Montgomery County

Department of Transportation

Division of Transportation Engineering

2022 BRIDGE INSPECTION REPORT

November 8, 2022

BRIDGE NO. M-K-02X01

FREDERICK AVENUE

OVER

SILVER CREEK

Prepared by

Montgomery County

Department of Transportation

Division of Transportation Engineering

2022 BRIDGE INSPECTION REPORT

BRIDGE NO. M-K-02X01

FREDERICK AVENUE

OVER

SILVER CREEK

Prepared by

Inspection Team Leader: Franz C. Bustillos, EIT

Date

Professional Engineer: William A. Geschrei, P.E.

Date

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 18142, Expiration Date: February 4, 2023.

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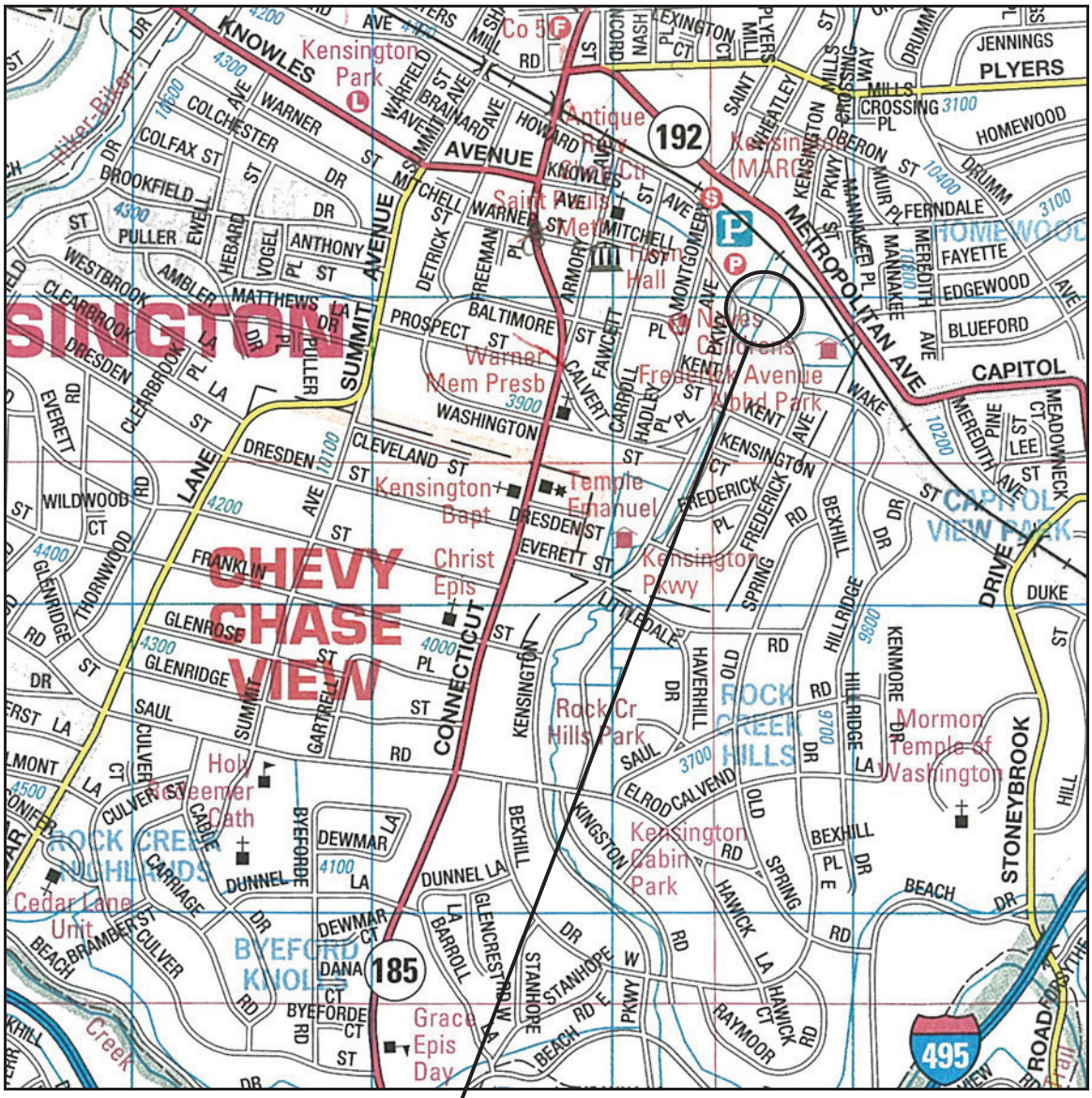
2022 BRIDGE INSPECTION REPORT

BRIDGE DESCRIPTION SUMMARY

Roadway	FREDERICK AVENUE
Bridge Orientation	East-West
Crossing	Silver Creek
Crossing Orientation	North-South
Inspection Date	11/08/2022
Inspected By	Whitman, Requardt & Associates, LLP
Spans	1
Type	Concrete Slab
Structure Organization	The numbering convention for reporting purposes is from the north and west
Deck	Concrete
Railing	Concrete Jersey Barrier
Abutments	Concrete Cantilever
Wing Walls	Concrete / Brick & Mortar
Piers	N/A
Overall Length	18'-0" +/-
Clear Roadway	26'-3" +/-
No. of Lanes	2
Out-to-Out Width	41'-4" +/-
Year Built	1920
Year Reconstructed	1990 (structure replaced with concrete slab bridge)
Approach Section	26'-3" +/- wide asphalt roadway
Shoulders	No
Alignment	The approach roadways are on slight curves to the bridge
Profile	The roadway is on a slight downgrade to the bridge from both approaches
Guardrail	None
Current Postings	52,000 lbs GVW Single Unit 70,000 lbs GCW Combination Unit
Overall Condition	Satisfactory
Remarks	The bridge is posted for 52,000 lbs GVW single unit capacity and 70,000 lbs GCW combination unit capacity. These load postings were based on a prestressed design which was replaced with a reinforced concrete slab design during construction. These postings shall remain per the county's instruction.

N



Bridge No. M-K-02X01
Frederick Avenue over
Silver Creek

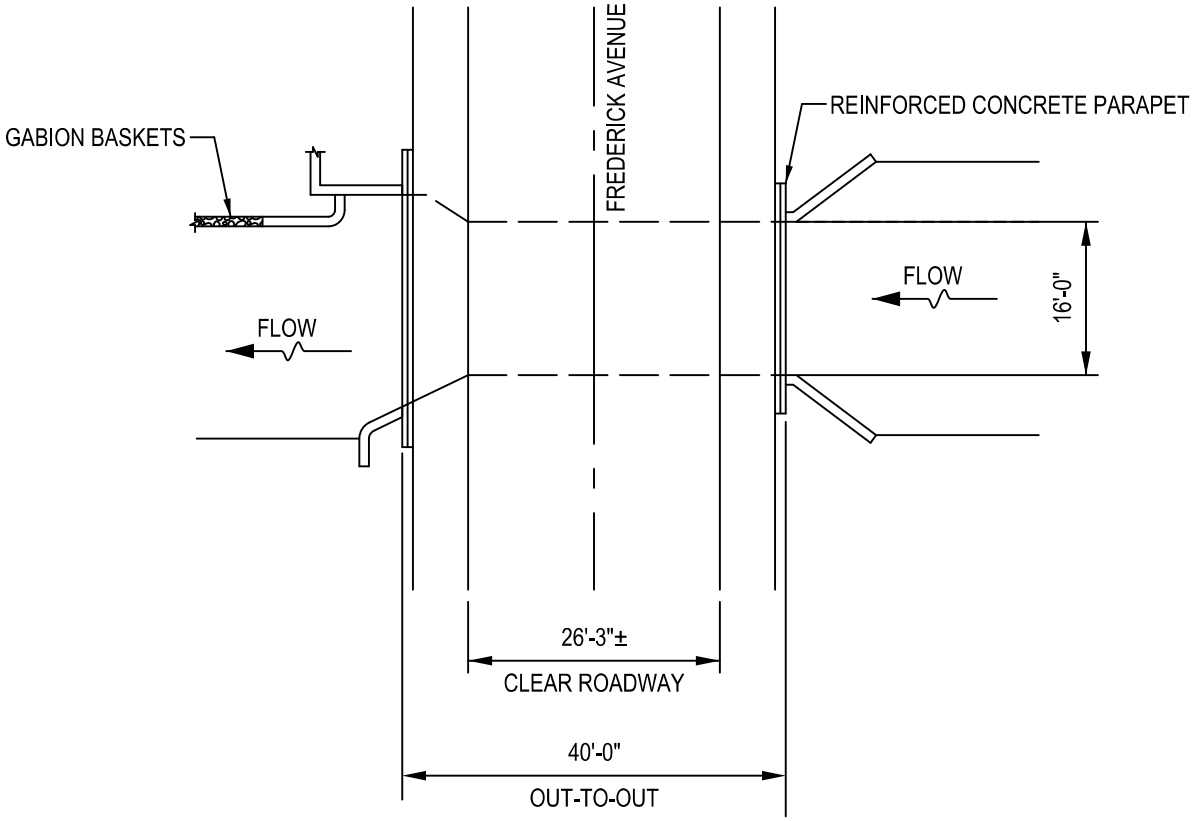
ADC Street Grid Location: 5285-J-7
2010 Edition

