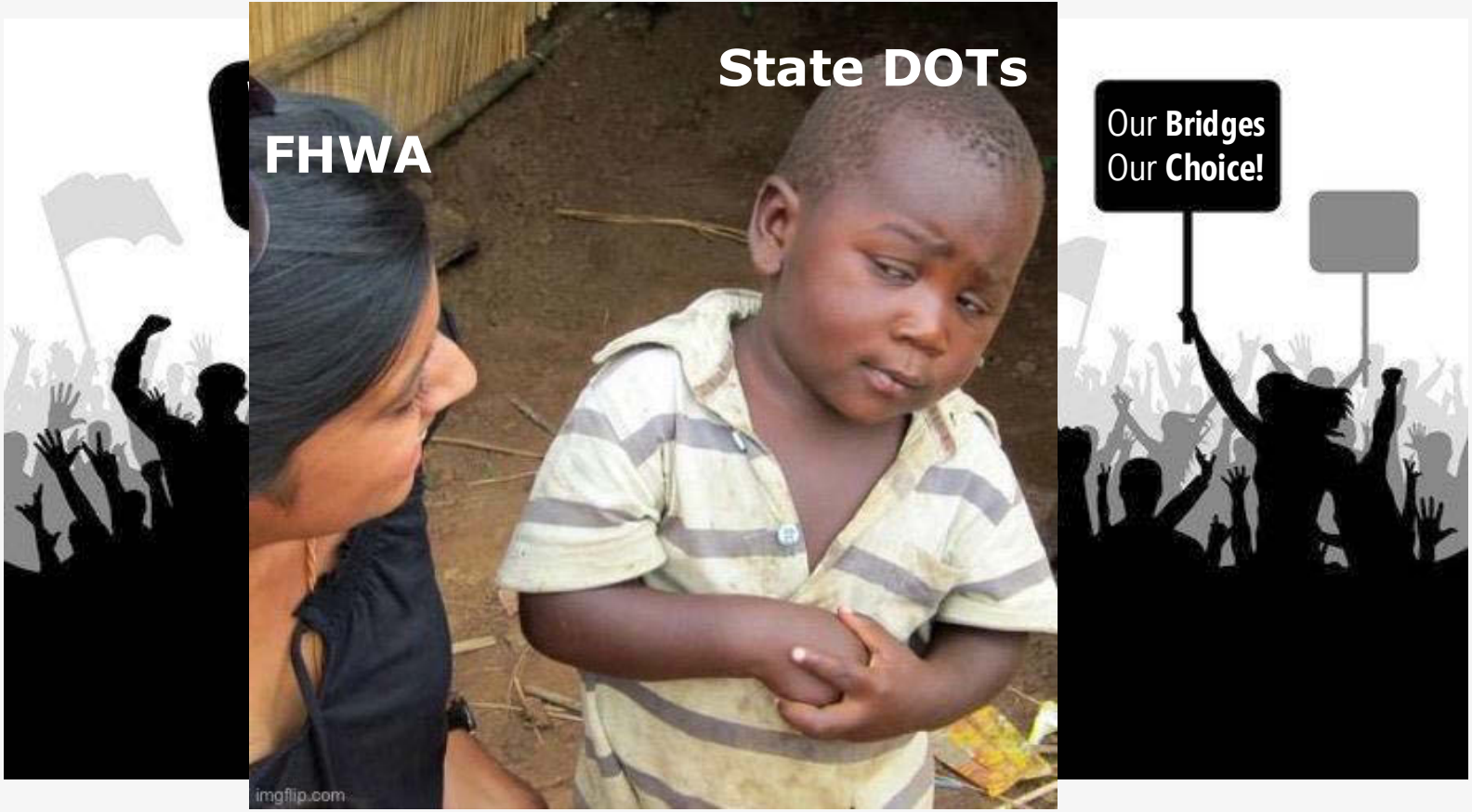
April 15, 2025

Observations & Trends in SNBI Items & Coding

Scott Choate, P.E.

