

BOE Notes

FDOT Program Management- Estimates Systems Support

3/17/2021

2021 Edition

March 2021 Updates

BOE & Pay Item Updates

The Basis of Estimates (BOE) joined other manuals with the November 2020 posting of 2021 Manuals and Handbooks. Most of these changes will impact July 2021 lettings.

Specification changes are posted for January and July 2021. Included in **this update is a summary** of changes. As always, **refer to the Manual or Specification for full details.**

Contact Database, aka Contact Management E-Updates and Contact Mailer

Please remember to register through the Contact Management/ E-Updates for important announcements from Program Management, Design, Construction, and others. This is a “self-service” area. **Remember to update your preferences annually**, as new features are added periodically.

<http://www.fdot.gov/designsupport/contactdatabase.shtm>

Introduction: This is a copy of the FDOT procedure governing the Manual. Only the header dates were updated.

Chapter 1, Updates and Registration: Only the header dates were updated.

Chapter 2, Units of Measure: Guidance for Lump Sum pay items with secondary units was expanded. Header dates were updated.

Chapter 3, Estimating: This chapter was rewritten, to compliment the FDM language, while providing additional guidance on the Engineer of Record’s (EOR) Estimate. Comments/Suggestions for future enhancement are appreciated.

Chapter 4, Pay Items and Estimates for Alternative Contracts: Header dates were updated.

Chapter 5, Contact Lists: Header dates were updated.

Update Outline

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Part 1: Chapters

- Registration/Updates
- Units & Precision
- New- Estimating
- Requesting Pay Items:
Open/Activate vs New
- Tech Spec vs Plan Notes
- Summary Boxes
- Formatting Pay Items
- Questions?

Part 2: Pay Item Updates

- 100s
 - MOT- Signals
 - MOT- Ped LCDs
 - Clearing & Grubbing
- 200s- Earthwork
- 300s- Pavement
- 400s- Structures
- 500s- Incidental
- 600s- Traffic Control
- 700s- Signs, Lights, etc.
- 800s- Mass Transit
- 900s- Special
- 1000s- Utility JPA (-56)

Chapter 6, Pay Item Development Process: Header dates were updated.

Note: This chapter was updated for 2020, to help designers with requesting pay items, through simple steps that consider how the Plans, Specs, and Estimates work together. Please review the chapter for hints and reminders to minimize review(s). Additional training is needed for Designers.

TO: FDOT-PayItems@dot.state.fl.us , District Estimates Engineer (as applicable)
COPY: FDOT Project Manager, District Specifications Engineer (as applicable)
FROM: Designer

SUBJECT: PROJECT 123456-1-52-01, Pay Item Request for Item 123-456- A

Please activate/create the following pay item(s):

123- 4- 5 Widget, per EA

Plans: Index 123-001

Specs: Section 123 or attached draft spec/modification

Additional Notes/details: attachments, as applicable

Contact:

Joe Smith, ZZZ Consulting, 1-555-555-5555

Joe.Smith@zzzConsulting.com

Chapter 7, Design Tools: Header dates were updated. Ongoing efforts to update specification type flags on existing pay items. (For older pay items, the only flag was "T"; this is now being updated to reflect possible A, M, P or S specification types.)

Chapter 8, Summary Boxes/Summary Tables:

Header dates were updated. Two separate chapters were created, based on Summary Box or Summary Table/Estimated Quantities Report. DO NOT MIX formats for a single project.

Chapter 9, Applications: Minor formatting changes and added text for locked projects. Header dates were updated. Added bridge category for Cathodic Protection. The category field is used for bidder prequalification purposes.

Chapter 10, Formatting Pay Items: While this chapter is directed towards the Estimates Office for maintaining the BOE, it may be helpful to FDOT staff who are updating/creating pay item structures. Header dates were updated.

Chapters 11-20, BOE Database within DQE: Pay item updates are coordinated with the specifications and standard plans. See the individual items for details.

Data Integrity

Standard Specification = Standard Pay Item

Modified Specification = Project Specific Pay Item

Using the appropriate pay item helps to ensure that consistent bid data is available for estimating/bidding current and future projects.

See Chapter 7 for additional guidance.

