



# NiceConnect

Make your data work  
together, the nice way.

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Manager | MnDOT

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## Think About When...

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- Project stakeholders and partners communicate seamlessly.
- Productivity, efficiencies, and sustainability are maximized, and design is optimized.
- Decision making is enhanced as data is available.

Begin with the end in mind!

NiceConnect helps solve problems by streamlining and improving data quality across agencies.



Hard to find data



Too many data silos



Undocumented  
data

# NiceConnect Overview

The project will accelerate the path for asset and construction project **data sharing & compatibility across the construction management system (CMS)** by providing data modeling, lineage, prioritization, and a standardization and interoperability implementation plan.



Asset Data



# But First, The Importance of Asset Data!



## Meet Regulations

- Stormwater MS4
- Locates 811
- State Statute



## Perform Long-Term Planning

- 20-year Capital Plans
- TAMP (10 year)
- Total Cost of Ownership



## Perform Short-Term Planning

- Maintenance Project Planning
- Life Cycle Planning
- Performance Measures



## Risk Analysis and Mitigation

- Risk Scoring (Likelihood x Consequence)
- Prioritization
- Resiliency (Verb)





# Asset Data



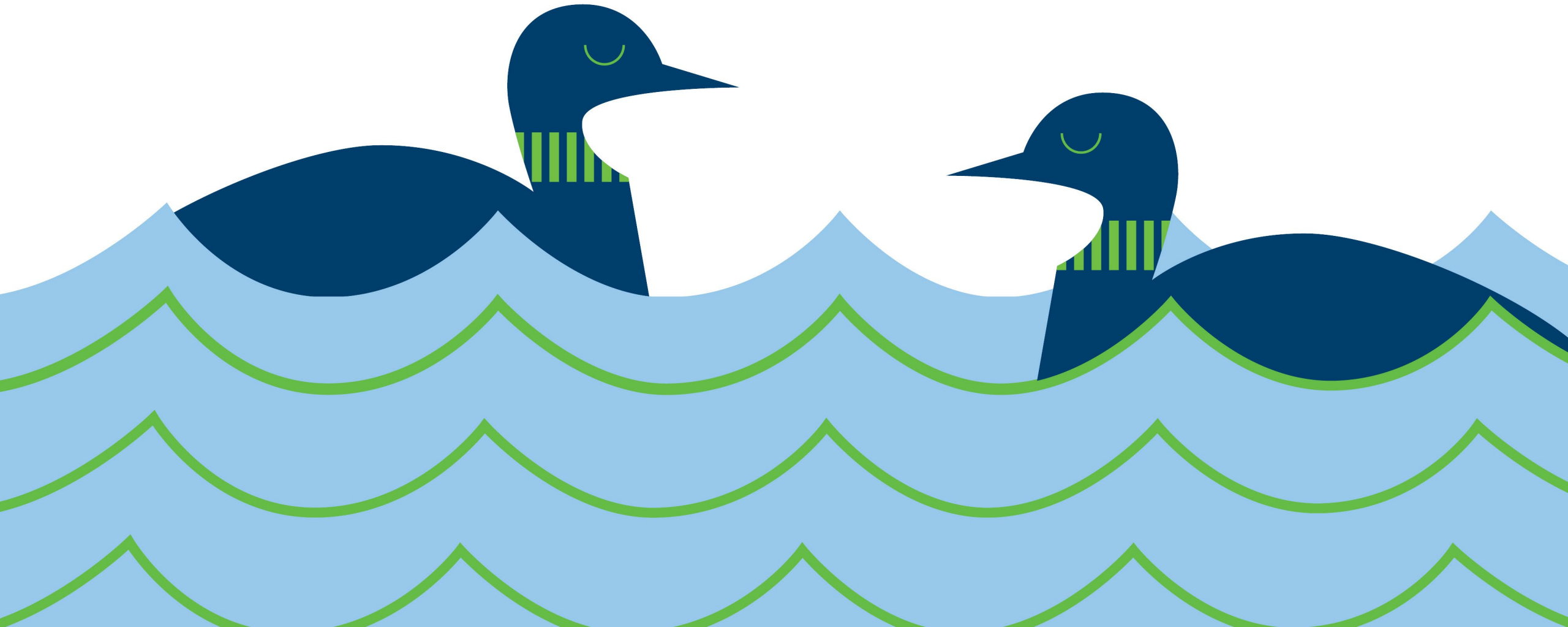
70+

Asset classes



Sections | Pipes | Ponds | Culverts | Stormwater Tunnels | Bridges | Snow Traps |  
Snow Fences | Snow Routes | Traffic Barriers | Sidewalks | Earth Retaining  
Structures | Slopes | Subgrades | Special Drainage | Noise Walls Entrance  
Monuments | Signal Systems | Signal Components | Signal Poles Lighting Systems  
| Lighting Units | Mobile Technologies | Intelligent Transportation Systems |  
Weigh In Motions | Automatic Traffic Recorders Sign Supports | Sign Panels |  
Pavement Markings | Buildings | Pavements