Bridge Division

Field Operations - Inspection Branch


FHWA
State DOTs
Our Bridges
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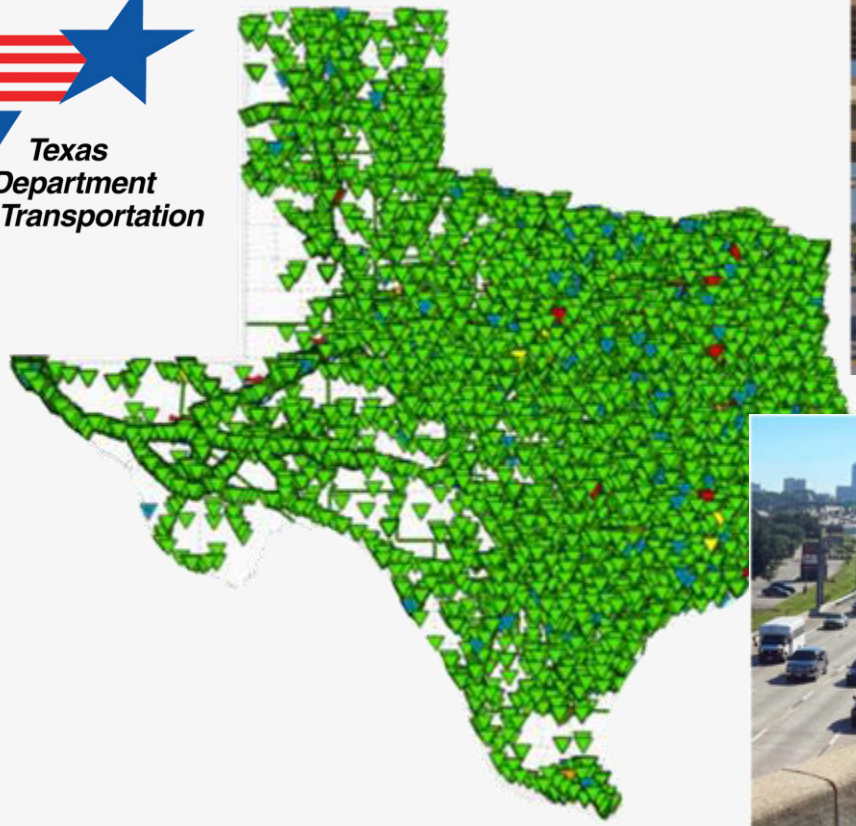
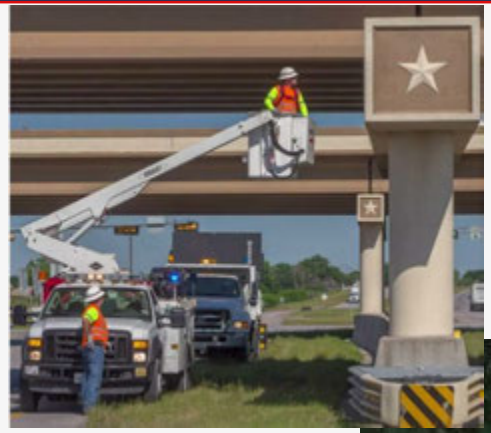
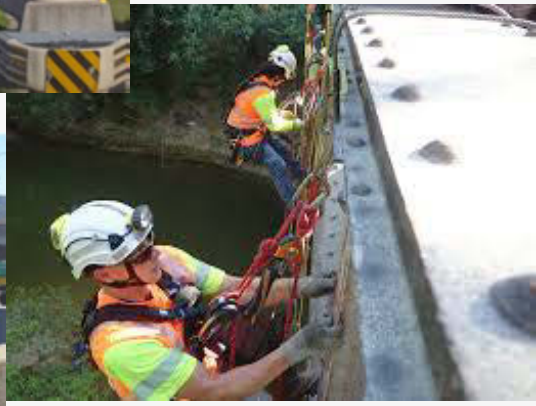
Texas Department of Transportation







Current "States" of SNBI Transition

Some DOTs

Others

TXDOT

What's the big deal with the SNBI?

Fundamental change in the structure & collection of inspection data

"The SNBI includes data items and specifications that provide an **improved ability to assess and monitor bridge safety** and compliance with the National Bridge Inspection Standards. It includes clarifying item specifications and expanded examples to **improve ease of use and data quality**. It includes new and expanded items and codes to support the administration of risk-based data driven asset and performance management programs. These enhancements also provide the ability to report to Congress on the administration of National programs and condition and needs as well as respond to bridge-level inquiries."

UPDATE: Coding Guide to SNBI

The "**SNBI**" is the *coding guide* portion of the update to the "**NBIS**":

