Friends of Rural Communities and the Environment (FORCE)

Community Issues Review Report
ARA Objections

May, 2009

F O R C E

Friends of Rural Communities
and the Environment

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1. Executive Summary

Friends of Rural Communities and the Environment (FORCE) is a citizens' based advocacy group with hundreds of supporters in Campbellville, Kilbride, rural Milton, Mountsberg, Freelton, and Carlisle. It was formed as a federally registered not-for-profit corporation, in June 2004, to oppose and to protect our natural and built environments in the face of a proposed large-scale, below the established groundwater table aggregate development.

Community residents are opposed to and object to the *Aggregate Resource Act* aggregate license application submitted to the Ministry of Natural Resources (MNR) and to the Official Plan (OPA) and Zoning By-law amendments submitted to the City of Hamilton. The community has spent the last 5 years developing its significant, substantive objections to the proposal and its location.

We are not alone in our objections. All of the area approving and commenting jurisdictions and agencies – Hamilton, Burlington, Milton, Halton, and Conservation Halton – have filed objections. Local school boards and private schools and the federations of agriculture have weighed in. We have been joined by countless supporters across the Greater Toronto Area (GTA), and beyond, who know and understand what a precious area this is. Some of these supporters are cyclists, some are motorcyclists, some are hikers, some are local food afficianodos, some are friends and family, and more. Our legal case is supported by Environmental Defence, because of its significance to the Greenbelt and source water protection. The Ontario Greenbelt Alliance advocates on our issues and the Water Guardian Network is monitoring our case as one of the hotspots with respect to source water protection. The Environment Commissioner of Ontario has written extensively about aggregate policy and enforcement and about our case, in particular.

In the spirit of balancing the Planning Report and companion technical reports provided by the proponent and the ARA Summary Statement and supporting technical reports, we have undertaken, through a series of submissions, to document our objections, both quantitatively and qualitatively.

This document, the Community Issues Review Report, was first produced as an overview of the balance of issues, concerns, gaps/omissions and inconsistencies that were originally identified as the FORCE Technical Volunteers Committee examined the land use planning application. It complemented previously submitted commissioned reports regarding hydrogeology and natural environment. Many of these issues remain unaddressed today, in May 2009.

This updated Community Issues Review Report raises issues from the land use planning and ARA applications that relate to the social economy, health, and process in a broad-based and inquiring manner. Again, it complements the May 2009 hydrogeology and natural features reports. This Executive Summary is organized based on the sections and subsections in the main body, and lists the summary findings.

In conclusion, we see no benefit to either the social economy or human \ environmental health to becoming the host communities for the eighth largest aggregate development operation in Canada. Our communities remain opposed to and object to this application. It would be an incompatible land use within the established rural residential and agricultural comminutes. Its social and economic impacts on our residents and community would be too great. No reasonable person would approve aggregate extraction in this area of Northeast Flamborough - an area which is currently zoned Agriculture and Conservation Management and which contains and is linked to numerous Provincially Significant Wetlands, significant woodlands, and Regionally Significant Environmentally Sensitive Areas, among other key natural heritage and hydrological features. The site's proximity and impacts on recharge and Wellhead Protection areas and on private wells are a significant risk to our drinking water and to the watershed more broadly. The review of the ARA and land use planning applications and the issues that emanate have re-enforced our communities' position.

SOCIO-ECONOMIC ISSUES

Haul Routes and Truck Traffic

- *No existing acceptable Haul Route exists to service the proposed location*
- *There is not close proximity to 400 series highways*
- *The 'close to market' argument is meaningless when the market extends to Scarborough in the east, Markham in the north, and Kitchener-Waterloo in the west*
- *The proposed Volume of Truck Traffic would force a significant change in existing roadway use*
- *The proponent's Haul Route analysis still does not fully consider local markets and significant markets southeast and southwest of the proposed location*
- *The haul route analysis is just that and is full of errors and inconsistent analysis*
- *The mechanisms suggested to ensure Independent Haulers adhere to recommended Haul Routes or Hauling Practices still rely on citizen complaints*
- *The Municipal Class EA process is not a suitable vehicle for addressing the needs of a private corporate venture; notice, process and substance requirements of environmental assessment have not been met*
- *The type of infrastructure changes that would be required are not wanted by the community and would urbanize the rural community*
- *The cost of infrastructure capital and maintenance and its assignment have not been addressed*
- *The impacts of the Haul Routes on people, the environment, and communities would be felt far beyond the quarry site*
- *The community's numerous concerns are only referenced as "considered in the evaluation" but impacts are not fully documented nor is mitigation fully assessed*
- *Noise off-site on the haul routes is not studied as per noise on-site and no attenuation is proposed*

Agriculture

- *Direct immediate loss of over 150 acres of viable, in use, agricultural lands*
- *Significantly greater loss when the proposed quarry implements its declared expansion plans on additional existing agricultural operations*
- *Loss of agricultural land would be permanent as the rehabilitation plans turn the property into a lake*
- *The land is currently being used for market gardening produce*
- *Has been used for agriculture since the 1950s*
- *The application's soil analysis is in conflict with the known characteristics of the site*
- *Dewatering, noise, and dust from the proposed quarry will negatively impact surrounding agricultural operations*
- *Quarry Truck traffic will be incompatible with existing Agricultural traffic*
- *The negative impact to Agriculture will extend off the site to surrounding operations*
- *To be viable, agricultural activities need a critical mass*
- *Agricultural professionals are responsible land stewards*

