City of Brampton

PEER REVIEW FOR TRANSPORTATION ASSESSMENT ZONING APPLICATION REVIEW

REPORT

MARCH 2011

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1. INTRODUCTION

The opinions expressed in this peer review (including appendices) may be supplemented, reconsidered or otherwise revised by the author(s) should new or previously unknown information become available.

In conducting this peer review of Brampton Brick's, August 2010, Norval Quarry Site Plan Report, IBI Group has primarily considered the applicant's Transportation Assessment Report (prepared by Paradigm Transportation Solutions, November 2008) and its supporting documentation when assessing adherence to accepted transportation engineering standards/best-practices, policies of the Province, Region, and relevant area municipalities, and the ARA, with a focus on the following:

- Comprehension of existing issues and deficiencies;
- Analysis assumptions and parameters (i.e., saturation flows, critical gaps);
- Assessment of operations along adjacent roadway with proposed access and in the context of existing access points;
- Background growth rate assumptions and horizon years;
- Trip generation, distribution and assignment assumptions;
- Safety assessment and impacts;
- Explicit consideration of all road users;
- Appropriateness of recommended improvements and remedial measures; and
- Implications relating to required jurisdiction and agency approvals including environmental assessments.

With respect to the above criteria, IBI Group has identified some gaps and/or omissions in the Transportation Assessment Report, and the supporting analysis/studies, and assessed the appropriateness of the proposed mitigation measures (short term and long term).

The review process has been conducted in accordance with the Guideline Principles and Questions for Brampton Peer Reviewers - Brampton Brick Peer Review documents supplied by the City of Brampton.

2. SYNOPSIS OF APPLICANT'S ASSESSMENT

The following subsections provide a brief synopsis of the Applicant's assessment of transportation-related issues, as presented in the Transportation Assessment Report (November 2008) and the Norval Quarry Site Plan Report (August 2010).

2.1 Transportation Assessment Report

The basic contents of the Transportation Assessment Report are as follows:

1. **Introduction** – a brief description of the proposed quarry, and statement of the study purpose;

2. **Existing Conditions** – a physical description of existing roadways being considered for inclusion in the proposed haul route, existing traffic conditions (e.g., volumes and traffic control), and existing traffic operations, signalized and unsignalized Level of

Service (LOS) analysis. The road way classifications noted in the Transportation Assessment Report (Section 2.1 - Existing Roadways) are not entirely consistent with the Schedule B – City Road Hierarchy;

3. **Development Concept** – a brief description of proposed quarry operations, and identification of the proposed access location (i.e., on Winston Churchill Boulevard, approximately 200m north of Old Pine Crest Drive);

4. **Future Conditions** – identification of "planned"/assumed road network improvements (assumed road improvements for each horizon year are summarized in **Exhibit 1**), forecast 2013 and 2018 future background traffic volumes, future site traffic trip generation estimates, and future total traffic LOS analysis;

5. **Need for Improvement** – a summary of identified issues and road network deficiencies for the links/intersections considered (including structural, cross-section, sight distance, and routing concerns), and turning lane warrants for the proposed site access. The report attributes all capacity-related issues to background traffic growth, absolving the proposed development of contributing to those issues;

6. **Conclusions and Recommendations** – a preferred haul route is not explicitly identified, but the recommended improvements (e.g., northbound deceleration lane on Winston Churchill Boulevard, at the site access) suggest that traffic from the proposed quarry would be routed south, through the Hamlet of Norval, to Highway 7; signage is also recommended to address sight distance deficiencies at the proposed site access.

Exhibit 1: Assumed Roadway Improvements

Assumed Horizon Year	Assumed Roadway Improvement	Brampton/Peel Planned Timing
2013	Widening of Wanless Drive to six lanes from Hurontario Street to Chinguacousy Road;	Widening to six lanes is not part of the Brampton TTMP (2004 or 2010).
2013	Urbanization of Wanless Drive from Creditview Road to Winston Churchill Boulevard;	Brampton 2010-2019 Roads Capital Program shows 2014 timing for reconstruction from Creditview Road to Mississauga Road.
2013	Widening of Mississauga Road to four lanes from south of Bovaird Drive to Wanless Drive;	2009 Peel Transportation Ten Year Capital Plan shows 2010-2013 timing.
2013	Intersection improvements at Mayfield Road and Winston Churchill Boulevard, which includes additions of EB and WB left-turn lanes and a NB right-turn lane;	Not identified in the Brampton TTMP (2004 or 2010) or the Peel Transportation Ten Year Capital Plan (2005 or 2009).
2013	Intersection improvements at Bovaird Drive and Winston Churchill Boulevard, which includes additions of NB and SB left-turn lanes and an EB right-turn lane;	Not identified in the Brampton TTMP (2004 or 2010) or the Peel Transportation Ten Year Capital Plan (2005 or 2009).
2013	Reconstruction of Winston Churchill Boulevard from Embleton Road to Mayfield Road.	2009 Peel Transportation Ten Year Capital Plan shows 2011-2012 timing.
2018	Widening of Wanless Drive to four lanes from Creditview Road to Mississauga Road;	Widening to four lanes is part of the Brampton TTMP (2010), after 2021.
2018	Widening of Chinguacousy Road to four lanes from Mayfield Road to Wanless Drive;	Widening to four lanes is part of the Brampton TTMP (2010), after 2016.