SNBI = Specifications for National Bridge Inspections

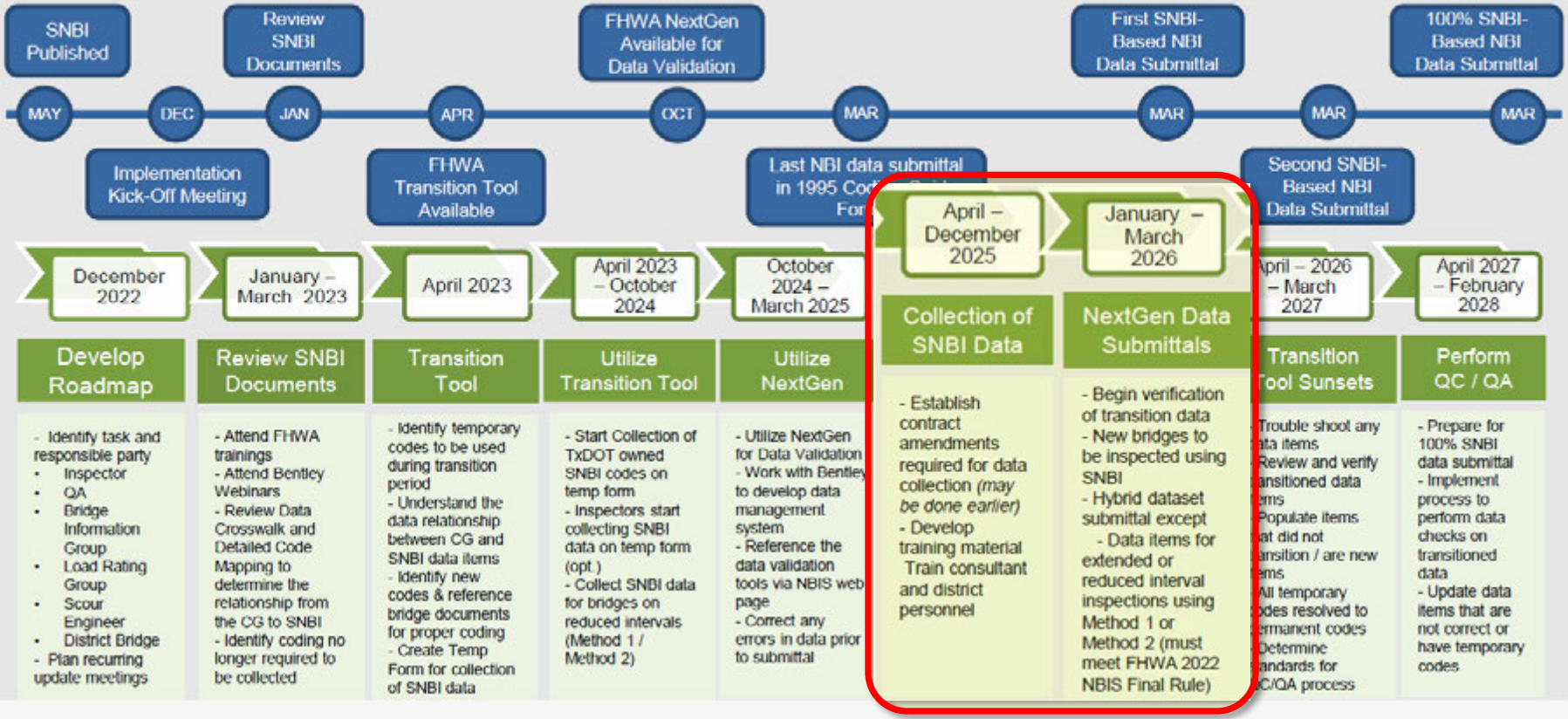
NBIS = National Bridge Inspection Standards

NBI vs. SNBI (old vs new)

- **NBI Fields (Item numbers)**:
  - Example: Condition Ratings *(Deck = Item 58, Superstructure = Item 59, Scour = Item 113, etc.)*

- **SNBI Fields (New format):**
  - Example: Condition Ratings *(Deck = B.C.01, Superstructure = B.C.02);* Identifiers *(Structure Number = B.ID.01), etc.*
  - Format is **B.XX.XX** ← Field Number
    Classification ↑

TxDOT Anticipated SNBI Implementation Plan



What has changed in the data?

- **154 data items reported per bridge**
    - 100 continued items
    - 54 new items
        - 38/54 are non-inspection related (can be filled out prior to inspection – super/sub span config, fatigue details, etc.)
    - 20 discontinued items

FHWA Data Crosswalk (Data Mapping)

- Defines relationships between Coding Guide data items and SNBI data items

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.ID.01	BID01	Bridge Number	AN (15)	8	Structure Number	15/AN	Yes	Trim leading and trailing spaces. For Transition Tool, provide option to trim or not trim leading zeroes, or to trim all but one leading zero; do not provide a default selection. Ask user whether to apply this selection to transitioned legacy (historical) data for that State/Agency. (Add a note stating that all legacy data will also be preserved in its original form.) For those who do not use the Transition Tool, we will need to survey.
B.ID.02	BID02	Bridge Name	AN (300)	N/A	N/A	N/A	No	
B.ID.03	BID03	Previous Bridge Number	AN (15)	N/A	N/A	N/A	Yes	Populate this field using the history of structure number changes that resides in the NBI from Structure Number Change submittals. Trim leading and trailing spaces and leading zeroes in accordance with the user's selection for Item B.ID.01.
B.L.01	BL01	State Code	N (2,0)	1	State Code	3/N	Yes	Trim leading zero, drop 3rd digit.
B.L.02	BL02	County Code	N (3,0)	3	County (Parish) Code	3/N	Yes	Direct transition.

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B.ID.01	BID01	Bridge Number	AN (15)	8	Structure Number	15/AN	Yes	Trim leading and trailing spaces. For Transition Tool, provide option to trim or not trim leading zeroes, or to trim all but one leading zero; do not provide a default selection. Ask user whether to apply this selection to transitioned legacy (historical) data for that State/Agency. (Add a note stating that all legacy data will also be preserved in its original form.) For those who do not use the Transition Tool, we will need to survey.
B.ID.02	BID02	Bridge Name	AN (300)	N/A	N/A	N/A	No	
B.ID.03	BID03	Previous Bridge Number	AN (15)	N/A	N/A	N/A	Yes	Populate this field using the history of structure number changes that resides in the NBI from Structure Number Change submittals. Trim leading and trailing spaces and leading zeroes in accordance with the user's selection for Item B.ID.01.
B.L.01	BL01	State Code	N (2,0)	1	State Code	3/N	Yes	Trim leading zero, drop 3rd digit.
B.L.02	BL02	County Code	N (3,0)	3	County (Parish) Code	3/N	Yes	Direct transition.

