



Cost Estimating

Procedures, Tools, and Considerations

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Cost Estimating Highlights

- ▶ Obtain understanding of estimating goals.
- ▶ Cost estimating tools and processes.
- ▶ Upcoming Initiatives
- ▶ Develop awareness of factors affecting bidding.
- ▶ Bid review process.



Estimating Goals

- ▶ FHWA/WisDOT Stewardship Agreement (Sept 2010) goal
 - 50% of estimates should be within 10% of low bid
- ▶ WisDOT goal
 - 60% of estimates within 10% of low bid
 - 75% of estimates within 15% of low bid
 - Goals tracked in Estimate accuracy report
- ▶ WisDOT external MAPPS measurement—
<http://www.dot.wisconsin.gov/about/performance/index.htm>



Estimate Accuracy Report

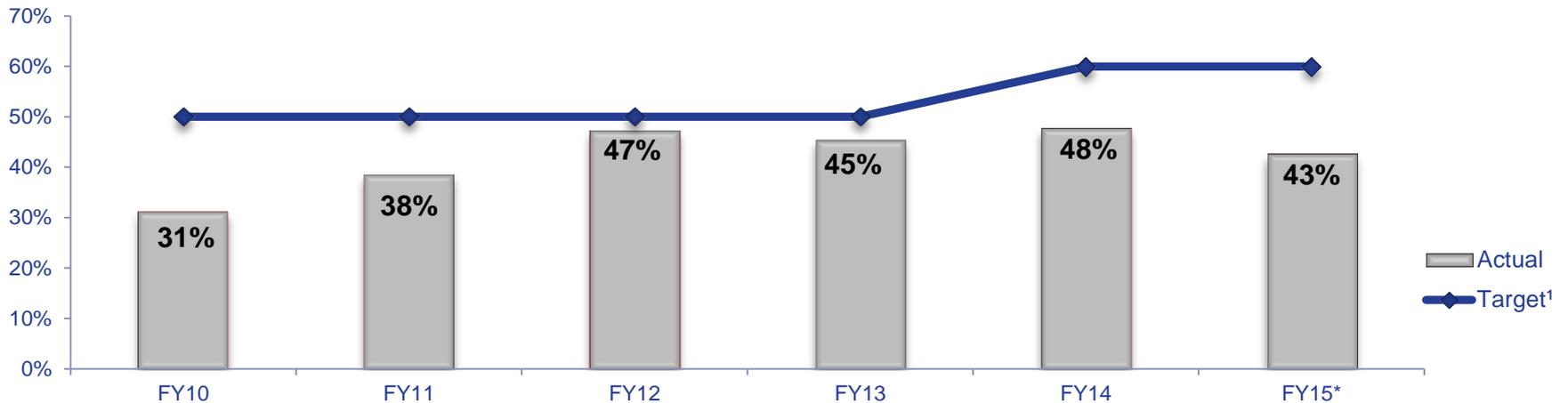
- ▶ Estimate results for last six years
- ▶ Includes breakdown by region, number of bidders, funding category, and work type
- ▶ Available on extranet