Contact Information

Melissa Hollis, BOE Coordinator, Melissa.Hollis@dot.state.fl.us

Pay Item Team (Pay Item questions/concerns) FDOT-payitems@dot.state.fl.us

District Estimates and/or District Specifications team (all project specific issues)

Pay Item Updates

The updates below are briefly described; please refer to the Basis of Estimates and/or the applicable specification for complete details. For questions on any of these issues, please contact the person(s) identified in the applicable bulletin, or the BOE Coordinator for other updates. **Information in blue text is scheduled for January or July 2021 letting implementation.** Other rows may include general reminders or references.

Item Group	Description	Effective Date	Notes
102- 1-	Maintenance of Traffic, LS/DA	July 2021	Reminder to enter the quantity for secondary units-number of Days. NOTE: Significant changes were made to the Standard Plans, 102-6xx series. References within the plans may need to be updated to the new index numbers. See the Standard Plans Revision History at https://www.fdot.gov/design/standardplans/current/default.shtm , or the .pdf file at https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/design/standardplans/2022/sp-revisions1.pdf?
102- 2-	Special Detour	July 2020 lettings	See details in Program Management Bulletin 19-03 (Roadway Memo 19-03) Quantify area of Temporary Pavement. Quantify volume of Temporary Earthwork/Base beyond proposed earthwork quantities; see bulletin for details. Contact District Estimator for Temporary Bridge or non-standard project needs.
102- 4- 102- 4- 1	Pedestrian Special Detour		Provides separate payment for pedestrian walking surface (contractor's option for asphalt or mats). July 2021 change is due to a Roadway change to the specification.

			Quantify the SY of surface needed, by MOT phase.
102- 14- vs 999-102-	Traffic Control Officer vs Speed and Law Enforcement Officer		Traffic Control Officer: Pay item for the contractor's use with MOT, in accordance with Section 102 and Standard Plans. See specification changes effective with July 2020 lettings. Speed and Law Enforcement Officer: Pay item controlled by the Engineer/CEI, usually on limited access highways, for controlling speed. Contract and payment is between the Department and Law Enforcement agency; money does NOT go through the construction contractor.
102-30-	Temporary Lighting	Jan 2019	Temporary Lighting for Roadway (not for illumination of construction work areas): Project specific pay items will be assigned. Refer to FDM. Lighting is NOT required for most projects. When requested by the District, plan details, including quantities, locations, and duration(s) will be required, to ensure that the bidder has enough information for bidding purposes. Quantify Temporary Lighting- each pole.
102- 74-	Channelizing Device		Pedestrian Longitudinal Channelization Device: MUST SHOW locations and quantities in summary box and on plans. NOTE: Pay Item Units have changed several times; see current/applicable specification for units. Effective July 2020 lettings, units are ED= Each x days
102- 78-	Temporary RPM	July 2021	Specification changes to Section 102, 710, and 706 effective July 2021. Type D RPMs (ONLY used for final surface where centerline grinding will be completed: Paid under 102-78-1. Type B RPMs (used for MOT, each asphalt lift, and final/friction course): Paid under 706-1-1. Remember to update quantities.
102-104- and 102- 107-	Temporary Signalization and Maintenance; Temporary Detection and Maintenance		General guidance: Use BOTH pay items for EACH intersection, for the FULL DURATION of the contract. See BOE details for additional info. NOTE: Do not confuse "intersection" items above for 2-way, 2-lane flagger assistance devices (AFAD). No separate payment for AFAD.
104-15-	Soil Tracking Prevention Device		PENDING: Updated BOE guidance requested from Construction.