FHWA Data Crosswalk (Data Mapping)

- Defines relationships between Coding Guide data items and SNBI data items

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.ID.01	BID01	Bridge Number	AN (15)	8	Structure Number	15/AN	Yes	Trim leading and trailing spaces. For Transition Tool, provide option to trim or not trim leading zeroes, or to trim all but one leading zero; do not provide a default selection. Ask user whether to apply this selection to transitioned legacy (historical) data for that State/Agency. (Add a note stating that all legacy data will also be preserved in its original form.) For those who do not use the Transition Tool, we will need to survey.
B.ID.02	BID02	Bridge Name	AN (300)	N/A	N/A	N/A	No	
B.ID.03	BID03	Previous Bridge Number	AN (15)	N/A	N/A	N/A	Yes	Populate this field using the history of structure number changes that resides in the NBI from Structure Number Change submittals. Trim leading and trailing spaces and leading zeroes in accordance with the user's selection for Item B.ID.01.
B.L.01	BL01	State Code	N (2,0)	1	State Code	3/N	Yes	Trim leading zero, drop 3rd digit.
B.L.02	BL02	County Code	N (3,0)	3	County (Parish) Code	3/N	Yes	Direct transition.

Transition Types (Clean, Partial, None)

- **Clean Transition**

NBI	SNBI	Comments for SNBI Transition
NBI 001: State Code	B.L.01: State Code	Direct Transition
NBI 008: Structure Number	B.ID.01: Bridge Number	Direct Transition
NBI 049: Structure Length	B.G.02: Total Bridge Length	Direct Transition
NBI 058: Deck	B.C.01: Deck Condition Rating	Direct Transition
NBI 059: Superstructure	B.C.02: Superstructure Condition Rating	Direct Transition
NBI 060: Substructure	B.C.03: Substructure Condition Rating	Direct Transition
NBI 062: Culverts	B.C.04: Culvert Condition Rating	Direct Transition

Transition Types (Clean, Partial, None)

- **Partial Transition**

NBI	SNBI	Comments for SNBI Transition
NBI 041: Structure Open, Posted, or Closed to Traffic	B.PS.01 Load Posting Status	See Tab.5

NBI041 Value	SNBI B.PS.01 Value	SNBI Description
null	no value	
A	PO	Permanent bridge in place, open with no restrictions
B	PA-T	TEMP - Permanent or temporary bridge in place, posting needed - PA or PD or PM or TA or TD or TM or SA or SD or SM - Code 'PA-T' to be phased out
D	SO	Permanent bridge with temporary shoring, open with no restrictions
E	TO	Temporary bridge in place, open with no restrictions
G	N	New bridge not yet open to traffic
K	C	Bridge is closed to all traffic
P	PP-T	TEMP - Permanent or temporary bridge in place, posted for load - PP or TP or SP - Code 'PP-T' to be phased out
R	PR-T	TEMP - Permanent or temporary bridge in place, posted for restriction other than load - PR or TR or SR - Code 'PR-T' to be phased out

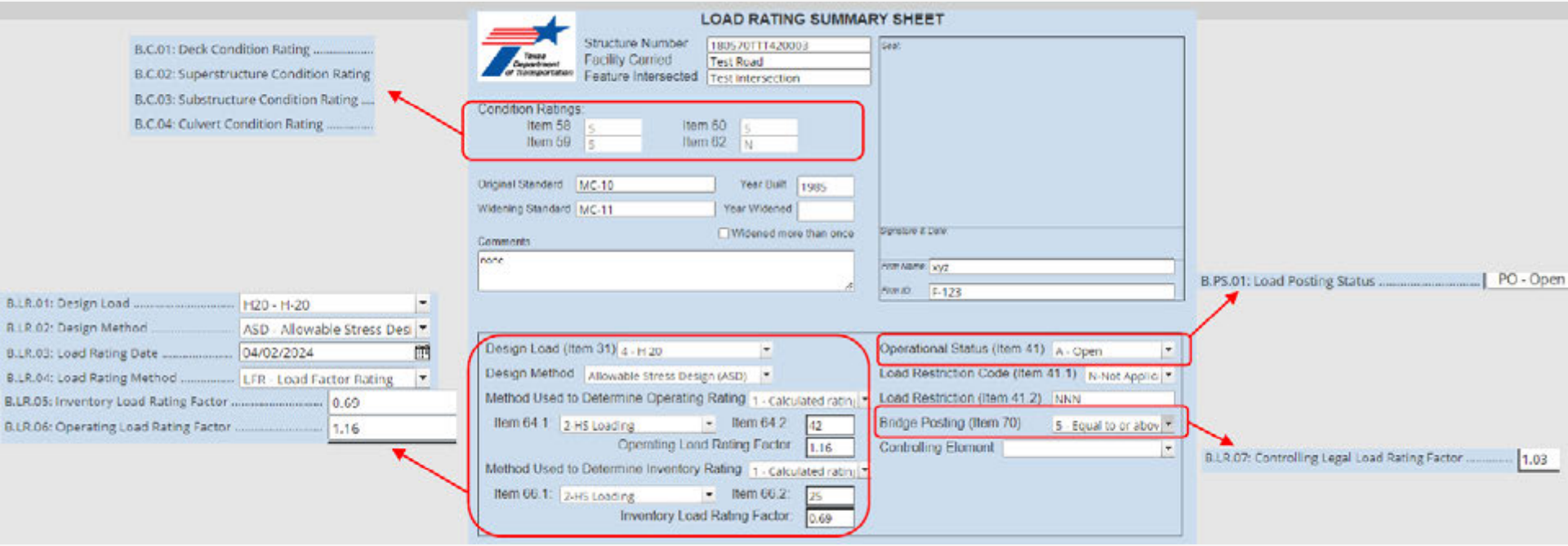
Transition Types (Clean, Partial, None)