ADC Street Grid Location: 36-D-4
Previous Editions

LOCATION MAP

SCALE: 1” = 2,000’

Copyright ADC The Map People
Permitted Use Number 21002222

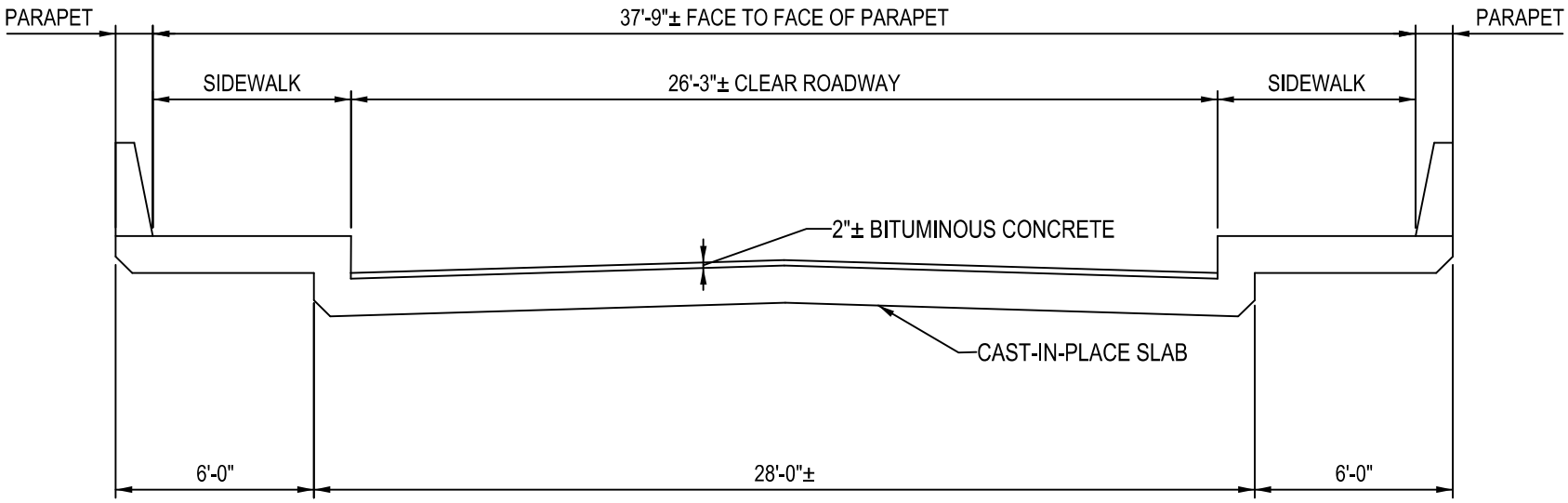


PLAN

NOT TO SCALE

MONTGOMERY COUNTY
BRIDGE INSPECTION

BRIDGE NO. M-K-02
FREDERICK AVENUE
OVER
SILVER CREEK

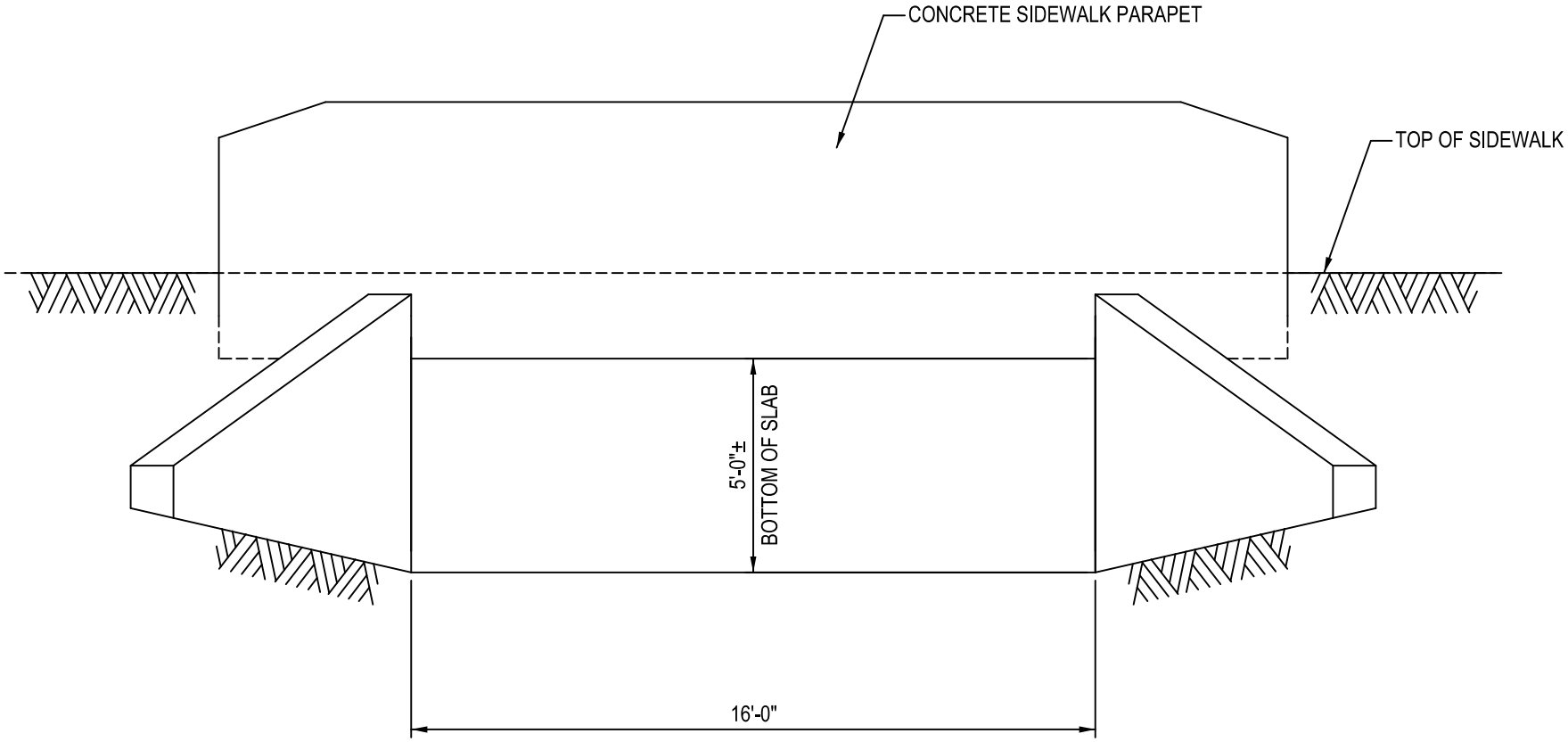


TYPICAL SECTION

NOT TO SCALE

MONTGOMERY COUNTY
BRIDGE INSPECTION

BRIDGE NO. M-K-02
FREDERICK AVENUE
OVER
SILVER CREEK



NORTH (UPSTREAM) ELEVATION

NOT TO SCALE

MONTGOMERY COUNTY
BRIDGE INSPECTION

BRIDGE NO. M-K-02
FREDERICK DRIVE
OVER
SILVER CREEK

COMPARATIVE EVALUATION SUMMARY TABLE

PONTIS ELEMENT	STATUS	CONDITION	REMARKS
Roadway Approach (8322)	↔	Good	
Reinforced Concrete Bridge Railing (331)	↔	Good	
Reinforced Concrete Slab (38, 8359)	↔	Satisfactory	
Sidewalks (8062)	↓	Fair	The northeast approach sidewalk near the bridge is undermined.
Pourable Joint Seal (300)	↔	Poor	
Abutments (215)	↔	Satisfactory	
Wing Walls (8251 & 8253)	↔	Satisfactory	
Backwalls (8257)	↔	Satisfactory	
Protected Slope (8260)	↔	Satisfactory	
Gabion Wall (8246)	↔	Fair	
Stream Channel (8345)	↔	Good	
Overall	↔	Satisfactory	

↑ = Condition Improved ↔ = Condition Unchanged ↓ = Condition Worse

CONDITION SUMMARY

Roadway Approach (8322) — 26'-3" +/- wide asphalt roadway with no shoulders

The approach roadways are in good condition. There is 1/16” wide alligator cracking in the East Approach roadway within 15’ of the bridge. The bridge does not require posting based on the Load Rating Summary; however, the county has decided to maintain the current postings according to previous inspection reports. There is no advance posting sign at the East Approach. There are no approach traffic barriers at any of the four corners.

