

GDOT Planning Level Cost Estimation Review Study

2010 ISPA/SCEA Joint Conference &
Training Workshop

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San Diego, California

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Agenda

- National Approach to Planning Level Cost Estimates (PLCE)
- Challenge, Solution, and Outcome
- New Processes and Procedures
- Planning Level Right-of-Way and Utility Cost Estimation Tool
- Planning Level Cost Estimation System Tool
- Equity
- Successes

National Approach to PLCE

- Prepared by planners, designers, estimators, or consultants
- NCHRP 20-7/152
 - 31 DOTs use estimating cost data to create conceptual estimates, based on historic lane-mile cost averages or square-foot cost data
 - 18 states go into greater detail and determine material quantities based on the conceptual design and use historic average unit price estimates
 - 1 state allow engineers to use any process to generate cost estimate

Planning Level Cost Estimates

- Challenges
 - The current funding environment has created a critical need to ensure that planning level cost estimates are reliable and that they are kept current based on the latest project information.
- Solution
 - Ensure planning level cost estimates are completed early in the project planning process and to provide decision-makers reliable information to prioritize and develop sound transportation programs

GDOT Outcomes

- Planning Level Cost Estimation Handbook
- Right of Way and Utility Relocation Cost Estimate Tool (RUCEST)
 - Estimates right-of-way and utility costs based on current and proposed typical sections and known and assumed utilities
- Cost Estimation System Tool (CES[©])
 - Enhanced the AASTHO Trans•Port[©] CES[©], which estimates the construction costs based on the typical section using recent bid prices

New Processes and Procedures

- Standardized planning level cost estimate process, department-wide
- Reliable construction cost assumptions
- Reliable right-of-way cost assumptions
- Reliable utility relocation cost assumptions
- Reliable Preliminary Engineering cost assumptions
- Contingencies to account for project risk and uncertainty
- Improved communication between GDOT offices

What does RUCEST do for you?

- Generates and documents planning level cost estimate for Right of Way (ROW) and Utility Relocation
 - Uses database of cost items organized by counties (ROW) and DOT District (Utility)
- Creates cost sheets that can be exported to PDF or print for archival purposes
- Catalogs different cost scenarios as snapshots

Supporting Databases

- RUCEST's Lists
 - Projects / Typical Sections
 - ROW Land Use Cost Items
 - All 159 Georgia counties have cost info for each land use type (commercial, residential, agricultural and industrial)
 - ROW Relocation and Improvement Cost Items
 - Includes cost for “takings” residences, business, and other structures
 - Utility Cost Items
 - Organized by GDOT's 7 districts and utility types
 - Contingencies
 - Default contingency values based off recently let ROW phases projects
 - Snapshots / Documents database (attachment files)

How RUCEST works

- Use aerial imagery (GIS or Google Maps) to estimate project ROW, takes, and utility
- Complete worksheet to compile input information before starting a new Snapshot
- Enter info from worksheet into RUCEST to generate a planning level cost estimate
- Add attachment files (PDF maps of corridor)
- Finalize “snapshots” to save record in RUCEST

Complete Worksheet

- Spreadsheet developed to organize the supporting information needed to produce planning level cost estimates
- Determine primary land type and use Google measurement tool to determine the total length of the project
- Enter land type lengths under “Land Cost” into RUCEST Worksheet
- Attach worksheet to generated snapshots for documentation

Worksheet Example

BEFORE ESTIMATING KNOW THE PROJECT BEGINNING AND ENDING POINTS, SOME PROJECTS ARE JOINED BUT ARE SEPARATE PROJECTS.

Input Areas											Notes
Auto Fill (Don't input data)											
P.I.#	Widen SR 104 (Washington Road) from existing four-lane section near Blanchard Road to William Few Parkway - Columbia Co.										
Estimator and Firm	Jeff Carroll - WSA										
Project Length Miles	2.10										
Project Length Feet	11,088										
Right of Way Estimate											
Land Cost	Miles	Miles	Miles	Miles	Miles	Miles	Miles	Miles	Miles	Miles	Total
Residential	0.87	0.60									1.47
Commercial	0.04	0.10	0.49								0.63
Industrial	0.00										0.00
Agriculture	0.00										0.00
Total											2.10
Improvements	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Total
Misc. Improvement Small	0										0
Misc. Improvement Large	2										2
Residential	1										1
Commercial	0										0
Relocations	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Total
Misc. Improvement Small	0	0	0	0	0	0	0	0	0	0	0
Misc. Improvement Large	2	0	0	0	0	0	0	0	0	0	2
Residential	1	0	0	0	0	0	0	0	0	0	1
Commercial	0	0	0	0	0	0	0	0	0	0	0
Utility Relocation	Lin. Feet	Lin. Feet	Lin. Feet	Lin. Feet	Lin. Feet	Lin. Feet	Lin. Feet	Lin. Feet	Lin. Feet	Lin. Feet	Total
Water Line	11,035										11,035
Gas line	11,035										11,035
Telephone buried	0										0
Sewer line	11,035										11,035
Total											33,105
Other	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Total
Fire Hydrants	0										0
Power Poles	55										55
Small Transmission Line	1										1
Large Transmission Line	0										0
Railroad Crossing	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Total
RR Bridge Replacements	0										0
RR Bridge Widening	0										0
Interstate RR Bridge Replacements	0										0
Interstate RR Bridge Widening	0										0
Railroad Crossing Warning Devices	0										0

Notes

William few Pkwy and near Blanchard Rd
East of Cobb Rd

Not Impacted

Complete Worksheet

- Determine number of “Improvements” (a.k.a. takings)
 - Residential
 - Commercial
 - Misc. Small and Large Improvements
 - Monuments (signs in front of business or subdivisions)
 - Entryways (gated subdivisions with walls/fences)
- New roadway may not be symmetrical, roadway may vary to avoid structures.

Complete Worksheet (Cont.)

- Determine visible and non-visible (sub-grade) utilities may exist adjacent to the roadway
- Assumptions
 - Within City areas – assume water, sewer and gas are present.
 - Overhead power/telephone polls indicate electric/phone lines
 - Fire hydrants indicate water lines
 - Man hole covers in street indicate sewer lines
 - Assume no utilities on Interstate and HOV projects
- Estimate and measure utility relocations
 - Record as either linear feet or as counts in worksheet

RUCEST Home Page

MyGDOT > RUCES

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RUCES ROW and Utility Cost Estimation Tool

RUCES

Site Actions

This Site: RUCES

ROW and Utility Cost Estimation Tool

Select a County

Appling



Select County

Select a Project

531340



Select Project

Project Details

New



New Project

PROJECT NAME	CES PROJECT ID	GDOT PI NUMBER	MPO PLAN ID	SNAPSHOT	PRIMARY WORK TYPE	MAIN COUNTY	MAIN DOT DISTRICT	MAIN LAND USE TYPE	COUNTIES	DOT DISTRICTS	LAND USE TYPES	ATTACH DOCUMENT	MAP	DESCRIPTION
531340	531340	531340		Create		Appling	5					Upload	Map	CR 305 @ SATILLA CRK PIERCE/APPLING CO LN



Project Information

Cost SnapShots

PROJECT ID	TYPE	NAME	MODIFIED BY	COST SNAPSHOT NAME	ROW COST	UTILITY COST	TOTAL COST	FINALIZE
There are no items to show in this view of the "Cost SnapShots" document library. To create a new item, click "Add new document" below.								



