

FINAL PROJECT CONCEPT STATEMENT

At Rock Creek 0.4 Miles West of the West Junction of Iowa 21 (MP 5.9+/-)

Tama County
STPN-008-1(16)—2J-86
PIN: 20-86-008-020

Highway Division
District 1 Office

Allison Smyth, P.E.
515-239-1039

July 22, 2020

I. STUDY AREA



A. Project Description

This project involves the removal and replacement of the existing 12'x4' box culvert under Iowa 8 at Rock Creek, 0.4 miles west of the west junction with IA 21, Reference Location 5.9+/- in Tama County.

Based on a drainage area of 1.4 square miles (896 acres) and flat topography, a Q50 flowrate of 480 cubic feet per second was calculated. Therefore, the existing 12' x 4' RCB should be replaced in-kind. To satisfy clear zone requirements, the RCB will be longer and ROW will be required.

B. Need for Project

The Tama maintenance garage investigated a suck hole found during routine maintenance activities and discovered the existing culvert in disrepair. Once repairs were ruled out, it was determined to replace box culvert. District 1 Maintenance will continue to monitor the existing culvert until the project. See photos of damaged culvert (next page).



Condition of Existing Culvert



Rock sucked through separation

C. Present Facility

The existing structure is a 27.3-foot-long, 12-foot by 4' box culvert extended in 1925 (no information of original construction).

D. Traffic Estimates

The 2018 estimated ADT is 1,930 with 11% trucks.

E. Sufficiency Ratings

IA 8 is classified as an access route and is a maintenance service level "C" road. IA 8 is not on the National Highway System (NHS).

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2015 through December 31, 2019, there was one animal-related crash near the culvert location.

II. PROJECT CONCEPT

A. Feasible Alternative: Replace With a Culvert

Based on a drainage area of 1.4 square miles (896 acres) and flat topography, a Q50 flowrate of 480 cubic feet per second was calculated. Therefore, the existing 12' x 4' RCB should be replaced in-kind. To satisfy clear zone requirements, the RCB will be longer and ROW will be required.

Proposed typical will include 24-foot wide pavement with 2-foot paved shoulders and 4-foot granular shoulders. Foreslopes will be constructed as 6:1 to the 26-foot clear zone, then 3:1 to the ten-foot wide ditch.

Apply erosion control and rural seeding and fertilizing to all disturbed areas.

The estimated cost for this project is \$200,100. See below.

Item Description	Quantity	Unit	Price/Unit	Cost
Concrete Box Culvert, 12' x 4' x 84'	1	EA	\$ 95,000	\$ 95,000
Double Reinforced 10" Concrete	96	SY	\$ 200	\$ 19,200
Embankment-In-Place	200	CY	\$ 25	\$ 5,000
Excavation, Class 20	214	CY	\$ 35	\$ 7,490
Erosion Control	1	EA	\$ 10,000	\$ 10,000
Traffic Control	1	LS	\$ 5,000	\$ 5,000
Mobilization	1	LS	\$ 5,000	\$ 25,000
<i>Subtotal</i>				\$ 166,690
Contingency (20%)				\$ 33,338
Total Estimated Cost				\$ 200,100

B. Detour Analysis

Traffic will be maintained via detour on IA 21, D65, and US 63.

C. Recommendations

It is recommended that the present structure be replaced as described.

D. Construction Sequence

It is anticipated that all work on this project will be awarded to one prime contractor.

The Bridges and Structures Bureau will coordinate the plan preparation with assistance from the District 1 Office.

E. Special Considerations

There are no bike paths or sidewalks adjacent to this project; therefore, no ADA accommodations are planned in conjunction with this project.

Temporary easement and permanent right of way may be required for this project.

Standard survey coverage will be required and will be completed by District 1 Survey.

F. Project Schedule

D00 Predesign Concept	07/22/2020
D01 Survey Plan and Photogrammetry	08/14/2020
D02 Design Field Exam	09/11/2020
B01 Bridges and Structures Layout	10/30/2020
D05 Plans to Right of Way	11/13/2020
R01 Right of Way Layout	12/18/2020
P09 Public Information Meeting	02/10/2021
D04 Design Plans for Bridge	03/23/2021
B03 Final Bridge Plans	05/04/2021
L05 Letting—Bridges and Culverts	07/20/2021

G. Program Status

This project will be funded with FY2022 NR funding.

cc:	B. Hofer	S. J. Gent	M. J. Kennerly	W.A. Sorenson
	E. C. Wright	T. Nicholson	K. D. Nicholson	D. Newell
	K. K. Patel	K. Brink	J. E. Laaser-Webb	T. Crouch
	V. A. Brewer	D. R. Tebben	S. Godbold	N. L. Cuva
	M. Swenson	C. B. Brakke	D. E. Sprengeler	J.S. Nelson
	D. A. Popp	A. Shell	M. Nop	D. R. Claman
	J. McCollough	S. P. Anderson	J. Garton	D. Stokes
	E. D. Gansen	J. Vortherms	M. K. Solberg	S. J. Megivern
	H. Beach	C. Burke	D. T. Ta	J. E. Bartholomew
	A. Smyth	D. Skogerboe	D. Wells	S. Nixon
	J. Lavine	L. Starbuck	M. Mohamed	T.J. Gustafson