# Advanced Digital Construction Management: System Grant Program





# Advanced Digital Construction Management System Grant Program

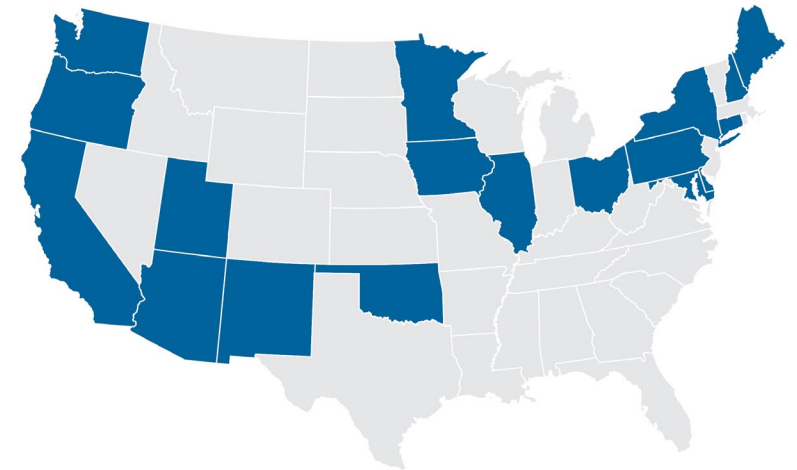
- Accelerating adoption ADCMS that maximizes interoperability.
- Boost productivity, manage complexity, reduce project delays, enhance safety.
- Timely information sharing.
- Deployment of digital management systems (for example, connected machinery).
- Technology training and workforce development.
- Development of guidance for states to capture benefits of ADCMS
- Reduction in the environmental footprint of construction projects.
- Enhance worker and pedestrian safety.

<https://www.fhwa.dot.gov/construction/adcms/grants.cfm>

**Go to:** Technologies > ADCMS > Grants

Grant Recipients FY 22-24

\$17M Still Available for FY25, FY26



# Nice Connect Project Proposal

## Engagement, Data, Innovation, Technology, Guidance, Adoption, Communication

### Phase 1 Contract

- ✓ Notice to proceed
- ✓ Contract execution

### Phase 2 Scope

- ✓ Technical Advisory Committee
- ✓ External Collaboration Committee
- ✓ Communication plan
- ✓ Data/workflow Modeling

### Phase 3 Roadmap

- ✓ Data Standardization and Modernization Plan
  - Software Development Scoping
  - Implementation Roadmap and Action Plan
  - Future State Modeling

### Phase 4 Implement

- Roles & responsibilities
- Software purchase/Development
- Hardware purchase
- Training

### Phase 5 Message

- Case studies
- Reporting
- Communication materials
- Conference abstracts

- ✓ Complete
- In Progress/Ongoing
- Upcoming



# What is “Minnesota Nice”?

Minnesota nice is a cultural stereotype applied to the behavior of people from Minnesota, implying residents are **unusually courteous, reserved, and mild-mannered** compared to people from other states.

The phrase also implies polite friendliness, an aversion to open confrontation, a tendency toward understatement, a disinclination to make a direct fuss or stand out, apparent emotional restraint, and self-deprecation.

It is sometimes associated with passive-aggression.

Source: Wikipedia



# Who's Involved?



# MnDOT Stakeholders



## Software key contacts

### *Data modeling*

Planning, scoping, survey, design, preconstruction, construction, materials, maintenance, operations, asset management, project management



## Technical Advisory Committee

### *Project guidance*

Planning, design, construction, asset management



## Asset Management Steering Committee

### *Decision-making*

Division Directors, Assistant Division Directors, Maintenance Engineer, Statewide Planning, FHWA MN Division