Incompatible Land Use and Social and Economic Impacts, including Real Estate Values & Municipal Tax Base Implications

- *While considered an interim or temporary lands use, the reality is that quarries, in the area, have a history of operating over 4 decades*
- *The timeframe is much longer than the Official Plans and is, in fact, multi-generational*
- *The proposed land use is not compatible with existing agriculture, residences, schools, child care and other facilities*
- *The local real estate market has already been impacted*
- *Prospective purchasers and/or their realtors are contacting FORCE to inform themselves about the situation*
- *Prospective purchasers are leaving the local market upon investigation of the situation.*
- *The net economic impact of depressed real estate values will more than offset the economic gains from the proposed operation*
- *The proponent's economic benefits report is not well substantiated*
- *A full municipal cost/benefit analysis would be appropriate*
- *A social impact assessment should be conducted*

Infrastructure

- *Infrastructure costs such as roadways will increase from the heavy demands of aggregate traffic*
- *Most of the burden of those costs will fall on the tax payer and municipalities*
- *The proposed development could endanger the natural environment which provides infrastructure services such as storm water management*
- *Should the natural environment be disturbed, the economic impact of having to deal with new infrastructure needs is unknown*

- *The potential impact on drinking water is a significant threat as current regulations limit and complicate the options for providing an alternative source of drinking water*
- *The current applications are silent on the proponent's approaches for providing alternative sources of drinking water, if necessary*
- *The City of Hamilton and surrounding municipalities might be forced to financially support the situation, should the proponent be unable, or unwilling, to provide the essential infrastructure service of clean, drinkable water*

Aggregate Supply & Demand

- *The formation of Amabel Dolostone exists over a wide area, not just on the proposed site, and this formation is not the only source of limestone in the province for quarrying*
- *The identification of the existence of the resource in Official Plans defines potential; it does not imply approval or a predetermined intent to extract the resource*
- *Land use intent is indicated by the zoning; currently Agriculture and Conservation Management*
- *There are data inconsistencies within the planning report and with the report's assertion of an "aggregate crisis"*
- *There is limited current data on aggregate supply to justify declaring a crisis, the last study was done in 1992 and work has just begun on updating the state of the aggregate resource in Ontario*
- *Existing aggregate license optimization and aggregate 3Rs – reduction, reuse and recycling have not been fully explored as a way to mitigate the need for virgin aggregate materials*

Rehabilitation

- *It is unlikely that the final rehabilitation plan proposed will ever be implemented, in light of the proponent's stated intention to expand to the adjacent agricultural lands*
- *The final rehabilitation scenario is not defined, beyond a naturalized state, with a proposed deep water lake feature*
- *It is important to determine whether a deep water lake feature is representative of the natural ecosystem in this setting and whether it is compatible with existing approved land uses*
- *Water leveling and how it will be achieved and maintained, especially post-operations, is unclear*
- *The flooded quarry and its surface water pose water quality risks to groundwater, and to the Carlisle municipal wells*
- *Public safety features are not addressed*
- *Compliance with the Greenbelt Plan is not fully addressed*

HEALTH ISSUES

Noise & Vibration

- *The impact of sustained exposure to noise and vibration is a significant health issue, not just a nuisance factor*
- *The existing sound levels are considered 'quiet' in the day time, evening and night time, and are dominated by natural sounds or infrequent human activity*
- *The proponent concedes that the operation will potentially exceed MOE noise guidelines*
- *The noise report represents another theoretical and modeled scenario and solution*
- *The noise impact analysis is very strictly and narrowly focused on what is considered to be "normal routine" activities on site*
- *No sensitivity analysis is presented to show the impact of variations*
- *No ongoing monitoring is presented*
- *No discussion is present regarding an inaccurate modeling scenario, including contingency plans*
- *No discussion is presented for the acknowledged scenario where noise impacts exceed MOE guidelines, including procedures, and remedies*
- *Site preparation work, stripping of overburden, construction of berms, initial excavations (sinking cuts), establishment of initial processing facilities, and the rehabilitation of the site are not considered in the noise analysis*
- *Traffic noise is not considered even though noise impacts along haul routes will extend the noise issues to residents far from the quarry site and extend the time of disturbances beyond the operating times of the site*
- *Noise from blasting is not considered*

Blasting and Bench Height Impacts

- *The blasting and bench height reports are interrelated but there are no formal conclusions presented as to whether one or two bench heights will be used*
- *There are clear risks for planar failure and significant rock slides if a single bench approach is used; two benches only decreases the risk by 50%*
- *The jointing identified in the rock mass appears to contradict conclusions in the hydrogeology assessment which have led to homogeneous characterization of the aquifer*
- *Recommendations around blast size and strength are based on estimates, not measurements*
- *Blasting can accentuate micro-cracks and natural discontinuities making operation of the GRS more challenging and affecting groundwater quantity and quality for existing groundwater users*
- *Blasting noise is not addressed*
- *Blasting impact zones and effects are not fully documented*
- *Blanket assurances that repeated vibration from blasting will not have any cumulative effect are not substantiated*
- *Blast monitoring is only recommended, not confirmed*

