

# Automated Red Light Enforcement Program

## Cost Estimating Guidance

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The Pennsylvania Department of Transportation's application process for the Automated Red Light Enforcement Program requires the development of a project cost estimate. In order to provide consistency in the cost estimating process, the following guidance is provided to assist municipalities in developing programmatic cost estimates for their projects.

The cost estimating process, and the development of project-specific unit costs, should be based on information contained in the Department's Engineering and Construction Management System (ECMS). In addition to a host of other capabilities, ECMS provides a clearing house of real-time unit costs for construction projects throughout Pennsylvania based on Engineering District.

At a minimum, the cost estimate should address the following specific items if applicable to your project:

<b>ECMS Item Prefix</b>	<b>Item Description</b>
0951	Traffic Signal Supports
0952	Controller Assembly
0953	Traffic Signal Systems
0954	Electrical Distribution
0955	Signal Heads
0956	Detectors
0957	Traffic Signal Communications

If additional items are anticipated for this project beyond those listed above, refer to PennDOT Publication 408 [http://www.dot.state.pa.us/public/PubsForms/Publications/Pub\\_408/PUB%20408.pdf](http://www.dot.state.pa.us/public/PubsForms/Publications/Pub_408/PUB%20408.pdf) for additional information and item numbers. Note: The section numbers within Pub 408 reference the ECMS Item Prefix numbers.

Unit costs for each item shall be obtained from ECMS. In the event that unit costs other than those identified in ECMS are proposed, justification should be provided. The utilization of other items in addition to those specified above is acceptable.

The following contingencies must also be included in the project cost estimate:

<b>Contingency</b>	<b>Percentage of Total Construction Cost</b>
Design	10%
Traffic Control	3%
Inspection	12%
Miscellaneous*	20%

\* Includes items such as mobilization, signing, pavement markings, etc.

The format of the cost estimate can be determined by the applicant, as long as the procedures and items shown above are identified.

The following outlines the steps required to access ECMS and mine the information needed to develop the cost estimate.

Access the ECMS homepage by typing the following into your browser's address window:

<http://www.dot14.state.pa.us/ECMS/>.

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You should then see the following screen, at which point you should click the “[here](#)” button to enter ECMS as a guest.

ECMS Home Page - Windows Internet Explorer  
http://www.dot14.state.pa.us/ECMS/

home site map help  
pennsylvania DEPARTMENT OF TRANSPORTATION **ECMS** ENGINEERING AND CONSTRUCTION MANAGEMENT SYSTEM

Welcome to PennDOT's Engineering and Construction Management System

Need Help? Call the ECMS Help Desk at 717-783-7711, Monday through Friday 8 AM till 4 PM  
Welcome to the Engineering and Construction Management System. This site provides up-to-date information on PennDOT's construction projects, construction contracts and consultant agreements.

Links

- Recent Bulletins - View the latest ECMS Bulletins
- FAQs - View Frequently Asked Questions
- Register as a Business Partner - View information on how to register as a Business Partner
- Project Management - View Project Management Information
- ECMS User Security and Password Maintenance
- Contractor Integrity Provisions
- Helpful Hints

Login

User ID:

Password:

[Click here if you would like to enter ECMS as a guest.](#) LOGIN

You are not currently logged into ECMS, please [login](#).

Release: 32.0  
Session size: 0.1k

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[PennDOT Privacy Policy](#)

Thu Dec 18 14:48:29 EST 2014  
Official ECMS Date/Time

Click “OK” when the disclaimer dialogue box appears.

