AASHTOWare™ BRIDGE MANAGEMENT

BrM 7.0

BrMUG 2024 | Long Beach, CA | September 17-18

Contact

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Migration Overview

- Process Overview
- SNBI Overview
- Data Model Considerations
- User Data

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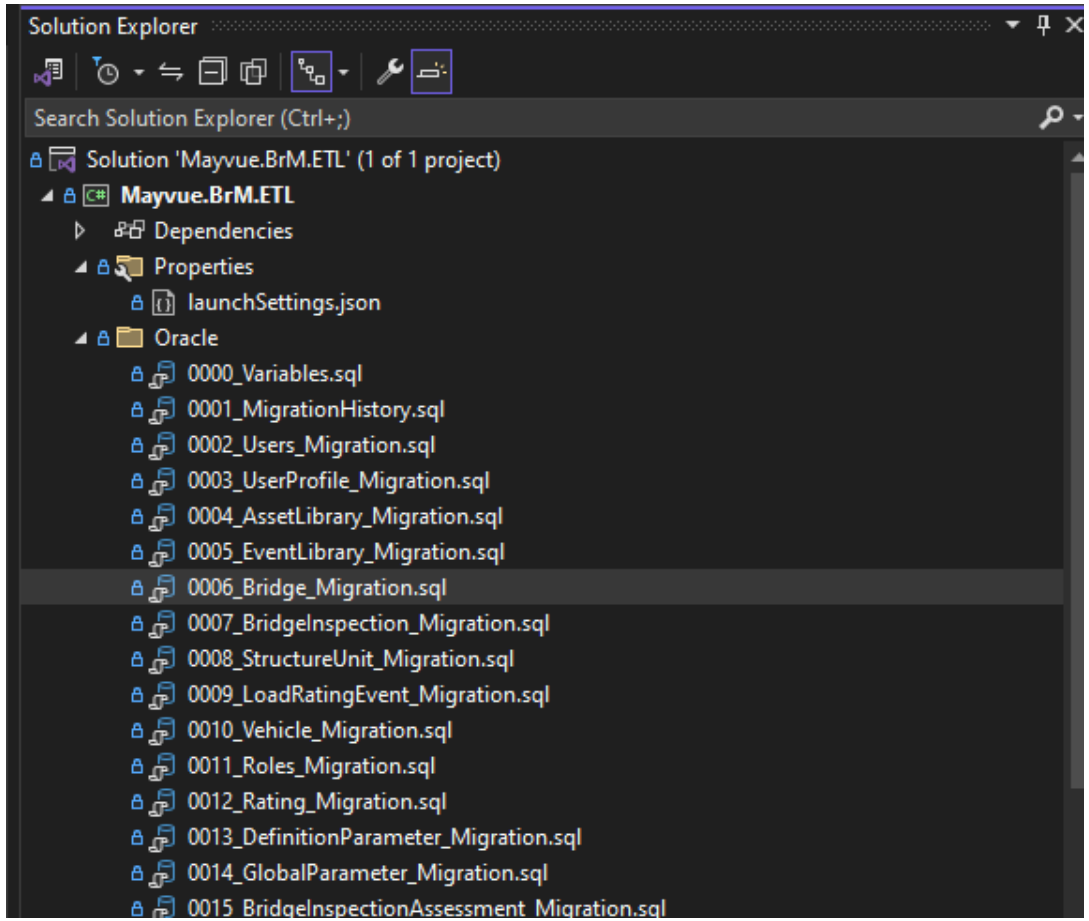
Migration Process

BrM 6.7.1 DOT_TRANSFORMED DOT_7

Process

- Why SQL?
  - Custom application – difficult to maintain and change for agency
  - ETL tool – same as above
  - SQL Scripts – flexibility for users to inspect and modify independently
    - More difficult to write…
- Why Transform Database?
  - Allows database modifications while retaining original database
    - No need to restore original database if mistakes
    - Can compare original/modified/SNBI data all at once
  - Note: SNBI transforms are in transform database and SQL scripts both

Process




```
SET @query = N'INSERT INTO [' + @DATABASE_TARGET + '].dbo.AssetLibrary (ID, AssetTypeID)
SELECT DISTINCT ASSET_GD, ''' + @SignAssetTypeID + '''
FROM (SELECT ASSET_GD FROM [' + @DATABASE_SOURCE + '].dbo.SIGN) AS src
WHERE ASSET_GD NOT IN (
    SELECT ID FROM [' + @DATABASE_TARGET + '].dbo.AssetLibrary)';

EXEC sp_executesql @query;



        SET @query = N'INSERT INTO [' + @DATABASE_TARGET + '].dbo._MigrationHistory (MigrationId, AppliedOn)
                                VALUES (''0004_AssetLibrary_Migration.sql'', GETDATE())';

        EXEC sp_executesql @query;
    END;

    COMMIT TRANSACTION;
END TRY
BEGIN CATCH
    ROLLBACK TRANSACTION;
    PRINT CONCAT(CONVERT(NVARCHAR(50), GETDATE(), 120), ' - BEGIN ERROR DESCRIPTION')    ;
    SELECT @ErrorMessage = ERROR_MESSAGE(),
           @ErrorSeverity = ERROR_SEVERITY(),
           @ErrorState = ERROR_STATE();
    RAISERROR (@ErrorMessage, @ErrorSeverity, @ErrorState);
    PRINT CONCAT(CONVERT(NVARCHAR(50), GETDATE(), 120), ' - END ERROR DESCRIPTION');
END CATCH;
```

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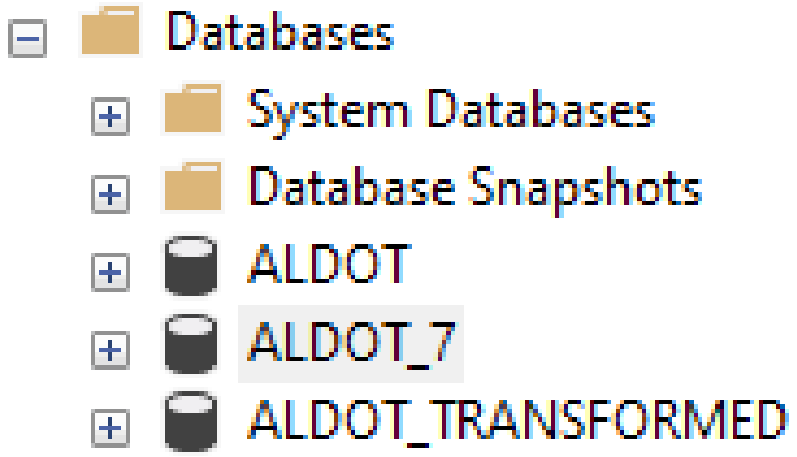
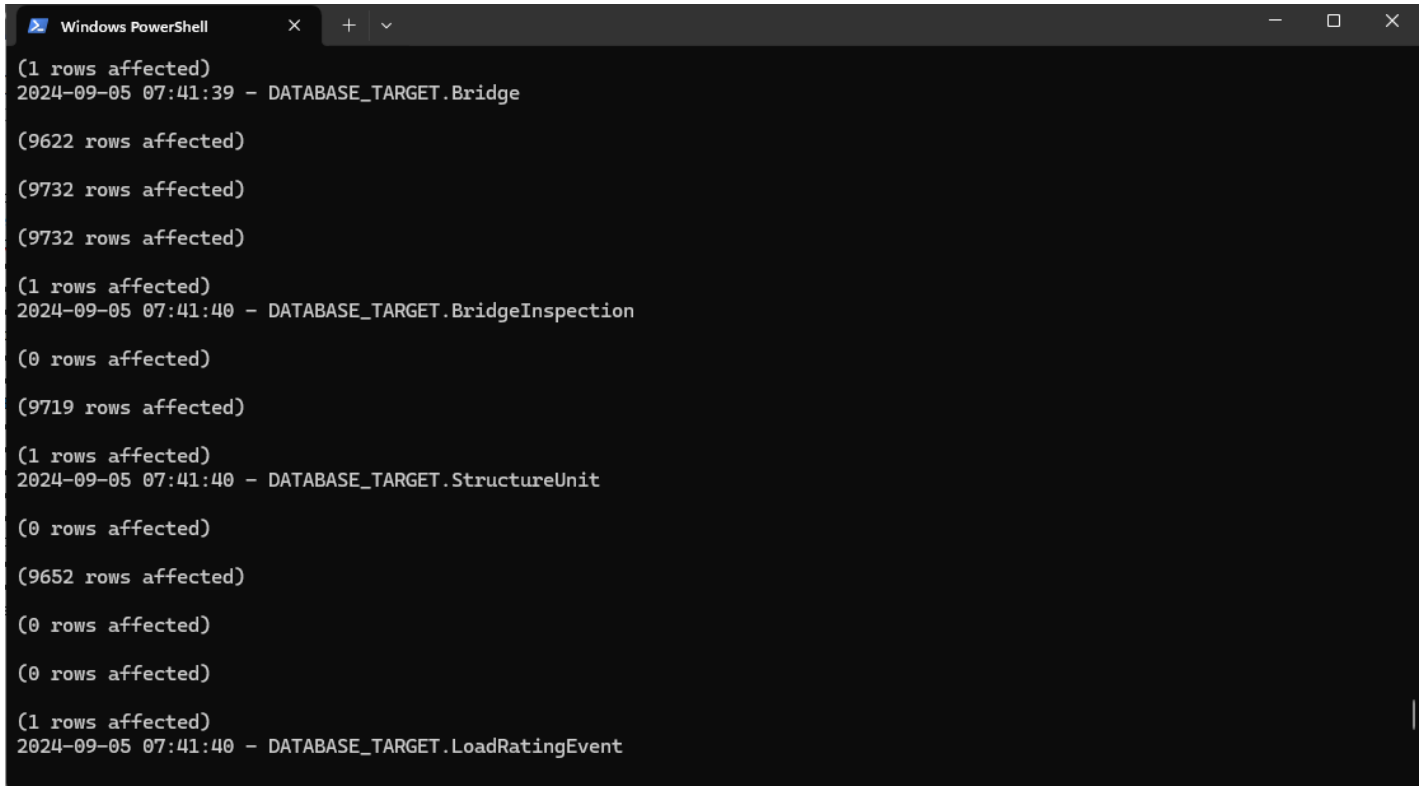
Requirements – Step 1

- Get backup of production database
- Update the backup to BrM 6.7.1 (just the database, not the app)



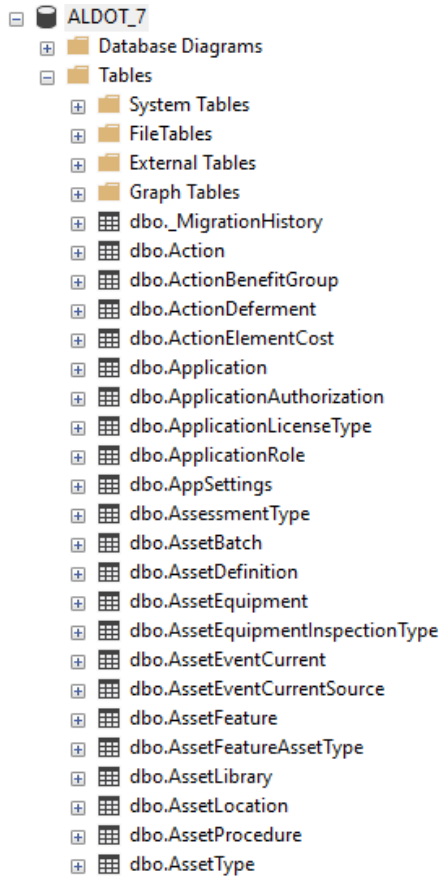
Requirements – Step 2

- Run Scripts



Requirements – Step 3

- 7.0 Migrated Database!



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SNBI - FHWA

- Crosswalk – Coding Guide -> SNBI

SNBI ID	Data Tag	SNBI Item Name	SNBI Format	1995 Coding Guide ID	1995 Coding Guide Item Name/ Description	1995 Coding Guide Format (as shown in Appendix E)	Clean Transition?	Transition Notes for Developer
B.LR.01	BLR01	Design Load	AN (8)	31	Design Load	1/N	Yes	See tab.
B.LR.02	BLR02	Design Method	AN (4)	N/A			No	
B.LR.03	BLR03	Load Rating Date	YYYYMMDD	N/A			No	
B.LR.04	BLR04	Load Rating Method	AN (4)	63	Method Used To Determine Operating Rating	1/N - 1/N	Yes	See tab.
B.LR.05	BLR05	Inventory Load Rating Factor	N (4,2)	66	Inventory Rating	3/N	Yes	If Item 65 = 6, 7, 8, D, E, F, do the following: For submittal file, direct transition. For transition of legacy data, divide by 32.4. If Item 65 has a value other than 6, 7, 8, D, E, or F, divide by 32.67.
B.LR.06	BLR06	Operating Load Rating Factor	N (4,2)	64	Operating Rating	3/N	Yes	If Item 63 = 6, 7, 8, D, E, F, do the following: For submittal file, direct transition. For transition of legacy data, divide by 32.4. If Item 63 has a value other than 6, 7, 8, D, E, or F, divide by 32.67.

SNBI – FHWA

- Code Mapping – Complex Mappings

B.LR.01 - Design Load

CG ID	CG Value	SNBI Value	SNBI Description
31	null	no value	
31	0	U	Unknown
31	1	H10	H-10
31	2	H15	H-15
31	3	HS15	HS-15
31	4	H20	H-20
31	5	HS20	HS-20
31	6	HS20M	HS-20 and Military
31	7	no value	
31	8	RR	Railroad
31	9	HS20Plus	Greater than HS-20
31	A	HL93	HL-93
31	B	HL93Plus	Greater than HL-93
31	C	X	Other

SNBI - Transformation

```
-- BLR01: Updating DESIGNLOAD from CG Values to SNBI Values
PRINT 'BLR01: Updating DESIGNLOAD from CG Values to SNBI Values'
ALTER TABLE BRIDGE ALTER COLUMN DESIGNLOAD VARCHAR(8) NULL;

UPDATE
    BRIDGE
SET
    DESIGNLOAD = CASE
        WHEN DESIGNLOAD IS NULL THEN NULL
        WHEN DESIGNLOAD = '0' THEN 'U'
        WHEN DESIGNLOAD = '1' THEN 'H10'
        WHEN DESIGNLOAD = '2' THEN 'H15'
        WHEN DESIGNLOAD = '3' THEN 'HS15'
        WHEN DESIGNLOAD = '4' THEN 'H20'
        WHEN DESIGNLOAD = '5' THEN 'HS20'
        WHEN DESIGNLOAD = '6' THEN 'HS20M'
        WHEN DESIGNLOAD = '7' THEN NULL
        WHEN DESIGNLOAD = '8' THEN 'RR'
        WHEN DESIGNLOAD = '9' THEN 'HS20Plus'
        WHEN DESIGNLOAD = 'A' THEN 'HL93'
        WHEN DESIGNLOAD = 'B' THEN 'HL93Plus'
        WHEN DESIGNLOAD = 'C' THEN 'X'
        ELSE DESIGNLOAD
    END
```

SNBI - Transformation

```
CASE
    WHEN src.ON_UNDER = '1' AND b.VCLROVER > 98.5 THEN 99.9
    WHEN src.ON_UNDER = '1' THEN ISNULL(CAST(FLOOR(CAST(b.VCLROVER AS numeric(4, 2)) * 10) / 10.0 AS numeric(3, 1)), NULL)
    WHEN b.REFVUC = 'H' and b.VCLRUNDER > 98.5 THEN 99.9
    WHEN b.REFVUC = 'H' THEN ISNULL(CAST(FLOOR(CAST(b.VCLRUNDER AS numeric(4, 2)) * 10) / 10.0 AS numeric(3, 1)), NULL)
    ELSE NULL
            END AS MinVerticalClearance,
```

SNBI - Validation

- Transition Tool

Bridge Number Transition Preference *

(•) Do Not Trim Leading Zeros ( ) Trim All Leading Zeros ( ) Trim All But One Leading Zero

Choose Files to Transition *

Select Bridge and Element Files: [Choose Files] Inventory_D…2142031.txt

Note: Place both files in the same folder and use "Shift" or "Control" to
the text file if you do not have an XML file.

Selected Files:

- Inventory_Data2024712142031.txt (0 KB)

[Upload] [Cancel]

```
"Elements": [],
"Features": [
  {
    "BF01": "H01",
    "BF02": "C",
    "BF03": "COUNTY 27",
    "BH01": "7",
    "BH02": "99999",
    "BH03": "N",
    "BH04": "N",
    "BH05": "N",
    "BH06": "CO00270",
    "BH07": 0.006,
    "BH08": 2,
    "BH09": 513,
    "BH10": 102,
    "BH11": 1989,
    "BH12": 99.9,
    "BH13": 99.9,
    "BH16": 20,
    "BH17": 6,
    "Routes": [
      {
        "BRT01": "R01",
        "BRT02": "27",
        "BRT03": "2-T",
        "BRT04": "4",
        "BRT05": "1"
      }
    ]
  },
  {
    "BF01": "R01",
    "BF02": "B",
    "BF03": "VIADUCT OVER SO.RR",
    "BRR02": 29.9,
    "BRR03": 60
  }
],
"Inspections": [
```


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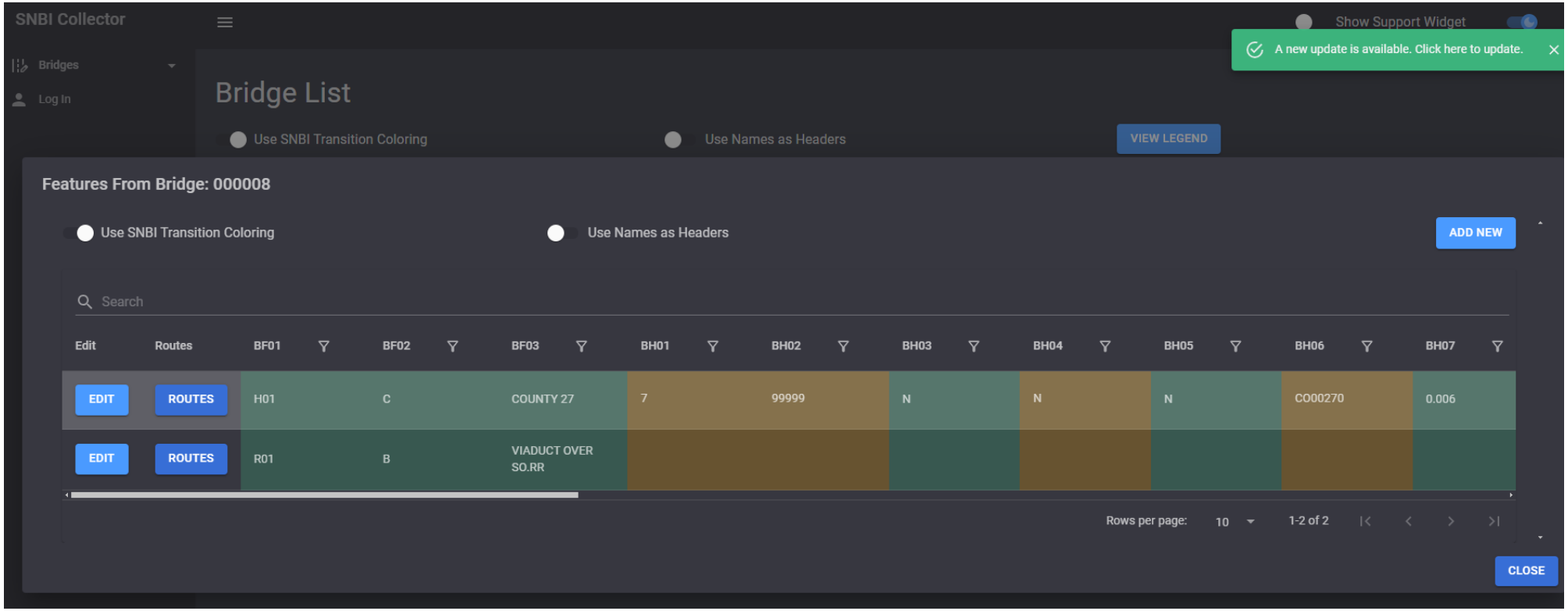
SNBI - Validation

- SNBI Collector



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SNBI - Features

- 42a - SRVTYPON

B.F.01, B.F.02, B.F.03 - Feature Type, Feature Location, and Feature Name

Features Carried On Bridge

CG ID 1	CG Value 1	CG Description 1	CG ID 2	CG Value 2	CG Description 2	SNBI Item 1	SNBI Value 1	SNBI Item 2	SNBI Value 2	SNBI Description 2	SNBI Item 3	SNBI Value 3	Note
			42A	1	Highway	B.F.01	H01	B.F.02	C	Carried on bridge	B.F.03	CG Item 7	
			42A	4	Highway - Railroad	B.F.01	H01 & R01	B.F.02	C	Carried on bridge	B.F.03	CG Item 7	2 records.
			42A	5	Highway - Trail	B.F.01	H01 & P01	B.F.02	C	Carried on bridge	B.F.03	CG Item 7	2 records.
			42A	6	Highway	B.F.01	H01	B.F.02	C	Carried on bridge	B.F.03	CG Item 7	
			42A	7	Highway	B.F.01	H01	B.F.02	C	Carried on bridge	B.F.03	CG Item 7	
			42A	8	Highway	B.F.01	H01	B.F.02	C	Carried on bridge	B.F.03	CG Item 7	

SNBI - Features

Feature Types – Highway, Railroad, Waterway, Pathway, etc

- dbo.Feature
  - Columns
    - ID (PK, varchar(32), not null)
    - AssetID (FK, varchar(32), not null)
    - FeatureAssetID (FK, varchar(32), null)
    - FeatureTypeID (FK, varchar(32), not null)
    - Name (nvarchar(300), not null)
    - Type (nvarchar(3), not null)
    - Location (nvarchar(1), not null)
    - IsReportToFHWA (bit, not null)
    - IsCrossingBridge (bit, not null)
    - SortOrder (int, not null)
    - HistoryID (FK, int, null)

- dbo.Highway
  - Columns
    - AssetID (PK, FK, varchar(32), not null)
    - LRSRouteID (nvarchar(120), null)
    - DataDate (datetime, null)
    - MilePoint (numeric(8,3), null)
    - HighwayLanes (numeric(2,0), null)
    - FunctionalClassification (nvarchar(3), null)
    - UrbanCode (nvarchar(5), null)
    - NHSDesignation (nvarchar(1), null)
    - FreightNetwork (nvarchar(3), null)
    - StrahnetDesignation (nvarchar(1), null)
    - AADT (numeric(8,0), null)
    - FutureAADT (numeric(8,0), null)
    - ADTT (numeric(8,0), null)
    - FutureADTT (numeric(8,0), null)
    - AADTYear (numeric(4,0), null)

- dbo.Railroad
  - Columns
    - AssetID (PK, FK, varchar(32), not null)
    - RailroadBridgeID (FK, varchar(32), null)
    - RailroadServiceType (nvarchar(2), not null)
    - RailroadMinVerticalClearance (numeric(3,1), not null)
    - RailroadMinHorizontalOffset (numeric(3,1), not null)
    - HistoryID (FK, int, null)
  - Keys

- dbo.AssetDefinition
  - Columns
    - ID (PK, varchar(32), not null)
    - AssetTypeID (FK, varchar(32), not null)
    - FieldName (varchar(50), not null)
    - DataType (varchar(16), null)
    - Precision (int, null)
    - Scale (int, null)
    - IsRequired (bit, not null)
    - IsUnique (bit, not null)
    - IsIndexed (bit, not null)
    - UnitID (FK, varchar(32), null)
    - DefaultValue (nvarchar(45), null)
    - ShortDescription (nvarchar(50), null)
    - Description (nvarchar(255), null)
    - FieldCode (nvarchar(10), null)

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SNBI - Features

AASHTOWare™
Bridge Management

Back

Inventory & Appraisal

Identification

Design

Features

Bridges › Inventory & Appraisal › Features

Features

Bridge

000066

	Order	Feature Name (B.F.03)	Feature Type (B.F.01)	Feature Location (B.F.02)
↕	1	US 278	H01	C Carried on bridge
↕	3	CSX RAILROAD	R01	B Below bridge

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Data Model - Similar

6.7.1

- dbo.BRIDGE
  - Columns
    - BRKEY (varchar(15), null)
    - BRIDGE_ID (varchar(30), not null)
    - STRUCT_NUM (varchar(15), null)
    - STRUCNAME (varchar(50), null)
    - FEATINT (varchar(24), null)
    - FHWA_REGN (varchar(2), null)
    - DISTRICT (varchar(2), null)
    - COUNTY (varchar(3), null)
    - FACILITY (varchar(18), null)
    - LOCATION (varchar(25), null)
    - CUSTODIAN (varchar(4), null)
    - IMPACT (numeric(10,2), null)
    - OWNER (varchar(4), null)
    - ADMINAREA (varchar(2), null)
    - BRIDGEGROUP (varchar(20), null)
    - NSTATECODE (varchar(3), null)
    - N_FHWA_REG (char(1), null)
    - BB_PCT (numeric(2,0), null)
    - BB_BRDGEID (varchar(15), null)
    - PROPWORK (varchar(2), null)
    - WORKBY (char(1), null)

7.0

- dbo.Bridge
  - Columns
    - AssetID (PK, FK, varchar(32), not null)
    - BridgeNumber (nvarchar(15), not null)
    - BridgeID (nvarchar(30), not null)
    - Name (nvarchar(300), not null)
    - Nickname (nvarchar(50), null)
    - Status (nvarchar(2), null)
    - LifecyclePhase (nvarchar(2), null)
    - ReportToFHWA (bit, not null)
    - ReportElementsToFHWA (bit, not null)
    - PastAssetID (FK, varchar(32), null)
    - FutureAssetID (FK, varchar(32), null)
    - StateCode (nvarchar(2), not null)
    - CountyCode (nvarchar(3), not null)
    - PlaceCode (nvarchar(5), null)
    - HighwayAgencyDistrict (nvarchar(2), not null)
    - MetroPlanningOrg1 (nvarchar(5), null)
    - MetroPlanningOrg2 (nvarchar(5), null)
    - BridgeLocation (nvarchar(300), not null)
    - IsBorder (bit, not null)

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Data Model – Different

6.7.1

- dbo.INSPEVNT
  - Columns
    - BRKEY (varchar(15), null)
    - INSPKEY (varchar(4), null)
    - INSPDATE (datetime, not null)
    - INSPUSRKEY (varchar(4), null)
    - INSPTYPE (char(1), not null)
    - INSPNAME (varchar(24), null)
    - REV_REQ (char(1), null)
    - DET_UPD (char(1), null)
    - INSPECTCONTROLID (varchar(20), null)
    - NBINSPDONE (char(1), null)
    - BRINSPFREQ (numeric(2,0), null)
    - LASTINSP (datetime, null)
    - NEXTINSP (datetime, null)
    - ELINSPDONE (char(1), null)