- *It is unclear how NPC threshold, safety limits impact or support MOE decibel limits and the characterization of a quiet rural environment*

Pedestrian, Cyclist & Vehicular Safety

- *Introduction of incompatible commercial truck traffic will become a health and safety issue for existing road users*

Dust (Airborne Particulates) & Emissions

- *Health issues from airborne particulate matter and poor air quality are well documented. The proposed operation, and its associated product shipment on area haul route(s), could significantly increase the amount of airborne particulates and lower air quality*
- *The proponent's land use and ARA applications do not address these issues*

PROCEDURAL ISSUES

The Big Picture

- *The big picture question as to whether this proposed development is of net benefit to the province and the people of this area, including whether this location is appropriate, should be answered and should not be allowed to be lost*
- *The iterative nature of the land use planning process and the objection identification and resolution process of the ARA process carry the inherent presumption of development and/or approval by incrementalism*
- *The full magnitude and the direct, indirect and cumulative effects of the proposed quarry operation and its haul route(s), including the stated expansion lands, should be evaluated from the outset*
- *The evaluation should not be static but should include projected impacts for the lifespan of the operation and risk assessment scenarios, including climate change modeling*

Earning A Social License to Operate

- *Social license to operate is a term that has entered corporate and community parlance in recent years*
- *The social license to operate is site specific, earned by the company, granted by the community and recognized as comprising the community perceptions of the social legitimacy of the project, the credibility of the project and its proponent, and the presence or absence of trust*
- *St Marys Cement has failed to earn its social license to operate*

2. Introduction

Friends of Rural Communities and the Environment (FORCE) is a citizens' based advocacy group with hundreds of supporters in Campbellville, Kilbride, rural Milton, Mountsberg, Freelton, and Carlisle. It was formed as a federally registered not-for-profit corporation, in June 2004, to oppose the quarry applications, and to protect our natural and built environments in the face of this proposed large-scale, below the established groundwater table aggregate development.

Community residents are opposed to and object to the applications and have spent the last five years developing their significant, substantive concerns with the proposal and its location.

We are not alone in our objections. All of the area approving and commenting jurisdictions and agencies – Hamilton, Burlington, Milton, Halton, and Conservation Halton – have filed objections. Local school boards and private schools and the federations of agriculture have weighed in. We have been joined by countless supporters across the Greater Toronto Area (GTA), and beyond, who know and understand what a precious area this is. Some of these supporters are cyclists, some are motorcyclists, some are hikers, some are local food afficianodos, some are friends and family, and more. Our legal case is supported by Environmental Defence, because of its significance to the Greenbelt and source water protection. The Ontario Greenbelt Alliance advocates on our issues and the Water Guardian Network is monitoring our case as one of the hotspots with respect to source water protection. The Environment Commissioner of Ontario has written extensively about aggregate policy and enforcement and about our case, in particular.

In the spirit of balancing the original Planning Report and companion technical reports provided with the land use applications and the ARA Summary Statement and supporting technical reports, we have undertaken, through a series of submissions, to document our concerns both quantitatively and qualitatively.

This document, the Community Issues Review Report, was first prepared in November 2005 as an overview of the balance of issues, concerns, gaps/omissions and inconsistencies that were identified as the FORCE Technical Volunteers Committee examined the proponent's land use planning application materials. Many of those issues remain unaddressed in May 2009. This report is an update, reflecting the ARA application, and other materials made publicly available by the proponent, in the interim.

The Community Issues Review Report should in no way be interpreted as agreement with the content of the proponent's Planning Report and Appendices, or the ARA Summary Statement and supporting technical reports, nor a summary of the only issues that are of concern to the community through FORCE.

The supporting volunteer expert documentation which is included in this Community Issues Review Report includes:

1. Rosenbloom, David. The Health Impact of a Limestone Aggregate Quarry in Flamborough. May 2009.

2. Dominy, Cliff. Analysis of the St Marys Cement Flamborough Quarry ARA Sbmission

FORCE appreciates the opportunity provided by the ARA process and by the land use planning process to comment on the St Marys Cement applications. The process of undertaking this review of issues has been informative.

3. Conclusions

As a citizens' group, we have come to know more than we ever wanted to know about bylaws, Official Plans, the ARA and its Provincial Standards, Permits to Take Water (PTTW), and other regulations and legislative frameworks which pertain to aggregate development. We have also learned much more about the aggregates industry than we did before we were faced with this situation. Unfortunately, as we read and discuss the St Marys Cement applications, we are left with more objections, more concerns, and more questions than answers.

This Community Issues Review Report raises issues that relate to the social economy, health, the nature of the amabel dolostone supply and demand, and other process matters, in a broad-based and inquiring manner. We have also appended memoranda that address specific issue areas in more detail.