Cost Snapshots

Project Support Documents

PROJECT ID	TYPE	NAME	MODIFIED BY
There are no items to show in this view of the "Project Support Documents" document library. To create a new item, click "Add new document" below.			



Support Documents

Creating a New Project

MyGDOT > RUCEST

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RUCEST ROW and Utility Cost Estimation Tool

RUCEST

Site Actions ▾

This Site: RUCEST

ROW and Utility Cost Estimation Tool

Select a County ▾

Appling ▾

Select a Project ▾

531340 ▾

Project Details ▾

[New](#)



Click on New

PROJECT NAME	CES PROJECT ID	GDOT PI NUMBER	MPO PLAN ID	SNAPSHOT	PRIMARY WORK TYPE	MAIN COUNTY	MAIN DOT DISTRICT	MAIN LAND USE TYPE	COUNTIES	DOT DISTRICTS	LAND USE TYPES	ATTACH DOCUMENT	MAP	DESCRIPTION
531340	531340	531340		Create		Appling	5					Upload	Map	CR 305 @ SATILLA CRK PIERCE/APPLING CO LN

Cost SnapShots ▾

PROJECT ID ▾ TYPE NAME MODIFIED BY COST SNAPSHOT NAME ROW COST UTILITY COST TOTAL COST FINALIZE

There are no items to show in this view of the "Cost SnapShots" document library. To create a new item, click "Add new document" below.

Project Support Documents ▾

PROJECT ID ▾ TYPE NAME MODIFIED BY

There are no items to show in this view of the "Project Support Documents" document library. To create a new item, click "Add new document" below.

Before adding a new project check to see if an estimate has already been done for the project, by searching for the PI # or look in the County of your project.

Creating a New Project

myGDOT > RUCEST Welcome David Castle My Site My Links

RUCEST ROW and Utility Cost Estimation Tool

RUCEST DEFAULT Site Actions

Version: Published Status: Published and visible to all readers

Page Workflow Tools Save and Stop Editing

Projects : 0003628 This Site: RUCEST

RUCEST > Projects > 0003628 > Edit Item

Save and Close Cancel

* indicates a required field

Title * 0003628

Description

SR 293 NORTH RAMP TO SR 20/US 411 WEST

CES Project ID 0003628

GDOT PI Number 0003628

MPO Plan ID

Primary Work Type Ramp

Main County Bartow

Once done hit "save & stop editing"

Title is a Required field
Use PI # if known
If no PI #, use County / Route # / project type

Description = Required field

Input info as available

Required field

Required field

Creating Snapshots

- Start by clicking on the “Create” hyperlink

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RUCEST ROW and Utility Cost Estimation Tool

RUCEST Site Actions ▾

This Site: RUCEST

ROW and Utility Cost Estimation Tool

Select a County
 Appling

Select a Project
 531340

Project Details

[New](#)

PROJECT NAME	CES PROJECT ID	GDOT PI NUMBER	MPO PLAN ID	SNAPSHOT	PRIMARY WORK TYPE	MAIN COUNTY	MAIN DOT DISTRICT	MAIN LAND USE TYPE	COUNTIES	DOT DISTRICTS	LAND USE TYPES	ATTACH DOCUMENT	MAP	DESCRIPTION
531340	531340	531340		Create		Appling								SATILLA CRK PIERCE/APPLING CO LN

Cost SnapShots

PROJECT ID	TYPE	NAME	MODIFIED BY	COST SNAPSHOT NAME	ROW COST	UTILITY COST	TOTAL COST	FINALIZE
There are no items to show in this view of the "Cost SnapShots" document library. To create a new item, click "Add new document" below.								

Project Support Documents

PROJECT ID	TYPE	NAME	MODIFIED BY
There are no items to show in this view of the "Project Support Documents" document library. To create a new item, click "Add new document" below.			

Click on the “Create” Hyperlink to open the snapshot form

Uploading Project Attachments

- Simply follow on-screen instructions

New Folder: Project Support Documents This List: Project Support Doc. [Search]

[RUCEST](#) > Project Support Documents

Destination folder: ProjectSupportDocuments
Step 1: Select the documents to upload.

Upload Document
Browse to the document you intend to upload.

Name:

[Click here to upload multiple files...](#)

Overwrite existing files

- You can attach a title and description to uploaded documents

Home > ProjectSupportDocuments
New Folder : ProjectSupportDocuments

Destination folder: ProjectSupportDocuments
Step 2: Enter the document properties.

* indicates a required field

The following document(s) were uploaded successfully and are checked out to you.
You must fill out any required properties and check them in before other users will be able to access them.

- county-dot.xls

Project ID

Title

Description

- Study
- Need and Purpose
- Corridor sketch
- Other study related documents

Editing Existing Snapshots

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RUCEST ROW and Utility Cost Estimation Tool

RUCEST Site Actions ▾

This Site: RUCEST

ROW and Utility Cost Estimation Tool

Select a County
 Fulton ▾

Select a Project
 0000379 ▾

Project Details
 [New](#)

PROJECT NAME	CES PROJECT ID	GDOT PI NUMBER	MPO PLAN ID	SNAPSHOT	PRIMARY WORK TYPE	MAIN COUNTY	MAIN DOT DISTRICT	MAIN LAND USE TYPE	COUNTIES	DOT DISTRICTS	LAND USE TYPES	ATTACH DOCUMENT	MAP	DESCRIPTION
0000293	0000293	0000293		Create	Widening	Coffee	4					Upload	Map	SR 206 FROM SR 32 IN DOUGLAS TO CR 143/MOSELEY ROAD

Cost SnapShots

PROJECT ID ▾	TYPE	NAME	MODIFIED BY	COST SNAPSHOT NAME	ROW COST	UTILITY COST	TOTAL COST	FINALIZE
103		0000379_Fulton_Weeks_JJG_2008-08-19T08_48_23	Brian Weeks	0000379_Fulton_Weeks_JJG	\$82,147,520.00	\$0.00	\$82,147,520.00	

Project Support Documents

PROJECT ID ▾	TYPE	NAME	MODIFIED BY
There are no items to show in this view of the "Project Support Documents" document library. To create a new item, click "Add new document" below.			

