Executive Summary

The City of Brantford has retained Parsons to complete a feasibility study for the proposed Oak Park Road extension from Kraemer’s Way / Hardy Road southerly to Colborne Street West. The purpose of the feasibility study is to determine roadway cross-section requirements, alignment options and to identify key constraints or challenges and provide alternative solutions. This study will build upon the previous ‘Brantford Corridor Study’ prepared by McCormick Rankin in March 1981 that examined ten potential roadway alignments and identified a preferred route. Based on the preferred alignment, the City began acquiring and designating lands along the route for long-term protection.

The November 2014 Brantford Transportation Master Plan Update lists the extension of Oak Park Road as a medium term (2020-2024) recommendation to improve overall traffic operations and support localized commercial and residential development. Implementation of the extension with a four-lane cross-section is identified within 6 to 10 years (2020-2030).

A traffic impact assessment for the 2031 and 2041 horizon years was undertaken as part of the Feasibility Study to evaluate how the proposed extension may alleviate the traffic demand on the existing Paris Road and Rest Acres Road corridors and other routes through downtown Brantford. The assessment considered the impact of proposed land uses adjacent to the Oak Park Road extension and other planned developments in the vicinity. Based on the 2041 capacity analysis, it was found that Rest Acres Road and Paris Road would be over capacity if the Oak Park Road extension is not constructed. With the extension in place, these roadways would be below capacity in the vicinity of Hardy Road and approaching capacity at Colborne Street West.

In addition to the traffic impact assessment, the Feasibility Study included an examination of structural alternatives for the new Grand River crossing, potential environmental impacts, stormwater drainage considerations and the potential for roundabouts at key intersections.

When developing roadway alignment alternatives, Parsons referenced the City of Brantford Design and Construction Manual for Roads and Transportation in addition to the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads, 2017. Utilizing these standards, a corridor-specific design criterion was developed to guide the development of horizontal and vertical alignment alternatives.

Initially, five horizontal roadway alignments were developed for the proposed extension of Oak Park Road using a ‘first-principles’ approach that only relied on a cursory screening of potential conflicts. These alignments were not limited solely to the corridor designated by the City for long-term protection. It was found that limited options were available to the south of the Oak Hill Cemetery property due to existing residential developments and existing topography constraints therefore, the horizontal alignment in this area is identical amongst all alternatives. A high-level screening found little justification for considering an alignment outside of the protected corridor except for attempting to cross the Grand River at its narrowest point. A total of three horizontal alignments were advanced for detailed analysis and evaluation:

**Alternative 1** - Straight extension of Oak Park Road from the north; remove Gordon Glaves Crossing Pedestrian Structure. (Approximate recommended alignment from McCormick Rankin Corridor Study, March 1981)

**Alternative 2** - Shift to east side of 60m right-of-way; option to maintain Gordon Glaves Crossing Structure.

**Alternative 3** - Crossing of the Grand River at its narrowest point (based on available aerial imagery).

Due to a significant grade differential between Colborne Street West and Oakhill Drive (approx. 27 metres), Alternative 1 and Alternative 2 were further subdivided into options ‘A’ and ‘B’ for evaluation. The ‘A’ alternatives utilize a maximum downgrade travelling north from Colborne Street West which results in access across Oak Park Road being severed at Oakhill Drive and the Oak Hill Cemetery. This was found to severely restrict emergency access to the residential neighbourhood to the east of Oak Park Road and south of the Grand River and had significant impacts to the operations of the Oak Hill Cemetery. Alternatives 1B and 2B provide a flatter downgrade heading north from Colborne Street West and allow for grade separations at Oakhill Drive and the Cemetery lands. This configuration would preserve the existing roadway network in the area at the expense of additional structures and is consistent with previous Cemetery development plans.
Although Alternative 3 was selected to cross the Grand River at its narrowest point (based on available aerial imagery), a review of the existing topography found that the area to the north of the river at this location is a floodplain. This results in a structure that would be significantly longer than those considered in Alternative 1 and Alternative 2. Additionally, this alignment would significantly impact the planned Telephone City Aggregates (TCA) development currently planned on the north side of the Grand River.

Each alternative was evaluated against criteria set out in six major categories (Transportation, Technical Requirements, Socio-Economic Environment, Cultural Heritage, Natural Environment and Cost). A ‘do-nothing’ option was also considered alongside the five alignment alternatives. Following the evaluation, it was found that Alternative 3 was not preferred due to the extensive structural component, impact to the planned TCA development and impacts to the natural environment. Alternatives 1A, 1B, 2A, and 2B generally scored within a few points of each other with Alternative 2B selected as the most preferred option. The ‘do nothing’ option was found to not satisfy the objectives of the assignment.

Alternative 2B was selected as the preferred option based on the following factors:

- Access across Oakhill Drive and the Oak Hill Cemetery lands would be maintained using grade separations at these locations. Doing so will maintain emergency access to the existing residential neighbourhoods.
- Aside from impacts due to slope grading, the future layout of the Oak Hill Cemetery will remain unchanged from the 1990 Master Plan and maintenance operations are unaffected.
- This option provides flexibility to maintain the existing Gordon Glaves Crossing pedestrian structure and associated watermain/sanitary sewer services along with connections to the new multi-use trails adjacent to the roadway. The forthcoming environmental assessment will determine the long-term need for the structure with input from the public consultation stage.

A cost estimate was undertaken for each of the proposed alignment alternatives. It was estimated that the preferred alignment would cost as follows (figures have been rounded for clarity):

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>ESTIMATED COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Construction (including roadway, electrical, structures (3), retaining wall, servicing, and landscaping)</td>
<td>$54,940,000</td>
</tr>
<tr>
<td>Engineering (including environmental assessment, design, geotechnical investigations, environmental permits, archaeological investigations, and contract administration)</td>
<td>$14,240,000</td>
</tr>
<tr>
<td>Contingency Funds (25% of total construction and engineering costs)</td>
<td>$17,300,000</td>
</tr>
</tbody>
</table>