monthly Budget Review	*Ensure Invoice is complete and can be processed for Payment*	PM	Accounts Receivable for Central or Division Projects
Comparison of Invoiced Expenditures vs. Projections	*Ensure invoiced and projected work match, or that an explanation is provided for any discrepancies*	PM	Unit Head/Business Support
Complete Invoice Checklist	*Complete Invoice Checklist review prior to approval*	PM	Unit Head/Business Support
Invoice Report	*Review final invoice to ensure accuracy*	PM	Unit Head/Business Support

5.4   Review Consultant Invoices

At the start of a new project, the PEF should download the appropriate cost plus or lump sum invoice and progress report templates. Note, as of November 2021, NCDOT expects that these templates will be used for all technical and construction services projects.

The templates provide consistency while allowing customization to meet project-specific needs. Increased standardization also allows for future automation and integration into SAP. Invoicing templates are available for lump sum and cost plus projects. The templates have tabs for subconsultant invoices, replacing the current DBE_IS form. The Excel files also include an example project for each invoice type.

Following each invoice tab is an instructions tab detailing what goes in each cell. Address/contact information entered on the initial invoice tab will appear in the other tabs in the template. Note that the PEF address listed in the invoice must exactly match the PEF address in SAP. Each tab has formulas to assist with calculations; however, the cells are unlocked, and PEFs can revise the calculations to meet their needs. If a project has multiple subconsultants, the subconsultant tab can be duplicated.

The cost plus invoice template has an initial tab that should be used for all non-CEI projects and a specific tab for CEI projects. Please note, the address/contact information must be added to the initial cost plus invoice tab even for CEI projects for that information to appear on all tabs. The cost plus invoice form has an optional timesheet summary form allowing the NCDOT Project Manager to quickly review project charges. This does not take the place of the required signed timesheets for cost plus contracts. The last tab of the cost plus form summarizes timesheet signature requirements and provides examples of acceptable electronic signatures for timesheets and invoices.

Each month, the PEF will provide the following:

- Signed Invoice on firm letterhead;
- Signed subconsultant form (if applicable); and
- Signed progress report.

If the invoice is correct and complete, the Project Manager will approve the invoice and attach the Invoice Payment Authorization.

The PEF is responsible for developing the monthly invoice. Generally, PEFs will bill partial invoices that cover just the work conducted during the reporting period, regardless of whether the invoice is for a cost plus or fixed price contract.

While it is the PEF's responsibility to provide an accurate invoice, by approving the invoice, the Project Manager is certifying that the PEF has completed the work for which they are requesting reimbursement. The Project Manager should review that the invoice has accurate information and is complete. The review should include:

- Ensuring the invoice is complete, including timesheets for cost plus contracts;
- Ensuring that the invoice is marked "partial" unless all work on the contract is complete;
- Verifying the project number and other project-specific details are correct;
- Reviewing the invoice for mathematical errors;
- Ensuring any subconsultant invoices are included;
- For cost plus contracts, rates should be checked in CRS, as described in Section 2.8;
- Conducting a consistency check between the progress report and the invoice; and
- Verifying that the invoice is in line with the monthly cost estimate previously provided by the PEF.

The invoice includes a company name and payment address; the NCDOT contract number and P.O. Number; a unique invoice number for NCDOT; the PEF's internal invoice number (which does not have to match NCDOT requirements); date on which work was invoiced; Tax ID; and signature. NOTE: the address must match that listed in SAP. For a specific PO, only the NCDOT and Firm Invoice numbers should change on a monthly basis. If the PEF approver changes, the PEF must inform the Department.

The PEF is also responsible for developing the subconsultant form (if applicable). The PEF will indicate when the subconsultant invoiced the PEF; the PEF invoice in which the subconsultant invoice is included; the date NCDOT paid the PEF; and the date the subconsultant was paid by the PEF. The PEF will sign to verify that the subconsultant is being paid as per their contract with the Department. The Project Manager will review the subconsultant form and note any potential issues.