Click on Snapshot Name

The Snapshot Form

Create / View Cost Snapshot

Save Save & Close Close(Does not SAVE Form) Finalize

CES Project ID: 0000293 GDOT PI Number: 0000293 MPO Plan ID: Accounting Number:

Description:
SR 206 FROM SR 32 IN DOUGLAS TO CR 143/MOSELEY ROAD

Primary Work Type: Widening **Dot District Number:** 4 **Main County:** Coffee

Cost Snapshot Name: **Total Amount :** \$0.00

Row Cost Items

Typical Sections
Terrain:

Existing	Urbanization Level	Typical Section	Width
			ft
Future			ft

Land Costs (help)

County	Land Use Type	Width Needed (ft)	Length Miles	Area in Acres	Cost Per Acre(\$)	Revised Cost(\$)	Total Cost(\$)	Comments	Justification
Coffee		0.00		0.00	0.00		0.00		-

Add a Land Item
Last Updated Dates: 01/01/0001
Total Length: 0.00 mile(s)

Land Cost SubTotal : \$0.00

Improvement Costs (help)

Improvement	#	Unit Cost(\$)	Revised Cost(\$)	Total Cost(\$)	Comments	Justification
	0	0.00				-

Add an Improvement Item
Last Updated Dates: 01/01/0001

Improvement Cost SubTotal : \$0.00

Relocation Costs (help)

Relocation	#	Unit Cost (\$)	Revised Cost(\$)	Total Cost(\$)	Comments	Justification
	0	0.00				-

Add a Relocation Item
Last Updated Dates: 01/01/0001

Relocation Cost SubTotal : \$0.00

SubTotal (Land + Improvement + Relocation) : \$0.00

Damages Cost Percentage : 30.00 %

Damages Cost Sub Total : \$0.00

Contingencies Scheduling : 55.00 %

Contingency Cost SubTotal : \$0.00

Administration And Court Cost : 60.00 %

Contingency Cost SubTotal : \$0.00

ROW Sub Total : \$0.00

Utility Cost Items (help)
Contingency: 50.00 %

District Utility Type	Cost Item	Unit Cost (\$)	Revised Cost(\$)	Quantity	Unit	Total Cost(\$)	Comments	Justification
4		0.00		0		0.00		-

Add a Utility Item
Last Updated Dates: 01/01/0001

SubTotal : \$0.00
Contingency SubTotal : \$0.00
Utility Sub Total : \$0.00

Support Documents (help)

File	Uploaded by	Upload Date	File Description
<input type="text"/>			

Add a Document

Save Save & Close Close(Does not SAVE Form)

The Snapshot Form

- Project Related Information
- Snapshot Name

Create / View Cost Snapshot

Finalize

CES Project ID: 0003628 GDOT PI Number: 0003628 MPO Plan ID: Accounting Number:

Description:
SR 293 NORTH RAMP TO SR 20/US 411 WEST

Primary Work Type: Ramp Dot District Number: 6 Main County: Bartow

Cost Snapshot Name: 0003628_Bartow_Weeks_JJG Total Amount : \$609,803.64

Fields filled automatically from
"Project Details" are underlined

Snapshot "name" MUST be entered by user

The Snapshot Form

- ROW Typical Sections
 - Based on the project's main county
 - Need to pick terrain type

Create / View Cost Snapshot

Finalize

CES Project ID: 0000293
 GDOT PI Number: 0000293
 MPO Plan ID:
 Accounting Number:

Description:
 SR 206 FROM SR 32 IN DOUGLAS TO CR 143/MOSELEY ROAD

Primary Work Type: Widening
 Dot District Number: 4
 Main County: Coffee

Cost Snapshot Name:
 Total Amount : \$0.00

Row Cost Items

Typical Sections

Terrain:

	Urbanization Level	Typical Section	Width
Existing	<input type="text"/>	<input type="text"/>	<input type="text"/> ft
Future	<input type="text"/>	<input type="text"/>	<input type="text"/> ft

The Snapshot Form

- ROW Land Costs

- Organized by county

- Select land use type →

- Enter length (miles)

- “Width Needed” defaults to typical sections difference

- If needed, revise cost per acre; Approval needed and you must justify and document your reason

Land Costs([help](#))

County	Land Use Type	Width Needed (ft)	Length Miles	Area in Acres	Cost Per Acre(\$)	Revised Cost(\$)	Total Cost(\$)	Comments	Justification
Bartow	Agricultural	80.00	3.76	36.46	20,000.00		729,212.12		-

Add a Land Item

Last Updated Dates: 3/29/2008

Total Length: mile(s)

Land Cost SubTotal : **\$729,212.12**

Determined by user

The Snapshot Form

- Improvements Costs
 - Use imagery to identify takes
 - Pick category from drop-down list
 - Enter number of units
 - If needed, revise cost

Misc. Improvements Small
Residences
 Commercial business
 Billboards
 Misc. Improvements Large

Improvement Costs [\(help\)](#)

Improvement	#	Unit Cost(\$)	Revised Cost(\$)	Total Cost(\$)	Comments	Justification
<input type="text" value="v"/>	0	0.00				-

Add an Improvement Item

Last Updated Dates 01/01/0001

Improvement Cost SubTotal : **\$0.00**

The Snapshot Form

- Relocation costs
 - Determine number of residential or commercial buildings that need to be taken
 - If needed, revise cost

Relocation Costs([help](#))

Relocation	#	Unit Cost (\$)	Revised Cost(\$)	Total Cost(\$)	Comments	Justification
<input type="text" value=""/>	0	0.00	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	-

Add a Relocation Item

Last Updated Dates: 01/01/0001

Relocation Cost SubTotal : **\$0.00**

IMPORTANT: There should be the same number of residential/commercial relocations as residential/commercial improvements. Relocation costs should be included with all takes, as the user should not assume a property is vacant. In other words, if you have 10 residential improvements (full takes) you would also have 10 residential relocations.

