

## **March 2021 HSIS Enhancements and Bug Fixes of Note**

A new version of HSIS was released on 3/3/2021. The following is a list of some of the enhancements and bug fixes addressed in this release.

If you discover any bugs or have suggestions for enhancements, please email [ryan.bowers@dot.wi.gov](mailto:ryan.bowers@dot.wi.gov). If you do find a bug, please provide as much information as possible about what structure you were working on, what browser you used, if you were using a mobile device or not, items you were editing or clicking on prior to the bug occurring, etc. The more information you provide, the better chance we have at determining the cause and fixing it. Any screenshots or videos you can take are helpful.

### **Bug Fixes**

The following bugs were fixed with this version.

- 1) The uw-profile requirement was not auto-clearing when no longer required for “C” structures. Profile requirements should now clear if all requirements are met.
- 2) A message stating “access denied – key not matched” appeared when clicking the “sign as reviewer” button for inspections. The review action still executed when this message appeared. This message no longer appears.
- 3) Late reason “notes” were not saving, which meant inspectors could not access all the inspection tabs. This has been fixed.

### **New Ancillary Structure Data Fields and Inspection Complete Disabled Rules**

A list of new fields and inspection complete disabled rules added to ancillary structures are listed below. Please contact me or Steve Doocy with any questions about ancillary structures.

#### **High mast lighting**

- 1”, 1-1/8”, and 1-1/4” anchor bolt diameters were added to the dropdown.
- A field for “max standoff” was added. This value is to be measured from top of concrete to bottom of base plate and entered in decimal inches.
- Added inspection complete disabled rules requiring max standoff and number of anchor bolts to be entered.

#### **Signs and signals**

- Added fields for number of splices, anchor rod diameter, number of anchors, base plate thickness, and maximum standoff.
- Added inspection complete disabled rules requiring anchor rod diameter, max standoff, base plate thickness, and number of anchor rods to be entered.

#### **Retaining walls and sound barriers**

- Added inspection complete disabled rules requiring max wall exposure height and distance to primary roadway to be entered.

## **48-month Routine Inspection Frequency and 72-month UW-Dive Frequency**

Local agencies were notified in November 2020 about new policy for extended routine and dive inspection frequencies. The eligibility criteria is located on the [WisDOT inspection website](#). If you opted-out of the policy, the HSIS processes described below still occur, and you are still able to run reports to see which bridges are eligible.

Extended routine and dive inspection frequencies were updated in HSIS on 3/3/2021. The new due dates are reflected in HSIS and in scheduling reports going forward. If a bridge shows up as due for inspection that you think should not be due, please verify the bridge is eligible for the extended frequency and contact your state PM to have HSIS updated. Do not assume HSIS has not been updated yet or the bridge does not need to be inspected. BOS has the expectation the bridge will be inspected by date shown on scheduling report and in HSIS. SI&A and uw-profile due dates have been updated to align with the extended routine and dive inspection dates.

### HSIS functionality

Checks have been added to HSIS to determine if a bridge meets the criteria for an extended inspection frequency. You can see if a bridge is eligible for an extended routine or dive inspection frequency by looking at the “Frequency” tab. The “Standard Freq” column will display 48 if the bridge is eligible for extended routine frequency and 72 for extended dive frequency. The “Applied Freq” column displays the frequency the bridge is currently scheduled on (if blank, the standard frequency is being used). Only region program managers can change the applied frequency to an extended frequency.