7.0

- dbo.BridgeInspection
  - Columns
    - EventID (PK, FK, varchar(32), not null)
    - AssetID (FK, varchar(32), not null)
    - DeckRating (nvarchar(1), null)
    - SuperstructureRating (nvarchar(1), null)
    - SubstructureRating (nvarchar(1), null)
    - CulvertRating (nvarchar(1), null)
    - BridgeConditionClassification (Computed, varchar(1), null)
    - LowestConditionRating (Computed, nvarchar(1), null)
    - RailingRating (nvarchar(1), null)
    - RailingTransitionRating (nvarchar(1), null)

- dbo.InspectionSchedule
  - Columns
    - ID (PK, varchar(32), not null)
    - EventID (FK, varchar(32), not null)
    - InspectionTypeID (FK, varchar(32), not null)
    - InspectorID (FK, varchar(32), null)
    - IsRequired (bit, not null)
    - IsBeingPerformed (bit, not null)
    - LastInspectionDate (datetime, null)
    - NextInspectionDate (datetime, null)
    - IntervalMethod (nvarchar(1), null)
    - IntervalMonths (numeric(2,0), null)
    - HistoryID (FK, int, null)

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Data Model

Same IDs / GUIDs

```
14
15  SELECT *
16  FROM ALDOT.dbo.BRIDGE b
17  JOIN ALDOT_7.dbo.Bridge br ON b.BRIDGE_GD = br.AssetID
```

90 %

Results | Messages

	BRKEY	BRIDGE_ID	STRUCT_NUM	STRUCNAME	FEATINT	FHWA_REGN	DISTRICT	COU
1	014094	014094	014094	??????????????????????????	CREEK	4	06	085
2	000458	000458	000458	OLD 75 BRIDGE	MILL CREEK	4	03	009
3	003047	003047	003047	WOODLEY RD.	WHITES SLOUGH	4	06	101
4	004738	004738	004738	??????????????????????????	MARTIN CREEK	4	07	005
5	018046	018046	018046	N	BEAVER CREEK	4	10	057
6	018189	018189	018189	??????????????????????????	POND CREEK	4	02	033
7	009875	009875	009875	??????????????????????????	WARRIOR RIVER RELIEF (-)	4	05	125
8	009640	009640	009640	??????????????????????????	UT to North River	4	05	125
9	019922	019922	019922		COLDWATER CREEK	4	04	121
10	019199	019199	019199	Wall Triana Hwy	LIMESTONE CREEK	4	01	089
11	001453	001453	001453	??????????????????????????	BIG COON CREEK RELIEF	4	01	071
12	002554	002554	002554	NNNNNNNNNNNNNNNNNNNNNNNNN	LITTLE SQUWILPA CREEK	4	08	023

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User Columns

- User data migrated
  - Bridge
  - Inspection
  - Structure Unit
  - Roadway
- Defined in COPTIONS
  - XTRNBRDGTABLE etc…
  - Defaults: USERBRDG, USERINSP, USERSTRUNIT, USERRWAY
- 7.0 Destination
  - Bridge, BridgeInspection, StructureUnit, Highway

User Columns

Format: <AGENCY_PREFIX>_COLUMN_NAME

- UserKey13 (nvarchar(32), null)
- UserKey14 (nvarchar(32), null)
- UserKey15 (nvarchar(32), null)
- AL_MPO_ID (nvarchar(2), null)
- AL_ST_REL_POS_CD (numeric(5,0), null)
- AL_CONG_DIST_ID (nvarchar(2), null)
- AL_SEN_DIST_ID (nvarchar(2), null)
- AL_HOU_DIST_ID (nvarchar(3), null)
- AL_PJ_REF_ID (nvarchar(9), null)
- AL_ST_AJCNT_MLINE_ID (numeric(10,0), null)
- AL_ST_PREVST_ID (numeric(10,0), null)
- AL_FA_PREFX_ID (nvarchar(25), null)
- AL_ST_INSPN_RESPBY_CD (nvarchar(2), null)
- AL_ST_NA_ASGND_BY_CD (nvarchar(1), null)
- AL_ST_PREV_ST_2_ID (numeric(10,0), null)
- AL_ST_LOCL_COMSN_CD (nvarchar(4), null)

AL_MPO_ID	AL_ST_REL_POS_CD	AL_CONG_DIST_ID	AL_SEN_DIST_ID	AL_HOU_DIST_ID	AL_PJ_REF_ID
00	0	07	23	069	NNNNNNNNN
00	0	04	17	034	NNNNNNNNN
??	0	02	25	075	NNNNNNNNN
00	0	02	28	084	NNNNNNNNN
00	0	04	06	016	NNNNNNNNN
11	0	05	01	003	100009339
00	-1	07	24	072	NNNNNNNNN
12	0	06	05	014	NNNNNNNNN
00	0	03	11	035	100033401
00	0	??	??	???	100044281
??	0	??	??	???	?????????
00	0	07	22	065	?????????
12	-1	07	21	063	NULL
00	0	04	09	025	NNNNNNNNN

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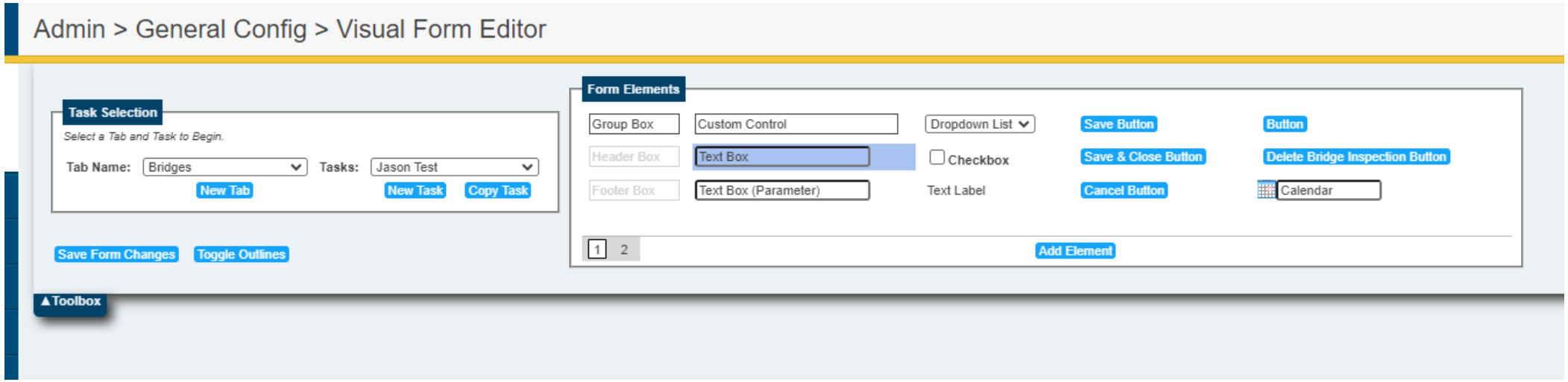
Page Builder Highlights

- Improved User Experience
- Listing / Edit Views
- Field Input
- Other Highlights
  - Field Grid
  - Jump to Parameters
- Documentation

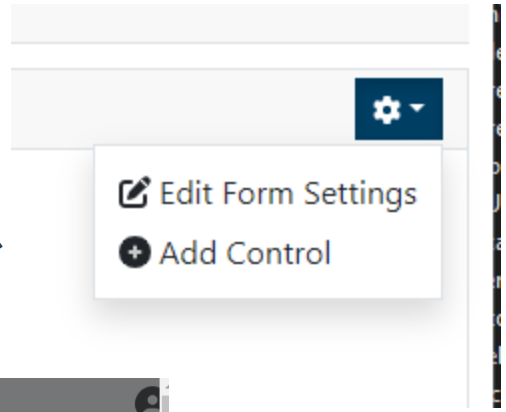
User Experience

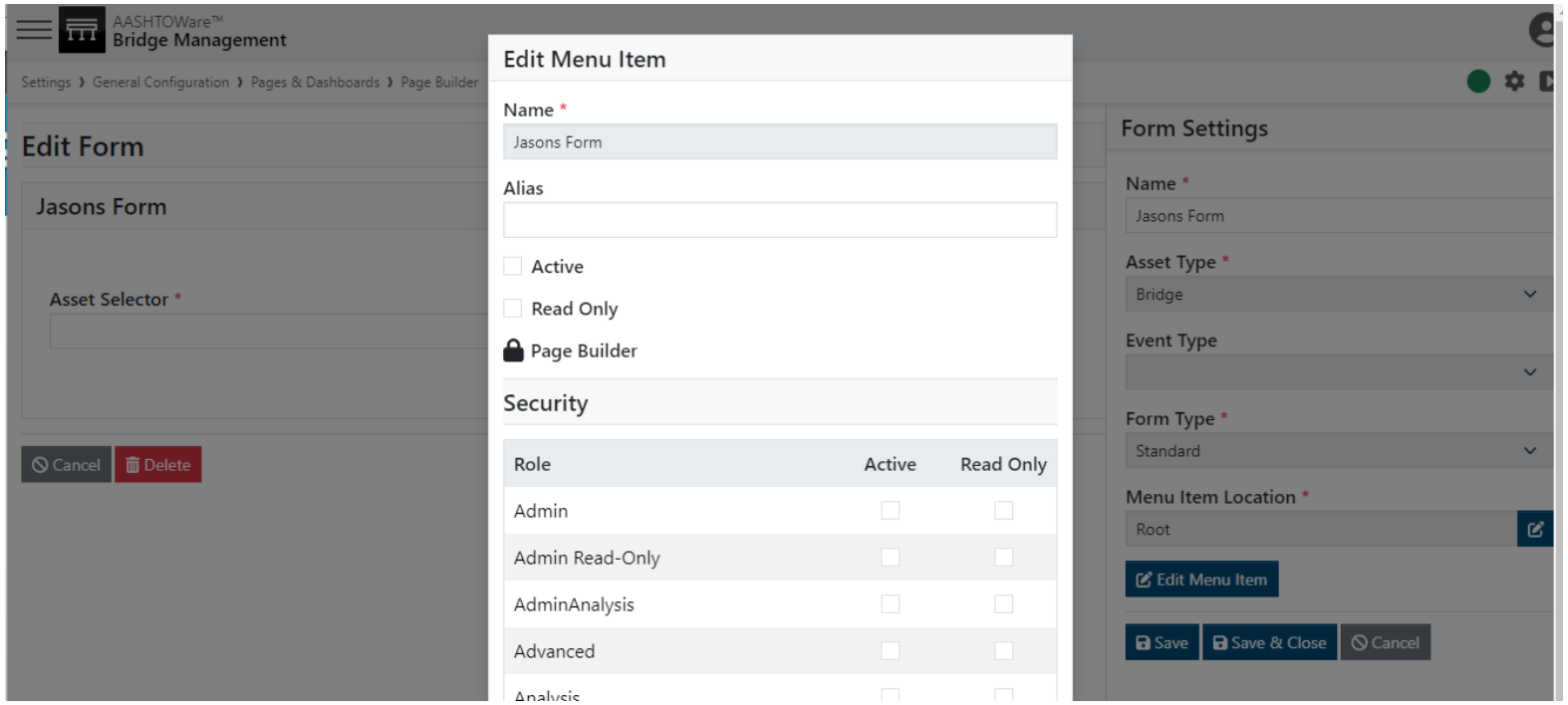
- Form Creation – Look and Feel (BrM 6)



User Experience

- Form Creation – Look and Feel (BrM 7)





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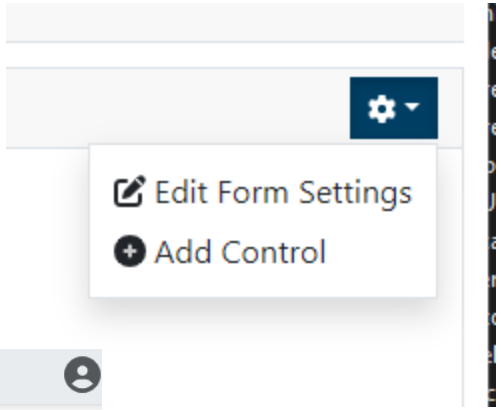
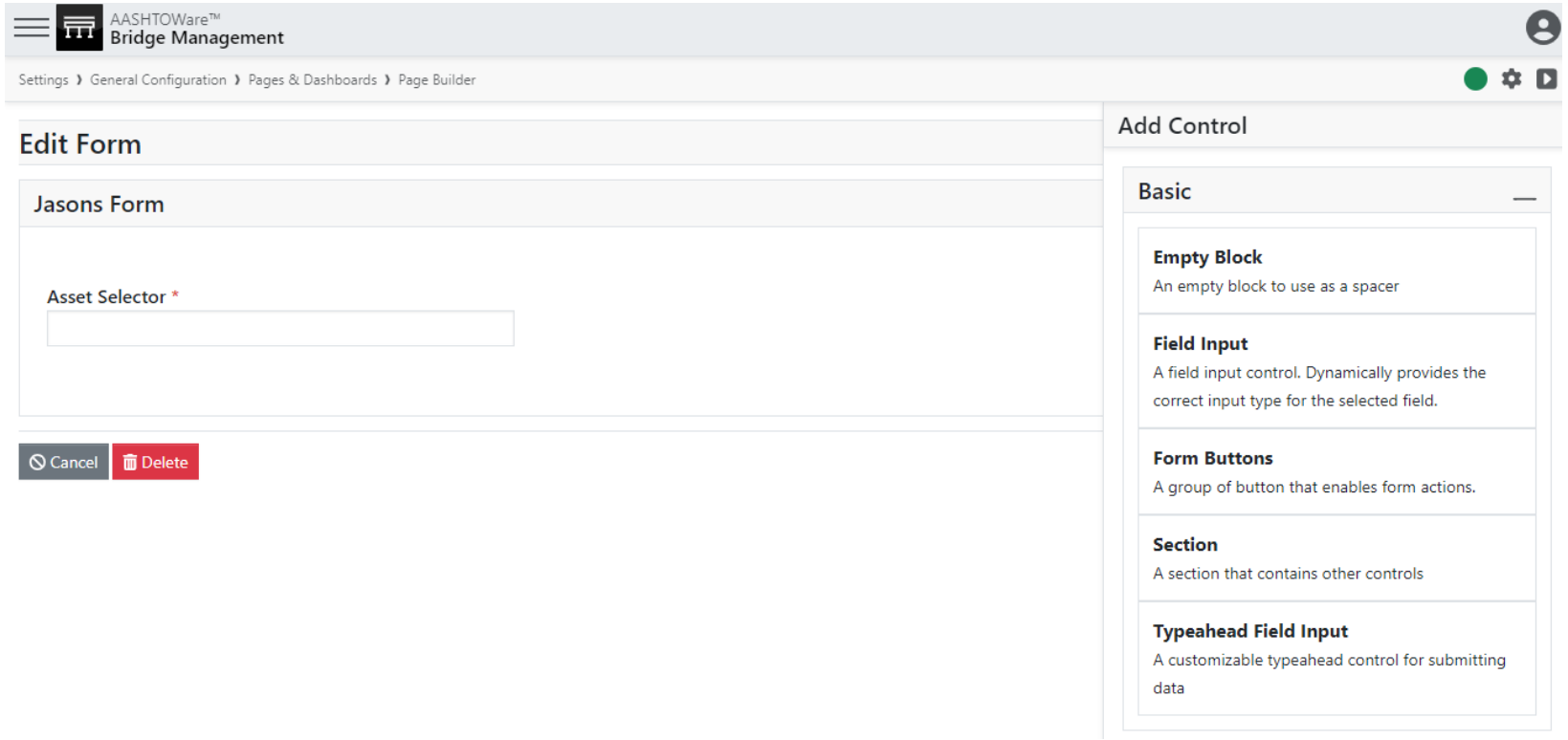
User Experience

- Form Creation – Look and Feel (BrM 7)





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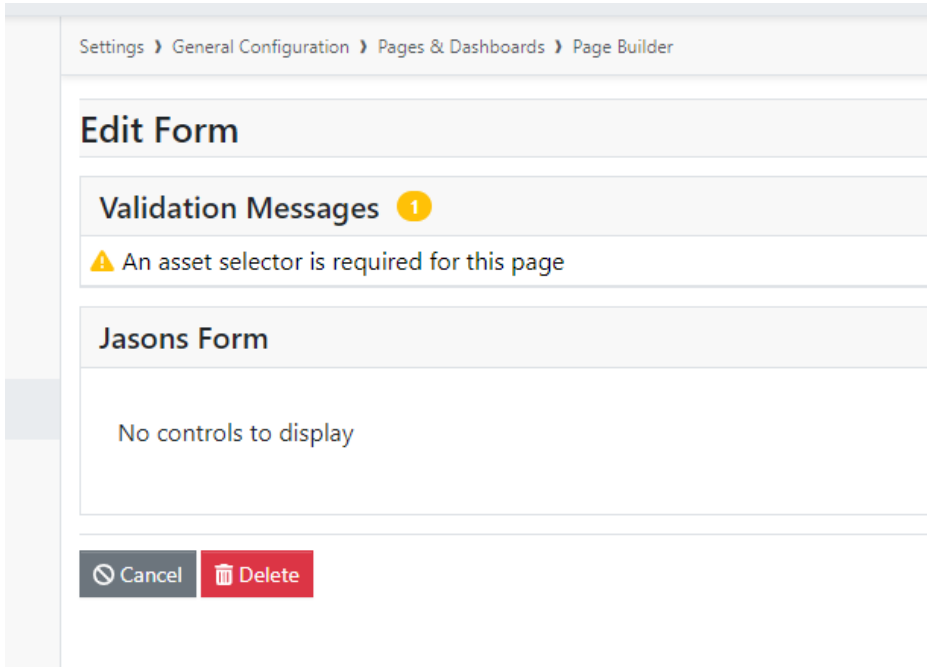
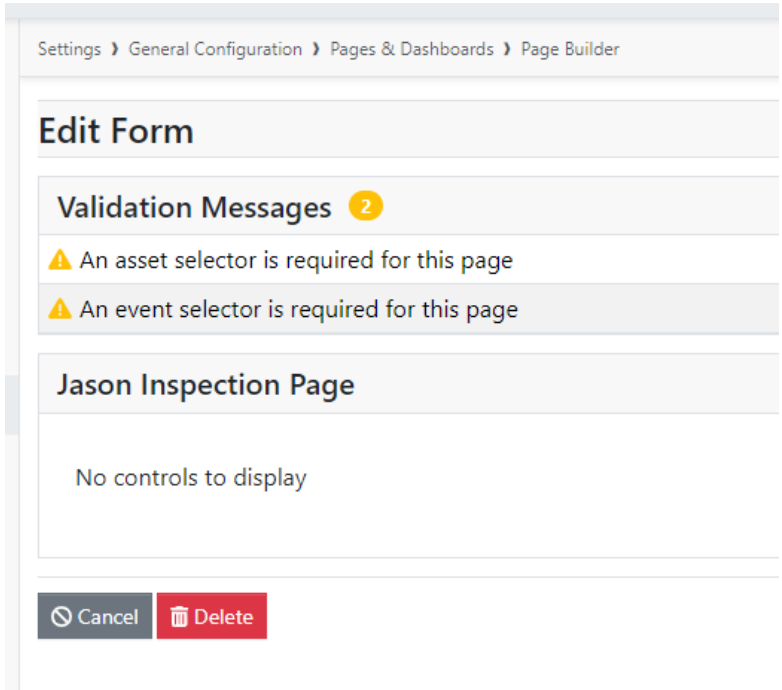
User Experience

- Form Creation – Asset/Event Selector Reminder

Asset Page



Event Page



AASHTOWare™ BRIDGE MANAGEMENT

User Experience

- Form Creation – Control Filtering

Bridge

Crossing Asset
Selects and saves a Feature associated with a Crossing Asset

Field Grid
A customizable grid that houses Field Input Controls

Generate Report Button
Upon click, generates and downloads a report

Latest Inspections
Latest Inspections Listing

Bridge Inspection

Crossing Asset
Selects and saves a Feature associated with a Crossing Asset

Detour Route
Detour Route List and Edit View

Dolphins
Dolphins List and CRUD View

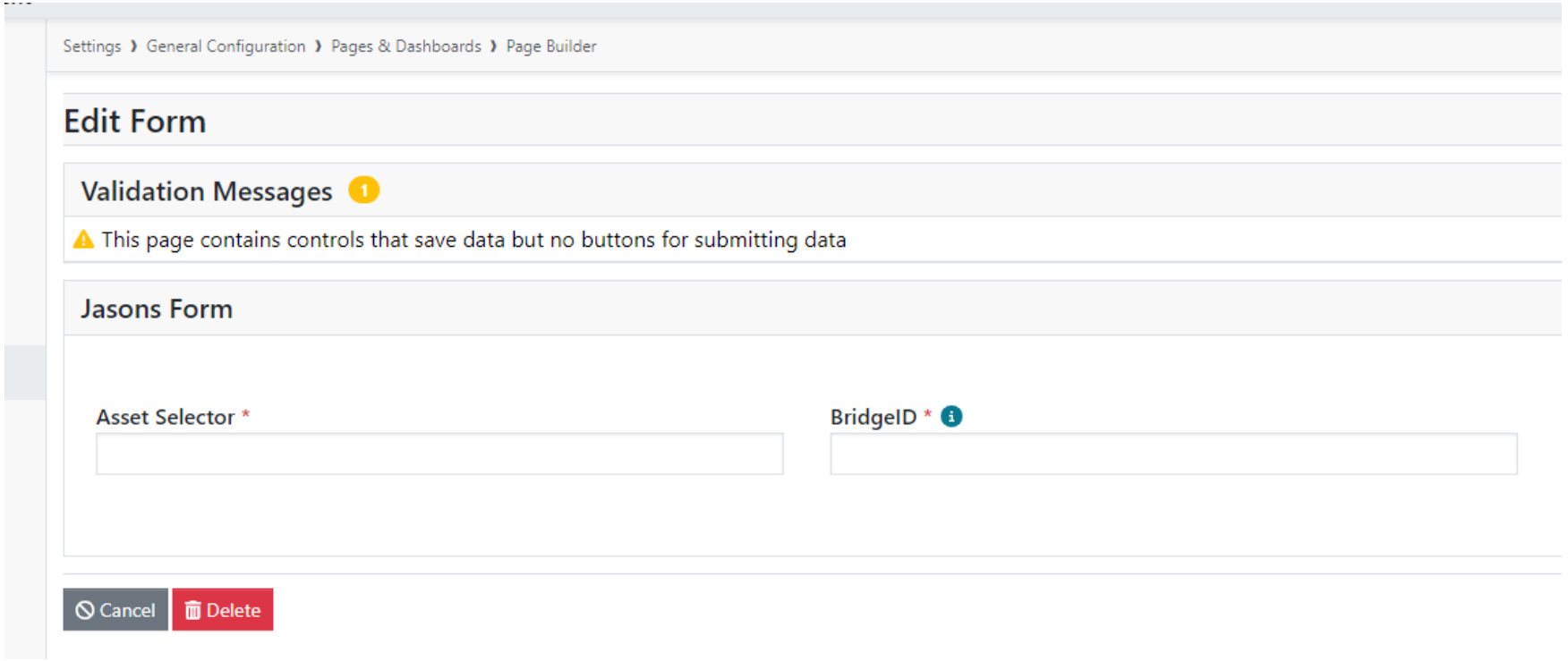
Element Condition Grid
Element Condition Listing and CRUD View

Equipment Used in This Inspection
Equipment Used in This Inspection Listing and Create/Edit Modal

