

FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM
Inspection/CIDR Report with PDF attachment(s)
(TRAFFIC SIGNAL MAST ARM INSPECTION REPORT)

Structure ID: 70M130

Inspection

DISTRICT: D5 - Deland

INSPECTION DATE: 11/1/2021 ZZGC

BY: FIT Engineering	STRUCTURE NAME: US-1 at Knox McRae Drive
OWNER: 1 State Highway Agency	YEAR BUILT: 2013
MAINTAINED BY: 4 City/Municipal Hwy Agy	SECTION NO.: 70 030 000
STRUCTURE TYPE: 3 Steel - Traffic Signal Mast Arm	MP: 0.496
LOCATION: 0.5 miles north of SR-50	ROUTE: 00001
SERV. TYPE ON: Traffic Signal Mast Arm	FACILITY CARRIED: US-1 (SR-5)
SERV. TYPE UNDER: 1 Highway	FEATURE INTERSECTED: Knox McRae Drive
MAST ARM CODE: 2	MAST ARM DESCRIPTION: Mast arm is inside the mast arm boundary area

☐ FUNCTIONALLY OBSOLETE☐ STRUCTURALLY DEFICIENT

TYPE OF INSPECTION: Regular NBI

DATE FIELD INSPECTION WAS PERFORMED: ABOVE WATER: 11/1/2021 UNDERWATER: N/A

SUFFICIENCY RATING: -1
HEALTH INDEX: 99.64

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YEAR BUILT: 2013
SECTION NO.: 70 030 000
MP: 0.496
ROUTE: 00001
FACILITY CARRIED: US-1 (SR-5)
FEATURE INTERSECTED: Knox McRae Drive
MAST ARM DESCRIPTION: Mast arm is inside the mast arm boundary area

- ☐ THIS BRIDGE CONTAINS FRACTURE CRITICAL COMPONENTS
☐ THIS BRIDGE IS SCOUR CRITICAL
☐ THIS REPORT IDENTIFIES DEFICIENCIES WHICH REQUIRE PROMPT CORRECTIVE ACTION
☐ FUNCTIONALLY OBSOLETE ☐ STRUCTURALLY DEFICIENT

TYPE OF INSPECTION: Regular NBI

DATE FIELD INSPECTION WAS PERFORMED: ABOVE WATER: 11/1/2021 UNDERWATER: N/A

OVERALL NBI RATINGS:

DECK: N N/A (NBI)	CHANNEL: N N/A (NBI)
SUPERSTRUCTURE: 7 Good	CULVERT: N N/A (NBI)
SUBSTRUCTURE: 8 Very Good	SUFF. RATING: -1
PERF. RATING: Performance Rating Not applicable or not calculable.	HEALTH INDEX: 99.64

FIELD PERSONNEL / TITLE / NUMBER:

Watts, Sanya - Professional Engineer (P.E. #72297) (lead)
Burditt, Robert – Assistant Bridge Inspector

INITIALS

SW

REVIEWING BRIDGE INSPECTION SUPERVISOR:

Maslyn, Rick - Bridge Inspector (CBI #00271)

RM

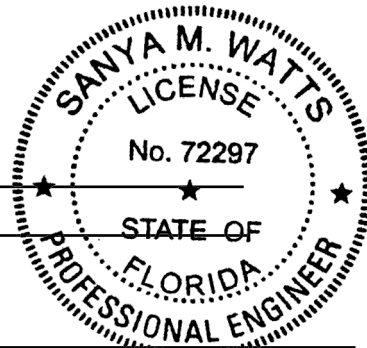
CONFIRMING REGISTERED PROFESSIONAL ENGINEER:

Watts, Sanya - Professional Engineer (P.E. #72297) FIT Engineering
219 NW Melanie Way
Registry No. 30738
Lake City FL 32055

SIGNATURE: _____

DATE: _____

This item has been digitally signed and sealed by Sanya Watts on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.



This report contains information relating to the physical security of a structure and depictions of the structure. This information is confidential and exempt from public inspection pursuant to sections 119.071(3)(a) and 119.071(3)(b), Florida Statutes. Only the cover page of this report may be inspected and copied.

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All Elements

MISCELLANEOUS : Other Elements

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
Structure Unit 1	8480 / 4	Mast Arm Foundation	2	100	0	.	0	.	0	.	2 (EA)

Element Inspection Notes:

8480/4 This element consists of 2 foundations.

