2020
WTBA & WisDOT
Contractor-Engineer Conference

January 30-31, 2020
WisDOT Welcome

Craig Thompson
WisDOT Secretary
Division of Transportation System Development

Rebecca Burkel
Administrator

Contractor-Engineer Conference
Madison, Wisconsin

January 30, 2020
Collaboration

What’s next?

• Claims
  ▪ Revised spec language
  ▪ Streamlined process

• Cost Reduction Incentives
  ▪ CRI review committee
  ▪ Spec/guidance revisions

• Utilities Process
  ▪ Working to reduce delays

• Construction Quality
  ▪ Tom Burch, Jason Samz, Ryan Ramthun, Wayne Chase, Bruce Enke and Barry Paye

• Cost Saving Initiative
  ▪ Mike Maples, Peter James, Mike Hahn, Dave Stertz, Jim Rohe, and Jill Fehrman

• DBE Good Faith Effort
  ▪ Dan Zignego, Craig Clements, Ruth Geier, Madalena Maestri, Todd Matheson and Jason Roselle
DTSD Organizational Changes

• Administrator’s Office
  ▪ Rebecca Burkel
  ▪ Steve Krebs
  ▪ Scot Becker

• Bureau of Structures
  ▪ Josh Dietsche, director

• Office of Asset Management
  ▪ Tom Beekman staying on to aid transition to DTIM

• North Central Region
  ▪ Ken Wickham, director
  ▪ Matt Bronson, deputy

• Southeast Region
  ▪ Deputy Director (filling vacancy)
Our Work: Southwest
Our Work: Southeast
Our Work: Northeast
Our Work: Northwest
Three Pillars of DTSD Excellence

- 3Ps are about creating a positive, productive mindset to achieve more from our work.
  - Partnerships
  - People
  - Process
Three Pillars of DTSD Excellence

- **Partnerships**
  - Internal and external
  - Every relationship creates opportunity
  - Strengthen and enhance our work
Technical Committees

Opportunities to work together. Note, not a comprehensive list.

• Aggregate Technical Team
  ▪ Meets three times annually

• HMA Technical Team
  ▪ Meets quarterly

• Concrete Pavement Technical Committee
  ▪ Meets quarterly

• State Transportation Innovation Council (STIC)
  ▪ Meets quarterly

• Construction Contract Administration Workgroup (CCAW)
  ▪ Meets quarterly

• Grading, Landscaping, Sewer (GLS)
  ▪ Meets twice annually

• Bridge Technical Committee
  ▪ Meets three times annually
Three Pillars of DTSD Excellence

- **People**
  - Our greatest asset
  - Problem solvers
  - Mission-driven
  - Process improvement
Three Pillars of DTSD Excellence

- Process
  - Consistency / accountability
  - One question / one answer
  - Continuing improvement
Efficiencies
Local Bridge – Low Risk Pilot

Pilot project sites

Years listed are tentative for construction and subject to change.

Barron County
- Brack Creek Bridge, 29th Street, Sumner, 2020
- Hay River Bridge, 17th Avenue, Clinton, 2020
- Doris Creek Bridge, 9 ½ - 10 ¾ Street, Prairie Farm, 2020
- Four Mile Creek Bridge, Arland - Hillsdale, 2020

Burnett County
- Giant River Bridge, Siren - County X, 2020

Crawford County
- Woodward Hollow Creek Bridge, Marietta Valley Road, 2021

Dodge County
- Budler Creek Bridge, Buchanan Road, Herman, 2021

Jefferson County
- Deer Creek Bridge, Will Road, Jefferson, 2021

Jackson County
- Robinson Creek Bridge, County HH, Millston, 2021

Marathon County
- Flover River Bridge, WIS 29 - County N, 2020

Outagamie County
- Branch Apple Creek Bridge, Hickory Drive, Vandenbroek, 2020
- Branch Apple Creek Bridge, County CC, Vandenbroek, 2020

Pierce County
- Trimble River Bridge, WIS 35 - US 10, 2022

Waukesha County
- Fox River Bridge, County I, 2021
- Fox River Bridge, Prairie Avenue, 2021
- Fox River Bridge, Madison Street, 2021

Learn more at Wisconsindot.gov
Design-Build

• Will help to streamline planning, contracting and delivery of certain projects

• Finalizing contract with AECOM to develop processes

• Opportunity to work with industry, create efficiency and deliver quality projects

• Reorganized the Bureau of Project Development
  ▪ Alternative Contracting Section
  ▪ Working on filling position to lead efforts
Work Zone Safety
Thank You

Rebecca Burkel
DTSD Administrator
Wisconsin Department of Transportation
FHWA Perspective & Initiatives

2020 Contractor-Engineer Conference
State Highway Programs

Lets and Quantities Update

Contractor – Engineer Conference
January 30, 2020

Jeff Gust, P.E. – Director
Bureau of State Highway Programs
Division of Transportation Investment Management
FY 19 Final Let Level

$1,266 Million Actual

FY 19 Let Goal $1,190 - $1,220 Million

$17 M Maintenance/Operations

$183 I-94 North-South
Includes N-S projects funded with INFRA and 2017 Act 58 funding

$1,065 M Improvement
SHR, Majors, SE Mega, Local Programs
Historical View of Lets and Let Scheduling

- History of Let Construction Costs
15 Year History Of Lets [Excluding Maintenance/Operations]

- SHR, Majors, Megas, Locals
- Marquette
- ARRA And TIGER
- Contingent Bonding
- Hoan Bridge
- I-94 N-S

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Let History In Constant Dollars

[Constant 2003$, Excluding Maintenance/Operations]

Average Let Amount = $629 Million
1. Confirm funding levels
2. Reserve funding for design/construction engineering and contract change orders
3. Update project cost estimates
4. Finalize schedule of lets and non-lets within funds available
5. Identify contingency projects to have ready in case they’re needed
Let Level Caveats

- Federal FY 20 funding
  - Concern is actual federal funds vs. Chapter 20 estimate
  - FFY 19 redistribution was $2 million above Chapter 20 estimate of $25 million

- State motor fuel and registration revenue collections
Projected FY 20 Let Level