- **No Transition** (48 new fields) – need to be collected before the 2028 submittal

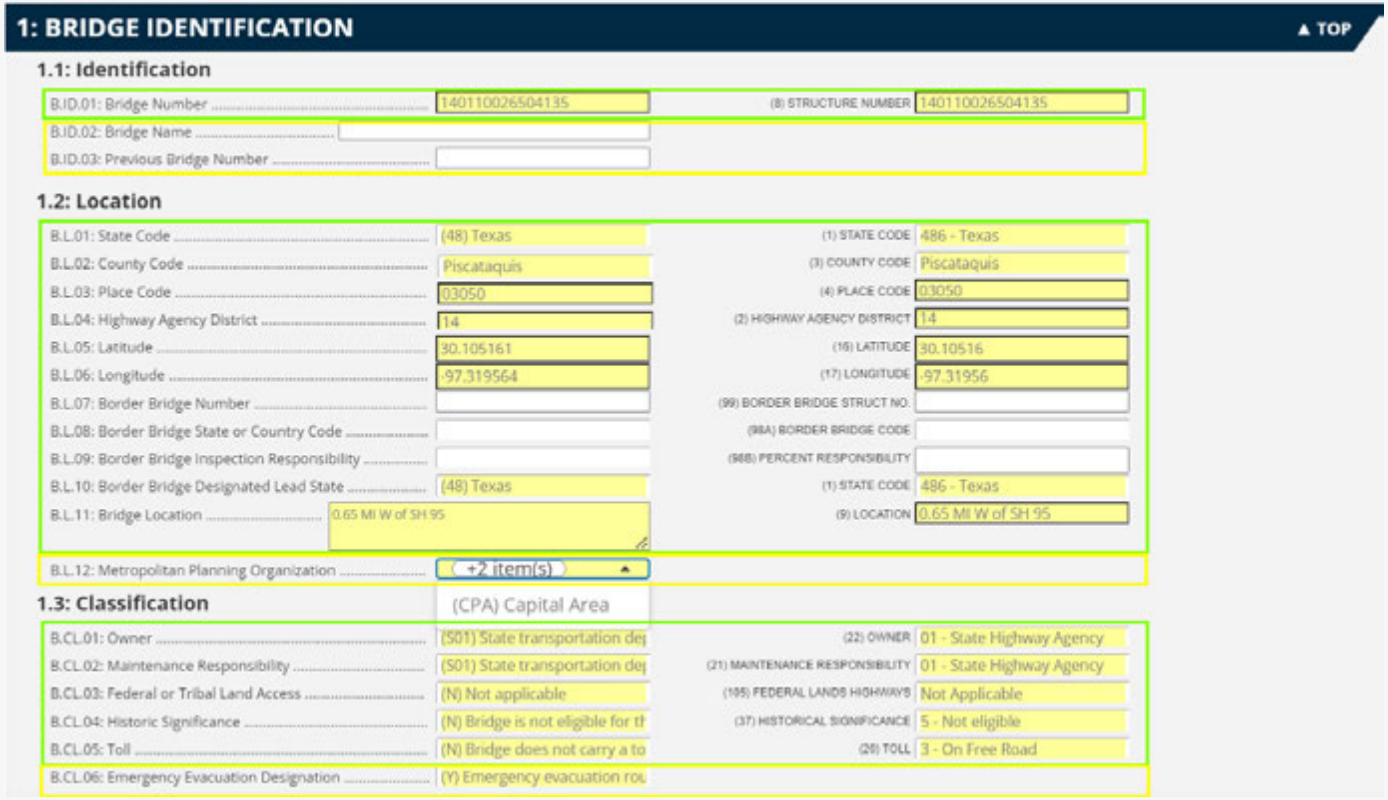
NBI	SNBI	Comments for SNBI Transition
NONE	B.IR.02: Fatigue Details	See tab

NBI Value	SNBI B.IR.03 Value	SNBI Description
NONE	**Y** - E/E' details are present	Report whether the bridge has AASHTO fatigue category E or E' details using one of the following codes.
	N - No E/E' details	Do not report this item for bridges that do not have steel members as indicated in Items B.SP.04 (Span Material) and B.SB.03 (Substructure

New Forms in Assetwise



Data Transition



1: BRIDGE IDENTIFICATION

▲ TOP

1.1: Identification

B.ID.01: Bridge Number	140110026504135	(8) STRUCTURE NUMBER	140110026504135
B.ID.02: Bridge Name			
B.ID.03: Previous Bridge Number			

