



**UPDATE 2017**



**The application formerly known as**





**August 1, 2014**

**HDOT Launches BrM Website**

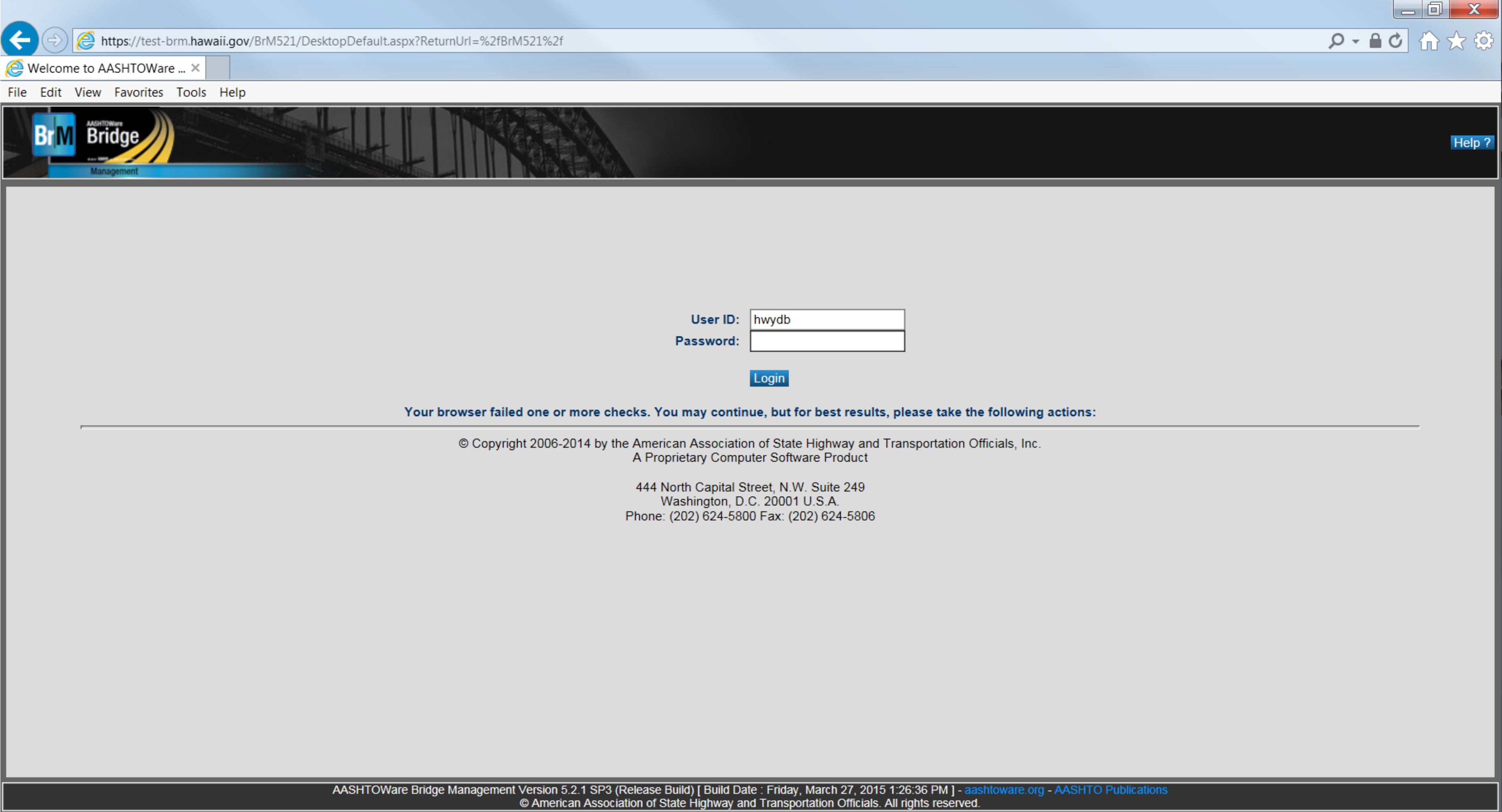
**July 15, 2015**

**BrM Website goes live on the internet**

# **The Future**

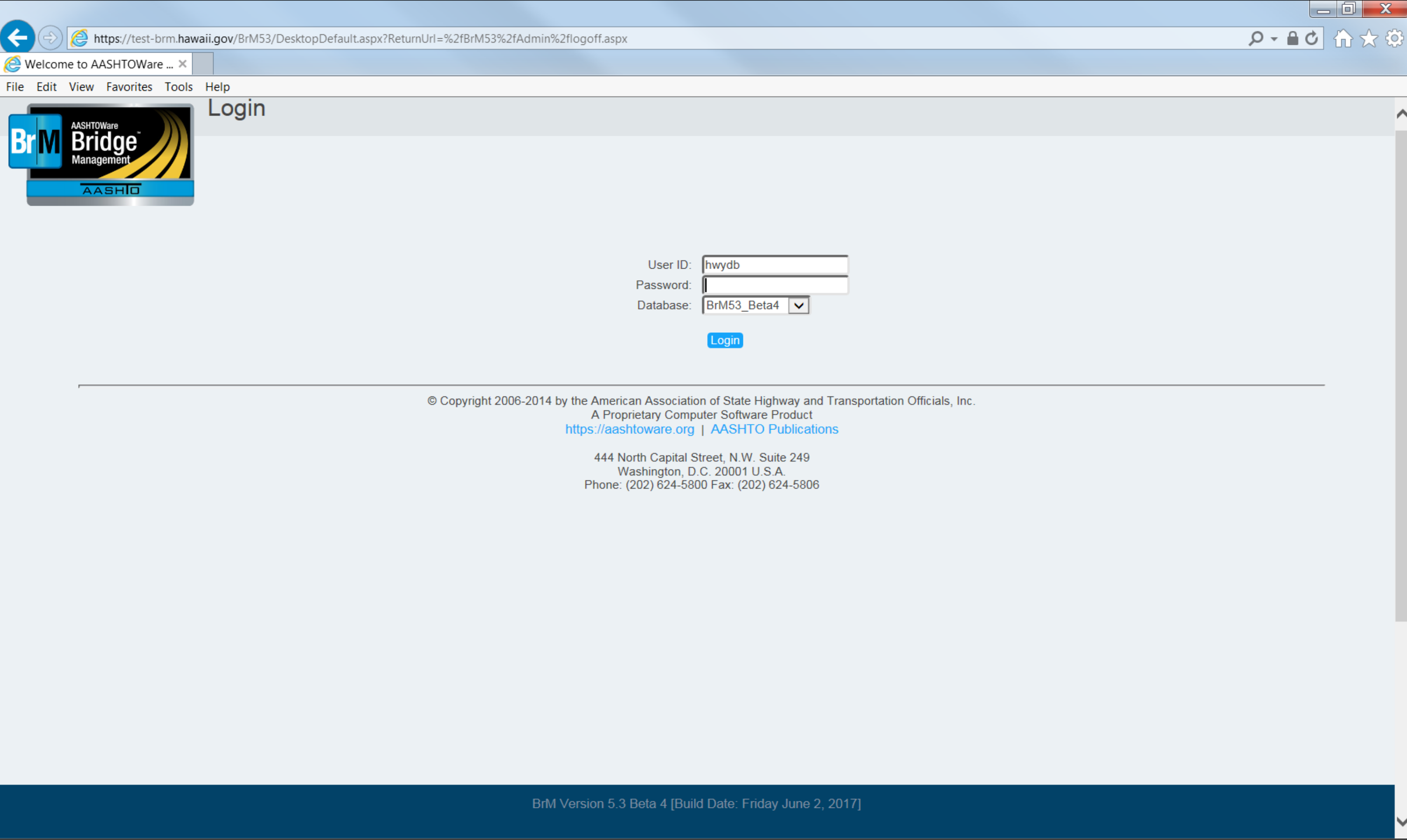
**New Version of BrM Launches October 2017**

**Old   *vs*   New**

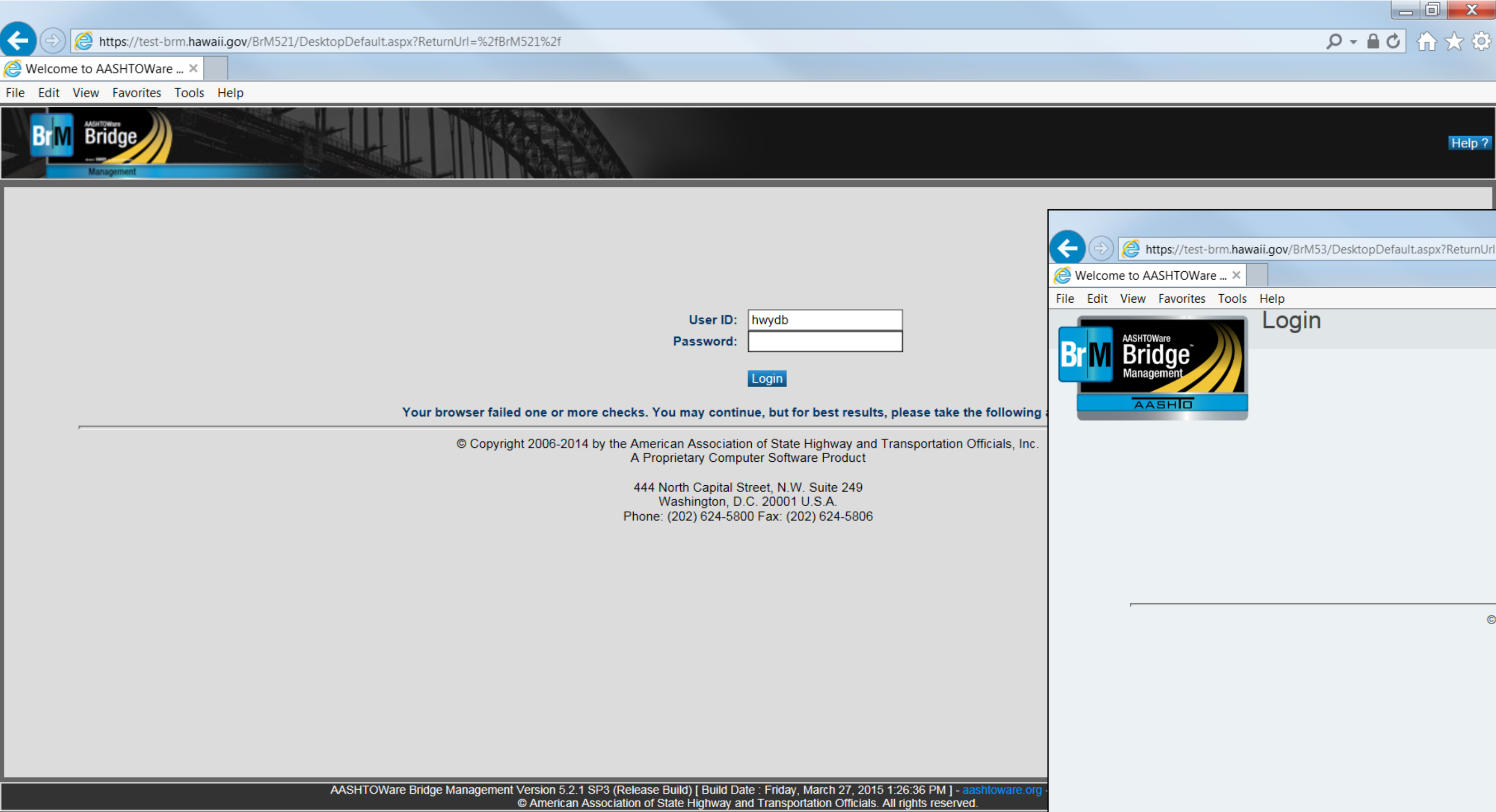


Old

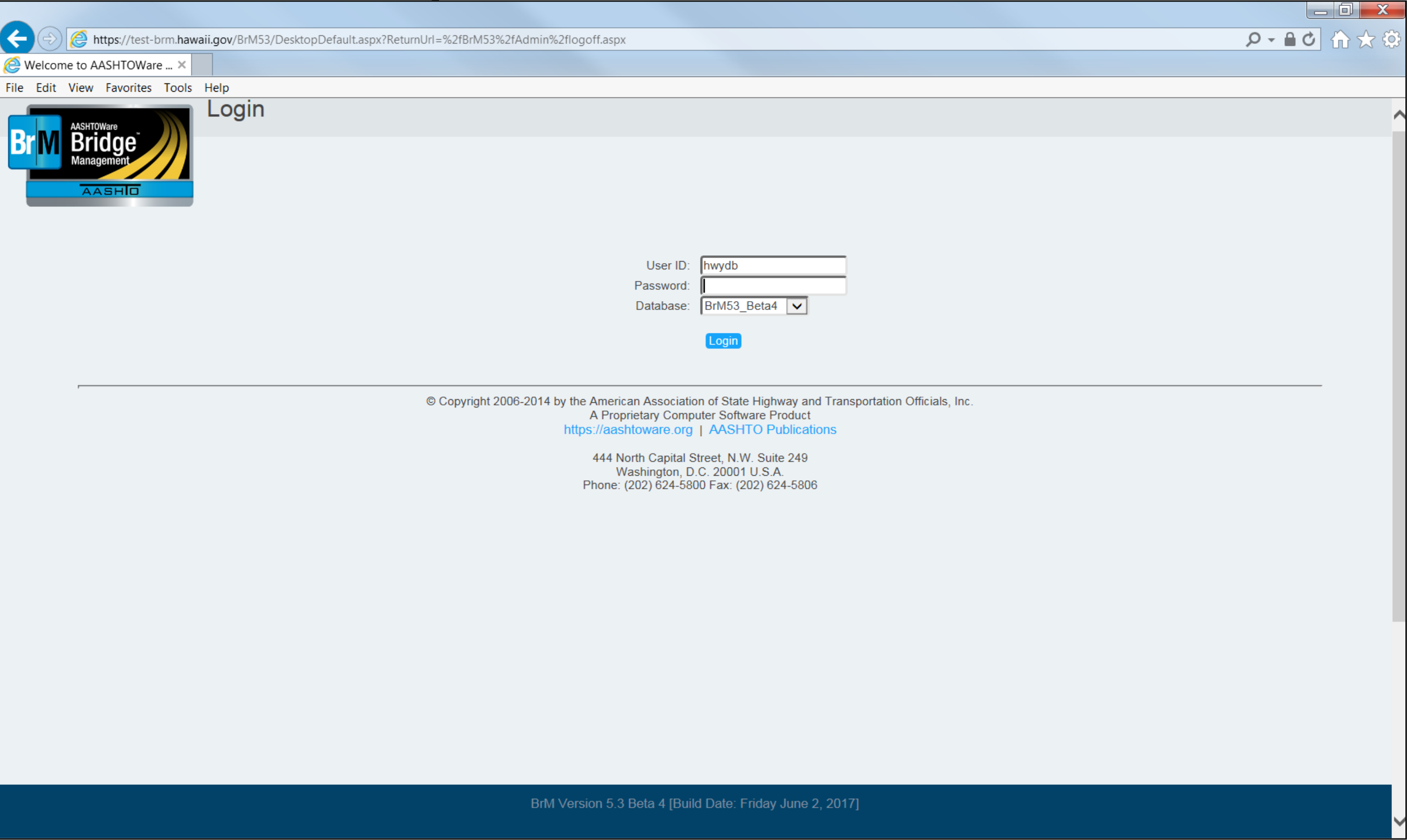




New



Old



New

←

→

https://test-brm.hawaii.gov/BrM521/bridges/BridgeList.aspx?tabid=7&taskid=1

🔍 🔒 ↻

Welcome to AASHTOWare AA...