The Snapshot Form

- Contingency percentages
 - RUCEST includes contingency defaults
 - “Damages Cost Percentage” – 30 percent
 - “Scheduling Contingency” – 55 percent
 - “Administration and Court Cost Contingency” – 60 percent

Contingency Percentages

<p>Damages Cost Percentage : <input type="text" value="30.00"/> %</p> <p>Contingencies Scheduling : <input type="text" value="55.00"/> %</p> <p>Administration And Court Cost : <input type="text" value="60.00"/> %</p>	<p>SubTotal (Land + Improvement + Relocation) : <input type="text" value="\$1,946,181.82"/></p> <p>Damages Cost : <input type="text" value="\$583,854.55"/></p> <p><u>Contingency Amounts</u></p> <p>Contingency Cost : <input type="text" value="\$1,070,400.00"/></p> <p>Contingency Cost : <input type="text" value="\$1,167,709.09"/></p> <p>ROW Sub Total : <input type="text" value="\$4,768,145.46"/></p>
---	---

The diagram shows a red arrow pointing from the '30.00' input field to the 'Damages Cost' field. Another red arrow points from the '55.00' input field to the 'Contingency Cost' field. A third red arrow points from the '60.00' input field to the 'Contingency Cost' field. A final red arrow points from the 'Contingency Cost' field to the 'ROW Sub Total' field.

The Snapshot Form

- Utility Costs
 - Identify items using maps and enter on the worksheet
 - Field visit checklist
 - Add items into RUCEST, cost based on DOT District
 - If needed, revise cost per acre; Approval needed and justify/document reason
 - The contingency is applied to the sub total (defaults to 50%)

Utility Cost Items([help](#))

Contingency: % ← Contingency Percentage

District	Utility Type	Cost Item	Unit Cost (\$)	Revised Cost(\$)	Quantity	Unit	Total Cost(\$)	Comments	Justification
4	Sewer	6 inch and 8 inch PVC sewer lines (gravity)	75.00		7,867	lin ft	590,025.00		-
4	Water	8 inch ductile iron water line	80.00		27,614	lin ft	2,209,120.00		-
4	Electricity	Power Poles	7,000.00		138	each	966,000.00		-

[Add a Utility Item](#)

Last Updated Dates: 4/4/2008,4/4/2008,4/4/2008

SubTotal : \$3,765,145.00

→ Contingency SubTotal : \$1,882,572.50

Utility Sub Total : **\$5,647,717.50**

The Snapshot Form

- Supporting Documents
 - Can be attached to the snapshot

The screenshot shows a web form titled "Support Documents (help)". It features a table with columns for "FILE", "Uploaded by", "Upload Date", and "File Description". A red circle highlights the "FILE" column header, and a red arrow points to a button labeled "Click here to attach a file" below it. Another red arrow points to a "Print View" button in the bottom left corner. A red text box in the center states: "Save and print icons are provided at both the top and bottom of the Snapshot form". Below this text, a "Close(Does not SAVE Form)" button is visible. At the bottom of the form, there are "Save" and "Save & Close" buttons, and another "Print View" button in the bottom left corner.

The screenshot shows a web form titled "Create / View Cost Snapshot". It has "Save" and "Save & Close" buttons at the top. Below these, there is a field for "CES Project ID" with the value "0000293" and a dropdown menu set to "GD". A "Description:" section contains the text "SR 206 FROM SR 32 IN DOUGLAS TO". A "Primary Work Type:" field is set to "Widening". A red arrow points to a "Print View" button in the top left corner of the form.

- Printing Snapshots
 - Use the print view button on the top left of the form
 - Formatted for better printer output & Print to PDF
- Saving and Close
 - Provided at both the top and bottom of the form
 - Save early save often

The Snapshot Form

- Finalize Snapshot
 - Locks estimate forever and prevents users from changing it
 - Planner must attach the RUCEST worksheet and all other assumptions and documents
 - Check the Finalize checkbox and click “Save & Close”

Create / View Cost Snapshot

Save & Close **Finalize**

CES Project ID: 0003628 GDOT PI Number: 0003628 MPO Plan ID: Accounting Number:

Description:
SR 293 NORTH RAMP TO SR 20/US 411 WEST

Primary Work Type: Ramp Dot District Number: 6 Main County: Bartow

Cost Snapshot Name: 0003628_Bartow_Weeks_JJG Total Amount : \$609,803.64

What does CES do for you?

- Generates planning level estimates for Construction costs using pre-made project templates
- Template uses predetermined Cost Groups info to calculate planning level cost estimate based on the project length and the typical section
 - Uses historical bid tab data (3 year window) and updated each quarter
- Provides contingency percentages for unknowns
- Documents all planning level assumptions in an attached text file

Project Type Templates available

- | | |
|--|---|
| <ul style="list-style-type: none">•Auxiliary lanes•Bridges•Frontage roads•HOV lanes•Median work•Multi-use Trail•Park and Ride Lots | <ul style="list-style-type: none">•Passing lanes•Ramps•Roadway (new alignment)•Roundabouts•Sidewalks•Turn lanes•Widening Projects |
|--|---|

Note: Some projects can be completed by running multiple templates above

The way it works

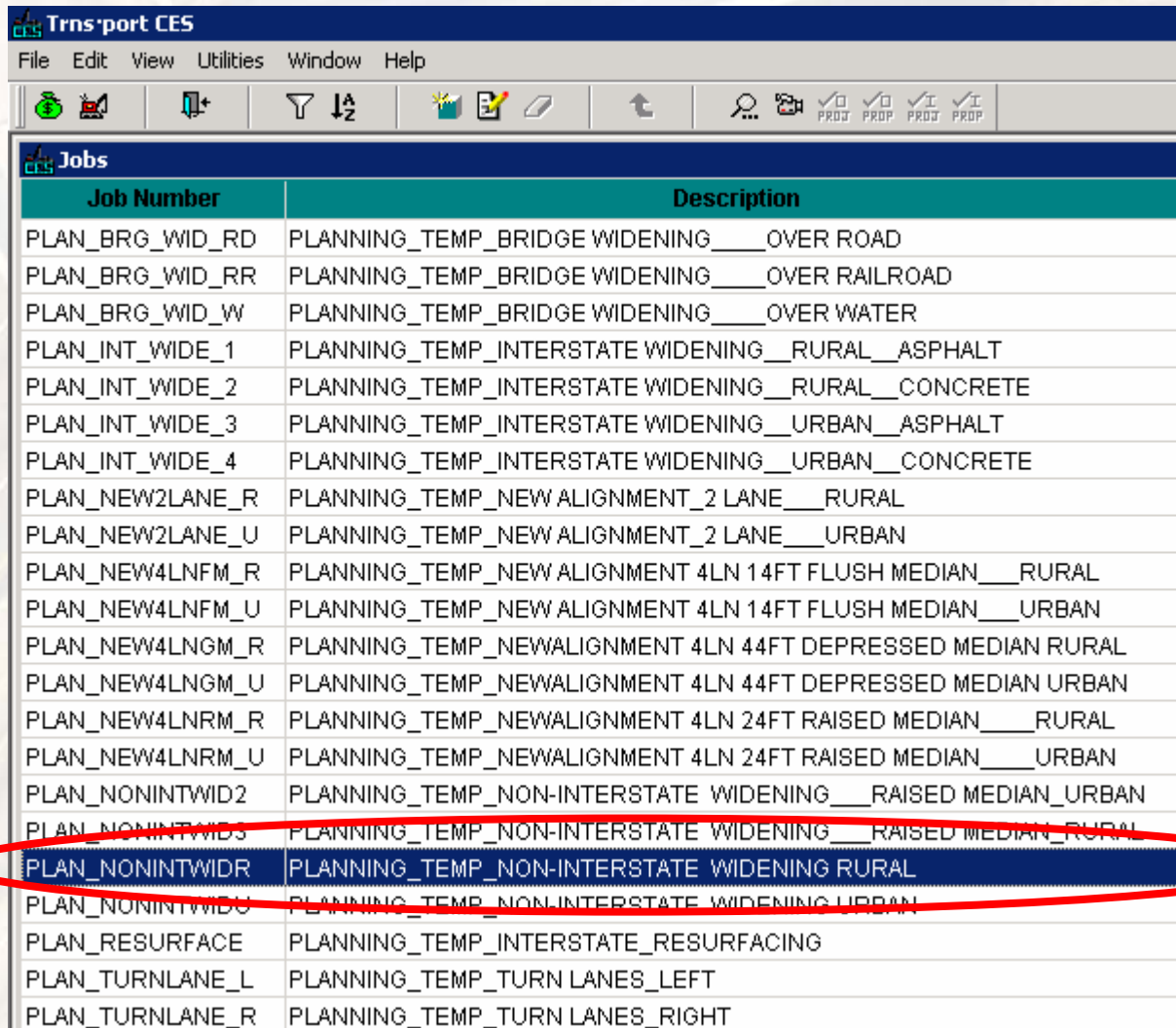
- Research project description (logical termini, typical section needed)
- Use aerial imagery (Google Maps) to confirm
 - Project Length
 - Existing section
 - Urban/rural
 - Proposed improvements
 - Primary work type (i.e. widening, new roads)
 - Secondary work type (i.e. bridges)

