AASHTOware Project

Construction & Materials Module

Materials Implementation Update(s)

Erik Lyngdal and Judie Ryan presenting on behalf of WisDOT Materials Management

Annual WAPA Conference 11/28-29/2023 held in Wisconsin Dells, WI

Any Good Update Includes Proper Clues:

Why?
What?
How?
Where?
When?
Who?

WHY: Wisconsin State Motto - Forward

- Continued Return on Initial Investment
- Support Paperless Initiatives
- Increased Documentation & Tracking Efficiencies
- Provides Records for Supporting Engineering Decisions
- Ability to Share Resources more quickly from one locale

WHY: Connectivity/Path

- Expectations
  - Single program component to capture materials data
    - WisDOT (Agency, Department Reps)
    - Industry (Contractors, Contractor Reps)
  - Common “lingo” for “search” techniques
  - Standard tool for sharing Contract-generated information/data
    - Regions
    - Statewide Programs and Departments
    - Industry
    - Academia and Research Communities
    - Auditors

WHAT: AASHTOware Project, DBs Defined

Types of Databases

- Distributed
- NoSQL
- Relational
- Object-oriented
- Centralized
- Open-Source
- Operational (OLTP)

Example Programming Languages

- Basic
- JavaScript, Json
- C, C++, C#, F#
- MatLab
- SQL
- Python, IronPython
- Swift

WHAT(?): Quick Survey .. By Show of Hands

- ***How many would like more detail*** on the DB Type and Programming Language used in AWPs?

(NOTE: you 2 folks might be in wrong breakout session)

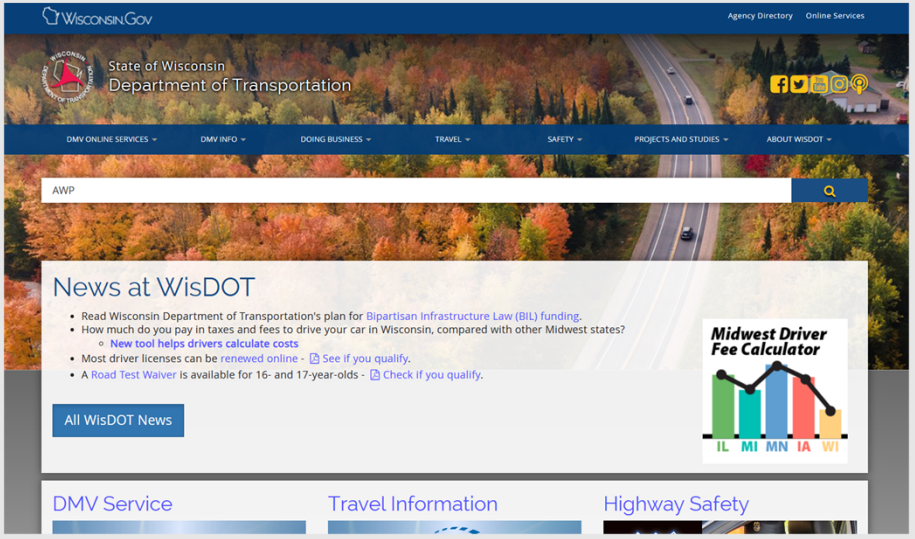
- ***How many of you have no further interest*** in even being able to name the DB Type and Programming Language of AWP?