Bridge List View Page

🏠 ★ ⚙️

File Edit View Favorites Tools Help

BrM

AASHTOWare

Bridge

Management

Welcome: **hwy-db USER**  
Database: **BrM\_Input\_Test**  
[Help ?](#) [Account](#) [LogOut](#)

Menu

View List

Select All

Unselect All

Select Page

Unselect Page

Just Selected

Apply Grid Settings

Reset Grid Settings

Printable View

Manage Layouts

Manage Filters

New Inspection

Suff Rate

Validate

Bridges Reports Inspection

Filter: All State Bridges Layout: Default Jump to Bridge:

	Bridge ID	District	County	Facility Carried	Feature Intersected	Own	Maint	Built
<input type="checkbox"/>	001000110300011	10 Hawaii	Hawaii	HI BLT RD PALANI	UNMD GLH TPL MTL CULVT	State Highway Agency	01 State Highway Agency	1984
<input type="checkbox"/>	001000110300056	10 Hawaii	Hawaii	HI BLT RD PALANI R	UNMD GLH TPL MTL CULVT	State Highway Agency	01 State Highway Agency	1984
<input type="checkbox"/>	001000110300059	10 Hawaii	Hawaii	HI BLT RD PALANI R	UNMD GLH TPL MTL CULVT	State Highway Agency	01 State Highway Agency	1984
<input type="checkbox"/>	001000110300169	10 Hawaii	Hawaii	HI BLT RD PALANI R	5 CELL CONC BOX CULVT	State Highway Agency	01 State Highway Agency	1984
<input type="checkbox"/>	001000110300242	10 Hawaii	Hawaii	HI BLT RD PALANI R	TPL MTL PL CULVT	State Highway Agency	01 State Highway Agency	1984
<input type="checkbox"/>	001000110300285	10 Hawaii	Hawaii	HI BLT RD PALANI R	TWN MTL PL CULVT	State Highway Agency	01 State Highway Agency	1984
<input type="checkbox"/>	001000110300286	10 Hawaii	Hawaii	HI BLT RD PALANI R	TWN MTL PL CULVT	State Highway Agency	01 State Highway Agency	1984
<input type="checkbox"/>	001000110306199	10 Hawaii	Hawaii	HAWAII BELT RD	RAILROAD(HONUAPO)	State Highway Agency	01 State Highway Agency	1940
<input type="checkbox"/>	001000110306489	10 Hawaii	Hawaii	HAWAII BELT RD	HILEA STRM	State Highway Agency	01 State Highway Agency	1940
<input type="checkbox"/>	001000110306600	10 Hawaii	Hawaii	HAWAII BELT RD	NINOLE STRM	State Highway Agency	01 State Highway Agency	1940
<input type="checkbox"/>	001000110306805	10 Hawaii	Hawaii	HAWAII BELT RD	PUNALUU STRM	State Highway Agency	01 State Highway Agency	1940
<input type="checkbox"/>	001000110306913	10 Hawaii	Hawaii	HAWAII BELT RD	KANENELU STRM	State Highway Agency	01 State Highway Agency	1938
<input type="checkbox"/>	001000110306986	10 Hawaii	Hawaii	HAWAII BELT RD	MOAULA STRM	State Highway Agency	01 State Highway Agency	1938
<input type="checkbox"/>	001000110306996	10 Hawaii	Hawaii	HAWAII BELT RD	HIONOMOA STRM	State Highway Agency	01 State Highway Agency	1938
<input type="checkbox"/>	001000110307126	10 Hawaii	Hawaii	HAWAII BELT RD	PAAUAU STRM	State Highway Agency	01 State Highway Agency	2002
<input type="checkbox"/>	001000110307223	10 Hawaii	Hawaii	HAWAII BELT RD	KEAIWA STRM	State Highway Agency	01 State Highway Agency	2001

⏪ ⏩ 1 2 3 4 5 6 7 8 9 10 ... ⏪ ⏩

782 items in 49 pages

Total Bridges: 1183 Matching Filter: 782 Selected: 0

AASHTOWare Bridge Management Version 5.2.1 SP3 (Release Build) [ Build Date : Friday, March 27, 2015 1:26:36 PM ] - [aashtoware.org](#) - AASHTO Publications  
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Old



←

→

https://test-brm.hawaii.gov/BrM53/bridges/BridgeList.aspx?PON\_NAV\_TAB\_GD=E8F1DBB6808D4A7393F5EE3059C0D67E&PON\_NAV\_TASK\_GD=1D8C49D39E4B42099525745EC6C69948&brkey=

🔍🔒🔄🏠★⚙️

Bridge List View Page

FileEditViewFavoritesToolsHelp

👤USER, HWY-DB

BrM

AASHTOWare

Bridge Management

AASHTO

BRIDGES

VIEW LIST

NEW INSPECTION

SUFF RATE

VALIDATE

CREATE STRUCT

COPY STRUCT

REMOVE STRUCT

REPORTS

TUNNELS

INSPECTION

GATEWAY

ANALYSIS

UTILITY VALUE

Bridges > View List

Filter: All State BridgesLayout: DefaultJump to Bridge:

	Bridge ID	District	County	Facility Carried	Feature Intersected	Own	Maint	Built
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	001000110300011	10 Hawaii	Hawaii	HI BLT RD PALANI	UNMD GLH TPL MTL CULVT	State Highway Agency	State Highway Agency	1984
<input type="checkbox"/>	001000110300056	10 Hawaii	Hawaii	HI BLT RD PALANI R	UNMD GLH TPL MTL CULVT	State Highway Agency	State Highway Agency	1984
<input type="checkbox"/>	001000110300059	10 Hawaii	Hawaii	HI BLT RD PALANI R	UNMD GLH TPL MTL CULVT	State Highway Agency	State Highway Agency	1984
<input type="checkbox"/>	001000110300169	10 Hawaii	Hawaii	HI BLT RD PALANI R	5 CELL CONC BOX CULVT	State Highway Agency	State Highway Agency	1984
<input type="checkbox"/>	001000110300242	10 Hawaii	Hawaii	HI BLT RD PALANI R	TPL MTL PL CULVT	State Highway Agency	State Highway Agency	1984
<input type="checkbox"/>	001000110300285	10 Hawaii	Hawaii	HI BLT RD PALANI R	TWN MTL PL CULVT	State Highway Agency	State Highway Agency	1984
<input type="checkbox"/>	001000110300286	10 Hawaii	Hawaii	HI BLT RD PALANI R	TWN MTL PL CULVT	State Highway Agency	State Highway Agency	1984
<input type="checkbox"/>	001000110306199	10 Hawaii	Hawaii	HAWAII BELT RD	RAILROAD(HONUAPU)	State Highway Agency	State Highway Agency	1940
<input type="checkbox"/>	001000110306489	10 Hawaii	Hawaii	HAWAII BELT RD	HILEA STRM	State Highway Agency	State Highway Agency	1940
<input type="checkbox"/>	001000110306600	10 Hawaii	Hawaii	HAWAII BELT RD	NINOLE STRM	State Highway Agency	State Highway Agency	1940
<input type="checkbox"/>	001000110306805	10 Hawaii	Hawaii	HAWAII BELT RD	PUNALUU STRM	State Highway Agency	State Highway Agency	1940
<input type="checkbox"/>	001000110306913	10 Hawaii	Hawaii	HAWAII BELT RD	KANENELU STRM	State Highway Agency	State Highway Agency	1938
<input type="checkbox"/>	001000110306986	10 Hawaii	Hawaii	HAWAII BELT RD	MOAULA STRM	State Highway Agency	State Highway Agency	1938
<input type="checkbox"/>	001000110306996	10 Hawaii	Hawaii	HAWAII BELT RD	HIONOMOA STRM	State Highway Agency	State Highway Agency	1938
<input type="checkbox"/>	001000110307126	10 Hawaii	Hawaii	HAWAII BELT RD	PAAUUA STRM	State Highway Agency	State Highway Agency	2002
<input type="checkbox"/>	001000110307223	10 Hawaii	Hawaii	HAWAII BELT RD	KEAIWA STRM	State Highway Agency	State Highway Agency	2001
<input type="checkbox"/>	001000110307277	10 Hawaii	Hawaii	HAWAII BELT RD	KAALAALA STRM	State Highway Agency	State Highway Agency	2001
<input type="checkbox"/>	001000110307307	10 Hawaii	Hawaii	HAWAII BELT RD	PIIKEA STRM	State Highway Agency	State Highway Agency	1938
<input type="checkbox"/>	001000110307348	10 Hawaii	Hawaii	HAWAII BELT ROAD	MAKAKUPU STREAM	State Highway Agency	State Highway Agency	2001
<input type="checkbox"/>	001000110307485	10 Hawaii	Hawaii	HAWAII BELT ROAD	PANAWEA STREAM	State Highway Agency	State Highway Agency	1945
<input type="checkbox"/>	001000110307506	10 Hawaii	Hawaii	HAWAII BELT ROAD	PANAWEA STREAM	State Highway Agency	State Highway Agency	1945
<input type="checkbox"/>	001000110310346	10 Hawaii	Hawaii	HAWAII BELT RD	DBL PIPE CLVT(VOLCANO)	State Highway Agency	State Highway Agency	1966
<input type="checkbox"/>	001000110310410	10 Hawaii	Hawaii	HAWAII BELT RD	TPL PIPE CLVT(VOLCANO)	State Highway Agency	State Highway Agency	1966

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Total Bridges: 1182Matching Filter: 782Selected: 0

782 items in 34 pages

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BrM Version 5.3 Beta 4 [Build Date: Friday June 2, 2017]  
<https://aashtoware.org> | [AASHTO Publications](#)

New

BrM

AASHTO  
Bridge  
Management

Welcome: hwy-db USER  
Database: BrM\_Input\_Test  
[Help ?](#) [Account](#) [LogOut](#)

Menu

View List

Select All

Unselect All

Select Page

Unselect Page

Just Selected

Apply Grid Settings

Reset Grid Settings

Printable View

Manage Layouts

Manage Filters

New Inspection

Suff Rate

Validate

Bridges

Reports

Inspection

Filter: All State Bridges

Layout: Default

Bridge ID	District	County	Facility Carried	Feature Intersected
<input type="checkbox"/> 001000110300011	10 Hawaii	Hawaii	HI BLT RD PALANI	UNMD GLH TPL MT CULVT
<input type="checkbox"/> 001000110300056	10 Hawaii	Hawaii	HI BLT RD PALANI R	UNMD GLH TPL MT CULVT
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<input type="checkbox"/> 001000110300169	10 Hawaii	Hawaii	HI BLT RD PALANI R	5 CELL CONC BOX C
<input type="checkbox"/> 001000110300242	10 Hawaii	Hawaii	HI BLT RD PALANI R	TPL MTL PL CULVT
<input type="checkbox"/> 001000110300285	10 Hawaii	Hawaii	HI BLT RD PALANI R	TWN MTL PL CULVT
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<input type="checkbox"/> 001000110306489	10 Hawaii	Hawaii	HAWAII BELT RD	HILEA STRM
<input type="checkbox"/> 001000110306600	10 Hawaii	Hawaii	HAWAII BELT RD	NINOLE STRM
<input type="checkbox"/> 001000110306805	10 Hawaii	Hawaii	HAWAII BELT RD	PUNALUU STRM
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<input type="checkbox"/> 001000110306996	10 Hawaii	Hawaii	HAWAII BELT RD	HIONOMOA STRM
<input type="checkbox"/> 001000110307126	10 Hawaii	Hawaii	HAWAII BELT RD	PAAUUAU STRM
<input type="checkbox"/> 001000110307223	10 Hawaii	Hawaii	HAWAII BELT RD	KEAIIWA STRM

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Total Bridges: 1183

Matching Filter: 782

AASHTOWare Bridge Management Version 5.2.1 SP3 (Release Build) [ Build Date : Friday, March 27, 2015 1:26:36 PM ] - aas

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Bridge List View Page

File Edit View Favorites Tools Help

USER, HWY-DB

BrM

AASHTO  
Bridge  
Management

Bridges > View List

Filter: All State Bridges

Layout: Default

Jump to Bridge:

Bridge ID	District	County	Facility Carried	Feature Intersected	Own	Maint	Built
<input type="checkbox"/> 001000110300011	10 Hawaii	Hawaii	HI BLT RD PALANI	UNMD GLH TPL MTL CULVT	State Highway Agency	State Highway Agency	1984
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<input type="checkbox"/> 001000110310346	10 Hawaii	Hawaii	HAWAII BELT RD	DBL PIPE CLVT(VOLCANO)	State Highway Agency	State Highway Agency	1966
<input type="checkbox"/> 001000110310410	10 Hawaii	Hawaii	HAWAII BELT RD	TPL PIPE CLVT(VOLCANO)	State Highway Agency	State Highway Agency	1966

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Total Bridges: 1182

Matching Filter: 782

782 items in 34 pages

Selected: 0

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BrM Version 5.3 Beta 4 [Build Date: Friday June 2, 2017]

<https://aashtoware.org> | [AASHTO Publications](#)

Old

New



Browser window showing the AASHTOware Bridge Management application interface. The URL is <https://test-brm.hawaii.gov/BrM521/bridges/newinspection.a>.

Menu options: View List, Manage Layouts, Manage Filters, New Inspection, Suff Rate, Validate.

Navigation tabs: Bridges, Reports, Inspection.