AASHTOWare™ BRIDGE MANAGEMENT

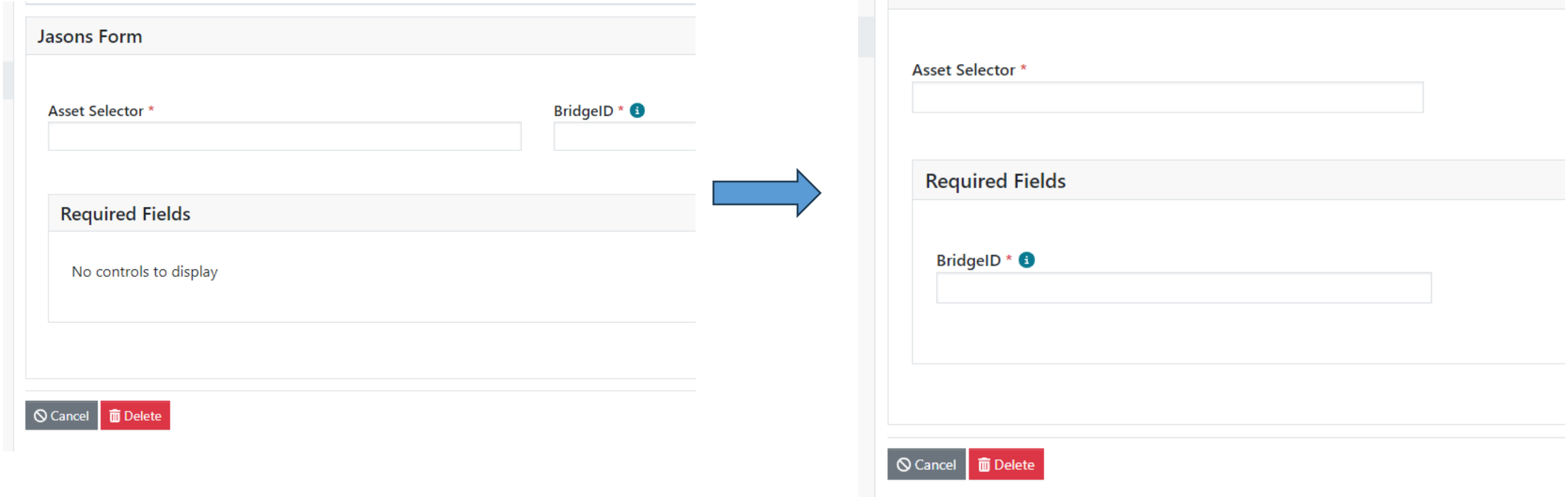
User Experience

- Form Creation – Button Reminder



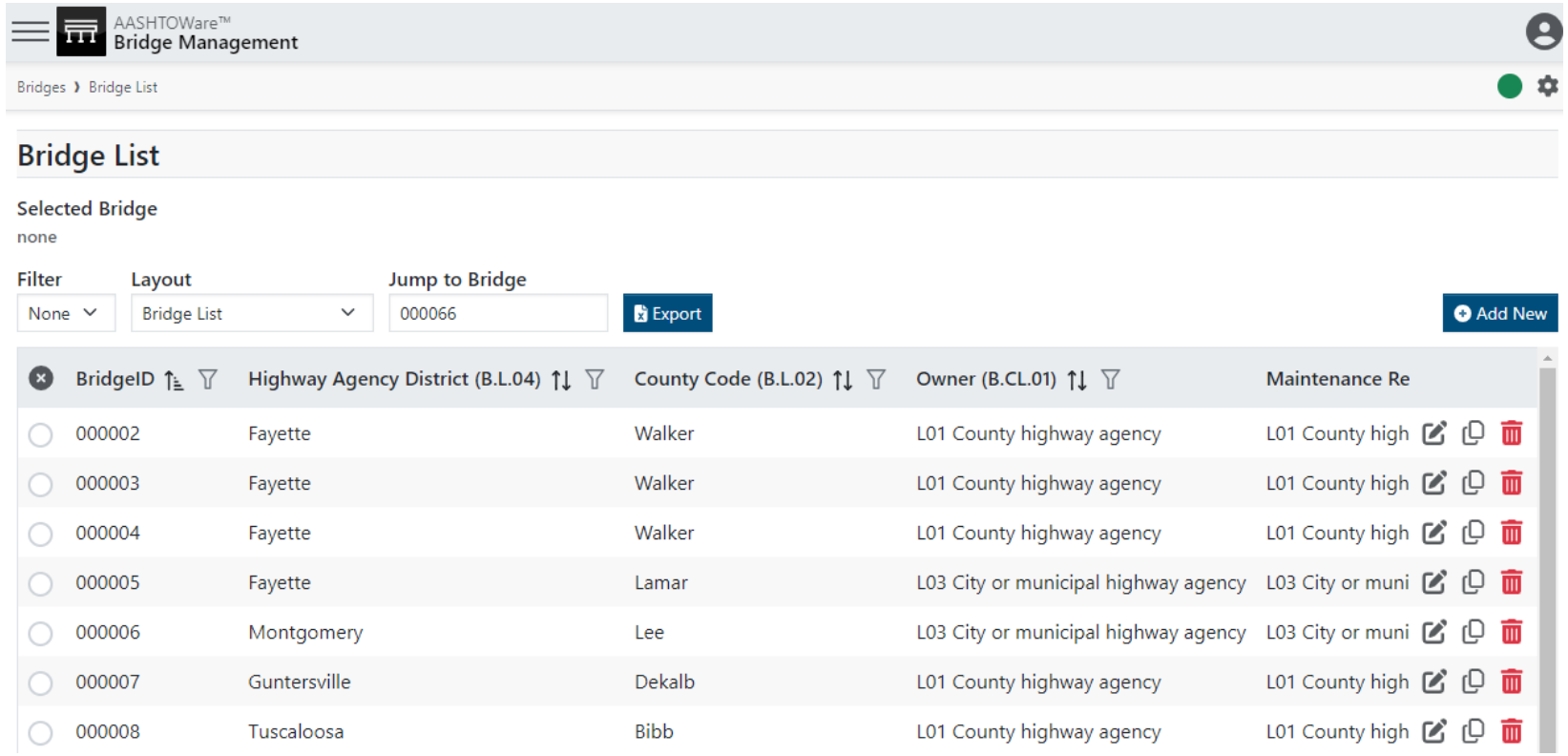
User Experience

- Form Creation – Direct Add



Listing View

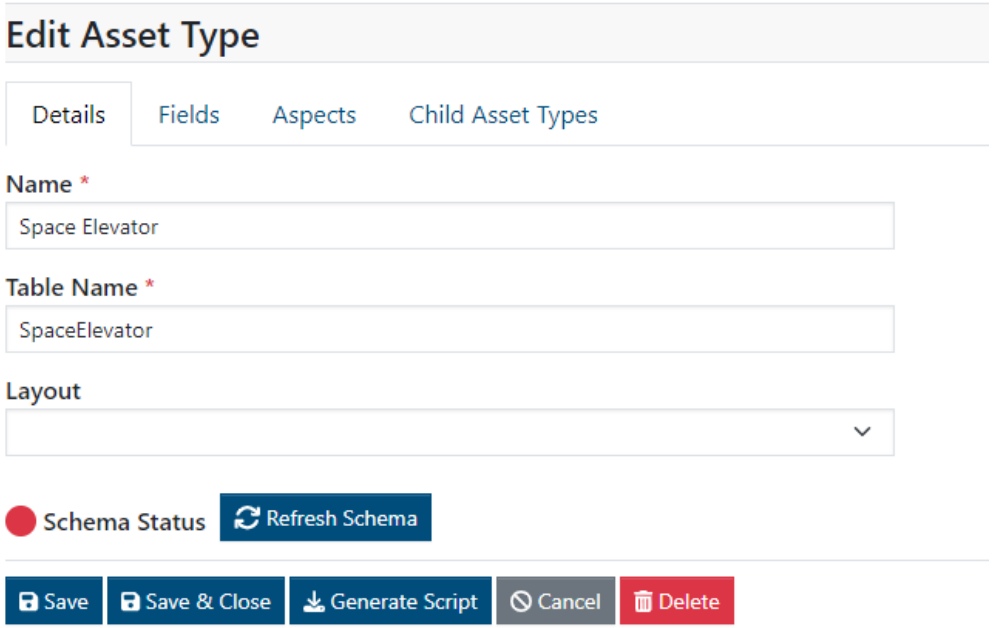
- List View Component



AASHTOWare™ BRIDGE MANAGEMENT

Listing View

- Custom Asset View



```
1  CREATE TABLE SpaceElevator (
2  AssetID VARCHAR(32) NOT NULL PRIMARY KEY,
3  HistoryID INT  NULL,
4  PowerSystem nvarchar(32) NOT NULL,
5  AnchorPoint nvarchar(32) NULL,
6  CounterWeight nvarchar(32) NULL,
7  Cable nvarchar(32) NOT NULL,
8  );
9  ALTER TABLE SpaceElevator ADD CONSTRAINT FK_SpaceEle
10 ALTER TABLE SpaceElevator ADD CONSTRAINT FK_SpaceEle
11
12
```

AASHTOWare™ BRIDGE MANAGEMENT

Listing View

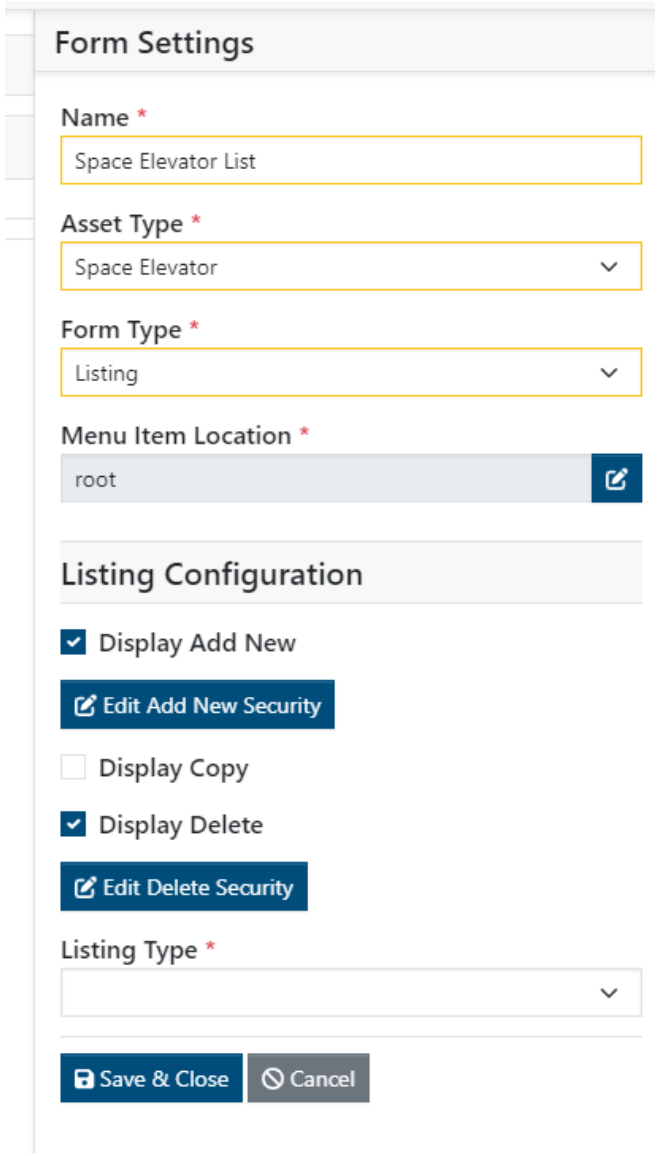
- Custom Asset View

Form Type – Standard / Listing

Menu Item Location

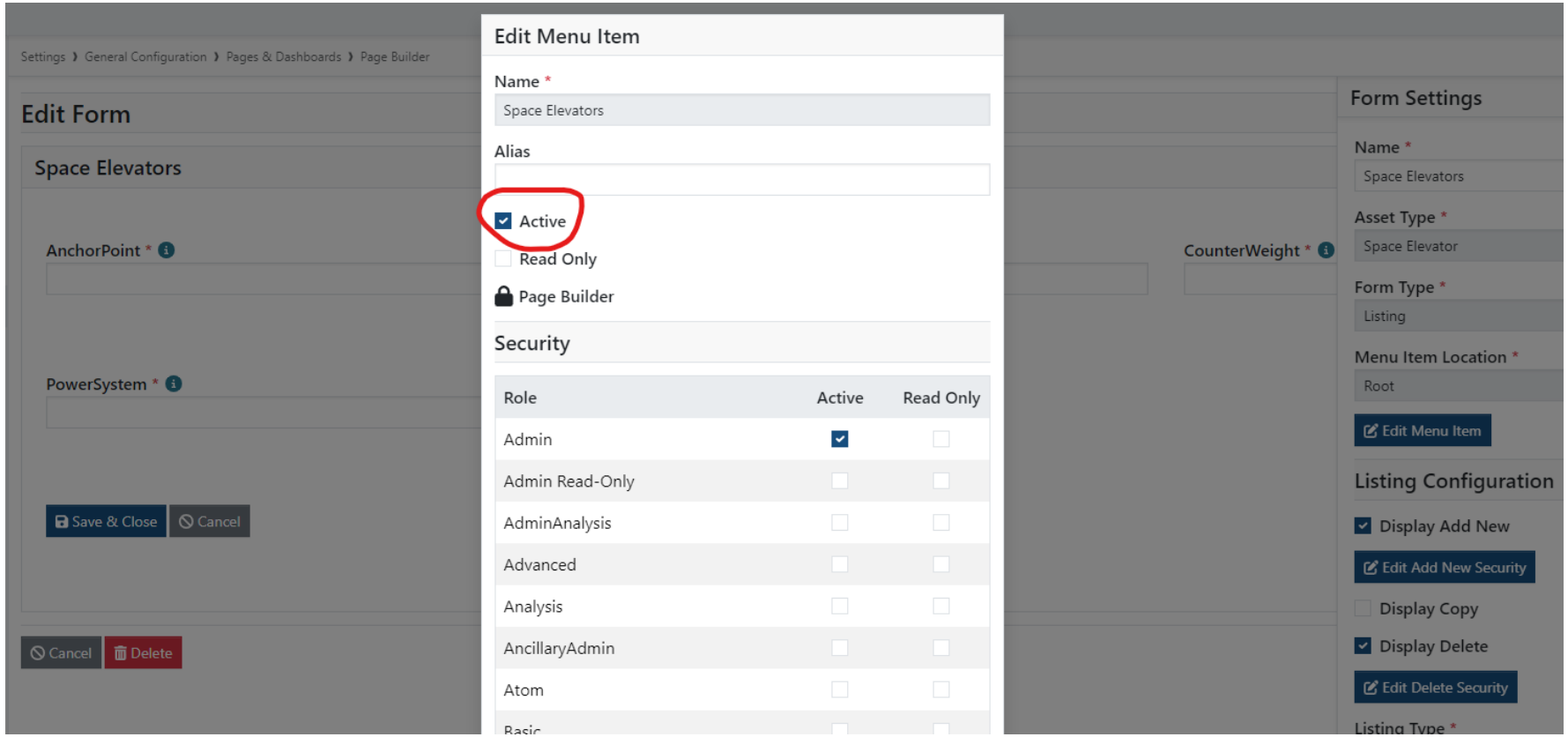
Security

Listing Type – Standard / Layout



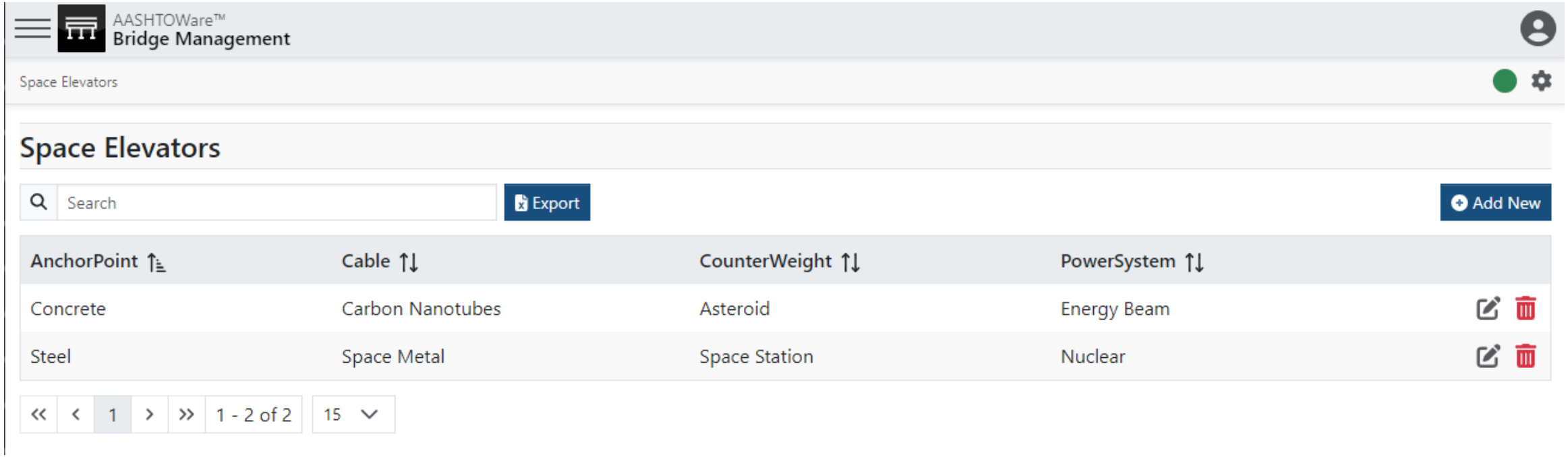
Listing View

- Page Active / Inactive



Listing View

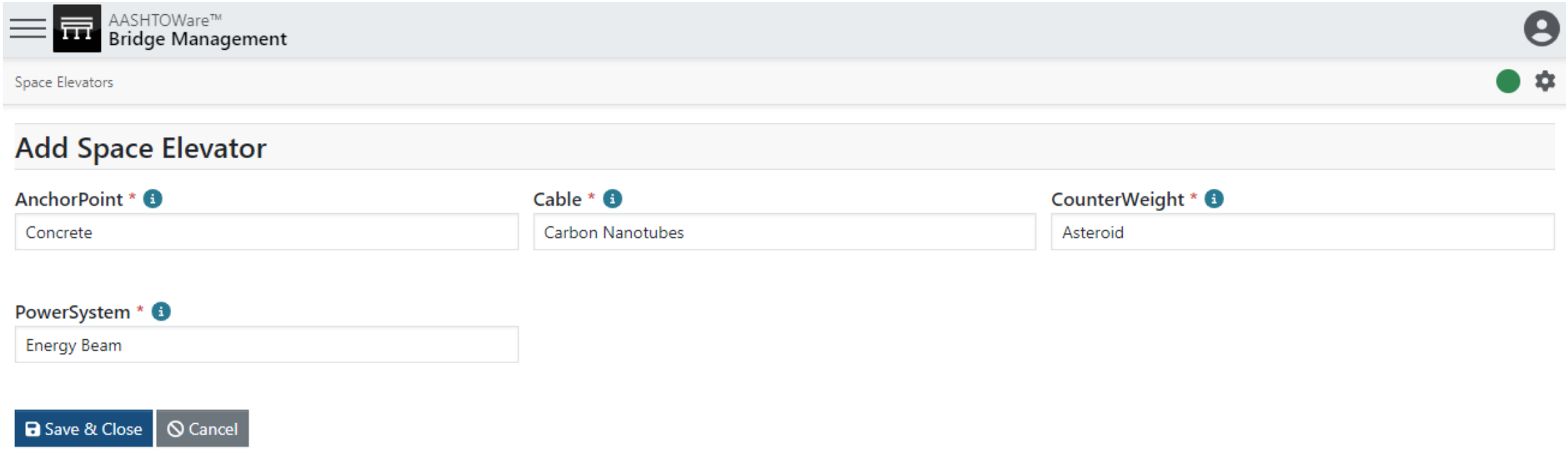
- Custom Asset Grid View



AASHTOWare™ BRIDGE MANAGEMENT

Listing View

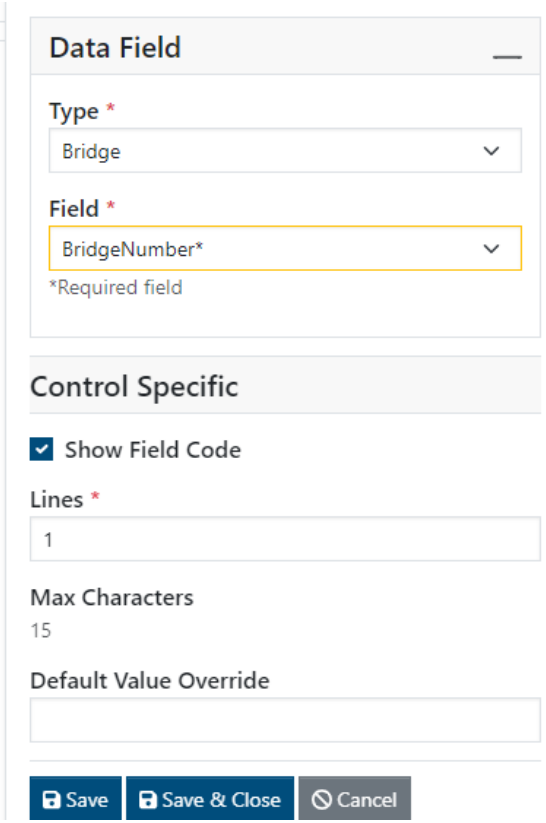
- Custom Asset Edit View



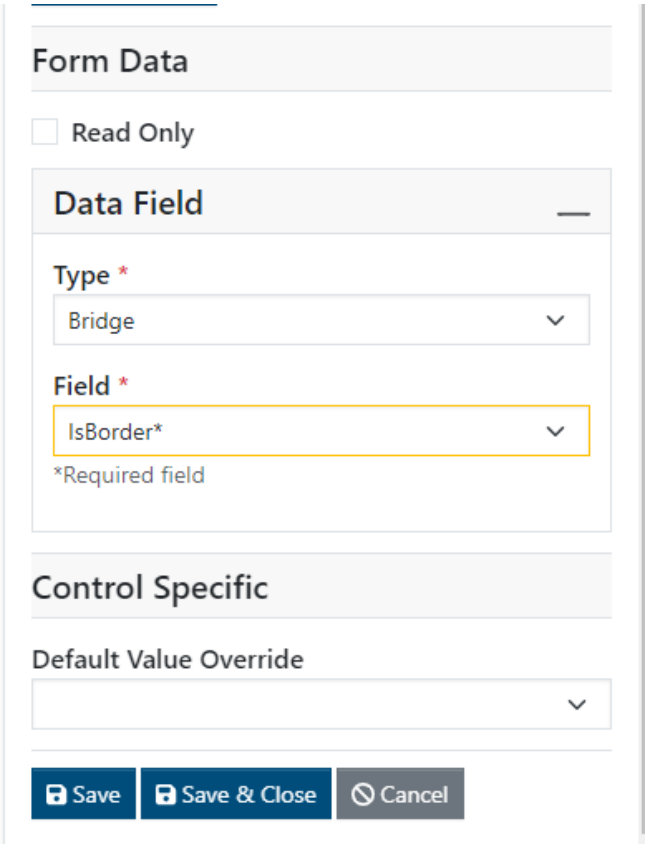
AASHTOWare™ BRIDGE MANAGEMENT

Field Input

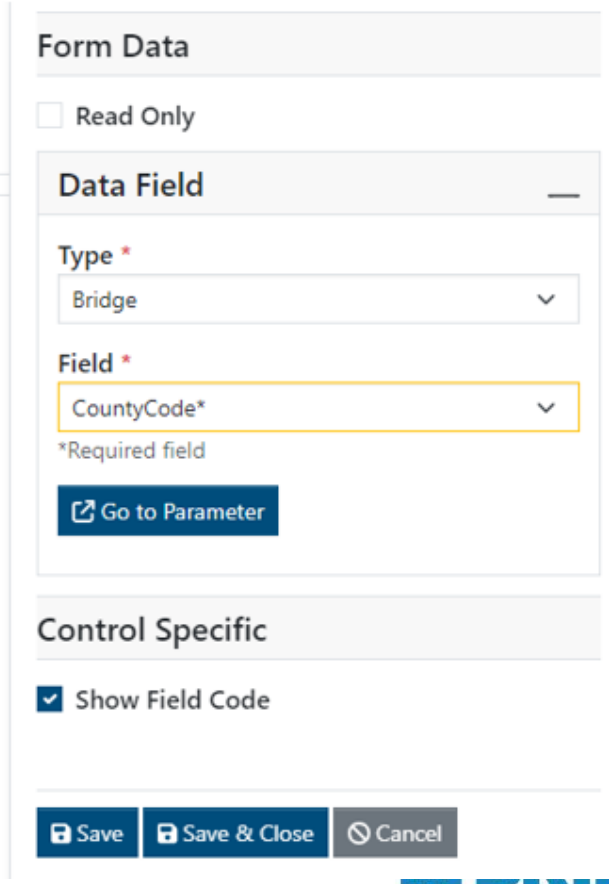
Bridge Number (string)



IsBorder (boolean)

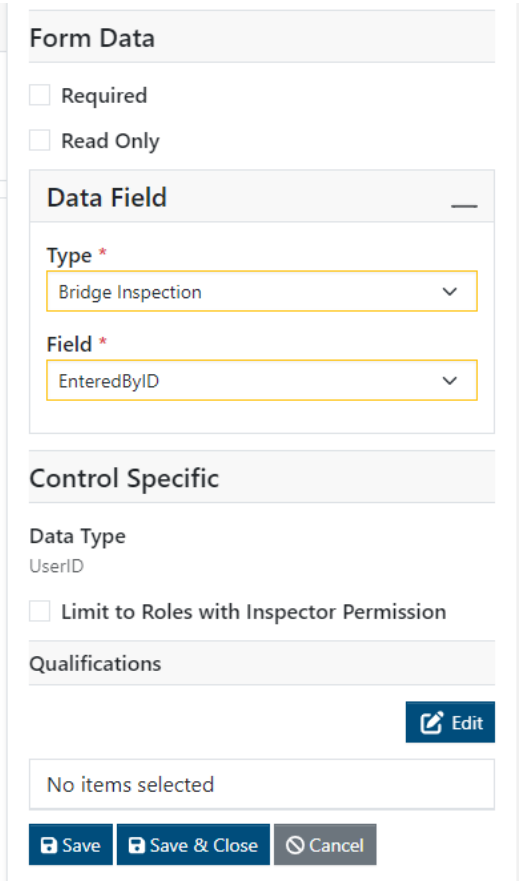


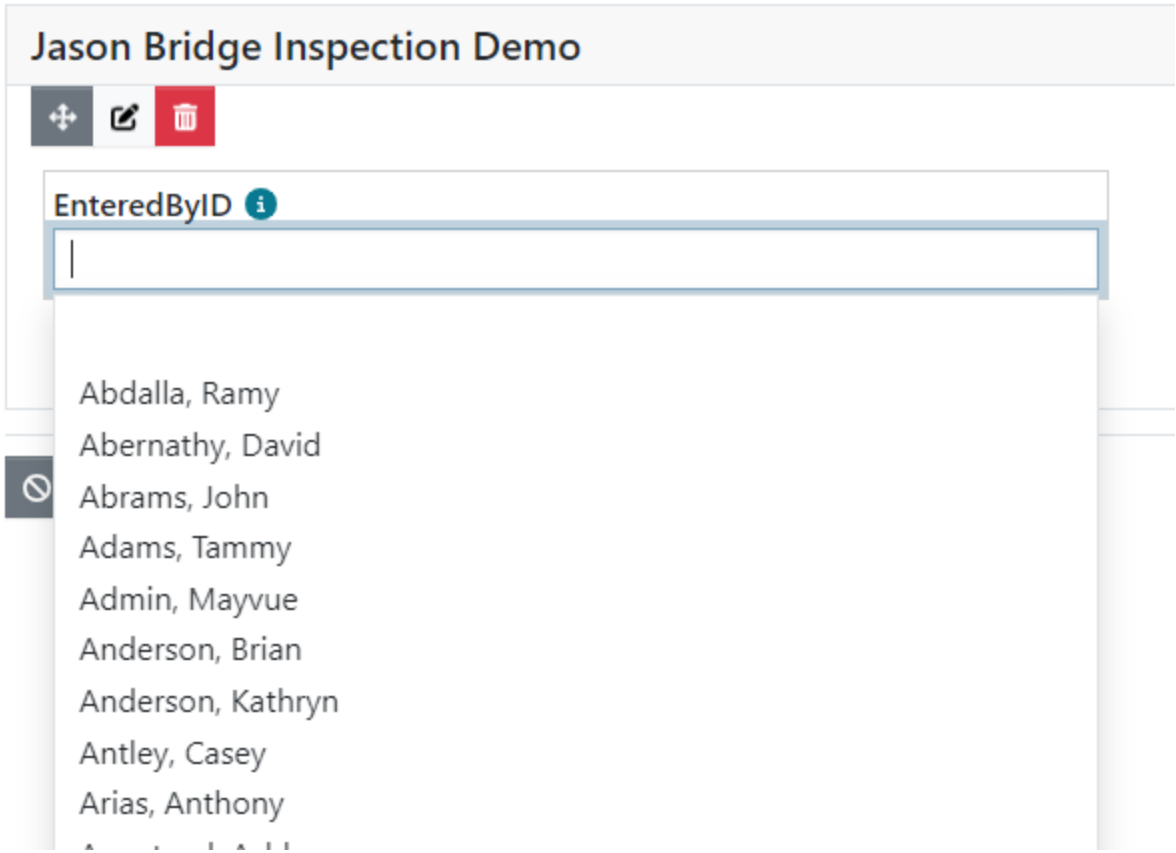
County Code (parameterized)