We see no benefit to either the social economy or human \ environmental health, to becoming the host communities for the eighth largest aggregate development operation in Canada. Our communities remain opposed to and object to this application. It would be an incompatible land use within the established rural residential and agricultural communities. The social and economic impacts on our residents and community would be too great. No reasonable person would approve aggregate extraction in this area of Northeast Flamborough - an area which is currently zoned Agriculture and Conservation Management, and which contains and is linked to numerous Provincially Significant Wetlands, significant woodlands, and Regionally Significant Environmentally Sensitive Areas, among other key natural heritage and hydrological features. The site's proximity and impacts on recharge, groundwater-based municipal water system Wellhead Protection areas, and private wells are a significant risk to our drinking water and to the watershed more broadly. Review of the applications and the issues that emanate have re-enforced our communities' position.

4. Community Issue Review

4.1 SOCIO-ECONOMIC ISSUES

Aggregate extraction is not a benign rural activity. As such, criteria for evaluation of an aggregate development application are extensive and contained in a variety of provincial and municipal regulatory frameworks. Some key evaluation criteria are outlined below.

We note here, for purposes of socio-economic issues, that the former Town of Flamborough's Official Plan (OP) specifies that the following will be evaluated:

- Compatibility with adjacent existing and planned land uses
- Demonstration of the need for and benefit of additional aggregate resource extraction
- Potential impacts on the environment, including measures to minimize any adverse impact
- Potential impacts to the transportation system
- The capability of the lands for agricultural uses and the rehabilitation to agricultural use
- Other such matters as deemed necessary.

The new Hamilton Rural Official Plan (ROP) was adopted by the City of Hamilton in September 2006 and the Provincial Government released its approval, in the form of a Notice of Decision, dated December 2008. Due to some appeals issues, the Rural Official Plan policies are not yet in full effect. Under development at the same time as the proposed development, the ROP represents an alignment between the two levels of government, especially in light of the Official Plan Amendment (OPA) coinciding with efforts to ensure municipal compliance with the Greenbelt Plan and the Greater Golden Horseshoe Growth Management Plan. The ROP's requirements, for consideration of new and expanded mineral aggregate operation applications, are consistent with the directions of the former municipal plans in Flamborough, and the other townships, yet modernize the articulation of those information requests. Section 6.19 of the ROP specifies:

- All Environmental Impact Studies requested by this Plan *{see Core Areas, linkage areas, etc.}* and by all relevant agencies
- A hydro-geological study
- A transportation and haul route study
- Noise, vibration, dust and air quality studies and
- A socio-economic impact study.

Another section, consistent with a relevant section in the Provincial Policy Statement, section 6.32 adds that, in areas adjacent to or within lands identified as potential mineral aggregate resource areas,…access to the resource shall not be permitted unless...(c) any public health, safety, and environmental impacts of existing, expanding, or new mineral aggregate operations on the proposed land uses can be addressed.

It is relevant to review these requirements given the precedence in other jurisdictions, such as Caledon (OMB decision, 2003), for aggregate proponents to have their cases heard under new rules, as opposed to being grandfathered under former rules.

At the provincial level, the *Aggregate Resources Act*, through its Provincial Standards require that an aggregate license application include a Summary Report or Statement and technical reports covering hydro-geology, natural environment, hydrology, archaeology, blasting, bench height, noise, agriculture, and site plans. In considering whether a license should be issued, section 12 of the Act specifies that the Minister or the Board, as the case may be, is to have regard for:

- the effect of the operation on the environment
- the effect of the operation on nearby communities
- any comments provided by a municipality in which a site is to be located
- suitability of the progressive and final rehabilitation plans for the site
- any possible effects on ground and surface water resources
- any possible effects on agricultural resources
- any planning and land use considerations
- the main haulage routes and proposed truck traffic to and from the site
- the quality and quantity of the aggregate on the site
- the applicant's history of compliance with the ARA and its regulations, and
- such other matters as considered appropriate.

Clearly, other regulatory and policy provisions will also apply including the Provincial Policy Statement (PPS) 1997, PPS 2005, the Greenbelt Plan, the Ontario Water Resources Act/regulations, and the Environmental Protection Act/regulations.

With this backdrop, the following subsections review issues against a number of the specified evaluation criteria.

4.1.1 Haul Routes and Truck Traffic

Access, to and from the aggregate resource and the 400 series highways is important to the proposed development. Access issues, with the series of haul routes advanced by the proponent, have implications for not only the City of Hamilton but also for the Town of Milton and the Region of Halton. The volume of projected truck traffic is extremely significant. FORCE submits that, indeed, there are no appropriate haul routes and that the proponent's ARA and land use planning reports, and other supporting studies, continue to raise more questions than they answer in terms of both process and substance.

Indeed, with the ARA application, there is no final transportation and haul route report. That study is noted as incomplete, pending completion of a final Public Information Centre (PIC) #5 and final technical report, and a Haul Route Evaluation Study (2008), though referenced, was not made publicly available at the time of the ARA application. We understand that the municipalities and agencies were circulated with some further draft materials in hard copy, binder form, on May 7, 2009, in preparation for the final PIC. Despite a commitment to provide same to the community, FORCE was not included in

this circulation. FORCE followed up with the proponent to request these materials. On May 13, 2009, a representative of the proponent indicated that there were no more hard copies available but arrangements would be made to courier a CD version. Based on the receipt date at the May long weekend, analysis of this material does not form part of this report, in order to ensure compliance with the ARA objection deadline.