<https://trust.dot.state.wi.us/extntgtwy/consultants/estimates/index.shtm>



Estimates within 10%

**% of Proposals within 10% of the Low Bid
-By Fiscal Year -**



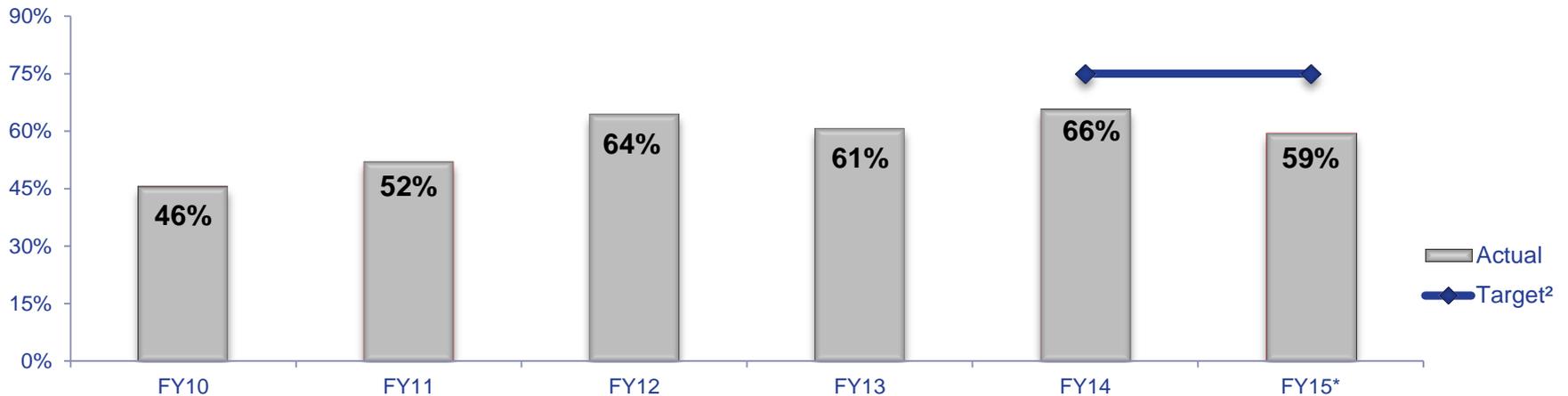
* Data through February 2015 Bid Letting

¹ The performance measure target was 50 percent for