Field Input

- Asset / Event / User ID Fields

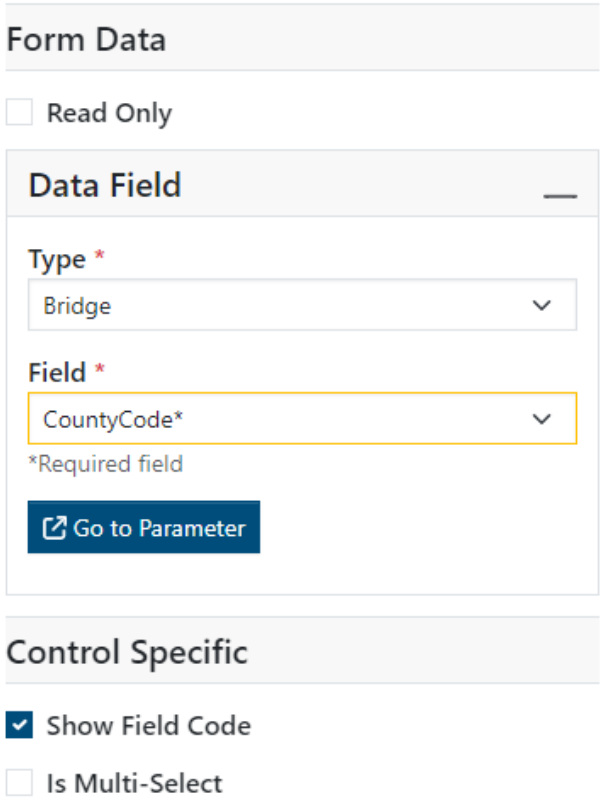


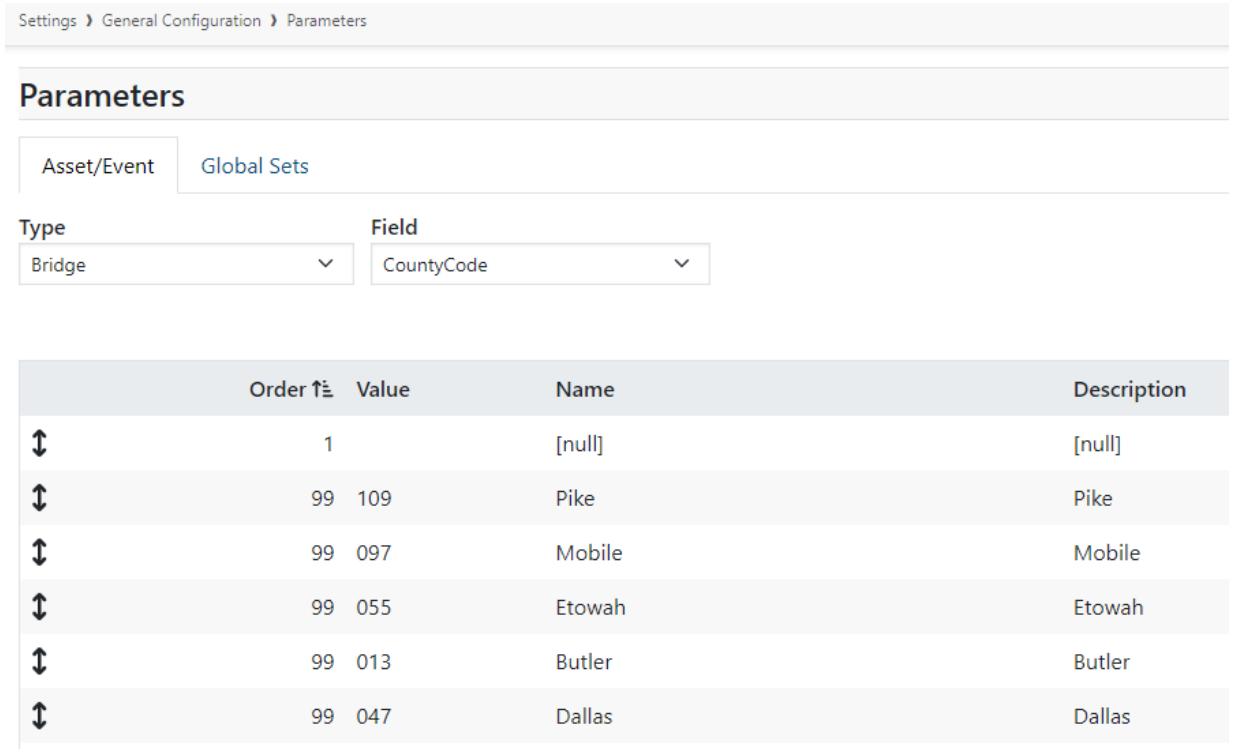


AASHTOWare™ BRIDGE MANAGEMENT

Field Input

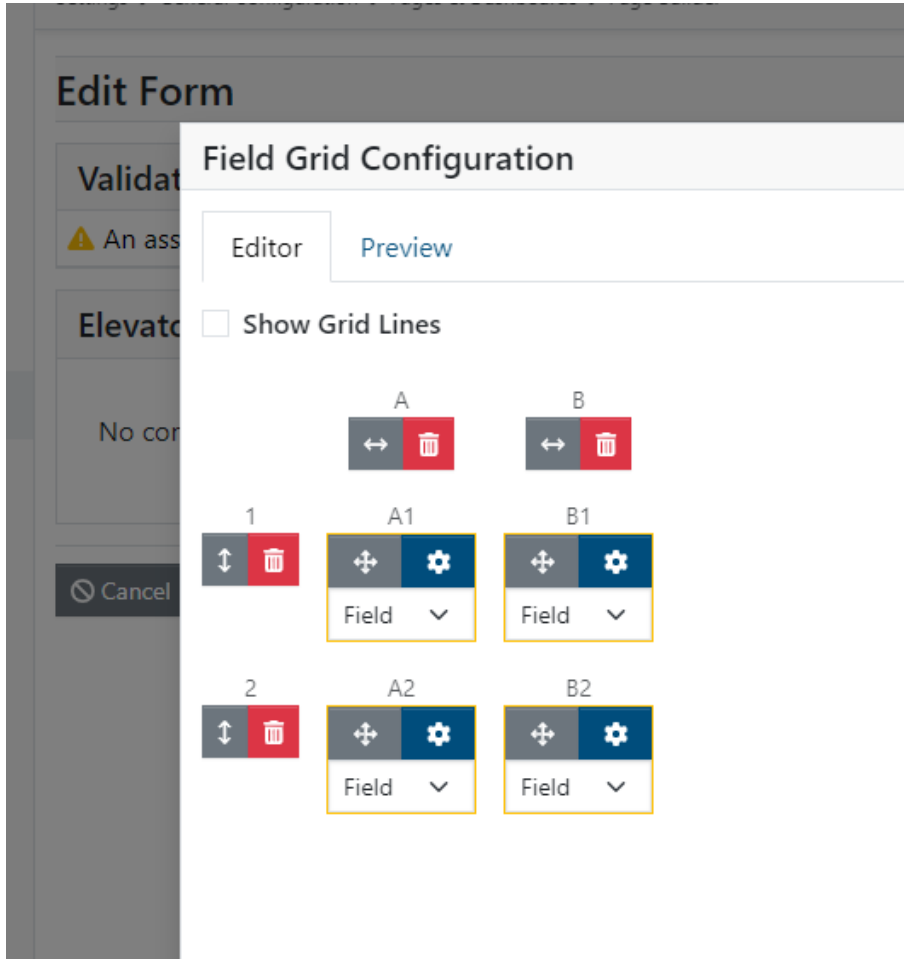
- Go To Parameter

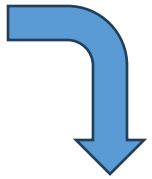


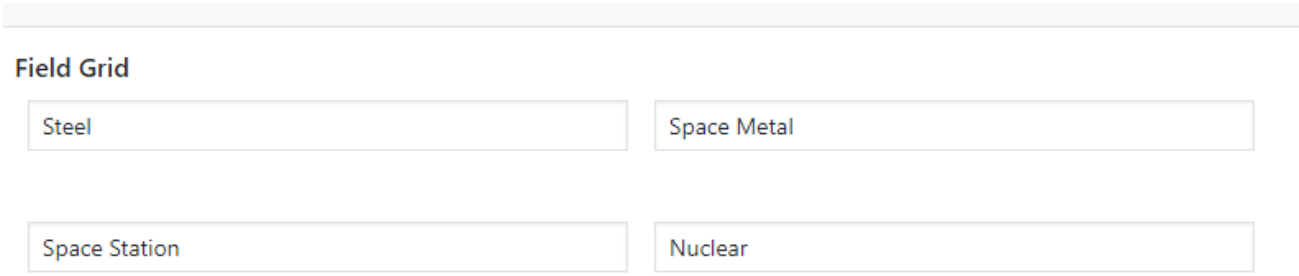


AASHTOWare™ BRIDGE MANAGEMENT

Field Grid







AASHTOWare™ BRIDGE MANAGEMENT

Documentation

AASHTOWare BRIDGE MANAGEMENT

Search

BrM / User Manual / Settings / General Configuration / Pages & Dashboards / Page Builder

Filter

- Security
- General Configuration
  - Inspection
  - Pages & Dashboards
    - Dashboard Chart Templates
    - Filters SQL
    - Filters UI
    - Layouts
    - Page Builder
      - Page Builder
      - Page Builder Form Basic Controls
      - Page Builder Form Advanced Controls
      - Page Builder Dashboard Basic Controls
      - Page Builder Dashboard Advanced Controls
  - Asset Types
  - Map Info Window

Page Builder

Updated on 27 Aug 2024 • 15 Minutes to read

Print Share Dark PDF

The **Settings ❱ General Configuration ❱ Pages & Dashboards ❱ Page Builder** page allows the user to create forms, listing pages and dashboards.

The page consists of two tabs:

- **Form**, which the allows user to create standard forms and listing forms, on which asset (Bridge, Tunnel ,etc) and/or event (Bridge Inspection, Bridge Load Rating, Tunnel Inspection, etc) records can be created, edited and deleted.
- **Dashboard**, which allows the user to create dashboards consisting of filter counts, asset table grids and/or charts, but does not allow for creation or modification of database record data

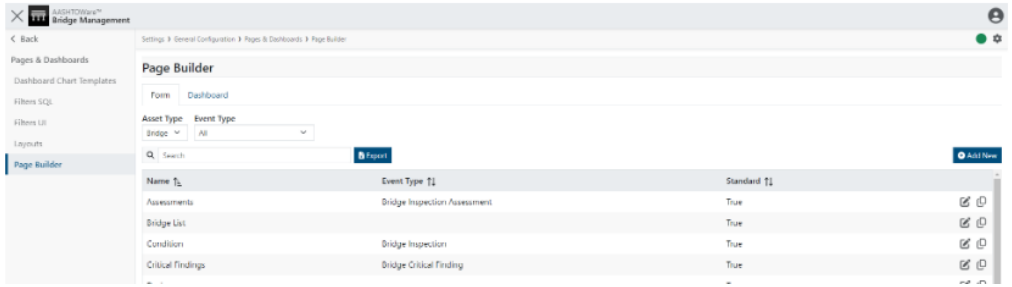


Table of contents

- "Form" Tab
  - Form Tab, Add New, Creating a Form Page
    - Form Tab, Edit Form Settings
    - Form Tab, Adding a Basic Control
    - Form Tab, Adding an Advanced Control
    - Form Tab, Reordering Controls
  - Form Tab, Add New, Creating a Listing Page
    - Creating a Listing Page, Features
    - Form Tab, Edit Form Settings
    - Form Tab, Adding a Basic Control
    - Form Tab, Adding an Advanced Control
    - Form Tab, Reordering Controls

AASHTOWare BRIDGE MANAGEMENT

Contact

Leanna Zaccone

Leanna.Zaccone@mayvue.com

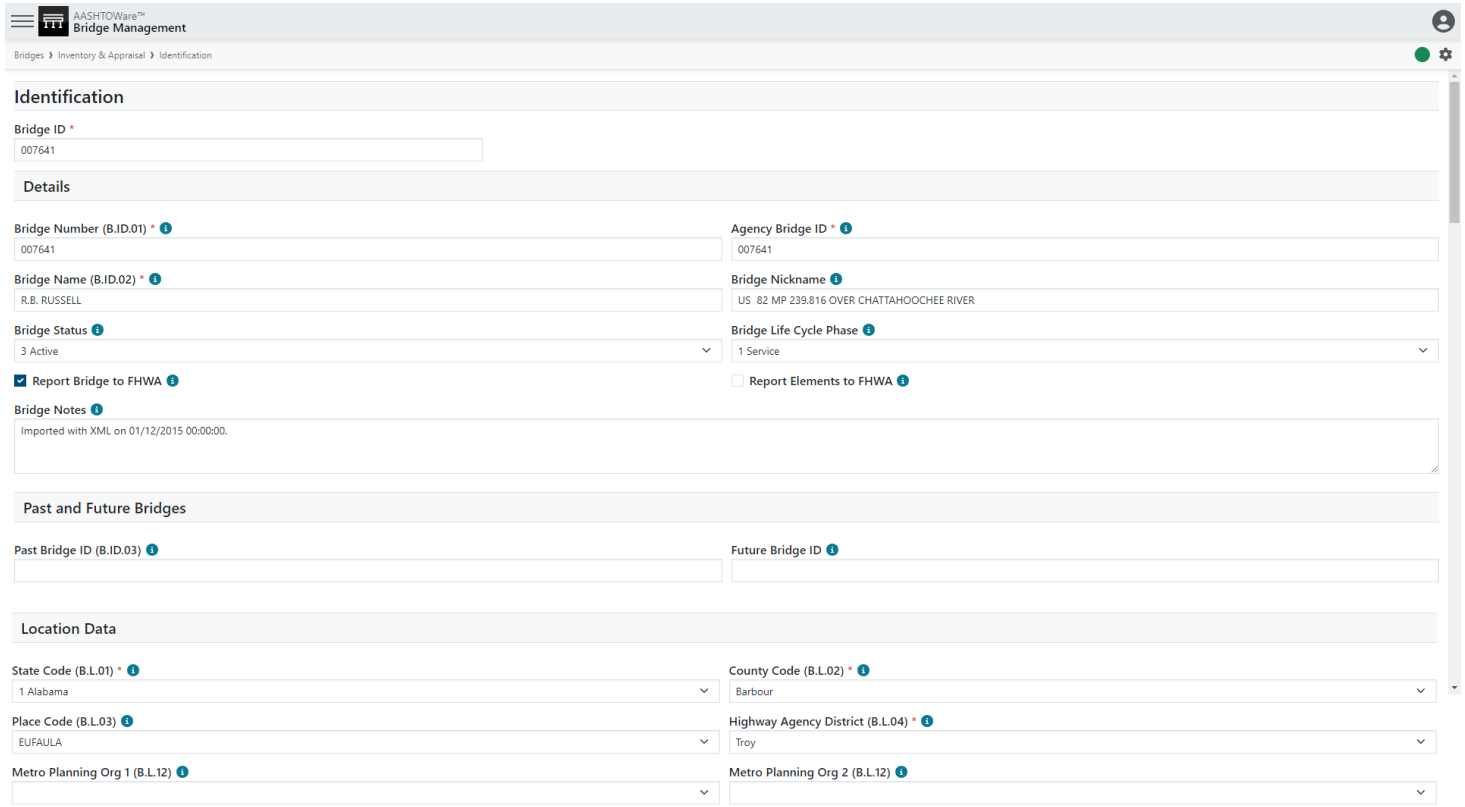
AASHTOWare™ BRIDGE MANAGEMENT

Inventory & Appraisal Data

- Identification
  - Replaces Inspection ❱ Inventory ❱ Admin
- Design
  - Replaces Inspection ❱ Inventory ❱ Design
- Features
  - Replaces Inspection ❱ Inventory ❱ Roads

Identification – New Functionality

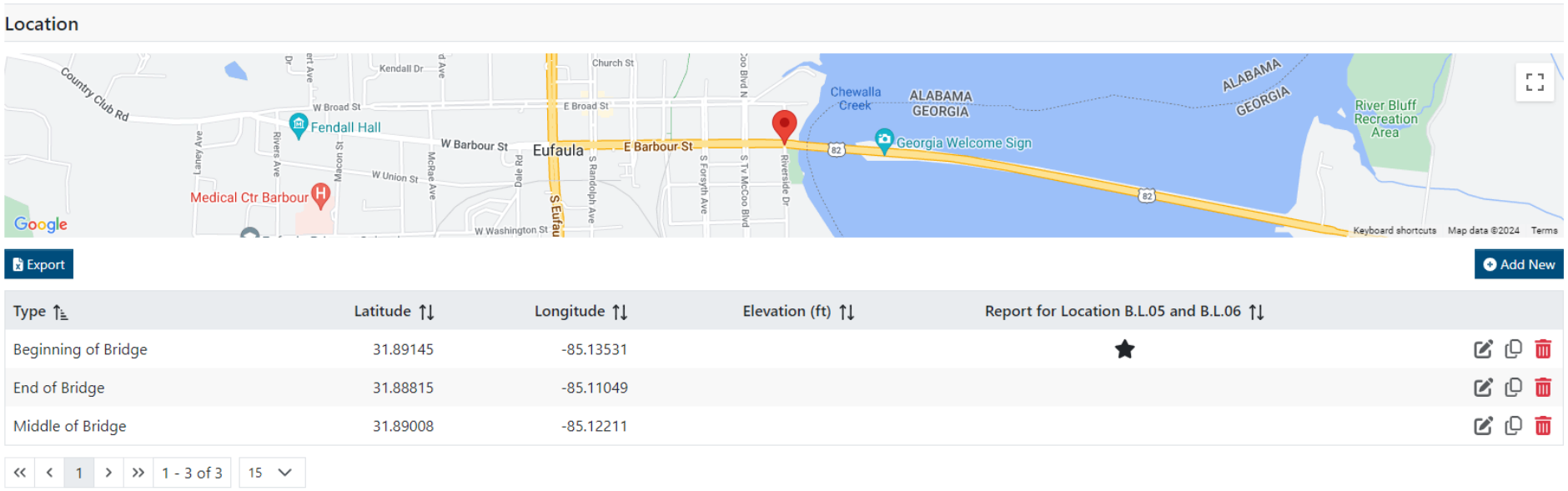
- Past / Future Bridge IDs
- Border Bridge data
- Mapping



AASHTOWare™ BRIDGE MANAGEMENT

Identification – Mapping

- Stores locations for beginning, middle, end of bridge
- Indicates which is the reportable location (also the one used for mapping throughout BrM)



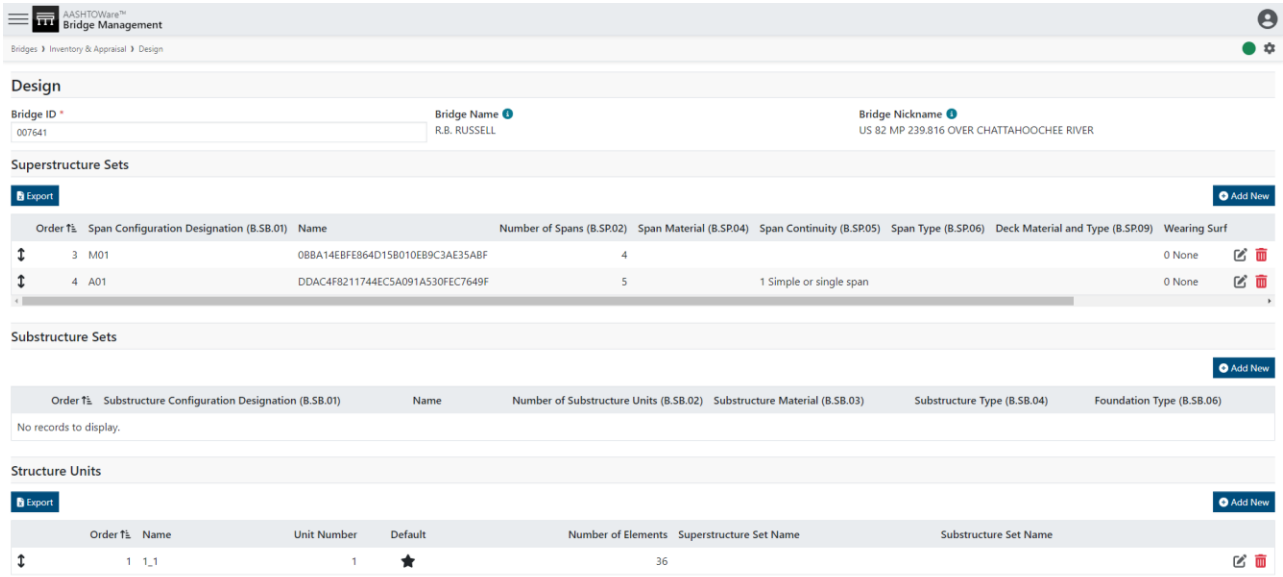
Type	Latitude	Longitude	Elevation (ft)	Report for Location B.L.05 and B.L.06
Beginning of Bridge	31.89145	-85.13531		★
End of Bridge	31.88815	-85.11049		
Middle of Bridge	31.89008	-85.12211		

1 - 3 of 3 | 15

AASHTOWare™ BRIDGE MANAGEMENT

Design – New Functionality

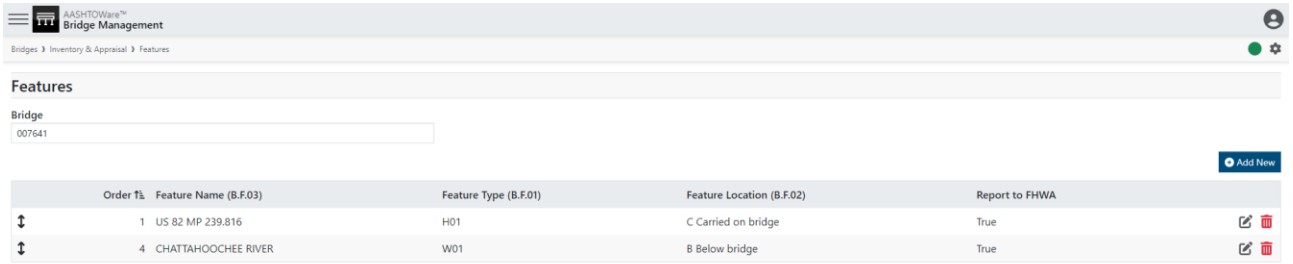
- Per SNBI, capturing more information about design:
  - Superstructure Sets
  - Substructure Sets
  - Structure Units
    - Link to Superstructure and/or Substructure Set



AASHTOWare™ BRIDGE MANAGEMENT

Features – New Functionality

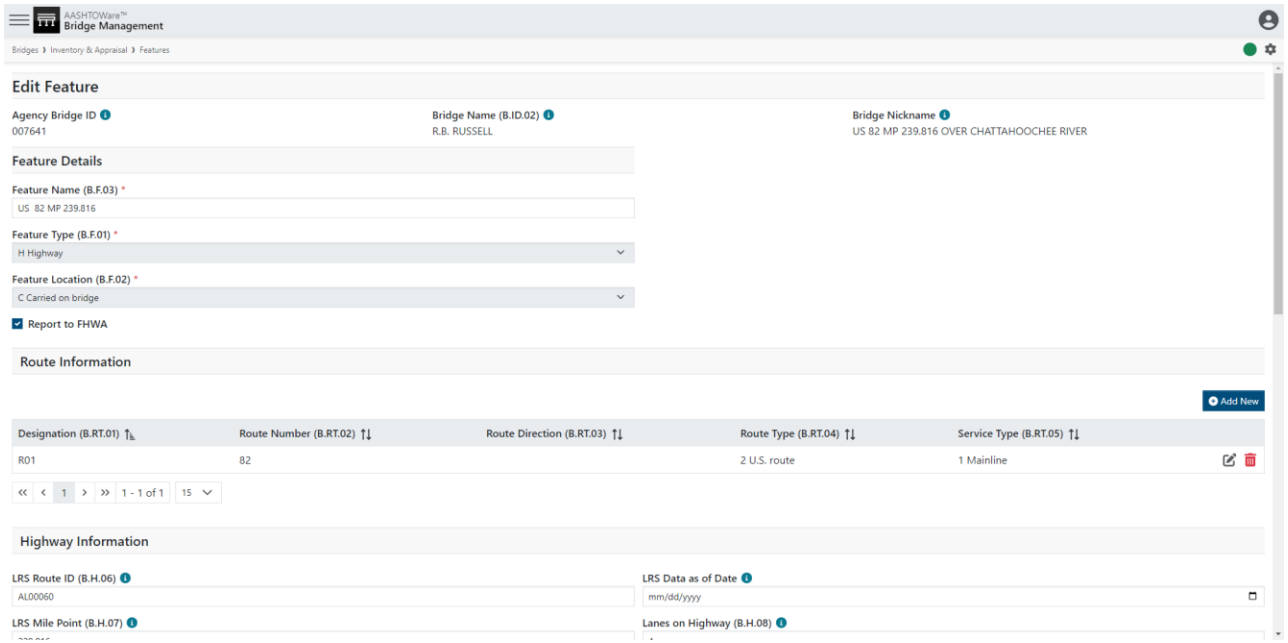
- Multiple Feature Types including:
  - Highway
  - Railroad
  - Waterway
- Automatically numbered upon creation
  - Can renumber by dragging to reorder
- Indicate which records to report to FHWA



AASHTOWare™ BRIDGE MANAGEMENT

Features – Highway

- Additional fields are dependent on the Feature Location selected
- Multiple route records per highway record



AASHTOWare™ BRIDGE MANAGEMENT

Features – Highway, Crossing Bridge

- Above bridge or below bridge can indicate a crossing bridge to prevent duplicate entry of data

Inspection Data

- General Configuration
  - Inspection Types
  - Equipment
  - Procedures
- Future Inspection Plan – sets up data to be added to future events
  - Equipment
  - Procedures
- Inspection List – create new inspection
- Inspection Plan
- Condition
- Schedule