There are no approach traffic barriers at any of the four corners. There are timber fences at all four corners of the structure at the ends of the parapets. There are steep drop-offs along the northwest, northeast and southeast corners of the approaches.

Reinforced Concrete Bridge Railing (331) — Reinforced concrete parapet

The parapets are in good condition with no significant defects noted.

Reinforced Concrete Slab (38, 8359) — Concrete slab with concrete overlay

The concrete wearing surface is in satisfactory condition. There is hairline cracking in the wearing surface and edge spalling along the top of both abutment backwalls. The underside of the slab is in satisfactory condition. There are cracks with efflorescence in the deck soffit that are reflective of cracks in the wearing surface. There is up to 1’-4” long x 4” wide x 1” deep edge spalling in the wearing surface along the top of both abutment backwalls.

Sidewalks (8062) — Concrete panels

The concrete sidewalks are in satisfactory condition. There are up to 1/8” wide isolated cracks in the north sidewalk and northwest approach sidewalk. There are isolated diagonal hairline cracks with minor efflorescence in the sidewalk soffits. The northeast approach sidewalk near the bridge exhibits a 1’-4” long x 4” high area of undermining that can be probed horizontally for 10”.

Pourable Joint Seal (300) — Pourable joint seal

The west abutment joint seal is missing or debonded for 60% of its length with moderate debris accumulation throughout

Abutments (215) — Reinforced concrete

The abutments are in satisfactory condition. There are several vertical and horizontal hairline cracks throughout the abutments with moderate efflorescence. Both abutments exhibit isolated up to 5’-0” high x 9’-0” wide areas of delaminated concrete.

CONDITION SUMMARY

Wing Walls (8251 & 8253) Reinforced concrete with brick wingwalls from previous structure.

The wing walls are in satisfactory condition. There are two (2) types of wing walls on the south side of the structure. There are brick, stone and mortar wing walls from a previous structure and reinforced concrete wing walls constructed with the current bridge. There is missing mortar up to 1/4” wide, vertical cracks, and missing bricks throughout the southeast and southwest wing walls. The reinforced concrete wing walls typically exhibit isolated areas of delaminated concrete and spalls throughout.

Backwalls (8257) Reinforced concrete

The abutment backwalls are in satisfactory condition. There are a few small spalls in the tops of both abutment backwalls. There is a full width x 1'-3" long x 2 1/2" deep spall on the top of the west backwall in the middle of the westbound lane.

Protected Slope (8260) Reinforced concrete in the upstream channel

The concrete channel is in satisfactory condition. There are settled and spalled panels at the northeast slope protection.

Gabion Wall (8246) Gabion walls in the downstream channel

The downstream channel bottom and banks are lined with gabions for approximately 100' after the end of the concrete lined channel. The gabions in the channel bottom have missing rocks, broken mesh and bulging throughout. There are displaced gabions lying in the channel within 30’ of the downstream channel protection.

Stream Channel (8345) Concrete channel

The concrete channel is in satisfactory condition. There is up to 1/2" deep scaling with exposed aggregate throughout the concrete channel protection. There is a 2'-0" long x 1'-0" high x 2" deep spall on the vertical face of the downstream concrete apron step. The downstream channel exhibits a 15’-0” long x 10’-0” wide x up to 4’-4” deep scour hole beginning approximately 20’-0” from the structure.

BRIDGE DESCRIPTION SUMMARY

LOAD RATING SUMMARY

The recommended bridge posting listed above is based on previous load rating calculations performed by others which were not available for review. Our review of the validity of the ratings consisted of determining if any changes to the condition of the structure since the previous inspection warranted updating the load rating calculations. Whitman, Requardt and Associates, LLP (WRA) assumes no responsibility for the correctness or accuracy of the previous load ratings.

Vehicle	Gross Vehicle Weight (Tons)	Inventory Rating (Tons)	Operating Rating (Tons)
H-15	15	15	15
HS-20	36	36	36
MD Type 3	33	-	-
MD Type 3S2	40	40	40

Note: MD Type 3 is no longer considered for posting

Vehicle	Gross Vehicle Weight (Tons)	Inventory Rating (Tons)	Operating Rating (Tons)
MD Type-4	35	35	35

Based on SHA policy, since SI&A Items 59 and 60 have a condition rating of 6 or greater and the Operating Rating factors are > 1.0, the load posting signs are not required.

The bridge is posted for 52,000 lbs GVW single unit capacity and 70,000 lbs GCW combination unit capacity. These load postings were based on a prestressed design which was replaced with a reinforced concrete slab design during construction. No posting is required, but these signs shall remain per the county's instruction.

REVIEW OF ITEM 113 - SCOUR POTENTIAL RATING

Item 113 is currently rated 8P. This implies that the bridge is a culvert-type structure with a paved bottom. Based on the observed conditions, this rating is still valid and does not require reevaluation.

GUARDRAIL REQUIREMENT FORM

Corners	Bridge Railings Meet SHA Standard		Transition					Approach Guardrail									Approach Rail Ends				
			Approach Guardrail at Corners of Struct.		Attached to Bridge		Average Post Spacing Near Struct.	Type of Posts			Type of Rail			Spacing of Approach Guardrail			Flared	Buried	Shielded	Hazard	Breakaway
	Yes	No	Yes	No	Yes	No		Timber	Steel	Jersey	Cable	Steel	Timber	12'-6"	6'-3"	Other					
1				✓		✓															
2				✓		✓															
3				✓		✓															
4				✓		✓															

Bridge No.: M-K-02X01

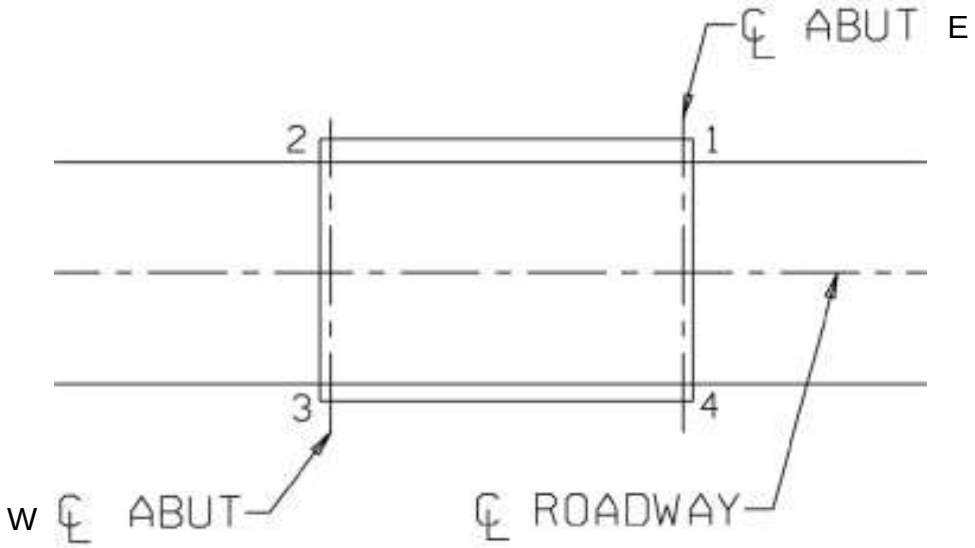
County: Montgomery

Road Carried: FREDERICK AVENUE

Crossing: SILVER CREEK

Date Inspected: 11/08/2022

Inspector: FCB/GBL



DOES THE APPROACH GUARDRAIL EXTEND A LONG ENOUGH DISTANCE TO PROTECT TRAFFIC AT BRIDGE AREA FROM EMBANKMENT?

☐ YES ☑ NO

IS THE FACE OF THE GUARDRAIL MORE THAN 6" BACK FROM THE GUTTER LINE AT THE BRIDGE?

☐ YES ☑ NO

IF YES, SUCH AS WHERE A SIDEWALK IS ON THE BRIDGE, HAS A RAMP OF CONCRETE BEEN PROVIDED TOWARD TRAFFIC?

☐ YES ☐ NO ☑ N/A

Comments: There are no approach traffic barriers at any of the four corners.