Previous Comment:

INCIDENTAL

F2 - One of 6 anchor bolts is missing a cover. Refer to Photo 1.

Repair Recommendation:

F2 - Replace the missing anchor bolt cover with one that has a minimum inside diameter of 3 1/2 in. and is at least 7 in. tall and properly secure. P=3

Previous Repair Recommendations:

F2 - Replace the missing anchor bolt cover. - Not completed.

F1 and F2 - Remove accumulation of sand and dirt below the base plates & clean paint anchors as needed. - Completed by inspectors.

F1 and F2 - Replace the vermin guards with the correct wire gauge in accordance with FDOT Spec. 649-6. - Completed.

Foundation Measurements:

Grout Pad: F1 = No (Wire Screen); F2 = No (Wire Screen)

Base Plate Thickness: F1 = 2 1/2 in.; F2 = 2 1/2 in.

Bolt Diameter: F1 = 2 in.; F2 = 2 in.

Nut Height: F1 = 2 in.; F2 = 2 in.

Washer Thickness (Above & Below Base Plate): F1 = 3/8 in.; F2 = 3/8 in.

Average Distance from Bottom of Base Plate to Foundation: F1 = 2 3/4 in. (previously noted as 3 in.); F2 = 3 in.

Average Standoff Distance: F1 = 3/8 in. (previously noted as 1/4 in.); F2 = 5/8 in. (previously noted as 1/4 in.)

MISCELLANEOUS : Other Elements

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
Structure Unit 1	8481 / 4	Metal Mast Arm Vertical	2	100	0	.	0	.	0	.	2 (EA)
Structure Unit 1	8518 / 4	Galvanized Steel	254	100	0	.	0	.	0	.	254 sq.ft

Element Inspection Notes:

8481/4 This element consists of 2 verticals.

Note: Both verticals have a properly connected ground wire.

Previous Comment:

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Inspection

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V1 - The street sign bracket appears to have slipped based on the neoprene pad being displaced; the bolts are tight. Refer to Photo 2.

Repair Recommendation:

V1 - Reposition the street sign brackets and neoprene pads. P=3

Previous Repair Recommendations:

V1 - Tighten the sign bracket. - Not completed.

V1 - Replace the missing street signs. - Completed.

The following thickness measurements were taken below the access hatch and below the moment connection:

V1 - AH = 0.503 in., MC = 0.507 in.

V2 - AH = 0.379 in., MC = 0.380 in.

Length of mast arm vertical members in linear feet:

V1 - 24.0 ft.

V2 - 24.0 ft.

8518/4 Refer to Parent Element

MISCELLANEOUS : Other Elements

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
Structure Unit 1	8484 / 4	Metal Mast Arm Horizontal	1	50	1	50	0	.	0	.	2 (EA)
Structure Unit 1	1000 / 4	Corrosion	0	.	1	100	0	.	0	.	1 (EA)
Structure Unit 1	8518 / 4	Galvanized Steel	388	99.74	0	.	0	.	1	0.26	389 sq.ft
Structure Unit 1	3440 / 4	Eff (Stl Protect Coat)	0	.	0	.	0	.	1	100	1 sq.ft

Element Inspection Notes:

8484/4 This element consists of 2 horizontals.

New Comments:

CS2 1000:

V2/H2 - The horizontal arm end cap has light to moderate surface corrosion. Refer to Photo 3. (1 EA)

CS1:

V1/H1 - A bird nest is present between the moment connection support plates and in the horizontal arm, visible through the drain hole near the moment connection. Refer to Photos 4 and 5.

Repair Recommendation:

V1/H1 - Remove the bird nest from between the moment connection support plates and from the horizontal arm near the MC and install screening. P=3

The following thickness measurements were taken on each horizontal member at the moment connection:

V1/H1 - 0.373 in.

V2/H2 - 0.377 in.

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Inspection

DISTRICT: D5 - Deland

INSPECTION DATE: 11/1/2021 ZZGC

Length of mast arm horizontal members in linear feet:

V1/H1 - 70.5 ft.

V2/H2 - 60.0 ft.