Inspection						
Create History Frequency						
Romd	Inspection / Activity type	History summary	Standard Freq (mos)	Applied Freq (mos)	Grace date	Due
	Critical Finding					
	Damage					
<input type="checkbox"/>	Deck Evaluation		0	<input type="text"/>		
<input type="checkbox"/>	Fracture Critical (arm's Length)		24	<input type="text"/>		
<input type="checkbox"/>	In-Depth		96	<input type="text"/>		
<input type="checkbox"/>	Interim	2 inspections from 08/14/14 to 06/30/15	0	<input type="text"/>		
	Load Posted Verification (dt2122)					
<input type="checkbox"/>	Non-Destructive Evaluation		72	<input type="text"/>		
	QA Inspection Review					
<input type="checkbox"/>	Reach All		0	<input type="text"/>		
<input checked="" type="checkbox"/>	Routine	6 inspections from 08/22/12 to 05/23/19	48	<input type="text" value="24"/>		May 2021
<input type="checkbox"/>	Scour Plan of Action		48	<input type="text"/>		
<input checked="" type="checkbox"/>	SIA Review	3 inspections from 08/22/12 to 05/23/19	48	<input type="text"/>		May 2023
<input checked="" type="checkbox"/>	Uw-Dive	2 inspections from 11/07/12 to 11/07/17	72	<input type="text" value="60"/>		Nov 2022
<input checked="" type="checkbox"/>	Uw-Profile	5 inspections from 08/22/12 to 11/07/17	72	<input type="text" value="60"/>		Nov 2022
<input type="checkbox"/>	Vertical Clearance Measured		0	<input type="text"/>		

*Inspection frequency screen showing 48-month routine and 72-month dive eligibility.*

A second method to see which bridges are eligible for extended frequency is to generate a collection report. Subsequent sections will describe how to generate these reports. Reports can be generated to see all the bridges eligible for extended frequencies (routine and dive) based on selected search criteria (region, county, owner, etc.).

Open inspections for bridges that are eligible for extended frequencies will have an “on complete” action notifying the inspector of eligibility, if it is not already on the extended frequency. The routine and dive frequency **do not** automatically change to 48 or 72 on inspection completion; the frequency must be changed by a region program manager. If the bridge is already on a 48- or 72-month frequency, and it is still eligible for that frequency with the new inspection data, the frequency will remain at 48 or 72.

on complete	
Action	Reason
complete with e-signature: Ryan Bowers(dotryb)	complete with e-signature based on user preferences
send consider changing Routine frequency from 24 to 48 months.	structure eligible for 48 month frequency
send consider changing Uw-Dive frequency from 60 to 72 months.	structure qualifies for extended UWDive frequency

*Inspection on complete actions, showing eligibility for 48-month routine and 72-month dive frequency.*

Users can sign up for a subscription to receive email notifications when inspections are completed resulting in a bridge being eligible for extended routine or dive frequency. This notification is triggered by the “send consider changing XXXX frequency from XX to XX months” on complete action shown in the image above. To subscribe to notifications for inspection frequency reviews, go to Go > Tools > System > Subscriptions. Select “InspectionFrequencyReviewNotification” from the “Subscription type” dropdown and click “subscribe”. The next screen will allow you to select what region office, county, and/or agency you want to be notified of changes for. After making the appropriate selections, click “save”. Do not push “subscribe” again.

The screenshot shows a web interface for managing subscriptions. At the top, there are navigation buttons: 'Preferences', 'System' (which is highlighted), 'Batch Queue', 'Distribution Lists', 'Sandbox', and 'Subscriptions' (which is also highlighted). Below these is a form for creating a subscription. The 'Subscription type' dropdown menu is open, showing 'InspectionFrequencyReviewNotification' selected. Below the dropdown is a text area containing the description: 'Email when an Inspection type frequency should be reviewed'. At the bottom of the form is a 'subscribe' button.