With respect to truck traffic volume, the original Planning Report estimates 570 truck loads, or 1140 truck movements, at the proposed quarry gate on the average maximum day (p. 68). The ARA Summary Statement, too, references an estimated total of 1140 quarry truck trips per day (p.28) on a peak day in a peak year. These estimates represent about *100 trucks per hour* or nearly two per minute. Differing statistics can be found in the noise study, where truck trips of 820 per day or 1,640 movements per day, one every 26 seconds, are referenced. Either of these sets of statistics are alarming and are in *stark contrast to the existing 3 trucks per hour* (Table 4 of the Planning Report) on Milburough Line. A volume of this magnitude would be a dramatic many-fold change, with particular concentrations experienced during morning hours, creating significant issues for the nearby rural settlement areas and the areas between them. These areas include rural clusters along concessions and residential fragmentation, through estate subdivisions, more typical of a rural settlement area, alongside an active and viable agricultural economy.

The proponent's original traffic study was limited to the Highway 401/Guelph Line interchange route. Subsequent investigations have included the broader study area encompassing the area between the 401 and 403/QEW to the north and south, and Hwy 6 and Guelph Line to the west and east, but the proponent's emphasis has continued to be access to the GTA via the 401.

One of the proponent's central arguments for the site location and preferred haul routes is that, allegedly consistent with the PPS, this proposed quarry is as "close to market as possible" or "close to its final destination". Closeness to market is, obviously, a relative term. In fact, even the PPS clause, 2.5.2.1 is not absolute itself, stating that …"as much of the mineral aggregate resources *as is realistically possible* …", cognizant that factors may exist which override the distance argument. Closeness clearly depends on two factors: alternative sites (starting points) and what constitutes market (ending points). There are also points in between (processing points).

With respect to starting points, we note that the Amabel formation is not restricted to this corner of Northeast Flamborough. While this site may be closer to the GTA than some other potential sites, within the formation, it is also farther from the GTA than other potential sites. The Amabel formation is also not the only limestone source in Southern Ontario or in Ontario, more broadly. Indeed, St Marys Cement's current aggregate operations are located in Bowmanville (quarry), Brighton (pit), Sunderland (pit), London (pit), St Marys (pit), Aberfoyle (pit), and Cambridge (pit).

The proponent's submission indicates that the lion's share of its market (75%) is northeast into the west part of the Greater Toronto Area, although its distribution map (Figure 5 in the ARA Summary Statement) illustrates shipping product across virtually the entire Golden Horseshoe. Ten percent will be transported northwest, 10% will be transported southeast, and 5% will be transported southwest. There is no material substantiation provided for any of these estimates, no supporting market analysis, no analyses of distances, nor specificity of the form in which the aggregate will be sold and

the relative share of each (i.e. “as is” in granular, sand, crushed stone, round stone, and other stone products; as portland, masonry or other cement products; or as ready mix), or where any further processing will take place. We note that, despite growth projections in provincial reports which are part of the provincial Places to Grow initiative, the study still does not materially address emerging aggregate markets southeast and southwest of the proposed quarry in South Milton, North Oakville, North Burlington and in the expanding north Hamilton urban area. Milton and Hamilton, in particular, are targeted for considerable growth under the provincial Greater Golden Horseshoe plan. As a result, the study still does not acknowledge access via local roads to service this demand or to service local deliveries.

That being said, if we accept the proponent’s claims at face value, and examine the 75% of the market found in the western part of the GTA, the mileage from the site to Mississauga or Brampton would be in the range of 31 km (Winston Churchill/401) to 53 km (Hurontario/401), assuming haul route #3. This is not an insignificant distance when one considers the number of truck trips involved (estimated 1140). At 75% of the trips going to the west GTA, that is still 855 trips. This amounts to some 26,505 to 45,315 km per day, with all the concomitant impacts on fuel consumption, greenhouse gas emissions (GHG), smog, etc. Destinations further east in the GTA, the balance of the market specified by the proponent, and any truckers serving local markets, will result in even greater mileage and related impacts. It would seem to our communities that there are many other quarry operations located closer to many of the delivery areas, and if the close to market need is so central, perhaps the aggregate industry should be rationalized to optimize supply and delivery.

Perhaps even more important, however, is the fact that although some aggregate will, indeed, be sold and used simply as granular, sand, or various forms of stone products, a (significant) percentage of it will, undoubtedly, be processed either in the form of cement or ready-mix products. According to St Marys Cement’s website, “Since its founding in 1912, in St Marys, Ontario, by John Lind and Alfred Rogers, St Marys Cement has been a major producer of cementitious materials in the Great Lakes Region.”

Again, according to its own website, St Marys Cement does own and operate a number of Ready-Mix plants (10 listed for the Toronto Region, 14 for Ontario West, and 7 for Ontario East) and two cement plants (St Marys and Bowmanville). According to rough distance estimates (based on Mapquest review), few of these sites are close to the proposed Flamborough quarry or to the western GTA. Illustrative, the cement plant sites and the St Marys Cement listed Toronto Region Ready-Mix facilities, and approximated distances to the proposed site, are set out below:

Cement Plants

Bowmanville	132 km
St Marys	west of the site

Toronto Region Ready-Mix plants

Barrie	129 km
Bathhurst	72 km
Brampton	47 km* (closest to the site)

Leaside	75 km
Maple	75 km
Newmarket	103 km
Scarborough	91 km
Sutton	137 km
Weston	65 km
Whitby	113 km

The preceding information makes it clear that the proposed Flamborough quarry is not necessarily 'close to market' and that the use of that term is truly relative, in order to support St Marys Cement's rationale for the site.