Estimated Let Goal Range
$1,070 - $1,100 Million

Maintenance/Operations
$17 Million
Review Let Information

Let Comparison ($millions)

FY-2019 Let: $1,266
Estimated FY-2020 Let: $1,070 - $1,100
Funding & Lets (FY-19 vs. FY-20)

- Despite a Hefty SHR Increase, New Majors Enumerated, and Zoo North Leg Funded, FY-20 had less funding than FY-19

- FY-19 had $183 M INFRA Grant and Bonding for I-94 N-S
* Approximately $39M of FY-20 SE-Mega funding is being held for the SFY-21 North Leg Let. In the chart above, this amount has been removed from SFY-20 and placed in SFY-21.
FY-21 Funding is Higher than FY-20 (Ch. 20)

Chapter 20 Funds + FY-19 Extra Fed

- **SFY 2019**: $1,492,000,000
- **SFY 2020***: $1,413,000,000
- **SFY 2021***: $1,546,000,000

- **Carry Over N/S $21M for Let**
- **Ch. 20 Funding (FY-19 has $77M Fed Above Estimate)**
FY 20 Shelf Projects

Met Shelf Goal with 116 projects and $368 Million
Thank You!
BREAK
WisDOT Design-Build Update

Beth Cannestra, P.E.
Director, Bureau of Project Development
Who We Are
Shaping the future, one inspired outcome at a time.

As the only authority on Design-Build Done Right®, we practice what we preach – integration powers innovation.
Agenda

Design-Build Research

Project Delivery Overview

DBIA Transportation & Aviation Committee

DBIA Transportation Best Practices

Transportation Design-Build Projects

Training & Certification
Design-Build Research
A Better Way to Build

Design-build isn’t “alternative” anymore.
The Latest Data Shows

Design-build is the **best performing** delivery system for both **schedule and cost**. It’s also the **most popular** and **fastest growing**, expected to deliver nearly half of all projects by 2021.
Growth in Design-Build Utilization

- **Design-bid-build...**
  - 2013-2017: 39%
  - 2018-2021: 19%
- **CMGC/CMAR**
  - 2013-2017: 32%
  - 2018-2021: 35%
- **Other**
  - 2013-2017: 2%
  - 2018-2021: 2%
Growth in Every Region

- Pacific: 6.3%
- Mountain: 6.1%
- West North Central: 5.1%
- East North Central: 5.5%
- West South Central: 5.5%
- East South Central: 5.6%
- New England: 4.8%
- Middle Atlantic: 5.0%
- South Atlantic: 6.2%
Impressive Growth

Anticipated total design-build construction spending 2018–2021:

$1,200,000,000,000,000

($1.2 trillion)
DOT Project Size

The typical range in value of design-build projects (in millions of dollars)

- Over 200
- 150-200
- 100-150
- 50-100
- 25-50
- 0-25

DBIA’s 2016 survey of state DOT’s
Historically, design-build has been used on large projects. Recently, we have seen a growing use of design-build on smaller projects.

“When we have a multimillion-dollar project we look towards design-build. Generally, we believe that we get a better value for the investment with design-build.”

“The trend is for larger and more complex projects to be design-build. We will continue to see bigger projects going design-build.”
Design-Build Authorization for Transportation 2019
Design-Build Project Types for DOT’s

States use design-build for these project types

- 91% highways
- 65% bridges
- 9% railroads

DBIA’s 2016 survey of state DOT’s
Design-Build Project Delivery
Timeline of Project Delivery

Renaissance
- 1795 BC
- 40 BC
- 1412 CE
- 1456

Industrial Revolution
- 1850s
- 1935
- 1960s
- 1972
- 1975

Information Age
- 1980s
- 1993
- 1996
- 2000s
- 2006
- 2014
- 2016

Age of the Master Builder

Segregation of Services

Return of Integration
Federal Authorization Timeline

1990
FHWA Allows D-B under SEP-14

2002
FHWA Issues Final DB Rule

2011
FHWA Every Day Counts CM/GC Prioritizes DB

2012
MAP 21 Authorizes CM/GC Prioritizes DB
Project Delivery Terminology

**Project Delivery Method:**
- Establishes when parties engage
- Determines roles of parties
- Influences contractual & reporting relationships among parties
- Determines sequence of design, procurement & construction
- Influences responsibility for & impact of changes in the work

**Procurement Method:** How team members are selected
- e.g., QBS, best value, low price, sole source

**Contracting Approach:** How team members are paid
- e.g., Lump sum or Fixed price, Cost reimbursable, GMP, Target price
Project Delivery Methods

- **Design-Bid-Build** (often called “Traditional Delivery”)

- **CM at Risk** (CMAR, CM/GC)

- **Design-Build**
  - Traditional – Best Value Selection
  - Progressive – Qualifications Based Selection
Design-Bid-Build

Typical Point of Engagement

- Planning
- Design
- Bidding
- Construction

Owner

Architect Engineer

Design Consultants

General Contractor

Trade Contractor

Trade Contractor

Trade Contractor

Trade Contractor

Contracts Sum Committed

DBIA

INSTITUTE OF AMERICA
CM at Risk (CMAR, CM/GC)
Design-Build

Typical Point of Engagement

Planning
Procurement and Preliminary Design
Design Completion
Construction

Owner

Design-Build Entity

Architect Engineer
General Contractor
Specialty Contractors
Trade Contractors
Suppliers

$$ $$
Lump Sum, GMP. Or Target Cost Contract Sum Committed

DBIA
DESIGN-BUILD INSTITUTE OF AMERICA
Design-Build

Design-Build Project Delivery

Procurement
- Best Value
- Progressive
- Sole Source

Contract
- Lump Sum
- Cost-Plus
- GMP
- Target Price
- Unit Price

Organizational Structures
- Fully Integrated Firm
- Contractor-Led
- Designer-Led
- Joint Venture
- Developer-Led

Other Services
- DBO
- DBFO
- DBOM
- DBFOM
- DBOOM

“Design-Build Done Right” refers to any of the procurement and/or contracting approaches above performed in accordance with DBIA Best Practices. “Other Services” refers to ways in which to expand the scope of design-build project delivery to include upstream financing and downstream O&M services.
Top Factors Influencing Design-Build Delivery

“Acceleration is one of the more governing factors for selecting design-build. We want to get the work out on the street fast and create jobs.”