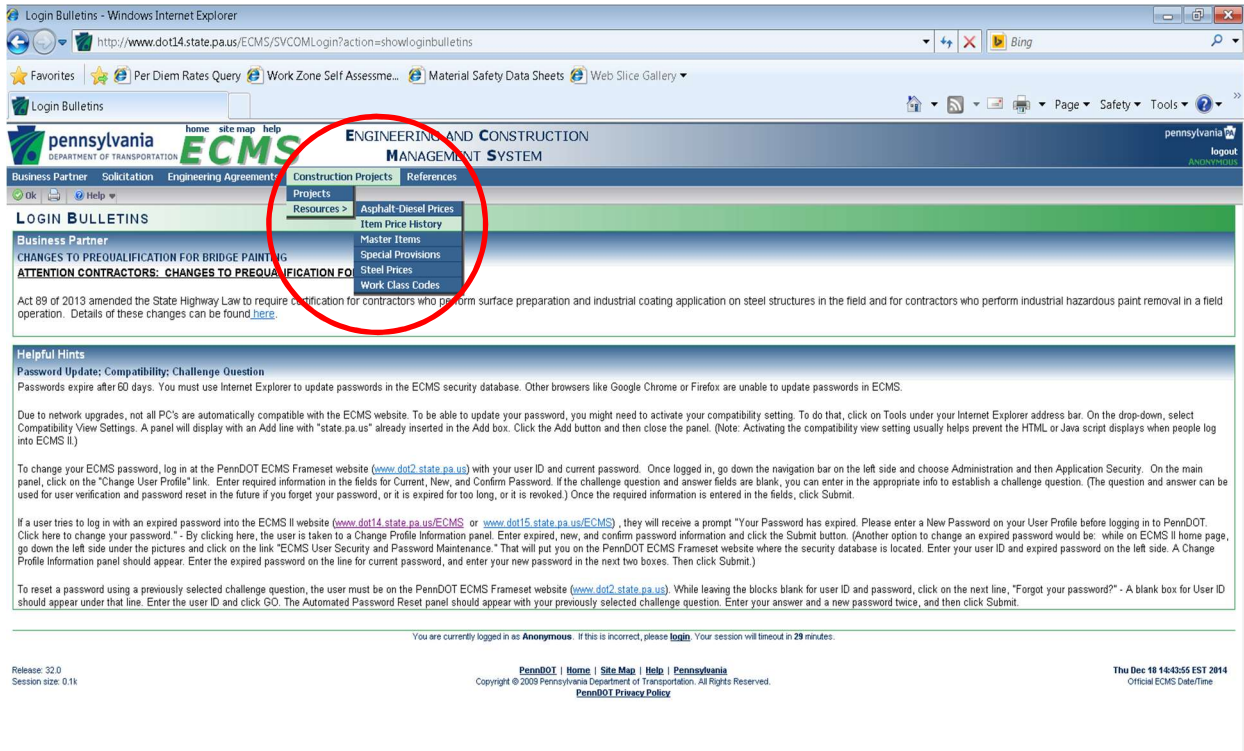
**?** The PennDOT Engineering and Construction Management System (ECMS) shall be used solely for authorized government business purposes. Users are advised that their user ID and password information cannot be transferred to any third party without the express written permission of PennDOT.

Any unauthorized use of ECMS will result in appropriate action by PennDOT including the loss of access privileges and the imposition of disciplinary measures.

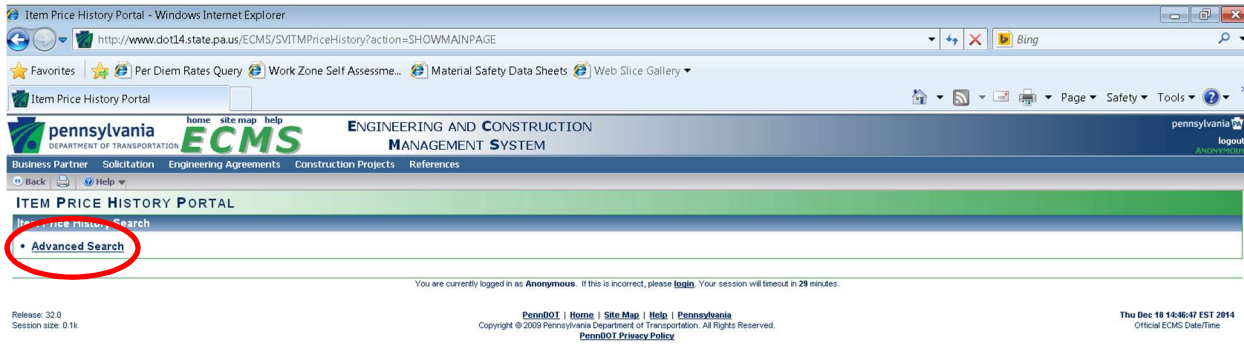
OK Cancel

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At the top of the next screen, click on “Construction Projects”, “Resources”, and “Item Price History”.



Then click “Advanced Search”.



