

# CITY of NOVI CITY COUNCIL

Agenda Item K  
June 20, 2011

**SUBJECT:** Approval to award an amendment to the engineering services contract for construction engineering services related to the Cranbrooke Drive Bridge Repair project to URS Corporation, in the amount of \$29,132.

**SUBMITTING DEPARTMENT:** Department of Public Services, Engineering Division *BIT*

**CITY MANAGER APPROVAL:** *[Signature]* *174*

<b>EXPENDITURE REQUIRED</b>	<b>\$29,132</b>
<b>AMOUNT BUDGETED</b>	<b>\$248,000 (Included in approved FY10-11 budget)</b>
<b>LINE ITEM NUMBER</b>	<b>204-204.00-865.942</b>

## BACKGROUND INFORMATION:

The Cranbrooke Drive bridge over Ingersol Creek (f/k/a as Courter Ditch) was inspected in October 2010 as required every two years by the State of Michigan (see report dated October 22, 2010, attached). The inspection revealed that the bridge is in fair to poor condition and requires some rehabilitative maintenance work. Based on this report and the evaluation performed by URS, the following repairs are proposed as part of this project:

- Repair all delaminated/spalled concrete at each approach;
- Replace outer beams;
- Replace bridge barrier railing;
- Repair slope paving under the bridge and stabilize the area with rip rap to prevent future scouring.

The project is included in the approved FY2010-11 Capital Improvement Program.

The Agreement for Professional Engineering Services for Public Projects does not contain a fee category for bridge tasks, therefore proposals were solicited from the three pre-qualified firms at the time of design award for design and construction engineering phase fees. URS was selected as the engineer for this project.

The construction phase engineering fees are determined using two components: 1) the contract administration fee, and 2) the construction inspection fee determined using a cost per inspection (crew) day from Exhibit B of the consultant's agreement that is then multiplied by the number of days of inspection specified by the contractor. The construction phase fees for this project include a contract administration fee of \$13,142 (6.5% of the \$202,177 construction bid) and an inspection fee of \$15,990 (\$615 per crew day, multiplied by the 26 days provided in the contractor's bid) for a total fee of \$29,132.

The construction contract award is proposed for consideration elsewhere on this agenda. Construction is scheduled to begin in summer 2011 and completion is anticipated by fall 2011.

**RECOMMENDED ACTION:** Approval to award an amendment to the engineering services contract for construction engineering services related to the Cranbrooke Drive Bridge Repair project to URS Corporation, in the amount of \$29,132.

	1	2	Y	N
Mayor Landry				
Mayor Pro Tem Gatt				
Council Member Fischer				
Council Member Margolis				

	1	2	Y	N
Council Member Mutch				
Council Member Staudt				
Council Member Wrobel				

**FIRST AMENDMENT TO THE  
SUPPLEMENTAL PROFESSIONAL ENGINEERING SERVICES AGREEMENT**

**CRANBROOKE DRIVE BRIDGE REPAIR**

First Amended Agreement between the City of Novi, 45175 W. Ten Mile Road, Novi, MI 48375-3024, hereafter, "City," and URS Corporation – Great Lakes, whose address is 27777 Franklin Road, Suite 2000, Southfield, MI 48034, hereafter, "Consultant," relating to modifications of the fee basis for engineering services. The following sections of the Supplemental Professional Engineering Services Agreement, as made and entered into on November 9, 2010 shall be amended as follows:

**Section 2. Payment for Professional Engineering Services.** The following Paragraphs shall be amended as follows:

1. Basic Fee.
  - a. *Unchanged*
  - b. Delete 1.b. in its entirety and replace with the following language:  
Construction Phase Services: The Consultant shall complete the construction phase services as described herein according to the fee schedule as described below:
    - i. Contract Administration: The Consultant shall complete Contract Administration services for a lump sum fee of \$13,142, which is 6.5% of the awarded construction cost (\$202,177) as indicated on the Design and Construction Engineering Fee Curve , attached. Construction Inspection: The Consultant shall complete Construction Inspection services for \$615 per crew day as described in the request for proposals. "Crew days" shall be defined by the construction contract documents as an 8 hour day. Crew days shall be billed in 4 hour increments rounded to the next half day, therefore a 10 hour day shall be 1.5 crew days, a 3 hour day is 0.5 crew days, a 6 hour day shall be 1.0 crew days. The minimum crew day charged for a no-show by the contractor shall be 2 hours (0.25 crew days) which is reflective of the actual cost to the Consultant for traveling to the site and traveling back to the office. There will be no payment to the consultant for extra crew days that were not charged to the contractor. The Consultant acknowledges that intent of using crew days for inspection services is to provide a method for the consultant to recoup costs associated with slow progress by the contractor.
2. *Unchanged*