1.2: Location

B.L.01: State Code	(48) Texas	(1) STATE CODE	486 - Texas
B.L.02: County Code	Piscataquis	(3) COUNTY CODE	Piscataquis
B.L.03: Place Code	03050	(4) PLACE CODE	03050
B.L.04: Highway Agency District	14	(2) HIGHWAY AGENCY DISTRICT	14
B.L.05: Latitude	30.105161	(16) LATITUDE	30.10516
B.L.06: Longitude	-97.319564	(17) LONGITUDE	-97.31956
B.L.07: Border Bridge Number		(99) BORDER BRIDGE STRUCT NO.	
B.L.08: Border Bridge State or Country Code		(98A) BORDER BRIDGE CODE	
B.L.09: Border Bridge Inspection Responsibility		(98B) PERCENT RESPONSIBILITY	
B.L.10: Border Bridge Designated Lead State	(48) Texas	(1) STATE CODE	486 - Texas
B.L.11: Bridge Location	0.65 MI W of SH 95	(9) LOCATION	0.65 MI W of SH 95
B.L.12: Metropolitan Planning Organization	+2 item(s)		

(CPA) Capital Area

1.3: Classification

B.CL.01: Owner	(S01) State transportation dep	(22) OWNER	01 - State Highway Agency
B.CL.02: Maintenance Responsibility	(S01) State transportation dep	(21) MAINTENANCE RESPONSIBILITY	01 - State Highway Agency
B.CL.03: Federal or Tribal Land Access	(N) Not applicable	(105) FEDERAL LANDS HIGHWAYS	Not Applicable
B.CL.04: Historic Significance	(N) Bridge is not eligible for th	(37) HISTORICAL SIGNIFICANCE	5 - Not eligible
B.CL.05: Toll	(N) Bridge does not carry a to	(20) TOLL	3 - On Free Road
B.CL.06: Emergency Evacuation Designation	(Y) Emergency evacuation rou		

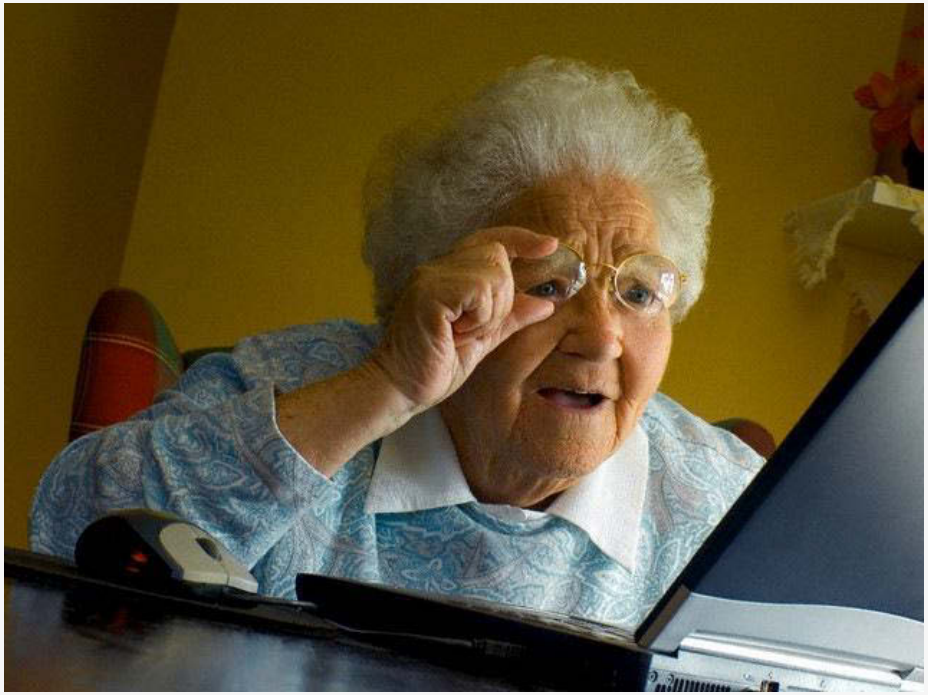
SNBI Implications

- Agencies must restructure databases & workflows
- Inspectors need more time for data collection & QC until efficiency improves
- Software data validation rules needed to catch errors & improve quality
- BRG will continuously monitor data through queries & filters, and create info dashboards for TXDOT users