*Window for subscribing to inspection frequency review notifications.*

**System**

Batch Queue | Distribution Lists | Sandbox | **Subscriptions**

Subscription type  
 InspectionFrequencyReviewNotification

Subscription type description  
 Email when an Inspection type frequency should be reviewed

Subscription  
 2021-01-22 Office:Superior

Id: 1611325011974

Subscribed  
 2021-01-22 08:16

Regional office

- Eau Claire
- Green Bay
- La Crosse
- Madison
- Rhineland
- Superior**
- Waukesha

County

- ADAMS(01)
- ASHLAND(02)
- BARRON(03)
- BAYFIELD(04)
- BROWN(05)
- BUFFALO(06)
- BURNETT(07)

Agency

- OTHER STATE AGENCY(20)
- RAILROAD(60)
- STATE - DNR(17)
- STATE - LOCAL(15)**
- STATE HIGHWAY DEPT(10)**
- STATE-S 84.10(16)**
- TOWN(40)
- U.S. FOREST SERVICE(51)

local state

save delete

*Options for when to be notified to review an inspection frequency.*

If a bridge was on an extended routine or dive frequency and no longer qualifies for it, the frequency will automatically change to 24 months for routine or 60 months for dive on inspection completion. This mimics current HSIS functionality for changing from 24-month to 12-month routine inspections when certain criteria are met.

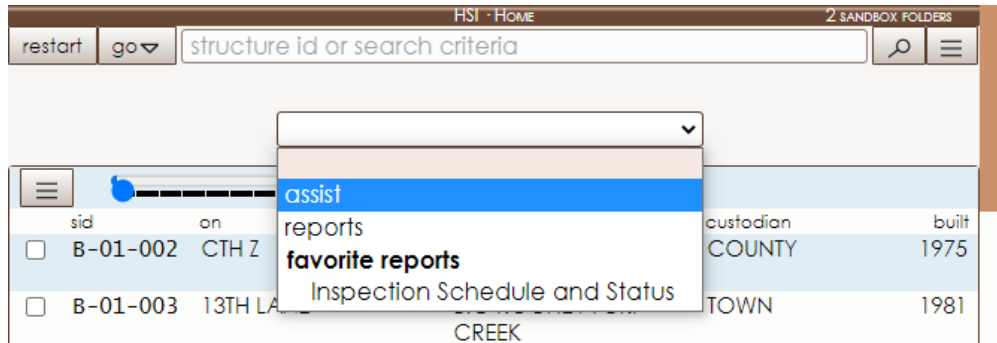
Action	Reason
complete with e-signature: Ryan Bowers(dotryb)	complete with e-signature based on user preferences
set routine frequency to 24 months	structure/inspection not qualified for extended frequency- unacceptable sub-structure rating(6)

*On complete action will change routine inspection frequency from 48 to 24 months.*