… so, let's roll with that thought … Movin' On > > > > >

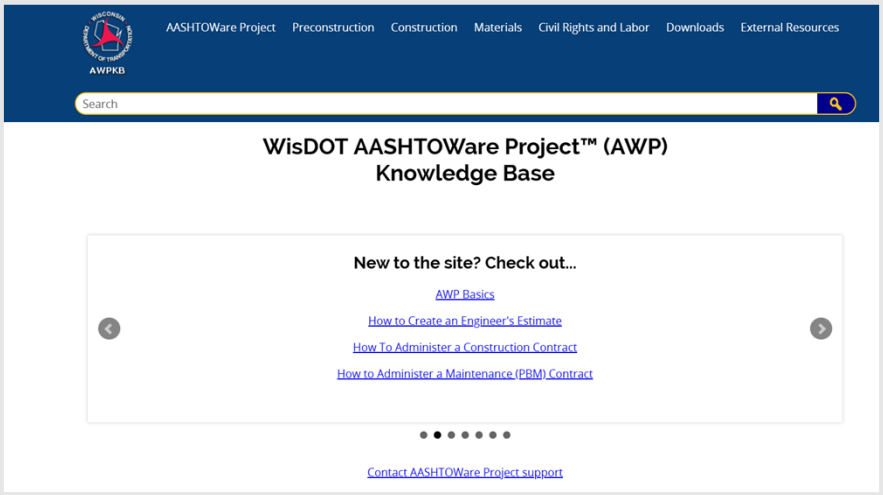
WHAT: WisDOT AWP and AWPKB

- AWP = AASHTOware Project
  - Modules intended to support activities/phases involved with Contract Creation, Administration, Pay

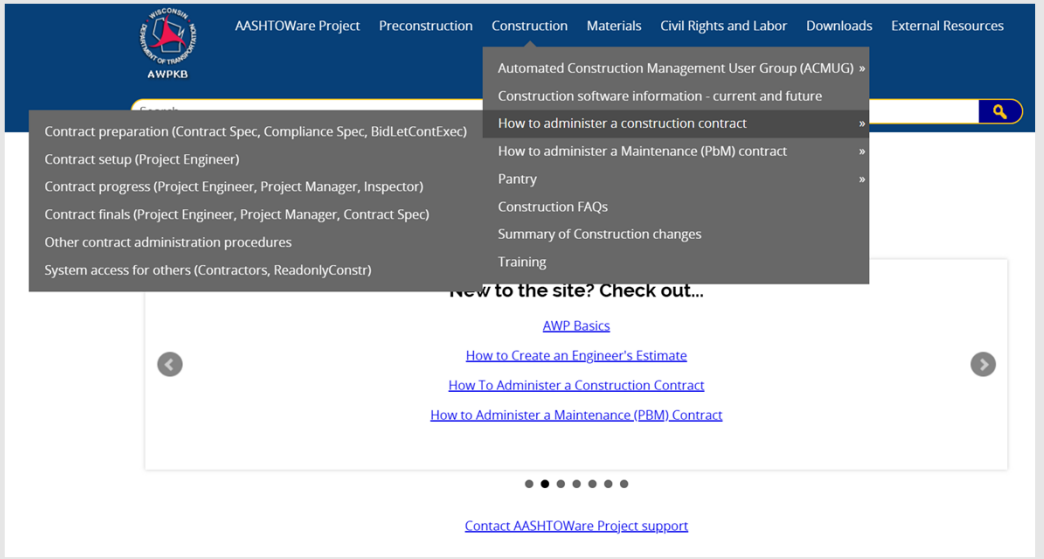
- Not new to WisDOT Contracting
  - AWP**KB**: Knowledge Base
  - Live production 2022
  - Training and User Guides



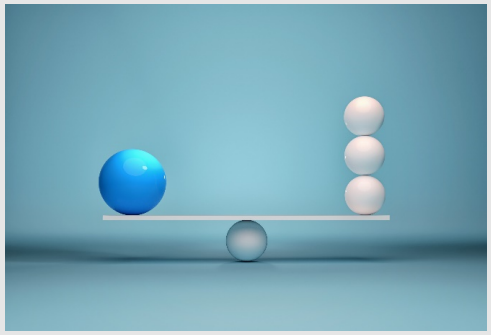
WHAT: AWPKB .. WisDOT Website (HCCI)