The PEF will coordinate with the Project Manager to review the Progress Report template and agree upon any changes from that format that will be required.

> **To:** *Name of NCDOT Project Manager, Unit/Title*
> **From:** *Your company name*
> **Date:** *Date Submitted to NCDOT*
> **STIP and WBS Nos:** *XX-9999, 12345.1.1*
> **NCDOT Purchase Order/Task Order No.** *XXXXX*
> **County:** *XXX*
> **Project:** *Project description*
>
> #### Progress Report No. *Number sequentially*
>
> **Reporting Period:** *First day* to *Last day*
>
> **Completed Tasks to Date:**
> - *A short summary of each task (if more than one page, there's too much detail). Reference PDN Stage and activities/deliverables for that stage where applicable.*
> - *E.g., With completed NEPA documentation on 11/18, all Stage 2 activities complete except Field Inspection Meeting (scheduled for 12/15).*
>
> **Completed Tasks for Reporting Period:**
> - *Listing of deliverables, key meetings, and decisions reached.*
> - *E.g., Agency scoping meeting on 3/1 resulted in a path forward for informal aquatic species consultations with USFWS and a game plan for initial hydraulic planning.*
>
> **Unusual Problems Encountered During Reporting Period:**
> - *Note anything that could cause difficulty in meeting the current schedule/scope/budget.*
> - *Include any new items that may be outside current scope of work*
> - *E.g., Recent flooding prevented field data collection, potentially delaying wetland delineation (2EN1) and Hydraulic Planning Report (2HY1).*
>
> **Proposed Tasks for Next Reporting Period:**
> - *Tasks should include scheduled meetings, anticipated deliverables/decisions/reviews and be consistent with approved schedule.*
> - *Action items for next reporting period*
> - *E.g., NRTR and WEX file are due to be completed April 1 and are needed for alternatives meeting scheduled April 15.*
>
> **Comments:**
> - *Note any other items that should be included in the project administrative record.*
> - *E.g., NCDOT's PM is retiring as of 12/30 and transitioning to new staff in January 2022.*
> - *E.g., Firm XYZ (prime) has been purchased and is being integrated into Firm ABC as of early 2022.*
>
> **Subconsultant Payment Verification:**
>
> I verify that any subconsultants included in this task order are paid as per NCDOT contract terms.
>
>
> _____
>   *Signature or DocuSign*
> *Print PEF PM Name and Job Title*

The Project Manager has the ability to make any changes that are appropriate to aid in their review. At a minimum, all Planning and Design progress reports should include:

- Project Details
    - NCDOT contact name and title
    - Report date
    - PEF Name
    - STIP number and WBS number
    - County
    - Project Description
- Completed tasks to date;
- Completed tasks for the reporting period;
- Unusual problems encountered;
- Proposed tasks for the next reporting period;
- Comments; and
- Subconsultant payment verification (if applicable).

5.5   Compare Invoice versus Projections

NCDOT requires PEFs provide monthly anticipated budgeted amounts for all active projects through the end of the fiscal year. The PEF will estimate how much they will bill each month. This means that the PEF will estimate the amount of work done in July (which will be billed in August), etc. Each Task Order for a project should be projected separately, with the total projected costs for each month included. A template for these projections is under development; however, the table below provides an example project projection:

STIP/TO	Task	Jan 2021	Feb 2021	Mar 2021	Apr 2021	May 2021	Jun 2021
R-7777/TO 1	SEPA Document/Design	$0	$20,000	15,000	25,000	$25,000	$5,000
R-7777/TO 2	Historic Architecture	$10,000	$10,000	$0	$0	$0	$0
R-7777/TO 3	ROW Acquisition	$0	$0	$0	$0	$0	$20,000
Total		$10,000	$30,000	$15,000	$25,000	$25,000	$25,000

It is understood that these projections may not match exactly each month, especially for cost plus projects, however, it is very important that PEF firms stay within these estimates to the greatest extent practicable. If the Project Manager requires a specific task to be accelerated, the PEF and Project Manager should examine appropriate next steps, which range from Project Manager supervisory approval of increased projected project costs to slowing other scoped tasks.