# External Stakeholders



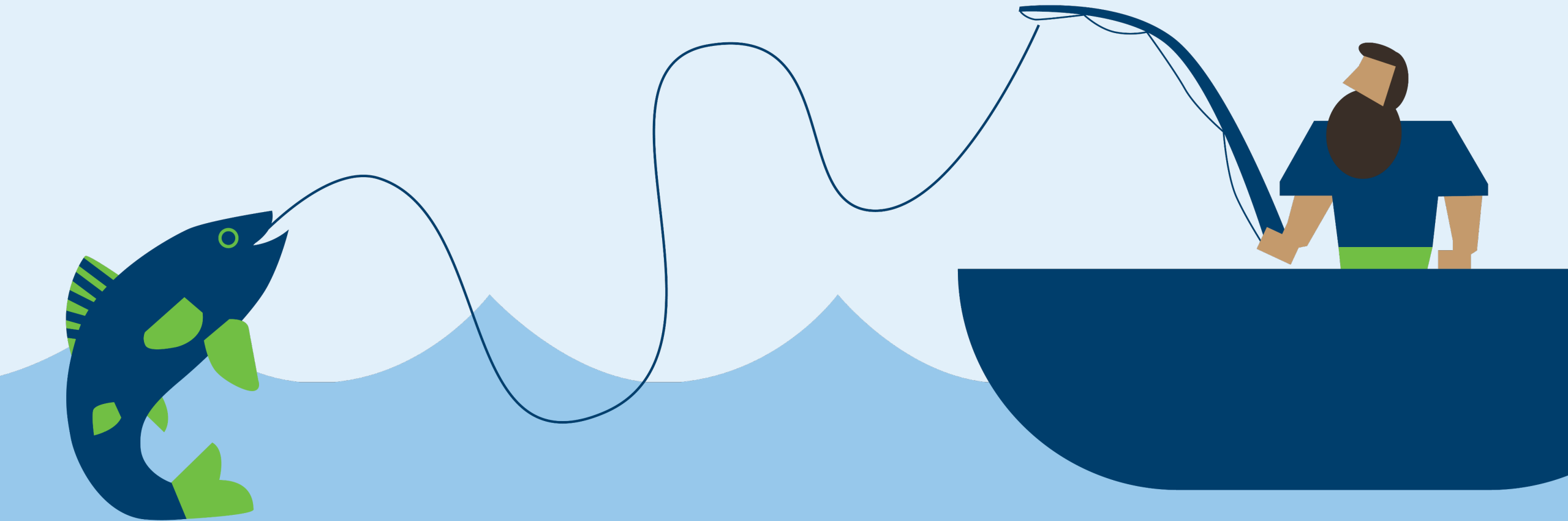
U.S. Department  
of Transportation

**Federal Highway  
Administration**

External Collaboration Committee  
DOTs  
Municipalities



# Data Model



# Interactive models developed in VISO Data Flow Diagram

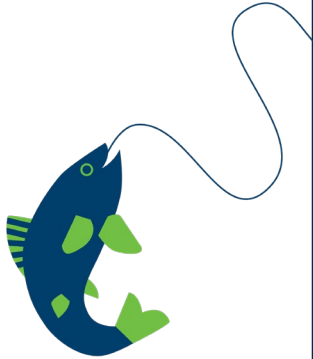