Materials Tab … Content Being Developed

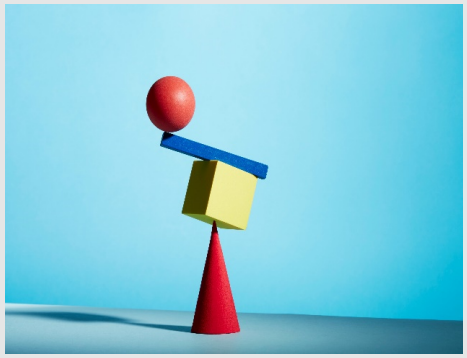


WHAT: Balanced Transition



How to upgrade multiple processes affected by:

- Tradition
- Local Materials
- Local Climates
- Varied Topography
- Special Conditions



… while factoring in the dynamics of:

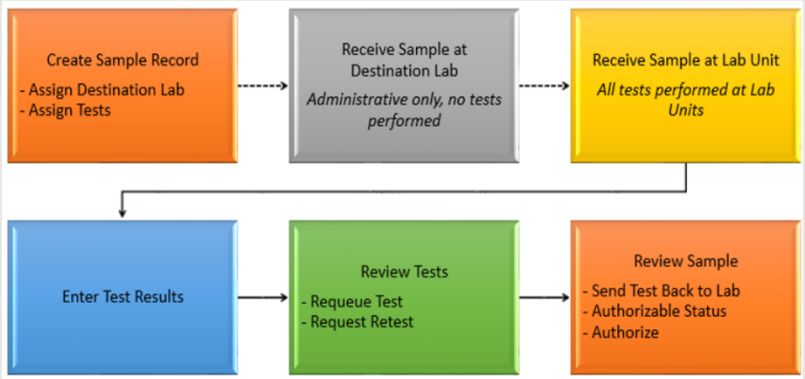
- Time & Cost
- Spec Upgrades
- Forensic Analysis
- Research Findings

Difficult Task if trying to achieve it ALL, in one giant leap

WHAT: Material Tracking Efforts

Material Phases (Sampling & Testing)

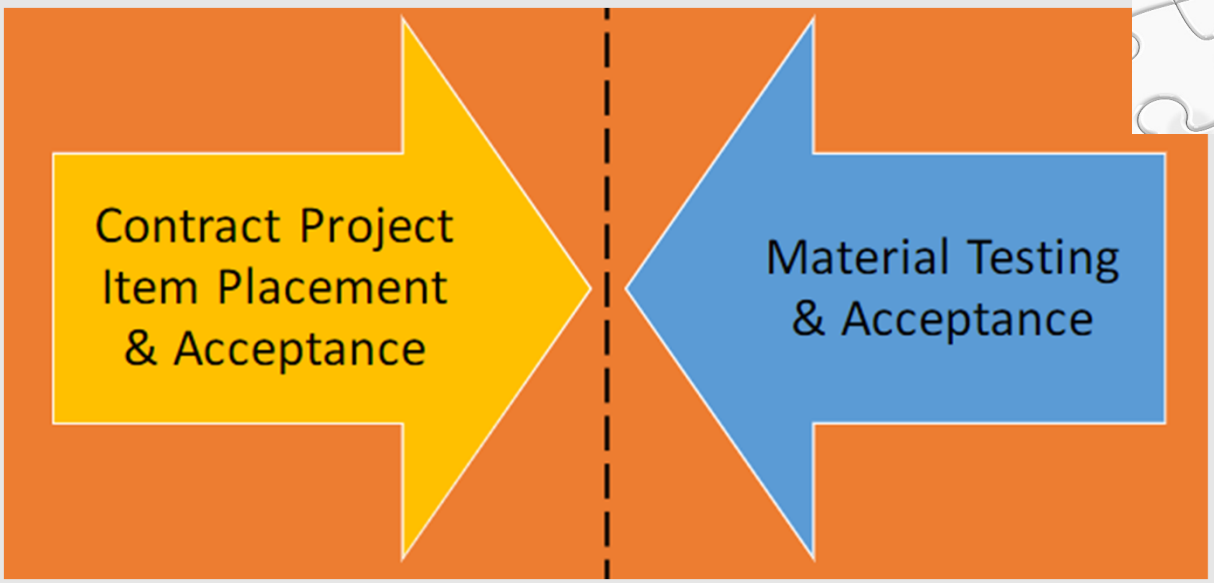
- Pre-Approvals
- Samples during roadway production
- Samples sent to LABs
- Testing … by Qualified/Certified Personnel
- Document Test Results and/or Collect Certs
- Compare to Spec'd Requirements
- Authorize and Notify