107-1- and 107-2-	Litter Removal and Mowing	July 2021	Jobs let through June 2021, no change. July 2021 Specification Update (Simplify Design and Construction quantities; no adjustments: See the BOE and Specification for details. Summary: Use simple shapes to best describe left, right, and median area. Quantities will be paid per cycle completed, WITHOUT adjusting areas. If quantities for July 2021 and later are complete with more exact areas, they may remain “as-is” in the plans, at District’s discretion.
110- 1- 1	Clearing and Grubbing, LS/AC		Designer enters quantity in acres; contractor bids 1 Lump Sum. Quantities MUST be shown, by location and area(s), in summary box.. DESIGNER: Special features included within C&G areas may be identified in the Design Notes column.
110- 2-	Selective Clearing and Grubbing, Acre		Quantities MUST be shown, by location and area(s), in summary box. See BOE Details for deciding between “per acre” and “per tree” activities.
110- 4- 10	Removal of Concrete		Quantify all items by location and area. Use Design Notes column to identify type of concrete, i.e. sidewalk, curb, walls. Plan/horizontal areas are used for most items. Vertical area (length x height) for most walls. See BOE details.
110- 86-	Delivery of Salvageable Material to FDOT	Project Specific	This pay item is only for “significant items” being delivered to FDOT. Do NOT use this pay item for normal signs, signals, or lighting equipment; delivery to local agency (identified in plans) is included in the cost of the removal item.
120-	Excavation and Embankment		Per the specification, the 120- items are used for constructing the Roadway. All landscape “digging/filling” is included in the cost of the plant installation.
121-	Flowable Fill		Flowable fill continues as a contractor option, with payment included in related item(s). Pay item is blocked for general use. See BOE details for pipe bedding, backfill, etc.
162- and 163- items	Soils- for turf and landscape areas	July 2019	Valid through June 2019. See 580- items for related Landscape instructions. Soil used for Turf will be included in the payment for turf. Soil used for Landscaping is described in Section 580 and/or plans, and will continue to be quantified for payment under Landscaping, LS. Note- Ongoing specification discussions to address project specific turf needs.

200s	Bases		Bases & thickness, per table in Section 285. Other non-standard thicknesses/types must use project specific pay items.
334- 1-	Superpave Asphalt		Do not use 334- asphalt for temporary or miscellaneous applications. Overbuild is a PERMANENT slope correction; do not use this term for any temporary applications. Overbuild subtotals should be clearly noted on Summary of Pavement; see example in Chapter 8.
337- 7-	Friction Course		High Polymer binders implemented per the specifications and State Materials Office.
350- group	Concrete Pavement	July 2021	Do NOT use pavement items for bridge decks; there are separate joint items for bridge applications. Concrete Pavement Joints are paid separately for NEW and REHAB concrete pavement slabs. Effective July 2021: Separate payment for joint between new concrete pavement and curb will be made under Section 520.
400- group	Concrete, per CY		Concrete, by class and application. Do NOT use cubic yard concrete for foundations (other than bridges), pads, or miscellaneous applications. Note: Substructure and Superstructure items are for Bridge use only; do not use for drainage or other roadway applications.
400-	Retaining Walls (Concrete & Steel)		Load pay items in the Roadway Category, regardless of where plans sheets are located.
425- group	Inlets and Manholes		Minor variations from the design standard: use the standard pay item. Significant design variations may need a project specific pay item. Coordinate with District/State Drainage Office, as early as possible - preferably at 60% plans.
425-17	Back of Sidewalk Endwall	July 2021	New Standard Plans index 425-060. New pay item for the endwall shown in the Standard Plans.
430- 94-	Desilting Pipe		See the BOE for guidance. <ul style="list-style-type: none"> • Desilting as part of pipe liner: incidental to liner • Desilting for endwall construction: incidental to endwall • Desilting for pipe inspection: incidental to inspection • Other applications- under review by Construction, Maintenance, and Drainage
431- group	Pipe Liner		Project Specific Approvals requested through the State Drainage Engineer. Types: Rigid pipe insert or Spray/Applied Purpose: Structural Reinforcement and/or Leak Reduction.