Level 1: workflow across systems

Level 2: workflows and data categories for  
each system

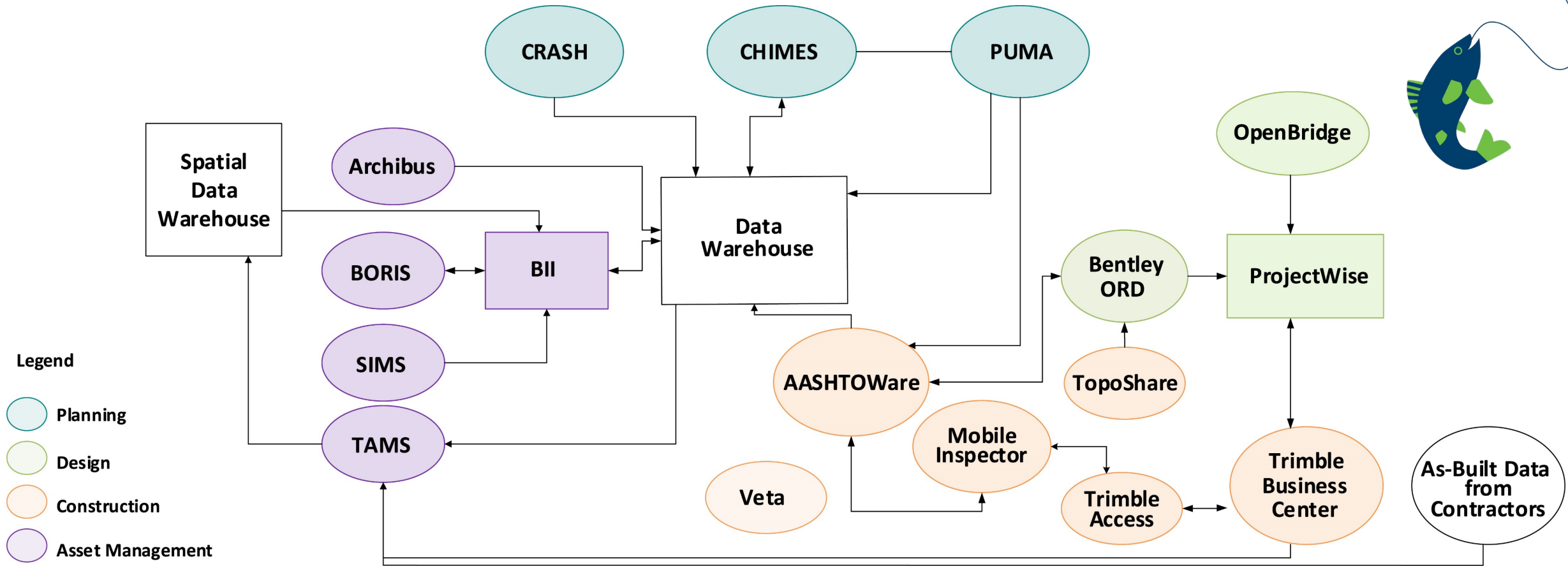
Level 3: data elements being shared between  
systems

## **Data Elements Model**

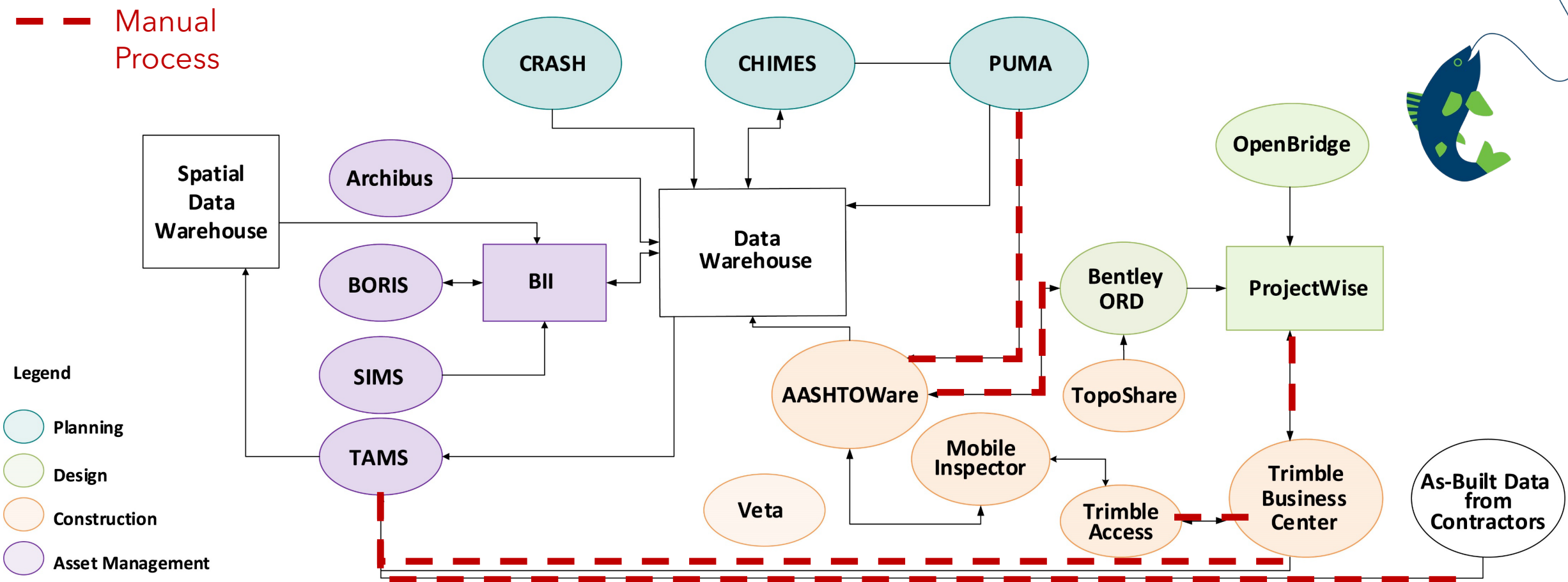
All asset and construction data elements in each system