Assumed Horizon Year	Assumed Roadway Improvement	Brampton/Peel Planned Timing
2018	Widening of Mayfield Road to four lanes from Hurontario Street to Creditview Road; and	2009 Peel Transportation Ten Year Capital Plan shows widening from Hurontario Street to Chinguacousy Road with 2015-2019 timing. The Brampton TTMP (2010), shows widening from Chinguacousy Road to Creditview Road after 2021.
2018	Widening of Bovaird Drive to six lanes from Chinguacousy to Winston Churchill Boulevard.	2009 Peel Transportation Ten Year Capital Plan shows widening from Mississauga Road to Halton Boundary with 2011-2019 timing. The Brampton TTMP (2010), shows widening from west of Chinguacousy Road to Mississauga Road after 2016.

2.2 Site Plan Report

On the basis of off-site road network operations, transportation-related issues are covered in Section 6 – Traffic and Haul Route of the Site Plan Report. Therein, the November 2008 Transportation Assessment is mentioned, and forecast traffic volumes (2013 and 2018) for Winston Churchill Boulevard are noted; otherwise, very little from the 2008 Paradigm report is included. In fact, the described hours of operation and trip generation estimates do not match the information presented in the Transportation Assessment.

The Site Plan Report identifies the proposed haul route, from the site to the Wanless Drive brick plant, as "Winston Churchill Boulevard north to Mayfield Road, then easterly to Hurontario Street, then south to Wanless Drive, a distance of 13.5 km." With respect to the proposed site access, the Site Plan Report indicates that in "May 2010, Brampton Brick Limited filed a Road Occupancy Permit application to enable the Peel Region to construct any required quarry entrance improvements during the 2013 reconstruction of Winston Churchill Boulevard." The Report also notes that the increase in noise associated with haul traffic is expected to be "acoustically insignificant."

In Section 12.5 – Final Rehabilitation of the Site Plan Report, it states that "Brampton Brick may elect to surrender its ARA Licence upon completion of this pond-centered rehabilitation. The Company could then import significant quantities of excess soil materials, from urban development areas, to backfill the excavation." The traffic impacts associated with potential backfill activities are not discussed in the Site Plan Report or the Transportation Assessment Report.

3. PEER REVIEW FINDINGS

The following subsections provide a summary of the peer review findings organized under basically the same headings that were used to categorize the peer review guideline questions. Given the minimal transportation-related information in the Site Plan Report, the findings presented below follow almost exclusively from the Transportation Assessment Report. The preliminary review matrix, submitted to the City in November 2010, along with the policy matrix table, is provided in **Appendix A**.

3.1 Purpose

The purpose of the Applicant's Transportation Assessment, as stated in the 2008 Paradigm report, was "…to ensure that any traffic impacts associated with the quarry are well understood and that

improvements required to support the application are clearly identified;" which generally sets out the proper direction to undertake the assessment, but falls short of identifying a preferred haul route. With no comprehensive comparison of the possible routes in the Applicant's Transportation Assessment Report, a haul route could be selected arbitrarily with no consideration of other stakeholders and/or the relative impacts of the alternative routes.

3.2 Methodology

The methodology used to assess the likely transportation impacts of the proposed quarry generally follows the Traffic Impact Study (TIS) requirements of Peel Region, and it uses industry standard references and analysis tools. However, the Peel Region TIS requirements do not necessarily reflect the scope of review required for this type of development (e.g., horizon year, collision analysis, etc.), because the traffic generated by the proposed development would consist almost exclusively of heavy trucks. As such, additional considerations and unique analysis parameters are warranted to fully assess the magnitude and scope of potential impacts caused by the proposed development.

The Transportation Assessment Report is generally objective; however, some of the assumptions made to inform the methodology may compromise the analysis and/or conclusions of the report. Specifically, the traffic impacts attributable to the quarry have not been disaggregated from the impacts of background traffic, and the impacts on the network without the assumed road improvements have not been assessed. As a result, the incremental impacts of the quarry traffic cannot be differentiated from the impacts of background traffic, and the potential magnitude of impacts, if the assumed road improvements are not implemented, cannot be understood. Also, the assumptions made about road improvements could result in the selection of a preferred haul route that is not able to accommodate the expected traffic, if the assumed improvements do not happen.