“Design-build projects are typically larger and more complex, which requires risk management.”

“New construction for design-build is more challenging and requires greater risk. They tend to be bigger cost projects.”
Procurement

- Low Bid / Best Value / QBS / Sole Source
- Alternative Technical Concepts
- Stipends
- Progressive Approach
Procurement Selection Process

Selection Processes Owners Use

- Best value: 87%
- Low bid: 35%
- Qualifications-based: 13%

DBIA’s 2016 survey of state DOT’s
Best Value Selection

- Owner preparation of procure documents
  - Owner defines project scope, schedule & preliminary budget
  - Performance-based technical requirements including quality standards with limited prescriptive specifications

- Typically two-phased process
  - Request for Qualifications (RFQ)
  - Request for Proposals (RFP)
Alternative Technical Concepts (ATC’s)

- Proposers submit alternatives to mandatory requirements
  - “Better than or equal”
  - Confidential
  - If accepted by Owner proposer can use it in technical proposal
- Fosters creativity when RFP design is advanced
- ATC’s are different from value engineering change proposals
- Heavily used in transportation and water sectors
Benefits of Using ATC’s

- Accelerated schedules
- Reduced costs
- Reduced ROW impacts
- Reduced environmental impacts
- Improve MOT
- Improved traffic operations
- Optimized life cycle costs
- Introduction of new technologies
- Risk transfers that decrease risks to the Owner

- Encourage advanced communication team ideas
- Agencies maintain confidentiality
- Agencies noted that ATC’s:
  - Provide an advanced understanding of the DB team’s concept
  - Helped by providing feedback and avoid wasted efforts
Payment of Stipends

- Not intended to cover total pre-award costs
- An essential means of offsetting the cost of preliminary design
- Used to compensate unsuccessful teams
- Stimulates increased innovation and improved results
- Owners said they realize a 4:1 to 10:1 return on investment
- Varies based on complexity of the project
- Ranges between 0.1% and 0.4% of estimated construction cost (.25% avg)
Progressive Design-Build

• Phase 1 - Preliminary Services
  • Design-Builder collaborates with Owner to create or confirm Project’s detailed scope & basis of design
  • Design-Builder advances design
    • Decisions based on cost, schedule, constructability, operability, life cycle & other considerations
    • Ongoing, transparent, cost estimates to achieve budget requirements
    • Formal commercial proposal for Phase 2 (final design & construction)

• Phase 2 – Final Design & Construction
  • Initiated upon acceptance of commercial Proposal
Owner’s Advisors / Consultants

Terminology varies with services provided:

- Owner Advisor
- Owner’s Architect/Engineer
- Owner Agent
- Criteria Professional/Consultant
- A/E1
- Owners Representative
DBIA Transportation & Aviation Committee

Continually assess project delivery practices, challenges and opportunities in the Transportation and Aviation sectors to help ensure success in project delivery, with a focus on expanding the use and understanding of Design-Build Done Right®.

• Collaborate with other industry organizations on key Transportation and/or Aviation issues that impact design-build to collectively facilitate positive change.

• Assess and continually update best practices specific to the Transportation and Aviation sectors.

• Recommend relevant content for education courses and conferences, and assist in development, as appropriate.

• Oversee implementation of Transportation- and Aviation-specific activities and events, including serving as the planning committee for the Design-Build in Transportation (and Aviation) Conference.

• Lead development of tools/resources to assist Owners in effective execution of design-build.

• Monitor legislative/regulatory obstacles and propose solutions.
DBIA Best Practices
Universal Best Practices

• Procuring Design-Build
• Contracting for Design-Build Services
• Executing the Delivery of Design-Build Projects
Design-Build Done Right® Primers

• What is Design-Build?
• Choosing a Project Delivery Method
• Public-Private Partnerships (P3)
• Progressive Design-Build
Transportation Best Practices

- Procuring design-build projects
- Contracting design-build projects
- Executing the delivery of DB projects
Transportation Deeper Dive

• Use of Alternative Technical Concepts (ATC’s)
• Right-of-Way Acquisition
• Utilities Management
• Environmental Analysis & Permitting
Progressive Design-Build Best Practices

• What is Progressive DB
• Why choose PDB
• Obstacle to PDB
• The procurement process
• Contract issues unique to PDB
• Preparing to implement PDB
Design-Build Transportation Projects
I-35W St Anthony’s Falls Bridge

Minneapolis, MN

Construction Start Date: October 2007
Construction End Dates: September 2008
Total project cost: $265,590,000
I-90 Bridges

Mower County, MN

The project consisted of replacement of an existing local street flyover bridge, the Dobbins Creek bridge, and the Turtle Creek bridge.

Total project cost: $12.8 million
Hastings Bridge

Minneapolis, MN

At 545 feet it is the longest free standing tied arch bridge in North America. Best value selection procurement resulting in a bid that was $80 million below the engineers estimate.

**Total project cost:** $130 million
Training & Certification

Certification Means Business
Certification Means Business

As the design-build industry grows, so does the need for qualified professionals who practice Design-Build Done Right®.

