

Public Meeting Handout

November 16, 2017

**IM 0292(50)63 PCN 1241
LINCOLN COUNTY**

Structure 42-065-130 over I-29 @ 281st Street



Background Information

Structure is located over I-29 at MRM 63.34 in Lincoln County.

Structure was built in 1958 and is 254' in length with a 24' roadway width.

Latest Sufficiency Rating of 53.1 (1 to 100 scale).

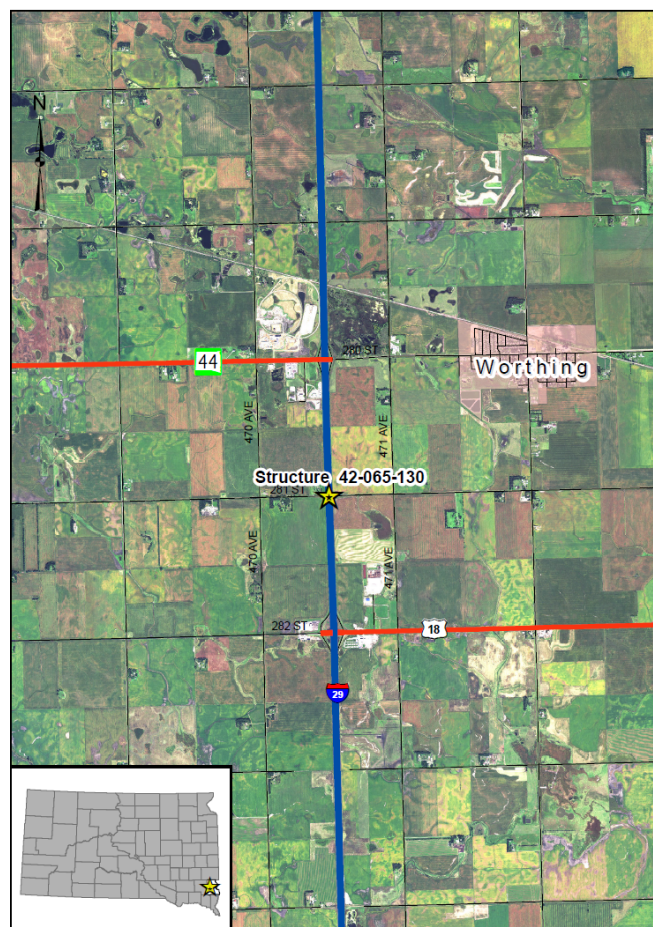
Latest NBI Deck Rating = 4 (1 to 9 scale).

Latest NBI Superstructure Rating = 4 (1 to 9 scale).

Bridge is classified structurally deficient.

Average Daily Traffic over structure: 25 (inventory), 22 (2016 Traffic Counts)

Vertical Clearance over I-29: 16.333'