Minimum vertical clearance:

V1/H1 - 19.2 ft. (east signal)

V2/H2 - 18.4 ft. (west signal)

1000/4 Refer to Parent Element

8518/4 New Comment:

CS4 3440:

V2/H2 - The galvanic coating on the horizontal arm end cap is failing, allowing corrosion to form. Refer to Photo 3. (1 SF)

3440/4 Refer to Parent Element

Total Number of ADE Elements*: 3

*excluding defects/protective systems

Structure Notes

Maintaining Agency:

City of Titusville
Kevin Cook, Public Works Director
445 S. Washington Ave.
Titusville, FL 32796
(321) 383-5746
kevin.cook@titusville.com

Plans are available at the District 5 Structures Maintenance office.

The year built was input as 2013 based on the fiscal design year found on plans for FIN Project ID #414975-1-52-01 plus 1 year.

INSPECTION NOTES: **ZZGC** **11/1/2021**

A 42ft. insulated bucket truck was utilized for this inspection.

The NBI rating for Item 59 Superstructure was lowered from an 8 - Very Good to a 7 - Good to better reflect current conditions.

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Photo 1

Element 8480 / Foundation – Missing anchor bolt cover at F2

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Photo 2

Element 8481 / Vertical – Displaced neoprene pad for the street sign bracket at V1

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Photo 3

Element 8484 / Horizontal – Surface corrosion on the horizontal arm end cap at V2/H2

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DISTRICT: D5 - Deland

Inspection

INSPECTION DATE: 11/1/2021 ZZGC



Photo 4

Element 8484 / Horizontal – Bird nest between the moment connection plates at V1/H1