Montgomery County, MD Dept. of Transportation Bridge Coating Rating Form

Bridge No. M-K-02X01 Name FREDERICK AVENUE Date 11/08/2022

Weathering Steel NO Crossing SILVER CREEK

Inspectors FCB/GBL

COMPONENTS

	% Rating 1	% Rating 2	% Rating 3	% Rating 4	Total
Girders					
Fascias					
Bearings					
Edges					
End Dam					
Deck Pans (☐Galv ☐Paint)					
Railings					
Other					
1)					
2)					
3)					
4)					
5)					
				Overall Rating	

Comments:

Concrete slab bridge.

Recommendations:

BRIDGE INSPECTION NOTES

VISUAL INSPECTION NOTE

The condition report and recommendations presented herein are based upon a visual inspection of accessible portions of the existing structure. No responsibility is assumed by Whitman, Requardt and Associates, LLP for the presence of any latent structural defects which cannot be detected by such visual inspection.

BRIDGE SKETCHES NOTE

The bridge sketches included in this report were previously prepared by others and are reproduced herein from materials furnished by Montgomery County. Whitman, Requardt and Associates, LLP assumes no responsibility for the accuracy of the sketches and the correctness of any detail dimensions.

INSPECTION ACCESS NOTE

The following equipment was used to access Bridge No. M-K-02X01:

- Waders

Bridge No. M-K-02X01 (Frederick Avenue over Silver Creek)

SOUNDING SHEET

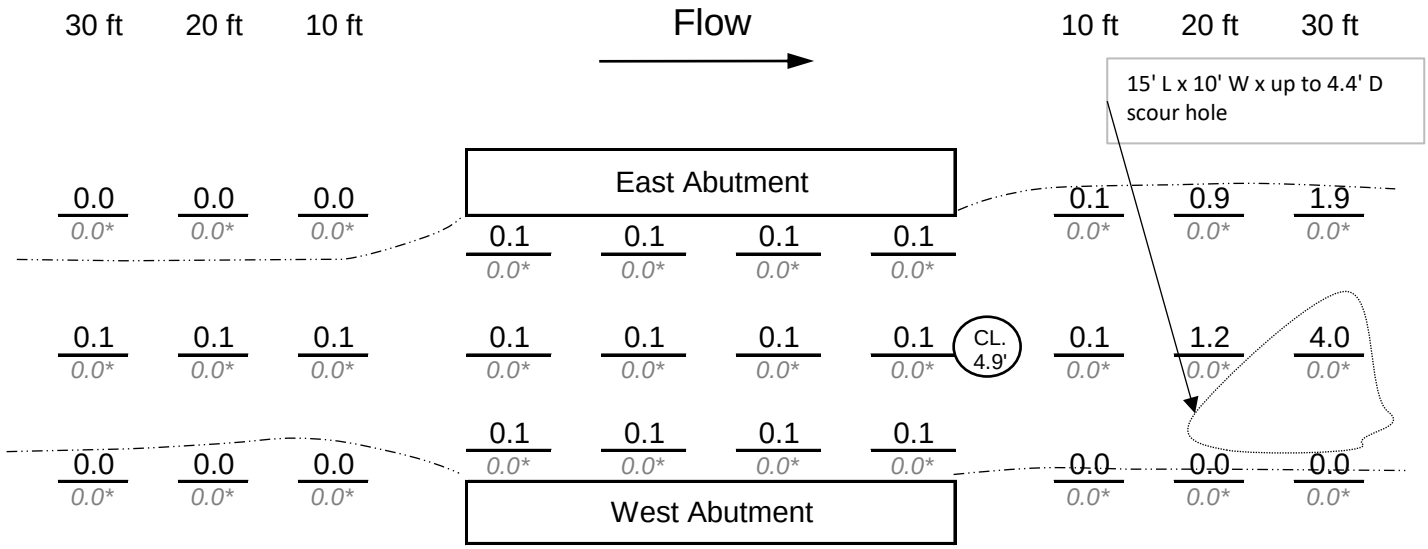
(All measurements are in feet)

North

Clearance Location: Downstream Bottom of Slab at midspan

Clearance is the distance measured from the water surface to the clearance location.

Inspectors: FCB/GBL



Streambed Composition: Sand, silt, gravel, and concrete channel protection

Legend:
- X.X - Current Soundings
- *X.X* - 2007 Base Year Soundings (Adjusted for difference in water surface elevation)
- CL. X.X' - Clearance
- Edge of Stream
- * - Streambed observed dry during base year
- ** - No base year measurement
- (-) - Indicates that the 2022 water surface elevation is lower than the base year bottom of channel

SOUNDING SHEET

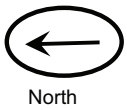
(All measurements are in feet)

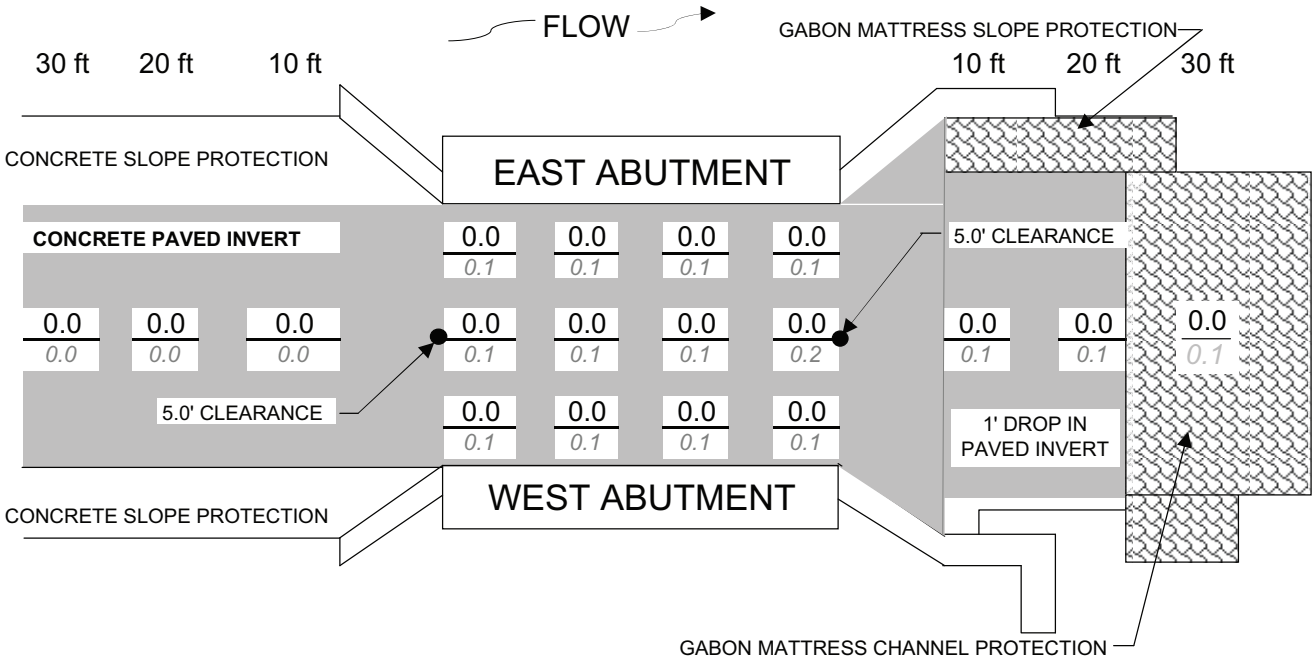
Bridge No. MK-02B

Sheet 1 of 1

Date: 10/13/2007 Inspectors: HAS/MSC Clearance Location: MIDSPAN/BOT. OF SLAB

Clearance is the measured distance from the surface of the water to the clearance location.