Current Issues



Curb spalling



Deck overlay
starting to
crack and
deteriorate



Leakage through
the abutment
back wall

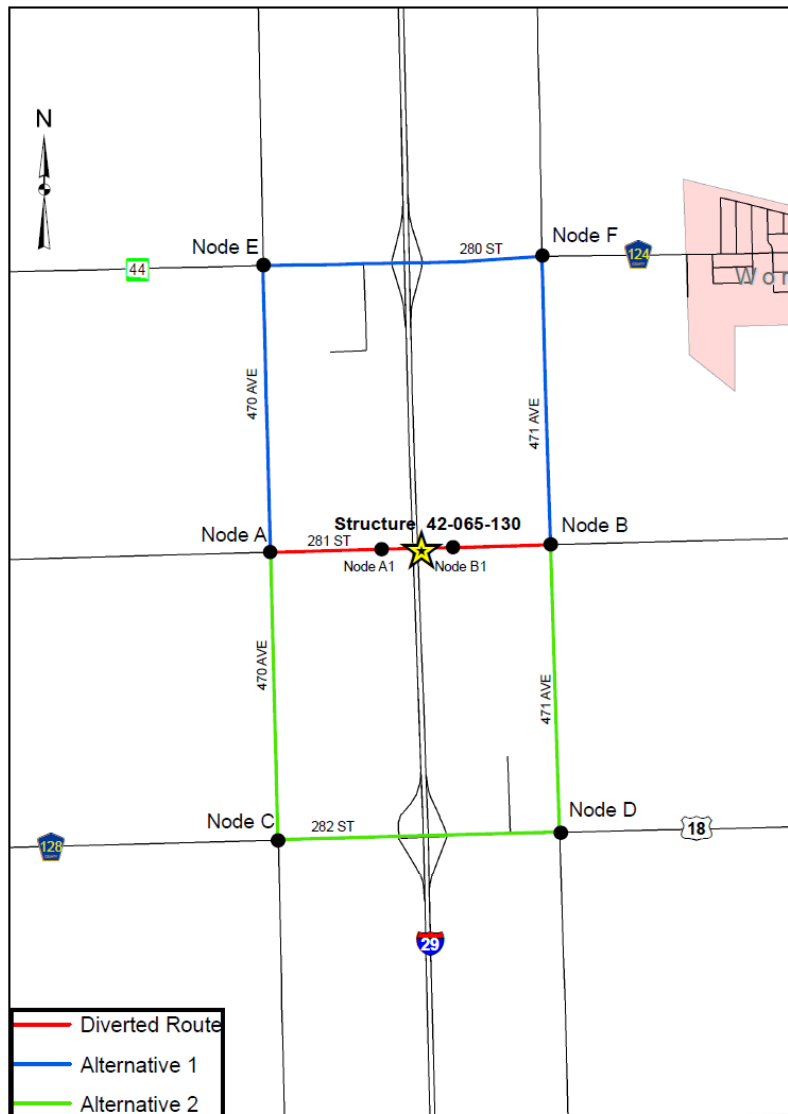
Cost Estimate of Options

1. Replace Structure* @ \$ 2,009,000

* Does not include reoccurring, annual maintenance costs or future bridge preservation costs.

2. Remove Structure @ \$ 312,000

Route Diversion Alternatives



| Route Alternative | Origin – Destination Pair | | | | | |
|-------------------|---------------------------|------------------------|-------|-------|-------|-------|
| | A – B via C – D (Green) | A – B via E – F (Blue) | A – D | A – F | B – C | B – E |
| 1 | 100 % | 0 % | 0 % | 0 % | 0 % | 0 % |
| 2 | 0 % | 100 % | 0 % | 0 % | 0 % | 0 % |
| 3 | 16% | 16 % | 16% | 22% | 0% | 30% |
| 4 | 4% | 4% | 22% | 28% | 6% | 36% |

User Cost Analysis

Removal with 55 mph on Gravel Roads

| Alter native | Net Present Value of Increase in User Costs (75 years) | Benefit / Cost |
|-----------------|--|-------------------|
| 1 | \$1,085,757.29 | 1.56 |
| 2 | \$1,312,030.02 | 1.29 |
| 3 | \$1,201,929.53 | 1.41 |
| 4 | \$1,031,233.64 | 1.65 |

Removal with 45 mph on Gravel Roads

| Alter native | Net Present Value of Increase in User Costs (75 years) | Benefit / Cost |
|-----------------|--|-------------------|
| 1 | \$1,059,648.11 | 1.60 |
| 2 | \$1,285,920.84 | 1.32 |
| 3 | \$1,157,597.90 | 1.47 |
| 4 | \$980,463.71 | 1.73 |

User Cost Analysis Summary

Assuming that the bridge provides the shortest & quickest trip for all 25 vehicles currently using it each day and that all 25 vehicles would follow Route Alternative 2 (which provides the shortest detour by 42 feet) in its entirety.*

It will take 43,490 days (119+ years) for the increase in user costs to exceed the \$1,697,000 savings to the Department to remove versus replace assuming a travel speed of 55mph on the township gravel roads and 10% Trucks.

The estimated life for the replacement bridge is 75 years.

*Origin-Destination Data obtained in May and October of 2016 suggests less than half of the vehicles would actually make the full detour.