Except as specifically set forth in this First Amendment, the Supplemental Professional Engineering Services Agreement remains in full force and effect.

WITNESSES

URS Corporation – Great Lakes

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
By:  
Its:

The foregoing \_\_\_\_\_ was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_,  
20 \_\_\_\_, by \_\_\_\_\_ on behalf  
\_\_\_\_\_.

\_\_\_\_\_  
Notary Public  
\_\_\_\_\_ County, Michigan  
My Commission Expires: \_\_\_\_\_

WITNESSES

CITY OF NOVI

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
By:  
Its:

The foregoing \_\_\_\_\_ was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_,  
20 \_\_\_\_, by \_\_\_\_\_ on behalf of the City of Novi.

\_\_\_\_\_  
Notary Public  
Oakland County, Michigan  
My Commission Expires: \_\_\_\_\_

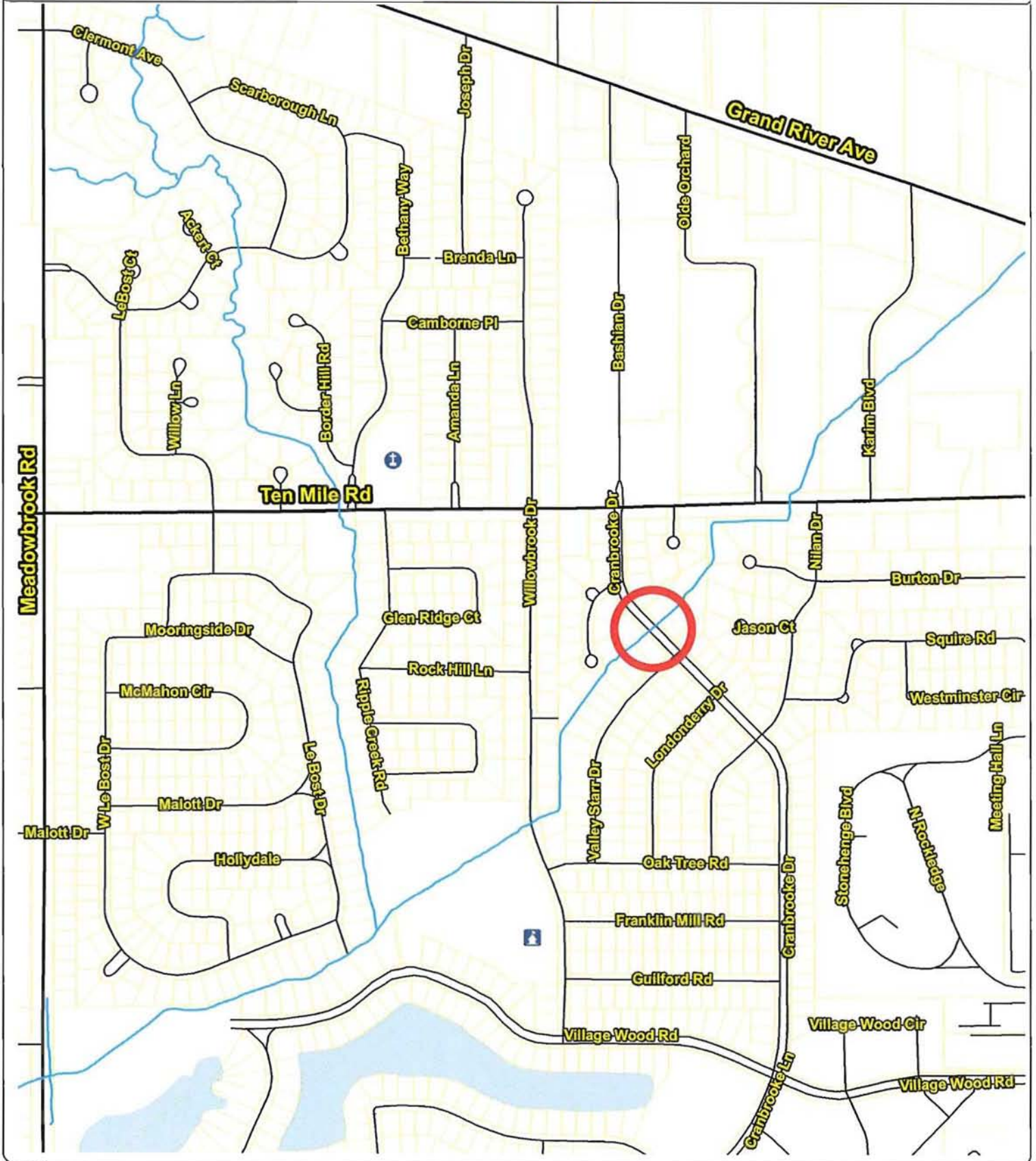
**MAP INTERPRETATION NOTICE**

Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent, accurate sources available to the people of the City of Novi.  
Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Please contact the City GIS Manager to confirm source and accuracy information related to this map.

# City Of Novi



## CRANBROOKE DRIVE BRIDGE Location Map



October 22, 2010

Mr. Ben Croy, City Engineer  
City of Novi  
45175 West Ten Mile Road  
Novi, MI 48375



**RE: 2010 Novi Bridge Inspection  
Completed Inspections and Recommendations**

Dear Mr. Croy:

OHM has completed the 2010 Bridge Inspections for the four City-owned bridges. Below is a summary of each structure with recommendations. To maximize the life of each structure, the maintenance repairs should be completed in the next 6-12 months.