When reviewing the invoice, the Project Manager should compare the previously submitted cost projection with the invoice and evaluate any discrepancies.

5.6   Review Invoice Report

To review the invoice, the Project Manager launches SAP as shown below and enter transaction Y_DEV_60000088.
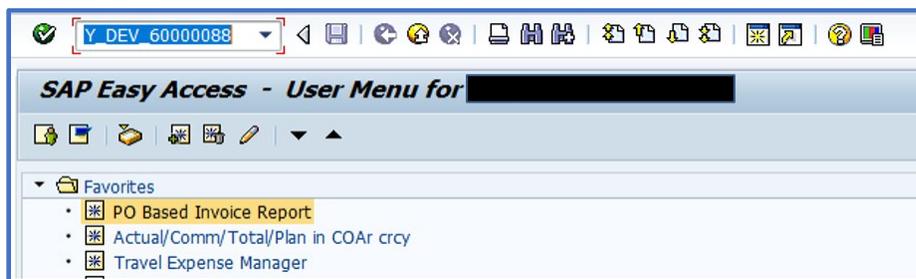

This will display the Purchase Order Invoice Report
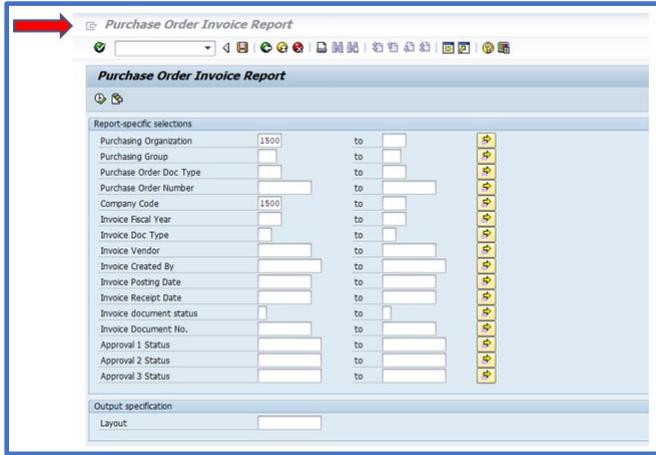
In the report, the Project Manager can use a Multi-Transaction Query to review the Invoice Report. Invoice Document Status, Parked Invoices, and Posted Invoices are the most common queries conducted.

Right click any column to sort

Enter Invoice Fiscal Year and Select Invoice Doc Status. Parked and Posted are most common.

Note: Held is not an active selection.
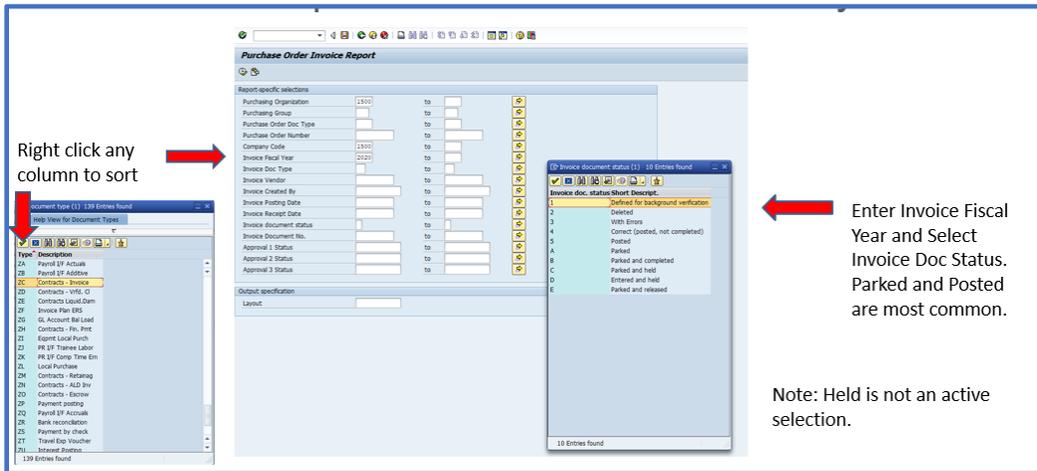
Other common SAP invoice report queries are shown below.