Being a DBIA Designated Design-Build Professional™ identifies you as a trained design-build pro.
Today Is the Beginning of Your Education

- **Instructor-led**: DBIA instructors are among the nation’s leading experts in design-build. Courses are offered year-round throughout the nation.
- **In-house Training**: Let us come to you and provide customized training for your organization.
- **Online**: Our web-based courses provide top-notch training from the convenience of your computer.
DBIA Educational Resources (store.dbia.org)

DBIA Universal Best Practice

Market Sector Best Practice
- Transportation
- Water/Wastewater
- Federal Sector

Design-Build Manual of Practice

DBIA's Contract Documents and Forms

DBIA Position Statements
- Sustainability
- Federal, State and Municipal "Lowest Price Technically Acceptable" Procurement
- Design Excellence
- Principles of Best Value Selection
- Qualification Based Selection
- Organization of the Design-Build Entity
- Use of Stipends
- Integrated Project Delivery
Wisconsin Design-Build Training

10% Off Workshop Session for WTBA Conference Attendees

March 2-4, 2020
New Horizons
40 Science Drive, 2nd Floor
Madison, WI 53711

See flyer for details
The Best Design-Build Conferences

April 22-24, 2020
Hilton Anatole
Dallas, TX
Design-Build Institute of America
dbia.org
dbia@dbia.org
(202) 682-0110
Construction Quality & Materials Section Updates

Barry Paye, PE
Chief Materials and Pavement Engineer

WTBA/WisDOT Contractor/Engineer Conference
January 30, 2020
Today’s Topics

• Code of Federal Regulation
• Construction Quality
• Specification Updates
  • Aggregate
  • HMA
  • Concrete
• HTCP Updates
• Approved Product List
Why Quality Matters & DOT Emphasis on it

1. It impacts the life and maintenance costs of everything we build!

2. Negative trends in non-conformance & non-performance data over the last several years.

3. FHWA has identified this as a top risk for WisDOT and is looking for improvement
   - Good news – we have a start on this! But there is room for more improvement!
Control of Materials: Standard Spec 106

- FHWA Regulations - (23 CFR 637)
- All materials must be approved before incorporated into the work
- Approval based primarily on test results showing the material conforms to specifications.
- Testing:
  - Manufacturer performs and certifies
  - Performed by the contractor under the quality management program (QMP)
  - Performed by the department
Quality Management Program (QMP)

- Under QMP provisions, department will base approval of materials and acceptance of the work on a combination of the following:
  - Contractor Quality Control (QC) testing
  - Department Quality Verification (QV) testing
  - Inspections of the materials production, storage, handling, and construction processes
- Dispute resolution procedures
- Foundation of the QMP concept is to develop partnership so that the exchange of information is commonplace
33 States Using Contractor Test Results in Acceptance Decision
Non-Conformance & Non-Performance of QMP

Reported NC & NP Occurrences

Number of Issues

Year

2016 2017 2018

NC Total

233 252 368

NP Total

249 362 368

580
WisDOT QMP Concrete Pavement and Structures – Random Numbers

Before Starting a New Lot
• When a mix design and/or placement method change
• Make sure the final Sublot (Random Sample location) has been sampled before the end of the current Lot
• If the Lot is ended prematurely before a random sample location is met
• A New Random Sample must be obtained by:
  ▪ Create a new random location for the smaller subplot
  ▪ Ask project leader to select an engineer directed location
• **Must have the required number of tests for each Lot**
• **Concrete Tech Team is developing language for partial sublots and small quantities.**
Value of each test

- **HMA** – Each QC Verifies $45,000+ of material
- **Concrete Paving** – Each QC Test Verifies $75,000+ of material
- **Concrete Structures** – Each QC Test Verifies $20,000+ of material
- **Base Aggregate** – Each QC Test Verifies $45,000+ of material
- EACH TEST HAS SIGNIFICANT VALUE!!
Good testing

• Is this the air meter you want testing your concrete?
• This test could be worth $20,000+
A former concrete quality control manager pleaded guilty to conspiring to commit wire fraud in connection with the U.S. Department of Transportation-funded Dulles Metrorail Project Phase II, an 11.4-mile stretch of the Metropolitan Washington Airports Authority’s (MWAA) 26-mile Silver Line extension.

- quality control staff he supervised falsified test records knowing that prime contactor would reject concrete measuring air content outside a required 4.5-7.5 percent range.
- test results showing concrete mixes falling below 4 percent air
- faces a maximum of five years in prison and $250,000 fine

On Thursday, the company they selected, its owner and five employees were arraigned on charges of doing the very same thing on those two projects and hundreds of others.

In fact, none of the nearly 3,000 test reports that investigators seized from the replacement company, American Standard Testing and Consulting Laboratories, contained legitimate test results, according to one person briefed on the inquiry that led to the charges.

“The volume of fabricated tests is egregious,” the Manhattan district attorney, Cyrus R. Vance Jr., said in announcing the charges. “It was systemic; it was pervasive.”

In addition to Yankee Stadium and the Second Avenue subway, the projects for which test results were allegedly falsified represented a remarkable array of familiar places, both old and new: work on the Lincoln Tunnel, the Jacob K. Javits Convention Center, the Port Authority Bus Terminal, the Metropolitan Transportation Authority’s huge new Fulton Transit Center and East Side Access project, the new air-traffic control tower at La Guardia Airport, a building at Memorial Sloan-Kettering Cancer Center, Weill Medical College, Columbia University and the Intrepid Sea, Air and Space Museum.

Aggregate Stockpile & Source Management

- When it isn’t done well?
And what if the loader had dirt on it’s tires?

Dawson – Lannon Stone
Chert & lightweight pieces also are issues...

- Some crushing operations can help
- Some layers are just too poor to make durable concrete
Popout issues

Problem – Concrete Surface Voids

Cause:
- Poor Aggregate

Solution:
- After 5 year warranty period, pavement received an overlay.
- Private market would not like this either!
Even the McKenzie’s don’t like poor QC
Tack Coat
Protect the work!
Protect the work!
It’s not just construction materials……

• How is Buzz going to get to his rocket?????
Nearly 200 recent road projects across the state could crack and crumble years ahead of schedule because of critical mistakes contractors made mixing asphalt.

State transportation officials are testing samples from $71 million in pavement projects in state laboratories to uncover flaws in the asphalt mix. They suspect contractors are using insufficient amounts of the sticky petroleum binder that holds asphalt together. Others, however, suggest the state's call to use more recycled asphalt could be the culprit.

"Our concern is did (contractors) include enough binder to make the pavement perform as it was intended," said Robert Tally, INDOT deputy commissioner for materials and construction management.

He emphasized that testing continues and they haven't reached any firm conclusions. But in some cases INDOT has already notified local transportation officials that the lifespan of their new roads could be 30 percent shorter than usual.