Unlike most of the information presented in the Transportation Assessment Report, the identification of the proposed haul route in the Site Plan Report appears to be largely subjective, and it does not reflect the conclusions and recommendations presented in the Transportation Assessment. Furthermore, since no preferred haul route was explicitly identified in the Transportation Assessment and no methodology was described for conducting a comparative evaluation of the haul route alternatives, it is unclear how the preferred haul route, as outlined in the Site Plan Report, was selected from the candidate routes.

3.3 Information

The information presented in the Transportation Assessment Report was reviewed with respect to analysis gaps, appropriateness of proposed mitigation/monitoring, and certainty.

3.3.1 ANALYSIS GAPS

Those data and facts that are presented in the Transportation Assessment Report are generally clear and consistent; however, as previously noted, the described hours of operation and trip generation estimates from the Site Plan Report do not match the information presented and analyzed in the Transportation Assessment. Additionally, there are some gaps in the information presented. In particular, analysis gaps have been identified related to the following areas:

- Collision analysis;
- Sightline analysis along the haul route;
- Final rehabilitation backfill operations (trip generation and impacts);
- Consideration for other road users (e.g., farm equipment and cyclists);

- Assessment of traffic operations and safety for at-grade railway crossings;
- Traffic analysis horizons that reflect the full life cycle of the proposed quarry;
- Impacts of proposed quarry access operations on existing adjacent driveways;
- Verification of the "roadway structural adequacy" by a pavement engineer; and
- Identification of specific local traffic generators (i.e., new/planned development).

Omission of these data, and the associated analysis, basically limits the evaluation of potential impacts to traffic operations at intersections, and the scope of the review, with respect to future conditions analysis horizons, does not fully reflect the life cycle of the quarry and potential for traffic growth in the area. If these gaps are not addressed through additional analysis some potential impacts of the proposed quarry may not be identified.

3.3.2 PROPOSED MITIGATION/MONITORING

The Transportation Assessment Report provided three recommendations for mitigation:

- "In the short-term, until Winston Churchill Boulevard is reconstructed (currently planned for 2011), that the site driveway be signed as "Hidden Driveway: (Wa-13A with Wa-18 tab) and further that warning signs indicating "Truck Entrance" signs (Wc-8 or Wc-108) be posted in accordance with the TAC requirements;"

- "Consideration be given to adding flashing beacons to the "Truck Entrance" sign to the operational during the planned hours of the quarry;" and

- "Consideration be given to providing northbound deceleration and acceleration parallel lanes and tapers on Winston Churchill Boulevard at the proposed site access."

The recommended mitigation measures are only intended to address sightline deficiencies and potential turning movement conflicts at the proposed site access, nothing else, and no details regarding sign placement or auxiliary lane/taper length are provided.

The recommended mitigation measures are not sufficient or appropriate to address all of the issues identified in the Transportation Assessment, particularly the sightline deficiencies at the proposed access. The recommended signs (i.e., Wa-13A) are not to be used at private driveways (OTM Book 6, page 43). The recommendation to provide only northbound auxiliary lanes at the proposed access is not consistent with the recommended haul route from the Site Plan Report.

The applicant has assumed that all of the identified structural and geometric deficiencies along the proposed haul route will be mitigated though reconstruction, conducted by Peel and Halton Regions.

The assumed road network improvements, combined with the omission of a "future background" LOS analysis scenario, make it impossible to determine if any other operational issues within the study road network are directly attributable to the proposed quarry. The report states that "future total traffic for both 2013 and 2018 scenarios are expected to be accommodated at a satisfactory level of service with the planned road network improvements with the exception of Bovaird Drive/Highway 7 intersections." However, several other intersections, including some intersections along the proposed haul route, show level of service of E or F and V/C ratio greater than 1.0 in both horizon years. This does not represent a "satisfactory level of service," and no mitigation has been recommended.

No monitoring programs (e.g., pavement conditions, haul route compliance) are proposed. Without a monitoring and maintenance agreement for the haul route, damage from heavy truck traffic could

go unchecked, resulting in significant structural damage to the roadway (particularly along Winston Churchill Boulevard). Additionally, the applicant has not discussed the issue of haul route enforcement, given that there are several potential routes between the proposed quarry site and the Wanless Drive processing plant, and given that the applicant is recommending the use of a designated haul route, enforcement measures for ensuring haul route compliance should have been discussed. The need for haul route enforcement strategies applies equally to trucks travelling in both directions between the plant and the proposed site.

3.3.3 CERTAINTY

Given that the Transportation Assessment was conducted in 2008, and based on even older information, there are concerns that it does not represent and accurate assessment of future background operating conditions. Background traffic growth was based simply on projected rates, and does not account for any specific development in the study area, particularly any that may have been initiated since 2008. Also, the planned timing for road network improvements has, in some cases, changed significantly from what was assumed in the assessment (see **Exhibit 1**).