Previous inspections for Bridge 003000830300036:

	Key	Date	Type	Inspector	Control Group
<input checked="" type="radio"/>	KXKY	5/17/2016	Regular NBI	rluster (58)	-1
<input type="radio"/>	MZVP	5/8/2014	Regular NBI	Unknown User (3)	-1
<input type="radio"/>	WHXE	5/21/2012	Regular NBI	Unknown User (4)	-1
<input type="radio"/>	ISYF	5/12/2010	Regular NBI	Unknown User (3)	-1
<input type="radio"/>	MZYR	9/18/2008	Regular NBI	Pontis (1)	-1
<input type="radio"/>	POFB	9/13/2006	Regular NBI	Pontis (1)	-1

Create New Inspection form:

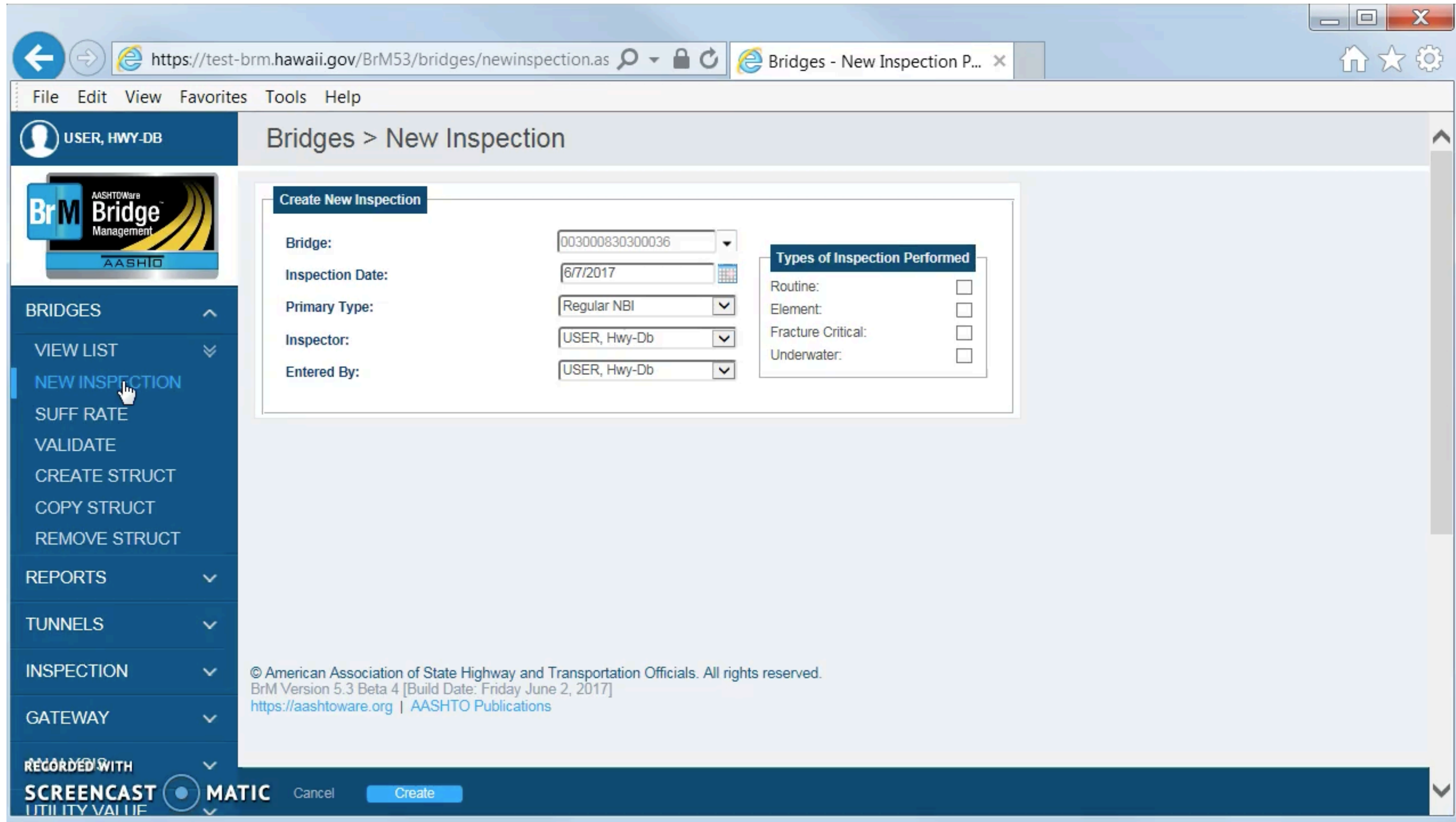
Primary Type: Regular NBI (dropdown)  
Duplicate Previous: ☒  
Create (button) Cancel (button)

Checkboxes:  
National Bridge Inventory: ☒  
Element Inspection: ☒  
Fracture Critical: ☐  
Underwater: ☐  
Other Special: ☐

RECORDED WITH SCREENCAST MATIC

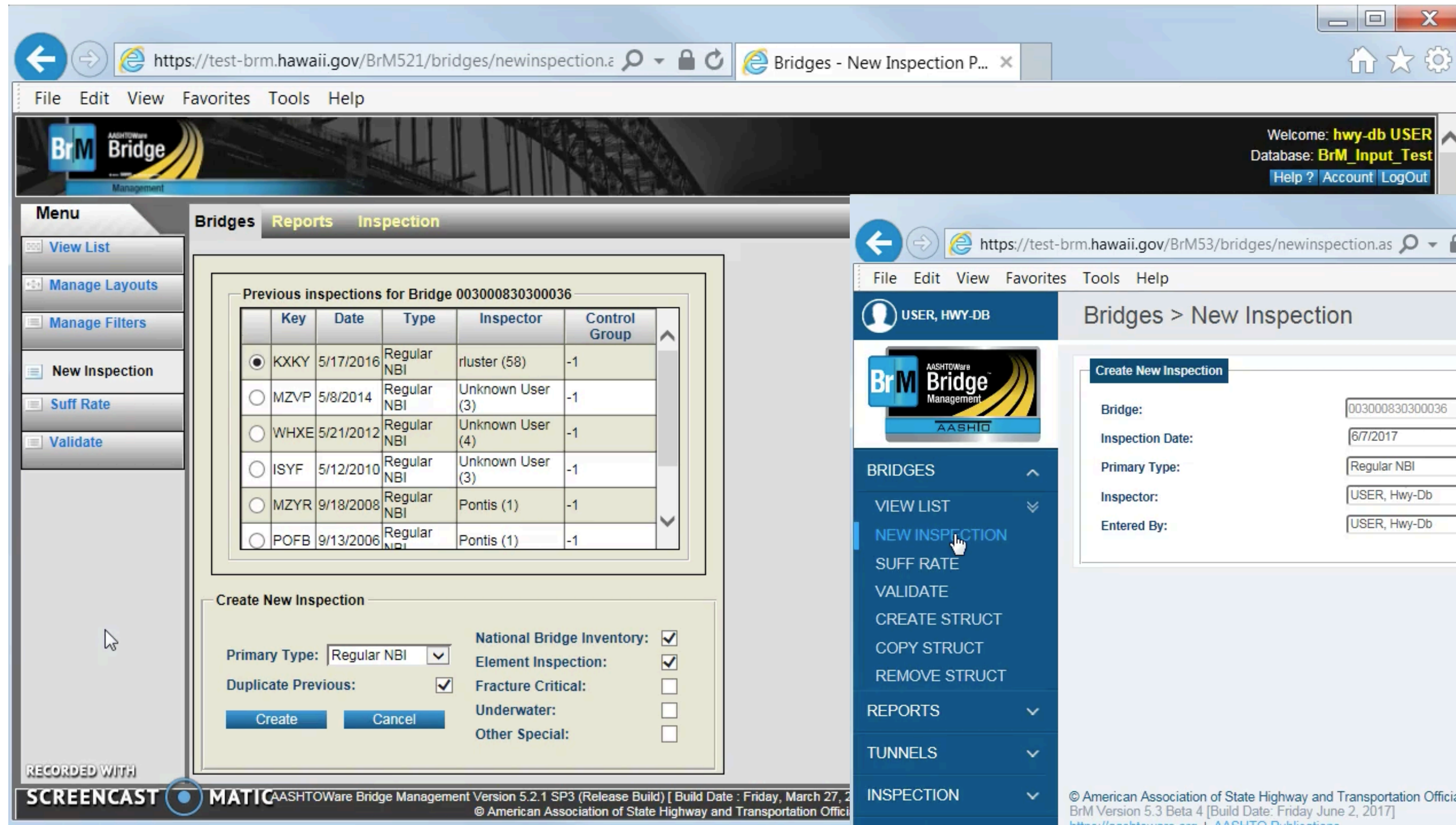
AASHTOWare Bridge Management Version 5.2.1 SP3 (Release Build) [ Build Date : Friday, March 27, 2015 1:26:36 PM ] - [aashtoware.org](http://aashtoware.org) - AASHTO Publications  
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Old

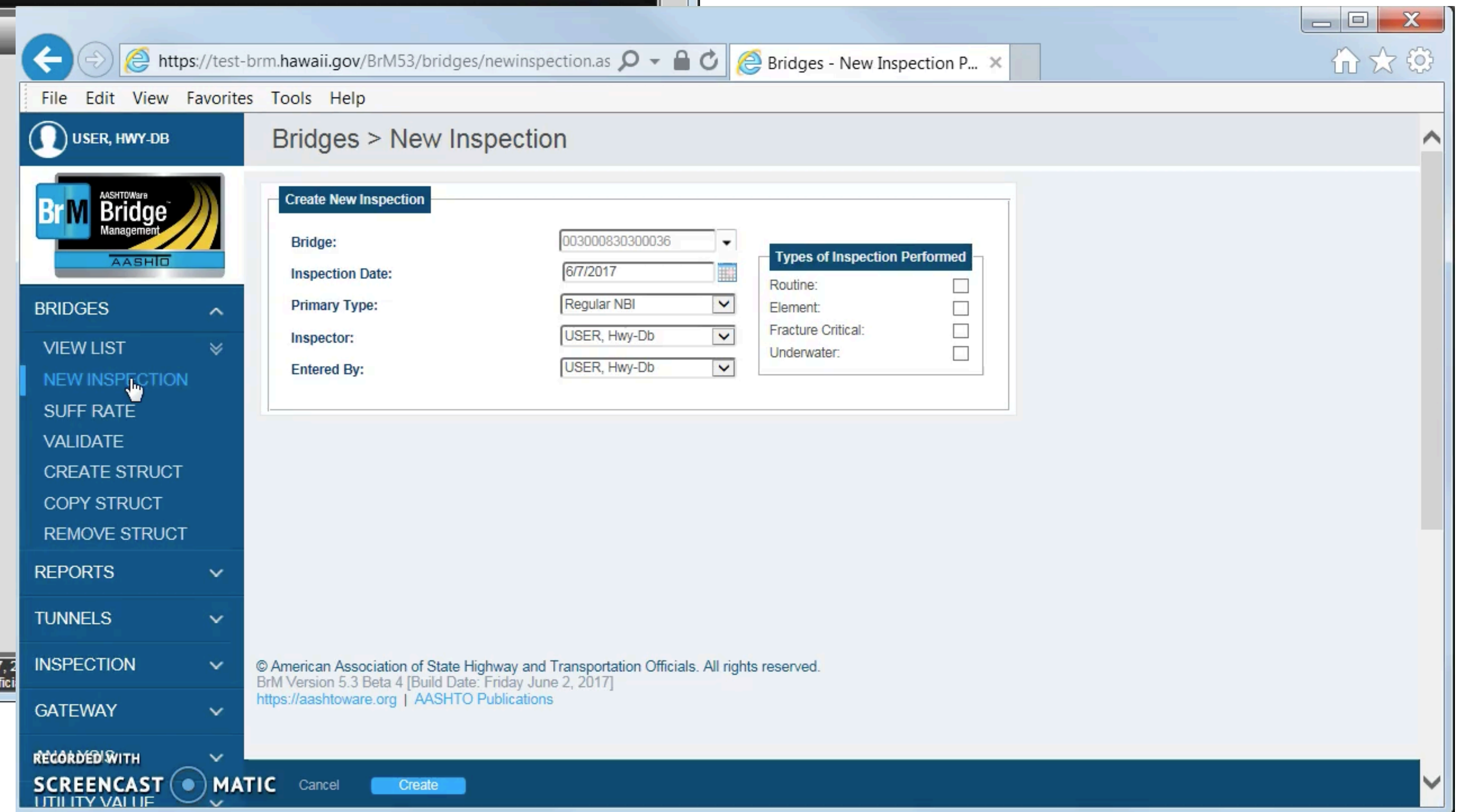


# New





Old



New

←

→

https://test-brm.hawaii.gov/BrM521/inspection/condition.aspx?tabindex=2&tabid=4&taskid=1

🔍

🔒

🔄

Inspection - Condition Page

FileEditViewFavoritesToolsHelp

Menu

Condition

Appraisal

Inventory

Schedule

Work

Multimedia

Assessments

Other Insp Items

HDOT Multimedia

Bridges

Reports

Inspection

Bridge003000830300036Facility Carried (007): KAM HWYInspection: 2016-05-17 (KXKY)Type: Regular NBI

Metric

English

Condition Ratings

Deck (058):7 Good

Superstructure (059):7 Good

Substructure (060):7 Good

Channel (061):7 Minor Damage

Culvert (062):N N/A (NBI)

Waterway (071):9 Above Desirable

Unrepaired Spalls:2.000 (SF)

Validate

Calculate SR

Element Conditions

- All Structures -

Quantity

Percent

Show Last CoRe Insp

AASHTO Bridge Elements

Add Defect

Add Protective Sys

Add New Element

Edit Element

Elem	Str. Unit	Env	Description	Quantity	Units	Qty. 1	Qty. 2	Qty. 3	Qty. 4
12	1	Ben./low (1)	Re Concrete Deck	7280.000	sq.ft	6846.000	434.000	0.000	0.000
109	1	Ben./low (1)	Pre Opn Conc Girder/Beam	910.000	ft	910.000	0.000	0.000	0.000
215	1	Ben./low (1)	Re Conc Abutment	116.000	ft	90.944	25.056	0.000	0.000
310	1	Ben./low (1)	Elastomeric Bearing	14.000	each	14.000	0.000	0.000	0.000
313	1	Ben./low (1)	Fixed Bearing	14.000	each	14.000	0.000	0.000	0.000
331	1	Ben./low (1)	Re Conc Bridge Railing	300.000	ft	300.000	0.000	0.000	0.000
333	1	Ben./low (1)	Other Bridge Railing	260.000	ft	214.000	46.000	0.000	0.000

Str. Unit: 1

Elem: 12 Re Concrete Deck

Env: Ben./low (1)

Map cracking throughout deck - nominal.

Notes:

States: No Condition S

Inspection Comparison

Inspection Notes

Overall condition has not changed. AC separating at approach deck ends. Minor map/directional cracking throughout deck. GRP settling along curtain/abutment ends. Homeless embedded under bridge between girders. Photopholtaic cell panels missing from stream volume monitoring system.