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Now type in the applicable Item Prefix, select the appropriate Engineering District, and click the Search Button in the tool bar.

The screenshot shows the 'ITEM PRICE HISTORY SEARCH' form. The 'Item Prefix' field is highlighted with a red circle. The 'Districts' dropdown menu is also highlighted with a red circle, showing options 01, 02, 03, and 04. The form includes fields for Item Number, Description, Item Type, Roll Up Results, Bid Type, Date From, Date To, State Type Of Work, Total Bid From, Qty. Range From, and Report Type.

At this time a screen will populate with all standard items beginning with the prefix identified in the previous screen. This is the place to obtain the average unit cost to be utilized in the project cost estimate. For example, the unit cost in District 6-0 to be used in the estimate for a traffic signal support with a 35 foot mast arm would be \$14,157.15.

The screenshot shows the 'ITEM PRICE HISTORY RESULTS' table. The row for '0951-0135 - TRAFFIC SIGNAL SUPPORT, 35' MAST ARM' is highlighted in red. The table columns include District, # of Occurrences, Avar. Unit Price/Quantity, Min. Unit Price/Quantity, Max. Unit Price/Quantity, Min. Quantity/Unit Price, and Max. Quantity/Unit Price.

District	# of Occurrences	Avar. Unit Price/Quantity	Min. Unit Price/Quantity	Max. Unit Price/Quantity	Min. Quantity/Unit Price	Max. Quantity/Unit Price
06	2	\$7,938.0000 2,500 EACH	\$7,930.0000 3,000 EACH	\$7,950.0000 2,000 EACH	2,000 EACH	3,000 EACH \$7,930.0000
06	4	\$9,038.1250 4,000 EACH	\$8,600.0000 1,000 EACH	\$13,000.0000 1,000 EACH	1,000 EACH	13,000 EACH \$8,770.0000
06	7	\$9,744.3337 2,265 EACH	\$9,000.0000 1,000 EACH	\$14,000.0000 1,000 EACH	1,000 EACH	8,000 EACH \$9,450.0000
06	6	\$11,607.5390 1,833 EACH	\$11,175.0000 3,000 EACH	\$12,362.9300 1,000 EACH	1,000 EACH	3,000 EACH \$11,750.0000
06	1	\$15,000.0000 1,000 EACH	\$15,000.0000 1,000 EACH	\$15,000.0000 1,000 EACH	1,000 EACH	1,000 EACH \$15,000.0000
06	8	\$14,157.1542 1,750 EACH	\$12,650.1600 1,000 EACH	\$18,000.0000 1,000 EACH	1,000 EACH	4,000 EACH \$13,425.0000
06	1	\$14,600.0000 1,000 EACH	\$14,600.0000 1,000 EACH	\$14,600.0000 1,000 EACH	1,000 EACH	1,000 EACH \$14,600.0000
06	6	\$16,806.1846 2,166 EACH	\$14,950.2000 2,000 EACH	\$22,000.0000 3,000 EACH	1,000 EACH	5,000 EACH \$15,200.0000
06	1	\$15,700.0000 1,000 EACH	\$15,700.0000 1,000 EACH	\$15,700.0000 1,000 EACH	1,000 EACH	1,000 EACH \$15,700.0000
06	4	\$16,021.4437 2,000 EACH	\$15,781.5500 1,000 EACH	\$16,790.0000 1,000 EACH	1,000 EACH	4,000 EACH \$16,000.0000
06	1	\$17,000.0000 5,000 EACH	\$17,000.0000 5,000 EACH	\$17,000.0000 5,000 EACH	5,000 EACH	5,000 EACH \$17,000.0000
06	4	\$18,000.0000 2,000 EACH	\$16,750.0000 1,000 EACH	\$24,000.0000 1,000 EACH	1,000 EACH	5,000 EACH \$17,100.0000

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To return to the previous screen and enter additional prefixes related to other items on the project; click the “Back” button near the top of the screen.