0.2 Denotes 2007 soundings

0.1 Denotes 2003 benchmark soundings

2022 BRIDGE INSPECTION REPORT

Bridge No. M-K-02X01 Inspection Crew FCB/GBL Date 11/08/2022

Name FREDERICK AVENUE Crossing SILVER CREEK

Bridge Type Concrete Slab Year Built 1920

BRIDGE INSPECTOR'S RECOMMENDATIONS FOR MAINTENANCE REPAIRS

DESCRIPTION	PRIORITY	QUANTITY	UNIT COST	TOTAL COST
1. Install standard traffic barrier transitions.	1	4 Ea.	$2600/Ea.	$10400
2. Install standard traffic barrier end treatments at all four (4) corners of the structure.	1	4 Ea.	$2800/Ea.	$11200
3. Install W-beam traffic barriers at all four corners of the bridge.	1	100 L.F.	$60/L.F.	$6000
4. Install object markers at all four (4) corners of the structure.	2	4 Ea.	$500/Ea.	$2000
5. Install advance posting sign at the East Approach at the intersection with Wake Drive.	2	1 Ea.	$500/Ea.	$500
6. Repair gabion baskets in the downstream channel.	3	1 L.S.	$7500/L.S.	$7500
7. Repair the area of undermining in the northeast approach sidewalk near the structure.	2	1 L.S.	$1500/L.S.	$1500
8. Repair the edge spalling in the wearing surface along the top of the abutment backwalls.	3	1 L.S.	$1000/L.S.	$1000
9. Replace the West Abutment joint seal.	2	27 L.F.	$60/L.F.	$1620
10. Repair the delaminated areas in both abutments, southeast and southwest wing walls.	3	1 L.S.	$5000/L.S.	$5000
			Total:	$ 46720

BRIDGE NO. M-K-02X01 - FREDERICK AVENUE OVER SILVER CREEK

1. West Approach (Looking East)

2. East Approach (Looking West)

BRIDGE NO. M-K-02X01 - FREDERICK AVENUE OVER SILVER CREEK

3. North Elevation (Upstream)

4. South Elevation (Downstream)

BRIDGE NO. M-K-02X01 - FREDERICK AVENUE OVER SILVER CREEK

5. Looking North (Upstream)

6. Looking South (Downstream)

7. Typical condition of concrete wearing surface over the structure

8. Longitudinal crack in the wearing surface located 7'-0" from the north curb

9. Typical edge spalling in the wearing surface along the abutment backwalls (eastbound lane at East Abutment shown)

10. Diagonal hairline crack with efflorescence in the northeast corner of the deck soffit

11. Vertical hairline crack in the south fascia at the east abutment, 9" from the backwall

12. Gap between the deck and the West Abutment backwall at the southwest corner of the deck

13. Moderate efflorescence along the construction joint at the centerline of the slab

14. Undermining at the west end of the north traffic barrier

15. West abutment joint seal is missing or debonded at centerline of bridge

16. Delaminated concrete and vertical hairline cracking with minor efflorescence at south end of east abutment

17. Delaminated concrete and cracking with efflorescence at north end of east abutment

18. Missing mortar and vertical cracks in the southeast wing wall

19. Missing bricks and mortar around the outlet pipes in the southwest wing wall

20. Spall on the top face of the west backwall in centerline of westbound lane

21. Spall along the bottom of the 1st panel from the northeast slope protection

22. Differential settlement between the 2nd and 3rd panels from the northeast slope protection

23. Displaced gabions lying in the channel within 30 of the downstream channel protection

24. Typical load posting sign (northeast sign shown)

25. Steep drop-off at the northeast corner of the bridge

2022 BRIDGE INSPECTION REPORT

Bridge No. M-K-02X01 Inspection Crew FCB/GBL Date 11/08/2022

Name FREDERICK AVENUE Crossing SILVER CREEK

Bridge Type Concrete Slab Year Built 1920

58 DECK

	CONDITION RATING	
1. Wearing Surface (302)	6	Concrete Overlay
2. Deck - Topside (301)	-	
3. Deck - Underside (301)	6	Concrete
4. Curbs (304)	6	Concrete
5. Median (304)	-	
6. Sidewalks (304)	5	Concrete
7. Parapets (303)	7	Concrete
8. Railing (303)	-	
9. Roadway Joints	4	Compression seal on west side
10. Drainage System (314)	-	
11. Lighting Standards	-	
12. Utilities	-	Overhead electric on north side
13. Other	-	

Inspector's Condition Rating (58) 6

Note: The bridge was replaced with a cast-in-place reinforced concrete slab in 1990.

58.1 - The concrete wearing surface is in satisfactory condition. There is a 6'-0" long diagonal hairline crack in all four (4) corners of the wearing surface. There are two (2) full-length longitudinal hairline cracks in the wearing surface at 7'-0" and 21'-0" from the north curb (see Photo 8). There is minor scaling throughout the wearing surface. There is up to 1'-4" long x 4" wide x 1" deep edge spalling in the wearing surface along the top of both abutment backwalls (see Photo 9).

58.3 - The underside of the slab is in satisfactory condition. Most soffit cracks are reflective of cracks noted in the topside of the deck (see section 58.1). There is a 4'-0" long diagonal hairline crack with minor efflorescence in the northeast corner of the deck soffit (see Photo 10). There are two (2) full-length hairline cracks with moderate efflorescence in the deck soffit reflective of the cracks in the wearing surface. There is a 6'-0" long diagonal hairline crack with minor efflorescence at the southeast corner of the deck soffit. There is a 1'-0" long vertical hairline crack in the south fascia at the east abutment, 9" from the backwall (see Photo 11). At the southwest corner of the deck, there is a 2" wide gap between the deck and the west abutment backwall (see Photo 12). There is moderate efflorescence along the longitudinal construction joint at the centerline of the slab (see Photo 13).

58.4 - The west end of the north curb has a 5" wide x full height x 1" deep spall. The east end of the south curb has a 1'-0" long x 1'-0" wide x 1" deep spall on the top face. There are minor spalls at the west end of the south curb.

58.6 - The concrete sidewalks are in satisfactory condition. There are 3'-0" long diagonal hairline cracks in the north sidewalk at both ends. There are two (2) diagonal hairline cracks with minor efflorescence in underside of the south sidewalk at the east end measuring 3'-0" and 4'-0" long. There

is a 1’-6” long diagonal hairline crack in the underside of the south sidewalk at the west end. There are two (2) up to 2’-9” long diagonal hairline cracks with minor efflorescence on the underside of the north sidewalk, one near the east abutment and one near the west abutment.

The northeast approach sidewalk near the bridge exhibits a 1’-4” long x 4” high area of undermining that can be probed horizontally for 10”. There is a full width transverse x 1/8” wide crack at the northwest approach sidewalk, 3’-0” from the bridge.

58.7 - The parapets are in good condition. The north parapet exhibits a 2’-8” long x 4” high area of undermining that can be probed horizontally up to 1’-3” long at the west end (see Photo 14).

58.9 - The west abutment joint seal is missing or debonded for 60% of its length with moderate debris accumulation throughout (see Photo 15).

2022 BRIDGE INSPECTION REPORT

Bridge No. M-K-02X01 Inspection Crew FCB/GBL Date 11/08/2022

Name FREDERICK AVENUE Crossing SILVER CREEK

Bridge Type Concrete Slab Year Built 1920

59 SUPERSTRUCTURE

Number of Spans 1

Type of Construction Cast-in-place

	CONDITION RATING	
1. Bearing Devices (311)	-	
2. Girders or Beams (312)	-	
3. Stringers (312)	-	
4. Floor Beams (312)	-	
5. Diaphragms/Crossframes	-	
6. Paint (313)	-	
7. Other Slab	6	Cast-in-Place
8. Rivets or Bolts	-	
9. Welds - Cracks	-	
10. Rust	-	
11. Timber Decay	-	
12. Concrete Cracking	6	
13. Collision Damage	-	
14. Deflection Under Load	7	
15. Alignment of Members	7	
16. Vibrations Under Load	7	
17. Fracture Critical Members (325)	-	

Inspector's Condition Rating (59) 6

Note: The superstructure is a cast-in-place reinforced concrete slab. See item 58.3.

2022 BRIDGE INSPECTION REPORT

Bridge No. M-K-02X01 Inspection Crew FCB/GBL Date 11/08/2022

Name FREDERICK AVENUE Crossing SILVER CREEK

Bridge Type Concrete Slab Year Built 1920

60 SUBSTRUCTURE

		CONDITION RATING
1. Abutments	-Wingwalls	6
	-Backwalls	6
	-Stems	6
	-Footings	-
	-Piles	-
	-Scour/Erosion	7
	-Settlement	-
Overall Abutment Rating (322)		6
2. Piers or Bents	-Caps	-
	-Columns	-
	-Footings	-
	-Piles	-
	-Scour/Erosion	-
	-Settlement	-
Overall Pier Rating		-
3. Pile Bents	-Caps	-
	-Piles (324)	-
4. Concrete Cracking or Spalling		6
5. Steel Corrosion		-
6. Timber Decay		-
7. Other		-
8. Debris on Seats		-
9. Paint		-
10. Collision Damage		-
11. Overall Undermining/Scour		7

Abutment Type Reinforced Concrete

Pier Type None

Inspector's Condition Rating (60) 6

60.1 - The abutments are in satisfactory condition. There are several vertical and horizontal hairline cracks throughout the abutments with moderate efflorescence from the joint with the deck. There are up to 1/16” wide x 5'-0" high vertical cracks in the west abutment stem at the north end of the deck slab. There is a 2’-6” wide x 1’-0” high delaminated area with efflorescence on the top of the

west abutment stem near the mid-length. There are two (2) delamination's in the east abutment; a 5’-0” wide x 5’-0” high delamination 7’-0” from the north end and a 9’-0” wide x 4’-0” high delamination 1’-0” from the south end. Both delamination's have vertical hairline cracks and map cracks with efflorescence (see Photos 16-17). At mid-length of the east abutment stem, there is a 7” high x 1 ½” long area of delaminated concrete at the top with moderate efflorescence.

