



November 2, 2015

File : 221.LSAC

Lac Ste. Anne County
Box 219
Sangudo, Alberta T0E 2A0

Attention: Abid Malik, P.Eng.
Manager of Public Works

Dear Abid,

Re: 5 Year Bridge Plan Review 2016-2020

As requested, MPA Engineering Ltd. has reviewed the condition of Lac Ste. Anne County's bridge and bridge sized culverts and we have prepared a 5 year bridge repair and replacement plan for your consideration. The following letter provides some general commentary regarding your bridge network, details of MPA's review and discussion of our suggested bridge priorities.

General

In preparing the County's bridge plan, bridge inspection data (BIM) was obtained from Alberta Transportation's database and each structure was sorted by structural condition rating and individual general element rating (ie. roadway, bridge superstructure, bridge substructure, channel). Structures with structural condition ratings less than 33% or an individual element rating less than "3" are generally considered a high priority for repair or replacement. Bridges with higher ratings are typically either a low priority for repairs/replacement or do not need any attention within the next few years. Figure #1 (attached) shows all of the County's bridge structures sorted by structural condition rating with individual element ratings less than "3" highlighted.

Available file information for all structures with structural condition ratings less than 33% or an individual element rating less than "3" were reviewed and a bridge preservation strategy and priority rating was assigned to each site. Figure #2 (attached) shows this information as well as MPA's notes regarding each site.

It should be noted that in total Lac Ste. Anne County has 217 structures comprised of 72 short span "standard" bridges, 133 bridge sized culverts (culverts with diameters of 1.5 m to 6.0 m) and 12 longer span "major" bridges. Of these structures 27 have a structural condition rating less than 33% and 93 structures have a structural condition rating less than 50%. These figures are representative of an older bridge inventory that will require significant capital investment in order to remain functional over the next 5-10 years.

5 Year Bridge Plan

Based on our review of the County's bridge files a proposed 5 Year Bridge Plan was developed in order to address high priority sites as well as grouping work in a logical fashion. A copy of this plan is attached as Figure #3.

Items identified on the 5 Year Bridge Plan are either bridge/culvert replacements, engineering studies or major structural repairs. Repair items that the County would typically complete using their own forces have not been included in this plan. These sites are identified in the bridge maintenance summaries generated as part of the County's yearly inspection program.

In reviewing the 5 Year Bridge Plan it should be noted that the County inspects its bridges on a 5 year cycle as per Alberta Transportation's recommendations. Some of the older bridges within the County will likely experience significant deterioration between these inspections. This means that the County can expect that bridge priority projections for outlying years (ie. years 3-5) will change from year to year as new inspection data becomes available.

High priority sites that were identified in previous years and already discussed with the County were carried over to the current 5 year plan. As part of our review 2 new high priority, high repair/replacement cost sites were identified. These include:

BF 76862 – This bridge has high backwalls with several piles cracked at the base and bowing due to high backwall pressure. The bridge should be posted to 5 tonnes and inspected on a yearly basis. Repairs may not be cost effective compared to replacement; however, there is not enough information available to make an informed decision at this site. It is recommended that an assessment be completed to determine the best course of action. Repairs/replacement should be scheduled as soon as possible after the assessment is completed.

BF 8235 – This crossing consists of a 2430 mm & 1812 mm SPCSP culvert. The larger culvert has deflections in the 10% range and severe corrosion. Lineal perforations in the last 3 rings are starting to slide over top of each other. This is a serious issue and the downstream section of culvert could potentially collapse. Repairs may not be feasible as the culverts appear to be undersized and the stream carries drift; however, replacement will be costly. It is recommended that an assessment be completed to determine the best course of action. Repairs/replacement should be scheduled as soon as possible after the assessment is completed.

Recommendations/Closing

It is recommended that this 5 Year Bridge Plan be updated on a yearly basis as new bridge inspection information becomes available.

I look forward to the opportunity to discuss this plan with you in more detail. In the meantime, please call me if you have any questions or require any further information

Sincerely,
MPA Engineering Ltd.
per:



Kris Bosters, P.Eng

Att.