District	# of Occurrences	Aver. Unit Price/ Quantity	Min. Unit Price/ Quantity	Max. Unit Price/ Quantity	Min. Quantity/ Unit Price	Max. Quantity/ Unit Price
0951-0115	2	\$7,938.0000 2,500 EACH	\$7,930.0000 3,000 EACH	\$7,950.0000 2,000 EACH	2,000 EACH \$7,950.0000	3,000 EACH \$7,930.0000
0951-0120	4	\$9,038.1250 4,000 EACH	\$8,600.0000 1,000 EACH	\$13,000.0000 1,000 EACH	1,000 EACH \$8,600.0000	13,000 EACH \$8,770.0000
0951-0125	7	\$9,744.3337 2,285 EACH	\$9,000.0000 1,000 EACH	\$14,000.0000 1,000 EACH	1,000 EACH \$14,000.0000	8,000 EACH \$9,450.0000
0951-0130	6	\$11,607.5390 1,833 EACH	\$11,175.0000 3,000 EACH	\$12,362.9300 1,000 EACH	1,000 EACH \$11,600.0000	3,000 EACH \$11,750.0000
0951-0132	1	\$15,000.0000 1,000 EACH	\$15,000.0000 1,000 EACH	\$15,000.0000 1,000 EACH	1,000 EACH \$15,000.0000	1,000 EACH \$15,000.0000
0951-0135	8	\$14,157.1542 1,750 EACH	\$12,650.1600 1,000 EACH	\$18,000.0000 1,000 EACH	1,000 EACH \$12,700.0000	4,000 EACH \$13,425.0000
0951-0138	1	\$14,600.0000 1,000 EACH	\$14,600.0000 1,000 EACH	\$14,600.0000 1,000 EACH	1,000 EACH \$14,600.0000	1,000 EACH \$14,600.0000
0951-0140	6	\$16,806.1946 2,166 EACH	\$14,950.2000 2,000 EACH	\$22,000.0000 3,000 EACH	1,000 EACH \$15,250.0000	5,000 EACH \$15,200.0000
0951-0142	1	\$15,700.0000 1,000 EACH	\$15,700.0000 1,000 EACH	\$15,700.0000 1,000 EACH	1,000 EACH \$15,700.0000	1,000 EACH \$15,700.0000
0951-0145	4	\$16,021.4437 2,000 EACH	\$15,781.9500 1,000 EACH	\$16,790.0000 1,000 EACH	1,000 EACH \$16,790.0000	4,000 EACH \$16,000.0000
0951-0148	1	\$17,000.0000 5,000 EACH	\$17,000.0000 5,000 EACH	\$17,000.0000 5,000 EACH	5,000 EACH \$17,000.0000	5,000 EACH \$17,000.0000

Once you have obtained all of the information that you need, you can exit the browser at that time.

### Example Cost Estimate

Item No.	Item Description	Unit Cost	No. of Units	Cost
0951-0145	Traffic Signal Support, 45' Mast Arm	\$15,618.75/EA	1	\$15,618.75
0951-2135	Traffic Signal Support, 35' Mast Arm with Luminaire Arm (30' Mounting Height)	\$14,146.54/EA	1	\$14,146.54
0952-1030	NEMA TS-2; Type 1 Controller Assembly, Type 1 Mounting	\$12,800/EA	1	\$12,800.00
0953-0520	Communications Cable, 19 AWG, 25 Pair	\$6.15/LF	1,200	\$7,380.00
0954-0013	3 Inch Conduit	\$3.13/LF	200	\$626.00
0954-0102	Signal Cable, 12 AWG, 5 Conductor	\$3.50/LF	150	\$525.00
0954-0151	Trench and Backfill, Type I	\$9.88/LF	50	\$494.00
0954-0301	Junction Box, JB-26	\$777.00/LF	2	\$1,554.00
0955-3208	Vehicular Signal Head, Three 12" Sections	\$633.51/EA	2	\$1,267.02
0955-4101	Vehicular LED Retrofit Module (12-Inch)	\$92.40/EA	6	\$554.40
0956-0001	Detector Lead In Cable	\$2.05/LF	55	\$112.75
0956-0131	Loop Amplifier, 2 Channel Rack Mounted	\$108.65/EA	1	\$108.65
0956-0700	Video Detector	\$4,780.70/EA	1	\$4,780.70
	<b>Subtotal</b>			<b>\$59,967.81</b>
	Design (10%)			\$5,996.78

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	Traffic Control (3%)			\$1,799.03
	Inspection (12%)			\$7,196.14
	Contingency (20%)			\$11,993.56
<b>Total</b>				<b>\$86,953.32</b>