The wing walls are in satisfactory condition. There are no significant defects at the northeast and northwest wing walls. There are two (2) types of wing walls on the south side of the structure. There are brick, stone and mortar wing walls from a previous structure and reinforced concrete wing walls constructed with the current bridge. There are storm drain pipes, 1'-0" and 2'-0" in diameter, extending out from both brick wing walls. There is missing mortar up to 1/4” wide and vertical crack in the southeast and southwest wing walls (see Photo 18). The southwest wing wall exhibits a 1’-0” high x 1’-7” wide x 1’-2” deep area of missing bricks and mortar located below the 1’-0” diameter outlet pipe (see Photo 19). There is a 10” high x 6” wide x 1’-6” deep area of missing brick and mortar between the outlet pipes in the southwest wing wall. Above the 1’-0” diameter outlet pipe in the southwest wing wall, there is a 4” high x 5” wide x 8” deep void. There is 3'-0" long x 3'-0" wide area of delaminated concrete in the southeast wing wall near the brick wing wall. There is a 2'-0" long x 2'-0" wide delaminated area containing a 9” diameter x 1” deep spall in the southwest wing wall near the abutment. At the southeast wing wall, there is a 1’-4” long x 8” wide x 1 1/2” deep corner spall at the joint between the masonry and concrete wing walls.

The abutment backwalls are in satisfactory condition. There are a few small spalls in the tops of both abutment backwalls. There is a full width x 1'-3" long x 2 1/2" deep spall on the top of the west backwall in the middle of the westbound lane (see Photo 20).

2022 BRIDGE INSPECTION REPORT

Bridge No. M-K-02X01 Inspection Crew FCB/GBL Date 11/08/2022

Name FREDERICK AVENUE Crossing SILVER CREEK

Bridge Type Concrete Slab Year Built 1920

61 CHANNEL AND CHANNEL PROTECTION

	CONDITION RATING	
1. Channel Scour	6	
2. Embankment Erosion	7	
3. Drift/Debris	7	
4. Vegetation	6	
5. Channel Alignment	7	
6. Fender System	-	
7. Spur Dikes and Jetties	-	
8. Riprap/Slope Protection	6	Concrete Slope Protection (Upstream) and Gabions with Class I Riprap (Downstream)

Inspector's Condition Rating (61) 6

61.1 - There is a 15’-0” long x 10’-0” wide x up to 4’-4” deep scour hole in the downstream channel, beginning approximately 20’ downstream.

61.4 - There is vegetation growing out of the joints and weep holes along the upstream concrete slope protections.

61.8 - The concrete channel is in satisfactory condition. There is up to 1/2" deep scaling with exposed aggregate throughout the concrete channel protection. There are chips and spalls in the bottom edge of the upstream concrete channel protection. There are full height cracks with associated up to 3” of settlement in the 1st section of the northeast slope protection. There is a 6’-0” long x 1’-10” wide x full height (4”) spall in the 1st section from the bridge of the northeast slope protection that can be probed up to 1’-2” (see Photo 21). There is up to 5" of differential settlement between the 2nd and 3rd northeast slope protection sections from the bridge (see Photo 22).

The downstream channel bottom and banks are lined with gabions for approximately 100' after the end of the concrete lined channel. The gabions in the channel bottom have missing rocks, broken mesh and bulging throughout. There are displaced gabions lying in the channel within 30’ of the downstream channel protection (see Photo 23). There is a 2'-0" long x 1'-0" high x 2" deep spall on the vertical face of the downstream concrete apron step.

2022 BRIDGE INSPECTION REPORT

Bridge No. M-K-02X01 Inspection Crew FCB/GBL Date 11/08/2022

Name FREDERICK AVENUE Crossing SILVER CREEK

Bridge Type Concrete Slab Year Built 1920

71 WATERWAY ADEQUACY

Opening	Good	Fair	Poor	
Alignment	Good	Fair	Poor	
Frequency of Overtopping	Remote	Slight	Occasional	Frequent

Inspector's Condition Rating (71) 8

2022 BRIDGE INSPECTION REPORT

Bridge No. M-K-02X01 Inspection Crew FCB/GBL Date 11/08/2022

Name FREDERICK AVENUE Crossing SILVER CREEK

Bridge Type Concrete Slab Year Built 1920

72 APPROACH ROADWAY ALIGNMENT APPRAISAL RATING

1. Vertical Alignment	E	[Good]	Fair	Poor	Slight downgrade to the bridge
	W	[Good]	Fair	Poor	Slight downgrade to the bridge
2. Horizontal Alignment	E	[Good]	Fair	Poor	Slight curve to the south
	W	[Good]	Fair	Poor	Slight curve to the south
3. Speed Limit Reduction		[None]	Minor	Substantial	Shopping center entrance on West Approach
4. Sight Distance		[Adequate]	Not Adequate		

Inspector's Condition Rating (72) [8]

APPROACH ROADWAY

	CONDITION RATING
5. Approach Guardrail	-
6. Approach Pavement	7
7. Approach Embankments	7
8. Approach Slabs	-
9. Relief Joints	-

10. Signing - Legibility and Visibility Good [Fair] Poor Load Posting Signs

11. Posted Load Limits 52,000 lbs GVW Posted Bridge Speed Limit [-] MPH

70,000 lbs GCW Normal Roadway Speed Limit 25 MPH

12. Traffic Safety Features (36)

a. Bridge Railing	0	[1]	N	Concrete Parapet
b. Transitions	[0]	1	N	No approach traffic barriers
c. Approach Traffic Barrier	[0]	1	N	No approach traffic barriers
d. Approach Traffic Barrier Ends	[0]	1	N	No approach traffic barriers

72.6 - The approach roadways are in good condition. There is 1/16” wide alligator cracking in the east approach roadway within 15’ of the bridge. There are no significant defects in the west approach roadway.

72.10 - There are no bridge end markers.

72.11 - There are load posting signs on each side of the bridge, and an advanced posting sign is

located at the west approach (see Photos 24). The load rating sign located on the northeast corner of the structure is leaning towards the north. The bridge does not require posting based on the Load Rating Summary; however, the county has decided to maintain the current postings according to previous inspection reports. The previously noted advanced posting sign at the west approach obscured by vegetation was not observed. There is no advance posting sign at the east approach.

72.12 - There are no approach traffic barriers at any of the four corners. There are timber fences at all four corners of the structure at the ends of the parapets. There are steep drop-offs along the northwest, northeast and southeast corners of the approaches (see Photo 25).

Bridge Inspection Report
Element Form

Bridge No: M-K-02X01 | Inspection Date: 11/08/2022

FREDERICK AVENUE OVER SILVER CREEK | Milepoint: 0000490

(58) Deck	6	(59) Superstructure	6	(60) Substructure	6
(61) Channel	6	(62) Culvert	N		

Element	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
38 - Reinforced Concrete Slab	1 - Ben.	604	sq. ft.	561	43	0	0
☐ Eng Req ☐ FYI ☐ District ☐ Inaccessible? ☐ Eng Comments							
510 - Wearing Surfaces		420	sq. ft.	410	0	10	0
☐ Eng Req ☐ FYI ☐ District ☐ Inaccessible? ☐ Eng Comments							
215 - Reinforced Concrete Abutment	1 - Ben.	56	ft.	27	29	0	0
☐ Eng Req ☐ FYI ☐ District ☐ Inaccessible? ☐ Eng Comments							
301 - Pourable Joint Seal	1 - Ben.	27	ft.	7	0	0	20
☐ Eng Req ☐ FYI ☐ District ☐ Inaccessible? ☐ Eng Comments							
331 - Reinforced Concrete Bridge Railing	1 - Ben.	36	ft.	36	0	0	0
☐ Eng Req ☐ FYI ☐ District ☐ Inaccessible? ☐ Eng Comments							
8062 - Sidewalk, Reinforced Concrete	1 - Ben.	36	Ft.	34	2	0	0
☐ Eng Req ☐ FYI ☐ District ☐ Inaccessible? ☐ Eng Comments							
8251 - Wingwalls, Reinforced Concrete	1 - Ben.	35	Ft.	28	5	2	0
☐ Eng Req ☐ FYI ☐ District ☐ Inaccessible? ☐ Eng Comments							
8253 - Wingwalls, Other Material	1 - Ben.	24	Ft.	0	24	0	0
☐ Eng Req ☐ FYI ☐ District ☐ Inaccessible? ☐ Eng Comments							
8257 - Reinforced Concrete Abutment Backwall	1 - Ben.	56	Ft.	44	10	2	0
☐ Eng Req ☐ FYI ☐ District ☐ Inaccessible? ☐ Eng Comments							
8260 - Slope, Protected	1 - Ben.	1	Each	0	0	1	0
☐ Eng Req ☐ FYI ☐ District ☐ Inaccessible? ☐ Eng Comments							
8322 - Roadway Approach Transition	1 - Ben.	2	Each	2	0	0	0
☐ Eng Req ☐ FYI ☐ District ☐ Inaccessible? ☐ Eng Comments							
8345 - Stream Channel	1 - Ben.	1	Entire Bridge	1	0	0	0
☐ Eng Req ☐ FYI ☐ District ☐ Inaccessible? ☐ Eng Comments							
8346 - Gabion Wall	1 - Ben.	200	Ft.	0	0	200	0