The way it works (cont.)

- Select appropriate template in CES
 - Primary Project template (required)
 - Secondary template (add as needed)
- Enter appropriate project length and width
- Enter secondary items as appropriate
 - Traffic Signals, Turn Lanes, Major Intersections.
- Document all assumptions for planners and designers to review your cost assumptions

Step 1 in CES Process

- Highlight (single click) the appropriate template



The screenshot shows the 'Transport CES' software interface. The 'Jobs' table contains the following data:

Job Number	Description
PLAN_BRG_WID_RD	PLANNING_TEMP_BRIDGE WIDENING ___ OVER ROAD
PLAN_BRG_WID_RR	PLANNING_TEMP_BRIDGE WIDENING ___ OVER RAILROAD
PLAN_BRG_WID_W	PLANNING_TEMP_BRIDGE WIDENING ___ OVER WATER
PLAN_INT_WIDE_1	PLANNING_TEMP_INTERSTATE WIDENING __RURAL__ ASPHALT
PLAN_INT_WIDE_2	PLANNING_TEMP_INTERSTATE WIDENING __RURAL__ CONCRETE
PLAN_INT_WIDE_3	PLANNING_TEMP_INTERSTATE WIDENING __URBAN__ ASPHALT
PLAN_INT_WIDE_4	PLANNING_TEMP_INTERSTATE WIDENING __URBAN__ CONCRETE
PLAN_NEW2LANE_R	PLANNING_TEMP_NEW ALIGNMENT 2 LANE ___ RURAL
PLAN_NEW2LANE_U	PLANNING_TEMP_NEW ALIGNMENT 2 LANE ___ URBAN
PLAN_NEW4LNFM_R	PLANNING_TEMP_NEW ALIGNMENT 4LN 14FT FLUSH MEDIAN ___ RURAL
PLAN_NEW4LNFM_U	PLANNING_TEMP_NEW ALIGNMENT 4LN 14FT FLUSH MEDIAN ___ URBAN
PLAN_NEW4LNGM_R	PLANNING_TEMP_NEW ALIGNMENT 4LN 44FT DEPRESSED MEDIAN RURAL
PLAN_NEW4LNGM_U	PLANNING_TEMP_NEW ALIGNMENT 4LN 44FT DEPRESSED MEDIAN URBAN
PLAN_NEW4LNRM_R	PLANNING_TEMP_NEW ALIGNMENT 4LN 24FT RAISED MEDIAN ___ RURAL
PLAN_NEW4LNRM_U	PLANNING_TEMP_NEW ALIGNMENT 4LN 24FT RAISED MEDIAN ___ URBAN
PLAN_NONINTWID2	PLANNING_TEMP_NON-INTERSTATE WIDENING ___ RAISED MEDIAN URBAN
PLAN_NONINTWID3	PLANNING_TEMP_NON-INTERSTATE WIDENING ___ RAISED MEDIAN RURAL
PLAN_NONINTWIDR	PLANNING_TEMP_NON-INTERSTATE WIDENING RURAL
PLAN_NONINTWIDU	PLANNING_TEMP_NON-INTERSTATE WIDENING URBAN
PLAN_RESURFACE	PLANNING_TEMP_INTERSTATE RESURFACING
PLAN_TURNLANE_L	PLANNING_TEMP_TURN LANES LEFT
PLAN_TURNLANE_R	PLANNING_TEMP_TURN LANES RIGHT