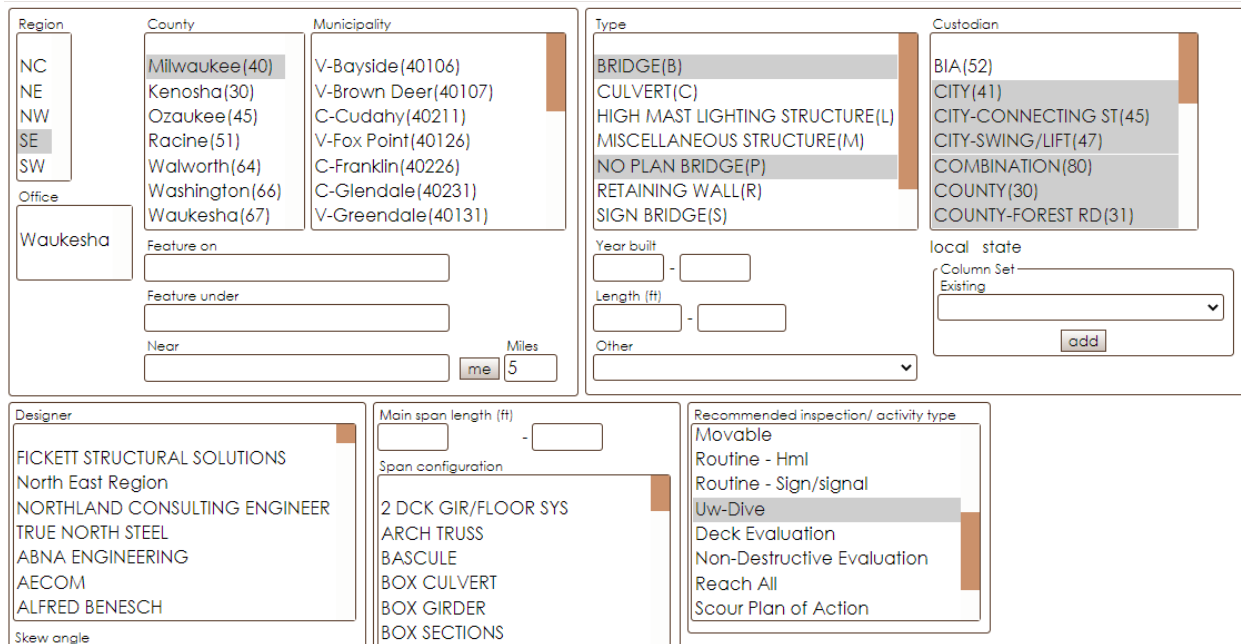
Generating a list of eligible bridges

This section explains how to generate an on the spot list of bridges eligible for 48-month routine or 72-month uw-dive inspections.

- 1) Select “assist” from the dropdown.



- 2) Select the appropriate options for the structures you are interested in. This may include options for custodian, region, county, and/or municipality. You should select “Bridge(B)” and “No plan bridge(P)” in order to limit the results to only these structure types. If you are generating a list of bridges with dive inspections, you may want to select “uw-dive” from the “recommended inspection/activity type” list to limit the results to only bridges that have been dove in the past. Once you have made your selections, click “search”.

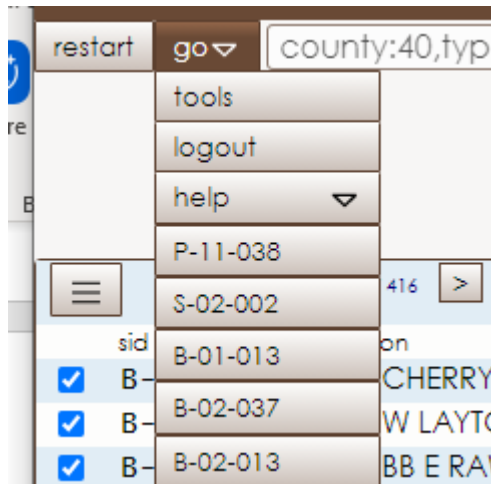


- 3) The home screen now displays all the bridges meeting the search criteria. The next step is to add the structures to a collection. To do this, go to “collection” and click “add ###”. For this example, you can “add 200” or “add 416”. 200 is the number of bridges shown on the page; 416 is the total resulting from the search. If the search resulted in more bridges than maximum allowed

collection size, you will have to create multiple collections and run the report once for each collection.

on	under	county	custodian	built	type
CHERRY ST	CP RAILROAD	MILWAUKEE	CITY	1998	BRIDGE
W LAYTON AVE	BR KINNICKINNIC RIVER	MILWAUKEE	CITY	1928	BRIDGE
BB E RAWSON AVE	BR OAK CREEK	MILWAUKEE	COUNTY	1955	BRIDGE
COLLEGE AVE	BR OAK CREEK	MILWAUKEE	COUNTY	1998	BRIDGE
LAYTON AVE	ROOT RIVER	MILWAUKEE	COUNTY	2000	BRIDGE
HELENA ST	C. P. RAILROAD	MILWAUKEE	CITY	1999	BRIDGE
CHASE AVE	KINNICKINNIC RIVER	MILWAUKEE	CITY-	2002	BRIDGE

- Once “add ####” is clicked, the box to the left of the structure number will be checked (visible in the following image). Next, hover over “go” and select “tools”.