# Data Model Level 1: Workflow across systems



# Data Flow Diagram Level 1





# Interactive models developed in VISO Data Flow Diagram

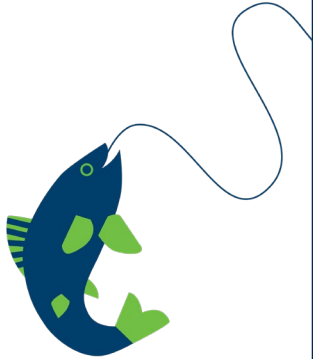
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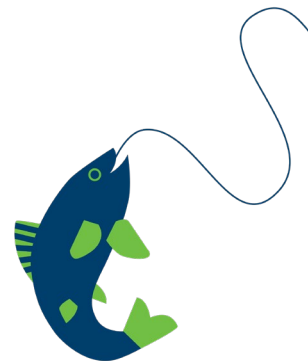
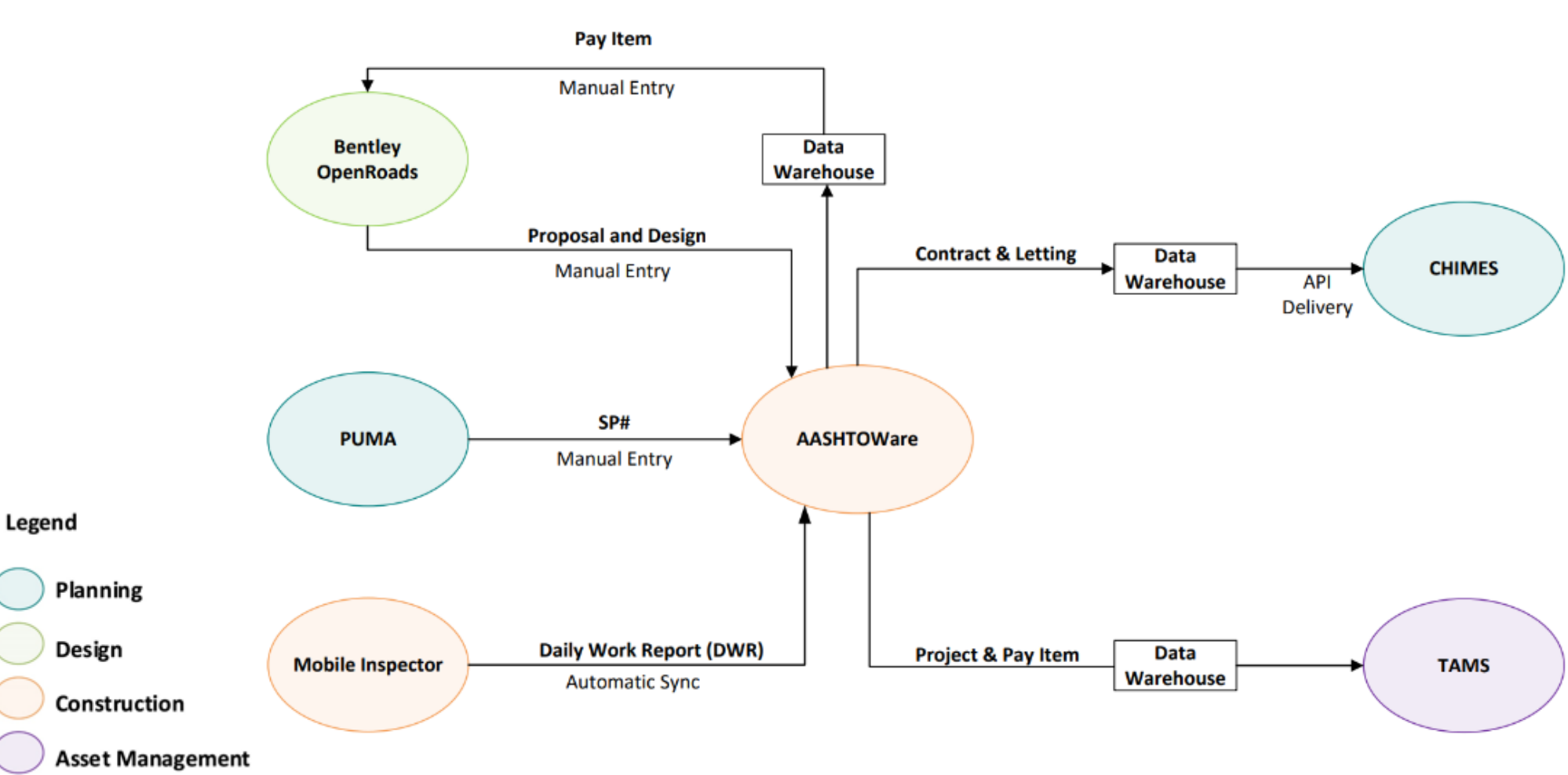
Level 3: data elements being shared between  
systems