Step 2 in CES Process

- Double-click on selected project

New portal page Full screen Reconnect with Java client

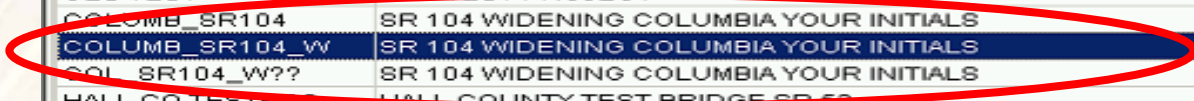
Transport CES

File Edit View Utilities Window Help

Jobs

Job Number	Description
642260_A	BRIDGE WIDENING OVER LITTLE RIVER
712425	I-75 FM SR 3 / US 41 / OLD DIXIE HIGHWAY TO I-285__CD LANES
712425_A	NEW BRIDGE @ FOREST PKWY__75 CD LANES US41 TARA BLVD TO 285
712425_B	NEW BRIDGE_RAMP FM SR85 NB TO 75NB OVER NEW CD LN AND 75 NB
712425_C	NEW BRIDGE_REPLACEMENT BOB WHITE ROAD_OVER NEW CD LN AND 75
712425_R	I-75 CD LANES - RAMPS ADDED/REALIGNED
712425_RESURF	I-75 RESURFACING WITH CD LANE PROJECT
712425_Y	I-75 CD LANES - REALIGNING EXISTING TRAVEL LANES
712425_Z	I75 CD LANES__FRONTAGE ROAD RELOCATION - WEST OF 75
712510	I-285 FM I-20 N TO STONE MOUNTAIN FWY
712510B_WSA_BI	DELETE
712510_A	DELETE
712510_B	I-285 FM I-20 N TO STONE MOUNTAIN FWY
712510_C	I-285 FM I-20 N TO STONE MOUNTAIN FWY
712510_D	I-285 FM I-20 N TO STONE MOUNTAIN FWY
712520	I-285 FM STONE MOUNTAIN FWY TO I-85
712520_A	DELETE
712520_B	I-285 FM STONE MOUNTAIN FWY TO I-85
712520_C	I-285 FM STONE MOUNTAIN FWY TO I-85
712520_D	I-285 FM STONE MOUNTAIN FWY TO I-85
712520_E	I-285FM STONE MOUNTAIN FWY TO I-85
751295	SR 54/JONESBORO RD FROM SR 138 TO 1000' N OF OXFORD DR
CES TEST	CES TEST PROJECT
COLUMB_SR104	SR 104 WIDENING COLUMBIA YOUR INITIALS
COLUMB_SR104_W	SR 104 WIDENING COLUMBIA YOUR INITIALS
SQL_SR104_W??	SR 104 WIDENING COLUMBIA YOUR INITIALS
HALL CO TEST BRG	HALL COUNTY TEST BRIDGE SR 52
KMG_BRG_HUBERRR	KMG_BRG OVER RRX NEAR HUBER
KMG_BRG_OCMULGE	KMG_BRG OVER OCMULGEE RIVER AND OVERFLOWS
KMG_SGODARDEXT	SGODARDEXT__NEWALIGNMENT 4LN 44FT DEPRESSED MEDIAN RURAL
MATTHEW TEST	WSAAKLFJDAKOSJDFKL:ASJFKLJ

Your new CES file



Complete Page 1 of Template

Job Number: COL_SR104_W?? Spec Year: 01 Unit System: E

Description 1: SR 104 WIDENING COLUMBIA YOUR INITIALS

Description 2: 48' TRAVEL LANES+13' OUTSIDE SHOULDERS

Classifications	Inflation	Fed/State Project Num.:
Work Type: ASPH	Inflation %: 0.00	
Highway Type: ASPH	Years Until Work: 0.00	
Job Type: FED	Base Date: 07/23/2008	C&E %:

Location	Bid Histories	Estimated By:
County: C073	Cost Grp Hist: CASPH3YR	
Urban/Rural: URBN	Item History: CONC2YR	Date Created: 02/27/2009
District: 72200	Bid-based <input type="radio"/> Use Model	Last Updated: 02/27/2009
Begin Termini:	Inflation: <input checked="" type="radio"/> Use Job	Conceptual Estimate:
End Termini:	Season: SUMM	

Metrics	Cost Sheets	Estimate:
Depth (in/mm): 10	Davis-Bacon?: <input type="checkbox"/>	12,064,584.24
Length (Mi/km): 2.0900	Labor Cls.:	Contingency Percent: 30.00
Width (ft/m): 61.0000	Eqpmt Cls.:	Total: 15,683,959.51
Lane Mi/km:	Materials Cls.:	

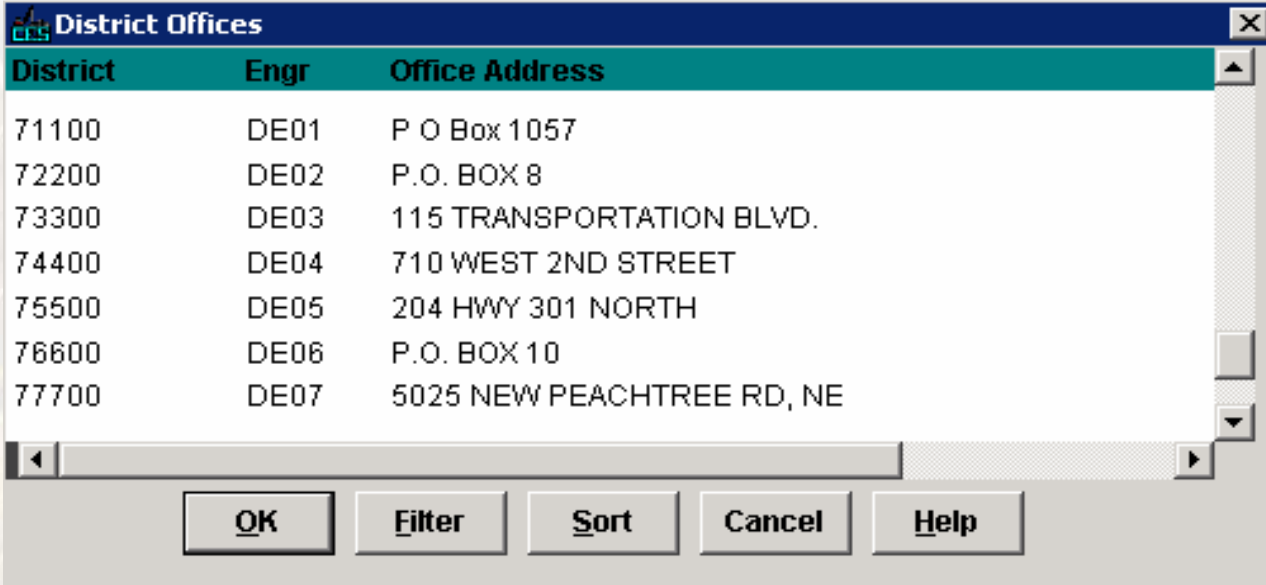
(1) Select appropriate county, urban/rural, and District

(2) Add length based on measurement from Google maps

(3) Add width based on assumptions in attachment text file

(4) Confirm contingency and document paving cost

Select appropriate GDOT District



District	Engr	Office Address
71100	DE01	P O Box 1057
72200	DE02	P.O. BOX 8
73300	DE03	115 TRANSPORTATION BLVD.
74400	DE04	710 WEST 2ND STREET
75500	DE05	204 HWY 301 NORTH
76600	DE06	P.O. BOX 10
77700	DE07	5025 NEW PEACHTREE RD, NE