The assumed road improvements along Winston Churchill Boulevard and other relevant roadways, as well as the assumed timing of those improvements, cannot be assured; therefore, a thorough analysis of the geometric deficiencies is required. If the assumed Winston Churchill Boulevard improvements, or any other assumed road network improvements, are not implemented or are delayed, related traffic operations and safety issues could be significantly worse than reported. Given that the applicant has no control over the implementation of the assumed improvements, it is not reasonable to take them as assured.

Assumptions about background traffic growth are stated in the Report, but, based on discussions with the City, the reasonableness of those assumptions has been brought into question (i.e., the estimated growth rates may be too low, and no specific local trip generators were identified). Therefore, the future conditions traffic analysis presented in the Transportation Assessment and the volumes quoted in the Site Plan Report might not reflect current expectations for traffic volume growth in the study area.

Although the Transportation Assessment identifies sightline deficiencies at proposed site access, no actual sightline measurements or minimum requirements are discussed in the report.

3.4 Policy Implications

Based on a review of the policy matrix, the relevant policies are directed a too high a level to be particularly useful in assessing transportation impacts of individual developments. Although the Aggregate Resource Act specifically addresses haul routes, it is primarily focused on on-site operations and site accesses, and it provides little guidance on how external road network impact should be addressed beyond designating haul routes.

The applicant has assumed a number of road network improvements that would be subject to the Environmental Assessment process, but those process requirements have not been explicitly noted in the Reports. Given that many of the assumed improvements would be subject to approvals processes that could delay their implementation or result in their not being completed; which would have a profound impact on the analysis of the transportation assessment, a “do nothing” alternative should have been assessed to illustrate the potential “worst-case” traffic operations scenario.

In addition, it should be noted that since the Transportation Assessment Report was completed in 2008, there have been changes to the timing and definition of future road improvements in the study area as a result of the completion of the Halton-Peel Boundary Area Transportation Study (HPBATS). The HPBATS includes a number of new roadways within the vicinity of the proposed

quarry, including a proposed Halton-Peel Freeway Corridor and a future east-west connection. The potential future alignments of these facilities are conceptual only and subject to future Environmental Assessments.

4. CONCLUSIONS

Based on the peer review findings presented above, the following conclusions have been reached:

- The proposed haul route is not identified in or supported by the Transportation Assessment, and the Site Plan Report is otherwise inconsistent with the supporting technical documents;
- There may be significant impacts that have not been identified, based on the noted gaps in the analysis:
    - Collision analysis;
    - Sightline analysis along the haul route;
    - Final rehabilitation backfill operations (trip generation and impacts);
    - Consideration for other road users (e.g., farm equipment and cyclists);
    - Assessment of traffic operations and safety for at-grade railway crossings;
    - Traffic analysis horizons that reflect the full life cycle of the proposed quarry;
    - Impacts of proposed quarry access operations on existing adjacent driveways;
    - Verification of the "roadway structural adequacy" by a pavement engineer; and
    - Identification of specific local traffic generators (i.e., new/planned development);
- No direct, comparative evaluation of the alternative haul routes was presented; therefore, there is no clear justification for the selection of the preferred route;
- The incremental impacts of site traffic on future conditions traffic operations cannot be determined from the analysis presented, which does not represent a full disclosure of the potential impacts of the proposed quarry;
- The proposed mitigation for the sightline deficiencies at the proposed site access are not sufficient or appropriate, and there are structural and geometric issues associated with several potential haul route links and the proposed access that were not appropriately addressed;
- Assumptions about background traffic growth do not identify any specific developments, and they might be based on outdated information;
- It was premature to conduct all of the future conditions traffic analysis with the assumed road network improvements, given that the feasibility and timing of the assumed improvements has not been fully assessed and/or confirmed; and
- The assumptions made may have resulted in significant underestimations of potential impacts of site-generated traffic on study area traffic operations.

In summary, the Transportation Assessment Report, submitted by Brampton Brick, in support of its Site Plan Report, failed to achieve its sated purpose ("…to ensure that any traffic impacts

associated with the quarry are well understood and that improvements required to support the application are clearly identified;"), in that it did not identify all of the potential impacts associated with the proposed quarry. In particular, it did not consider the impacts that could result from the assumed road improvements not being completed. Additionally, the recommended improvements do not fully or adequately address the impacts that were identified. The peer review also identified significant inconsistencies between the information presented in the Transportation Assessment Report and what is stated in the Site Plan Report.

Therefore, the Site Plan Report does not warrant approval by the City of Brampton, as it does not represent a thorough and complete assessment of the transportation-related impacts associated with the proposed quarry.