For drivers already frustrated with the condition of Indiana's roads, including a month-long shutdown of 33 miles of I-65 due to a broken bridge, the rapidly deteriorating asphalt threatens to make things even worse. The problem threatens to cause roads to fail sooner, putting taxpayers on the hook for even more road construction.
The moral of the story

• Everyone has a role in producing a quality final product
  ▪ Isn’t that what we all want?

• Communication early and often solves a lot of issues

• It needs to be part of the culture of the firm and employees need to be empowered to address it.

• WTBA & WisDOT Task Force to improve construction quality
PSA:
DO NOT RELY ON THIS PRESENTATION IN PLACE OF SPECIFICATIONS
Aggregate Specification Updates

• Small Quantity Changes
• Stockpile Testing Updates
• Durability Testing Updates
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<td>80%</td>
<td>100%</td>
</tr>
<tr>
<td>Sum of Tonnage for Projects &lt; 47,437</td>
<td>47,437</td>
<td>784,429</td>
<td>6,983,656</td>
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<tr>
<td>Percent of Total Tonnage</td>
<td>0.7%</td>
<td>11.2%</td>
<td>100.0%</td>
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<tr>
<td>#QMP Base Tests</td>
<td>574</td>
<td>1260</td>
<td>3488</td>
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<tr>
<td>Percent Total Tests</td>
<td>16%</td>
<td>36%</td>
<td>100%</td>
</tr>
</tbody>
</table>
730.3.4.1 Contractor QC Testing

Replace the entire text with the following:

(1) For small quantity contracts with \( \leq 500 \) tons, submit 2 production tests or 1 stockpile test. Production tests are valid for 3 years from the date the production sample was obtained; the first day of placement must be within 3 years of the date sampled.

(2) For small quantity contracts with \( \leq 6000 \) tons and \( \geq 500 \) tons, do the following:
   1. Conduct one QC stockpile test before placement.
   2. Submit 2 production tests or conduct 1 loadout test instead of placement tests. Production tests are valid for 3 years from the date the production sample was obtained; the first day of placement must be within 3 years of the date sampled.
   3. If the actual quantity placed is more than 6000 tons, on the next day of placement perform one additional random QC test for each 3000 tons of overrun, or fraction thereof.
730.3.1 General

Replace paragraph three with the following:

(3) Stockpile tests[^1] can be used for multiple projects. If placement on a project does not begin within **120** calendar days after the date the stockpile sample was obtained, retest the stockpile before placement begins.

730.3.4.2 Department QV Testing

(1) Conform to the QV testing under 730.3.3; the department may waive QV testing for contract bid item quantities of 500 tons or less.
<table>
<thead>
<tr>
<th>Replicate</th>
<th>LF QT</th>
<th>QF QT</th>
<th>QF LT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>46.9</td>
<td>21.1</td>
<td>36.6</td>
</tr>
<tr>
<td>2</td>
<td>50.4</td>
<td>21.7</td>
<td>38.3</td>
</tr>
<tr>
<td>3</td>
<td>53.3</td>
<td>24.9</td>
<td>38.6</td>
</tr>
<tr>
<td>Average</td>
<td>50.2</td>
<td>22.6</td>
<td>37.8</td>
</tr>
</tbody>
</table>
Summary

• Freezing and thawing rates significantly affect results of the T103 procedure within limitations of the test.
• Need for procedure that minimizes variability, maximizes efficiency and properly ranks soundness of aggregates.

• Short Term: WisDOT modified method CMM 8-60
HMA Specification Updates

- Longitudinal Joint Construction
- Nuclear Density Testing Updates
- New Mix Design Categories
- Binder Testing Updates
- Percent Within Limits Updates
Implementation of New Longitudinal Joint Construction

• Feb 2020 PSE (starting with May 2020 Letting)
  ▪ Notched wedge joint on all mainline HMA layers ≥ 1.75"
  ▪ Wedge only milled out for SMA and when joint is damaged by traffic as directed by the engineer
    • Statewide STSP 204-045 used for wedge removal (rarely)
  ▪ LJD STSP included on all PWL projects
  ▪ Discontinue use of joint heater STSP

• Aug 2020 PSE (starting with Dec 2020 Letting)
  ▪ Begin collecting joint density for information
  ▪ 2021 Standard Spec will require collection of joint density data on all projects that don’t include the LJD SPV
2018 Longitudinal Joint Density SPV Project Results (con’t)

- Notched Wedge
  - Improved confined and unconfined densities
  - Increased safety for traveling public
Joint Construction
CMM 8-15 Nuclear Density Testing

• Random locations for BOTH longitudinal and transverse offset
• Specify linear subplot system for all projects
  ▪ Nominal tonnage system eliminated
  ▪ Sublot layout and testing frequency based on:
    • Single paved lane length
    • Multiple lanes within a contiguous area
  ▪ Example layouts for mainline, roundabouts, and intersections
• Round pcf, and % density to nearest 0.1
• Testing times:
  ▪ Project testing (All HMA, soils, and base): 1-min
  ▪ Ref site and gauge comparison (CMM 8-15.7 & 8-15.8): 4-min
New HMA Pavement Categories

- Number 6 Gradation (4.75mm mix)
- Interlayer
Asphalt Binder Content Testing

• QV testing results for 2019
  ▪ 877 QV tests in 2019
  ▪ 27 Noncompliant QV tests (AV, VMA and/or AC)
  ▪ 7 of 27 had low binder content - 0.8%
  ▪ 4 of the 27 were AC only
    • 2 were confirmed by BTS to be -0.4% below JMF
  ▪ 3 of the 27 were AC and VMA or AV
    • 1 was confirmed by BTS to be -0.4% below JMF
Field Performance – Distress Survey Data

- Convert distress survey maps to digitized reflective cracking data (percent cracking at joints)

- After 1 year of placement, cells with less than 10% cracking at joints include:
  - **Cell 990** (1.5”, 9.5 mm (3% AV) and 2.25” HMA, 19mm)
  - **Cell 991** (1.75”, 9.5 mm (AASHTO M323 #8) and 2.25” HMA, 19mm)
  - **Cell 987** (1.5” HMA, 9.5 mm and 2.5” HMA, 19mm)
2018 Density Data

- **QMP**
  - QMP Avg. 94.2
  - STD. Dev. 1.2

- **PWL**
  - PWL Avg. 94.9
  - STD. Dev. 1.1

- Lower Limit 93.0%

- QMP 15% of values below spec.
- PWL 4% of values below spec.