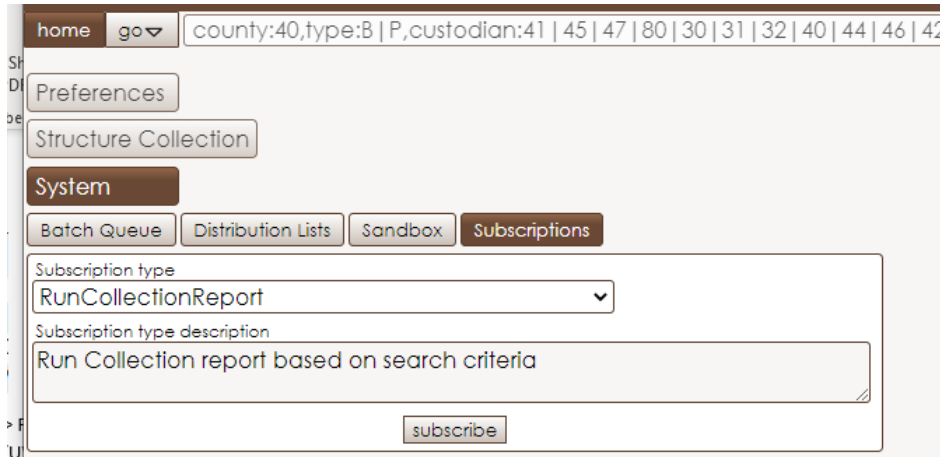


- Navigate to Structure Collection > Reports and select the report you want to run: “Bridge Routine 48-month eligibility” or “UWDive 72-month eligibility”. The email address shown is where the report will be sent. There is also the option to have the report go to the sandbox by clicking the checkbox. Once ready, click the “export ### structure(s)” button.

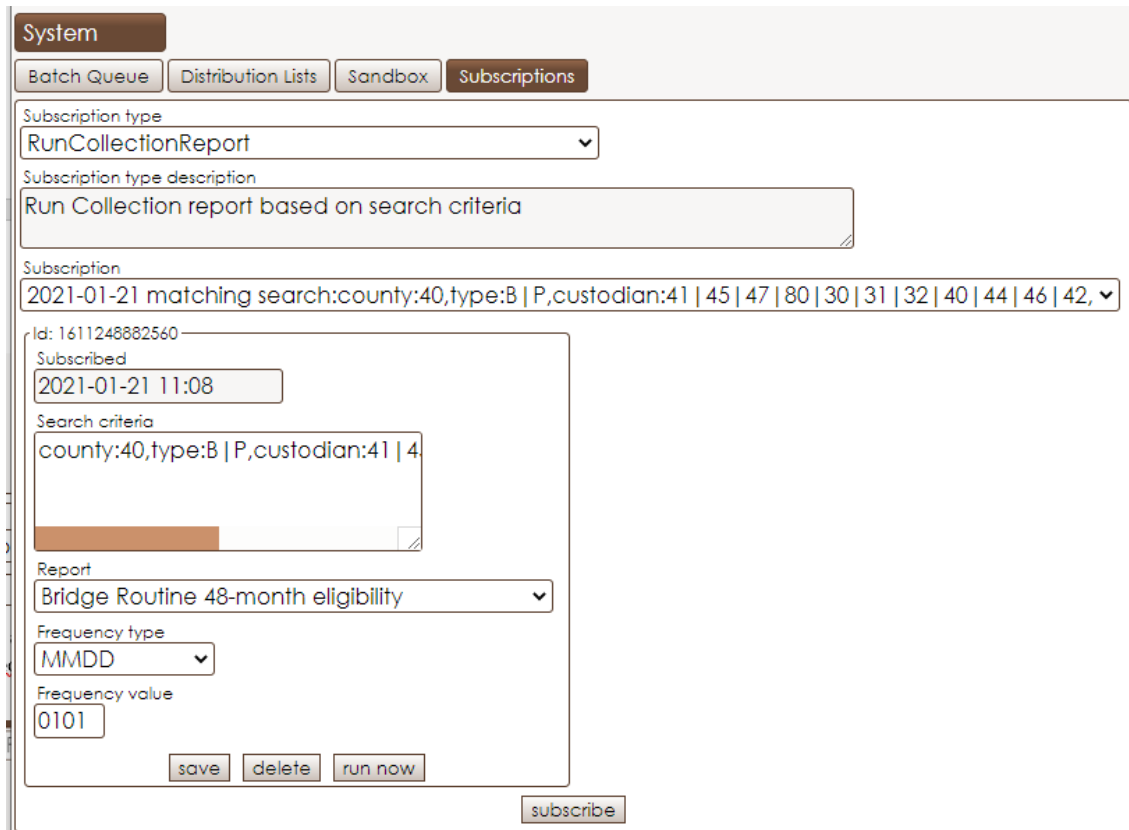
- See the “Eligibility Report” section for an example of the spreadsheet generated.