Old



Inspection - HDOT Inspe

Secure | https://test-brm.hawaii.gov/BrM53/inspection/form.aspx?PON\_NAV\_TAB\_GD=93BF0A013A44409A827DE494933532EE&PON\_NAV\_TASK\_GD=47EAE350A6244B3C958FD17A2E2C78B2

BrM BrM523Test BrM53Beta BrM Sharepoint Pontis Support DOTCMS YouTube Capital One Citibank Chase Best Buy Wells Fargo USAA HSFCU Board of Water HECO Craigslist

SECTION, BRIDGE

Bridge: 009003800500206 Facility Carried (007): KUIHELANI HIGHWAY Inspection: 2015-04-22 (ZFGE) Type: Regular NBI Metric English

BrM AASHTOWare Bridge Management

BRIDGES  
REPORTS  
TUNNELS  
ADMIN  
INSPECTION  
CONDITION  
HDOT INSPECTION  
APPRAISAL  
INVENTORY  
SCHEDULE  
WORK  
MULTIMEDIA  
ASSESSMENTS  
LOAD RATINGS  
ELEMENT CONDITION RATINGS  
OTHER INSP ITEMS  
HDOT MULTIMEDIA  
CROSS SECTIONS  
GATEWAY  
ANALYSIS  
PROJECTS  
PROGRAMS

Inspection > HDOT Inspection

Traffic Safety Features

Item 36A: Bridge Railings:  
Item 36B: Transitions:  
Item 36C: Approach Guardrail:  
Item 36D: Approach Guardrail Ends:

Traffic Safety Features Notes

(36B) Guardrail transition anchor bolt nut not fully engaged at upstream Kihei end post

Element Conditions

Hide Elem Inspection Details

Element: Elem # or Elem Desc Struct. Unit: All Env.: All Clear Filters Quantity Percent Add Element

Elem.	Str. Unit.	Env.	Element Description	Tot. Qty.	Units	Qty1	Qty2	Qty3	Qty4
12	1	Ben./low (1)	Re Concrete Deck	2397	sq. ft	2,182.000	215	0	0
<div>Element Manual: Notes: Collapse Notes DEFECT NO. 1080: 60 sq. ft. of circular sound patches in top of bridge deck along shoulders in CS 2. DEFECT NO. 1120: 40 sq. ft. of efflorescence on bridge deck soffit in CS 2. DEFECT NO. 1130: 115 sq. ft. of unsealed moderate transverse and longitudinal width cracks spaced randomly in top of bridge deck in CS 2. 40 sq. ft. of insignificant transverse width cracks spaced randomly in bridge deck soffit in CS 1 which coincides with DEFECT NO. 1120 in CS 2.</div>									
1080	1		Delamination/Spall/Patched Area	60	sq. ft	0.000	60	0	0
1120	1		Efflorescence/Rust Staining	40	sq. ft	0.000	40	0	0
1130	1		Cracking (RC and Other)	115	sq. ft	0.000	115	0	0
109	1	Ben./low (1)	Pre Opn Conc Girder/Beam	359	ft	359.000	0	0	0
215	1	Ben./low (1)	Re Conc Abutment	165	ft	165.000	0	0	0
302	1	Ben./low (1)	Compressn Joint Seal	122	ft	52.000	70	0	0
310	1	Ben./low (1)	Elastomeric Bearing	12	each	12.000	0	0	0
321	1	Ben./low (1)	Re Conc Approach Slab	1593	sq. ft	1,593.000	0	0	0

Status: New Review Needed Approved By: USER, lwy-m Cancel Save Save & Close Delete Inspection

New



# **Introducing the New Element Condition Screen**

# We want less of this!

- Condition Grid 5.2.1

- Speed

- Scrolling

- Condition Grid 5.3

- The Features
  - Layout
  - Elements
  - Key Nav

- Summary

Bridge

Facility Carried (007): SPARKMAN DR

Inspection:

Type: Regular NBI

☐ Metric ☒ English

Inspection > Condition

Superstructure (059):

Culvert (062):

Calculate SR

Substructure (060):

Waterway (071):

Calculate NBI

Element Conditions

- All Structures -

☒ Quantity ☐ Percent

AASHTO Bridge Elements

Add New Element

>	Elem	Str. Unit	Env	Description	Quantity	Units	Qty. 1	Qty. 2	Qty. 3	Qty. 4	
▼	12	1	Ben. (1)	Re Concrete Deck	<input type="text" value="2988"/>	sq.ft	<input type="text" value="2988.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	✕
	510	1	Shield	Wearing Surfaces	<input type="text" value="2988"/>	sq.ft	<input type="text" value="2978.000"/>	<input type="text" value="10.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	✕
>	16	1	Ben. (1)	Re Conc Top Flange	<input type="text" value="6710"/>	sq.ft	<input type="text" value="6710.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	✕
>	109	1	Ben. (1)	Pre Opn Conc Girder/Beam	<input type="text" value="1006"/>	ft	<input type="text" value="853.000"/>	<input type="text" value="41.000"/>	<input type="text" value="112.000"/>	<input type="text" value="0.000"/>	✕
	110	1	Ben. (1)	Re Conc Opn Girder/Beam	<input type="text" value="561"/>	ft	<input type="text" value="561.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	✕
	215	1	Ben. (1)	Re Conc Abutment	<input type="text" value="235"/>	ft	<input type="text" value="235.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	✕
	225	1	Ben. (1)	Steel Pile	<input type="text" value="32"/>	(EA)	<input type="text" value="32.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	✕
	234	1	Ben. (1)	Re Conc Pier Cap	<input type="text" value="181"/>	ft	<input type="text" value="181.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	✕
	310	1	Ben. (1)	Elastomeric Bearing	<input type="text" value="36"/>	each	<input type="text" value="36.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	✕
	331	1	Ben. (1)	Re Conc Bridge Railing	<input type="text" value="197"/>	ft	<input type="text" value="197.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	✕

- Condition Grid 5.2.1
- Speed
- Scrolling
- Condition Grid 5.3
- The Features
  - Layout
  - Elements
  - Key Nav
- Summary

Element Conditions

- All Structures -

Quantity

Percent

Show Last CoRe Insp

AASHTO Bridge Elements

Add DefectAdd Protective SysAdd New ElementEdit Element

Elem	Str. Unit	Env	Description	Quantity	Units	Qty. 1	Qty. 2	Qty. 3	Qty. 4	
> 12	1	Ben./low (1)	Re Concrete Deck	7280.000	sq.ft	6846.000	434.000	0.000	0.000	✕
109	1	Ben./low (1)	Pre Opn Conc Girder/Beam	910.000	ft	910.000	0.000	0.000	0.000	✕
> 215	1	Ben./low (1)	Re Conc Abutment	116.000	ft	90.944	25.056	0.000	0.000	✕
310	1	Ben./low (1)	Elastomeric Bearing	14.000	each	14.000	0.000	0.000	0.000	✕
313	1	Ben./low (1)	Fixed Bearing	14.000	each	14.000	0.000	0.000	0.000	✕
> 331	1	Ben./low (1)	Re Conc Bridge Railing	300.000	ft	300.000	0.000	0.000	0.000	✕
333	1	Ben./low (1)	Other Bridge Railing	260.000	ft	214.000	46.000	0.000	0.000	✕

Str. Unit: 1

Elem: 12 Re Concrete Deck

Env: Ben./low (1)

Notes:

Map cracking throughout deck - nominal.

States: No Condition S

Inspection Comparison

Inspection Notes

Overall condition has not changed. AC separating at approach deck ends. Minor map/directional cracking throughout deck. GRP setting along curtain/abutment ends. Homeless embedded under bridge between girders. Photopholtaic cell panels missing from stream volume monitoring system.

- **Summary**

USER, HWY-DB
Bridge: 
Facility Carried (007): KAM HWY
Inspection: 
Type: Regular NBI
☐ Metric ☒ English

---

AASHTO  
Bridge Management  
AASHTO

## Inspection > Condition

**Condition Ratings**

Deck (058): <input type="text" value="7 Good"/>	Channel (061): <input type="text" value="7 Minor Damage"/>	<input type="button" value="Validate"/>
Superstructure (059): <input type="text" value="7 Good"/>	Culvert (062): <input type="text" value="N N/A (NBI)"/>	<input type="button" value="Calculate SR"/>
Substructure (060): <input type="text" value="7 Good"/>	Waterway (071): <input type="text" value="9 Above Desirable"/>	NBI Converter Profile: <input type="text" value="BrM Default"/>
Unrepaired Spalls: <input type="text" value="2.000"/> (SF)		<input type="button" value="Calculate NBI"/>

---

**Element Conditions**  
[Hide Elem Inspection Details](#)  

Element: 
Struct. Unit.: 
Env.:

☒ Quantity
☐ Percent

Elem.	Str. Unit.	Env.	Element Description	Tot. Qty.	Units	Qty1	Qty2	Qty3	Qty4	
12	1	Ben./low (1)	Re Concrete Deck	<input type="text" value="7280"/>	sq.ft	6,846.000	<input type="text" value="434"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	
Element Manual: Notes: <a href="#">Collapse Notes</a> <div style="border: 1px solid #ccc; padding: 5px; min-height: 40px;">Map cracking throughout deck - nominal.</div>										
			Concrete Cracking	<input type="text" value="7280"/>	sq.ft	6,846.000	<input type="text" value="434"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	
109	1	Ben./low (1)	Pre Opn Conc Girder/Beam	<input type="text" value="910"/>	ft	910.000	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	
215	1	Ben./low (1)	Re Conc Abutment	<input type="text" value="116"/>	ft	90.900	<input type="text" value="25.1"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	
310	1	Ben./low (1)	Elastomeric Bearing	<input type="text" value="14"/>	each	14.000	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	
313	1	Ben./low (1)	Fixed Bearing	<input type="text" value="14"/>	each	14.000	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	
331	1	Ben./low (1)	Re Conc Bridge Railing	<input type="text" value="300"/>	ft	300.000	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	
333	1	Ben./low (1)	Other Bridge Railing	<input type="text" value="260"/>	ft	214.000	<input type="text" value="46"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	

---

**Inspection Notes**

Overall condition has not changed. AC separating at approach deck ends. Minor map/directional cracking throughout deck. GRP settling along cutain/abutment ends. Homeless embedded under bridge between girders. Photopholtaic cell panels missing from stream volume monitoring system.

Status:  ☐ Review Needed    Approved By: Luster, Richard



- Condition Grid 5.2.1
- Speed
- Scrolling
- Condition Grid 5.3
- The Features
  - Layout
  - Elements
  - Key Nav
- Summary

Inspection > Condition

Superstructure (059): 7 Good

Culvert (062): N N/A (NBI)

Calculate SR

Substructure (060): 7 Good

Waterway (071): 7 Above Minimum

Calculate NBI

Element Conditions

Hide Elem Inspection Details

Arrow Key Grid Navigation Help

Element: Elem # or Elem Desc

Struct. Unit.: All

Env.: All

Clear Filters

Quantity

Percent

Add Element

▶	Elem. ▲	Str. Unit. ▲	Env.	Element Description	Tot. Qty.	Units	Qty1	Qty2	Qty3	Qty4			
▶	12	1	Ben. (1)	Re Concrete Deck	2988	sq.ft	2,988.000	0	0	0	🛡️	⚡	✖
▶	16	1	Ben. (1)	Re Conc Top Flange	6710	sq.ft	6,710.000	0	0	0	🛡️	⚡	✖
▶	109	1	Ben. (1)	Pre Opn Conc Girder/Beam	1006	ft	853.000	41	112	0	🛡️	⚡	✖
	110	1	Ben. (1)	Re Conc Opn Girder/Beam	561	ft	561.000	0	0	0	🛡️	⚡	✖
	215	1	Ben. (1)	Re Conc Abutment	235	ft	235.000	0	0	0	🛡️	⚡	✖
	225	1	Ben. (1)	Steel Pile	32	(EA)	32.000	0	0	0	🛡️	⚡	✖
	234	1	Ben. (1)	Re Conc Pier Cap	181	ft	181.000	0	0	0	🛡️	⚡	✖
	310	1			36	each	36.000	0	0	0	🛡️	⚡	✖
	331	1			197	ft	197.000	0	0	0	🛡️	⚡	✖

Inspection Notes

CHANNEL MINOR BANK EROSION DECK SEE NARRATIVE SUPER SEE NARRATIVE SUB SEE NARRATIVE

Improved Search

CS1 doesn't imply edit



- Condition Grid 5.2.1

- Speed

- Scrolling

- Condition Grid 5.3

- The Features

- Layout
- Elements
- Key Nav

- Summary

Inspection > Condition

Element Conditions

[Hide Elem Inspection Details](#)

Element:  Struct. Unit.:

☒ Quantity ☐ Percent

Add Element








▼ Elem. ▲	Str. Unit. ▲	Env.		Units	Qty1	Qty2	Qty3	Qty4			
12	1	Ben. (1)		ft	2,988.000	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>			
510	1		Wearing Surfaces	<input type="text" value="2988"/> sq.ft	2,978.000	<input type="text" value="10"/>	<input type="text" value="0"/>	<input type="text" value="0"/>			
Element Manual:											
Notes: <a href="#">Small potholes near middle joint on the Northeast side....[edit]</a>											
16	1	Ben. (1)	Re Conc Top Flange	<input type="text" value="6710"/> sq.ft	6,710.000	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>			
510	1		Wearing Surfaces	<input type="text" value="6710"/> sq.ft	6,700.000	<input type="text" value="10"/>	<input type="text" value="0"/>	<input type="text" value="0"/>			
109	1	Ben. (1)	Pre Opn Conc Girder/Beam	<input type="text" value="1006"/> ft	853.000	<input type="text" value="41"/>	<input type="text" value="112"/>	<input type="text" value="0"/>			
1110	1		Cracking (PSC)	<input type="text" value="140"/> ft	0.000	<input type="text" value="40"/>	<input type="text" value="100"/>	<input type="text" value="0"/>			
1120	1		Efflorescence/Rust Staining	<input type="text" value="13"/> ft	0.000	<input type="text" value="1"/>	<input type="text" value="12"/>	<input type="text" value="0"/>			
110	1	Ben. (1)	Re Conc Opn Girder/Beam	<input type="text" value="561"/> ft	561.000	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>			
215	1	Ben. (1)	Re Conc Abutment			<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>			
225	1	Ben. (1)	Steel Pile			<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>			
234	1	Ben. (1)	Re Conc Pier Cap			<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>			
310	1	Ben. (1)	Elastomeric Bearing			<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>			

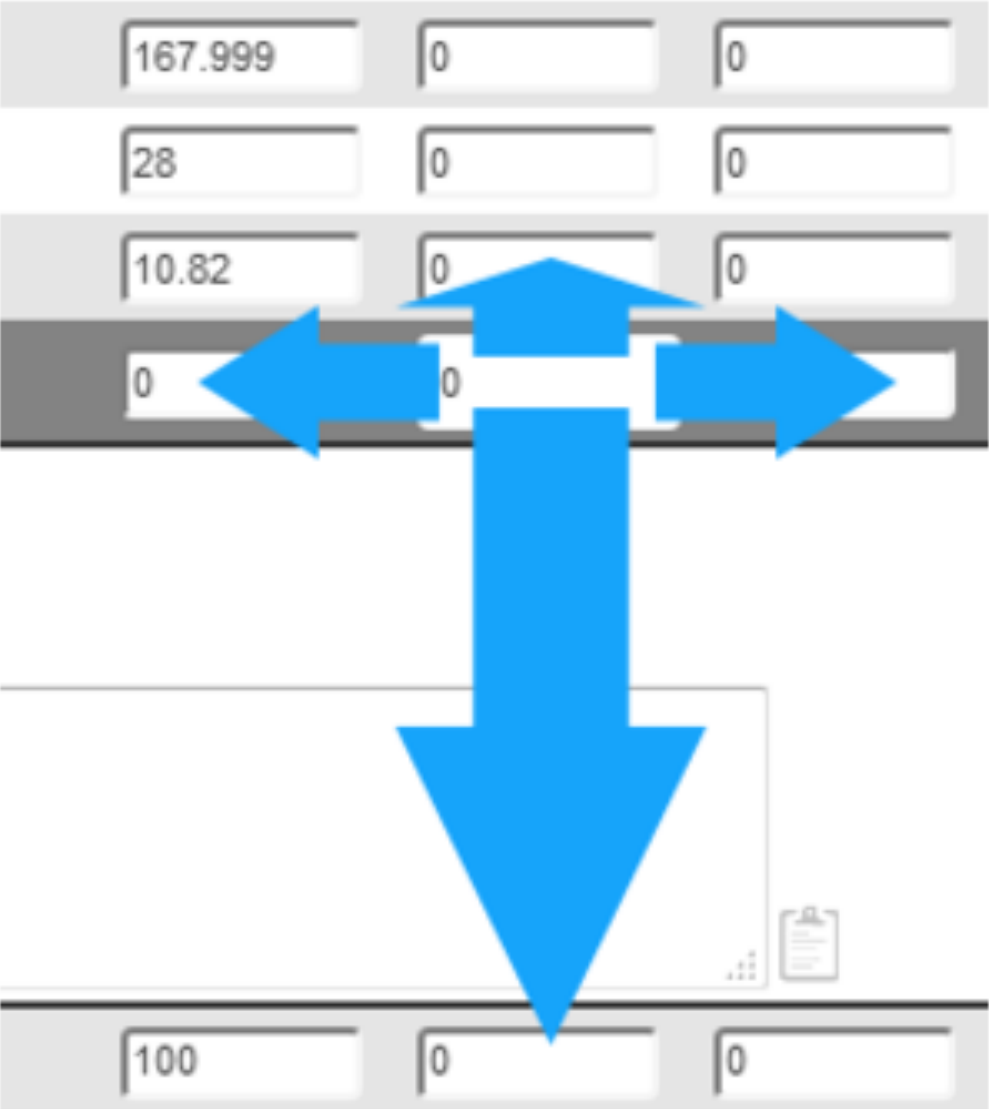
No scrolling for notes.