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DISTRICT: D5 - Deland**

Inspection

INSPECTION DATE: 11/1/2021 ZZGC



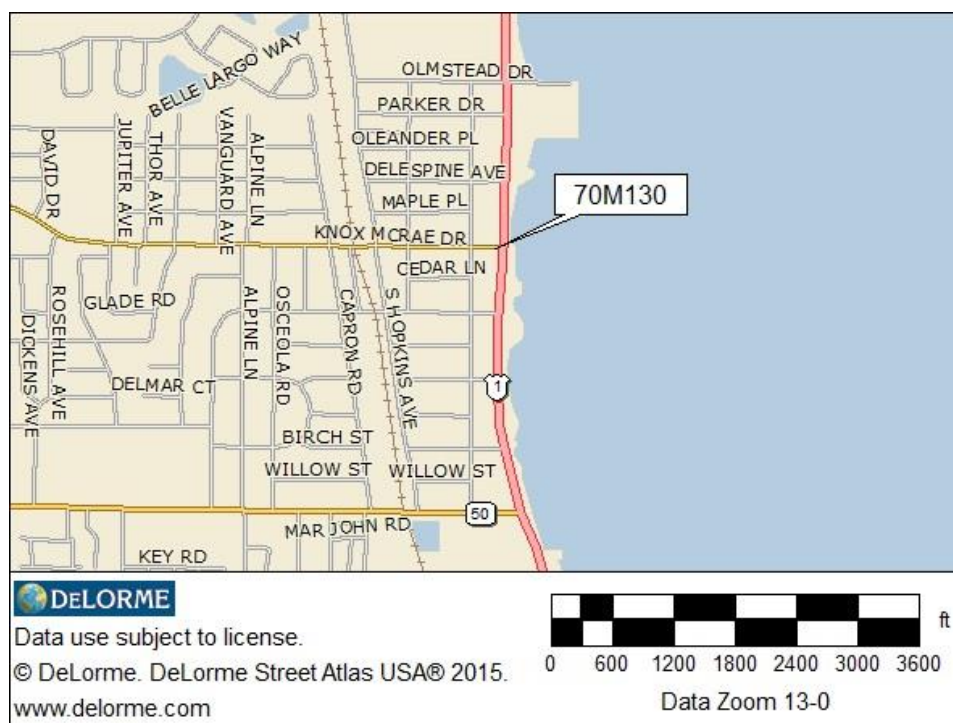
Photo 5

Element 8484 / Horizontal – Bird nest inside the horizontal arm at V1/H1

FLORIDA DEPARTMENT OF TRANSPORTATION BRIDGE MANAGEMENT SYSTEM APPENDIX

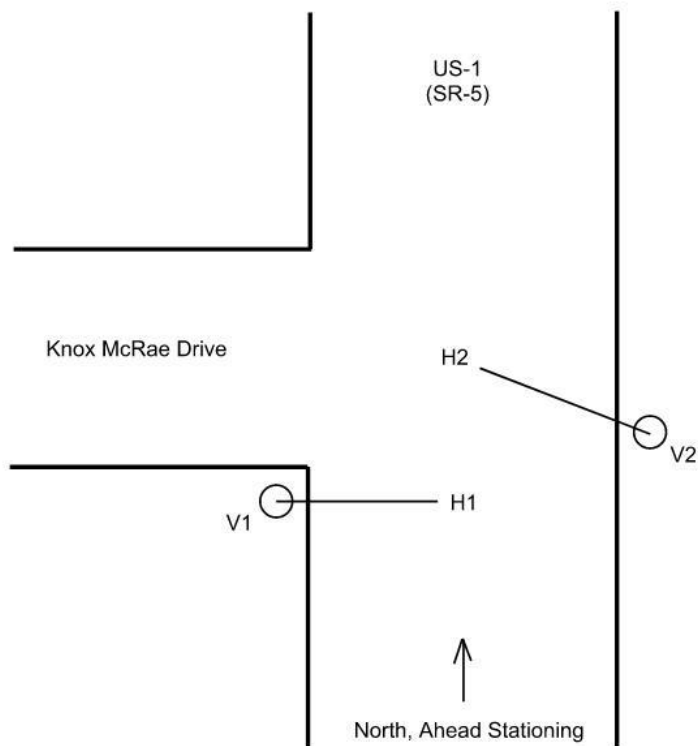
Mast Arm Structure No: 70M130Inspection Date: 11/1/2021Location: US-1 (SR-5) at Knox McRae DriveType of Inspection: Routine