**Meadowbrook over Courter Ditch**

- ✧ Replace damaged approach guardrail in northeast quadrant.
- ✧ Place bituminous wedging at approach/bridge sidewalk interface to eliminate the tripping hazard.
- ✧ Trim brush overhanging guardrail and sidewalk in southeast quadrant.
- ✧ Consider an epoxy overlay project in the future if cracking continues to increase.

**Willowbrook over Courter Ditch**

- ✧ Place riprap at each abutment.
- ✧ Clear debris from channel.
- ✧ Repair spalled areas of abutment at beam seats.
- ✧ Remove and replace approach sidewalk to match grade at bridge.

**Cranbrooke Drive over Courter Ditch**

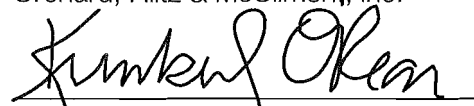
- ✧ Seal joints on bridge deck.
- ✧ Existing road drainage on the bridge sheet flows through a gap between the sidewalk and the road. This water then flows down the face of a beam and into the ditch. Drainage should be capped off from sheet flowing directly into the ditch to preserve the existing beam.
- ✧ Remove landscaping (trees, grass, dirt) from median and replace with concrete.
- ✧ Repair existing slope paving and add additional riprap.
- ✧ Seal joints on approach pavement.
- ✧ Repair spalled areas on abutments.

**West Park over CSX Railroad**

- ✧ Clean out expansion joints.
- ✧ Realign twisted guardrail spacer blocks.
- ✧ Replace damage wood rail.

Please contact me if you have any questions or require additional information.

Sincerely,  
Orchard, Hiltz & McCliment, Inc.