In light of the prospective markets, it is also important to understand the prospective haulers and how they will access and use the preferred haul routes to reach these markets. Our understanding from the proponent is that it is the company's intention to establish preferred haul route(s) and to use the services of independent haulers from the GTA. Based on the prevailing compensation structure in the industry, experience at other operations, and drivers with no local ties, it is not unreasonable for our local communities to expect that the truck drivers will use the preferred haul route(s), *as well as others,* which minimize their time of travel, which are closest to their target market, and which maximize their number of loads per day.

The original traffic study identified no controls for ensuring haulers use the preferred routes and proposed no measures to restrict truck movements to the southwest and southeast of the proposed quarry on local roads. As an example, local roads in specified areas in the Town of Milton are protected, with varying degrees of success, from quarry traffic through truck exclusion By-laws. In response to questions and as part of the Transportation and Haul Route study underway (from display board information), the proponent has now indicated that it intends to make use of a trucking policy, in use at its other facilities, to coordinate enforcement with local police, and to consider truck exclusions on certain road segments.

The reality of what is proposed, however, still remains a citizen-driven complaints system. Examination of the experience with truck queuing issues on Dublin Line, near the Milton Dufferin quarry, as but one example, demonstrates that a citizen-driven complaints system is not satisfactory for either community residents or the police community that serves them. Arguably such a system – especially prior to 2001, when ticketing was more active - also draws police resources away from more serious community matters. Municipalities through their elected and unelected officials have also had to continue to address complaints and to take further actions. In June 2005, the Milton Champion reported that Milton Council passed a bylaw to prohibit stopping at all times on both sides of 5 Sideroad east of Regional Road 25. Aggregate haulers had been parking on both sides of the road waiting for access at the gate on Dublin Line. The trucks were creating an unsafe situation forcing drivers to cross the centre line in order to pass the parked/idling vehicles. Even in 2009, the location continues to be a source of challenges to the community and to its law enforcement.

As we move on to examine the preferred haul routes (now figure 11 in the ARA Summary Statement), specifically, we note that the proposed quarry is not in close proximity to the 401 via established truck routes at all, contrary to the claim in the

Planning Report (p. 2). The original traffic study confirmed (pp. 1.1 and 1.2) that there is no direct access to designated truck routes. Highway #6 appears to be the nearest established major truck route, with Centre Road permitting trucks, as well.

The absence of established local truck routes is further evidenced by the no truck designations on Campbellville Road, prohibitions on other Milton roads like Twiss Road (referenced in Town of Milton documents), and the 'reduced load' signed designations on all local roads in the vicinity of the quarry and notably through to the proposed Reid Side Road access to the 401. The load restrictions (5 tonnes per axle) from approximately March 1 to April 30 (some February to May 1) imply structural deficiencies for four season operation. The roads are clearly not structurally capable of handling the volume and weight of traffic in their current form. We add that the shoulders are narrow or non-existent and the sightlines are limited because of the numerous grade changes.

Notwithstanding the limited analysis and conclusions of the original traffic report and the transportation and haul route study (the latter which will be discussed below), the former suggests that all proposed haul routes will require right of way (ROW) widening, structural and pavement upgrading, shoulder widening, and intersection and other improvements to support the frequent (two per minute) heavy truck movements, to address stopping sight distance, and to ensure appropriate sight triangles at intersections. The second study, while being less specific, indicates that cross-section improvements along non-provincial route links are recommended. The proponent's first traffic analysis did not even extend to the 401/Guelph Line/Reid Side Road interchange which would clearly require improvements under such circumstances, despite recent upgrades, and the second study simply indicates, on display boards, that the impact of the increased truck volume on the interchange is "considered in the analysis". We are just not told how this provincial facility would need to be altered, in any material way.

The prospect of these road, intersection, and interchange infrastructure improvements raises numerous issues, again not addressed in the proponent's materials in any meaningful way. Bottom-line, the local roads work for our communities. We see no need for and are not asking for changes or upgrades to our municipalities' design and management of our road system, nor are we suggesting that our roads be altered to current design standards. There is reference to construction of urban cross-sections, in order to avoid land acquisition, but it is stated that this approach raises unnamed other trade-offs. Urbanization of the roads and our rural environment is not what our communities want. We strongly object to changing the function and classification of our local roads to accommodate the transportation of goods to and from a quarry operation. Our desire to maintain our picturesque roads is "considered in the analysis", according to PIC display boards, but it is not clear how much weight this position is given, in comparison to the needs of quarry shipments.