			Note- there may be significant material options, depending upon needs. Life cycle cost should be considered: Repair/maintenance vs Replacement
455-	Piling		Quantify based on the KNOWN lengths shown in the plans; do NOT include any contingency lengths or allowances for splices. All adjustments, per the specifications, will be completed by Construction.
514-	Filter fabric		No separate payment; cost is included in the item to which it is incidental.
517- 72-	Impermeable Liner		Requires project specific approval from State Drainage Office or the State Geotech Engineer.
520-	Curb		<p>“Curb” definition includes curb & gutter, traffic separator, valley gutter, etc. Asphalt curb pad is included, per spec; NO PLAN NOTE.</p> <p>Effective July 2021: When Concrete Pavement (350- 3) is installed, joint between concrete pavement and curb is paid under pay item 520- 4 .</p>
521-	Barriers		Standard Plans reflect current safety requirements. Requests to use old standards must be approved on a project specific basis.
526-	Architectural Pavers		Repairs/Relocating pavers: While designers may try to retain/reuse existing pavers, payment is made as new pavers due to the overall work effort required. No separate payment is made for replacement of pavers due to removal operations. The Design Notes column of the summary box may be used to identify removal/relocate area(s), as needed.
530- group	Revetment Systems (Riprap, Gabions, etc.)		For project specific exceptions, please coordinate with the State Drainage Office early in the design process (60% plans).
530-	Fabric Formed Concrete		See Developmental Specification Dev531FF
536-	Guardrail		MEASUREMENT: End-to-End length + each end treatment. NO ADJUSTMENT for end anchorage lengths, transition panels, or overlapping/nested panels.
546- 72-	Rumble Strips- Longitudinal locations		See FDM 210, 211, and 230 for guidance.
546- 71-	Rumble Strips- Transverse locations		Replacement of Raised Rumble Strips (transverse, during construction) for Index 546-001 type applications.
548-	Retaining Walls		Load pay items in the Roadway Category, regardless of where plans sheets are located.

			<p>NOTE: A single retaining wall may be associated with 1 or more bridges, and/or may run along significant lengths of roadway. For consistency, all retaining walls are loaded in Roadway Category and identified by wall number and location on the Summary of Walls.</p> <p>Retaining Walls are NOT to be added to Summary of Structure Quantities- Bridge XXXXXX.</p>
550-	Fence Gates		Large fence openings generally use double gates or slide gates. Large single cantilever gates have been limited to avoid “sag or drag” of the gate.
570-	Performance Turf		Measurement changed from “plan view” to “measure along the slope”. While this is already being completed by some districts, CADD software has been updated to help facilitate calculations. (Minimal change to most locations. Steep slopes are most affected.)
580- 1-	Landscape Complete, Lump Sum		ALL WORK MUST be detailed on the Landscape Tabulation Sheet. Remember to include soil, mulch, and all plants (species, quantity)
580- 2-	Tree Relocation, EA		Estimator/Bidder needs to know the plant species and approximate size. Designer MUST show both the current and proposed locations (within project limits) on the tabulation sheet.
590- 1	Irrigation System, Lump Sum		Designer MUST quantify all pipe, sprinkler heads, and pump components. Estimator/Bidder needs to know the sizes, lengths, and capacities to be able to price the system.
591- 1-	Irrigation Sleeve		The sleeve is provided on Roadway projects for KNOWN future landscaping when the exact location of an irrigation system is available. DO NOT include a sleeve for “possible” enhancement or at locations where open trench is possible.
600s	Signalization	July 2021	
611	ITSFM	July 2021	<p>ITSFM: Intelligent Transportation System Facilities Management</p> <p>PENDING: Guidance on when to use pay items for documentation, per specification changes.</p>
630- 2-	Conduit		Payment is based on the horizontal box-to-box length. No adjustment for vertical sweeps. Open Trench: anything under existing turf (pre-construction).

			<p>Directional Bore: anything under existing pavement (pre-construction)</p> <p>Embedded Conduit: separate payment for conduit within barriers</p> <p>Jack & Bore: Railroad use only.</p> <p>Utilities: No payment under 630; use utility 1000 series items.</p> <p>Drainage: see 430- items.</p> <p>MULTIPLE RUNS: See specification language. No multiple payment for multiple runs underground. For embedded, payment made for each run of conduit.</p>
633-	Fiber Optic Locator	July 2021	<p>Specification changes requiring locator.</p> <p>PENDING: Guidance on when pay item is needed, and how to estimate quantities.</p>
635-	Pull & Splice Box, Junction Box		<p>QPL Items. DO NOT Restrict products/sizes without approval. Sizes, by application, shown in the specification.</p> <p>Note: "Stronger" boxes are not normally needed for heavier traffic, as pull boxes are located outside of travel lanes. Blanket MSP available for Turnpike; coordinate with District Specs/Estimates.</p>
639-	Electrical Power Service		<p>Covers items from the utility to the cabinet (Wire, meter, disconnect, surge protection). Generally, includes power supply at 240-480 volts.</p> <p>Does NOT include connections within the signals cabinet or beyond (generally 120 volts or less)</p>
639- 8-	Electrical Power Service		<p>Electrical Power Service- Contribution in Aid of Construction (CIAC): Coordinate with District Utilities Engineer.</p> <p>Standard Spec is available. Pay items available upon approval of the DISTRICT Utility Engineer.</p>
641-, 649- etc.	Pole Removal		<p>Removal of the pole includes "all attachments".</p>
654-	Mid-Block Crossing		<p>Includes In-Roadway Lights, Pedestrian Hybrid Beacon, Rectangular Rapid Flashing Beacon (RRFB), and Pedestrian Hybrid Beacon.</p> <p>Items/assemblies are ALL INCLUSIVE for use at mid-block crossings. See specifications for measurement and payment.</p>
660-	Vehicle Detectors		<p>Ensure that the number of detectors is clearly shown, for each intersection. Some cabinet products require 1 per intersection, while others are 1 per approach!</p> <p>Do not confuse "vehicle detectors" with "pedestrian detectors".</p>