Inspection Data

- **General Configuration**
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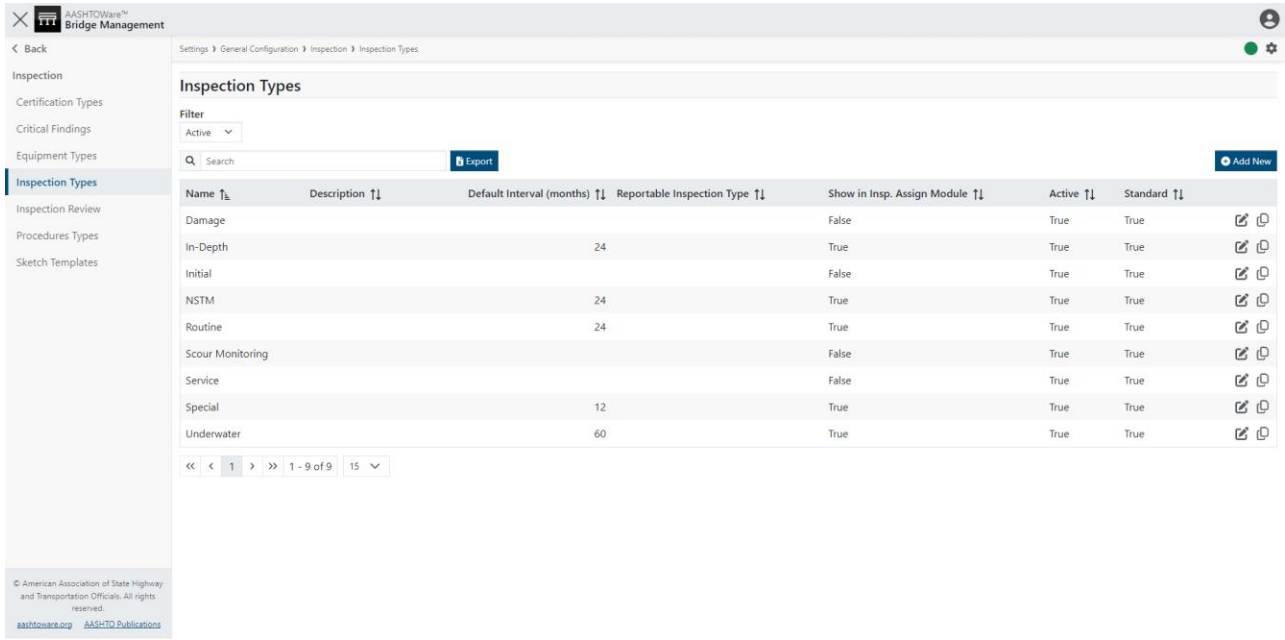
General Configuration – Inspection Types

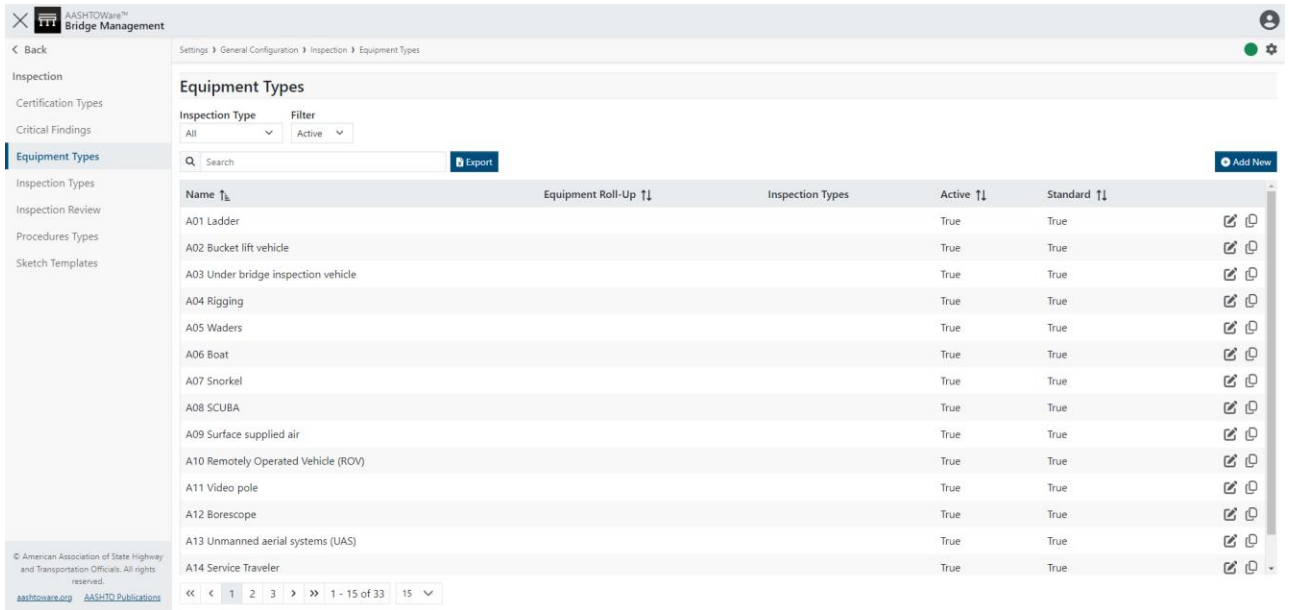
- Can create agency-defined inspection types
- Set default interval for each type
- Configure for assignment
- Add qualifications based on:
  - Experiences
  - Certifications
- Require signature and/or stamp
- Set roll-up for any agency-defined inspection types to SNBI types for submittal



AASHTOWare™ BRIDGE MANAGEMENT

General Configuration – Equipment

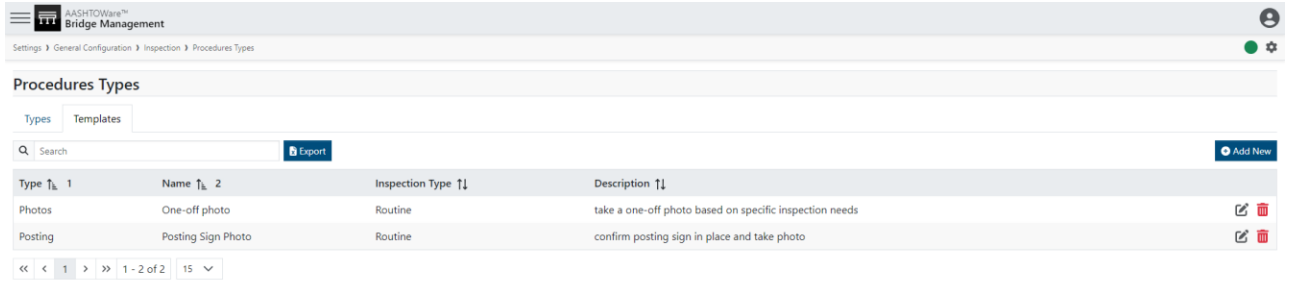
- Set inspection types for each equipment record
- Set roll-up for any agency-defined equipment to SNBI equipment for submittal



AASHTOWare™ BRIDGE MANAGEMENT

General Configuration – Procedures

- Create agency-level set of procedures that should be completed as part of specific inspection types
- These are later configured at a bridge level



Inspection Data

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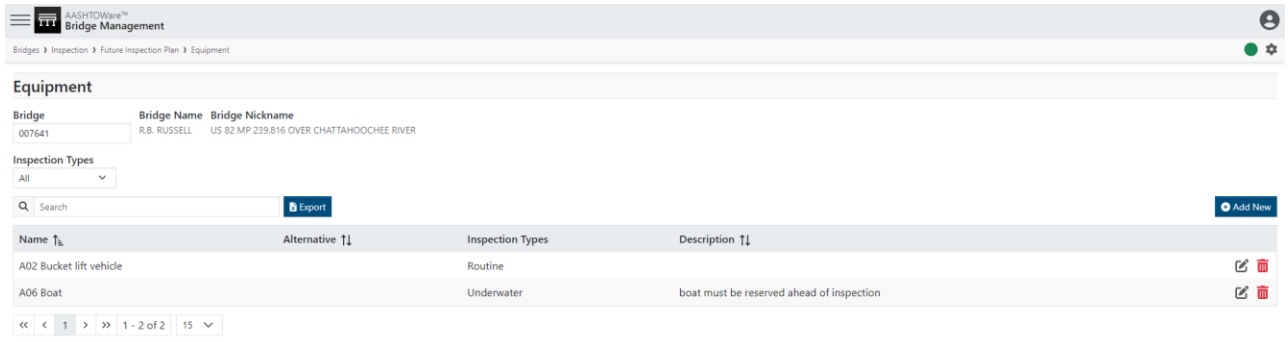
Future Inspection Plan – Equipment

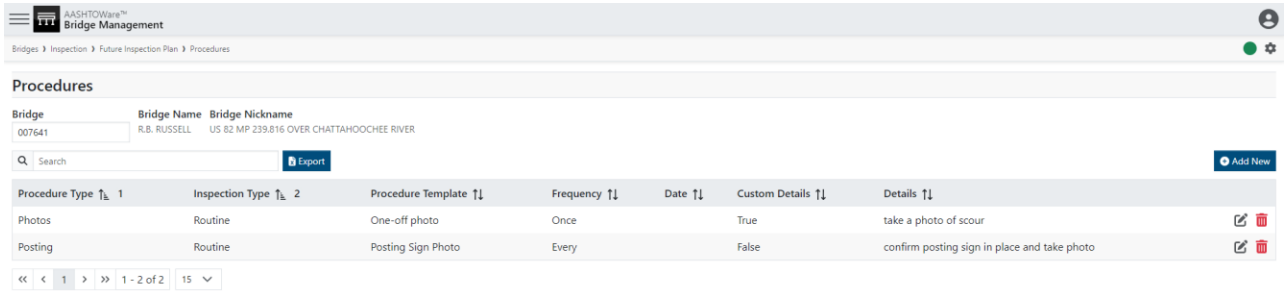
- Set up the equipment that will automatically be added for a specific bridge when new inspection event is created
- Also displays in Assignment module
- Can skip to avoid any equipment being added automatically



AASHTOWare™ BRIDGE MANAGEMENT

Future Inspection Plan – Procedures

- Set up the procedures that will automatically be added for a specific bridge when new inspection event is created
- Also displays in Assignment module
- Frequency of
  - Once
  - Once on or after
  - Every



AASHTOWare™ BRIDGE MANAGEMENT

Inspection Data

- General Configuration
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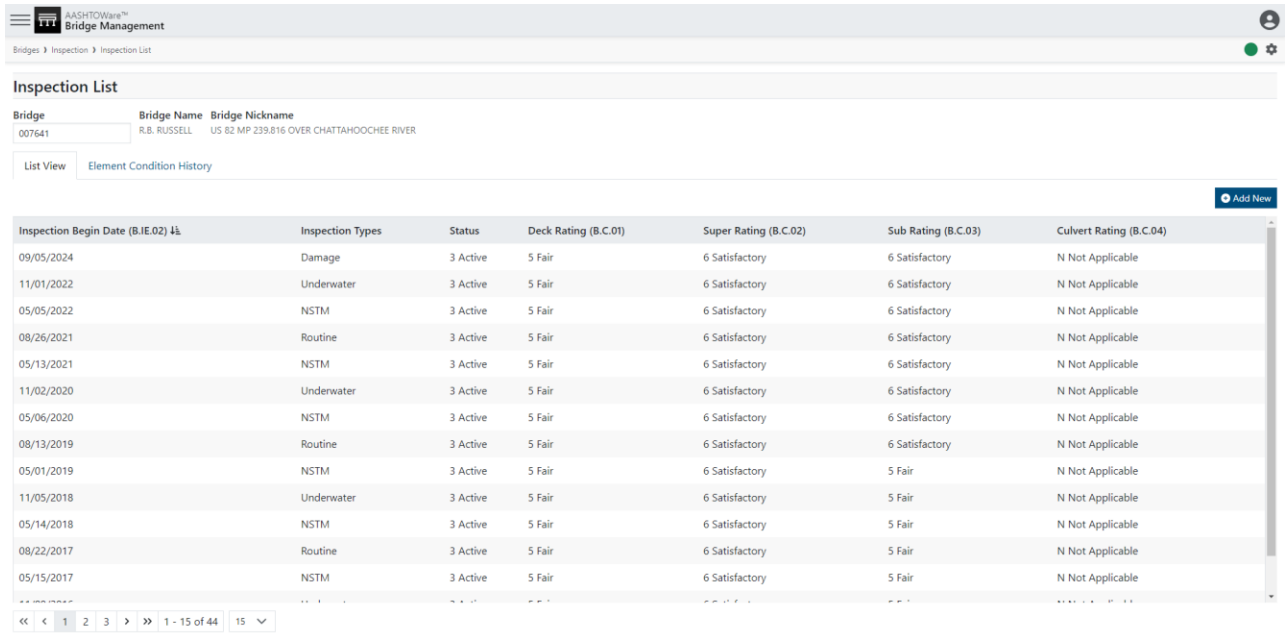
  - Equipment
  - Procedures
- **Inspection List** – create new inspection
- Inspection Plan
- Condition
- Schedule

Inspection List – Create New Inspection

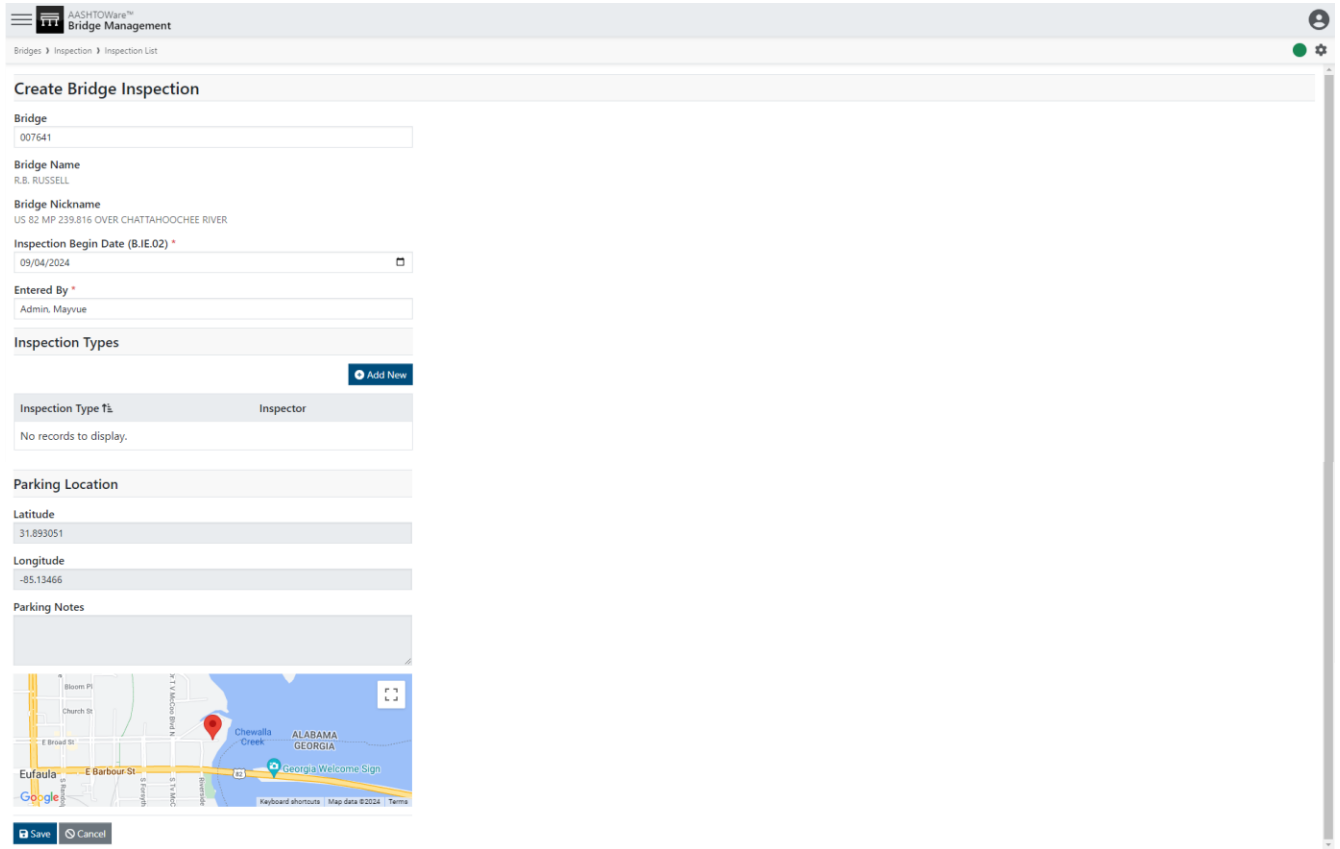
- Instead of separate menu item, on inspection list



AASHTOWare™ BRIDGE MANAGEMENT

Inspection List – Create New Inspection

- Non-assignment inspection types
- New to 7.0: selecting an inspector for each inspection type
- Validates inspector against configured qualifications / signature / stamp for that inspection type
- Shows parking location



AASHTOWare™ BRIDGE MANAGEMENT

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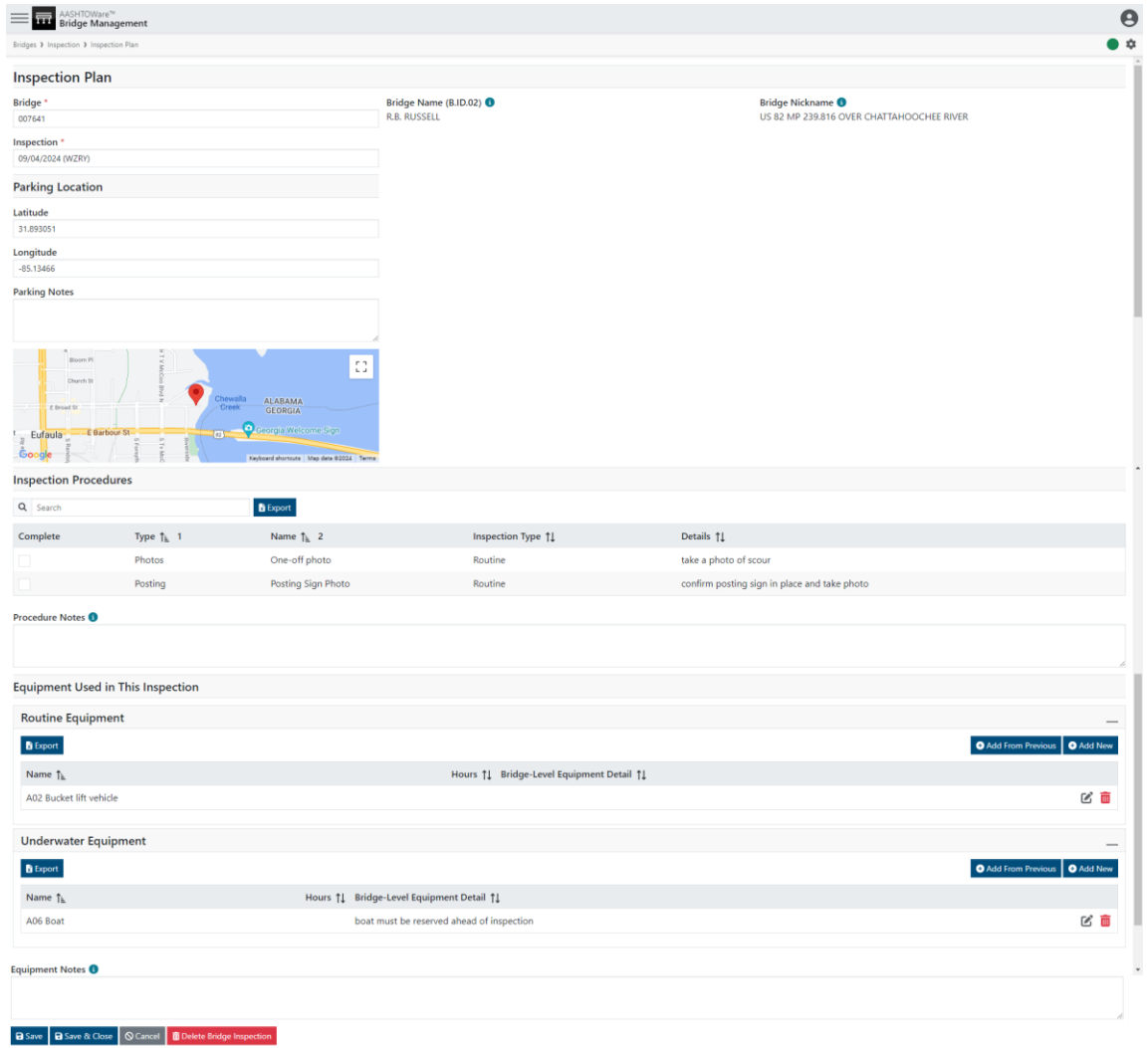
- Inspection List – create new inspection
- **Inspection Plan**
- Condition
- Schedule

Inspection Plan

- Parking Location
- Procedures
  - Automatically added
  - Checklist for completion with comment field
- Equipment
  - Displayed by inspection type
  - Automatically added if configured
  - Can add from previous inspection event of same type or from overall list of equipment



BRIDGE MANAGEMENT

Inspection Data

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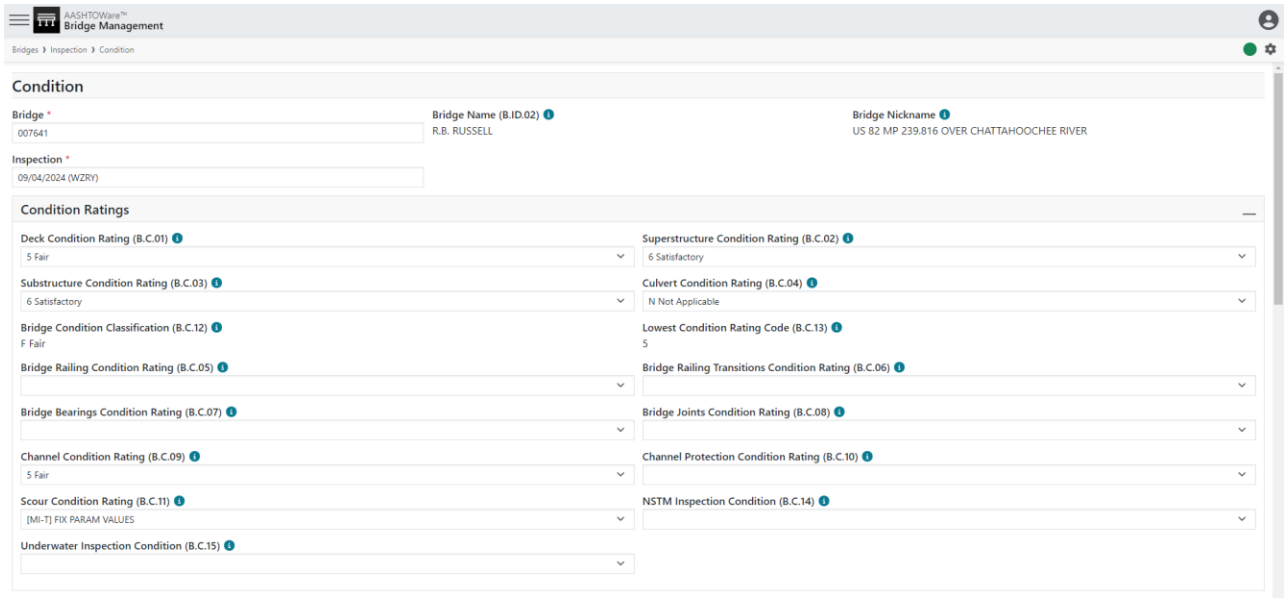
- Inspection Plan
- **Condition**
- Schedule

Condition

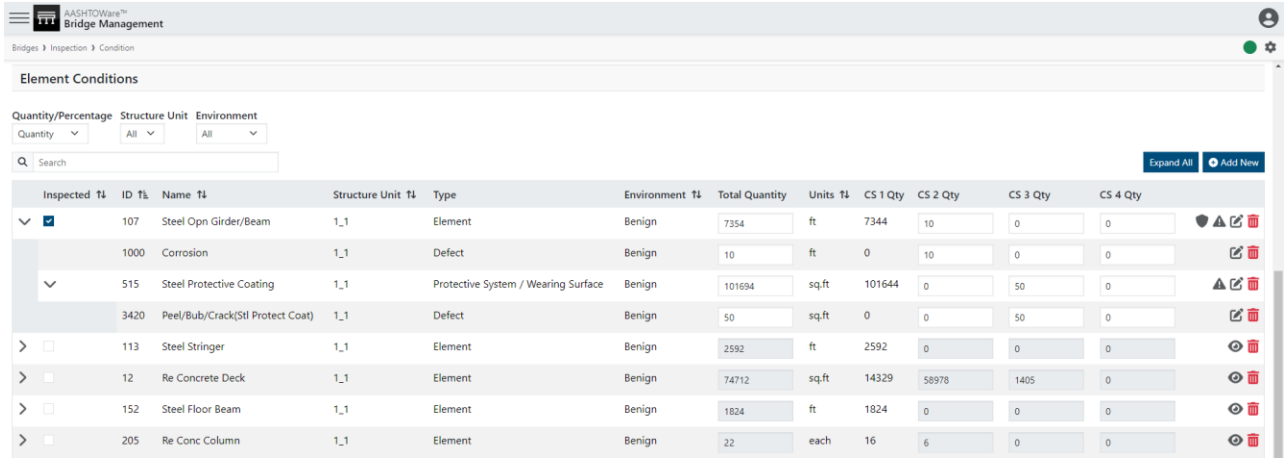
- Similar to Inspection > Condition from 6.X
- New to 7.0 – additional condition rating fields



AASHTOWare™ BRIDGE MANAGEMENT

Condition – Element Condition Data

- Similar to Element Condition Grid in 6.X but new UI
- Captures data for elements, protective systems and defects
- Has “Inspected” check box indicator that determines which fields are editable



