

Memorandum

To: Honorable Mayor and City Council

From: Daniel Boggs, P.E., City Engineer

Date: January 3, 2014

Re: **Proposed Pavement Improvements**

FIFTH AVENUE NW FROM FIRST STREET WEST TO FOURTH STREET NW

The existing 24 foot wide pavement on this section is Portland cement concrete (P.C.C.). There are approximately 3,650 square yards of pavement. From the knowledge of other streets in the area that are or were similar, it most likely is 6 inches thick pavement on natural sub-grade. Although there is a need for patching in various locations, the pavement seems to be generally structurally stable.

Most of the sanitary sewer in this area is in the alleys so there is no necessary significant sanitary sewer work associated with a pavement project. There is one block of sanitary sewer under the pavement from First Street to Second Street which should be replaced only if it is decided to totally reconstruct the street pavement. The cost to replace this 400 l.f. length of 8" sanitary sewer, and 2 manholes is estimated to be \$24,000.00.

The watermain in this length of pavement is 1" lead main from First Street to Third Street (2 Blocks), and 4" cast iron pipe (CIP) from Third Street to Sixth Street (1 block). The total length of watermain is in need of replacement to either 6" or 8" diameter watermain. The cost for installing this 1,000 L.F. length of 8" watermain is estimated to be \$75,000.00.

Listed here is a range of possible remediation methods:

FULL DEPTH P.C.C. PATCH AND SEAL JOINT & CRACKS:

This would be a minimal normal maintenance routine and would probably involve additional streets to help create an economy of scale, or see if the IDOT patch contractor or sidewalk contractor could patch designated areas while they are mobilized.

FULL DEPTH P.C.C. PATCH, CRACK & SEAT, HOT MIX ASPHALT (HMA) OVERLAY:

If it is felt that the surface deterioration and crack faulting is significant enough that a smoother surface is desired, after the existing pavement is patched, the existing pavement would be crack & seated then overlaid with a 2" to 4" HMA overlay.

It is estimated that the cost to crack & seat and overlay this portion of pavement would be \$175,000.00. This estimate does not include watermain or sewer costs.

An estimated service life for this type of remediation process would be from 7 to 10 years.

TOTAL RECONSTRUCT:

The existing pavement would be replaced with a 24 foot width 7" thick P.C.C. pavement on a 6" stone subbase. When the pavement was replaced on Fifth Avenue south in 2007 did not include the reconstruction of the intersection with First Street West, it is assumed that this intersection would be replaced with 8" P.C.C. pavement on a 6" stone subbase. There is a P.C.C. paver crosswalk across Fifth Avenue South at First Street, so discussions would involve the possibility of P.C.C. paver crosswalks at this intersection.

Total reconstruction cost is estimated to be:

Project Cost	3,650 SY @ 100.00/SY=	\$365,000.00
Water Main		\$ 75,000.00
Total		\$440,000.00

An estimated service life for a new P.C.C. pavement would be 30 years, although many P.C.C. pavements in this community have lasted 40 to 60 years with little maintenance.

FIFTH AVENUE NW FROM FOURTH STREET NW TO EIGHTH STREET NW

The existing 24 foot wide pavement on this section is sealcoat with a 2 foot width 6" tall P.C.C. curb and gutter. There are approximately 2,500 square yards of pavement in this length of street pavement.

Listed here is a range of possible remediation methods:

SEAL COAT:

A single coarse seal coat with 3/8" chips would cost approximately \$10,000.00. An estimated service life for a seal coat surface is 3 to 5 years.

FULL DEPTH ASPHALT:

In the 2010 Hot Mix Asphalt (HMA) project, the existing sealcoat surface was removed, subgrade cored out and a full depth HMA pavement (6") was placed on a 6" thick granular subbase. The existing curb and gutter was repaired where necessary but basically remained in place.

It is estimated that the cost for a full depth HMA pavement for this portion of pavement would be \$150,000.00. This estimate does not include watermain costs.

An estimated service life for this type of remediation process would be 20 years.

TOTAL RECONSTRUCT:

This scenario would be no different than the total reconstruction of Fifth Avenue. The existing pavement would be replaced with a 24 foot width 7" thick P.C.C. pavement on a 6" stone subbase.

Total reconstruction cost is estimated to be:

Project Cost 2,500 SY @ 100.00/SY= \$250,000.00

An estimated service life for a new P.C.C. pavement would be 30 years, although many P.C.C. pavements in this community have lasted 40 to 60 years with little maintenance.

THIRD AVENUE NW FROM FIRST STREET WEST TO THIRD STREET NW

The existing 24 foot wide pavement on this section is Portland cement concrete (P.C.C.). There are approximately 1,900 square yards of pavement.

There is no sanitary sewer or watermain underneath the street pavement in this length of City Street.

Listed here is a range of possible remediation methods:

FULL DEPTH P.C.C. PATCH, CRACK & SEAT, HOT MIX ASPHALT (HMA) OVERLAY:

It is estimated that the cost to crack & seat and overlay this portion of pavement would be \$125,000.00.

An estimated service life for this type of remediation process would be from 7 to 10 years.

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TOTAL RECONSTRUCT:

Estimated cost for this length would be in the \$240,000.00 range

THIRD AVENUE NW FROM THIRD STREET WEST TO SEVENTH STREET NW

The existing 24 foot wide pavement on this section is seal coat with P.C.C. curb & gutter. There are approximately 3,500 square yards of pavement.

There is no sanitary sewer underneath the street pavement in this length of City Street.

An 8" PVC watermain is recommended to be installed alongside the pavement for this length of street. Estimated cost for this work would be in the \$65,000.00 range.

Listed here is a range of possible remediation methods:

FULL DEPTH HOT MIX ASPHALT (HMA):

Estimated cost for this length would be in the \$360,000.00 range. This does not include the cost of the watermain.

TOTAL RECONSTRUCT:

Estimated cost for this length of a 24 foot width P.C.C. pavement street would be in the \$400,000.00 range. This does not include the cost of the watermain.