- Approximately ¼ below spec limit for PWL vs. QMP
PWL – Density Improvements

Average Density (%)

- PWL 2017: 94.6
- PWL 2018: 94.9
- QMP 2017: 94.0
- QMP 2018: 94.2

2017 vs 2018: PWL shows a slight improvement, while QMP remains relatively stable.
2019 Cold in Place Recycling
CIR – Reduced Pavement Distress
Concrete Specification Updates

- Barrier Specs
- Super Air Meter (SAM)
- Performance Engineered Mixes
2020 CONCRETE SPEC UPDATES

• 501.3.8.2.1(2) – Hot Weather Concreting
  ▪ Barrier Wall Items added to list.

• 603.2 – Cast-in-place Barrier
  ▪ Moved to a Class 1 concrete requiring QMP testing.
• Section 715 – Concrete Pavement and Structures
  ▪ **Cast-in-place concrete barrier added.**
    • Small qty defined for barrier wall. >150 c.y.
    • Lot size: Max 1,000 c.y., divided into sublots of 100 c.y.
    • Testing: Added to Pavement section. (Paving contractor typically supplying the concrete.)
    • Acceptance: Added to structure section. Tighter PWL specifications and higher strength because it’s a safety item.
  ▪ **715.2.1(5) – SAM Shadow testing added for structures.**
2020 CONCRETE SPEC UPDATES
Part 7 - QMP

• Section 716 – QMP Ancillary Concrete
  ▪ **DRAFT** - specification changes:
    • Startup test results can be used for qty’s <50 c.y. Cylinders would need to be made.
    • Aggregate stockpile test results can be used on multiple projects within 120 calendar days after the date the sample was obtained.
Super Air Meter (SAM)

• Air-entrained bubbles are a key to freeze-thaw resistance in concrete
• Small air bubbles are more effective than large bubbles
• Has the ability to measure the air volume and distribution of the air
**SAM Durability: SAM**

- If SAM < 0.30 at the plant
  - then **minimal** change of SAM Number after the paver.

- If SAM > 0.30
  - then **significant** change in SAM Number after the paver.

- Observed air loss did not decrease the quality of the air void system when the SAM Numbers were < 0.30.
SAM – Draft Acceptance Spec Limits

• Acceptance limits
  - ≤0.2 – Accept (72%)
  - >0.2 to ≤0.25 – Corrective action (19.4%)
  - >0.25 to ≤0.3 – Remain in place, consider price reduction
  - >0.3 – Remove and Replace
  - A minimum of 4% air would also be required
Highway Technician Certification Program

- Materials Coordinator Training Updates
- Revocations
- Assistant Certified Technician (ACT) Program Changes
- AGGTEC – II Sunset
HTCP - Materials Coordinator Training Updates

• Made certification into one online module MCT vs the two of MCT-D and MCT-C
• LIVE NOW with new content
• Registration/Recertification at $100 (similar to MCT-C)
• Layered assessment checks into each module
• Exam at the end
Revocation

• Events Spanning from:
  ▪ Unethical behavior
  ▪ Low quality of work and faulty equipment:
    • Not knowing how to execute proper, testing methods for the specific certification
    • Unacceptable, non-performing equipment
    • IA having to walk technicians through “how to”
  ▪ Non certified tester, performing tests on WisDOT projects
Approved Products List & Repeal of 23 CFR 635

• FHWA Repeal of Patented and Proprietary Product Requirements

• Use the WisDOT Approved Products List!!
Know the specifications!
Communicate!
It will benefit all parties!
Questions

Barry Paye, PE
barry.paye@dot.wi.gov
Chief Materials & Pavement Engineer
Wisconsin Dept of Transportation
AASHTOWare Project Implementation

David Castleberg, P.E.
Design & Construction Technologies Supervisor

2020 WTBA/WisDOT Contractor/Engineer Conference
Madison Marriot West

January 30, 2020
AASHTOWare Project

- PrP: AASHTOWare Project™ Preconstruction
- PrB: AASHTOWare Project™ Bids
- PrCR: AASHTOWare Project™ Civil Rights & Labor
- PrCM: AASHTOWare Project™ Construction & Materials
WisDOT Contract Management System - Current

CAS - Construction Administration System
BAMS/DSS - Decision Support System
FIIPS - Financial Integrated Improvement Programming System
CRCS - Civil Rights Compliance System
WisDOT Contract Management System – Future Phase 1

- AASHTOWare Project Bids
- Bid Express Web
- Mobile Inspector
- BAMS/DSS
- Atwood Systems, Inc.
- Materials Tracking System
- Materials Information Tracking
- Materials Reporting System
- Materials Tracking Database
- AASHTOWare Project Database
- FIIPS
- PeopleSoft
- AASHTOWare Project Preconstruction
- AASHTOWare Project Construction
- AASHTOWare Project Civil Rights & Labor
- AASHTOWare Project Bids

Timeline:
- 2019
- 2020

Integrations:
- Oracle Database
- Estimator
- AASHTOWare Project Database
WisDOT Contract Management System – Future Phase 2

- AASHTOWare Project Bids
- Bid Express Web
- Estimator
- AASHTOWare Project Preconstruction
- AASHTOWare Project Construction & Materials
- AASHTOWare Project Civil Rights & Labor
- AASHTOWare Project Database
- FIIPS
- PeopleSoft

2022
- AASHTOWare Project Data Analytics

2023
Overarching Benefits of AASHTOWare Project

- Continuity of a unified database, starting with Preconstruction, including, Construction & Materials, and Civil Rights & Labor modules.
- Reduction of the number of interfaces, forms, and reports.
- Streamlined data access to AASHTOWare Project Construction™.
- External access for contractors to manage tasks.
Overarching Benefits

• Compliance in WisDOT’s continued eConstruction goals and objectives.
• Highly configurable for expansion and growth into the future as new requirements evolve.
• Increased IT efficiency in administration and maintenance of fewer systems, interfaces, and peripheral applications.
• Integration of Mobile Inspector™ for Daily Work Reports.
**AASHTOWare Project (AWP)**