## **Data Elements Model**

All asset and construction data elements in each system



# Data Flow Diagram Level 2



# Interactive models developed in VISO Data Flow Diagram

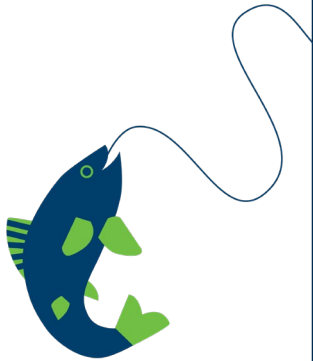
Level 1: workflow across systems

Level 2: workflows and data categories for  
each system

Level 3: data elements being shared between  
systems

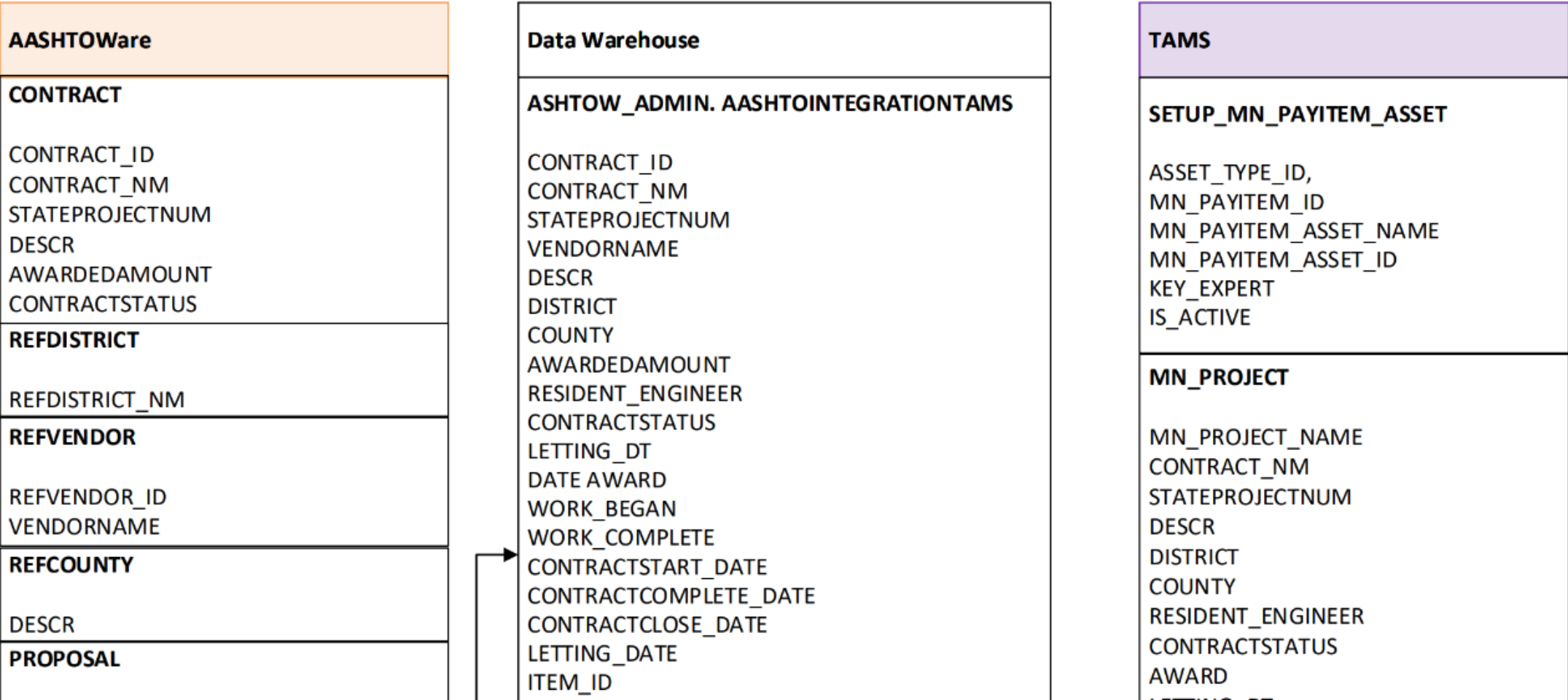
## **Data Elements Model**

All asset and construction data elements in each system

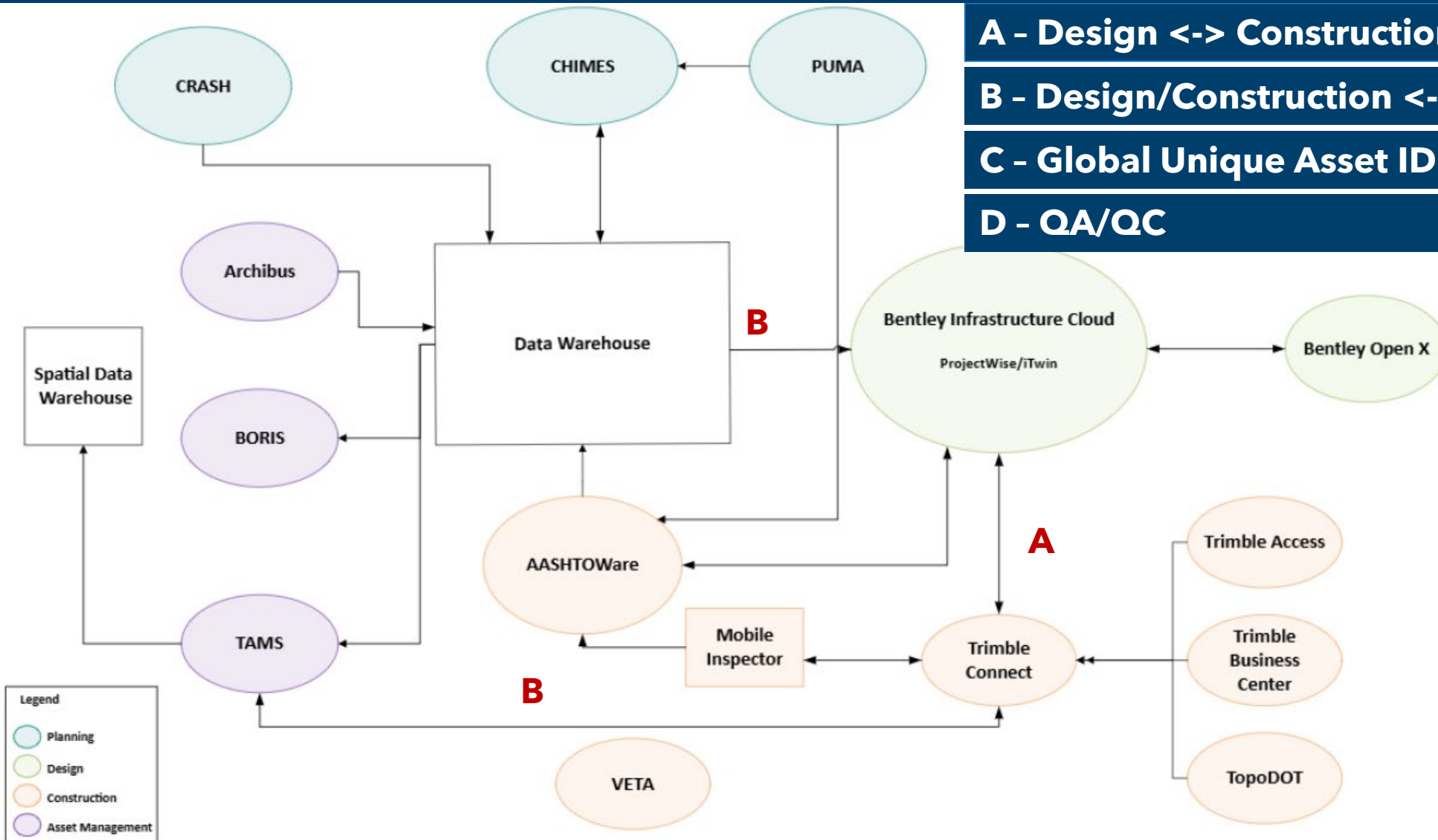


# Data Flow Diagram Level 3

## AASHTOWare to TAMS Data Flow



# Future State/Software Development

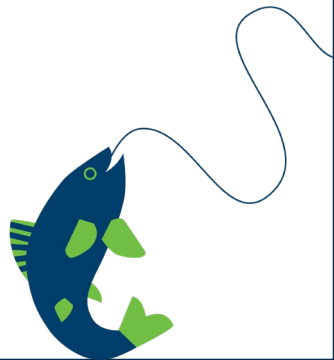


**A - Design <-> Construction**

**B - Design/Construction <-> Asset Management**

**C - Global Unique Asset ID**

**D - QA/QC**



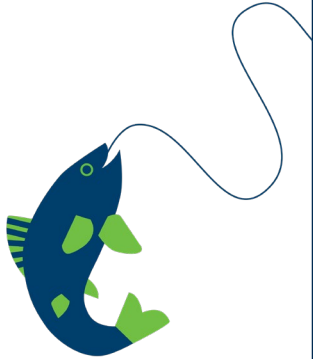


# Data Standardization



## International Standardization Organization (ISO) 19650 buildingSMART

- Information Delivery Specifications (IDS)
- Data Dictionary (bsDD)
- Industry Foundation Classes (IFC)



## Federal Geographic Data Committee (FGDC)

### American Association of State Highway Officials (AASHTO)

- AASHTOWare Solutions: Standards and Guidelines Notebook
- Transportation Asset Management (TAM) Guide
- Joint Subcommittee on Data Standardization (JSTAN)
- AASHTO-ITE Traffic Management Standards