Bridge Inspection Report
Element Form

Bridge No: M-K-02X01 | Inspection Date: 11/08/2022

FREDERICK AVENUE OVER SILVER CREEK | Milepoint: 0000490

(58) Deck	6	(59) Superstructure	6	(60) Substructure	6
(61) Channel	6	(62) Culvert	N		

☐ Eng Req ☐ FYI ☐ District ☐ Inaccessible? ☐ Eng Comments

8359 - Soffit (underside) of concrete decks and slabs	1 - Ben.	1	Entire Bridge	0	1	0	0

☐ Eng Req ☐ FYI ☐ District ☐ Inaccessible? ☐ Eng Comments

STRUCTURE INVENTORY AND APPRAISAL REPORT

BRIDGE NUMBER: M-K-02X01

IDENTIFICATION

FORM 1 OF 13

(8) STRUCTURE NUMBER: 2 0000X Small Structure M- K-02 07 Bridges <= 20' 0" 0 Single Structure

(8) FHWA NUMBER: 20000XM-K-02070

(7) FACILITY CARRIED: FREDERICK AVENUE

(6) FEATURE INTERSECTED: SILVER CREEK

(255) FEDERAL SUBMITTAL INDICATOR: N No

(262) NAME OF STRUCTURE:

(27) YEAR BUILT: 1920 (106) YEAR RECONSTRUCTED: 1990

(263) ADDITIONAL RECONSTRUCTION YEARS: N N

(1) STATE CODE: 243 Maryland (2) DISTRICT CODE: 03 03

(3) COUNTY CODE: 031 Y (4) PLACE CODE: 43500

(5) INVENTORY ROUTE: 1 Route carried "on" the structure 5 City Street (Route Prefix) 1 Mainline (Level of Service) 00120 (Number) 0 Always (Direction)

(9) LOCATION: 1 MI E OF JC SR 193

(11) MILEPOINT: 0000490

(12) BASE HIGHWAY NETWORK: 0 Inv. Route is NOT on the Base Network

(266) GIS ROUTE ID: 15085MU00120 01EE**********

(267) GIS MILEPOINT: 0.49

(268) SCENIC ROUTE: N

(13) LRS INVENTORY ROUTE, SUBROUTE NUMBER:

(16) LATITUDE: (A) 39012922 (B) 39012894 (C) 39012878 (D) 39012911

(17) LONGITUDE: (A) 077041486 (B) 077041513 (C) 077041480 (D) 077041461

(28) LANES ON: 02 LANES UNDER: 00

(42) TYPE OF SERVICE ON: 5 Highway-Pedestrian

TYPE OF SERVICE UNDER: 5 Waterway

(98) BORDER STATE: BORDER STATE'S SHARE %:

(99) BORDER STATE'S NUMBER:

CLASSIFICATION

FORM 2 OF 13

(104) HWY SYSTEM: N No, Inventory Route is not on the NHS

(103) TEMPORARY STRUCTURE:

(105) FEDERAL LANDS HWYS: 0 Not applicable

(110) NATIONAL NETWORK: N No, the inventory route is not part of the national network for trucks.

(26) FUNCTIONAL CLASS: 19 Urban Local

(20) TOLL: 3 On free road

(100) DEFENSE HWY: 0 The inventory route is not a STRAHNET route

(21) MAINTENANCE: 04 City or Municipal Highway Agency

(101) PARALLEL STRUCTURE: N No parallel structure

(22) OWNER: 04 City or Municipal Highway Agency

(102) DIRECTION: 2 2-way traffic

(37) HISTORICAL SIGNIFICANCE: 5 Not eligible

BRIDGE NUMBER: M-K-02X01

TRAFFIC

FORM 3 OF 13

(19) DETOUR:	01	(109) TRUCK ADT %:	05
(29) ADT:	000356	(30) ADT YEAR:	2019
(114) FUTURE ADT:	000420	(115) FUTURE ADT YEAR:	2039

STRUCTURE TYPE AND MATERIAL

FORM 4 OF 13

(43) STRUCT TYPE:	A	Concrete	01	Slab		
(44) STRUCT TYPE - APPR:	0	Not Applicable	00	Other		
(232) BOX CULVERT ON PILES:	0	None	0	Entire Structure		
(208) STRUCT TYPE - WIDENED/EXTENDED:	N		N		N	
(219) SLOPE PROTECTION:	0	None				
(228) FOOTING - ABUTMENT:	1	Concrete	0	None	0	Entire Structure
(229) SUBSTRUCT ABUTMENT:	1	Concrete	8	Gravity	0	Entire Structure
(230) FOOTING - PIER:	N	Not Applicable				
(231) PIER TYPE:	N	Not Applicable				
(242) BEARING TYPE:	N	None or N/A				
(108) WEARING SURFACE:	1	Concrete	0	None	0	None
(243) JOINT TYPE:	A	Pourable Seal	N	None	N	None

(206) STRUCT SUBTYPE - MAIN:	N	Not Applicable	(207) STRUCT SUBTYPE - APPR:	N	Not Applicable
(257) SCOUR PROTECTION:	4		(270) CONC. DECK SPECIAL TYPE:	N	Not Applicable
(221) STRUCTURAL STEEL:	N	Not Applicable	(233) DECK - COMP/NON-COMP:	0	Non-Composite
(107) DECK STRUCTURE TYPE:	1	Concrete Cast-in-Place	(259) STAY-IN-PLACE FORMS:	N	

(235) PARAPET:	02	Concrete-Rectangular					
(236) RAILING:	0	None	0	- None	0	None	0 - None
(237) FENCING:	0	None	0	- None			
(278) PAINT SYSTEM:	N	Not Applicable					
(344) PAINT COLOR/NUMBER:	N	Not Applicable					
(345) YEARS PAINTED:	N	N					

GEOMETRICS

(112) NBIS BRIDGE LENGTH:	N	(49) STRUCTURE LENGTH:	0000180
(210) NUMBER OF SPANS:	0001	(45) # SPANS IN MAIN UNIT:	001
(46) # APPROACH SPANS:	0000	(209) CONTINUOUS SPANS:	N
(48) LENGTH MAX SPAN:	0015	(238) # STRINGERS - ORIGINAL:	00
(240) SPACING - ORIGINAL:	N	(239) # STRINGERS - WIDENED:	00
(241) SPACING - WIDENED:	N	(33) BRIDGE MEDIAN:	0
(50) CURB/SIDEWALK WIDTHS:	069 061	(205) MEDIAN WIDTH:	000
(51) DECK CURB-CURB WIDTH:	0263	(32) APPROACH ROAD WIDTH:	00 026 00
(52) DECK OUT-OUT WIDTH:	0413	(10) INVENT ROUTE, MIN VERT CLEAR:	9999
(53) BRIDGE ROADWAY, MIN VERTCLEAR:	9999	(47) INVENT ROUTE, TOTAL HORIZ CLEAR:	263
(54) MIN. VERT. UNDERCLEARANCE:	N Feature not a highway or a railroad		A < 10'
(55) MIN. LAT. CLEARANCE (RIGHT):	N Feature not a highway or a railroad		000
(56) MIN. LAT. CLEARANCE (LEFT):	000	(342) HORIZ CLEARANCE (ON):	02603
(34) SKEW, IN DEGREES:	00	(280) HORIZ CLEARANCE (UNDER):	N
(35) STRUCTURE FLARED:	N	(253) NUMBER OF CELLS:	N
(256) SPAN OF CELLS:	N	(254) RISE:	N
		(258) EARTH FILL:	N
		(343) CENTERLINE LENGTH (Culverts/Pipes):	N

(223) SHOULDER WIDTHS: N N N 0000

(264) TYPE AND SPAN: CS 16'-6"