Subscribing to a report of eligible bridges

- 1) Follow steps 1-4 in “Generating a list of eligible bridges” section to create a collection of bridges.
- 2) In order to subscribe to the report and receive it on a defined interval, go to Tools > System > Subscriptions and select “RunCollectionReport” from the “Subscription type” dropdown. Click “subscribe”.



- 3) Select “Bridge Routine 48-month eligibility” or “UWDive 72-month eligibility” from the “Report” dropdown. Select the frequency you want to receive the report on from the “Frequency type” dropdown and enter a frequency value. Click “save”. Clicking “run now” will run the report now. When finished, click “subscribe”.



- 4) Be aware that the subscription report includes the bridges selected at the time the report was created. Any new structures are not automatically added in the future. Therefore, you should recreate the report occasionally in order to add new bridges (and remove bridges no longer in service). Because bridges need two inspections to be eligible for extended frequencies, you may want to consider updating it every two years. This only needs to be done to see bridges that become eligible for extended frequencies; bridges that are no longer eligible automatically have the frequency updated in HSIS.

Eligibility Report

The spreadsheet generated has multiple tabs. One tab lists eligible bridges and one lists ineligible bridges. The following image shows the eligible bridges tab. The bridge number is shown in column A, the inspection frequency the bridge is currently set at is shown in column B, and other data about the bridge is in columns C through I. Column B can be reviewed for bridges that are not on an extended frequency but are eligible for it.

	A	B	C	D	E	F	G	H	I
1	StructureID	Current Frequency	Latest Routine	Feature On	Feature Under	Owner	Custodian	County	Municipality
2	B-40-017		24 06/02/20 'R','SIA','UWP'	STH 38-CHASE AVE	KINNICKINNIC RIVER	CITY	CITY-CONNECTING ST	Milwaukee(40)	C-Milwaukee(40251)
3	B-40-026		24 06/03/20 'R','SIA'	OAK CREEK PARKWAY	OAK CREEK	COUNTY	COUNTY	Milwaukee(40)	C-South Milwaukee(40282)
4	B-40-032		24 04/23/20 'R','SIA'	CTH U, S 76 STREET	BR ROOT RIVER	COUNTY	COUNTY	Milwaukee(40)	C-Franklin(40226)

*Eligible structures list.*

The ineligible tab lists all bridges in the search that are not eligible for extended inspection frequency. The data shown is the same as the eligible tab, with the addition of column J. Column J displays one reason why the bridge is ineligible for an extended inspection frequency. The bridge may be ineligible for reasons in addition to the one listed.