## American Society of Civil Engineers (ASCE) 75-22

# National Efforts on Data Standardization: J-STAN

## AASHTO Joint Subcommittee on Data Standards Mission Statement

To champion and coordinate efficient information flow throughout the lifecycle of all assets and related information that comprise our transportation systems.

This will be achieved through open data standards, data governance, schema development, and collaborative public/private partnerships.

### Current AASHTO Standards

- Standard drawings
- Design manuals
- Construction spec books
- CADD standards

### Urgency AASHTO Govern, Adopt, & Publish

- Data dictionaries
- IDS
- API's
- Web Services

### J-STAN Members

- Committee on Design
- Bridges & Structures
- Comm on Construction
- Data Management & Analytics
- Performance Based Planning
- AASHTOWare
- Additional TBD

Grant J-Stan voting authority & provide funding to test, review, and validate standards

# National Efforts on Data Standardization: J-STAN

TPF-5(372) BIM for Bridges and Structures Pooled Fund <https://www.bimforbridgesus.com/>  
TPF-5(480) BIM for Infrastructure Pooled Fund <https://bimclearinghouse.com/>

buildingSMART USA Road and Bridges <https://www.buildingsmart.us/roads-bridges-committee>

## USDD- Current Progress

TPF BIM for Bridge has been the baseline

- NSBA data dictionary
- AASHTO IDM design to construction data exchange for highway bridges

## Developing Template and Processes

- Prioritizing domain end users