  
Kimberly O'Rear, PE

Facility	Federal Structure ID	Inspector Name	Agency/Consultant	Inspection Date	Legend				
CRANBROOKE DRIVE	63548900049B01	KIMBERLY O'R..	ORCHARD, HILTZ & ..	10/12/2010	9 New				
Feature	Latitude	Longitude	Struc Num	Insp Freq	Insp Key	7-8 Good			
COURTER DITCH	42 27' 56.66"	83 26' 34.12"	8248	24	RATW	5-6 Fair			
Location	Length	Width	Year Built	Year Recon	Mat Dsg	Scour Eval	No.Pins	3-4 Poor	2 or Less Critical
0.1 MI S OF TEN MILE RD	42	73.82	1974		5 04 U				

06  08  10

**NBI INSPECTION**

1. Surface SIA-58A	8	7	5	2 wide cracks (1") in concrete pavement in NB lanes Small spalls at transverse control joints. Bituminous patch at longitudinal joint in southbound lanes. HPJS in all joints is sunken and deteriorating. There is a landscaping area with a tree at each end across the structure. ( 10) Several transverse cracks in concrete surface in northbound lanes. Bituminous patch at longitudinal joint in southbound lanes. Landscaping across bridge in median. ( 08) Concrete pavement is in good condition. ( 06)
2. Expansion Jts		N		( 10) ( 08) ( 06)
3. Other Joints				( 10) ( 08) ( 06)
4. Railings	6	5	5	Concrete posts steel rails/pedstrian fencing. The north post of the pedestrian railing is damaged, with spalled concrete and exposed/bent reinforcing bars, in the NE quad. Post 3S on west side has spall to steel at bottom corner. Steel posts with guardrail at roadway. The bolts are corroded at base (conc to sidewalk connection) and at connection to posts. ( 10) Concrete posts steel rails/pedstrian fencing. The last post of the pedestrian railing is damaged, with spalled concrete and exposed/bent reinforcing bars, in the NE quad. Posts and fence on bridge are in fair condition - no spalls to concrete or section loss in railing observed. ( 08) The last post of the pedestrian railing is damaged in the NE quadrant. Fence and post on bridge are in good condition. ( 06)
5. Sidewalks or curbs	7	6	6	The west sidewalk along the curb line is spalled and the rebar is visible. Ends of the rebar are visible along the curb line of the east sidewalk. ( 10) The west sidewalk along the curb line is spalled and the rebar is visible. Ends of the rebar are visible along the curb line of the east sidewalk. ( 08) The west sidewalk along the curb line is spalled and the rebar is visible. Ends of the rebar are visible along the curb line of the east sidewalk. ( 06)
6. Deck Bottom Surface SIA-58B				Leaking between each of the Double T sections. ( 10) ( 08) ( 06)
7. Deck SIA-58	6	6	5	Based on surface and leaking between between. ( 10) Joints between beams show leavy leaking, efflorescence, and minor spalling. No exposed rebar observed. Bottom of concrete deck slabs not visible. ( 08) ( 06)
8. Drainage				Toe of sidewalk is not cast on the bridge deck. Water allowed to drain from bridge from edge of roadway at the toe of sidewalk. No evidence of ponding on the bridge deck. ( 10) Toe of sidewalk is not cast on the bridge deck. Water allowed to drain from bridge from edge of roadway at the toe of sidewalk. No evidence of ponding on the bridge deck. ( 08) ( 06)
9. Stringer SIA-59	6	5	5	East road fascia beam has longitudinal cracks (1/16 - 1/8") throughout web depth with largest at 1/3 points. Top flange cracked entire length with spall to steel in south third of beam. Leaching with efflorescence at joints between double T sections. 3rd joint on road bridges top flange is spalled with exposed reinforcement at south end at midspan. Beam 3-6W have longitudinal cracks in the web at mid span. All beams are cracked at embedded sole plates. ( 10) Longitudinal cracks in the east fascia beam under the roadway. Top flange of this beam spalled and wet along 1/2 of the span length. Leaching and spalling between the beams observed. All beam ends are rust stained at bearings. The concrete at the bottom of the beam is cracked/spalled 1" deep x 6" to 1ft long at the bearings - typical for all beam ends at both abutments. ( 08) Longitudinal cracks in the east fascia beam under the roadway. Leaching and spalling between the beams. ( 06)

Facility	Federal Structure ID	Inspector Name	Agency/Consultant	Inspection Date	Legend				
CRANBROOKE DRIVE	635489000049B01	KIMBERLY O'R..	ORCHARD, HILTZ & ..	10/12/2010	9 New				
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0.1 MI S OF TEN MILE RD	42	73.82	1974		5 5 U				