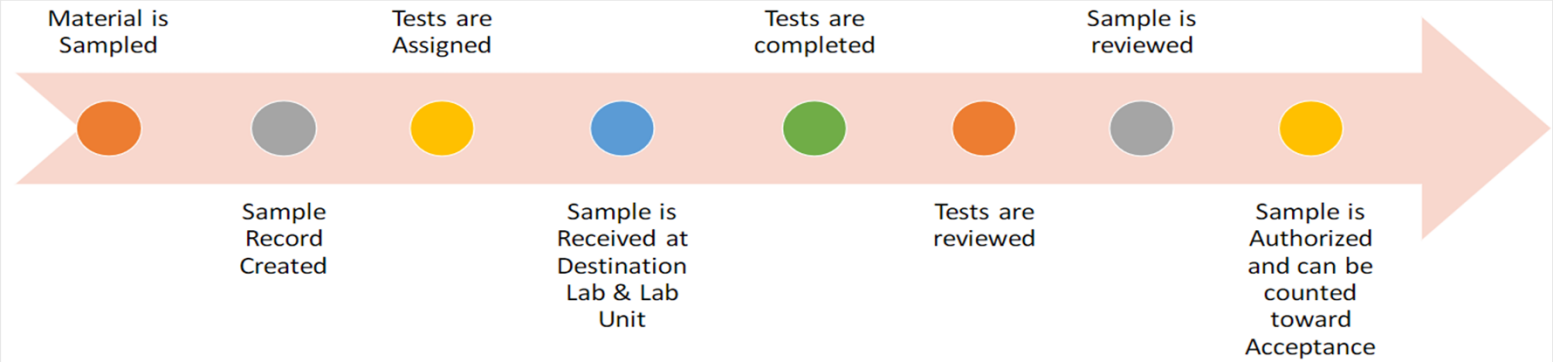
WHAT: AWP Material Functionality

- APO Video on Materials Functionality

** https://aashtowareproject.org/ **



HOW: Example Life of a Material



Collect it .. Bag it .. Tag it .. Define it .. Ship it .. Receive it .. Shake it .. Test .. Verify it .. Authorize it .. Pay$

** *AWP-WisDOT CMIMPL environment* **

Approved Source Products

Report v1

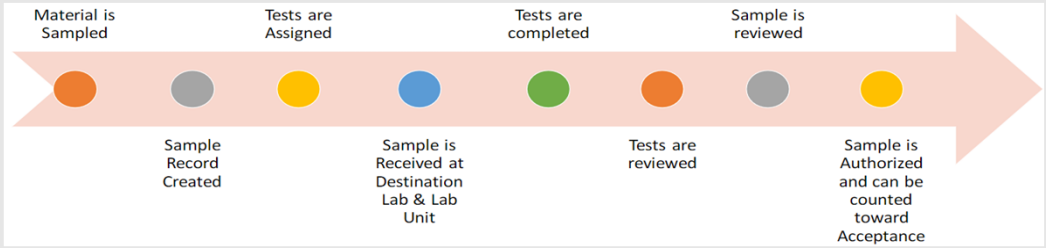
Source: 55-20-056-QRY - BUECHEL STONE OAKFIELD **Source Type:** AGG-QRY - Aggregate Quarry

Location Description:

Source Products

Material Category	Material	Brand Names
701 - AGGREGATE	701.001.01 - Source Aggregate - Coarse	HMA<MT, HMA>=MT
701 - AGGREGATE	701.001.02 - Source Aggregate - Fine	
701 - AGGREGATE	701.002.01 - Asphalt Aggregate - Coarse_LT Mix	
701 - AGGREGATE	701.002.02 - Asphalt Aggregate - Coarse_MT Mix	
701 - AGGREGATE	701.003.01 - Backfill - Granular	
701 - AGGREGATE	701.003.02 - Backfill - Structure	
701 - AGGREGATE	701.004.01 - Base Aggregate - Dense Graded 3/4-Inch_Crushed Stone	
701 - AGGREGATE	701.004.03 - Base Aggregate - Dense Graded 3/4-Inch_Crushed Concrete	
701 - AGGREGATE	701.005.01 - Breaker Run	
701 - AGGREGATE	701.006.01 - Concrete Aggregate - Coarse Size No. 1	
701 - AGGREGATE	701.006.02 - Concrete Aggregate - Coarse Size No. 2	
701 - AGGREGATE	701.006.03 - Concrete Aggregate - Fine	
701 - AGGREGATE	701.008.01 - Concrete Aggregate - Coarse Size No. 1	
TV_MatCat - TV material category	TV_Mat - TV Mat	

HOW: Life of a Material Endgame



Collect it .. Bag it .. Tag it .. Define it .. Ship it .. Receive it .. Shake/Bake it .. Taste it .. Present it for Dining

The order is correct, complete. I'll pay for it fully to share with Family and Friends in representing our Team's best efforts.

HOW: Project Implementation Activities

System Configurations for:

- Data Input screens
- Testing Rates and Frequencies
- Optional Acceptance Actions

System Customizations for:

- Reports
- Process Adjustments
- Tool Tips and Help Screens

Where am I?

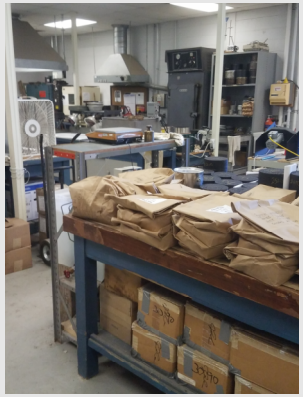
Aggregate Source

HMA Source

Sample

Contract

Laboratory



Test Method

Where am I now?

Aggregate Source

Contract

Laboratory

We digitized this process for all possible combinations (mostly)!!!!

HMA Source

Sample

Test Method

WHEN: Goals and Timelines

Project Goals and Milestones

- Specification writing
- Programming/Configuration Activities
- Shadow Project (Hands On/Beta Testing)
- Pilot Project(s)
- Contract Language (ASP)
- Training
  - Content-Input Processes
  - Navigation-Outputs

WHEN: Pace (recently adjusted)

Shifting Gears from Marathon to a Sprint

- Starting Line (Common/Staggered)
- Varied Pace/Strategy
- Gaps
- Closing Speed/Kick
- Common Finish Line

"In it to Win it" …
but don't forget to define "win"

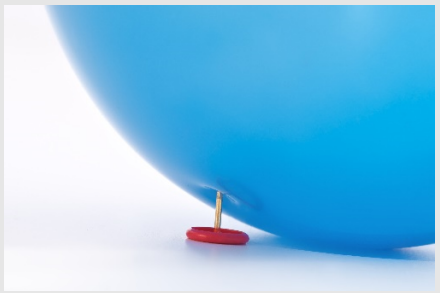
WHEN: Expectations

Milestones 2023-24

- **2023**: System version Update, Screen Creation & Development
- **2024**: Develop pilot specifications, identify projects and include in projects.
- **2025**: Pilot projects
- **2026**: Implementation

****** a lot needs to be accomplished before pilots can occur ******

Q&A



… see/hear anything undoable? … Concerns?