AASHTOWare™ BRIDGE MANAGEMENT

Inspection Data

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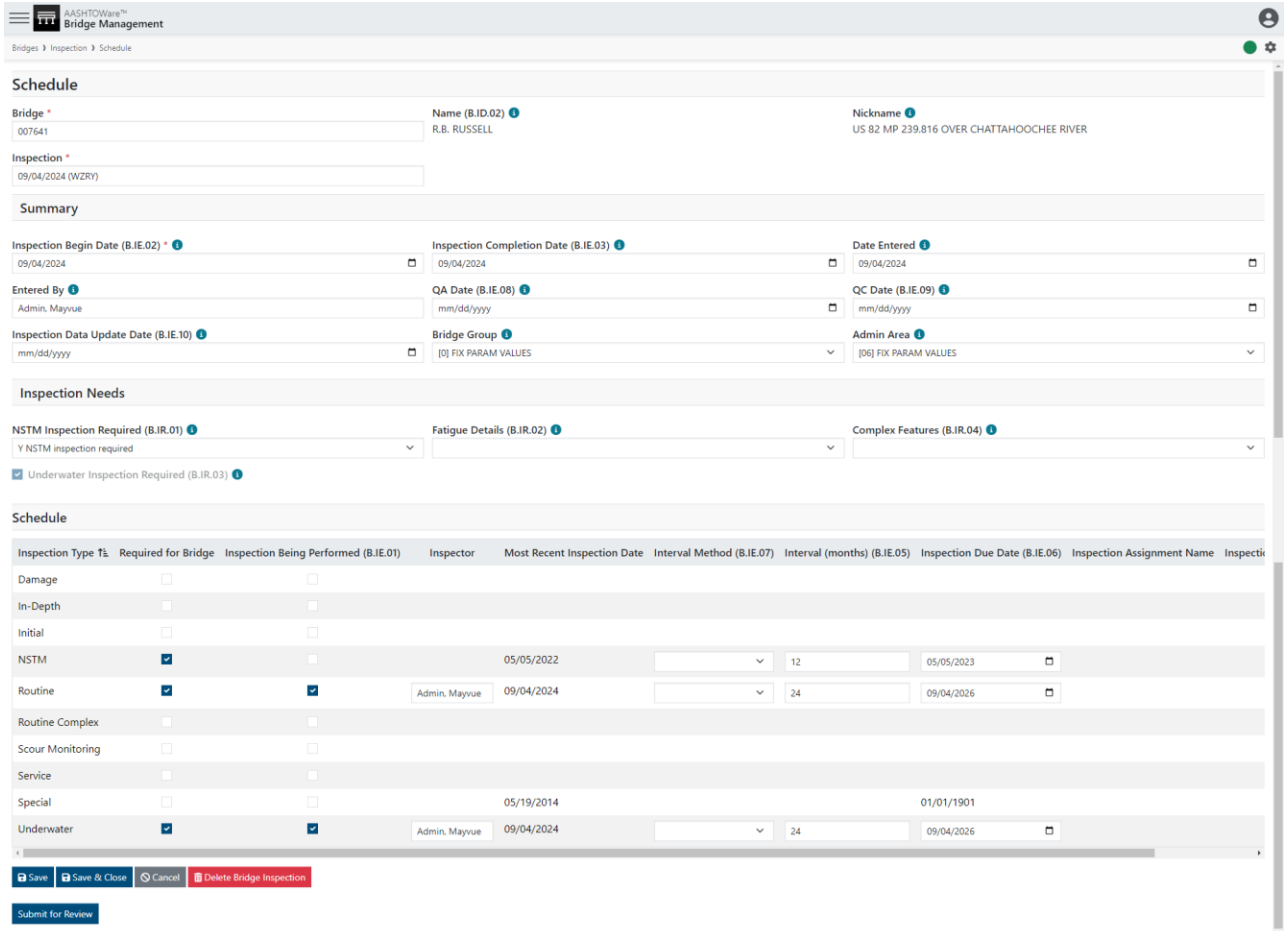
- Inspection Plan
- Condition
- **Schedule**

Schedule

- Inspection Types required for bridge
  - Includes agency-defined inspection types
- Inspection Types being performed
  - Inspector for each type
- Interval and Due Date
- Submit for Review button



AASHTOWare™ BRIDGE MANAGEMENT

Inspection Events – Additional Functionality

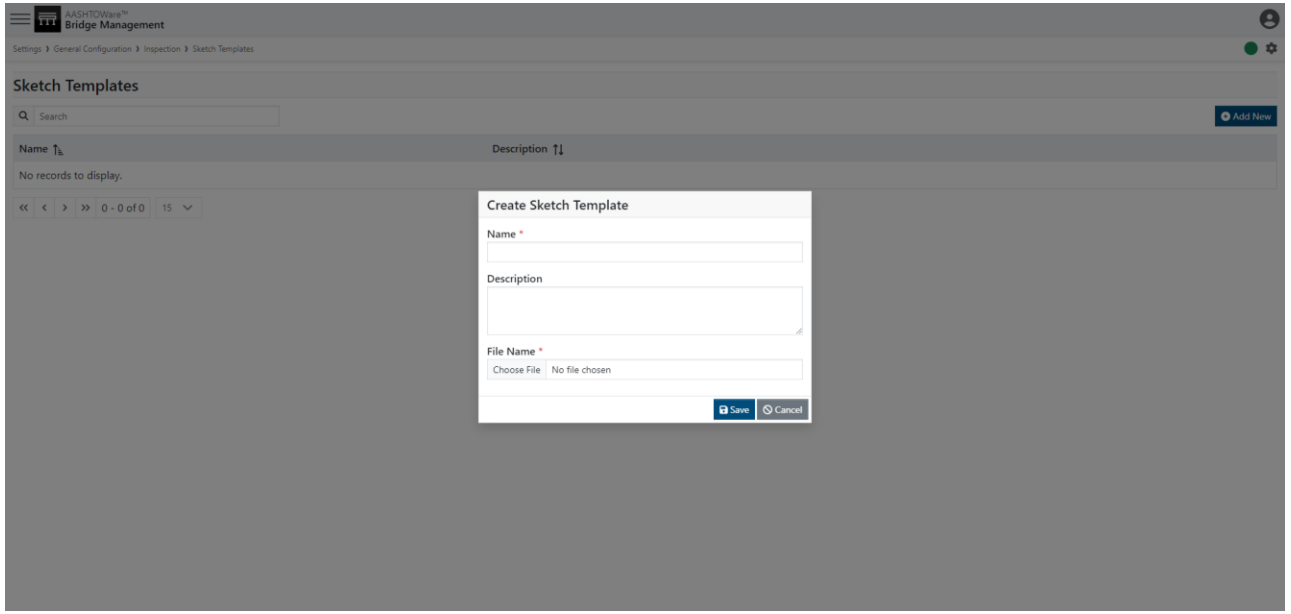
- Sketches
- Cross Sections
- Scour Plan of Action

Inspection Events – Additional Functionality

- **Sketches**
- Cross Sections
- Scour Plan of Action

Sketches - Configuration

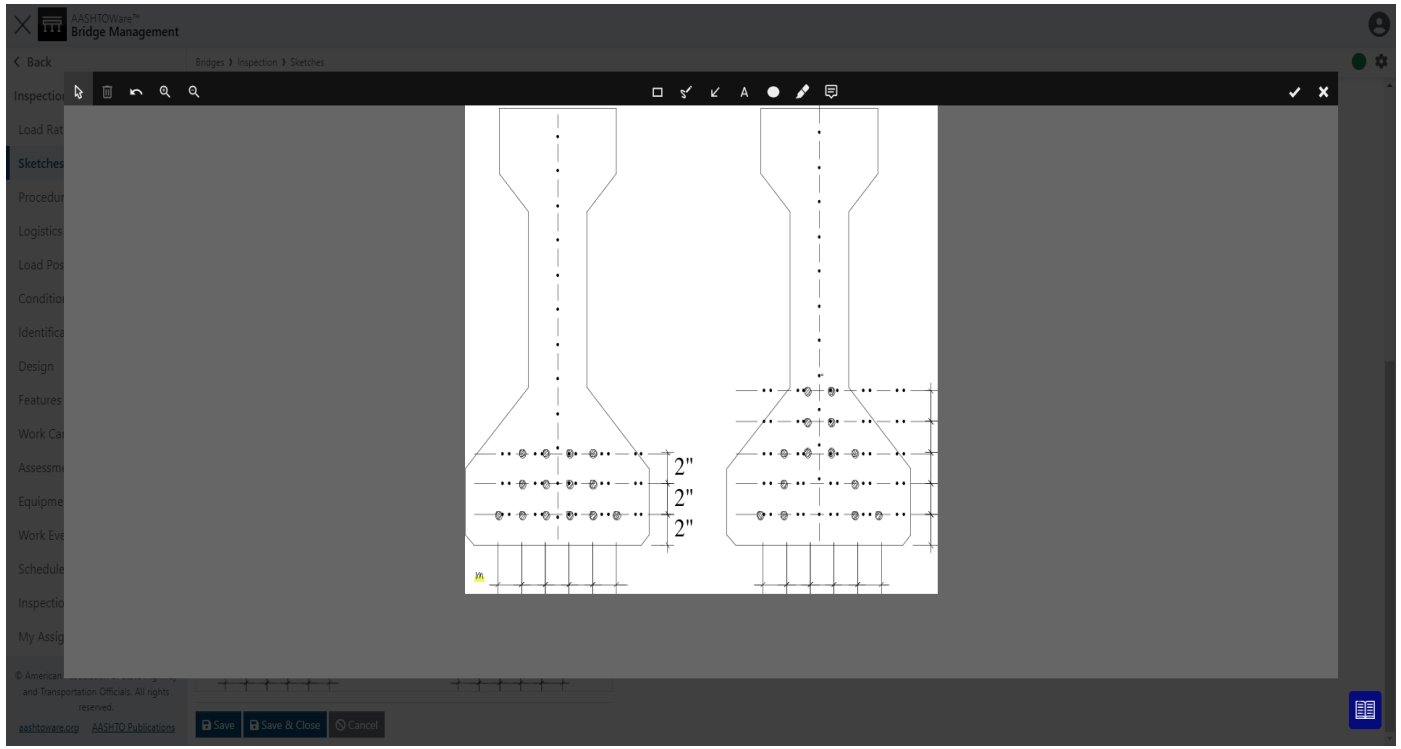
- Upload agency sketch templates



AASHTOWare™ BRIDGE MANAGEMENT

Sketches

- Stored at inspection event level
- Ability to sketch on image files
  - Shapes
  - Callouts / text
  - Freeform drawing
- Start from:
  - Existing sketch
  - Multimedia image
  - New
  - Sketch template



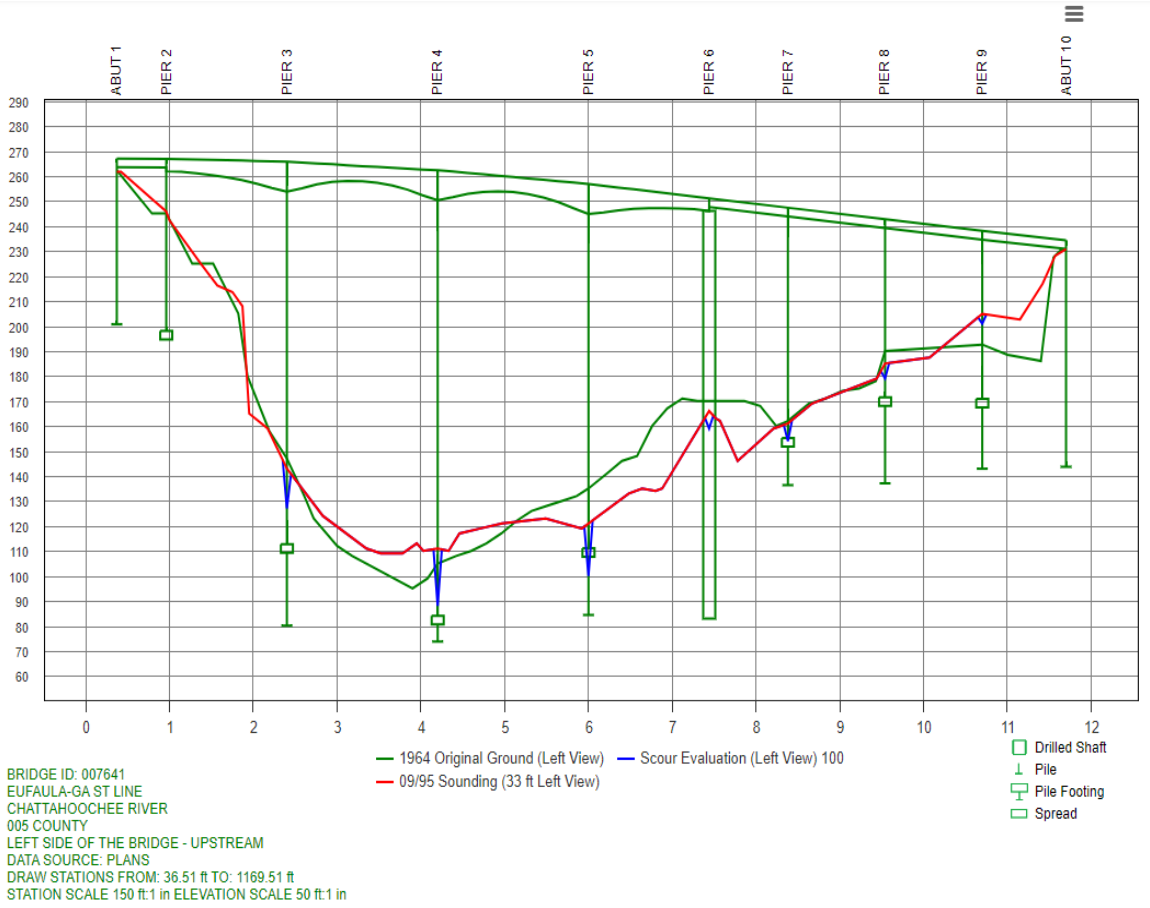
AASHTOWare™ BRIDGE MANAGEMENT

Inspection Events – Additional Functionality

- Sketches
- **Cross Sections**
- Scour Plan of Action

Cross Sections

- Structure Detail
- Original Streambed Elevation
- Scour Resistant Layer
- Streambed Cross Section
- Scour Potential Evaluation



AASHTOWare™ BRIDGE MANAGEMENT

Cross Sections – Data Input

- Left and Right Orientations
- Multiple Offsets
- Station Equation and Elevation Equation for x-axis and y-axis shifts
- Customization of line colors, types for graphing

Graph Line Settings

Name *: Structure Details

Style *: Solid

Color *: #008000

General Information

High Water Elevation: ft

High Water Year:

Upstream Side:

Downstream Side:

Station Equation: 0 Stations + 0 ft = 0 Stations + 0 ft

Elevation Equation: 0 ft = 0 ft

Station Direction: Increasing

Location of Base Measurement:

Bent Direction: Increasing

Elevation Basis: Assumption

Source: FIELD BOOK

Details

Add New

Station	Reference Curb/Rail Elevation (ft)	Deck Elevation (ft)	Bottom Footing Elevation (ft)	Critical Pier Scour Depth (ft)	Pile Tip Elevation (ft)	Footing Type	Superstructure Thickness (ft)
0 + 0	103	100	82.6001			Spread Footing on Rock	0.833
0 + 18.5	103	100	82.7001			Spread Footing on Rock	0.833
0 + 36	103	100	82.6001			Spread Footing on Rock	0.833
0 + 54.1001	103	100	81.3999			Spread Footing on Rock	0.833
1 + 54.1001	103	100	87.8999			Spread Footing on Rock	0.833
1 + 71.2001	103	100	90.1001			Spread Footing	0.833

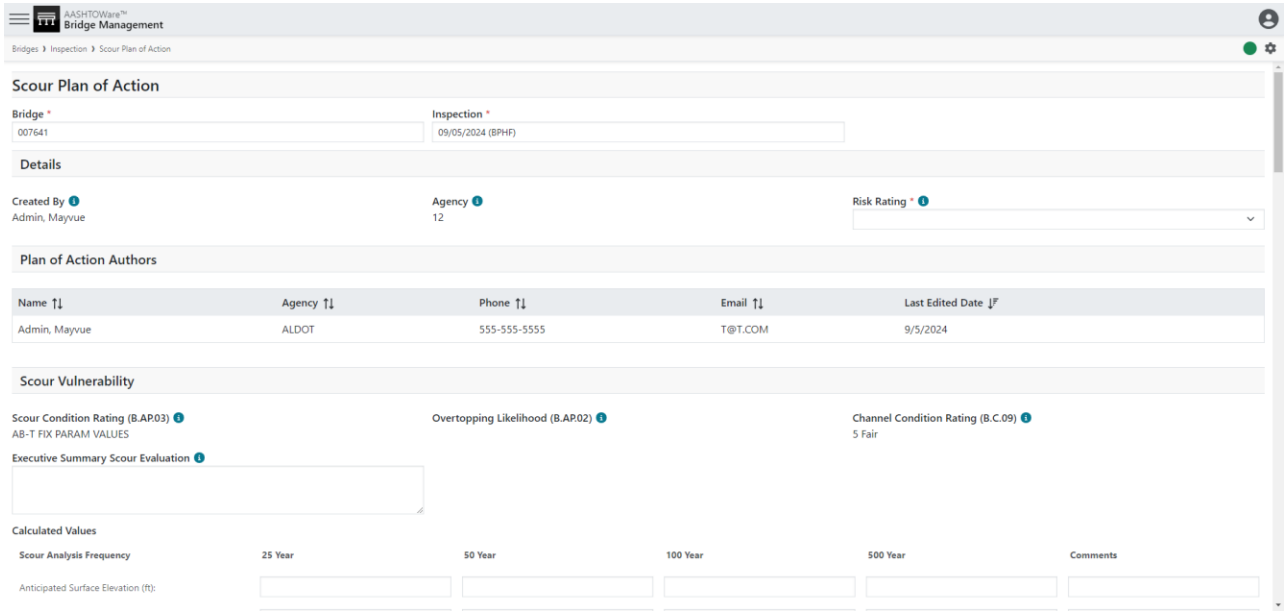
AASHTOWare™ BRIDGE MANAGEMENT

Inspection Events – Additional Functionality

- Sketches
- Cross Sections
- **Scour Plan of Action**

Scour Plan of Action

- New page builder form
- Part of inspection event
- Captures:
  - Scour vulnerability
  - Substructure data
  - Monitoring data
- Plan of Action authors shows last edited by



AASHTOWare™ BRIDGE MANAGEMENT

Scour Plan of Action – Responsible Contacts

- Create and manage contact list not limited to BrM users
- Indicate who is responsible for bridge closing / bridge opening

Responsible Contacts

Search | Export | Add Existing | Add New

Last Name	First Name	Title	Agency	Work Phone	Cell Phone	Email	Responsible For Asset Closure	Responsible For Asset Opening
Moore	Jane			724-555-5555	724-555-5555	jane.moore@email.com	False	True
Smith	Joe			412-555-5555	412-555-5555	joe.smith@email.com	True	False

« ‹ 1 › » 1 - 2 of 2 | 15

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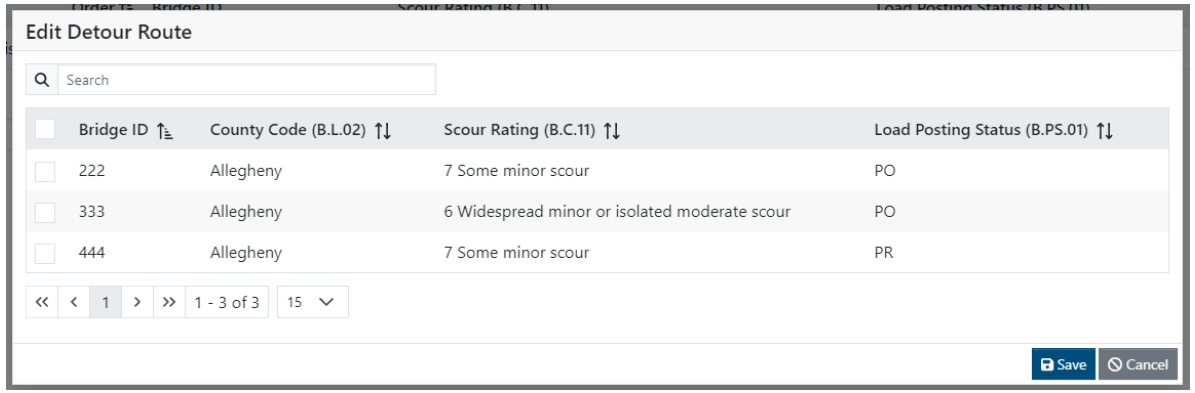
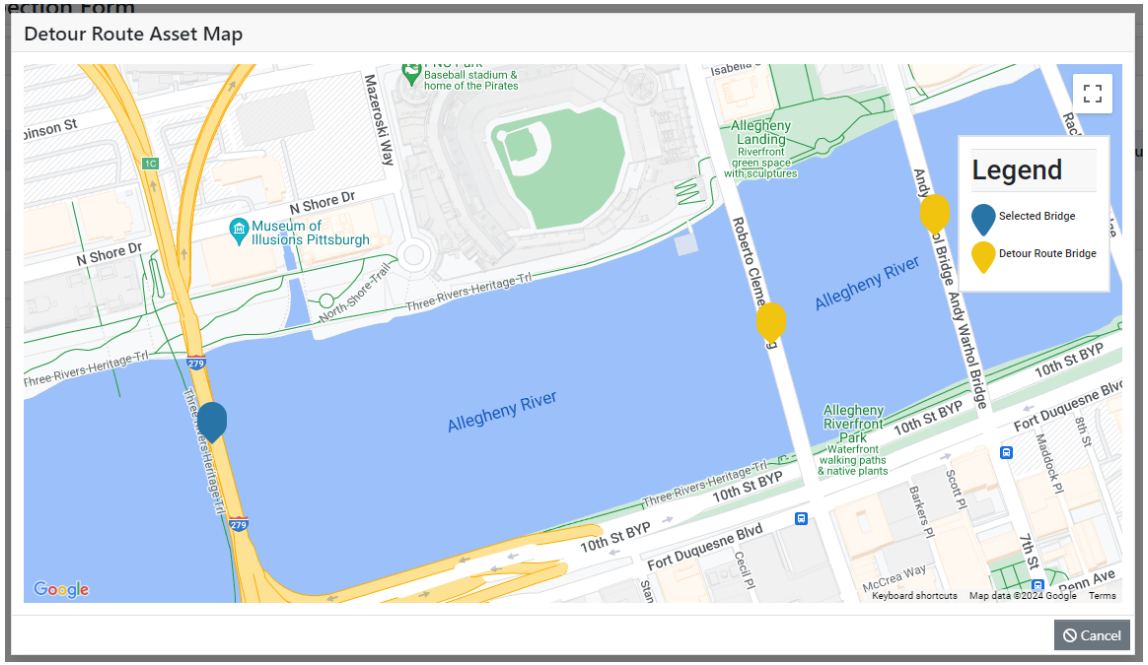
Scour Plan of Action – Detour Route

- Select and map bridges within five miles of the given bridge





AASHTOWare BRIDGE MANAGEMENT

2024 BrMUG Annual Meeting
Long Beach, CA | September 17-18

Inspection Assignment

- Inspection Types
- Inspection Management
- My Assignments

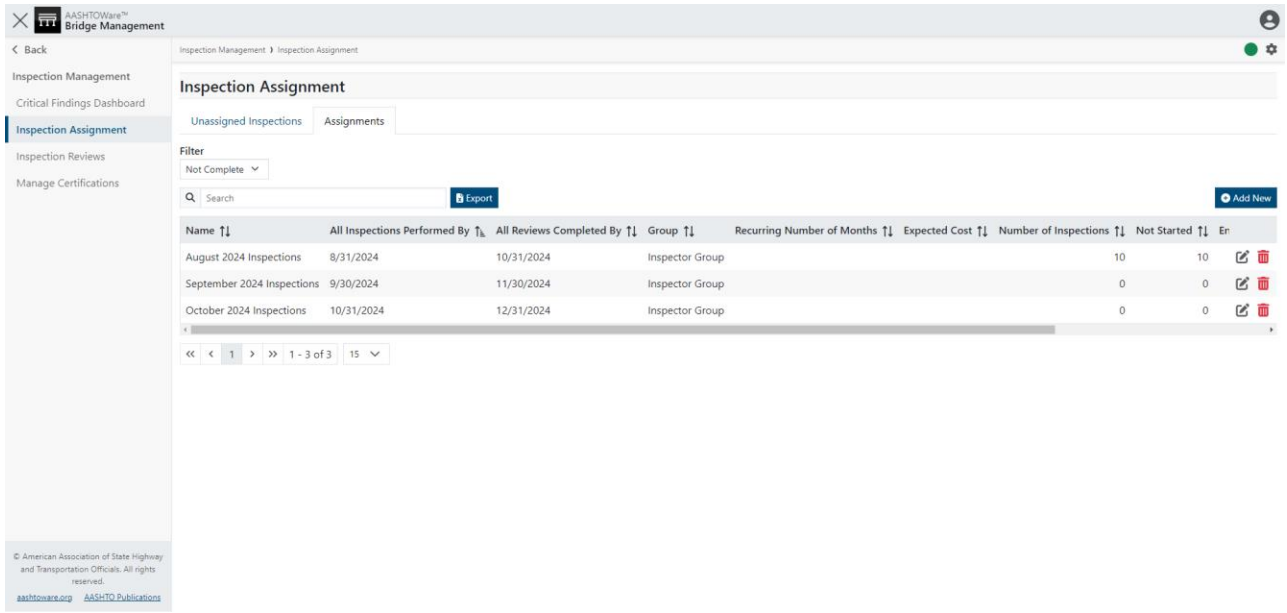
AASHTOWare™ BRIDGE MANAGEMENT

Inspection Assignment

- Inspection Types
- **Inspection Management**
- My Assignments

Inspection Assignment

- Creation of Assignments (grouped by due date and assignee)
- Can assign to BrM Groups or to individual BrM users
- Can configure security so that users get access to bridges during inspection
- Tracks progress of assignments



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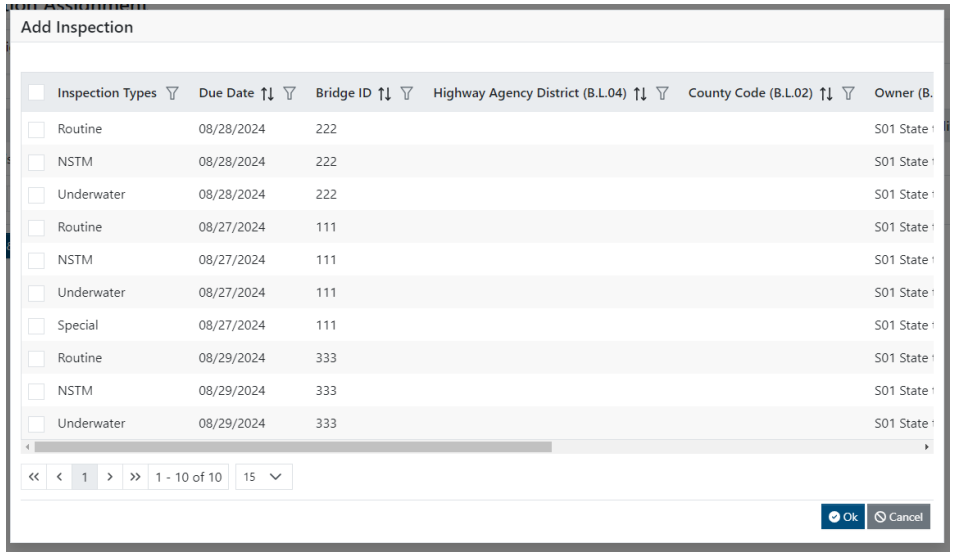
Inspection Assignment – Inspections