06 08 10

NBI INSPECTION

10. Paint SIA-59A	N	N	N	( 10) ( 08) ( 06)					
11. Section Loss			N	( 10) ( 08) ( 06)					
12. Bearings	6	4	5	All steel plates are heavily corroded with some pack rust present. The elastomer is bulging and cracked. The sole plates cast into the beams are also heavily corroded, some with extensive pack rust. Anchor bolts are heavily corroded. ( 10) All steel plates are heavily corroded with some pack rust present. The elastomer is bulging and cracked. The sole plates cast into the beams are also heavily corroded, some with extensive pack rust. Anchor bolts are heavily corroded. ( 08) The elastomer is bulging and craked. Steel plates are corroded. ( 06)					
13. Abutments SIA-60	6	4	4	North abutment seat spalled and delaminated at beams 4E thru 8E and 4W thru 6W. The spalled areas extend up to the face of the bearings. The abutment walls are rust stained and efflorescence is present along the entire length of both abutments. 2' x 8" spall at the top of the south abutment. Rebar visible at several of the spalled areas. ( 10) North abutment seat spalled and delaminated at beams 4E thru 8E and 4W thru 6W. The spalled/delaminated areas extend under the bearings (5-10% of bearing area). The abutment walls are rust stained and efflorescence is present along the entire length of both abutments. 2' x 8" spall at the top of the south abutment. Rebar visible at several of the spalled areas. ( 08) Vertical cracks at the road drainage opening locations in all four quadrants. 2' x 6" spall at the top of the south abutment. Several horizontal leaching cracks 2'-3' long at the top of the abutment. Rebar visible in a few locations. ( 06)					
14. Piers SIA-60	N	N	N	( 10) ( 08) ( 06)					
15. Slope Protection	5	5	5	Slope paving has been undermined and has settled and cracked. There is no toe header for the concrete slope paving. Animals have dug between the slope paving and abutment wall at the north abutment. ( 10) Slope paving has been severely undermined and has settled and cracked. There is no toe header for the concrete slope paving. Animals have dug between the slope paving and abutment wall at the north abutment. ( 08) Slope paving has been severely undermined and has settled, but few cracks. Animals have dug between the slope paving and abutment wall. ( 06)					
16. Approach Pavt	6	6	6	Pavement settled 1/2-1" +/- in all quads. NB Lanes: Pavement is spalling at longitudinal and transverse joints in south approach. North approach has trans crack in west lanes and spall in longitudinal joints. SB Lanes: North approach has 2 wide trans cracks and spalls with bit patches in longitudinal joints. ( 10) The approach pavement has settled 1/2" +/- in all quadrants. The concrete approach pavement has a few small areas of bituminous patching at the longitudinal joints. Few transverse cracks observed in the northbound lanes. ( 08) Has settled 1/2"+/- in all quadrants. ( 06)					
17. Approach Shldr Swalks				No approach sidewalks in area. ( 10) There are no approach sidewalks present. ( 08) There are no sidewalks present. ( 06)					
18. Approach Slopes				Well vegetated. ( 10) ( 08) ( 06)					
19. Utilities				( 10) No utilities attached to the bridge. ( 08) There is a cable that was draped from one wingwall to the other on the west side of the bridge. It appears to be a cable TV line that was not installed properly. ( 06)					



<b>Facility</b> CRANBROOKE DRIVE	<b>Federal Structure ID</b> 635489000049B01	<b>Inspector Name</b> KIMBERLY O'R.	<b>Agency/Consultant</b> ORCHARD, HILTZ & .	<b>Inspection Date</b> 10/12/2010	<b>Legend</b> 9 New 7-8 Good 5-6 Fair 3-4 Poor 2 or Less Critical	
<b>Feature</b> COURTER DITCH	<b>Latitude</b> 42 27' 56.66"	<b>Longitude</b> 83 26' 34.12"	<b>Struc Num</b> 8248	<b>Insp Freq</b> 24		<b>Insp Key</b> RATW
<b>Location</b> 0.1 MI S OF TEN MILE RD	<b>Length</b> 42	<b>Width</b> 73.82	<b>Year Built</b> 1974	<b>Year Recon</b>		<b>Mat Dsg</b> 5 5 U
	<b>No.Pins</b>	<b>NBI INSPECTION</b>				