			PENDING: Additional detector/technology types.
665-	Pedestrian Detectors		Do not confuse “vehicle detectors” with “pedestrian detectors”. PENDING: Additional detector/technology types for passive detection.
695-	Traffic Monitoring Site		3 types of Traffic Monitoring Sites are possible: <ul style="list-style-type: none"> • Transportation Statistics (695) • Traffic Ops (other 600 series) • Motor Carrier Compliance/MCSAW (770)
700-	Signs		Single Post Signs- sizes limited by design standards! Electronic Signs: Discussion pending about placement in the signals/signing component plans.
700-	In-Street Sign (pedestrian crossing)	July 2021	Specification expanded to include flexible post in-street signs. See TEM 5.2.7.2.
704-	Tubular Markers	July 2021	New Specification Sections 704 and 993. Replaces some 705- delineators/Managed Lane Markers.
706-	Reflective Pavement Markers (RPMs)	July 2021	Through June 2021: No separate payment under 706; normal installation is included under Final Surface pavement markings, 710-90. Effective July 2021: Separate payment will be made for ALL Type B RPMs. See BOE for quantity calculations: Each lift + Friction layer + MOT needs.
706-	Internally Illuminated Reflective Pavement Markers (IIRPM)		Project Specific Approvals are still required. NOTE: Significant cost difference (\$5. Vs \$100.+ per each) should be a factor in restricting use of IIRPMs. FDM TEM requires Traffic Study evaluating night time lane departure.
710-, 711-, 713-	Pavement Markings	July 2021	BOE has many possible combinations. PPM, MUTCD, and Design Standards restrict which items may be available. Please ask if you do not see a needed item. Specification changes from field measurement to Plan Quantity
710-	Pavement Markings, LF		6” and 8” longitudinal markings are paid per GM, per the specifications. Request for Linear foot markings for smaller locations have been denied, due to the specification conflict. Also note that 0.001 GM is approx. 5.28’, or about \$1.26 /ft for some markings.
710-	Pavement Markings for MOT		Per Section 102, only “standard crosswalks” are installed for work zone MOT markings. “Special Emphasis” crosswalks are installed with final

			<p>surface/permanent markings (710-90 and 711-thermo). Quantities for 24" bars on special emphasis crosswalks should ONLY be included with final surface/permanent markings.</p> <p>When using Summary Tables/EQ Report (some July 2021 or later projects), see Chapter 8 for quantity guidance. Individual pay items and quantities will NOT be shown for 710-90 Final Surface Markings.</p> <p>No change for projects designed under 2020 FDM using Summary Boxes/Tabulation Sheets.</p>
710-	Final Surface Pavement Markings	July 2021	Final Surface Pavement Markings no longer includes RPMs; see specification changes for Section 102 and 706.
711-17-	Removal of Thermoplastic		See specification for current guidance. Payment is permitted for markings on pavement TO REMAIN (no MOT layers.)
715-	Lighting		<p>Pay Items for Utility Conflict light pole (shorter vertical pole with longer arm) are available. See BOE Guidance for adding Arm and Luminaire to an existing pole or mast arm.</p> <p>Ongoing- upgrades to existing light poles to convert to LED luminaire. Additional items upon request!</p>
715-	Pendant Hung Lighting- under bridge		Pendant hung light fixtures are generally not permitted under bridge decks, due to MOT issues with maintenance of the lighting. Options may include reduced light levels or wall mounted fixtures. Project specific approval is needed for any pendant hung fixtures.
715-	Lighting Heights		See Standard Plans 715-001, 715-002 and associated SPI (instructions).
715-5xx-	Special Design Light Poles		Ensure that proposed light poles meet Load Resistance Factor Design (LRFD) requirements for wind load. Proprietary Products MUST follow FDM instructions for approval.
750-, 751-	Architectural and Enhancement items		Additional items added upon request. Specifications and/or plan details may be required.
770-	MCSAW- Motor Carrier Size and Weight	Pending	Pay item structure under review.
800s	Mass Transit		Additional items added upon request.
900s	Special & Developmental items		Additional items added upon request.
1000s	Utility Items		Intended for JPA and phase -56.