Q&A … Thinking Ahead

- Industry investment in Corporate Software Applications
  - APIs: Interfaces
  - Enhancements to Worksheets: Technical Team - Task Force Teams
- Industry Access to Contract Data
  - Export Features
  - Analysis Features

WHO(s): Heavy Lifting

- **WisDOT Mat-CMIMPL Core Team**

  (*the Detanglers & Pathfinders*)

E.Lyngdal (BTS-MM); D.Balog (SE);

R.Rooyakkers (NE); J.Ryan (BTS-MM);

H.Jelinek (BTS-MM); A.Albers (BTS-MM);

B.Jandrin (BTS-MM); A.Johnson (BTS-MM);

A.Markovic-Graff (BTS-MM); S.Syron (SW);

M.J.Morrison (BTS-MM);

M.Kang (BTS-MM); T.Mandal (BTS-MM)

- **Infotech WisDOT Core Team**

  (*the Genies in a Bottle*)

  D.Gow-McDilda; J.Floyd, L.Deely,

- **WisDOT AWP IT-Support Team**

  (*the Magicians*)

  D.Castleberg; A.Czerneski; A.Reddy;

  T.Ganshert; A.Bleskacek

THANK(WHOs) … Cast of 1000s

Advisory SMEs

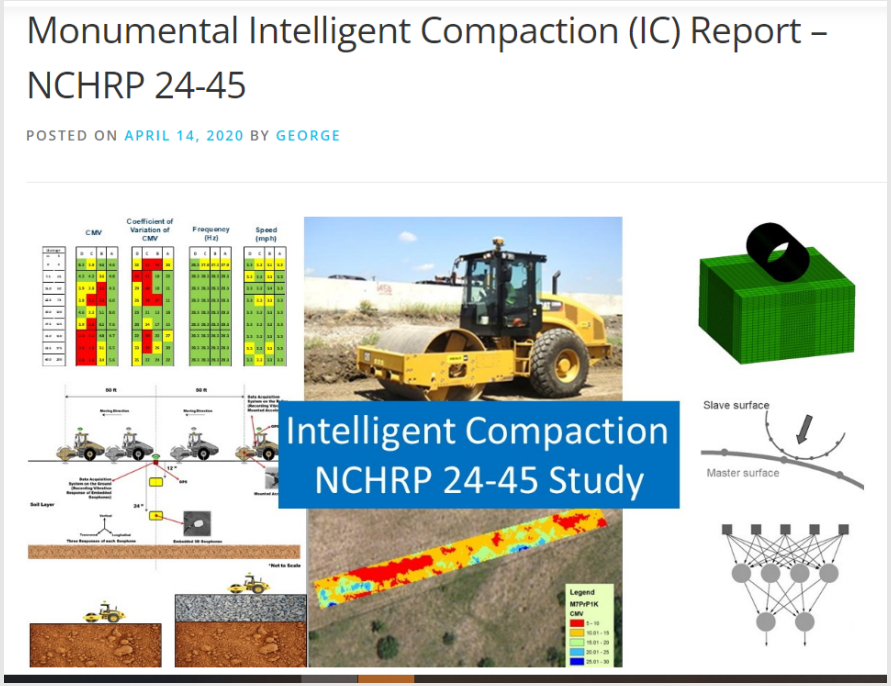
(the Magic Carpet on which we soar)