Asterisk is a wildcard and is optional.

Multiple Selection Options
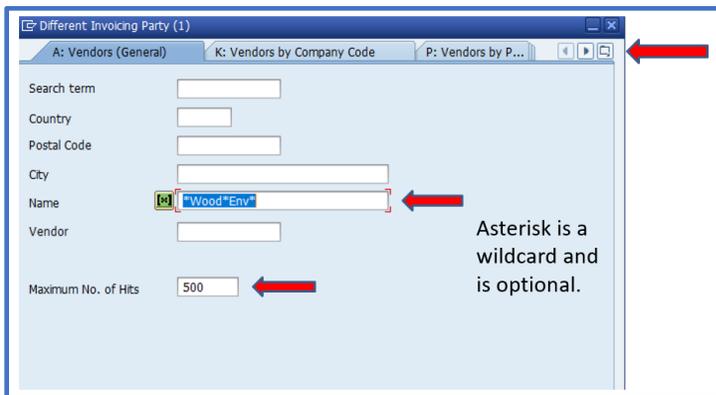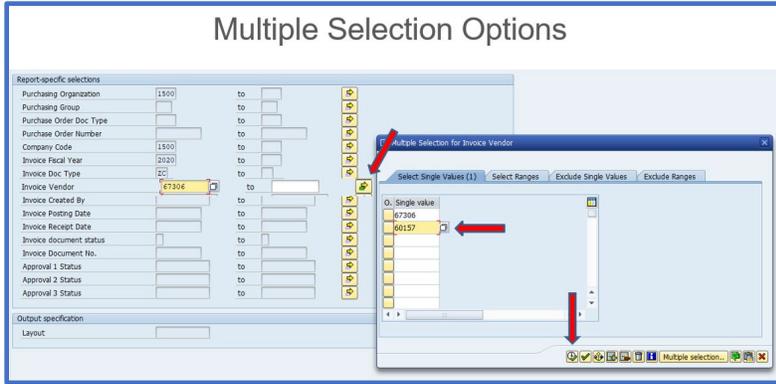
Layout Options
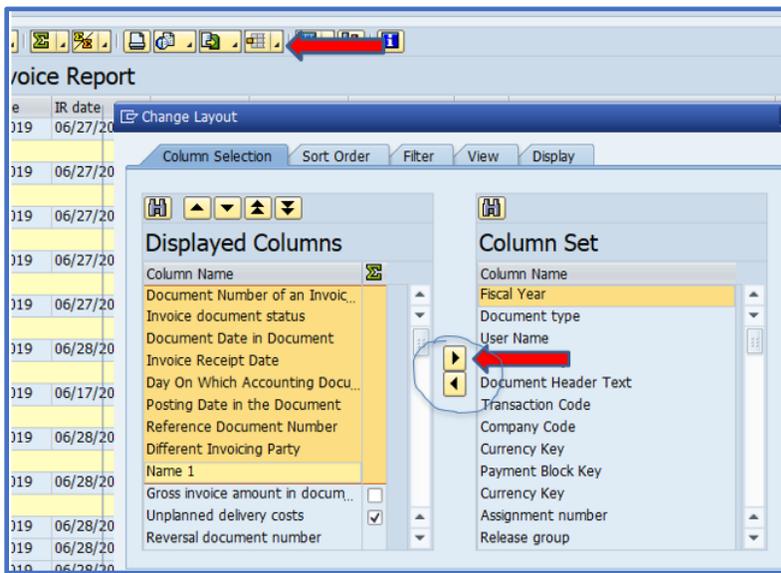
Comparing to Transaction FBL1N