- Detailed searching to locate and select unassigned inspections



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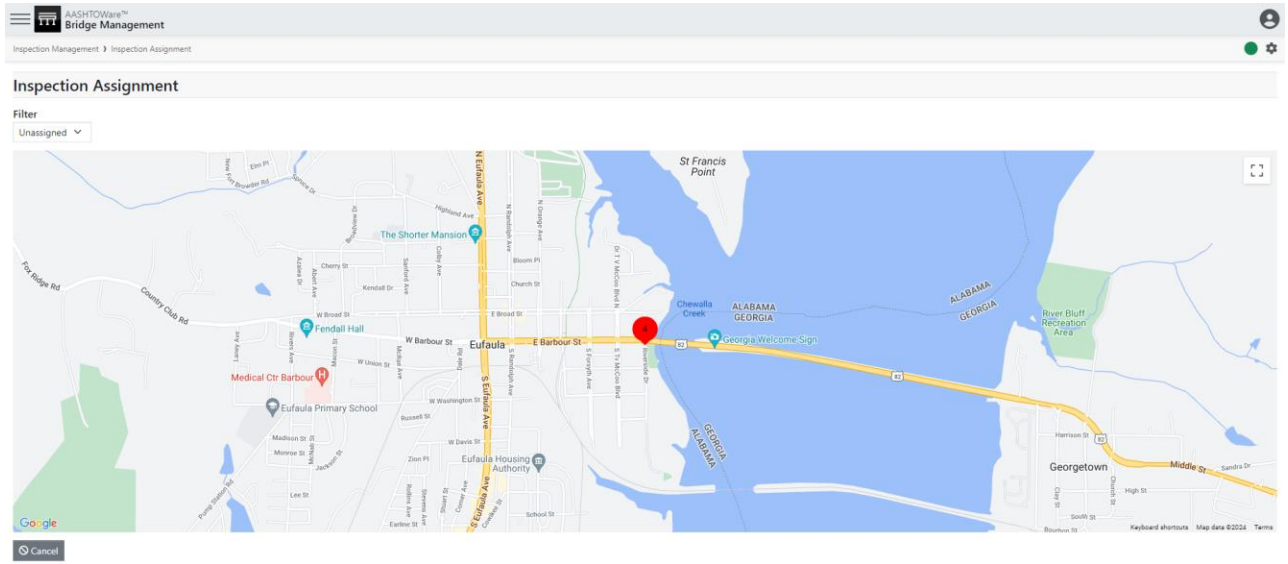
Inspection Assignment – Inspection Map

- Map of unassigned or assigned inspections



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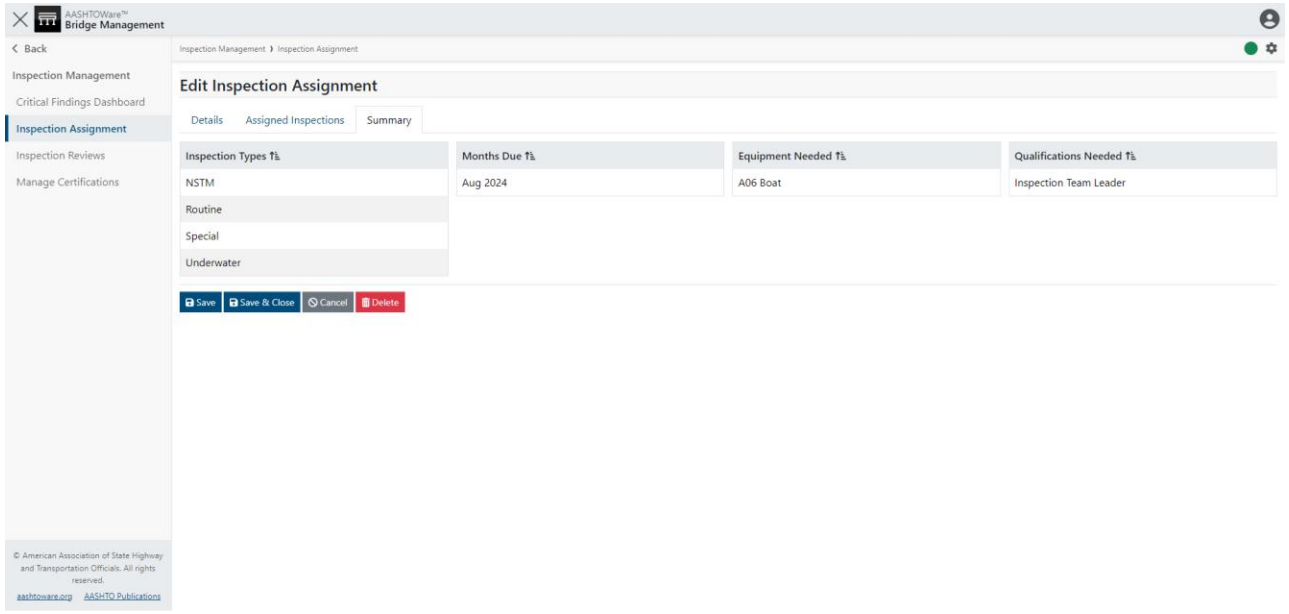
Inspection Assignment – Summary

- Lists all:
  - Inspection types
  - Due dates
  - Equipment needed (configured at bridge-level)
  - Qualifications needed



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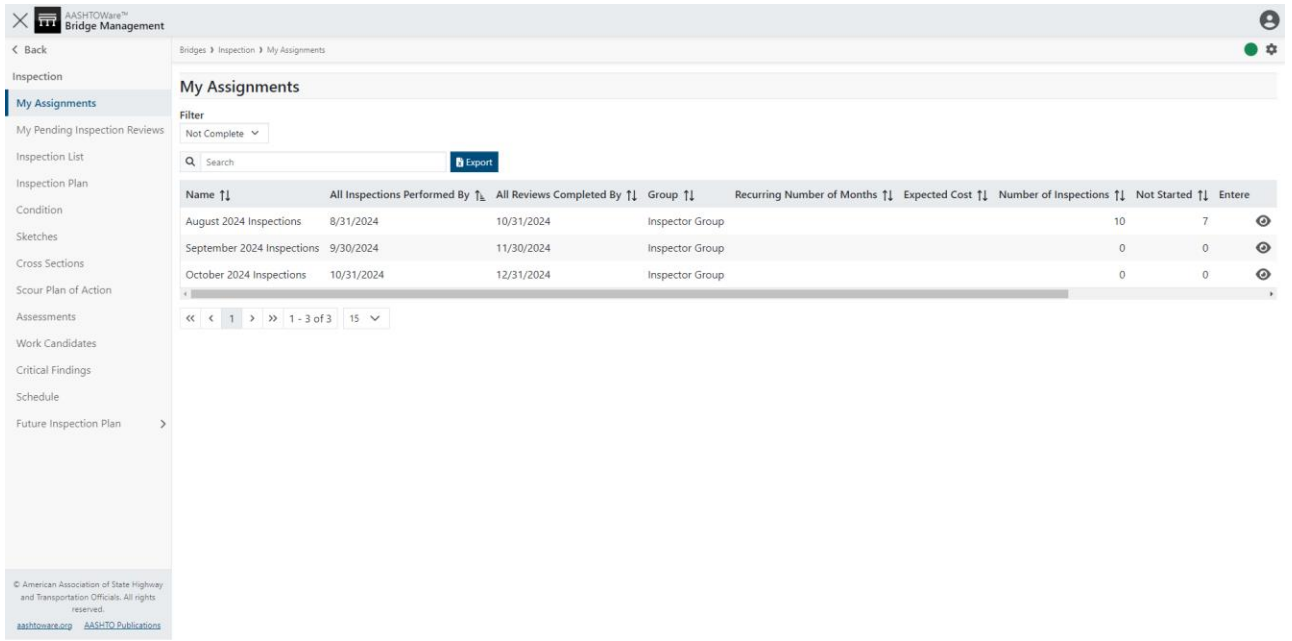
Inspection Assignment

- Inspection Types
- Inspection Management
- **My Assignments**

My Assignments

- List of assignments for the logged in user



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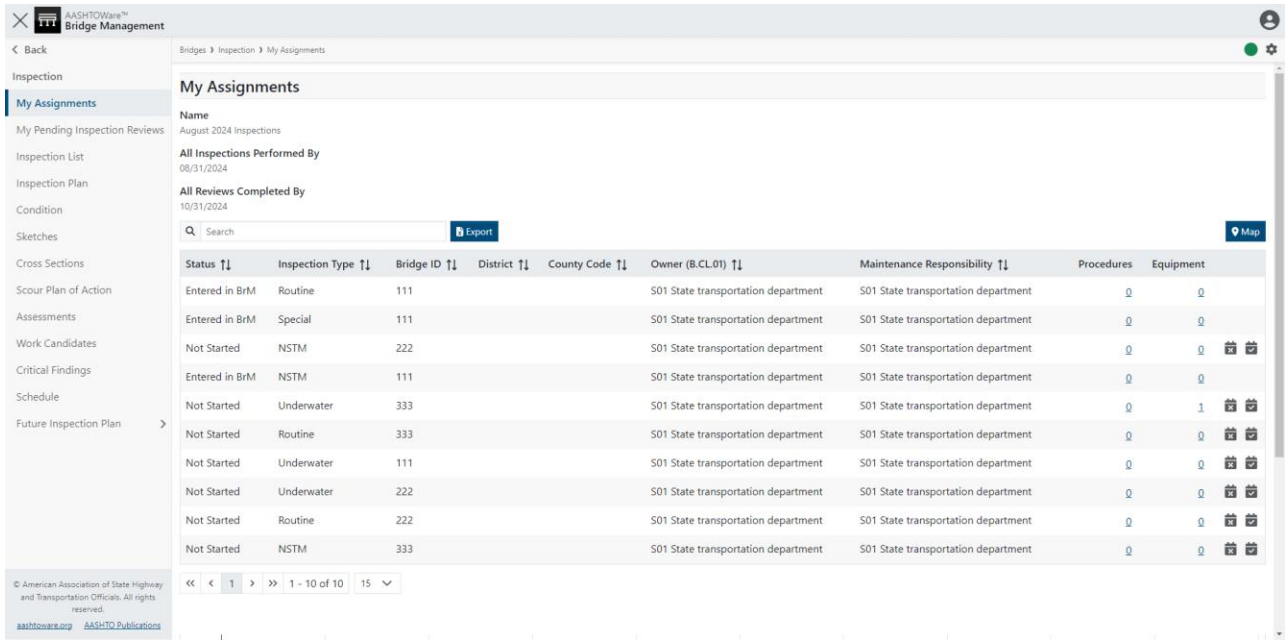
My Assignments – Assignment Details

- Shows which inspections have been started
- Allows user to:
  - Start an inspection
  - Request reassignment
- Shows procedure and equipment details for each inspection type



AASHTOWare™ BRIDGE MANAGEMENT

Inspection Review

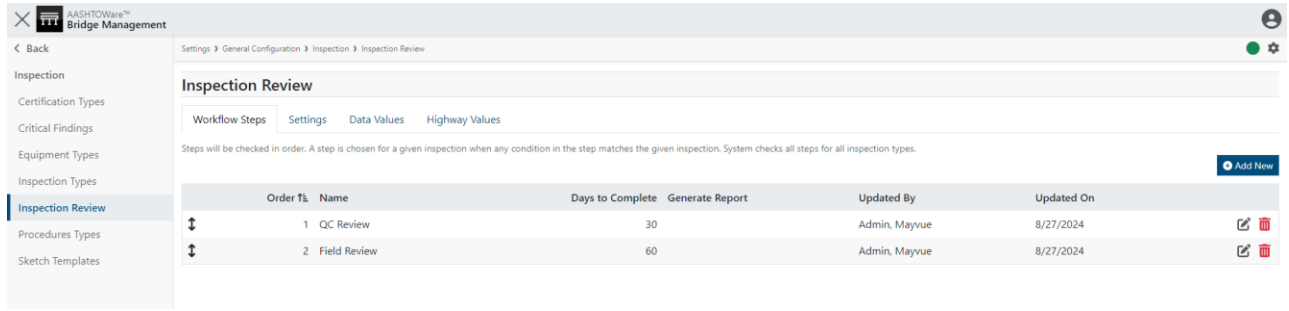
- Configuration
- My Pending Inspection Reviews
- Inspection Management

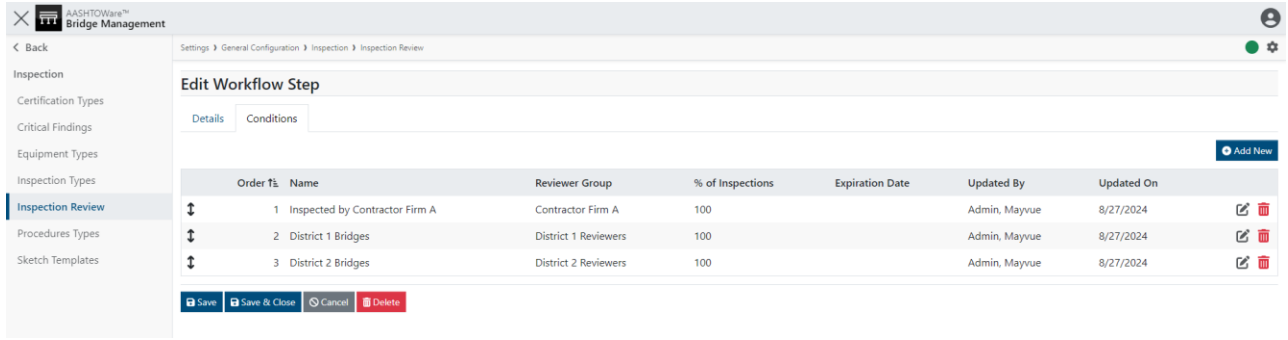
Inspection Review

- **Configuration**
- My Pending Inspection Reviews
- Inspection Management

Inspection Review – Configuration

- Define distinct Review Steps
  - Generate report upon step completion
- Define Conditions for each Step
  - Review Group
  - Percent of Inspections
  - By inspector, inspection type, field value
- Lock inspection during review
- Include validation before submitting for review





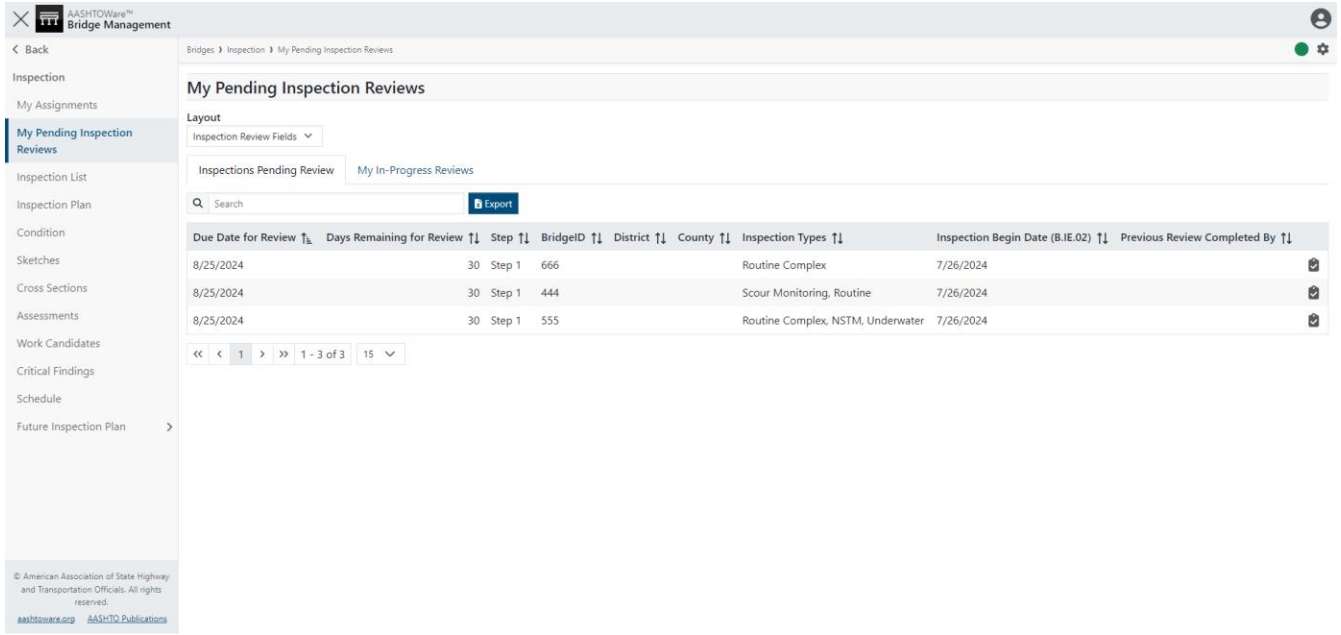
AASHTOWare™ BRIDGE MANAGEMENT

Inspection Review

- Configuration
- **My Pending Inspection Reviews**
- Inspection Management

My Pending Inspection Reviews

- Shows inspection reviews for logged in user including:
  - Inspections Pending Review – in my group but not picked up by any user yet
    - Due Date and Days Remaining
    - Step
  - My In-Progress Reviews – in progress by logged in user



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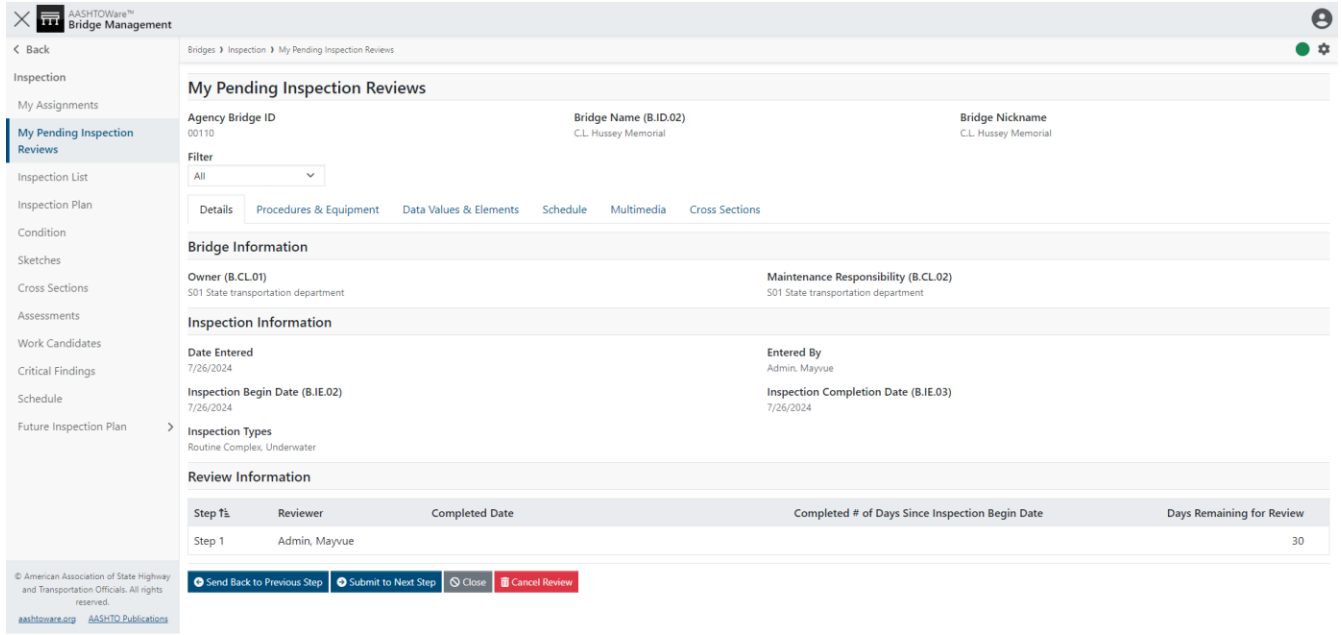
My Pending Inspection Reviews – Begin Review

- Data:
  - Details
  - Procedures & Equipment
  - Data Values & Elements
  - Schedule
  - Multimedia
  - Cross Sections



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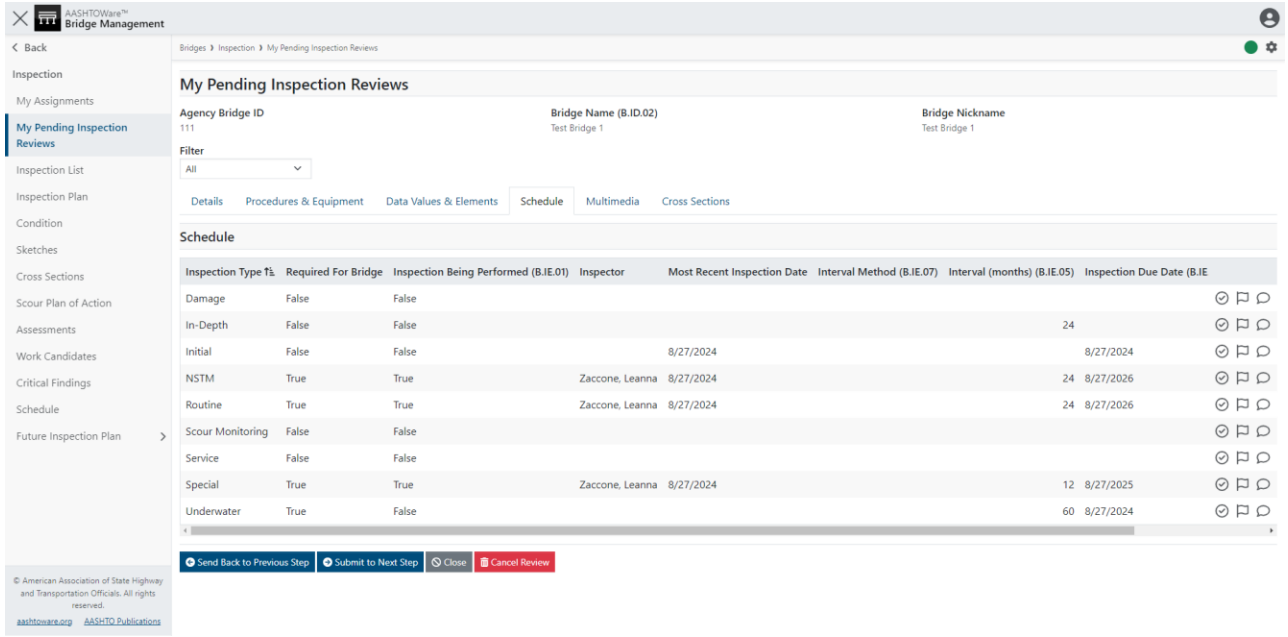
My Pending Inspection Reviews – Review

- Approve
- Flag
- Add Comment
- Send Back to Previous Step
  - Can go back to any of the inspectors if no previous steps
- Submit to Next Step
  - Checks for no flagged items
  - Does not require all items to be approved
  - Checks for next configured step



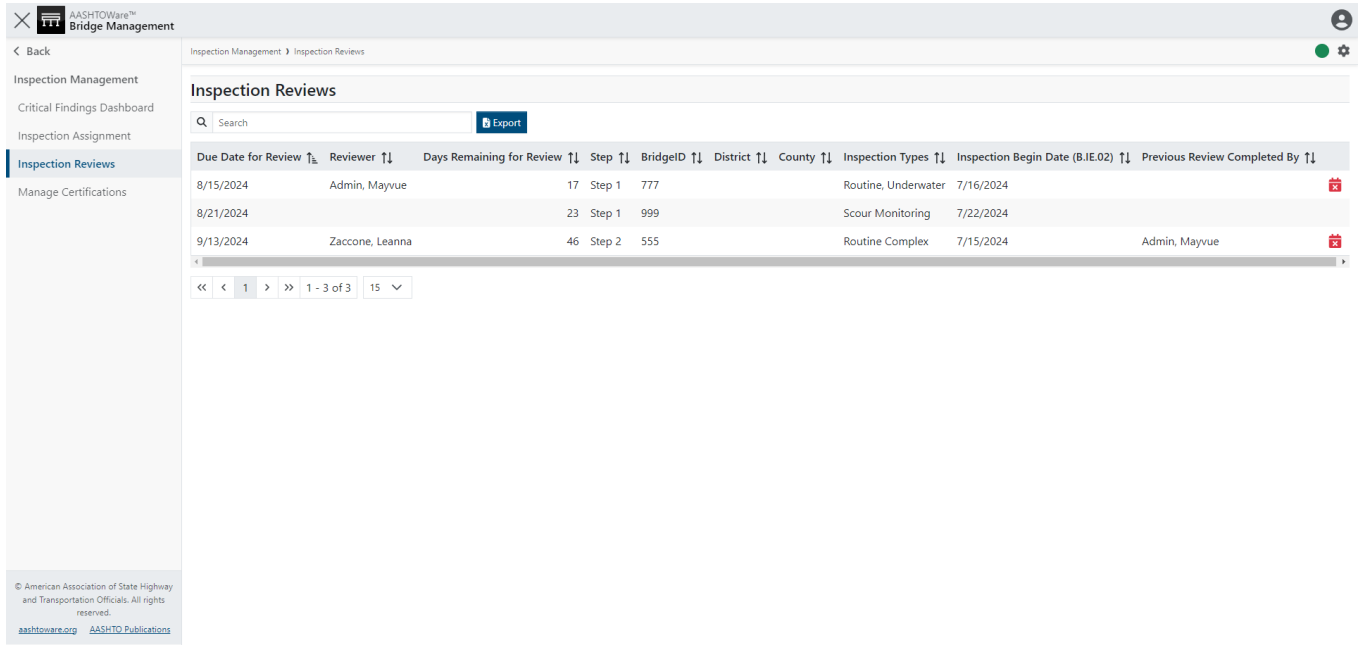
AASHTOWare™ BRIDGE MANAGEMENT

Inspection Review

- Configuration
- My Pending Inspection Reviews
- **Inspection Management**

Inspection Management – Reviews

- Overview of all in-progress reviews
- Can cancel review to remove from a specific user and send back to group