**Current implementation status**

- AWP Preconstruction in production for 3+ years.
- AWP Bids in Production since June 2019.
- AWP Civil Rights & Labor in configuration stage.
- AWP Construction in configuration stage.
- AWP Materials beginning implementation.
AASHTOWare Project Bids

Bids were previously submitted using AASHTOWare Project Expedite

WisDOT migrated to an upgraded bidding software – June 2019

AASHTOWare Project Bids
AASHTOWare Project Civil Rights & Labor

Implementation of AWP Civil Rights & Labor (CRL)

- Web Based with external access for contractors
- Replaces Civil Rights Compliance System (CRCS)
- DBE, Trucking, OJT, Labor Compliance
- Will conduct a pilot with contractors.
Phase 1
**DBE, Trucking and OJT**
*Projected Start* Jan 2018
This rollout would be internal only to allow the agency staff to familiarize themselves with the Civil Rights & Labor application.

This phase is scheduled for 12-14 months, with the goal of production use of these functional areas.

Variables Impacting Initiation & Progression
Operational Interfaces
PeopleSoft
B2G Now
Internal End User comprehension:
Fully trained LCS

Phase 2
**Labor Compliance**
*Projected Start Mar 2019*
This rollout would be internal only to allow the agency staff to familiarize themselves with the Civil Rights & Labor application.

This phase is scheduled for 18-24 months, with the goal of production use of these functional areas.

Phase 3
**Testing & Training**
*Projected Start Jan 2020*

Internal Training
- Beta Testing
- Create Training Materials
- Train-the-Trainer Workshops
- Create a beta test environment with training exercises for all WisDOT Trainers, SMEs, end users

External Training
- Pilot Group training workshops
- Coordinate External End User training

Goal: Statewide training workshops for all Internal and External end users

Phase 4
**System Rollout**
Upload to WisDOT External facing sites
- System Administration and Active reports testing
- Load project & wage rate info
- Clean up & Migrate Project & Wage Rate Data from CRCS
- Continuous training

GOAL: Projected Go-Live is November 2020

**Pilot Firms**

| Arbor Green | Mega Rentals |
| Hoffman Construction | Murphy, Inc |
| Integrity Grading | RelyCo, Inc |
| Lunda Construction Co. | Rock Roads, Inc |
AASHTOWare Project Materials

Implementation of AWP Materials

- Web Based with external access for consultants, and contractors
- Replaces Materials Information Tracking, Materials Reporting System and Materials Tracking System
- Tentative production 2023
AASHTOWare Project Construction

Implementation of AWP Construction

- Web Based with external access for consultants, contractors and FHWA
- Replaces CAS, FieldManager, FieldBook, FieldNet, Field Information Tracking and Project Tracking
- Connects to Mobile Inspector app for Daily Work Reports (IDRs)
AASHTOWare Project Construction

Implementation of AWP Construction - Continued

- Configuration changes – Completing now
- Test of User Roles – February
- Pilot Test Spring/Summer 2020
- User set-up Summer/Fall 2020
- Training Fall/Winter 2020
- Production Date – Winter 2020/21
### Project WisDOT Construction Project Engineer

#### Contract Administration Overview

<table>
<thead>
<tr>
<th>Contract</th>
<th>Project ID</th>
<th>Description</th>
<th>Region</th>
<th>County</th>
<th>Route</th>
<th>Contractor</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>20190514025</td>
<td>4140-19-73</td>
<td>Gibraltar - Sister Bay, Bluff Lane - Gibraltar Rd - Const</td>
<td>Northeast</td>
<td>Crawford</td>
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<td>Maintenance Roul and Seal</td>
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<td>Polk</td>
<td>STH 48</td>
<td>POLK COUNTY HIGHWAY COMMISSIONER</td>
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</tr>
</tbody>
</table>

#### Construction Status

AASHTOWare Project Construction is currently under construction. The proposed implementation is Spring 2020.

Support - For AASHTOWare Project Construction support, contact us at AWPSupport@dot.wi.gov

Documentation - All AASHTOWare Project Construction documentation is located on our AASHTOWare Project Knowledge Base (AWPKB), https://awpkb.dot.wi.gov/Content/Default.htm.

The documentation describes how to administer a construction contract. Refer to the Summary of Changes for Construction, https://awpkb.dot.wi.gov/Content/constr/SummaryChanges.htm, for a list of recent changes.

#### External Links

- AASHTOWare Project Knowledge Base (AWPKB) - AWPKB
- Civil 3D Knowledge Base (C3DKB) - C3DKB
- Construction and Materials Manual - CMM
- Facilities Development Manual - FDM
Contract Administration Summary

Contract: 20190514025 - Gibraltar - Sister Bay, Bluff Lane - Gibraltar Rd - Constr Testing

General
- Contract ID: 20190514025
- Description: Gibraltar - Sister Bay, Bluff Lane - Gibraltar Rd - Constr Testing
- Prime Contractor Id: V118
- Prime Contractor Name: VINTON CONSTRUCTION COMPANY
- Contract Status: Active
- Contract Type: LET - Let Contract
- Spec Book: 03
- Unit System: English
- Highway / Route: STH 042
- Location

Additional Information

Administrative Offices

Contract Authority

Site Times

Funding

Locations

Retailage

Claims

Proposal ID
- 20190514025

Federal Project Number
- N/A

State Project Number
- 4140-19-73

Federal Oversight

Project Engineer
- Annette Czerneski

Project Engineer Office (Consultant Firm or WisDOT)
- WDT000
- WisDOT

Project Manager
- David Castleberg

Supervisor
- Adam Bleskacek
### Contract Administration Summary
**Contract: 20190514025 - Gibraltar - Sister Day, Bluff Lane - Gibraltar Rd - Constr Testing**

#### General
- **Time Type**: Completion Date
- **Time Descr**: Completion Date Contract 06/26/2020
- **Main**: Yes
- **Active**: Yes
- **% Comp**: 118.60