			No applicable specifications or design standards. Tech Specs and/or plan details are required to describe work, materials, construction, measurement, and payment. Additional items added upon request.
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Project Issues, Summary Boxes, Requests, and Additional Notes:

Topic	Description	Effective	Details
Maintenance Contracts	Specifications and pay items		When using construction pay items on Maintenance Contracts, verify the applicable specification(s). Items that require “in accordance with Tech Spec or plan details” cannot be bid without information in the bid documents. Details in the Work Documents (after bid/award) are unacceptable, as bid price has been established.
Push Button or Work Document Contracts	Lump Sum pay items		Lump Sum pay item cannot be used on a pushbutton or work document contract, as the contractor is unable to bid an unknown scope of work. Pay items with standard units may be available upon request.
Construction Contracts	Specifications and pay items		When using maintenance activity pay items (with a leading zero) on a construction contract, verify the applicable specification(s). You may need to modify (pending approval) the specification to include the maintenance language. For example, desilting and pipe inspection are described in maintenance specs with reporting requirements; construction specs have limited compensation information.
Developmental Items	Developmental Specifications, Developmental Standards, and/or Developmental Pay Items		PSE Package: The Plans, Specifications and Estimates must work together. When working with developmental items, ensure that all of the “pieces” work together for your project. Approvals may need to be coordinated for project specific locations. Please be prepared to share project/location specifics, so that conditions may be evaluated. Remember that the goal of a developmental is to try something new, while providing feedback for various conditions- throughout construction. The monitor needs to understand your project’s conditions to evaluate the developmental item’s performance.
Lump Sum Pay Items	“Push Button” or “Work		Lump Sum pay items are NOT PERMITTED on any “Push Button” or “Work Document”

	Document” contracts		contracts , as the bidder is unable to provide a bid price for an unknown quantity/scope of work. Lump Sum pay items are ALWAYS based on a quantity of 1 per project. If other quantity measurements are needed, request a pay item to reflect the item’s method of measurement.
Signs, Lights & Signals	Foundations		The cost of the foundation is included in the cost of the sign, light, or signal- even when special designs are needed. When removing or relocating, ensure that the plan details address the removal of the existing foundation. The pay item’s Basis of Payment should address the operation and the new foundation.
NexGen/3-D model plans	Pay Items: Measurement and Payment		Ongoing: As discussions continue for 3-D plans, the impact to selected pay items and method of measurement are also being considered. While “Plan Quantity” is good for many items, some items may still need to be measured – especially when quantity or price adjustments are needed. Specification changes will need to be coordinated when pay item measurement is affected. Tabulation Sheets: With no “sheet numbers” for large scale plans, tabulation sheets will transition to Summary Tables, with quantities by location. See BOE Chapter 8
Summary Boxes	Rows and Columns		Keep Design notes and revisions symbols out of the construction notes column.

Pay item questions are encouraged. If you notice inconsistent information between the Basis of Estimates and other FDOT Handbooks/Manuals, please contact the Basis of Estimates Coordinator. Similarly, if you encounter requests or guidance from Design, Construction, or Reviewers that are not consistent with the BOE or other documents, we will be happy to assist you with resolving the inconsistency.

Project Specific pay item questions should always be addressed through the FDOT Project Manager and/or District Estimates staff.