FY09-FY13. As part of WisDOT's continued efforts to strive for continuous improvement, the target was increased to 60 percent in FY14.



Estimates within 15%

**% of Proposals within 15% of the Low Bid
-By Fiscal Year -**



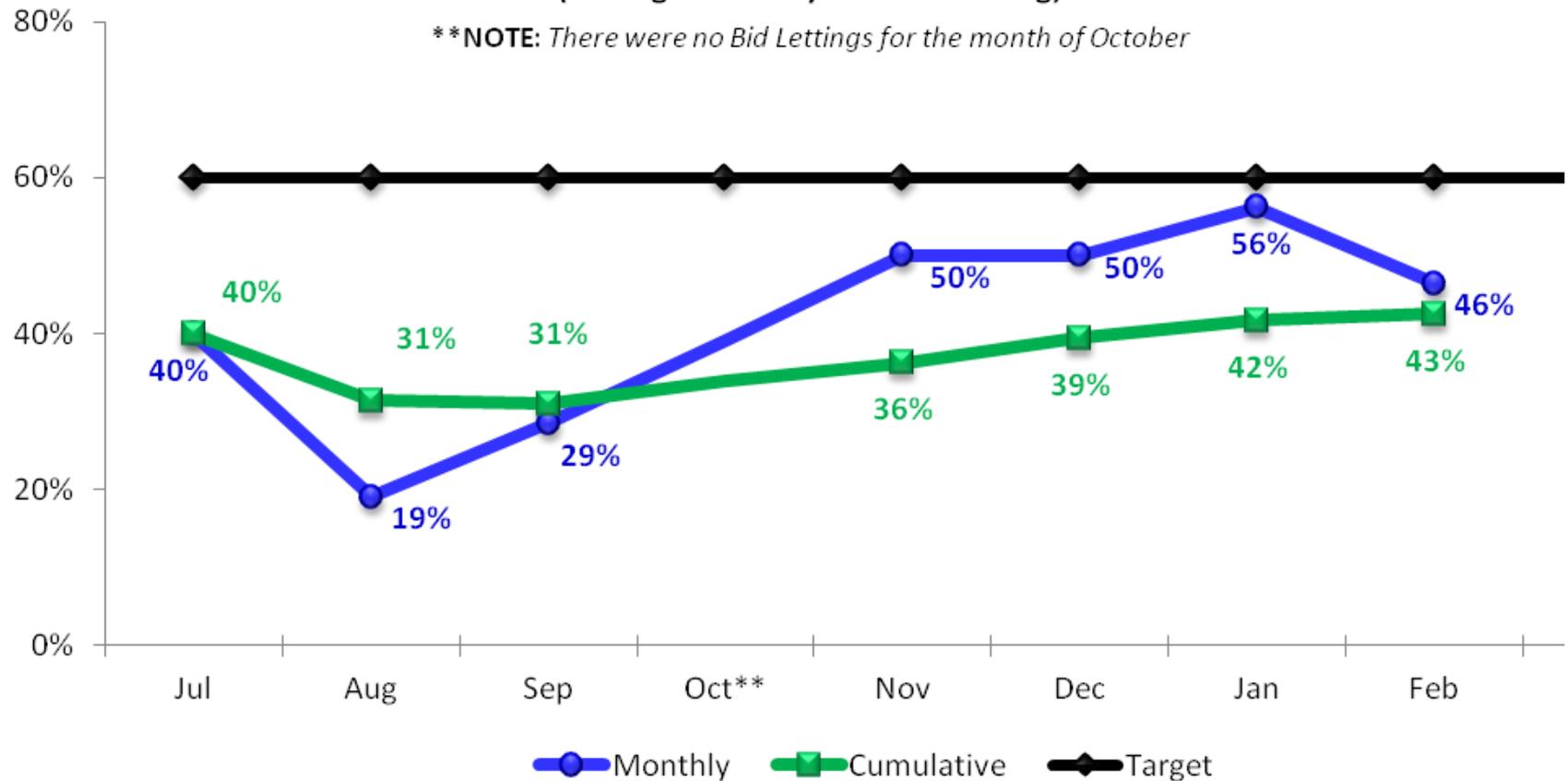
* Data through February 2015 Bid Letting