No scrolling to add defects or protective systems.

- **Condition Grid**  
5.2.1
- **Speed**
- **Scrolling**
- **Condition Grid**  
5.3
- **The Features**
  - **Layout**
  - **Elements**
  - **Key Nav**
- **Summary**

Keyboard Instructions

- The Element Condition Grid can now be navigated with the arrow keys on your keyboard, as long as a Quantity or Percent field is currently selected.
- Pressing  will move the cursor to the Quantity or Percent field directly to the left of the currently selected field.
- Pressing  will move the cursor to the Quantity or Percent field directly to the right of the currently selected field.
- Pressing  will select the Element Inspection directly above the currently selected Element Inspection.
- Pressing  will select the Element Inspection directly below the currently selected Element Inspection.
- Pressing  will expand or collapse the Child Element Inspections of the currently selected parent.
- Pressing  +  will expand or collapse all of the Element Inspections in the grid.



Close

- Condition Grid 5.2.1
- Speed
- Scrolling
- Condition Grid 5.3
- The Features
  - Layout
  - Elements
  - Key Nav
- Summary

## In Summary:

- **Less spinning wheel of death (faster)**
- **Less scrolling for defects**
- **Less scrolling for notes**
- **Less confusion over CS1**
- **Arrow key navigation**

# Data Quality

# Data Quality

12	0	Ben./low (1)	Re Concrete Deck	1496	sq.ft	1496.000	0.000	0.000	0.000	X
110	0	Ben./low (1)	Re Conc Opn Girder/Beam	187	ft	185.000	2.000	0.000	0.000	X
205	0	Ben./low (1)	Re Conc Column	6	each	6.000	0.000	0.000	0.000	X
> 215	0	Ben./low (1)	Re Conc Abutment	16	ft	15.000	0.000	1.000	0.000	X
301	0	Ben./low (1)	Pourable Joint Seal	24	ft	16.000	8.000	0.000	0.000	X
321	0	Ben./low (1)	Re Conc Approach Slab	10753	sq.ft	0.000	10753.000	0.000	0.000	X
> 330	0	Ben./low (1)	Metal Bridge Railing	1	ft	1.000	0.000	0.000	0.000	X

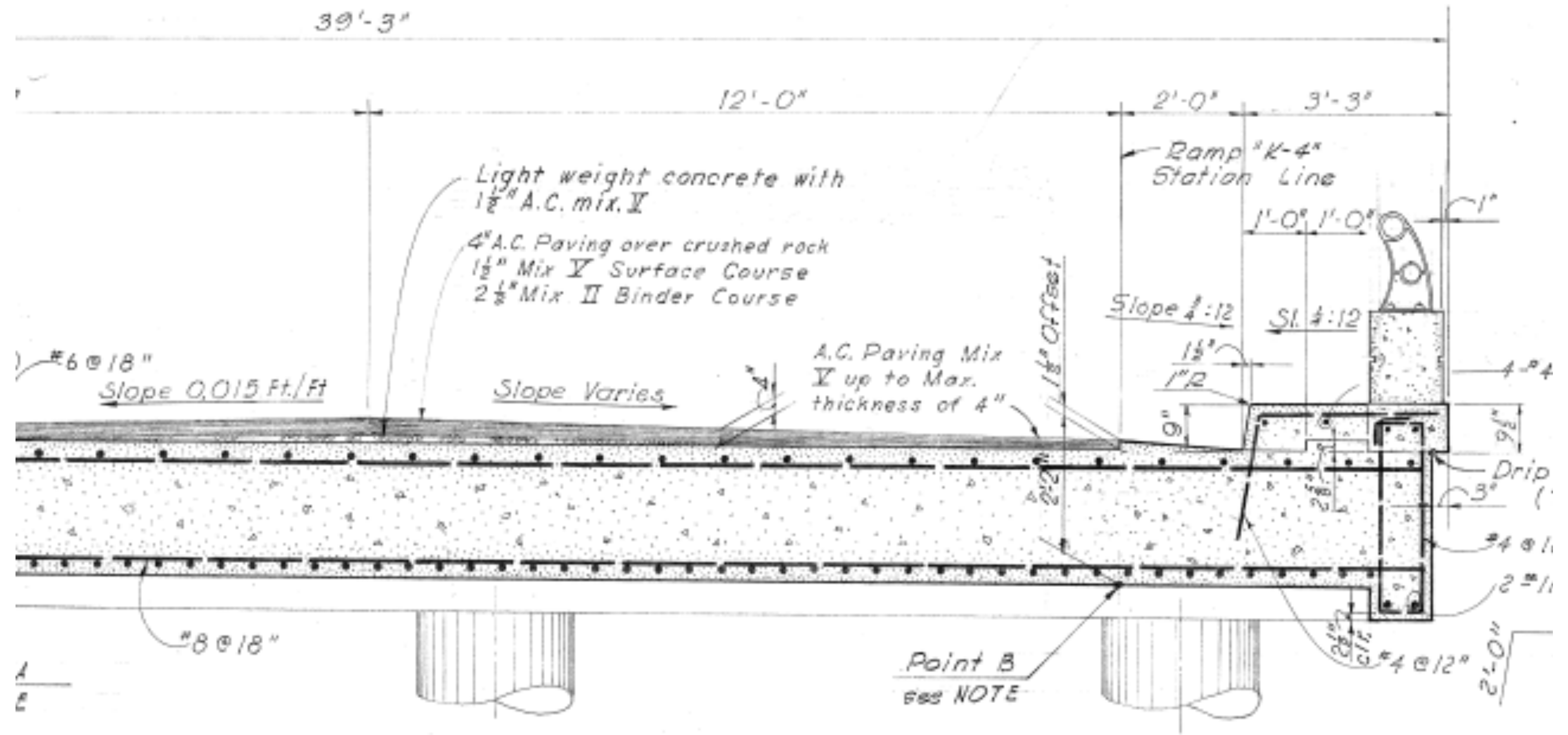
## Inspection Notes



Heavy settling occurring at N.W. & S.E. sidewalk slabs. Cover plates over utility channel heaving.  
New traffic cameras mounted on exiting ends of bridge, EB and WB.  
Missing cover plate at electrical junction box. Wires exposed.



# Bridge As-Built Section



NOTE: Slope of concrete slab shall be a

# New BrM

Elem.	Str. Unit.	Env.	Element Description	Tot. Qty.	Units	Qty1	Qty2	Qty3	Qty4			
12	0	Ben./low (1)	Re Concrete Deck	1496	sq.ft	1,496.000	0	0	0			
<div> <div>Element Manual: </div> <div>Click for link to Element Manual</div> </div>												
Notes: Heavy settling occurring at N.W. & S.E. sidewalk slabs. Cover plates over utility channel heaving. New traffic cameras mounted on exiting ends of br...[edit]												
2370	0		Metal Deterioration or Damage	16	sq.ft	16.000	0	0	0		Par-child	
7360			Settlement	100	sq.ft	100.000	0	0	0		Par-child	
110	0	Ben./low (1)	Re Conc Opn Girder/Beam	187	ft	184.900	2.1	0	0			
205	0	Ben./low (1)	Re Conc Opn Girder/Beam					0	0			
215	0	Ben./low (1)	Re Conc Opn Girder/Beam					1	0			
1080	0		Delamination/Spall/Patched Area	8	ft	8.000	0	0	0			
301	0	Ben./low (1)	Pourable Joint Seal	24	ft	16.000	8	0	0			
321	0	Ben./low (1)	Re Conc Approach Slab	10753.1	sq.ft	0.000	10753.1	0	0			
330	0	Ben./low (1)	Metal Bridge Railing	1	ft	1.000	0	0	0			
515	0		Steel Protective Coating	10753.1	sq.ft	10,753.100	0	0	0			

## Inspection Notes



# NBE Manual: Reinforced Concrete Deck

SECTION 3: DETAILED ELEMENT DESCRIPTIONS

2015 INTERIM REVISIONS TO THE AASHTO GUIDE MANUAL  
FOR BRIDGE ELEMENT INSPECTION, FIRST EDITION

SECTION 3: DETAILED ELEMENT DESCRIPTIONS

Revise Article 3.1.1 as follows:

3.1.1—Element 12—Reinforced Concrete Deck

Description: All reinforced concrete bridge decks regardless of the wearing surface or protection systems used.

Classification: NBE

Units of Measurement: ft²

Quantity Calculation: Area of the deck from edge to edge, including any median areas and accounting for any flares or ramps present.

Condition State Definitions

Defects	Condition States			
	1	2	3	4
	GOOD	FAIR	POOR	SEVERE
Delamination/Spall/ Patched Area (1080)	None.	Delaminated. Spall 1 in. or less deep or 6 in. or less in diameter. Patched area that is sound.	Spall greater than 1 in. deep or greater than 6 in. diameter. Patched area that is unsound or showing distress. Does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Exposed Rebar (1090)	None.	Present without measurable section loss.	Present with measurable section loss but does not warrant structural review.	
Efflorescence/Rust Staining (1120)	None.	Surface white without build-up or leaching without rust staining.	Heavy build-up with rust staining.	
Cracking (RC and Other) (1130)	Width less than 0.012 in. or spacing greater than 3.0 ft.  <u>Insignificant cracks or moderate-width cracks that have been sealed.</u>	Width 0.012–0.05 in. or spacing of 1.0–3.0 ft.  <u>Unsealed moderate- width cracks or unsealed moderate pattern (map) cracking.</u>	Width greater than 0.05 in. or spacing of less than 1 ft.  <u>Wide cracks or heavy pattern (map) cracking.</u>	
Abrasion/Wear (PSC/RC) (1190)	No abrasion or wearing.	Abrasion or wearing has exposed coarse aggregate but the aggregate remains secure in the concrete.	Coarse aggregate is loose or has popped out of the concrete matrix due to abrasion or wear.	

Defects	GOOD	FAIR	POOR	SEVERE
Delamination/Spall/ Patched Area (1080)	None.	Delaminated. Spall 1 in. or less deep or 6 in. or less in diameter. Patched area that is sound.	Spall greater than 1 in. deep or greater than 6 in. diameter. Patched area that is unsound or showing distress. Does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Exposed Rebar (1090)	None.	Present without measurable section loss.	Present with measurable section loss but does not warrant structural review.	
Efflorescence/Rust Staining (1120)	None.	Surface white without build-up or leaching without rust staining.	Heavy build-up with rust staining.	
Cracking (RC and Other) (1130)	Width less than 0.012 in. or spacing greater than 3.0 ft.  <u>Insignificant cracks or moderate-width cracks that have been sealed.</u>	Width 0.012–0.05 in. or spacing of 1.0–3.0 ft.  <u>Unsealed moderate- width cracks or unsealed moderate pattern (map) cracking.</u>	Width greater than 0.05 in. or spacing of less than 1 ft.  <u>Wide cracks or heavy pattern (map) cracking.</u>	
Abrasion/Wear (PSC/RC) (1190)	No abrasion or wearing.	Abrasion or wearing has exposed coarse aggregate but the aggregate remains secure in the	Coarse aggregate is loose or has popped out of the concrete matrix due to abrasion or wear	



# NBE Manual: Reinforced Conc. Approach Slab

## SECTION 3: DETAILED ELEMENT DESCRIPTIONS

## FOR BRIDGE ELEMENT INSPECTION, FIRST EDITION

Revise Article 3.9.2 as follows:

### 3.9.2—Element 321—Reinforced Concrete Approach Slab

**Description:** Those structural sections between the abutment and the approach pavement that are constructed of mild steel reinforced concrete.

**Classification:** BME

**Units of Measurement:** ft<sup>2</sup>

**Quantity Calculation:** Should include the area of the approach slab(s) from edge to edge including any median areas and accounting for any flares or ramps present.


#### Condition State Definitions

Defects	Condition States			
	1	2	3	4
	GOOD	FAIR	POOR	SEVERE
Delamination/Spall/ Patched Area (1080)	None.	Delaminated. Spall 1 in. or less deep or 6 in. or less in diameter. Patched area that is sound.	Spall greater than 1 in. deep or greater than 6 in. diameter. Patched area that is unsound or showing distress. Does not warrant structural review.	The condition warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Exposed Rebar (1090)	None.	Present without measurable section loss.	Present with measurable section loss but does not warrant structural review.	
Cracking (RC and Other) (1130)	<del>Width less than 0.012 in. or spacing greater than 3.0 ft.</del>  <u>Insignificant cracks or moderate-width cracks that have been sealed.</u>	<del>Width 0.012–0.05 in. or spacing of 1.0–3.0 ft.</del>  <u>Unsealed moderate-width cracks or unsealed moderate pattern (map) cracking.</u>	<del>Width greater than 0.05 in. or spacing of less than 1 ft.</del>  <u>Wide cracks or heavy pattern (map) cracking.</u>	
Abrasion/Wear (PSC/RC) (1190)	No abrasion or wearing.	Abrasion or wearing has exposed coarse aggregate but the aggregate remains secure in the concrete.	Coarse aggregate is loose or has popped out of the concrete matrix due to abrasion or wear.	
Settlement (4000)	None.	Exists within tolerable limits or arrested with no observed structural distress.	Exceeds tolerable limits but does not warrant structural review.	