LOAD RATINGS AND POSTINGS

(41) STATUS: P Posted for load

(31) DESIGN LOAD: 5 HS 20

(398) PEDESTRIAN LOADING: N

(399) RAILROAD LOADING: N

(70) POSTING: 5 Equal to or above legal loads

(224) WEIGHT POSTED: 52 70 (New Split)

(66) INVENTORY RATING: 360

(64) OPERATING RATING: 360

(400) DATE OF RATING: 05 2020

(65) METHOD USED TO DETERMINE INVENTORY RATING: 0 Field Evaluation and Documented Engineering Judgment

(63) METHOD USED TO DETERMINE OPERATING RATING: 0 Field Evaluation and Documented Engineering Judgment

	INVENTORY RATING		OPERATING RATING	
HL-93 Vehicle	(402)		(401)	
H-15 Vehicle	(404)	150	(403)	150
T3 (Dump Truck) Vehicle	(406)		(405)	
T4 Reduced Lift Axle Vehicle	(408)	350	(407)	350
HS Vehicle	(410)	360	(409)	360
3S2 Vehicle	(412)	400	(411)	400
150K Vehicle	(414)		(413)	
90K Permit Combination Vehicle	(416)		(415)	
90K Mobile Crane Vehicle	(418)		(417)	
90K Cargo Vehicle	(420)		(419)	
80K Cargo Vehicle	(422)		(421)	
120K Vehicle	(424)		(423)	
108K Mobile Crane Vehicle	(426)		(425)	
120K Mobile Crane Vehicle	(428)		(427)	

(225) SPEED LIMIT ON STRUCTURE: N

(226) MIN VERT CLEARANCE OVER ROADWAY POSTED: X Posting signs not required

(227) MIN VERT UNDERCLEARANCE POSTED: X Posting signs not required

BRIDGE NUMBER: M-K-02X01

CONDITION INSPECTION

	Inspection Month	(91) Frequency	Due Date	(90) Inspection Date	(290) Inspection Report Completion Date
Routine Inspection	11	48	11/08/2025	11/08/2021	02/08/2016

Critical Feature Inspections	(291) Inspection Month	(92) Frequency	Due Date	(93) Critical Feature Inspection Date
(A) Fracture Critical Members		N		
(B) Underwater Inspection		N		
(C) Special Inspection		N		
(D) Hands-on Railroad		N		
(E) Confined Space		N		
(F) Ultrasonic Testing (UT) Pin		N		
(G) Ultrasonic Testing (UT) Anchor		N		
(H) Post Tensioning Bar		N		
(I) Cathodic Protection		N		
(J) Consultant		N		
(K) Movable Bridge		N		
(L) Suspension Bridge		N		
(M) Cable		N		
(N) Monitor		N		
(P) Flood				
(Q) Damages				
(R) Inquires				

(58) DECK: 6 Satisfactory Condition

(59) SUPERSTRUCTURE: 6 Satisfactory Condition

(60) SUBSTRUCTURE: 6 Satisfactory Condition

(61) CHANNEL/PROTECTION: 6 Bank slump. widespread minor damage

(62) CULVERTS: N Not Applicable

(310) INSPECTION DATA UPDATE DATE: 06/21/2016

(312) LEAD INSPECTOR: Franz C. Bustillos, EIT

(311) INSPECTION TEAM: YWRA

(313) BRIDGE INSPECTOR: Galen B. Lehman, EIT

(314) HOURS TO INSPECT: 008

(316) DECK PLANKING %: 00

(315) DECK PUNCTURES %: 00

(317) DECK PATCHING %: 00

(318) BLOCKING: N

(319) POWER WASHING: N

(320) IDENTIFICATION NO.: N

(321) INVENTORY DIRECTION: WEST

(323) PERMIT: N

(324) NIGHT WORK: N

(325) WEEKEND WORK: N

(322) LOOKING TOWARD: KENSINGTON PKWY

(326) MAINTENANCE OF TRAFFIC STANDARDS: N

(327) MOT COMMENTS:

(328) LOCATION OF MIN. VERT. UNDERCLEARANCE: N

BRIDGE NUMBER: M-K-02X01

(329A) CRITICAL FINDINGS: N (329B) CRITICAL FINDINGS DATE:

(330) CRITICAL FINDINGS COMMENTS:

(331) CAUTION COMMENTS:

(332) UNDERCLEARANCE POSTING SIGNS: X Posting signs not required

(340) INSPECTION EQUIPMENT:

W Waders		

(333) MHOI: N (334) MHOI LOCATIONS:

(335) ADVANCED NOTIFICATION: N

(336) ADVANCED NOTIFICATION COMMENTS:

BRIDGE NUMBER: M-K-02X01

APPRAISAL

FORM 8 OF 13

(67) STRUCTURAL EVALUATION:	6	BSR 92.5	(68) DECK GEOMETRY:	5
(69) UNDERCLEARANCE:	N		(72) APPROACH ALIGNMENT:	8
(71) WATERWAY ADEQUACY:	8			

(36) TRAFFIC SAFETY FEATURES — RAILINGS:	1	Meets Standards
TRANSITIONS:	0	Does NOT meet Standards
APPROACH BARRIER:	0	Does NOT meet Standards
APPROACH BARRIER ENDS:	0	Does NOT meet Standards
(113) SCOUR EVALUATION:	8P	Bridge is a culvert-type structure with paved bottom.
(DT) DEDUCT CODE:	Z	
(STAT) STATUS:	0	Not Deficient

NAVIGATION

FORM 9 OF 13

(38) NAVIGATION CONTROL:	0	(39) NAV VERT CLEARANCE:	000
(40) NAV HORIZONTAL CLEARANCE:	0000		
(111) PIER/ABUTMENT PROTECTION:			
(116) MIN NAV VERT CLEARANCE, VERT LIFT BRIDGE:			
(247) DESIGN YEAR STORM:	000	(248) RUN-OFF Q:	000000
(249) DRAINAGE AREA:	000000	(250) STRUCTURE IN TIDAL AREA:	N No
(251) HIGH WATER ELEVATION:	0000		
(252) YEAR HIGH WATER ELEVATION - LATEST:	0000		

HISTORY AND PROPOSED IMPROVEMENTS

FORM 10 OF 13

(201) CONTRACT NUMBERS:						
(203) SHA SPEC- YEAR:	0000	N	N	N		
(204) AASHTO SPEC-YEAR:	0000	N	N	N		
(75) TYPE OF PROPOSED WORK:			(76) LENGTH OF IMPROVEMENT:	000000		
(94) BRIDGE IMPROVE COST:	000000		(95) ROADWAY IMPROVE COST:	000000		
(96) TOTAL PROJECT COST:	000000		(97) YEAR OF IMPROVEMENT:			

BRIDGE NUMBER: M-K-02X01

MISCELLANEOUS

FORM 11 OF 13

(244) SIGNS ON STRUCTURE: N No

(245) BRIDGE ROADWY LIGHTING: N No

(246) PROVISION FOR ROADWAY LIGHTING: N No

(260) UTILITIES - ON:

- 0 Not Applicable
- 0 Not Applicable
- 0 Not Applicable
- 0 Not Applicable
- 0 Not Applicable

(261) UTILITIES - UNDER:

- E Electric
- T Telephone
- 0 Not Applicable
- 0 Not Applicable
- 0 Not Applicable

REMARKS:

1988 ADT = 275; 2019 estimated ADT and Future ADT values were revised based on an MNCPPC annual growth rate of 0.83%

NOISE BARRIER

FORM 12 OF 13

(501) TYPE:

(502) ALIGNMENT:

(503) LENGTH:

(504) MAXIMUM HEIGHT:

(505) FOUNDATION TYPES:

(506) FOUNDATION LENGTH:

(507) PANEL WIDTH:

(508) NUMBER OF SPECIAL PANEL(S):

(509) PANEL MATERIAL:

(510) FACING (Acoustic Treatment):

(511) PANEL FINISH:

(512) PANEL COLOR:

(513) FEDERAL COLOR:

(514) STACKED PANELS:

(515) NOISE BARRIER POST MATERIAL:

(516) ACCESS DOORS:

(517) FIRE HYDRANTS:

(518) RETROFITS:

RETAINING WALL

FORM 13 OF 13

(550) TYPE:

(551) ALIGNMENT:

(552) SEGMENT LENGTH(S):

(553) MAX. EXPOSED HEIGHT:

(554) FOUNDATION TYPES:

(555) TIEBACK:

(556) FACING:

(557) WITH FENCE OR RAIL:

(558) WITH NOISE BARRIER:

(559) PURPOSE:

Montgomery County, Maryland
Department of Transportation
Division of Transportation Engineering
100 Edison Park Drive, 4th Floor
Gaithersburg, Maryland 20878