² This new performance measure band was created in FY14 to track 75 percent of engineering estimates within 15 percent of the low bid. There is no target for fiscal years prior to FY14.



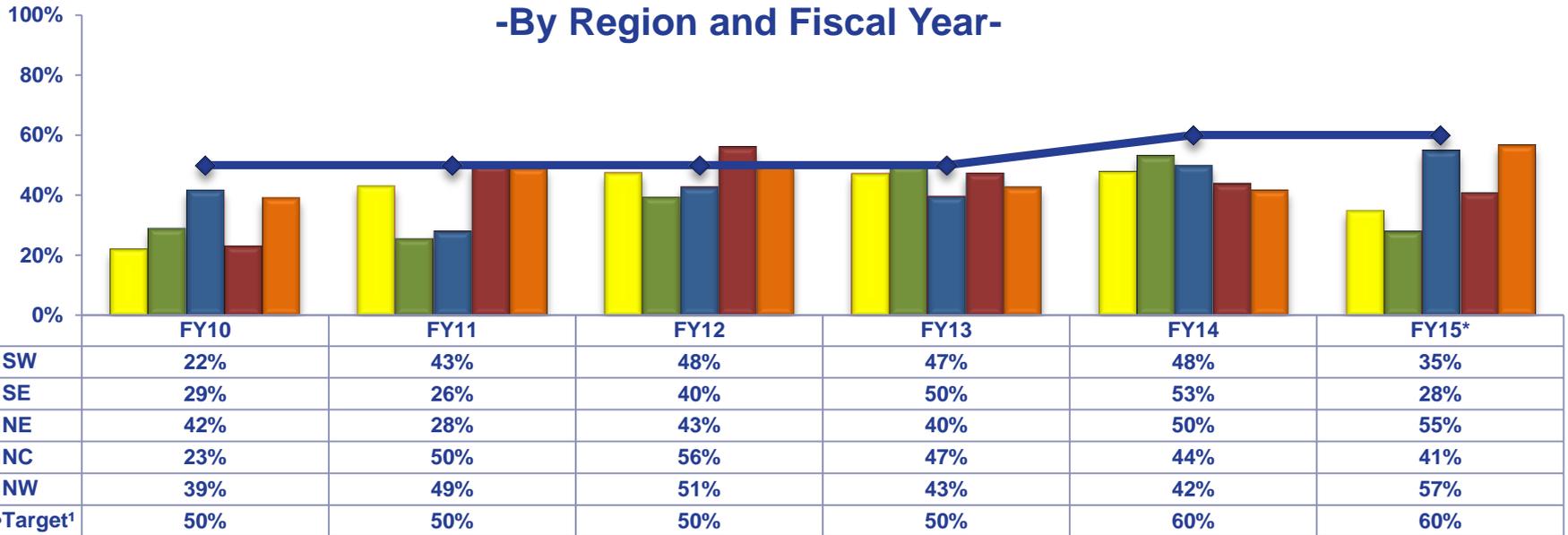
Year to Date – Fiscal Year 2015

**% of Proposals within 10% of the Low Bid
- By Month and Cumulative -
(Through February 2015 Bid Letting)**



Estimate Accuracy by Region

**% of Proposals within 10% of the Low Bid
-By Region and Fiscal Year-**



Estimating Tools

- ▶ Estimator
- ▶ Bid Express
- ▶ Estimating Website
 - Asphalt Excel Spreadsheet
 - Mobilization
 - Others



Estimating Tools

- ▶ Estimator--Cost estimating tool that is part of the AASHTOWare software suite.
- ▶ Assists design engineers determine initial unit prices that utilizes the last three years of data based upon:
 - Project location
 - Work type classification
 - Quantity of item.
- ▶ For more information see FDM 19-5-10
<http://roadwaystandards.dot.wi.gov/standards/fdm/19-05.pdf#fd19-5-10> or Info Tech, Inc. at (352) 381-4400



Estimating Tools – Bid Express[®] Secure Internet Bidding

- ▶ Online information service that provides historical bid data and unit prices - www.bidx.com
- ▶ The database can be used to find average cost information searching by a variety of criteria.
 - Specific bit items
 - Key word(s) in item description
 - Proposal ID
 - County(ies)
 - Let dates range
 - Quantity range
- A Bid Express user guide is available at <https://trust.dot.state.wi.us/extntgtwy/consultants/estimates/index.shtm>



Estimating Tools

– The Estimating Website

- ▶ The goal of this website is to provide estimating tools and support for designers producing project estimates.
- ▶ Where the latest tools exist to assist in creating more accurate estimates.
- ▶ Please send us an email if you have suggestions for additional guidance.
- ▶ Available at
<https://trust.dot.state.wi.us/extntgtwy/consultants/estimates/index.shtm>



Estimating Tools

- ▶ Asphalt Excel Spreadsheet provides historical bid data for Asphaltic Material and HMA Pavement Items as one combined price.
 - Designers should consider the price of asphalt as a combined cost including asphaltic material and HMA Pavement rather than estimating the cost of each item individually.
 - Available at <https://trust.dot.state.wi.us/extntgtwy/consultants/estimates/guidance.shtm>



Estimating Tools

- Mobilization Tables at the Estimating Guidance website has statewide median percentages organized into work classifications and years.
 - Additional tables shown below provides medians 1st quartile, 3rd quartile for each work type, each year.
 - Available at <https://trust.dot.state.wi.us/extntgtwy/consultants/estimates/guidance.shtm>



Estimate Review

- ▶ Initial estimate review completed within design firm/design team
- ▶ Draft PS&E estimates reviewed by:
 - Regional program control engineers
 - Designated mega team QA engineer
 - Local program managers
- ▶ Post letting analysis of bid result



Initiatives

- ▶ University of Wisconsin Updates
 - Construction Cost Index
 - Develop Estimating Tools that quantify various risk factors
- ▶ Partnering Efforts that can help reduce risk
 - Q/A on HCCI site
 - Posting of preliminary plans
 - Available at Partnering Website