	A	B	C	D	E	F	G	H	I	J
1	StructureID	Current Frequency	Latest Routine	Feature On	Feature Under	Owner	Custodian	County	Municipality	Disqualified by (at least)
2	B-40-005		24 09/15/20 'R','SIA'	CHERRY ST	CP RAILROAD	CITY	CITY	Milwaukee(40)	C-Milwaukee	insufficient inventoryLoadRating(HS19)
3	B-40-007		24 06/02/20 'R','SIA'	W LAYTON AVE	BR KINNICKINNIC RIVER	CITY	CITY	Milwaukee(40)	C-Milwaukee	insufficient inventoryLoadRating(HS15)

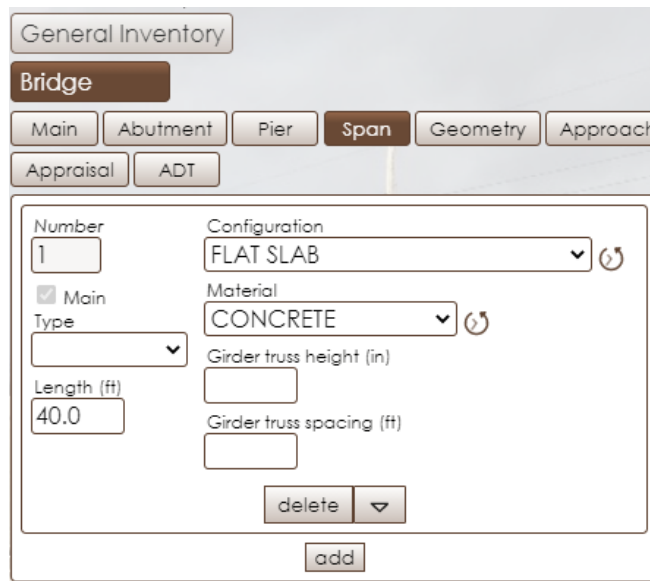
*Ineligible structures list.*



## Inspection Completion Disabled – Slabs and Decks

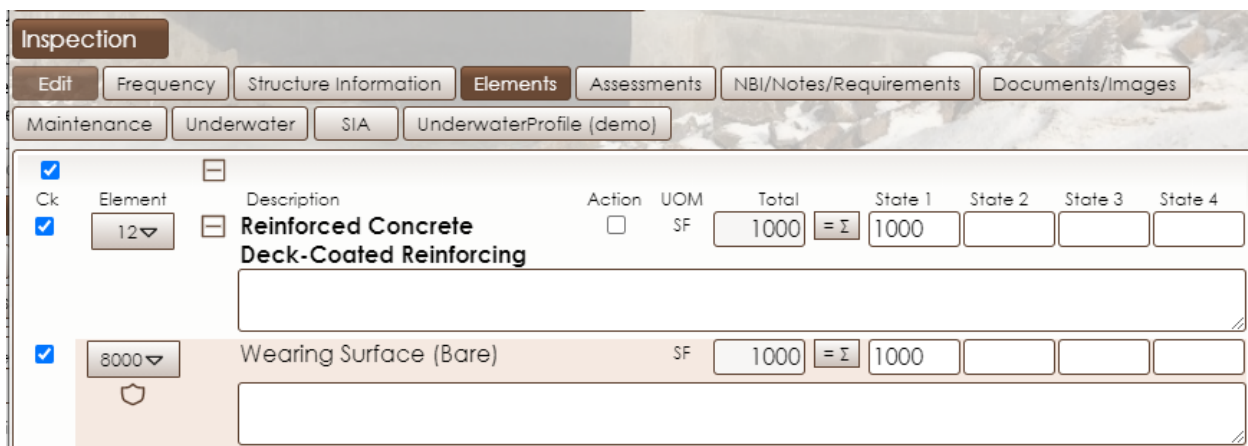
Code was added to compare deck and slab element usage in the inspection against what is defined on the span tab. If the inspection and span tab do not agree, one will need to be corrected before the inspection can be completed. If the HSIS span tab needs editing, please contact me.

The images below show an example of a slab being defined in HSIS, the deck element being used in the inspection, and the complete disabled reason that appears when this occurs. If the bridge is a deck girder structure, please contact me to get HSIS updated. If the bridge is a slab structure, the inspection needs to have the inspection updated to use the slab element instead of the deck element. We tried making the checks accommodating to various situations (a flat slab used adjacent to a box culvert to lengthen it), but there likely will be cases that are flagged. Please contact me to resolve these issues.