20. Channel SIA-61      5   5   5      Channel is clear of debris. Banks in fair condition with minor erosion along the banks. Slope paving is being undermined. ( 10)  
 The channel is clear of debris, the banks are in fair condition with slight erosion of the channel bank. The slope paving beneath the bridge is undermined. ( 08)  
 The channel is clear of debris, the banks are in good condition and there are no signs of scour. The slope paving is in fair condition (see comments above). ( 06)

21. Drainage Culverts      ( 10)  
 ( 08)  
 ( 06)

<b>Guard Rail</b>	<b>Crit Feat Insp(SIA-92)</b>	71 Watr Adeq	8	<b>General Notes</b>
36A 0	<b>Freq    Date</b>	72 Appr Align	8	
36B 0	92A Frac Crit	Temp Supp		
36C 0	92B Und. Watr	Hi Ld Hit (M)		
36D 0	92C Spl.Insp	Special Insp Equip.		
	Fatg Sntv.Insp		0 -	

MDOT Bridge ID

6348905 0004900B01

Control Section

6348905 0..

NBI Bridge ID

635489000049B01

Struct Num

8248

Region

07

TSC

7B

County

63

City Resp

4890

City Location

4890

7- Facility Carried

CRANBROOKE DRIV..

6- Feature Intersected

COURTER DITCH

9- Location

0.1 MI S OF TEN MILE RD

Latitude

42 27' 56.66"

Longitude

83 26' 34.12"

Owner

4

Maint Resp

4

Bridge History, Type, Materials

27 - Year Built	1974
106 - Year Reconstructed	
202 - Year Painted	
203 - Year Overlay	
43 - Main Span Bridge Type	5 04
44 - Appr Span Bridge Type	
77 - Steel Type	0
78 - Paint Type	0
79 - Rail Type	1
80 - Post Type	0
107 - Deck Type	2
108A - Wearing Surface	9
108B - Membrane	8
108C - Deck Protection	0

Structure Dimensions

34 - Skew	0
35 - Struct Flared	0
45 - Num Main Spans	1
46 - Num Apprs Spans	0
48 - Max Span Length	38.7
49 - Structure Length	42
50A - Width Left Curb/SW	5.91
50B - Width Right Curb/SW	5.91
33 - Median	2
51 - Width Curb to Curb	62.0
52 - Width Out to Out	73.82
112 - NBIS Length	Y

Inspection Data

90 - Inspection Date	10/12/2010
91 - Inspection Freq	24
92A - Frac Crit Req/Freq	N
93A - Frac Crit Insp Date	
92B - Und Water Req/Freq	N
93B - Und Water Insp Date	
92C - Oth Spec Insp Req/F..	N
93C - Oth Spec Insp Date	
176A - Und Water Insp Met..	
58 - Deck Rating	5
58A - Deck Surface Rtg	5
59 - Superstructure Rating	5
59A - Paint Rating	N
60 - Substructure Rating	4
61 - Channel Rating	
62 - Culvert Rating	N

Navigation Data

38 - Navigation Control	0
39 - Vertical Clearance	0
40 - Horizontal Clearance	0
111 - Pier Protection	
116 - Lift Brdg Vert Clear	

Route Carried By Structure(ON Record)

5A - Record Type	1
5B - Route Signing	5
5C - Level of Service	0
5D - Route Number	00000
5E - Direction Suffix	0
10L - Best 3m Unclr-Lt	99 99
10R- Best 3m Unclr- Rt	99 99
PR Number	
Control Section	0
11- Mile Point	0.0
12- Base Highway Network	0
13- LRS Route-Subroute	000.. -
19- Detour Length	2
20- Toll Facility	3
26- Functional Class	19
28A - Lanes On	2
29 - ADT	1300
30 - Year of ADT	1992
32- Appr Roadway Width	40.0
32A/B - Ap Pvt Type/Width	6 40.0
42A- Service Type On	5
47L - Left Horizontal Clear	19.7
47R- Right Horizontal Clear	19.4
53- Min Vert Clr Ov Deck	99 99
100- STRAHNET	0
102 - Traffic Direct	2
109 - Truck %	2
110 - Truck Network	0
114 - Future ADT	1600
115 - Year Future ADT	2012
Freeway	0