AASHTOWare™ BRIDGE MANAGEMENT

Critical Findings

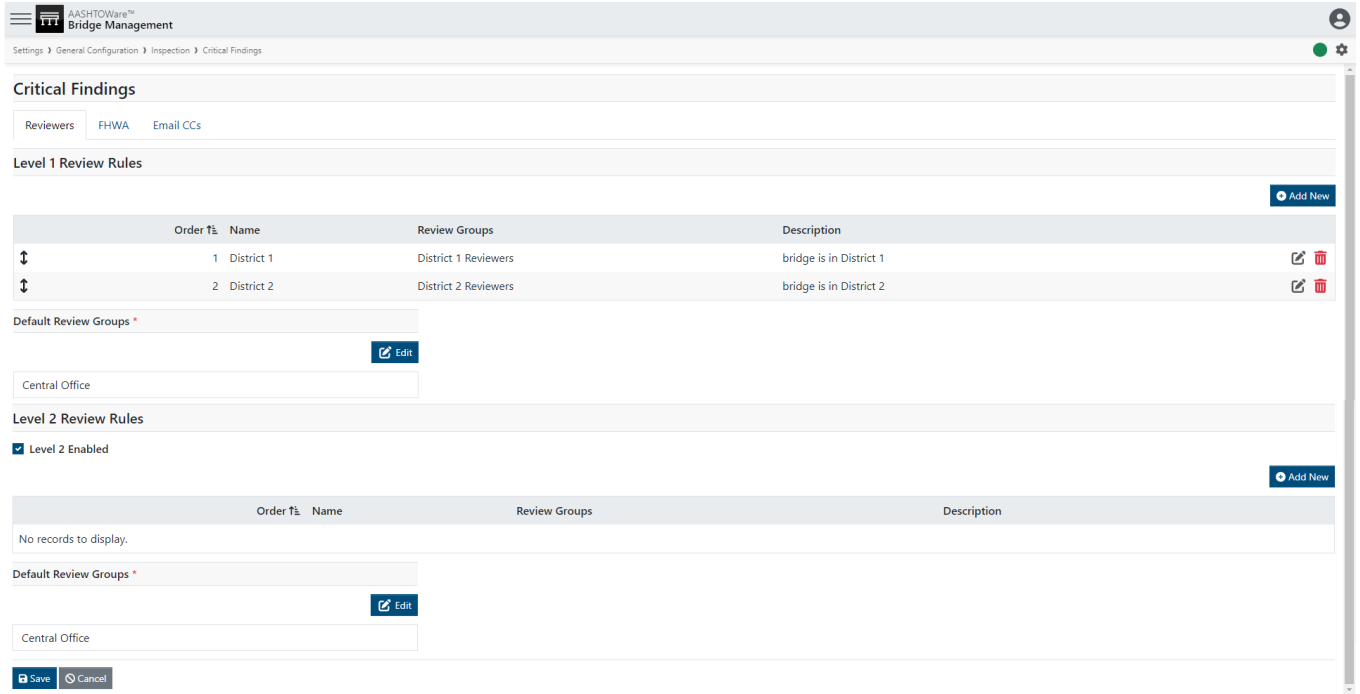
- Configuration
- Critical Findings

Critical Findings

- **Configuration**
- Critical Findings

Critical Findings – Configuration

- Configure reviewers to confirm new critical findings based on rules
  - Default as a catch-all for any critical findings not matching specific rules
- Enable / disable second level of review
- Send to FHWA always / manually / never
- Email CC addresses



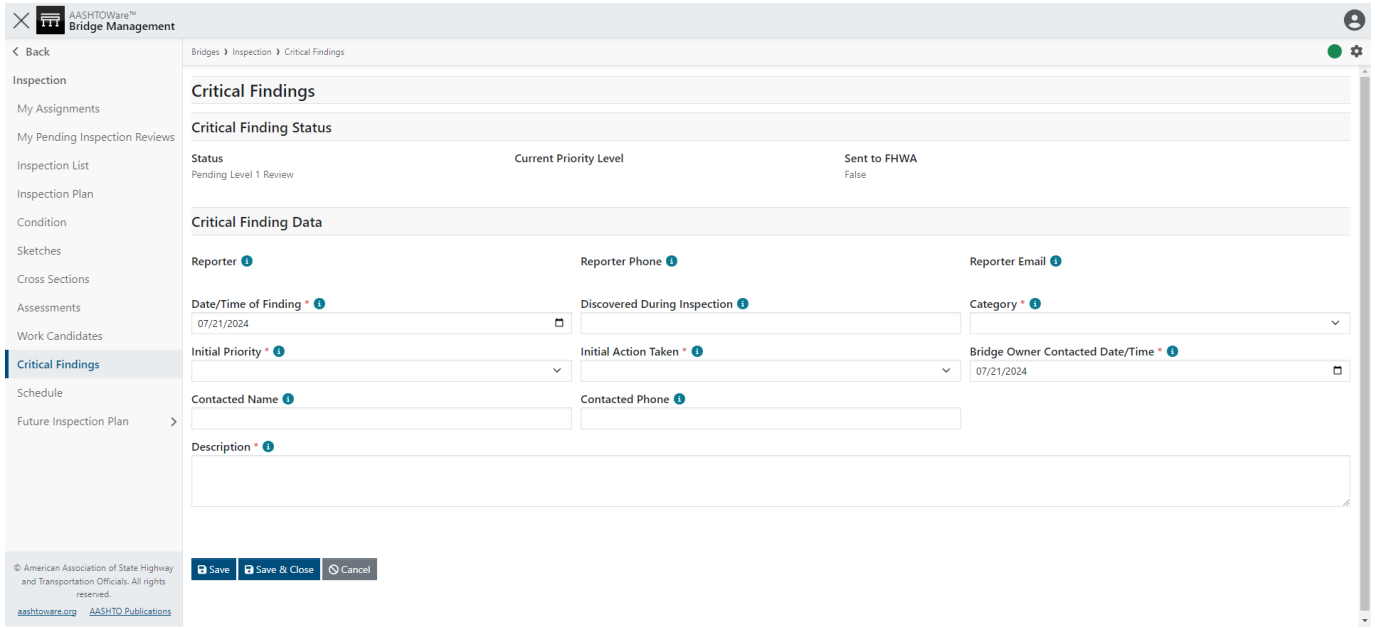
AASHTOWare™ BRIDGE MANAGEMENT

Critical Findings

- Configuration
- **Critical Findings**

Critical Findings

- Has workflow:
  - Pending Level 1 Review
  - Pending Level 2 Review
  - In Progress
  - Resolved
- Can email FWHA when moved to In Progress and when moved to Resolved



AASHTOWare™ BRIDGE MANAGEMENT

Critical Findings – Log and Task Assignment

- Log shows all actions taken on critical finding
- Outstanding Tasks allows for assignment of event that needs to be completed (inspection, load rating, etc) by a specific BrM user
  - Can be marked as completed once entered in BrM

Critical Findings Log

Select Action

Search

Action Date/Time	User	Action	Due Date	Comment
07/23/2024 06:23 AM	Admin, Mayvue	Saved New Critical Finding		
07/23/2024 06:24 AM	Admin, Mayvue	Completed Level 1 Review		sent to FHWA
07/23/2024 06:24 AM	Admin, Mayvue	Sent to FHWA		BrM sent auto-generated email to the following FHWA contacts:
07/23/2024 06:24 AM	Admin, Mayvue	Updated Critical Finding Priority		Updated Priority to Restrictive
07/23/2024 06:24 AM	Admin, Mayvue	Linked Event		Linked to Bridge Inspection '07/22/2024 '
07/23/2024 06:25 AM	Admin, Mayvue	Added Comment		completed bridge inspection

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Critical Findings Outstanding Tasks

Add New

Event Type	Assignee	Due Date	Days Remaining	Comment
Bridge Inspection	Admin, Mayvue	7/30/2024	7	perform damage inspection

AASHTOWare™ BRIDGE MANAGEMENT

Load Ratings & Load Postings

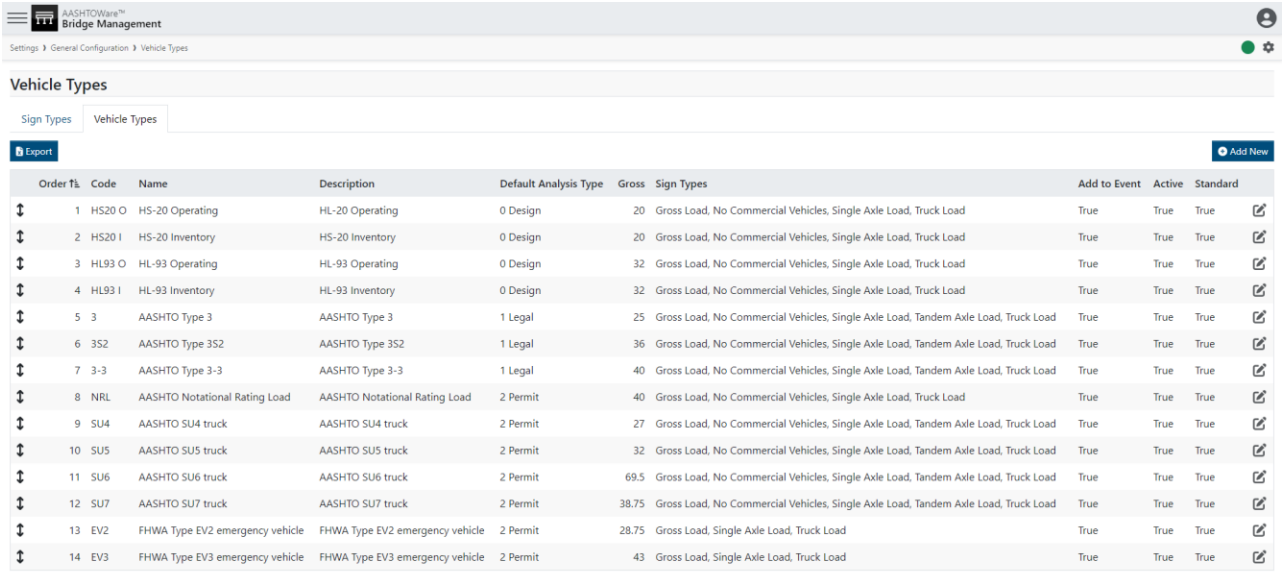
- Vehicle Configuration
- Load Ratings
- Load Postings

Load Ratings & Load Postings

- **Vehicle Configuration**
- Load Ratings
- Load Postings

Load Ratings & Load Posting – Configuration

- Sign Types
  - Set roll-up for any agency-defined sign types to SNBI Posting Types for reporting
- Vehicle Types
  - Create agency-defined vehicle types with reportable codes
  - Map vehicles to sign types
  - Indicate which vehicles are automatically added to new load rating event



Order	Code	Name	Description	Default Analysis Type	Gross	Sign Types	Add to Event	Active	Standard
1	HS20 O	HS-20 Operating	HL-20 Operating	0 Design	20	Gross Load, No Commercial Vehicles, Single Axle Load, Truck Load	True	True	True
2	HS20 I	HS-20 Inventory	HS-20 Inventory	0 Design	20	Gross Load, No Commercial Vehicles, Single Axle Load, Truck Load	True	True	True
3	HL93 O	HL-93 Operating	HL-93 Operating	0 Design	32	Gross Load, No Commercial Vehicles, Single Axle Load, Truck Load	True	True	True
4	HL93 I	HL-93 Inventory	HL-93 Inventory	0 Design	32	Gross Load, No Commercial Vehicles, Single Axle Load, Truck Load	True	True	True
5	3	AASHTO Type 3	AASHTO Type 3	1 Legal	25	Gross Load, No Commercial Vehicles, Single Axle Load, Tandem Axle Load, Truck Load	True	True	True
6	3S2	AASHTO Type 3S2	AASHTO Type 3S2	1 Legal	36	Gross Load, No Commercial Vehicles, Single Axle Load, Tandem Axle Load, Truck Load	True	True	True
7	3-3	AASHTO Type 3-3	AASHTO Type 3-3	1 Legal	40	Gross Load, No Commercial Vehicles, Single Axle Load, Tandem Axle Load, Truck Load	True	True	True
8	NRL	AASHTO Notational Rating Load	AASHTO Notational Rating Load	2 Permit	40	Gross Load, No Commercial Vehicles, Single Axle Load, Truck Load	True	True	True
9	SU4	AASHTO SU4 truck	AASHTO SU4 truck	2 Permit	27	Gross Load, No Commercial Vehicles, Single Axle Load, Tandem Axle Load, Truck Load	True	True	True
10	SU5	AASHTO SU5 truck	AASHTO SU5 truck	2 Permit	32	Gross Load, No Commercial Vehicles, Single Axle Load, Tandem Axle Load, Truck Load	True	True	True
11	SU6	AASHTO SU6 truck	AASHTO SU6 truck	2 Permit	69.5	Gross Load, No Commercial Vehicles, Single Axle Load, Tandem Axle Load, Truck Load	True	True	True
12	SU7	AASHTO SU7 truck	AASHTO SU7 truck	2 Permit	38.75	Gross Load, No Commercial Vehicles, Single Axle Load, Tandem Axle Load, Truck Load	True	True	True
13	EV2	FHWA Type EV2 emergency vehicle	FHWA Type EV2 emergency vehicle	2 Permit	28.75	Gross Load, Single Axle Load, Truck Load	True	True	True
14	EV3	FHWA Type EV3 emergency vehicle	FHWA Type EV3 emergency vehicle	2 Permit	43	Gross Load, Single Axle Load, Truck Load	True	True	True

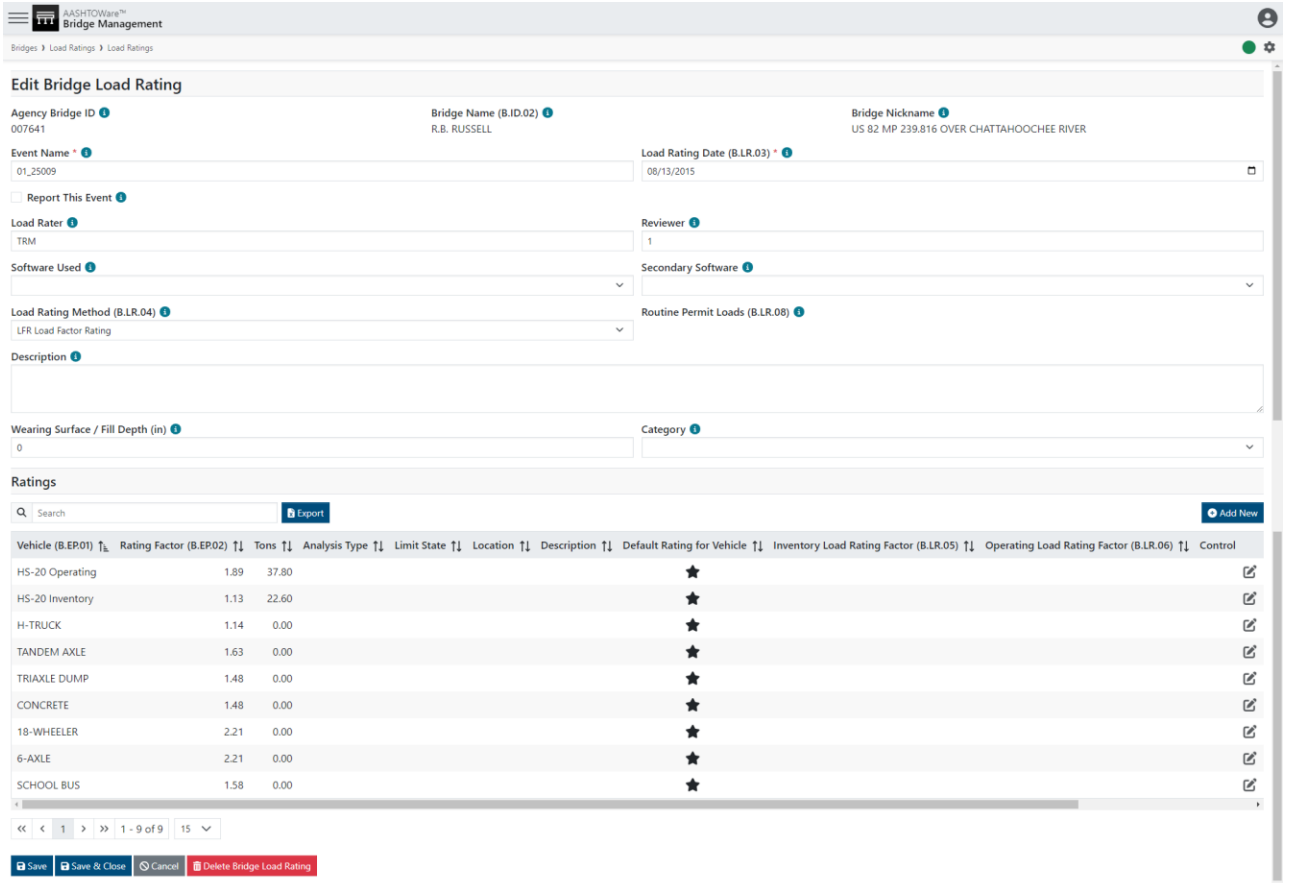
AASHTOWare™ BRIDGE MANAGEMENT

Load Ratings & Load Postings

- Vehicle Configuration
- **Load Ratings**
- Load Postings

Load Ratings

- Report This Event indicates which event is used for submittal and for load posting events
- Configured vehicles are automatically added
  - Can manually add additional vehicles
  - Can add duplicate records per vehicle



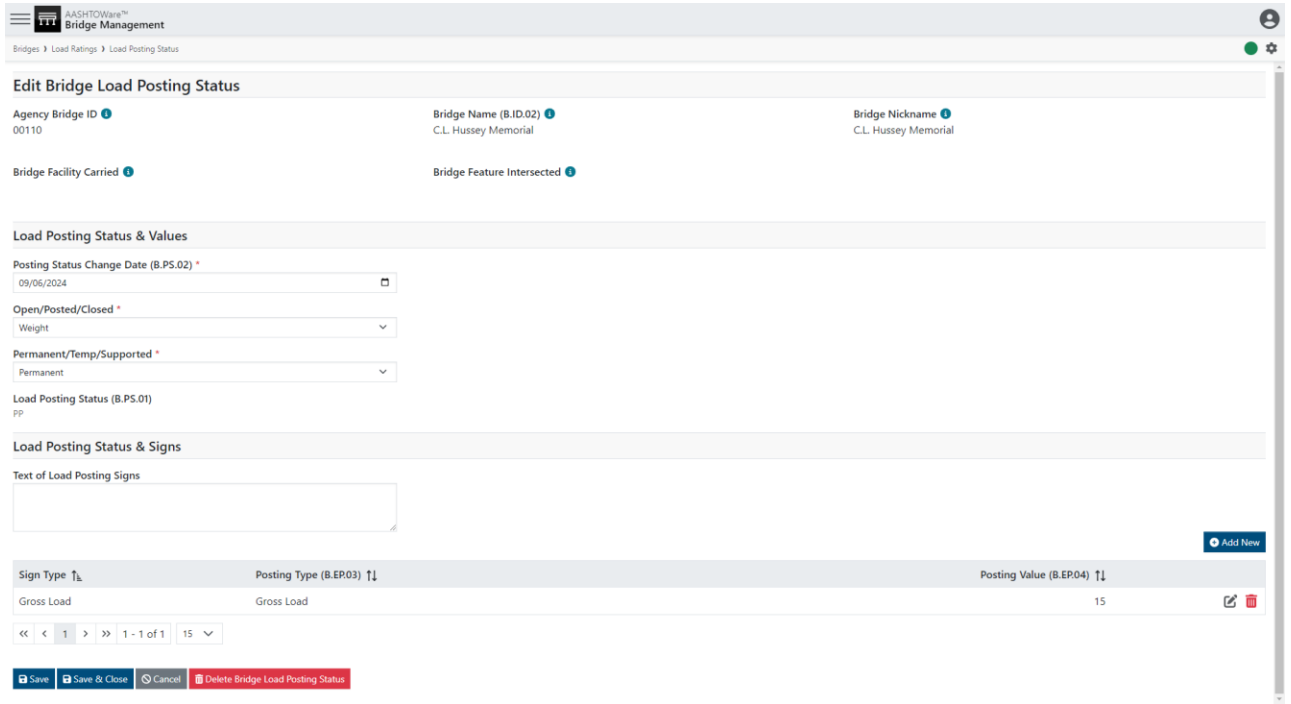
AASHTOWare™ BRIDGE MANAGEMENT

Load Ratings & Load Postings

- Vehicle Configuration
- Load Ratings
- **Load Postings**

Load Postings

- New event type in 7.0
- Applies the correct posting status based on inputs



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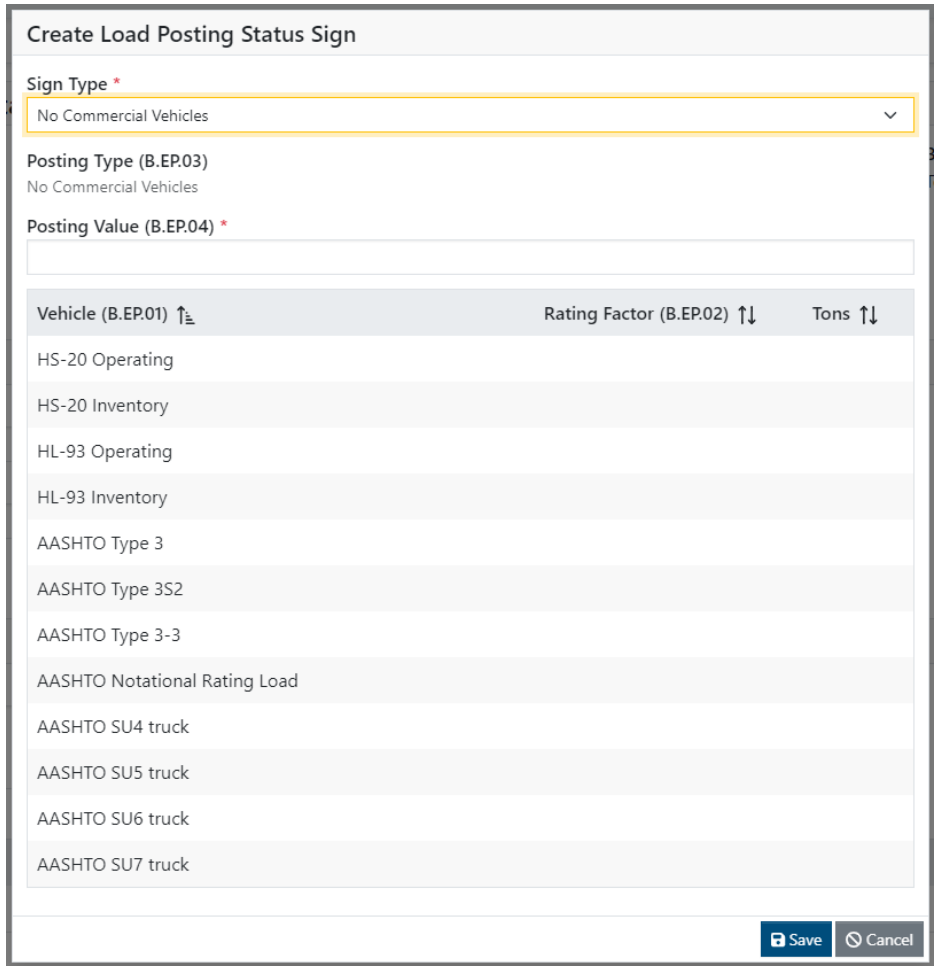
Load Postings

- Each sign type has the associated vehicle types
- Automatically uses the Report This Event load rating event



Work Candidates & Work Events

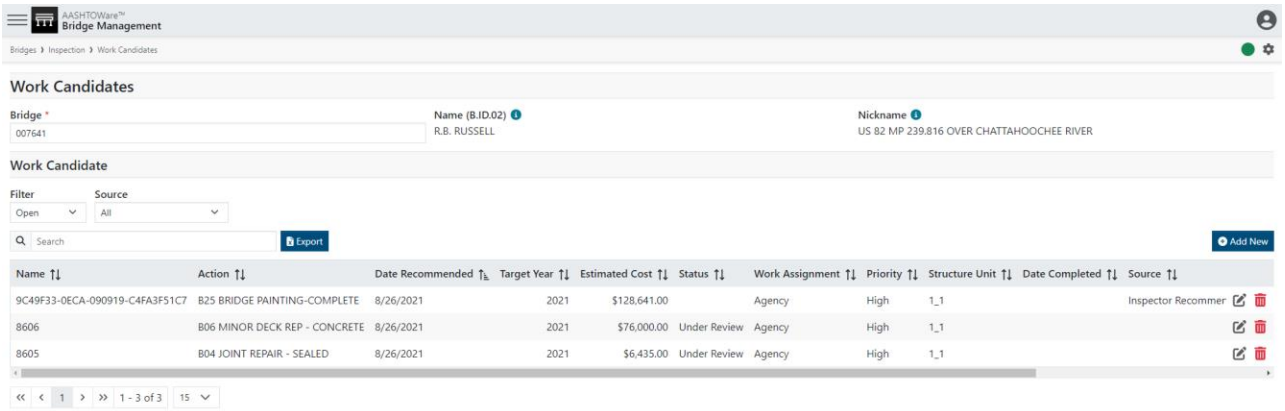
- Work Candidates
- Work Events

Work Candidates & Work Events

- **Work Candidates**
- Work Events

Work Candidates

- Similar to 6.X but with updated UI
- Capture prospective work



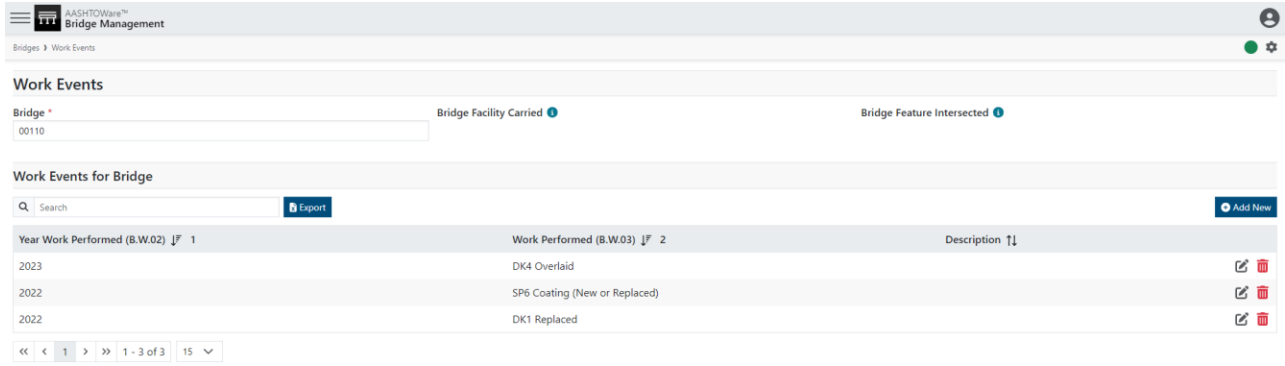
AASHTOWare™ BRIDGE MANAGEMENT

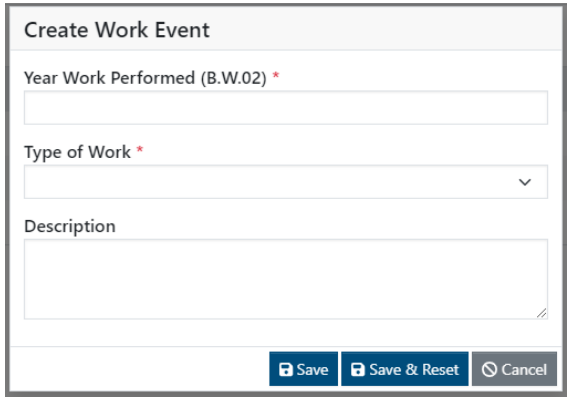
Work Candidates & Work Events

- Work Candidates
- **Work Events**

Work Events

- New event type in 7.0
- Captures work completed each year
- Save & Reset in modal to save but keep modal open to facilitate multiple entries





AASHTOWare™ BRIDGE MANAGEMENT

Contact

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AASHTOWare™ BRIDGE MANAGEMENT

Questions?

AASHTOWare™ BRIDGE MANAGEMENT