(1090)		measurable section loss.	measurable section loss but does not warrant structural review.	warrants a structural review to determine the effect on strength or serviceability of the element or bridge; OR a structural review has been completed and the defects impact strength or serviceability of the element or bridge.
Cracking (RC and Other) (1130)	<del>Width less than 0.012 in. or spacing greater than 3.0 ft.</del>  <u>Insignificant cracks or moderate-width cracks that have been sealed.</u>	<del>Width 0.012–0.05 in. or spacing of 1.0–3.0 ft.</del>  <u>Unsealed moderate-width cracks or unsealed moderate pattern (map) cracking.</u>	<del>Width greater than 0.05 in. or spacing of less than 1 ft.</del>  <u>Wide cracks or heavy pattern (map) cracking.</u>	
Abrasion/Wear (PSC/RC) (1190)	No abrasion or wearing.	Abrasion or wearing has exposed coarse aggregate but the aggregate remains secure in the concrete.	Coarse aggregate is loose or has popped out of the concrete matrix due to abrasion or wear.	
Settlement (4000)	None.	Exists within tolerable limits or arrested with no observed structural distress.	Exceeds tolerable limits but does not warrant structural review.	



# Main Span Design in BrM

  
AASHTO  
BrM  
Bridge  
Management

BRIDGES

REPORTS

TUNNELS

ADMIN

INSPECTION

CONDITION

HDOT INSPECTION

APPRAISAL

INVENTORY

ADMIN

DESIGN

ROADS

AGENCY ITEMS

SCHEDULE

WORK

Inspection > Inventory > Design

Deck

Deck Structure Type (107): 1 Concrete-Cast-in-Place  
Deck Surface Type (108A): 6 Bituminous  
Deck Membrane Type (108B): 0 None  
Deck Protection (108C): None  
Curb Sidewalk width/Left (050A): 1.969 ft  
Curb Sidewalk width/Right (050B): 6.890 ft  
Deck Width (052): 39.370 ft  
Bridge Median (033): 0 No median  
Deck Area: 5898.623 (SF)

Structure Status

Bridge Status: 3 Active  
Bridge Lifecycle Phase: 0 Unknown

Spans

Number of Main Spans (045): 3  
Main Spans Material (043A): 2 Concrete Continuous  
Main Spans Design (043B): 01 Slab  
Number of Approach Spans (046): 0  
Approach Span Material (044A): Unknown (NBI)  
Approach Span Design (044B): Unknown (P)  
Skew (034): 5  
Structure Flared (035): 0 No flare

Length

Maximum Span Length (048): 47.900 ft  
Structure Length (049): 149.934 ft  
Total Length: 150.000 ft

Structure Units

	Key	Unit	Type	Default	Elements (#)	Description	Notes
✗	0	0	M Main	<input checked="" type="checkbox"/>	77	Default unit	
✗	1	1	Frame	<input type="checkbox"/>	0	Default unit	

# Orphaned Element Report

## Orphaned Element Analysis Report

The most common source of orphans is an improper configuration of the parent-to-child element relationship. This section of the report will list all instances where a child element is assigned to a parent element which is not configured. If it should be configured this way, go to Admin > Modeling Config > Element-Child Linking to allow the linkage. If the link is properly not configured, the structure number and inspection key of the improper linkage are listed here; fix the orphaned element on the inspection.

Element 1010 - Cracking is assigned to Element 12 - Re Concrete Deck in the following inspections. This link is not configured in this BrM instance.

Structure	Inspection	Inspection Date	Structure Unit	Environment
001210001100001	FZYU	01/14/2016	0	3
003000610000045	PCZL	10/04/2016	0	1
003000640400149	ASKF	01/14/2016	0	1
003000640400150	OMFI	01/14/2016	0	1
003000720401504	KLZG	11/07/2014	0	1
003000830300008	OTHK	05/09/2016	0	1
003000920000054	NLWS	04/14/2015	0	1
003000930300242	DLLC	03/02/2016	1	1
003000930300970	LIKD	04/19/2016	0	1
003000990401745	KION	01/06/2015	0	1
003000990402336	YVOA	04/27/2015	0	1
003000H10100320	XVPZ	03/10/2016	1	1
003000H10100537	DYRM	03/08/2016	0	1
003000H10100538	FTQF	03/01/2016	0	1
003000H10100605	ZWKF	12/16/2014	0	1
003000H10100605	NWBB	12/09/2016	0	1
003000H10100708	CWSO	12/17/2014	0	1
003000H10100775	PPJT	12/17/2014	0	1
003000H10100776	YYLV	12/17/2014	0	1
003000H10201758	EQNJ	02/25/2016	0	1
003000H10201822	JYRR	01/25/2016	0	1
003000H11100048	XHFC	03/18/2016	0	1
003000H11100677	ZUKA	11/17/2014	0	1
003000H11100677	ZGLA	11/02/2016	0	1
003000H11202269	QAHD	08/17/2015	0	1
003000H30311510	XJNW	08/18/2014	0	1
003000H30311510	MXPX	08/08/2016	0	1
003063000000155	JJYE	08/14/2014	0	1
003063000000155	IYTG	08/03/2016	0	1
003083531400155	QCCI	10/19/2015	0	1
003000001100100	1073U	11/21/2016	0	1

# **BrM Customization**



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
NATIONAL BRIDGE ELEMENT  
FINAL INSPECTION REPORT

Date of Inspection: April 22, 2015

Bridge Number: 009003800500206 Bridge Name: WAIKAPU STREAM BRIDGE (OUTBOUND)

District Maui Route No: 00380 Milepost: 4 Facility: KUIHELANI HIGHWAY

NBI ITEM 36 - TRAFFIC SAFETY FEATURES		List any maintenance work required: (ie: defects, missing bolts, collision damage, etc.)
36A	Bridge Railings	(36B) Guardrail transition anchor bolt nut not fully engaged at upstream Kihei end post
36B	Transitions	
36C	Approach Guardrail	
36D	Approach Guardrail Ends	

ELEMENT INSPECTION								
ELEM NO.	ELEMENT / DEFECT DESCRIPTION	ENV.	TOTAL QUANTITY	UNIT	CS 1 (Good)	CS 2 (Fair)	CS 3 (Poor)	CS 4 (Severe)
DEFECT								
12	Re Concrete Deck	1	2,397	sq.ft	2,182	215	0	0
1080	Delamination/Spall/Patched		60	sq.ft	0	60	0	0
1120	Efflorescence/Rust Staining		40	sq.ft	0	40	0	0
1130	Cracking (RC and Other)		115	sq.ft	0	115	0	0
DEFECT NO. 1080: 60 sq.ft. of circular sound patches in top of bridge deck along shoulders in CS 2. DEFECT NO. 1120: 40 sq. ft. of efflorescence on bridge deck soffit in CS 2. DEFECT NO. 1130: 115 sq. ft. of unsealed moderate transverse and longitudinal width cracks spaced randomly in top of bridge deck in CS 2. 40 sq. ft. of insignificant transverse width cracks spaced randomly in bridge deck soffit in CS 1 which coincides with DEFECT NO. 1120 in CS 2.								
109	Pre Opn Conc Girder/Beam	1	359	ft	359	0	0	0
DEFECT NO. 1080: 18'-0" of sound circular patches in precast girder soffits in CS 2.								
215	Re Conc Abutment	1	165	ft	165	0	0	0
ELEM NO. 215: Abutment footings not visible for inspection. Footings concealed below grade								
302	Compressn Joint Seal	1	122	ft	52	70	0	0
2350	Debris Impaction		70	ft	0	70	0	0
DEFECT NO. 2350: A total of 70'-0" of compression joint seal at Kahului and Kihei approach slabs partially filled with debris, but still allowing free movement in CS 2.								
310	Elastomeric Bearing	1	12	each	12	0	0	0
321	Re Conc Approach Slab	1	1,593	sq.ft	1,593	0	0	0
330	Metal Bridge Railing	1	76	ft	76	0	0	0
331	Re Conc Bridge Railing	1	122	ft	83	39	0	0

04/22/2015

009003800500206

1130	Cracking (RC and Other)	39	ft	0	39	0	0
DEFECT NO. 1130: A total of 39'-0" of 0.012" to 0.015" wide vertical cracks in upstream and downstream bridge parapets in CS 2.							

NBI ITEM CONDITION RATINGS			Describe defects noted during bridge inspection. Provide sketches, diagrams, and photographs where possible.
58	Deck	7	(58) Transverse and longitudinal cracks and patches in top of bridge deck. Transverse cracks with efflorescence in bridge deck soffit. (59) Sound circular patches in precast girder soffits (60) Erosion of earth embankments fronting Kahului and Kihei abutments. Erosion appears unchanged since previous July 2013 inspection
59	Superstructure	7	
60	Substructure	7	
61	Channel and Channel Protection	6	
62	Culvert	N	

NBI ITEM 93 - CRITICAL FEATURE INSPECTION		REQUIRED	FREQUENCY	CURRENT	NEXT
93A	Fracture Critical Details	N			1/1/01
93B	Underwater Inspection	N			1/1/01
93C	Other Special Inspection	N			1/1/01

OTHER FEATURES			REMARKS
Bridge Posted?	(Provide Posted limit or 'N' if not applicable)	N	
Signing for Posting Legible/Visible?	(Y or N)	N	
Riding Surface (Roughness) Rating	(3 - smooth, 2 - Avg, 1 - Poor)	2	
Bridge Requires Insp by Bridge Section	(Y or N)	N	
Applies to in-house inspectors who aren't structural engineers			

REPAIRS, IMPROVEMENTS AND RECOMMENDATIONS
List all work done to this bridge since last inspection (ie: structural repair work, cleaning, maintenance work, etc.)
None
List proposed and/or recommended work for this bridge including estimated cost (ie: structural repair work, cleaning, maintenance, etc.)
a. Provide embankment protection for abutments and monitor embankments until protection is provided (Est. Cost = \$167,000).
b. Remove graffiti from abutment walls (Maintenance Item).
c. Remove vegetation in channel under and upstream and downstream s
Other comments or observations.
1. Erosion of earth embankments fronting of both abutments and downstream Kihei end of bridge. The erosion of embankments appears unchanged from the previous 2013 bridge inspection.
2. Dense vegetation under and upstream and downstream sides of bridge sine previous July 2013 inspection

04/22/2015

009003800500206



# **New Custom HDOT Inspection Screen**



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
NATIONAL BRIDGE ELEMENT  
FINAL INSPECTION REPORT

Date of Inspection: April 22, 2015  
Bridge Number: 009003800500206 Bridge Name: WAIKAPU STREAM BRIDGE (OUTBO  
District Maui Route No: 00380 Milepost: 4 Facility: KUIHELANI HIGHWAY

NBI ITEM 36 - TRAFFIC SAFETY FEATURES		List any maintenance work required: (ie: defects, missing bolts, collision damage, etc.)
36A	Bridge Railings	(36B) Guardrail transition anchor bolt nut not fully engaged upstream Kihei end post
36B	Transitions	
36C	Approach Guardrail	
36D	Approach Guardrail Ends	

ELEMENT INSPECTION							
ELEM NO.	ELEMENT / DEFECT DESCRIPTION	ENV.	TOTAL QUANTITY	UNIT	CS 1 (Good)	CS 2 (Fair)	CS 3 (Poor)
DEFECT							
12	Re Concrete Deck	1	2,397	sq.ft	2,182	215	0
1080	Delamination/Spall/Patched		60	sq.ft	0	60	0
1120	Efflorescence/Rust Staining		40	sq.ft	0	40	0
1130	Cracking (RC and Other)		115	sq.ft	0	115	0
DEFECT NO. 1080: 60 sq.ft. of circular sound patches in top of bridge deck along shoulders in CS 2. DEFECT NO. 1120: 40 sq. ft. of efflorescence on bridge deck soffit in CS 2. DEFECT NO. 1130: 115 sq. ft. of unsealed moderate transverse and longitudinal width cracks spaced randomly in top of bridge deck in CS 2. 40 sq. ft. of insignificant transverse width cracks spaced randomly in bridge deck soffit in CS 1 which coincides with DEFECT NO. 1120 in CS 2.							
109	Pre Opn Conc Girder/Beam	1	359	ft	359	0	0
DEFECT NO. 1080: 18'-0" of sound circular patches in precast girder soffits in CS 2.							
215	Re Conc Abutment	1	165	ft	165	0	0
ELEM NO. 215: Abutment footings not visible for inspection. Footings concealed below grade							
302	Compressn Joint Seal	1	122	ft	52	70	0
2350	Debris Impaction		70	ft	0	70	0
DEFECT NO. 2350: A total of 70'-0" of compression joint seal at Kahului and Kihei approach slabs partially filled with debris, but still allowing free movement in CS 2.							
310	Elastomeric Bearing	1	12	each	12	0	0
321	Re Conc Approach Slab	1	1,593	sq.ft	1,593	0	0
330	Metal Bridge Railing	1	76	ft	76	0	0
331	Re Conc Bridge Railing	1	122	ft	83	39	0

04/22/2015

009003

## Inspection > HDOT Inspection

### Traffic Safety Features

Item 36A: Bridge Railings:  
Item 36B: Transitions:  
Item 36C: Approach Guardrail:  
Item 36D: Approach Guardrail Ends:

### Traffic Safety Features Notes



(36B) Guardrail transition anchor bolt nut not fully engaged at upstream Kihei end post

### Element Conditions

Hide Elem Inspection Details

Arrow Key G

Element: Elem # or Elem Desc Struct. Unit: All Env.: All Clear Filters ☒ Quantity ☐ Percent

Elem.	Str. Unit.	Env.	Element Description	Tot. Qty.	Units	Qty1	Qty2	Qty3	Qty4
12	1	Ben./low (1)	Re Concrete Deck	2397	sq.ft	2,182.000	215	0	0
Element Manual:									
Notes: <a href="#">Collapse Notes</a>									
DEFECT NO. 1080: 60 sq.ft. of circular sound patches in top of bridge deck along shoulders in CS 2. DEFECT NO. 1120: 40 sq. ft. of efflorescence on bridge deck soffit in CS 2. DEFECT NO. 1130: 115 sq. ft. of unsealed moderate transverse and longitudinal width cracks spaced randomly in top of bridge deck in CS 2. 40 sq. ft. of insignificant transverse width cracks spaced randomly in bridge deck soffit in CS 1 which coincides with DEFECT NO. 1120 in CS 2.									
1080	1	⚡	Delamination/Spall/Patched Area	60	sq.ft	0.000	60	0	0
1120	1	⚡	Efflorescence/Rust Staining	40	sq.ft	0.000	40	0	0
1130	1	⚡	Cracking (RC and Other)	115	sq.ft	0.000	115	0	0
109	1	Ben./low (1)	Pre Opn Conc Girder/Beam	359	ft	359.000	0	0	0
215	1	Ben./low (1)	Re Conc Abutment	165	ft	165.000	0	0	0
302	1	Ben./low (1)	Compressn Joint Seal	122	ft	52.000	70	0	0
310	1	Ben./low (1)	Elastomeric Bearing	12	each	12.000	0	0	0
321	1	Ben./low (1)	Re Conc Approach Slab	1593	sq.ft	1,593.000	0	0	0

Status: New ☒ Review Needed Approved By: USER, hwy-m Cancel Save Save & Close Delete Inspection



1130	Cracking (RC and Other)		39	ft	0	39	0	0
DEFECT NO. 1130: A total of 39'-0" of 0.012" to 0.015" wide vertical cracks in upstream and downstream bridge parapets in CS 2.								