Structure Appraisal

36A- Bridge Railing	0
36B-Rail Transition	0
36C- Approach Rail	0
36D- Rail Termination	0
67- Structure Evaluation	
68- Deck Geometry	
69- Underclearance	
71- Waterway Adequacy	8
72- Approach Alignment	8
103- Temporary Structure	
113- Scour Criticality	U

Miscellaneous

37- Historical Significance	4
98A- Border Bridge State	
98B- Border Bridge %	
101- Parallel Structure	N
EPA ID	
Stay in Place Forms	

Route Under Structure(UNDER Record)

5A - Record Type	
5B - Route Signing	
5C - Level of Service	
5D - Route Number	
5E - Direction Suffix	
10L - Best 3m Unclr-Lt	
10R- Best 3m Unclr- Rt	
PR Number	
Control Section	
11- Mile Point	
12- Base Highway Network	
13- LRS Route-Subroute	
19- Detour Length	
20- Toll Facility	
26- Functional Class	
28A - Lanes Under	
29 - ADT	
30 - Year of ADT	
42B- Service Type Under	5
47L - Left Horizontal Clear	
47R- Right Horizontal Clear	
54A - Left Feature	N
54B- Left Underclearance	99 99
54C- Right Feature	N
54D- Right Underclearance	99 99
Under Clearance Year	
55A - Reference Feature	N
55B- Right Horiz Clearance	327.8
56- Left Horiz Clearance	0
100- STRAHNET	
102 - Traffic Direct	
109 - Truck %	
110 - Truck Network	
114 - Future ADT	
115 - Year Future ADT	
Freeway	

Proposed Improvments

75 - Type of Work	
76- Length of Improvement	
94- Bridge Cost	
95- Roadway Cost	
96- Total Cost	
97- Year of Cost Estimate	

Load Rating and Posting

31- Design Load	6
41- Open, Posted, Closed	A
63- Oper Rtg Method	2
64F- Fed Rtg Method	32.7
64M- Mich Oper Rtg	9 77
65- Inv Rtg Method	2
66- Inventory Load	32.7
70- Posting	5
141- Posted Loading	
195- Analysis ID	
193- Overload Class	

<b>Facility</b>	<b>Federal Structure ID</b>	<b>Inspector Name</b>	<b>Agency/Consultant</b>	<b>Inspection Date</b>			
CRANBROOKE DRIVE	635489000049B01	KIMBERLY O'R..	ORCHARD, HILTZ & ..	10/12/2010			
<b>Feature</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Struc Num</b>	<b>Insp Freq</b>	<b>Insp Key</b>		
COURTER DITCH	42 27' 56.66"	83 26' 34.12"	8248	24	RATW		
<b>Location</b>	<b>Length</b>	<b>Width</b>	<b>Year Built</b>	<b>Year Recon</b>	<b>Mat Dsg</b>	<b>Scour Eval</b>	<b>No.Pins</b>
0.1 MI S OF TEN MILE RD	42	73.82	1974		5	5 U	

**THERE ARE NO CoRe ELEMENTS FOR THIS STRUCTURE**

**WORK RECOMMENDATIONS**

CREW RECOMMENDATIONS			CONTRACT RECOMMENDATIONS		
Deck Patching			Bridge Replacement		
Approach Pavement	M	Seal approach pavement joints.	Superstructure Replacement	L	Replace existing superstructure.
Joint Repair	H	Seal joints on bridge deck. Cap off open curb drainage under sidewalk across the structure. Remove landscaping in median and place waterproofing on bridge deck.	Deck Replacement		
Railing Repair			Overlay		
Detailed Insp			Widen		
Zone Paint			Paint		
Substr. Repair			Zone Paint		
Slope Repair	H	Repair existing slope paving and add additional riprap.	Pin and Hanger		
Brush Cut			Substructure Repair	L	Repair spalled areas on abutments.
Other Crew Work			Other Contract Work		