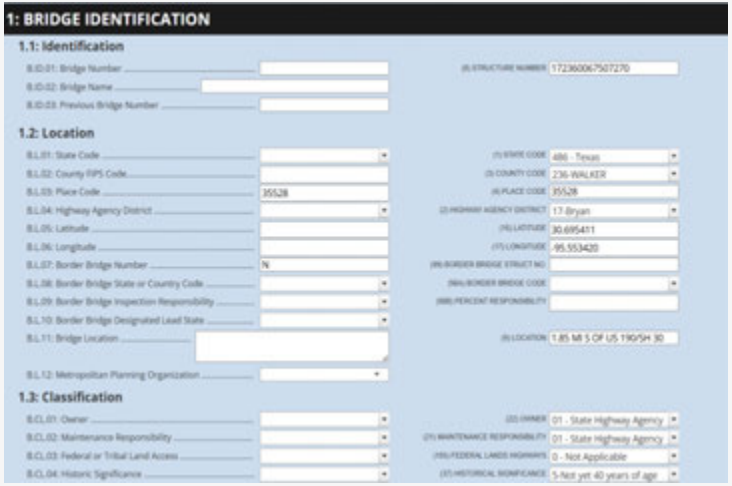
Other Challenges

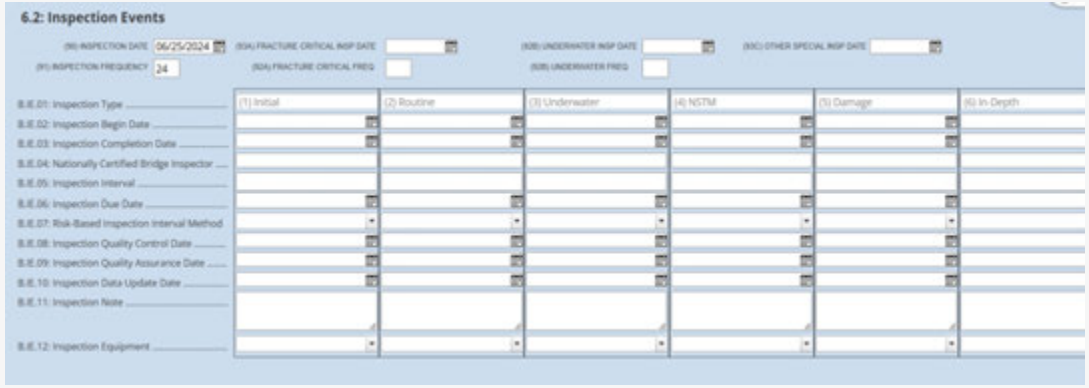
- Agency staff turnover
- SNBI training is in early phases (many states haven’t had it yet)
- Misinterpretation of FHWA guidance (confusion in coding some items)
- Rewrite TxDOT inspection manual
- Tools used to collect and report data (need to alter/switch software)

What are we seeing in the data?



No SNBI Data





NBI #

Row Labels	Count of KPI
MATCH	56624
MISMATCH	16
NOT ENTERED	1411
Grand Total	58051

No SNBI Data

- We see many inspections performed in 2024 did not collect new SNBI fields.
  We selected 20,000 inspections performed in 2024 & pulled 4 random new SNBI fields:

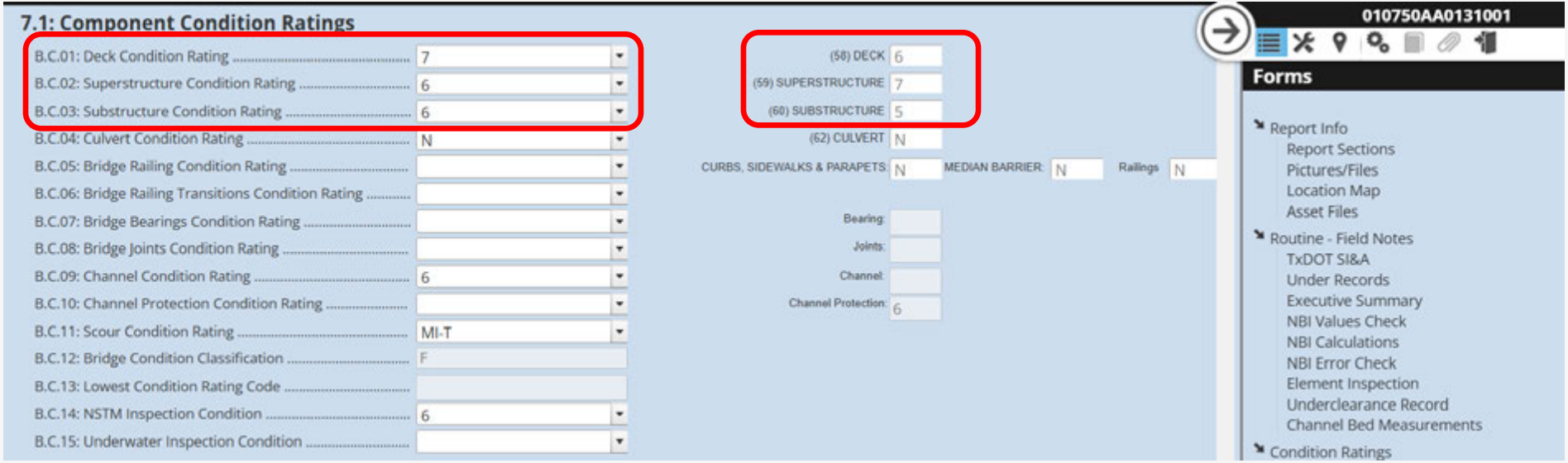
  a. 5647 bridges → MPO was not filled out for B.L.12
  b. 4859 bridges → B.IE.02 was not filled out.
  c. 4834 bridges → B.C.08 was not filled out
  d. 5915 bridges → B.G.13 was not filled out.

