



THE CORPORATION OF THE MUNICIPALITY OF KINCARDINE

FYI REPORT

Subject: Bruce Avenue Closure and Update

FYI Report Number: Operations-2023-07

Meeting Date: Monday, March 13, 2023

Purpose of Report:

Bruce Ave from Wieck Blvd to Hwy 21 is a section of the road network that has been in the budget for replacement to urban standard for many years. Factors such as budget restrictions and the proposed subdivision directly adjacent to the Stone Haven Development have impacted the decision to delay reconstruction. This section of road has deteriorated significantly, and it has been receiving regular pothole repair and maintenance. The underlying soil on this stretch of road is of substandard condition and is susceptible to movement. This causes the asphalt to flex resulting in wheel rutting and in some areas severe cracking. Due to the winter weather fluctuations, going from cold to mild with rain, it has been challenging to keep the road in a good state of repair as the frost in the ground pushes up through the asphalt causing heaving of sections and causing severe deterioration to the integrity of the asphalt structure. During a mild spell on February 9, 2023, and rain precipitation that followed there were two sections, approximately 270m² combined, of the roadway that deteriorated beyond our ability to patch and maintain. For the safety of the motorists the road section was closed. Staff have gathered information to develop an action plan to allow the road to be maintained over 2023 so that it can be safely re-opened.

Report:

The Municipality of Kincardine initiated an investigation into the root cause of the deteriorated road section on Bruce Ave and explored possible options for repair. The overall cause of the deteriorated road is due to the base being poor and therefore allows the road to shift under load when vehicles pass over the asphalt. On the section of road in the worst and most deteriorated sections over the years have experienced significant moisture seeping up through the cracked asphalt sections and has thus compounded the underlying problem. This section of road has a PCI (Pavement Condition Index) rating of 34 or "very poor".

The existing asphalt is unrepairable and staff have removed the asphalt completely in two areas, approximately 270m² combined, and installed French drains to improve the drainage in these two problematic areas. This will aid in improving the saturated road base to allow repair that is made on the top surface to be more stable with a rigid foundation. The cost to complete the base and drainage repairs was \$7,300.

Staff have evaluated options and the overall feasibility of repairs that are required. The options are identified as follows:

- Alternative 1- Pulverize Bruce Ave asphalt from Wieck Blvd to just west of Hwy 21, provide granular material for top grading, maintain the road section as gravel until full urban replacement in 2024; total initial cost \$15,000, with ongoing operational costs.
- Alternative 2- Hot mix pave patches approximately 270m² and skim coat wheel rutting areas approximate cost \$27,000.
- Alternative 3- Keep section of Bruce Ave closed to traffic until full urban replacement in 2024 (no cost).

Alternative 1 allows the road to be re-opened in the most economically viable manner and will allow the operations department to properly maintain this section as a gravel road. Staff understand that in the urban area this is not the long-term solution, as motorists will be travelling from hard surface to gravel, but in this situation it is the safest option due to other areas on this section of road having other concerns such as severe wheel rutting and asphalt cracking. This area will be maintained by grading and the application of calcium chloride for dust control in the same manner that we maintain our rural sideroads. This is the option to be undertaken by staff to re-open the road.

Alternative 2 provides a temporary solution to the problem as it is only a patch to the sections of asphalt that have been removed. We have addressed subbase issues in these areas but expect that once the patches are paved with hot mix the problem may migrate to each side of the patches and would result in potential failures. There is severe wheel rutting that needs to be addressed as there are areas that do not meet minimum maintenance standards and addressing these with a skim coat of asphalt runs the risk of the skim coat peeling up if there is movement in the pavement that it is adhered to.

Alternative 3 (status quo) is not the desired option, as it restricts the movement of traffic along that roadway by not allowing traffic to move east to west. With Bruce Ave in the budget for reconstruction in the forecasted 2024 budget that would be a significant amount of time that this section of road would require closure.

Staff have recently had correspondence with the subdivision owner adjacent to Stonehaven Development and are progressing towards an agreement to get the new subdivision underway. It would ultimately be beneficial to have the servicing into the

subdivision prior to reconstructing of Bruce Ave but it would not necessarily be required if the location of the entrances are properly defined.

Staff will be recommending that Bruce Ave be included in the 2024 capital budget to reconstruct the road to an urban standard in 2024.

Attachments: N/A

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