#### Additional Information
- **Time Type**: Available Time
- **Time Descr**: Interim Working Day
- **Main**: No
- **Active**: Yes
- **% Comp**: 0.00

#### Administrative Offices
- **Time Type**: Available Time
- **Time Descr**: Interim Working Day 02
- **Main**: No
- **Active**: Yes
- **% Comp**: 0.00
### Contract Project Overview

**Contract: 20190514025 - Gibraltar - Sister Bay; Bluff Lane - Gibraltar Rd - Constr Testing**

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<tr>
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<th>Description</th>
<th>Spec Book</th>
<th>Unit System</th>
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<tr>
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<td>English</td>
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**Test new Project**

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<tr>
<td>test</td>
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## Contract Project Summary

### Contract Project: 4140-19-73 - Gibraltar - Sister Bay, Bluff Ln - Gibraltar Road

<table>
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<th>Field</th>
<th>Value</th>
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<tr>
<td><strong>Contract ID</strong></td>
<td>20190514026</td>
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<td><strong>Project ID</strong></td>
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<tr>
<td><strong>Project Spec Book</strong></td>
<td>03</td>
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<td><strong>Unit System</strong></td>
<td>English</td>
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<tr>
<td><strong>Project Description</strong></td>
<td>Gibraltar - Sister Bay, Bluff Ln - Gibraltar Road</td>
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<td><strong>Federal Project Number</strong></td>
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<tr>
<td><strong>Original Project Amount</strong></td>
<td>$5,622,219.82</td>
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- **Record Source**: Preconstruction
- **Controlling Project**: Yes
- **Primary County**: C012 - Crawford
- **Primary District**: NE - Northeast
- **Project Location**: [Map Location](#)
## Contract Progress Summary

**Contract: 20190514025 - Gibraltar - Sister Bay; Bluff Lane - Gibraltar Rd - Constr Testing**

<table>
<thead>
<tr>
<th>General</th>
<th>Proposal ID</th>
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</thead>
<tbody>
<tr>
<td>Contract ID</td>
<td>20190514025</td>
</tr>
<tr>
<td>Description</td>
<td>Gibraltar - Sister Bay; Bluff Lane - Gibraltar Rd - Constr Testing</td>
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<tr>
<td>Prime Contractor Id</td>
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<tr>
<td>Prime Contractor Name</td>
<td>VINTON CONSTRUCTION COMPANY</td>
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<td>Contract Status</td>
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<td>LET - Let Contract</td>
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<tr>
<td>Spec Book</td>
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</table>

| Proposal ID | 20190514025 |
| Federal Project Number | N/A |
| State Project Number | 4140-19-73 |
| Federal Oversight | ✔ |
| Project Engineer | Annette Czernieski |
| Project Engineer Office (Consultant Firm or WisDOT) | WDT000 |

**Contract ID:** 20190514025

**Description:** Gibraltar - Sister Bay; Bluff Lane - Gibraltar Rd - Constr Testing

**Prime Contractor Id:** V18

**Prime Contractor Name:** VINTON CONSTRUCTION COMPANY

**Contract Status:** Active

**Contract Type:** LET - Let Contract

**Spec Book:**

**Proposal ID:** 20190514025

**Federal Project Number:** N/A

**State Project Number:** 4140-19-73

**Federal Oversight:** ✔

**Project Engineer:** Annette Czernieski

**Project Engineer Office (Consultant Firm or WisDOT):** WDT000

**WisDOT:**
### Contract Items

**Contract: 20190514025 - Gibraltar - Sister Bay; Bluff Lane; Gibraltar Rd - Constr Testing**

<table>
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<tr>
<th>Item</th>
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<tr>
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<tr>
<td>201.0106 - Clearing</td>
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</tr>
<tr>
<td>0004</td>
<td>STA - Station</td>
</tr>
<tr>
<td>201.0205 - Grubbing</td>
<td></td>
</tr>
<tr>
<td>0006</td>
<td>STA - Station</td>
</tr>
<tr>
<td>203.0100 - Removing Small Pipe Culverts</td>
<td></td>
</tr>
<tr>
<td>0008</td>
<td>EACH - Each</td>
</tr>
</tbody>
</table>
Welcome to Web-Based AASHTOWare Project™ Help

Welcome to the web-based AASHTOWare Project™ Help system. If you are new to this application, the information on this page will help you understand how the Help system works.

The Help system is context sensitive, which means that when you click the Help button on a component in the software, the system provides information on the functionality of that component only. Each Help page provides links to other Help pages containing related information.

Contents

The Help system also contains many topics that are more general in nature and not linked to a specific component in the software. You can navigate the entire Help system by clicking the Contents link in the top left corner of any Help page to open the Help explorer. You can search the entire Help system by typing your search criteria in the Search box on the toolbar and clicking the Go button.

The Contents pane is organized by business category and uses expandable and collapsible books and pages to display the list of topics available in the Help system. This pane helps you navigate through the Help hierarchy to find a desired category and subject.

Click a book to expand it and then click the page you want to see. The system displays the page in the right pane of the browser window.

Search

The Search pane provides a rapid full-text search of all the topics in the online Help. To perform a search, type your search criteria in the Search input field on the toolbar and click the Go button. To search for a phrase, enclose the phrase in quotes in the Search field.

The system performs the search and automatically opens the Search pane, which displays a list of the topics in which the search text appears. Topics are ranked in order of best match. Click a topic to display the page in the right pane of the browser window.
AASHTOWare Project Knowledge Base (AWPKB)

- Developed for users of the AASHTOWare Project™ web based applications including Preconstruction, Construction & Materials, and Civil Rights & Labor.
- Supported on multiple platforms – smartphones, tablets and computers
- Provides detailed documentation, training videos, links to external resources, announcements and a FAQ section.
- Internal search engine.
- All future Construction & Materials, and Civil Rights & Labor module documentation will be located on this website.
- AWPKB URL - https://awpkb.dot.wi.gov/Content/Default.htm
WisDOT AASHTOWare Project™ (AWP)

Knowledge Base

How do I access AASHTOWare Project™?

AASHTOWare Project™ Application

Contact AASHTOWare Project support
Have a great construction season!