## Support for

- TPF BIM for infrastructure
- ADCMS Grants
- State DOT data dictionaries





## Join us

on the journey towards data  
sharing and compatibility  
across systems

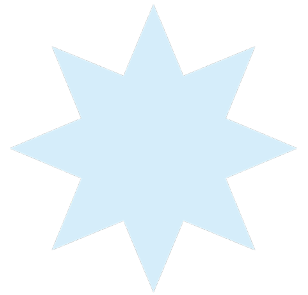
# How Can You Get Involved?



## Get Involved at your organization

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Develop relationships with staff in planning, design, construction, and survey so they know how important their data is for asset management.





Join at [menti.com](https://menti.com) | use code 3917 5451

Mentimeter

What is your organization doing to improve interoperability and/or standardization?

Testing



RE

Menti

MN NiceConnect



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# How Can You Get Involved?

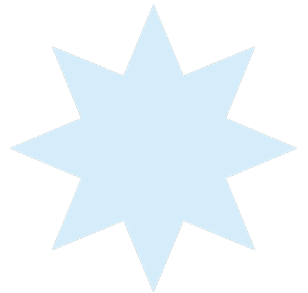


## Project goals include:

- Increased inter-agency and cross-agency on data sharing and management
- Increased collaboration with national and local partners

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Do you want to improve sharing of asset data? We are developing an External Collaboration Committee, and we're looking for members



Join at menti.com | use code 3917 5451

Mentimeter

**Want to get involved? Share your contact information with us!**



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# Thank you!

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