Structure Inventory Photo



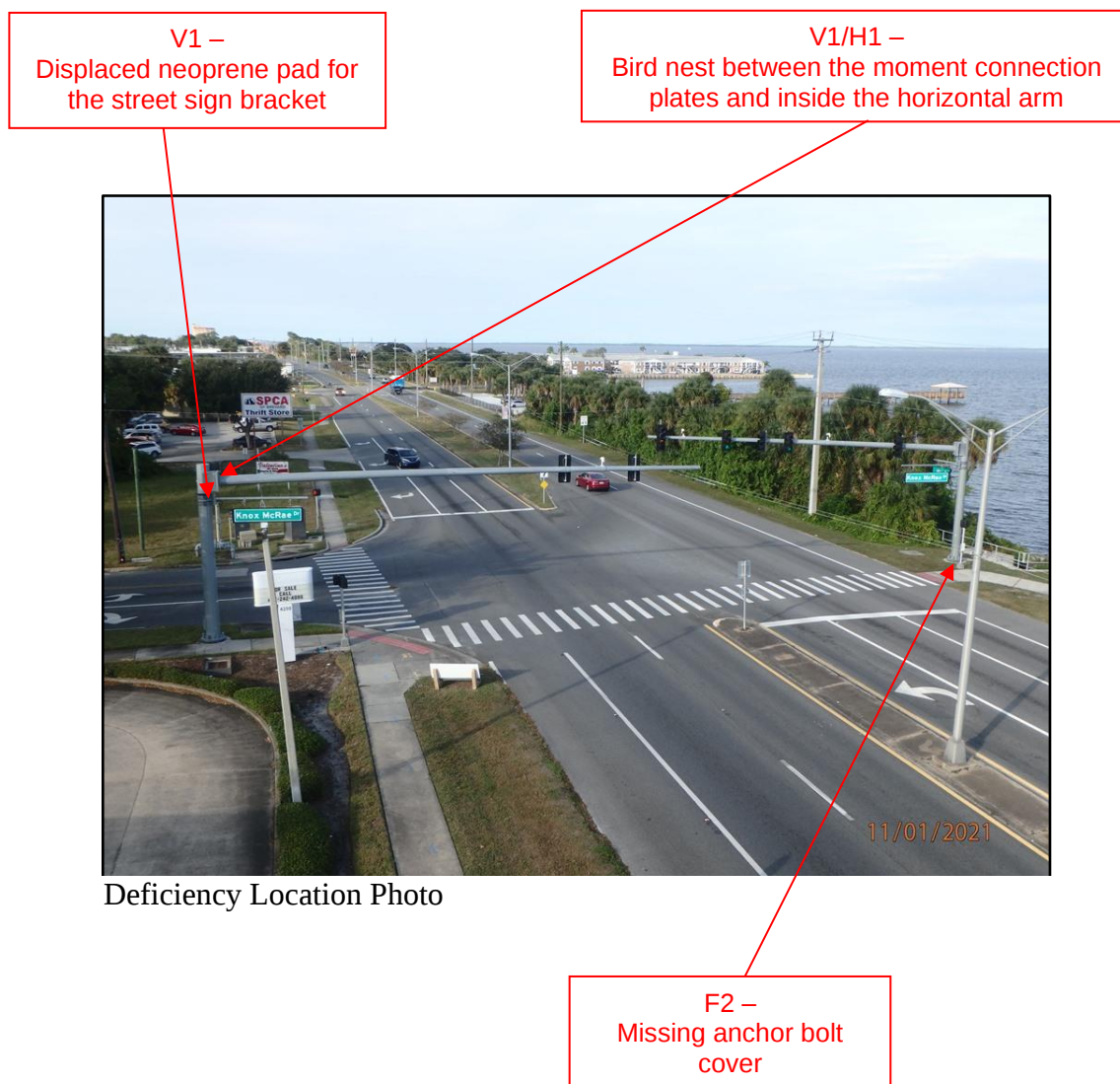
Location Map

FLORIDA DEPARTMENT OF TRANSPORTATION BRIDGE MANAGEMENT SYSTEM APPENDIX

Mast Arm Structure No: 70M130Inspection Date: 11/1/2021Location: US-1 (SR-5) at Knox McRae DriveType of Inspection: Routine

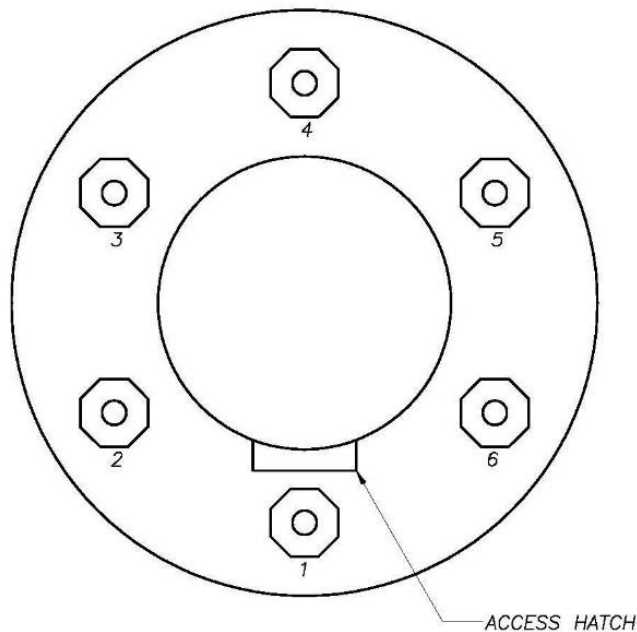
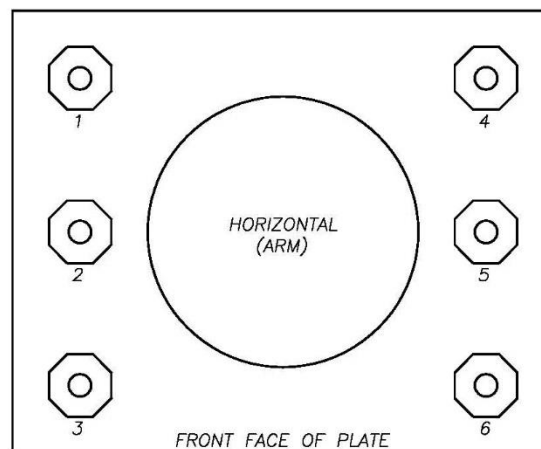
Intersection Layout

FLORIDA DEPARTMENT OF TRANSPORTATION BRIDGE MANAGEMENT SYSTEM APPENDIX

Mast Arm Structure No: 70M130Inspection Date: 11/1/2021Location: US-1 (SR-5) at Knox McRae DriveType of Inspection: Routine

Preventative Repair Responsibilities
Local Agency: City of Titusville

FLORIDA DEPARTMENT OF TRANSPORTATION BRIDGE MANAGEMENT SYSTEM APPENDIX

Mast Arm Structure No: 70M130Inspection Date: 11/1/2021Location: US-1 (SR-5) at Knox McRae DriveType of Inspection: RoutineTSMa ANCHOR BOLT NUMBERING SCHEMETSMa MOMENT CONNECTION BOLT NUMBERING SCHEME