NBI #

Row Labels	Count of KPI
MATCH	56624
MISMATCH	16
NOT ENTERED	1411
Grand Total	**58051**

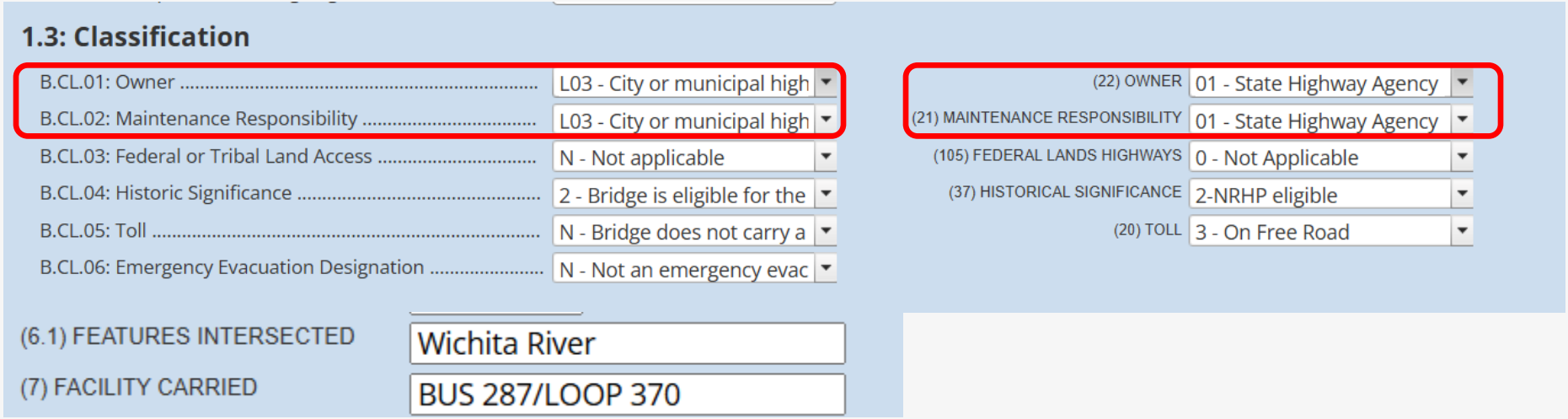
329 Inspections are not due for another SNBI Inspection before 2028 submittal

Condition Rating Differences: Inspectors are only updating NBI fields



Total Differences	
Deck	2120
Super	2166
Sub	2353
Culvert	1803

Major Differences in Owner and Maintenance Responsibility



Deck Area
(B.G.16 = B.G.02 x B.G.05)

Geometry fields

Calculated Deck Area

Format	Frequency	Item ID
N (10,1)	C	B.G.16

Specification	Commentary
Do not report this item as it is calculated by FHWA. The default calculation for bridges is the value reported in Item B.G.05 *(Bridge Width Out-to-Out)* multiplied by the value reported in Item B.G.02 *(Total Bridge Length)* rounded to the nearest tenth of a square foot.	

B.G.02	BG02	Total Bridge Length	N(7,1)	49	Structure Length

2024	313,153,721	293,240,700	6,825,994	613,220,415

B.G.16: Calculated Deck Area	618,624,761.00

Deck Area (B.G.02 x B.G.05)

3: GEOMETRY

B.G.01: NBIS Bridge Length	001130.0			
B.G.02: Total Bridge Length	100130.0		(49) STRUCTURE LENGTH	1130 FT.

- 310 Culverts insp 5 is 0

3: GEOMETRY

B.G.01: NBIS Bridge Length			
B.G.02: Total Bridge Length		E LENGTH	22 FT.
B.G.03: Maximum Span Length		MUM SPAN	10 FT.
B.G.04: Minimum Span Length			
B.G.05: Bridge Width Out-to-Out		UT-TO-OUT	0.0 FT.

Consultant input

- **Bypass Detour Length** inconsistencies (some inspectors are checking it, some are not)

- **LRS Milepoint** (Distance from origin? Or milepoint field from Statewide Planning Map?)

- **Culvert Under Fill** (B.SP.05 Span Continuity coded as 7 - Buried)
  (B.SP.09 Deck Interaction should be coded as 0, **not** left blank)

Consultant input (continued)

- **Annual Truck Traffic** (calculation is confusing; why not just enter a percentage?)

- **Load Posting change dates** are not being entered when a bridge is *re-opened* to unrestricted traffic

- **Approach Alignment** (B.AP.01) – appraising bridge AND approach (Poor, Fair, Good)
  - Factors to NOT Consider:
    - Speed reductions due to the bridge width
    - Intersecting roads
    - Current highway and bridge standards

Data Checks & Validations

Quality Control (Automated in Assetwise)

- **B.G.16** – Deck area should be calculated in AW (B.G.02 x B.G.05) and made **read-only**.

- **B.SP.01, B.SB.01, B.F.01, B.RT.01** – numbering should happen automatically when instances are created or moved

- **B.IE.06** – Inspection due dates should be automatically calculated based on previous inspection date, inspection type, and interval

Next Steps

- Update transitioned data *during* bridge inspection process
- Update forms, manuals, contracts to refer to SNBI data only
    - Currently, inspectors are collecting **both** sets of data; will change to **only** SNBI data soon
- Update dashboards and data connections (planning maps, MMS)
- Continue error checks for submittals through 2028 and beyond

Thank you!