The very real questions about the estimated costs of the infrastructure work and the jurisdictional assignment of the additional tax burden are not answered. Order of magnitude costs are not even provided as the study conveniently references that several design options are still being explored. There is some suggestion, on St Marys Cement's Flamborough quarry website, that design options and mitigation measures may be shared at PIC#5, when the preferred haul route(s) are unveiled. With respect to cost assignment, St Marys Cement has indicated that it intends to sign an undefined development agreement and to be responsible for the development costs associated with accommodating quarry trucks. There is, however, still no specificity with respect to

with whom the agreement will be signed (Hamilton, Hamilton and Milton, etc.), the level of the company's obligation or commitment to capital costs, and the company's obligation or commitment to operating/maintenance costs, among other expenditures. The company has not even indicated its policy on cost sharing, in place with other municipalities, to provide a framework for public understanding and subsequent local negotiations.

Infrastructure changes also raise the very real impact of this quarry, well away from the operations on site, on the off-site ecological and hydrological features, interconnected to the site, which are present on both sides of these roads. Savanta and Stantec's natural features field work, impact and mitigation assessments do not extend off-site to the haul routes. The display boards from the PICs 'count' features, wetlands, and stream crossings and cite connectivity linkages but do not convey any meaningful impact and mitigation assessments. Similarly, species impacts, including habitat effects and increased risk of road kill, are noted but not meaningfully addressed.

We also note that no application has been submitted for Hamilton Wentworth Regional Official Plan (ROP) approvals required for truck route amendments. We are reviewing Halton and Milton requirements for equivalent requirements. Similarly, no information has been provided addressing Greenbelt Infrastructure requirements, as will be discussed in a later section on Infrastructure.

Media reports and the ARA Summary Statement (p.27) have suggested that the proponent intends to pursue a Class Environmental Assessment for the haul routes and any municipal road improvements. No information regarding this approach, or that for a Class EA for Provincial Transportation Facilities, was detailed in the Planning Report or Traffic Study, despite its reference in the Terms of Reference prepared by Dillon Consulting Limited for and issued by the City of Hamilton/Combined Aggregate Resource Team (CART). It is our understanding that class environmental assessments were created to standardize and streamline the approvals *for municipalities* (or *for the province, as the case may be)* for similar groups of projects, such as roadways, sewer and water improvements, in light of municipal responsibilities, expertise and use of taxpayer dollars. This proposed quarry operation is a completely private undertaking, benefiting the proponent principally, and there is definitely question as to whether it should or would be subject to a Class EA, even if municipal roads are involved and, certainly, at this stage of the application review process. We note that there has been no municipal approval and/or endorsement of the operation by any of the decision-making or commenting jurisdictions, making them a party to the undertaking.

The proponent states that the transportation and haul route study evaluation has been conducted in a systematic manner and is consistent with the requirements of the Ontario Environmental Assessment process (p.27). It seems that a number of stakeholders would challenge that assertion, including FORCE, on behalf of our communities. Certainly, CART tabled correspondence dated on July 9, 2007 with pages of concerns about the notice, process, and substance of materials for Public Information Center (PIC) #1. Subsequent process and substantive concerns also led to the recharacterization of PIC #4 from recommending a preferred haul route to sharing the interim analysis of the haul routes and the interim evaluation feedback.

Other serious indications about concerns, with the manner in which the study has been conducted, and its incongruency with the environmental assessment process, were the

motions passed in June 2008 by Halton Region and the Town of Milton authorizing peer review funds independently and calling on Hamilton to halt the transportation and haul route study. Conservation Halton also expressed its concerns, at the same time, over the authority's lack of involvement by the proponent in the study and review of natural systems impacts.

The Region of Halton in its staff report LPS47-09 (April 16, 2009) regarding the ARA application continues to note the problematic speed with which the haul route study was originally moving in the absence of appropriate amount of time for CART to complete its review of materials, and in the absence of {*and lack of integration to}* other component studies, including hydro-geology and environmental impact assessments. The Region also indicates the methodology used in the selection of a preferred haul route was inappropriate, lacked transparency, and did not reflect the impacts that the haul route would have to the natural environment, community features, and existing transportation systems. The point is also made that the Region has not received an appropriate level of justification that the selection of a route through Milton is preferable to other routes.

The Town of Milton in its staff report PD-043-09 (April 27, 2009) reiterates the lack of justification for preference for a Milton route. It comments that only a transportation review was being provided, not a review of social, financial or environmental impacts. Illustrative, Milton notes that there is no identification of natural heritage areas and no treatment of wildlife species, beyond reference to a deer wintering yard. And, further, the report goes on to catalogue numerous inaccuracies in the study and, perhaps more importantly, differences in treatment between communities. There is, for example, no consideration of all the residences, businesses, churches, and other facilities in Campbellville, whereas there is for the community of Freelton, west of Hwy #6. Again, all residences in Freelton are accounted for, yet in Campbellville, only those whose properties/driveways immediately access or abut the routes are considered. Differential treatment of agricultural properties also occurs, especially for lands with hay and pasture.

We are also aware of critical correspondence throughout the process from FORCE and from other stakeholders, such as the Balaclava School Council.

In support of the above noted criticisms, we note repeated problems with location and size of venue and notice for the PICs, in terms of notice frequency, consistency between PICs, and lack of direct notice to key stakeholders and residents along the proposed haul routes. Provision of key information has also been a problem. There was a failure early on to identify the haul route study area. The means to access information prior to the PICs, in order for residents to review same and prepare for meetings, has been consistently unavailable. Post facto access to display board materials has also been slow. The specific methodology for preliminary evaluation of identified routes and criteria were challenged at the PIC #3 workshop format. The number of surveys that were submitted, at or following PIC#2, and especially at PIC #3, is not statistically valid and renders the conclusions drawn from them weak.