FLORIDA DEPARTMENT OF TRANSPORTATION BRIDGE MANAGEMENT SYSTEM

REPORT ID: INSP005

Inspection/CIDR Report with PDF attachment(s)

Structure ID: 70M130

TRAFFIC SIGNAL MAST ARM

DATE PRINTED: 12/9/2021

Description

Structure Unit Identification

Bridge/Unit Key: 70M130 1
 Structure Name: US-1 at Knox McRae Drive
 Description: TSMA
 Type: M - Main

Structure Identification

Admin Area: Space Coast
 District (2): D5 - Deland
 County (3): (70)Brevard
 Location (9): 0.5 miles north of SR-50
 FIPS State/Region (1): 12 Florida Region 4-Atlanta
 NBIS Bridge Len (112): N - Does not meet NBI Length
 Maint. Resp. (21): 4 City/Municipal Hwy Agcy
 Owner (22): 1 State Highway Agency
 Previous Structure:
 2nd Previous Structure:
 Replacement Structure:

Age and Service

Year Built (27): 2013
 Year Reconstructed (106): 0
 Type of Service On (42a): Traffic Signal Mast Arm
 Under (42b): 1 Highway

Structure Type and Material

Main Span Material (43A): 3 Steel
 Main Span Design (43B): Traffic Signal Mast Arm

NBI Rating

Superstructure (59): 7 Good
 Substructure (60): 8 Very Good

General Structure Information

Electrical Devices: Traffic control sys only
 Maintenance Yard: 590-Cocoa (590)

Mast Arm Managing Agency ID:
 Mast Arm Code: 2
 Mast Arm Description: Mast arm is inside the mast arm boundary area

Appraisal

Minimum Vertical Clearance

Over Structure (53): 99.9 ft
 Under (reference) (54a): H Hwy beneath struct
 Under (54b): 0 ft

Minimum Lateral Underclearance

Reference (55a): H Hwy beneath struct
 Right Side (55b): 0 ft
 Left Side (56): 0 ft

Schedule

Current Inspection

Inspection Date: 11/01/2021
 Inspector: KNFITJS - Sanya Watts
 Bridge Group: CA523
 Alt. Bridge Group:
 Primary Type: Regular NBI
 Review Required: ☒

Next Inspection Date

Scheduled

NBI: 11/01/2026
 Element: 11/01/2026
 Other/Special:
 Inventory Photo Update Due: 11/30/2026

Inspection Types Performed

NBI ☒ Element ☒ Other Special ☐

Inspection Intervals

Required (92)

Frequency (92)

Last Date (93)

Inspection Resources

Other Special ☐
 NBI

mos
 60 mos (91) 11/01/2021 (90)

Crew Hours: 1
 Flagger Hours: 0
 Helper Hours: 0
 Snooper Hours: 0

FLORIDA DEPARTMENT OF TRANSPORTATION BRIDGE MANAGEMENT SYSTEM

REPORT ID: INSP005

Inspection/CIDR Report with PDF attachment(s)

Structure ID: 70M130

TRAFFIC SIGNAL MAST ARM

DATE PRINTED: 12/9/2021

Elements

Inspection Date: 11/01/2021 ZZGC

MISCELLANEOUS : Other Elements

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
Structure Unit 1	8480 / 4	Mast Arm Foundation	2	100	0	.	0	.	0	.	2 (EA)

MISCELLANEOUS : Other Elements

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
Structure Unit 1	8481 / 4	Metal Mast Arm Vertical	2	100	0	.	0	.	0	.	2 (EA)
Structure Unit 1	8518 / 4	Galvanized Steel	254	100	0	.	0	.	0	.	254 sq.ft

MISCELLANEOUS : Other Elements

Str Unit	Elem/Env	Description	Qty1	%1	Qty2	%2	Qty3	%3	Qty4	%4	T Qty
Structure Unit 1	8484 / 4	Metal Mast Arm Horizontal	1	50	1	50	0	.	0	.	2 (EA)
Structure Unit 1	1000 / 4	Corrosion	0	.	1	100	0	.	0	.	1 (EA)
Structure Unit 1	8518 / 4	Galvanized Steel	388	99.74	0	.	0	.	1	0.26	389 sq.ft
Structure Unit 1	3440 / 4	Eff (Stl Protect Coat)	0	.	0	.	0	.	1	100	1 sq.ft

Total Number of ADE Elements*: 3

*excluding defects/protective systems

Inspection Information**Inspection Date:** 11/01/2021**Type:** Regular NBI**Inspector:** KNFITJS - Sanya Watts**Inspection Notes:** A 42ft. insulated bucket truck was utilized for this inspection.