NBI ITEM CONDITION RATINGS			Describe defects noted during bridge inspection. Provide sketches, diagrams, and photographs where possible.
58	Deck	7	(58) Transverse and longitudinal cracks and patches in top of bridge deck. Transverse cracks with efflorescence in bridge deck soffit. (59) Sound circular patches in precast girder soffits (60) Erosion of earth embankments fronting Kahului and Kihei abutments. Erosion appears unchanged since previous July 2013 inspection
59	Superstructure	7	
60	Substructure	7	
61	Channel and Channel Protection	6	
62	Culvert	N	

NBI ITEM 93 - CRITICAL FEATURE INSPECTION		REQUIRED	FREQUENCY	CURRENT	NEXT
93A	Fracture Critical Details	N			1/1/01
93B	Underwater Inspection	N			1/1/01
93C	Other Special Inspection	N			1/1/01

OTHER FEATURES			REMARKS
Bridge Posted?	(Provide Posted limit or 'N' if not applicable)	N	
Signing for Posting Legible/Visible?	(Y or N)	N	
Riding Surface (Roughness) Rating	(3 - smooth, 2 - Avg, 1 - Poor)	2	
Bridge Requires Insp by Bridge Section	(Y or N) Applies to in-house inspectors who aren't structural engineers	N	

REPAIRS, IMPROVEMENTS AND RECOMMENDATIONS
List all work done to this bridge since last inspection (ie: structural repair work, cleaning, maintenance work, etc.) None
List proposed and/or recommended work for this bridge including estimated cost (ie: structural repair work, cleaning, maintenance, etc.) a. Provide embankment protection for abutments and monitor embankments until protection is provided (Est. Cost = \$167,000). b. Remove graffiti from abutment walls (Maintenance Item). c. Remove vegetation in channel under and upstream and downstream s
Other comments or observations. 1. Erosion of earth embankments fronting of both abutments and downstream Kihei end of bridge. The erosion of embankments appears unchanged from the previous 2013 bridge inspection. 2. Dense vegetation under and upstream and downstream sides of bridge sine previous July 2013 inspection

### Inspection > HDOT Inspection

321	1	Ben./low (1)	Re Conc Approach Slab	1593	sq.ft	1,593.000	0	0	0	
330	1	Ben./low (1)	Metal Bridge Railing	76	ft	76.000	0	0	0	
331	1	Ben./low (1)	Re Conc Bridge Railing	122	ft	83.000	39	0	0	

NBI Condition Ratings		NBI Inspection Notes
Deck (058):	7 Good	(58) Transverse and longitudinal cracks and patches in top of bridge deck. Transverse cracks with efflorescence in bridge (59) Sound circular patches in precast girder soffits
Superstructure (059):	7 Good	
Substructure (060):	7 Good	
Channel (061):	6 Bank Slumping	
Culvert (062):	N N/A (NBI)	
Waterway (071):	6 Equal Minimum	

Other Features		Other Features Notes
Features	<div>Bridge Posted (Posted Limit or 'N'): N</div> <div>Sign Legible/Visible ('Y' or 'N'): 0</div> <div>Riding Surface (3 - smooth, 2 - avg, 1 - poor): 2</div> <div>Inps Required by Bridge Section ('Y' or 'N'): 0</div>	

Repairs Improvements and Recommendations
Work Done Since Last Inspection 1
Proposed and/or Recommended Work None
Comments and Observations 1. Erosion of earth embankments fronting of both abutments and downstream Kihei end of bridge. The erosion of embankments appears unchanged from the previous 2013 bridge insp 2. Dense vegetation under and upstream and downstream sides of bridge sine previous July 2013 inspection



# Old SI&A Sheet

Your Agency Name

Your Office Name  
Your Department Name

Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 001000110411925      Agency ID: 001000110411925      SR: 78.3      SD/FO: ND

IDENTIFICATION

State 1:	15 Hawaii	Struc Num 8:	001000110411925
Facility Carried 7:	HAWAII BELT RD	Location 9:	.035MI S/PALAI ST
Rte.(On/Under) 5A:	Route On Structure	Rte. Signing Prefix 5B:	2 U.S. Numbered
Level of Service 5C:	1 Mainline	Route Number 5D:	00011
Directional Suffix 5E:	1 North	% Responsibility:	0.00
SHD District 2:	10 Hawaii	County Code 3:	Hawaii
Place Code 4:		Mile Post 11:	3.280 mi
Feature Intersected 6:	PANAEWA STRM		
Latitude 16:	19° 40' 30"	Longitude 17	155° 03' 53"
Border Bridge Code 98	Unknown (P)		
Border Bridge Number 99	NA		

INSPECTION

Frequency 91:	24 months	Inspection Date 90:	5/11/2016	Next Inspection:	5/11/2018
FC Frequency 92A:		FC Inspection Date 93A:	NA	Next FC Inspection:	NA
UW Frequency 92B:		UW Inspection Date 93B:	NA	Next UW Inspection:	NA
SI Frequency 92C:		SI Date 93C:	NA	Next SI:	NA
Element Frequency:	24 months	Element Insp. Date:	5/11/2016	Next Elem. Insp.:	6/13/2018

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46	0	Number of Spans Main Unit 45:	2
2 Concrete Continuous		04 Tee Beam	
Deck Type 107:	1 Concrete-Cast-in-Place		
Wearing Surface 108A:	6 Bituminous		
Membrane 108B:	0 None		
Deck protection 108C	None		

AGE AND SERVICE

Year Built 27:	1950	Year Reconstructed 106:	1977
Type of Service on 42A	1 Highway		
Type of Service under 42B	5 Waterway		
Lanes on 28A:	4	Lanes under 28B:	0
ADT 29:	33,230	Truck ADT 109:	2%
		Year of ADT 30:	2007

GEOMETRIC DATA

Length Max Span 48:	51.84 ft	Structure Length 49:	107.94 ft
Curb/Sdwk Width L 50A	0.00 ft	Curb/Sidewalk Width R 50B	0.00 ft
Width Curb to Curb 51:	94.49 ft	Width Out to Out 52:	98.10 ft
Approach Roadway width 32: (w/ shoulders)	95.14 ft	Median 33:	2 Closed Med w/o
Deck Area:	10,591.69 sq. ft		
Skew 34:	0.00°	Structure Flared 35	0 No flare
Vertical Clearance 10	99.99 ft	Horizontal Clearance 47:	94.49 ft
Minimum Vertical Clearance Over Bridge 53:			99.99 ft
Minimum Vertical Underclearance Reference 54A			N Feature not hwy or RR
Minimum Vertical Underclearance 54B:			0.00 ft
Minimum Lateral Underclearance Reference R 55A:			N Feature not hwy or RR
Minimum Lateral Underclearance R 55:			0.00 ft
Minimum Lateral Underclearance L 56:			327.76 ft

CLASSIFICATION

Defense Highway 100:	0 Not a STRAHNET hwy	Parallel Structure 101:	No    bridge exists
Direction of Traffic 102:	1 1-way traffic	Temporary Structure 103:	Unknown (NBI)
Highway System 104:	1 On the NHS	NBIS Length 112:	Long Enough
Toll Facility 20:	3 On free road	Functional Class 26:	12 Urban Fwy/Expwy
Defense Hwy 110:	0 Not a STRAHNET hwy	Historical Significance 37	5 Not eligible for NRHP
Owner 22:	01 State Highway Agency		
Custodian 21:	01 State Highway Agency		

CONDITION

Deck 58:	7 Good	Super 59:	7 Good	Sub 60:	7 Good
Culvert 62:	N N/A (NBI)	Channel/Channel Protection 61:			7 Minor Damage

LOAD RATING AND POSTING

Inventory Rating Method 65:	2 AS Allowable Stress	Operating Rating Method 63:	2 AS Allowable Stress
Inventory Rating 66:	HS12.8	Operating Rating 64:	HS23.9
Design Load 31:	4 M 18 (H 20)	Posting 70:	5 At/Above Legal Loads
Posting Status 41:	A Open, no restriction		

APPRAISAL

Bridge Rail 36A:	1 Meets Standards	Approach Rail 36C:	1 Meets Standards
Transition 36B:	1 Meets Standards	Approach Rail Ends 36D:	1 Meets Standards
Str Evaluation 67:	4 Minimum Tolerable	Deck Geometry 68:	9 Above Desirable Crit
Underclearance, Vertical and Horizontal 69:			N Not applicable (NBI)
Waterway Adequacy 71:	7 Above Minimum	Approach Alignment 72:	8 Equal Desirable Crit
Scour Critical 113:	8 Stable Above Footing		

PROPOSED IMPROVEMENTS

Bridge Cost 94:	\$0	Type of Work 75:	38 Other Structural
Roadway Cost 95:	\$102,000	Length of Improvement 76	0.0 ft
Total Cost 96:	\$1,532,000	Future ADT 114:	39,530
Year of Cost Estimate 97	2000	Year of Future ADT 115:	2025

NAVIGATION DATA

Navigation Control 38	Permit Not Required		
Vertical Clearance 39	0.0 ft	Horizontal Clearance 40:	0.0 ft
Pier Protection 111:	Unknown (NBI)	Lift Bridge Vertical Clearance 116	

Old SI&A Sheet



State of Hawaii  
Department of Transportation  
Structure Inventory and Appraisal Sheet (English Units)

Name: PANAewa STRM Bridge No: 001000110411925 Inspection Date: 05/11/2016

IDENTIFICATION					
Rte.(On/Under)	5A:	Route On Structure	State	1:	15 Hawaii
Rte. Signing Prefix	5B:	2 U.S. Numbered Hwy	Facility Carried	7:	HAWAII BELT RD
Level of Service	5C:	1 Mainline	Place Code	4:	
Route Number	5D:	00011	SHD District	2:	10 Hawaii
Directional Suffix	5E:	1 North	Feature Intersected	6:	PANAewa STRM
Border Bridge Code	98:	Unknown (P)	County Code	3:	Hawaii
Border Bridge Number	99:	NA	Location	9:	.035MI S/PALAI ST
Mile Post	11:	3.280 mi	Latitude	16:	19° 40' 30"
Struc Num	8:	001000110411925	Longitude	17:	155° 03' 53"
INSPECTION					
Inspection Date	90:	5/11/2016	Frequency	91:	24 months
FC Inspection Date	93A:	NA	FC Frequency	92A:	
UW Inspection Date	93B:	NA	UW Frequency	92B:	
SI Date	93C:	NA	SI Frequency	92C:	
Element Insp. Date:		5/11/2016	Element Frequency:		24 months
CONDITION					
Deck	58:	7 Good	Super	59:	7 Good
Culvert	62:	N N/A (NBI)	Channel/Channel Protection	61:	7 Minor Damage
LOAD RATING AND POSTING					
Inventory Rating Method	65:	2 AS Allowable Stress	Operating Rating Method	63:	2 AS Allowable Stress
Inventory Rating	66:	23.2 TONS	Operating Rating	64:	43.0 TONS
Design Load	31:	4 M 18 (H 20)	Posting	70:	5 At/Above Legal Loads
Posting Status	41:	A Open, no restriction			
GEOMETRIC DATA					
Length Max Span	48:	51.84 ft	Structure Length	49:	107.94 ft
Width Curb to Curb	51:	94.49 ft	Curb/Sdwk Width L	50A:	0.00 ft
Approach Roadway width (w/ shoulders)	32:	95.14 ft	Curb/Sidewalk Width R	50B:	0.00 ft
Deck Area:		10,591.69 sq. ft	Width Out to Out	52:	98.10 ft
Skew	34:	0.00°	Median	33:	2 Closed Med w/o Barrier
Vertical Clearance	10:	99.99 ft	Structure Flared	35:	0 No flare
Min. Vert. Cl. Over Bridge	53:	99.99 ft	Horizontal Clearance	47:	94.49 ft
Min. Vert. Undercl. Ref.	54A:	N Feature not hwy	Min. Lat. Undercl. Ref. R	55A:	N Feature not hwy or RR
Min. Vert. Undercl.	54B:	0.00 ft	Min. Lat. Undercl. R	55:	0.00 ft
			Min. Lat. Undercl. L	56:	327.76 ft
AGE AND SERVICE					
Year Built	27:	1950	ADT	29:	33,230
Type of Service on	42A:	1 Highway	Year Reconstructed	106:	1977
Type of Service under	42B:	5 Waterway	Detour Length	19:	1.2 mi
Lanes on	28A:	4	Truck ADT	109:	2%
Lanes under	28B:	0	Year of ADT	30:	2007

New SI&A Sheet

State of Hawaii  
Department of Transportation  
Structure Inventory and Appraisal Sheet (English Units)

STRUCTURE TYPE AND MATERIALS			
Deck Type107: 1 Concrete-Cast-in-Place		Number of Spans Main Unit45: 2	
Wearing Surface108A: 6 Bituminous		Main Span Material Design43A: 2 Concrete Continuous	
Membrane108B: 0 None		Main Span Material Design43B: 04 Tee Beam	
Deck protection108C: None		Number of Approach Spans46: 0	
APPRAISAL			
Bridge Rail36A: 1 Meets Standards		Approach Rail36C: 1 Meets Standards	
Transition36B: 1 Meets Standards		Approach Rail Ends36D: 1 Meets Standards	
Str Evaluation67: 4 Minimum Tolerable		Deck Geometry68: 9 Above Desirable Crit	
Waterway Adequacy71: 7 Above Minimum		Approach Alignment72: 8 Equal Desirable Crit	
Scour Critical113: 8 Stable Above Footing		Vert. & Horiz. Undercl.69: N Not applicable (NBI)	
CLASSIFICATION			
Defense Highway100: 0 Not a STRAHNET hwy		Parallel Structure101: No    bridge exists	
Direction of Traffic102: 1 1-way traffic		Temporary Structure103: Unknown (NBI)	
Highway System104: 3 On free road		NBIS Length112: Long Enough	
Defense Hwy110: 1 On the NHS		Functional Class26: 12 Urban Fwy/Expwy	
Toll Facility20: 0 Not a STRAHNET hwy		Historical Significance37: 5 Not eligible for NRHP	
Owner22: State Highway Agency		Custodian21: State Highway Agency	
PROPOSED IMPROVEMENTS			
Bridge Cost94: \$0		Type of Work75: 38 Other Structural	
Roadway Cost95: \$102,000		Length of Improvement76: 0.0 ft	
Total Cost96: \$1,532,000		Future ADT114: 39,530	
Year of Cost Estimate97: 2000		Year of Future ADT115: 2025	
NAVIGATION DATA			
Navigation Control38: Permit Not Required		Horizontal Clearance40: 0.0 ft	
Vertical Clearance39: 0.0 ft		Lift Bridge Vert. Cl.116:	
Pier Protection111: Unknown (NBI)			

New SI&A Sheet  
page 2



Your Agency Name

Your Office Name  
Your Department Name

Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 001000110411925      Agency ID: 001000110411925      SR: 78.3      SD/FO: ND

IDENTIFICATION

State 1: 15 Hawaii      Struc Num 8: 001000110411925

Facility Carried 7: HAWAII BELT RD      Location 9: .035MI S/PALAI ST

Rte.(On/Under) 5A: Route On Structure      Rte. Signing Prefix 5B: 2 U.S. Numbered