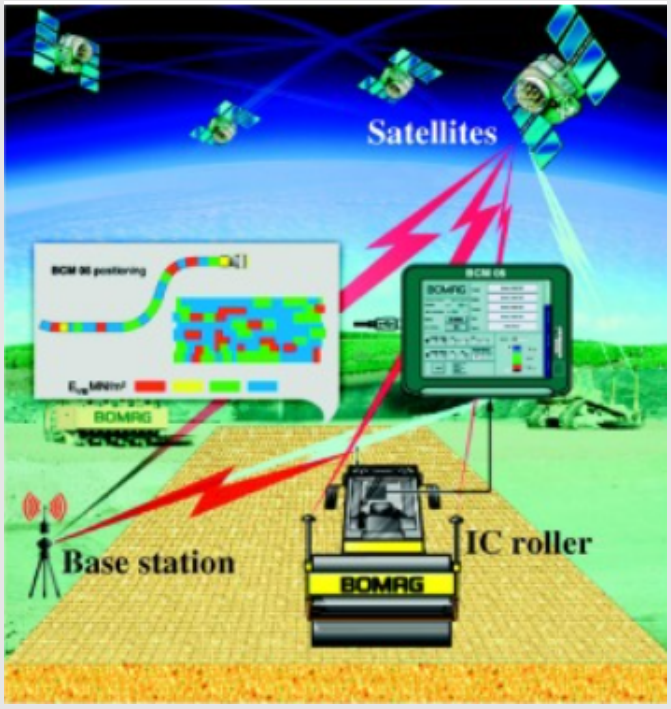
- WisDOT Managers/Supervisors
- Materials-QA Unit
- HTCP Admin and UWP IT-Team
- WisDOT Administrators
- AWP/Infotech IT Support Team
- AWP-SME Alumni **

(** Yes, this includes B.Paye)

- Regional Materials
- Dept Technical Teams
- HTCP Admin and UWP IT-Team
- BTS Lab Units
- AWP/Infotech IT Support Team
- Reps from PDS, BTO, TSS, BOS, DBM, DTIM-BSHP, BTLR, BTO, etc.

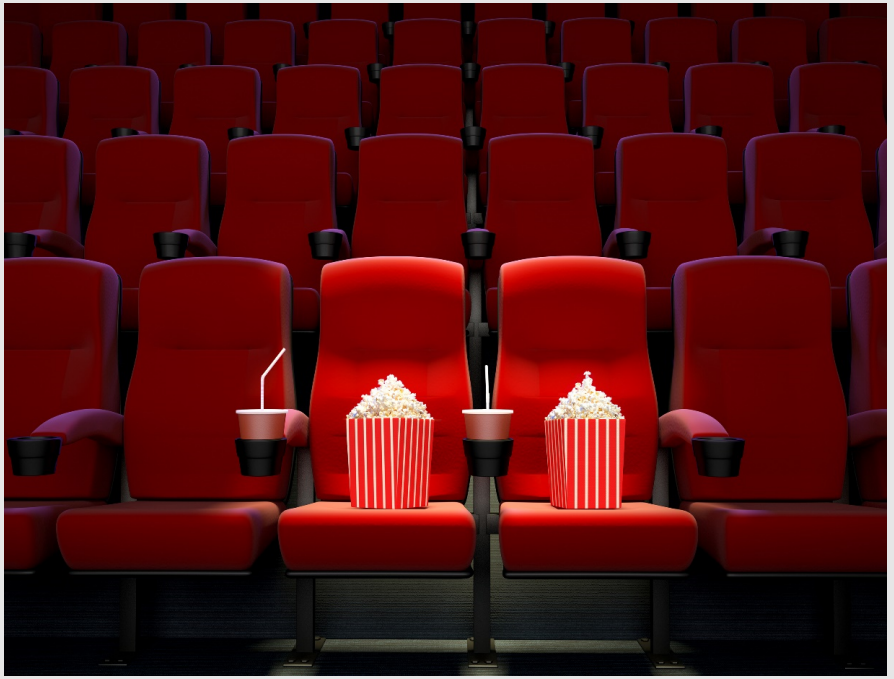
WHERE (was I?): Intelligent Construction Technology





WHERE (are we going?)

WISCONSIN DEPARTMENT OF TRANSPORTATION

. . . And Thank *YOU*!

- Thank you WAPA for providing the opportunity to drop today's "trailer"
- Thank you, audience, for enjoying it.
- Be sure to get a good seat for the main feature … coming soon to a theater near you!
- Psssssst: Next Time, Popcorn's on us!