Complete Cost Groups Tab

(1) Click on Cost Groups Tab

(3) Click on \$ to calculate accurate price

Line Number	Cost Group ID	Description	Unit	Calculation Rule	Quantity	Price	Extended Amount	Bid-based Comment
00000001	ASPH	ASPHALT (TN)	TN	NORM	20,978.100	51.98907	1,090,631.91	REGRESSION MODEL 8
00000002	BASE	BASE/AGGREGATE (TN)	TN	NORM	24,024.000	10.42972	250,563.59	REGRESSION MODEL 6
00000004	DRNGPCTO	DRAINAGE (PERCENT OF JOB)	LF	PCTO	46,941.843	18.00000	844,953.1	DO NOT EDIT THIS ROW
00000005	EROCPCCTO	EROSION CONTROL (PERCENT OF JOB)	SY	PCTO	46,941.843	12.00000	563,302.1	DO NOT EDIT THIS ROW
00000006	SIGNPCTO	SIGNS (PERCENT OF JOB)	EA	PCTO	46,941.843	1.00000	46,941.8	DO NOT EDIT THIS ROW
00000007	PVMKPCTO	PAVEMENT MARKING (PERCENT OF JOB)	LM	PCTO	46,941.843	4.00000	187,767.3	DO NOT EDIT THIS ROW
00000008	TRFTPCTO	TRAFFIC CONTROL-TEMPORARY (PERCENT OF JOB)	LS	PCTO	46,941.843	15.00000	704,127.6	DO NOT EDIT THIS ROW
00000011	ERTHPCTT	EARTHWORK PER CENT	LS	PCTT	13,411.955	75.00000	1,005,896.6	DO NOT EDIT THIS ROW

(2) Highlight each row with Calculation Rule – NORM
 Note: There are only 2 rows with NORM calculation rates
 Click the “\$” button at the top (Step 3), then repeat for the next row with a NORM calculation rate

Complete Items Tab

(1) Click on Items Tab

Important: CES automatically calculates curb and gutter, sidewalks, and raised medians.

Line Number	Item	Description	Units	Quantity	Unit Price	Extended Amount	Comment
0005	441-0104	CONC SIDEWALK	SY	11,146.667	38.25000	426,360.00	DO NOT UPDATE THIS ROW - BUILT-IN COST FOR RAISED MEDIAN ISLAND
0010	001-0000	MISC ITEMS	\$	0.000	125,000.00000	0.00	***SIGNALS @ \$125,000 EACH - SEE ATTACHMENT FILE FOR LOCATION(S)
0015	001-0000	MISC ITEMS	\$	0.000	95,000.00000	0.00	***RIGHT TURN LANES - SEE ATTACHMENT FILE FOR LOCATION(S)
0020	001-0000	MISC ITEMS	\$	0.000	100,000.00000	0.00	***LEFT TURN LANES - SEE ATTACHMENT FILE FOR LOCATION(S)
0025	001-0000	MISC ITEMS	\$	0.000	55,000.00000	0.00	***MAJOR INTERSECTIONS (SR MEET SR) - COST FOR 8 STRAIN POLES ON A

Look for “MISC ITEMS” with *** (asterisks in the comment field)
 In those Rows - Enter the number of Traffic Signals, Right Turn Lanes, Left Turn Lanes, and Intersecting State Routes along the project corridor.
 Just enter a Quantity #, a planning level cost for each item is already computed for you.

Traffic Signals within Project

- Enter the number of signals to be replaced or added under Quantity under items tab
- \$125,000 is the cost per traffic signal
- List all traffic signal locations in text file

Transport CES

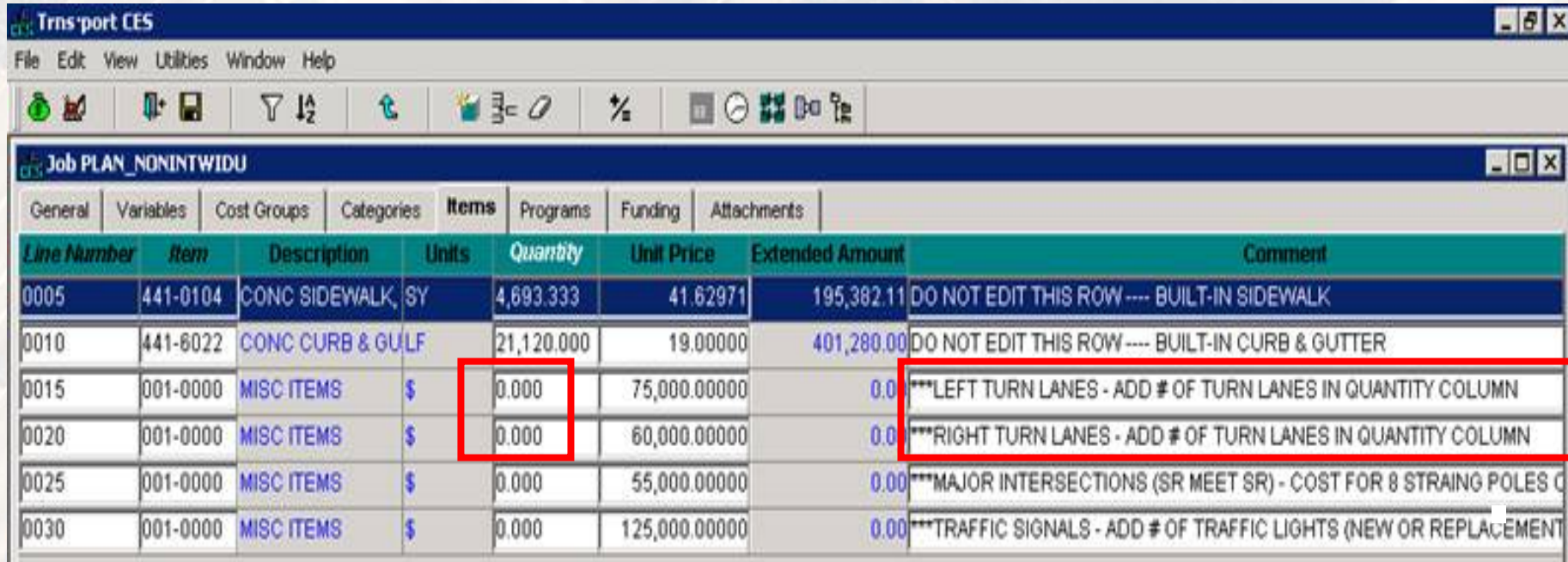
File Edit View Utilities Window Help

Job PLAN_NONINTWIDU

Line Number	Item	Description	Units	Quantity	Unit Price	Extended Amount	Comment
0005	441-0104	CONC SIDEWALK	SY	4,693.333	41.62971	195,382.11	DO NOT EDIT THIS ROW ---- BUILT-IN SIDEWALK
0010	441-6022	CONC CURB & GULF		21,120.000	19.00000	401,280.00	DO NOT EDIT THIS ROW ---- BUILT-IN CURB & GUTTER
0015	001-0000	MISC ITEMS	\$	0.000	75,000.00000	0.00	***LEFT TURN LANES - ADD # OF TURN LANES IN QUANTITY COLUMN
0020	001-0000	MISC ITEMS	\$	0.000	60,000.00000	0.00	***RIGHT TURN LANES - ADD # OF TURN LANES IN QUANTITY COLUMN
0025	001-0000	MISC ITEMS	\$	0.000	55,000.00000	0.00	***MAJOR INTERSECTIONS (SR MEET SR) - COST FOR 8 STRAING POLES C
0030	001-0000	MISC ITEMS	\$	0.000	125,000.00000	0.00	***TRAFFIC SIGNALS - ADD # OF TRAFFIC LIGHTS (NEW OR REPLACEMENT