The NBI rating for Item 59 Superstructure was lowered from an 8 - Very Good to a 7 - Good to better reflect current conditions.

Structure Notes

Maintaining Agency:

City of Titusville
 Kevin Cook, Public Works Director
 445 S. Washington Ave.
 Titusville, FL 32796
 (321) 383-5746
 kevin.cook@titusville.com

Plans are available at the District 5 Structures Maintenance office.

The year built was input as 2013 based on the fiscal design year found on plans for FIN Project ID #414975-1-52-01 plus 1 year.

Schedule Notes

FLORIDA DEPARTMENT OF TRANSPORTATION BRIDGE MANAGEMENT SYSTEM

REPORT ID: INSP005

Inspection/CIDR Report with PDF attachment(s)

Structure ID: 70M130

TRAFFIC SIGNAL MAST ARM

DATE PRINTED: 12/9/2021

Under Route Information

Roadway Identification

NBI Structure No (8): 70M130
 Position/Prefix (5): A - 1st Route Under
 Kind Hwy (Rte Prefix): 2 U.S. Numbered Hwy
 Design Level of Service: 1 Mainline
 Route Number/Suffix: 00001 / 0 N/A (NBI)
 District (2): D5 - Deland
 County (3): (70)Brevard
 Place Code (4): Titusville
 Feature Intersect (6): Knox McRae Drive
 Roadway Name: US-1 (SR-5)
 Mile Point (11): 0.496
 Latitude (16): 028d33'52.4" Long (17): 080d47'55.2"

Roadway Traffic and Accidents

Lanes (28): 5 Medians: 1 Speed: 45 mph

Roadway Classification

Nat. Hwy Sys (104): 1 On the NHS
 National base Net (12): 1 - On Base Network
 LRS Inventory Rte (13a): 70 030 000 Sub Rte (13b): 00
 Functional Class (26): 14 Urban Other Princ
 Federal Aid System: ON
 Defense Hwy (100): 0 Not a STRAHNET hwy
 Direction of Traffic (102): 2 2-way traffic
 Emergency: ☒

Roadway Clearances

Vertical (10): 0 ft
 Horiz. (47): 0 ft Roadway (51): 0 ft
 Truck Network (110): 0 Not part of natl netwo
 Toll Facility (20): 3 On free road
 Fed. Lands Hwy (105): 0 N/A (NBI)

**FLORIDA DEPARTMENT OF TRANSPORTATION
BRIDGE MANAGEMENT SYSTEM**

REPORT ID: INSP005

Inspection/CIDR Report with PDF attachment(s)

Structure ID: 70M130

TRAFFIC SIGNAL MAST ARM

DATE PRINTED: 12/9/2021

Under Route Information**Roadway Identification**

NBI Structure No (8): 70M130
Position/Prefix (5): B - 2nd Route Under
Kind Hwy (Rte Prefix): 4 County Hwy
Design Level of Service: 1 Mainline
Route Number/Suffix: 00000 / 0 N/A (NBI)
District (2): D5 - Deland
County (3): (70)Brevard
Place Code (4): Titusville
Feature Intersect (6): Knox McRae Drive
Roadway Name: Knox McRae Dr.
Mile Point (11): 1.673
Latitude (16): 028d33'52.4" Long (17): 080d47'55.2"

Roadway Traffic and Accidents

Lanes (28): 3 Medians: 0 Speed: 30 mph

Roadway Classification

Nat. Hwy Sys (104): 0 Not on NHS
National base Net (12): 0 - Not on Base Network
LRS Inventory Rte (13a): 70 000 015 Sub Rte (13b): 00
Functional Class (26): 17 Urban Collector
Federal Aid System: ON
Defense Hwy (100): 0 Not a STRAHNET hwy
Direction of Traffic (102): 2 2-way traffic
Emergency: ☐

Roadway Clearances

Vertical (10): 0 ft
Horiz. (47): 0 ft Roadway (51): 0 ft
Truck Network (110): 0 Not part of natl netwo
Toll Facility (20): 3 On free road
Fed. Lands Hwy (105): 0 N/A (NBI)