<http://www.dot.wisconsin.gov/business/pi/index.htm>



Construction Cost Index

- ▶ Cost indices are used to measure inflation—how prices have changed over time
- ▶ Current Method
 - Fixed Quantity Index
 - Index base year 1990
 - Does not adjust to work performed



Construction Cost Index

- ▶ The Chained Fisher Construction Cost Index
 - Accounts for changes in type and weights of items
 - Eliminates issue of updating the base period
 - Able to accommodate weights for the current year and base year
 - Performs better than fixed-weight indices when prices and quantities are volatile
- ▶ The Federal Highway Administration (FHWA) uses a Chained Fisher approach—
<http://www.fhwa.dot.gov/policyinformation/nhcci.cfm>



SPV Usage

- ▶ Calendar Year 2014
 - Approximately 22% total contract dollars are SPVs
- ▶ SPVs create Issues
 - Contractors have to interpret the SPVs, increasing risk
 - Special provision editor has to review SPV language to ensure it the item is biddable and consistent with Department standards
 - Estimating – no regression history for items, must rely on knowledge of past projects for cost history



SPV Reduction Plan

- ▶ WisDOT commitment
 - Multi Regional Team—Rebecca Rooyackers, Wafa Elqaq, Michael Kretschmer, Chad DeGrave over 10 PMs
 - Gathering SPVs standard and categorizing
- ▶ Technical committees efforts
 - New STSPs and standard bid items will be created
- ▶ Designers
 - Use SPVs only when necessary



SPV Help

- ▶ Angie Clary – Special provision editor
 - 608.266.3811
 - Angela.clary@dot.wi.gov

- ▶ Mike Hall – Standard specification editor
 - 608.266.8461
 - Michael1.hall@dot.wi.gov



Considerations for Estimates

- ▶ Time of Year Project is Let
- ▶ Project time constraints
 - Working day contracts versus completion date contracts
 - Are completion date contract needed as much as they're used.
 - Contractors may add cost of liquidated damages to their bid if they already know they can't complete the project on time.
 - Multi-year contracts

Considerations for Estimates

- 
- ▶ Cold weather
 - Asphalt production rates decrease and other costs increase
 - ▶ Construction Staging
 - Working next to traffic
 - Multiple mobilizations
 - Night work
 - Project access
 - ▶ **Complication = Risk = Increased costs**

Bid Review Process

Bid closing at 9:00 am, Tuesday



Bid Opening 9:01 am and Posting at 9:30 am,
Tuesday



Bids downloaded from Bid Express to WisDOT



Bid Review Process

Bids sent to various access databases to create a variety of reports



Access applications used to generate emails



Projects that have bids 5% over the estimate or 10% under the estimate need to be reviewed by the region to justify awarding the contract.



Bid Review Process

BPD asks regions to provide responses of questions about reviewing the estimate against the bid and verify quantities. Concurrence required from PDS, Planning Chiefs and Locals for projects bid 5% over the estimate. Due by Noon on Thursday.

BPD concurrently reviews the bids for irregularities, reasonableness of bids received, evaluated whether or not a bid is materially unbalanced. Is Awarding contract justifiable. Final Award decision is at BPD.



Bid Review Process

If during the bid review process a contractor should call the region please direct them to
BPD section chief (608) 266-3721

Thursday afternoon, BPD team members evaluate each proposal

Awards meeting--Friday morning
Bureau Director, Section Chief, and Estimating Engineer review the letting to decide whether or not a contract will be awarded



Feel free to contact us with your ideas to improve WisDOT Estimates.

Thank You!

Scott Lawry, PE

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Estimate Engineer

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Website:

WisDOT Employees -

<http://dotnet/consultants/estimates/index.shtm>

Consultant –

<https://trust.dot.state.wi.us/extntgtwy/consultants/estimates/index.shtm>