The screenshot shows the 'Span' tab configuration in HSIS. The 'Number' field is set to 1. The 'Configuration' dropdown is set to 'FLAT SLAB'. The 'Material' dropdown is set to 'CONCRETE'. The 'Length (ft)' field is set to 40.0. There are 'delete' and 'add' buttons at the bottom of the configuration panel.

*Span tab showing flat slab configuration.*



The screenshot shows the 'Inspection' tab with the 'Elements' sub-tab selected. A table lists inspection elements. Element 12, 'Reinforced Concrete Deck-Coated Reinforcing', is selected. The table also shows element 8000, 'Wearing Surface (Bare)'. The 'Total' column for both elements is 1000 SF.

Ck	Element	Description	Action	UOM	Total	State 1	State 2	State 3	State 4
<input checked="" type="checkbox"/>	12	<b>Reinforced Concrete Deck-Coated Reinforcing</b>	<input type="checkbox"/>	SF	1000	1000			
<input checked="" type="checkbox"/>	8000	Wearing Surface (Bare)		SF	1000	1000			

*Inspection tab showing element 12 reinforced concrete deck being used.*

Inspection complete disabled

Reason

deck element(12) found, but bridge has only spans with slab configuration

*Inspection complete disabled reason for mismatch in slab and deck usage.*

Existing inspections that were found to have incorrectly coded the deck or slab element were updated with this release. The data was updated in the database; the inspection pdf available in HSIS was not updated. The element recorded during the last inspection will still be shown in the pdf. The changed element and all associated notes, quantities, and defects will appear on the next inspection and in any field inspections generated. If you have questions about any of this, please contact me.

### **Wearing surface defect 3210 recommended values from deck evaluation activity**

If a deck evaluation activity that includes infrared scan or chaining data has been entered in HSIS, recommended values for defect 3210 will be displayed in future inspections. Please refer to the April 2020 release notes for more information on this.

With this update to HSIS, the construction history is checked for rehabilitation work prior to recommending values for defect 3210. If rehabilitation work such as redeck, overlay, or superstructure replacement has occurred after the date of the last deck evaluation activity in HSIS, recommended values based on the deck evaluation will not be shown in the inspection. It is assumed any defects were repaired with the rehabilitation project. The inspector should still enter quantities for any defects observed during the inspection.

### **Emergency Vehicle Ratings**

Information about emergency vehicles can be found in the [BOS Maintenance December 2020 Technical Bulletin](#) and [here](#). Emergency vehicle ratings will be displayed on the Capacity tab in HSIS. Ratings cannot be edited by inspectors. Emergency vehicle ratings are in the process of being added to HSIS.

The screenshot shows the 'Capacity' tab in the HSIS software. The interface includes a navigation bar with tabs for 'Main', 'Abutment', 'Pier', 'Span', 'Geometry', 'Approach', 'Sufficiency', and 'Capacity'. Below the navigation bar are sub-tabs for 'Hydraulic', 'Expansion Joint', 'Appraisal', and 'ADT'. The main content area is divided into two sections. The left section, titled 'Design load rating', contains input fields for 'Design load rating' (set to 'H15'), 'Inventory load rating (HSnn | RFn.nn)' (set to 'HS14'), and 'Operating load rating (HSnn | RFn.nn)' (set to 'HS20'). There is also a 'Load posting' field. The right section, titled 'Emergency Vehicle', contains a 'Load' field (set to 'Posted'), a checked checkbox for 'Interstate or within 1 mile', and a 'Weight Limit (tons)' table. The table has columns for 'Single', 'Tandem', and 'Gross' with values 16, 22, and 31 respectively.

### **Rating Tab**

A new "rating" tab has been added to HSIS. It is located under Bridge > Rating and will be visible once populated with new data. Inspectors are not able to edit data on this tab. Going forward, information on ratings for legal and posting vehicles will be viewable here. Current ratings can still be found on the "Capacity" tab.