Agenda for the Des Moines Transportation Safety Committee scheduled for 7:30 a.m., Tuesday, March 10, 2020, in the MacRae Conference Room, at the Municipal Services Center, 1551 E Martin Luther King Jr. Parkway.

The teleconferencing option will not be available for this meeting.

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**Transportation Safety Committee Rules and Procedures**

1. The Transportation Safety Committee is an advisory body to the City Council.
2. Staff will be given time to present the background on each item.
3. Guests are then allowed to speak, with each speaker allowed a maximum of 5 minutes.
4. All comments are to be germane to the issue under consideration and speakers are to maintain a courteous manner.

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Approval of Agenda

**OLD BUSINESS**

1. Approval of February Minutes
2. Other Old Business

**NEW BUSINESS**

1. Project Concept Review for SW 9th Bridge Replacement over Middle Creek
2. Project Concept Review for Guthrie Avenue Bridge over the Union Pacific Railroad
3. Other New Business

John A. Davis, P.E., PTOE
Secretary, Transportation Safety Committee

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ITEM #1: Project Concept Review for SW 9th Bridge Replacement over Middle Creek

BACKGROUND:

The current bridge on SW 9th Street (R63) over Middle Creek, in Warren County, was built in 1971 and is considered structurally deficient. The bridge is a 100-foot-long x 30-foot-wide, three-span concrete slab bridge, carrying over 4,500 vehicles per day and located approximately 0.25 miles south of Highway 5. The condition, age, and size of the bridge are not conducive to rehabilitation and a replacement structure using epoxy-coated reinforcing steel will be more cost effective.

The existing roadway is a typical two-lane rural section with roadway ditches. The bridge location is within a FEMA-detailed Flood Insurance Study with a delineated floodway and established flood elevations for the 100-year flood frequency occurrence event. To avoid in-depth hydraulic modeling and flood map revisions, the replacement structure will be modeled to show it does not increase the water surface elevation for the 100-year flood frequency occurrence level.

Replacement Alternative:
The consultant looked at a couple replacement options, but it is evident that a similar-sized concrete slab bridge will be best choice for the location. A new 120-foot-long, three-span concrete slab bridge will meet the no-rise hydraulic requirements and requires minimal roadway grade change, therefore minimizing impact of the project.

In evaluating a bridge cross section, the consultant summarized current guidelines pertaining to the width of new bridges. The existing bridge width is 30 feet wide and the existing roadway pavement measures 22 feet wide with approximately 6-foot-wide shoulders.

<table>
<thead>
<tr>
<th>Publication</th>
<th>Bridge Width Guideline</th>
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<tbody>
<tr>
<td>SUDAS – Preferred Criteria (Table 5C-1.01)</td>
<td>Traveled Way + 4’ each side = 24’ + 8’ = 32’</td>
</tr>
<tr>
<td>SUDAS – Acceptable Criteria (Table 5C-1.02)</td>
<td>Traveled Way + 3’ each side = 22’ + 6’ = 28’</td>
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<tr>
<td>Iowa DOT Design Manual – Preferred Criteria (Section 1C-1 Urban Two-lane Roadways)</td>
<td>Design Lane + Effective Shoulder = 24’ + 16’ = 40’</td>
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<tr>
<td>Iowa DOT Design Manual – Acceptable Criteria (Section 1C-1 Urban Two-lane Roadways)</td>
<td>Design Lane + Effective Shoulder = 22’ + 16’ = 38’</td>
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<tr>
<td>Iowa DOT Local Systems (I.M. 3.210)</td>
<td>ADT&gt;2000; Bridge Width = 40’ with exception for bridge lengths &gt; 100’, allowing bridge width to be Traveled Way + 6’ = 22’ + 6’ = 28’</td>
</tr>
<tr>
<td>National Bridge Inspection Standards (NBIS)</td>
<td>Minimum width to not be considered Functionally Obsolete is 30’.</td>
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Based on reviewing the guidelines and the specific site characteristics, the consultant recommends the bridge width be set to match the overall width of the roadway section, which is 34 feet wide. This width is near the midrange of the guidelines, provides 5-foot-wide shoulders on each side of the bridge, and will help reduce impacts to the roadway foreslopes and ditches.

The recommended bridge cross section is as illustrated below:

![Bridge Cross Section Diagram]

**Typical Section**

**Pedestrian Facility Requirements:**
The bridge location is located in an undeveloped rural area at the southern edge of the City of Des Moines. Move DSM and the MPO’s Mobilizing Tomorrow plans show no expansion of any bicycle or trail routes along this corridor. With no nearby sidewalk networks and no planned or projected trail networks along this corridor, it is not recommended to include sidewalks on the bridge cross section.

**Detour Routing:**
North Warren County Fire Department is located approximately 500 feet south of the bridge, just south of Bronze Street. In consultation with the Fire Department, SW 9th Street is a critical route for their response. Approximately 75% of their response calls have them going north on SW 9th Street, either for access to Highway 5 Bypass or responding to the Greenfield Plaza area. Additionally, many responding volunteers live north of the station and would cross the Middle Creek bridge for access. A detour route is available, but it would add approximately 10-12 minutes to their response times for an emergency event north of the station. With the selected concrete slab alternative, this structure is easier to modify than other structure types to allow for staged construction. This would allow the bridge to be built one-half at a time and one-way traffic would be managed with a temporary traffic signal.
Type, Size, and Location Drawing:

STAFF RECOMMENDATION:

This item is for information only. No action is required.
ITEM #2: Project Concept Review for Guthrie Avenue Bridge over the Union Pacific Railroad

BACKGROUND:

The current Guthrie Avenue Viaduct over the Union Pacific Railroad was built in 1978 and underwent structural repairs in 2015. The existing cross section for the bridge includes four 15-foot traffic lanes and a 2-foot median for a total curb-to-curb roadway width of 62 feet. There is a raised sidewalk on the north side separated from vehicular traffic by barrier. The total out-to-out bridge width is 70'8". A bridge inspection found that the steel girder superstructure is in fair condition and that the concrete deck is in satisfactory condition, with the concrete near the riding surface in need of repair. The recommendation is for a bridge deck overlay with isolated full-depth repairs at a few spot locations, which will extend the life of the bridge 20 to 25 years. The general location of the project is shown below.

Replacement Alternative
The preferred alternative consists of a 10-foot-wide multi-use trail on the south side of the bridge and a 5-foot pedestrian sidewalk on the north side with protective barriers from the vehicle travel lanes and shoulder areas. The vehicle travel area will have four 11.5-foot-wide lanes with 3-foot shoulder areas in each direction. The following image shows the proposed typical section on the bridge looking east.
The approaches to the bridge will also be modified to account for the trail on the south side as shown in the following images.
Construction is anticipated to begin in Spring 2022. It is anticipated that future projects would extend the trail on the south side of Guthrie Avenue to both the east and west.

**STAFF RECOMMENDATION:**

This item is for information only. No action is required.