Turn Lanes within Project

- Enter the number of right and left turn lanes in the Quantity Column
- List all assumed locations in Text File



The screenshot shows the Transport CES software interface. The main window displays a table for Job PLAN_NONINTWIDU. The table has columns for Line Number, Item, Description, Units, Quantity, Unit Price, Extended Amount, and Comment. Two rows are highlighted with red boxes: line 0015 and line 0020. Line 0015 has a quantity of 0.000 and a comment: '***LEFT TURN LANES - ADD # OF TURN LANES IN QUANTITY COLUMN'. Line 0020 has a quantity of 0.000 and a comment: '***RIGHT TURN LANES - ADD # OF TURN LANES IN QUANTITY COLUMN'. Other rows include 0005 (CONC SIDEWALK), 0010 (CONC CURB & GULF), 0025 (MAJOR INTERSECTIONS), and 0030 (TRAFFIC SIGNALS).

Line Number	Item	Description	Units	Quantity	Unit Price	Extended Amount	Comment
0005	441-0104	CONC SIDEWALK	SY	4,693.333	41.62971	195,382.11	DO NOT EDIT THIS ROW ---- BUILT-IN SIDEWALK
0010	441-6022	CONC CURB & GULF		21,120.000	19.00000	401,280.00	DO NOT EDIT THIS ROW ---- BUILT-IN CURB & GUTTER
0015	001-0000	MISC ITEMS	\$	0.000	75,000.00000	0.00	***LEFT TURN LANES - ADD # OF TURN LANES IN QUANTITY COLUMN
0020	001-0000	MISC ITEMS	\$	0.000	60,000.00000	0.00	***RIGHT TURN LANES - ADD # OF TURN LANES IN QUANTITY COLUMN
0025	001-0000	MISC ITEMS	\$	0.000	55,000.00000	0.00	***MAJOR INTERSECTIONS (SR MEET SR) - COST FOR 8 STRAING POLES C
0030	001-0000	MISC ITEMS	\$	0.000	125,000.00000	0.00	***TRAFFIC SIGNALS - ADD # OF TRAFFIC LIGHTS (NEW OR REPLACEMENT

Intersecting State Routes

- Enter the number of Intersections with Intersecting State Routes (where SR meets your project corridor).
- Enter # into the Quantity Column
- List all assumed locations in Text File

Transport CES

File Edit View Utilities Window Help

Job PLAN_NONINTWIDU

General Variables Cost Groups Categories Items Programs Funding Attachments

Line Number	Item	Description	Units	Quantity	Unit Price	Extended Amount	Comment
0005	441-0104	CONC SIDEWALK	SY	4,693.333	41.62971	195,382.11	DO NOT EDIT THIS ROW ---- BUILT-IN SIDEWALK
0010	441-6022	CONC CURB & GULF		21,120.000	19.00000	401,280.00	DO NOT EDIT THIS ROW ---- BUILT-IN CURB & GUTTER
0015	001-0000	MISC ITEMS	\$	0.000	75,000.00000	0.00	***LEFT TURN LANES - ADD # OF TURN LANES IN QUANTITY COLUMN
0020	001-0000	MISC ITEMS	\$	0.000	60,000.00000	0.00	***RIGHT TURN LANES - ADD # OF TURN LANES IN QUANTITY COLUMN
0025	001-0000	MISC ITEMS	\$	0.000	55,000.00000	0.00	***MAJOR INTERSECTIONS (SR MEET SR) - COST FOR 8 STRAINING FILTERS
0030	001-0000	MISC ITEMS	\$	0.000	125,000.00000	0.00	***TRAFFIC SIGNALS - ADD # OF TRAFFIC LIGHTS (NEW OR REPLACEMENT)

Complete Primary Project Estimate

- Once complete with items go back to Main CES page and Note the final cost in the bottom right corner.
- **Confirm** contingency percent:
 - 15% Rural
 - 30% Urban Arterial Projects (non-interstates)
 - 45% Urban HOV, Interchange, Interstate Widening projects
- Document final cost of the primary project in Text file
- Note secondary projects (i.e. bridges, etc.) have not been accounted for yet
- Once estimate is finalized, create a snapshot

Secondary Project - Bridges

- For planning purposes, bridges are typically part of the widening project
- In Main CES job list, select appropriate Bridge template
 - New or Replacement Bridge
 - Bridge Widening

The screenshot shows the 'Transport CES' software interface. At the top is a menu bar with 'File', 'Edit', 'View', 'Utilities', 'Window', and 'Help'. Below the menu bar is a toolbar with various icons for file operations and project management. The main window displays a 'Jobs' table with the following data:

Job Number	Description
PLAN_BRG_NEW_RD	PLANNING_TEMP_NEW BRIDGE OR REPLACEMENT___ OVER ROAD
PLAN_BRG_NEW_RR	PLANNING_TEMP_NEW BRIDGE OR REPLACEMENT___ OVER RAILROAD
PLAN_BRG_NEW_W	PLANNING_TEMP_NEW BRIDGE OR REPLACEMENT___ OVER WATER
PLAN_BRG_WID_RD	PLANNING_TEMP_BRIDGE WIDENING___ OVER ROAD
PLAN_BRG_WID_RR	PLANNING_TEMP_BRIDGE WIDENING___ OVER RAILROAD
PLAN_BRG_WID_W	PLANNING_TEMP_BRIDGE WIDENING___ OVER WATER

Implementation

- All planning level cost estimates included in GDOT programs must now go through this process
- New tools, processes and procedures have been implemented with the Department and are being used by internal staff, MPOs, and consultants

Equity

- Provides GDOT with detailed information on project costs:
 - 13 congressional districts
 - 7 GDOT districts
 - 15 MPOs
- Geographical information provides valuable information for developing compliant and equitable transportation programs

GDOT Successes

- Provides a systematic process to complete and update cost estimates
- Provides senior management confidence in the cost estimates
- Stabilizes the GDOT transportation programs
- Provides reliable information to the public
- Integrates planning level cost process with planning, engineering, right-of-way, and utility offices
- Right-of-way and Utility Offices using tools for more advanced cost estimation
- GDOT, MPOs and consultants are using the tools

Questions and Comments?

Contact Information

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