Level of Service 5C: 1 Mainline      Route Number 5D: 00011

Directional Suffix 5E: 1 North      % Responsibility: 0.00

SHD District 2: 10 Hawaii      County Code 3: Hawaii

Place Code 4:      Mile Post 11: 3.280 mi

Feature Intersected 6: PANAUEWA STRM

Latitude 16: 19° 40' 30"      Longitude 17: 155° 03' 53"

Border Bridge Code 98: Unknown (P)

Border Bridge Number 99: NA

INSPECTION

Frequency 91: 24 months      Inspection Date 90: 5/11/2016      Next Inspection: 5/11/2018

FC Frequency 92A:      FC Inspection Date 93A: NA      Next FC Inspection: NA

UW Frequency 92B:      UW Inspection Date 93B: NA      Next UW Inspection: NA

SI Frequency 92C:      SI Date 93C: NA      Next SI: NA

Element Frequency: 24 months      Element Insp. Date: 5/11/2016      Next Elem. Insp.: 6/13/2018

CLASSIFICATION

Defense Highway 100: 0 Not a STRAHNET hwy      Parallel Structure 101: No I bridge exists

Direction of Traffic 102: 1 1-way traffic      Temporary Structure 103: Unknown (NB)

Highway System 104: 1 On the NHS      NBIS Length 112: Long Enough

Toll Facility 20: 3 On free road      Functional Class 26: 12 Urban Fwy/Expy

Defense Hwy 110: 0 Not a STRAHNET hwy      Historical Significance 37: 5 Not eligible for NRP

Owner 22: 01 State Highway Agency

Custodian 21: 01 State Highway Agency

CONDITION

Deck 58: 7 Good      Super 59: 7 Good      Sub 60: 7 Good

Culvert 62: N N/A (NB)      Channel/Channel Protection 61: 7 Minor Damage

LOAD RATING AND POSTING

Inventory Rating Method 65: 2 AS Allowable Stress      Operating Rating Method 63: 2 AS Allowable Stress

Inventory Rating 66: HS12.6      Operating Rating 64: HS23.9

Design Load 31: 4 M 18 (H 20)      Posting 70: 5 At/Above Legal Loads

Posting Status 41: A Open, no restriction

APPRAISAL

Bridge Rail 36A: 1 Meets Standards      Approach Rail 36C: 1 Meets Standards

Transition 36B: 1 Meets Standards      Approach Rail Ends 36D: 1 Meets Standards

Sr Evaluation 67: 4 Minimum Tolerable      Deck Geometry 68: 9 Above Desirable Crt

Underclearance, Vertical and Horizontal 69: N Not applicable (NB)

Waterway Adequacy 71: 7 Above Minimum      Approach Alignment 72: 8 Equal Desirable Crt

Scour Critical 113: 8 Stable Above Footing

PROPOSED IMPROVEMENTS

Bridge Cost 94: \$0      Type of Work 75: 38 Other Structural

Roadway Cost 95: \$102,000      Length of Improvement 76: 0.0 ft

Total Cost 96: \$1,532,000      Future ADT 114: 39,530

Year of Cost Estimate 97: 2000      Year of Future ADT 115: 2025

NAVIGATION DATA

Navigation Control 38: Permit Not Required

Vertical Clearance 39: 0.0 ft      Horizontal Clearance 40: 0.0 ft

Pier Protection 111: Unknown (NB)      Lift Bridge Vertical Clearance 116

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46: 0      Number of Spans Main Unit 45: 2

2 Concrete Continuous      04 Tee Beam

Deck Type 107: 1 Concrete-Cast-in-Place

Wearing Surface 108A: 6 Bituminous

Membrane 108B: 0 None

Deck protection 108C: None

AGE AND SERVICE

Year Built 27: 1950      Year Reconstructed 106: 1977

Type of Service on 42A: 1 Highway

Type of Service under 42B: 5 Waterway

Lanes on 28A: 4      Lanes under 28B: 0      Detour Length 19: 1.2 mi

ADT 29: 33,230      Truck ADT 109: 2%      Year of ADT 30: 2007

GEOMETRIC DATA

Length Max Span 48: 51.84 ft      Structure Length 49: 107.94 ft

Curb/Sdwk Width L 50A: 0.00 ft      Curb/Sidewalk Width R 50B: 0.00 ft

Width Curb to Curb 51: 94.49 ft      Width Out to Out 52: 98.10 ft

Approach Roadway width 32: (w/ shoulders) 95.14 ft      Median 33: 2 Closed Med w/o

Deck Area: 10,591.69 sq. ft

Skew 34: 0.00°      Structure Flared 35: 0 No flare

Vertical Clearance 10: 99.99 ft      Horizontal Clearance 47: 94.49 ft

Minimum Vertical Clearance Over Bridge 53: 99.99 ft

Minimum Vertical Underclearance Reference 54A: N Feature not hwy or RR

Minimum Vertical Underclearance 54B: 0.00 ft

Minimum Lateral Underclearance Reference R 55A: N Feature not hwy or RR

Minimum Lateral Underclearance R 55: 0.00 ft

Minimum Lateral Underclearance L 56: 327.76 ft

Old

State of Hawaii

Department of Transportation

Structure Inventory and Appraisal Sheet (English Units)

Name: PANAUEWA STRM

Bridge No: 001000110411925

Inspection Date: 05/11/2016

IDENTIFICATION

Rte.(On/Under) 5A: Route On Structure      State 1: 15 Hawaii

Rte. Signing Prefix 5B: 2 U.S. Numbered Hwy      Facility Carried 7: HAWAII BELT RD

Level of Service 5C: 1 Mainline      Place Code 4:

Route Number 5D: 00011      SHD District 2: 10 Hawaii

Directional Suffix 5E: 1 North      Feature Intersected 6: PANAUEWA STRM

Border Bridge Code 98: Unknown (P)      County Code 3: Hawaii

Border Bridge Number 99: NA      Location 9: .035MI S/PALAI ST

Mile Post 11: 3.280 mi      Latitude 16: 19° 40' 30"

Struc Num 8: 001000110411925      Longitude 17: 155° 03' 53"

INSPECTION

Inspection Date 90: 5/11/2016      Frequency 91: 24 months      Next Inspection: 5/11/2018

FC Inspection Date 93A: NA      FC Frequency 92A:      Next FC Inspection: NA

UW Inspection Date 93B: NA      UW Frequency 92B:      Next UW Inspection: NA

SI Date 93C: NA      SI Frequency 92C:      Next SI: NA

Element Insp. Date: 5/11/2016      Element Frequency: 24 months      Next Elem. Insp.: 6/13/2018

CONDITION

Deck 58: 7 Good      Super 59: 7 Good      Sub 60: 7 Good      SD/FO: ND

Culvert 62: N N/A (NB)      Channel/Channel Protection 61: 7 Minor Damage      SUFF RATE: 78.3

LOAD RATING AND POSTING

Inventory Rating Method 65: 2 AS Allowable Stress      Operating Rating Method 63: 2 AS Allowable Stress

Inventory Rating 66: 23.2 TONS      Operating Rating 64: 43.0 TONS

Design Load 31: 4 M 18 (H 20)      Posting 70: 5 At/Above Legal Loads

Posting Status 41: A Open, no restriction

GEOMETRIC DATA

Length Max Span 48: 51.84 ft      Structure Length 49: 107.94 ft

Width Curb to Curb 51: 94.49 ft      Curb/Sdwk Width L 50A: 0.00 ft

Approach Roadway width (w/ shoulders) 32: 95.14 ft      Curb/Sidewalk Width R 50B: 0.00 ft

Width Out to Out 52: 98.10 ft

Deck Area: 10,591.69 sq. ft      Median 33: 2 Closed Med w/o Barrier

Skew 34: 0.00°      Structure Flared 35: 0 No flare

Vertical Clearance 10: 99.99 ft      Horizontal Clearance 47: 94.49 ft

Min. Vert. Cl. Over Bridge 53: 99.99 ft      Min. Lat. Undercl. Ref. R 55A: N Feature not hwy or RR

Min. Vert. Undercl. Ref. 54A: N Feature not hwy      Min. Lat. Undercl. R 55: 0.00 ft

Min. Vert. Undercl. 54B: 0.00 ft      Min. Lat. Undercl. L 56: 327.76 ft

AGE AND SERVICE

Year Built 27: 1950      ADT 29: 33,230

Type of Service on 42A: 1 Highway      Year Reconstructed 106: 1977

Type of Service under 42B: 5 Waterway      Detour Length 19: 1.2 mi

Lanes on 28A: 4      Truck ADT 109: 2%

Lanes under 28B: 0      Year of ADT 30: 2007

New



# **Other Updates and Changes**

- Input Underwater Inspection Dates into BrM**
- New high priority evaluation inspection checkbox**
- Quality Assurance/Quality Control (QA/QC) Checks prior to generating Final Inspection Reports**
- Inspectors input inspector generated work candidate**
- Password rules for added security**

## Inspection > Schedule

### Summary

Date Entered: 10/10/2017  
Inspection Date: 10/10/2017  
Inspector: USER, Hwy-Db  
Primary Type: Regular NBI  
Entered By: USER, Hwy-Db

### Types of Inspection Performed

Routine: ☒  
Element: ☒  
Fracture Critical: ☐  
Underwater: ☒  
Other Special: ☐

### Schedule

	Required (Y/N)	Current Date	Frequency (months)	Next Date
Routine:		(090): 10/10/2017	(091): 24	10/10/2019
Element:		10/10/2017	24	10/10/2019
Fracture Critical (092AA):	<input type="checkbox"/>	(093A): 1/1/1901	(092AB):	1/1/1901
Underwater (092BA):	<input checked="" type="checkbox"/>	(093B): 10/10/2017	(092BB): 48	10/10/2021
Other Special (092CA):	<input type="checkbox"/>	(093C): 1/1/1901	(092CB):	1/1/1901

### Inspection Resources

Next Inspector: USER, Pontis  
Bridge Group: -1 (FIX PARAM VALUES)

Crew Hours: 0.00  
Flagger Hours: 0.00  
Helper Hours: 0.00

Snooper Hours: 0.00  
Special Crew Hours: 0.00  
Special Equip. Hours: 0.00

### Schedule Notes



- Input Underwater Inspection Dates into BrM

# Other Updates and Changes

- Input Underwater Inspection Dates into BrM
- **New high priority evaluation inspection checkbox**
- **Quality Assurance/Quality Control (QA/QC) Checks prior to generating Final Inspection Reports**
- **Inspectors input inspector generated work candidate**
- **Password rules for added security**



< >

**Proposed and/or Recommended Work**

NONE

< >

**Comments and Observations**

Inlet, outlet, top of box culvert and wingwalls with overgrown vegetation.

< >

**High Priority Evaluation Inspection Recommended**

☐ High Priority Evaluation Inspection Recommended

< >

☐ High Priority Evaluation Inspection Completed

Date Completed: 1

< >

**Inspectors**

Inspector Name: Lloyd M. Leslie Jr Inspector Title: BMS-1 Inspector Phone: 808-933-0731

Other Inspector Name: Dane Y. Yamamoto Other Inspector Title: BMW-1 Other Inspector Phone: 808-933-0731

**Team Leader**

Team Leader Name: Salvador Panem Team Leader Title: Hawaii District Engineer Team Leader Phone: 808-933-8866

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BrM Version 5.3 [Build Date: Friday September 1, 2017]  
<https://aashtoware.org> | AASHTO Publications

Status: **New** Cancel Save Save & Close Delete Inspection

- New high priority evaluation inspection checkbox

# **When to Check the high priority evaluation inspection checkbox**

- **Public safety concern**
- **Major Structural Damage (Railings, Scour, etc.)**
- **Major structural repairs needed (spalls, cracks, etc.)**
- **Significant change in element condition state quantity from the previous inspection**

# Other Updates and Changes

- Input Underwater Inspection Dates into BrM
- New high priority evaluation inspection checkbox
- **Quality Assurance/Quality Control (QA/QC) Checks prior to generating Final Inspection Reports**
- Inspectors input inspector generated work candidate
- Password rules for added security



- **Quality Assurance/Quality Control (QA/QC) Checks prior to generating Final Inspection Reports**

- **Missing or added Elements**
- **Changes in total quantity of  $> 5\%$**
- **Significant improvement in condition**
- **NBI Condition Ratings change by 2 or more**

# - Quality Assurance/Quality Control (QA/QC) Checks prior to generating Final Inspection Reports

001000110307126 TOTAL QUANTITY CHANGE				
Elem No.	Element Description	New Quantity	Old Quantity	Notes
215	Re Conc Abutment	192	92	Previous quantity was incorrect.

001000110307126 NEW OR MISSING ELEMENTS			
New Element		Missing Element	
Element No.	Element Description	Element No.	Element Description
361	Scour Smart Flag		

001000110307126 CONDITION STATE CHANGE						
Elem No.	Element Description	CS 1 (Good)	CS 2 (Fair)	CS 3 (Poor)	CS 4 (Severe)	Inspection
215	Re Conc Abutment	182	10	0	0	Current
		80	12	0	0	Previous
Previous quantity was incorrect. CS1 increased from previous inspection because the total quantity increased.						

NBI RATING CHANGE			
NBI Item Number:	Current	Previous	Notes
Item 58 - Deck	7	5	
Item 59 - Superstructure	6	4	

# **Other Updates and Changes**

- Input Underwater Inspection Dates into BrM**
- New high priority evaluation inspection checkbox**
- Quality Assurance/Quality Control (QA/QC) Checks prior to generating Final Inspection Reports**
- Inspectors input inspector generated work candidate**
- Password rules for added security**



Bridge  Facility Carried (007): HI BLT RD PALANI R Inspection:  Type: Regular NBI ☐ Metric ☒ English

Inspection > Work > Work Candidates

Work

Add New ☒ Show All ☐ Show Open

Candidate Name	Action	Date Recommended	Target Year	Estimated Cost	Status	Work Assignment	Priority	Structure Unit	Date Completed	Description	Source
Repair Deck	Deck-Repair (Potholes)	8/20/2015	2017	\$1,000.00	Under Review	0	High	0 / Type = M		Deck-Repair (Potholes)	Inspector Recommended

Type of Work

Candidate Name:

Action Type:

Action:

Priority:

Date Completed:

Status:

Source:

Work Estimates

Estimated Quantity:

Cost per unit:

Calculate

Estimated Cost (\$):

Generated by user "bridge" on 8/23/2017

- Inspectors input inspector generated work candidate

# **Other Updates and Changes**

- Input Underwater Inspection Dates into BrM**
- New high priority evaluation inspection checkbox**
- Quality Assurance/Quality Control (QA/QC) Checks prior to generating Final Inspection Reports**
- Inspectors input inspector generated work candidate**
- Password rules for added security**

### My Account Information

First Name:

Last Name:

User ID:

Agency:

Phone:

Email:

Your password does not meet current complexity requirements and must be changed.

Old Password:

New Password:

Confirm New Password:

#### Password Rules:

Password must contain 8 or more total characters  
Password must contain 1 or more upper-case letters  
Password must contain 1 or more lower-case letters  
Password must contain 1 or more numbers  
Password must contain 1 or more special characters (\_!@#\$%.)

Apply

Cancel

**- Password rules for added security**



**Ultimate Goal is...**

**Quality Data**