Substantively, there are many problematic issues. There has been no consideration of the "do nothing alternative", required by environmental assessment. Alternative transport modes have been reviewed and dismissed in a cursory manner, at best, through PICs #1 and #2. At PIC #1, there was delineation of an exclusion zone for the community of Carlisle. This delineation was premature, in light of the fact that there had

been no formal or thorough consideration of the evaluation criteria or proposed impacts against which to come to a decision. Further, there was no rationale to exclude the community of Carlisle but to include the community of Campbellville. This exclusion zone was subsequently retracted. Screening criteria were used to arrive at a short list of haul routes for PIC#2, yet there was no rationale provided for the development of the screening criteria, no consultation on the appropriateness of the screening criteria, etc. Indeed, it would seem that the screening criteria could eliminate all of the proposed routes. There are also issues related to the qualitative terms assigned to the evaluation criteria and to their relative weighting, as shared at PIC#4. As an example, land uses and economic factors received 28 – 31 and 26 – 31 responses in the 'very important' category, respectively, yet land uses is labelled 'important', whereas economic factors are scored 'more important'. Impact on land uses is, thereby, relegated to the same status as cultural and archaeological factors which received 21 – 24 responses in the very important category. These determinations have impacts on the quantitative and qualitative analyses undertaken to rank the haul routes.

Underlying data continues to be of concern to our communities. Much of the data, for example community treatment, natural features, cycling route delineation, agricultural characterization for purposes of field access and movement of equipment, etc. focuses on Hamilton versus Halton. There are no school bus counts or impacts assessed for private schools in the area, such as Hillfield Strathallan College, which would increase the number of buses on certain haul route options. There is no accounting of other means of transportation for children attending private schools such as Hitherfield, the Burlington Christian Academy, and area Montessori schools, among others. We are not aware of cycling counts or motorcycling counts. Travel time/delay conclusions on information boards do not seem realistic and we have seen no travel time/delay surveys or studies to support these conclusions. This is relevant for the multiple train crossings and for the EMS station located on Reid Sideroad, which dispatches fire, police, ambulance and EMS vehicles on 911 calls. The transportation and haul route analysis appears to be static; there do not appear to have been projections undertaken to the horizon years for the quarry operation. Social environmental and community impacts focus on facilities with less recognition of the reality that the road is our sidewalk and the forms of recreation that occur there – such as jogging, walking, horseback riding and cycling. Impacts are commonly assessed as LOW because facilities will not be removed or directly affected, yet the reality is that residents' day to day recreation would be severely impacted. The promise of bicycle lanes, immediately beside truck lanes, is not appealing for safety, air quality, and other reasons. Transportation impacts focus on volume, function, and related factors. We have not seen collision record analyses nor projected collision analysis. Land use compatibility is focused on planned/future development and plan compliance, without any meaningful assessment of compatibility with existing land uses. There are errors citing restaurants that have long closed (i.e. the Texas Grill) or burned down (i.e. the Chinese restaurant on Hwy#6), yet ignoring other existing businesses or significant facilities. There are mathematical errors on the social, environmental and community impacts table in the display boards related to truck exposure indices. There are errors in the references to affected communities, in the same series of tables. Illustrative, alternate route 3 affects Morriston, which is not even located along the route, but there is no mention of Campbellville. The list of data gaps, omissions, and errors goes on and on.

Air quality impacts related to the haul routes are not documented, nor are noise impacts, in any material way. The original land use planning application confirmed that residents,

up to 500m from the road centre lines, would experience some influence of haul route noise (in excess of MOE quiet conditions). The ARA application deals with noise levels on site and at receptors close to the site, but does not mention noise levels off site or along the haul route(s). The Noise Impact Study in section 7.0 states that sound levels for highway trucks are between 103 and 109 dBA and in section 5.2 that the MOE sound level limits for stationary sources are 45 dBA. To mitigate sound impacts from trucks on site, speed and volume levels are to be controlled and acoustic barriers are to be installed along the internal access routes. There is no attenuation proposed once trucks leave the site.

Haul route noise can be expected to dominate quarry noise, even for residents near the quarry site, and would dwarf existing traffic sound levels. Existing traffic generates only about 52 dBA at residential receptors along Milburough Line, according to the original Planning Report. Some 1140 truck trips per day with trucks generating between 103 and 109 dBA will generate significant noise, seemingly more than the 10+ dBA, which may be experienced by receptors referenced in display board tables by RWDI Air. The reach of this proposed operation, because of its official and unofficial haul routes, will be widespread and must be recognized as such. The subject proposal, its location, and proposed haul route(s) must be evaluated on the basis of adverse effects that will result from the proposal, and with respect to haul routes and noise, from the specific changes that will result from the introduction of quarry haulage on road(s) that, in many cases, the proponent describes as not heavily travelled in their current condition. The evaluation and comparison must be to the existing situation, not via comparison to the traffic volumes and noise levels at existing pit and quarry routes in rural settings.

To date, the transportation and haul route study seems focused on delineating the route with the least impact and the end goal (establishing a quarry) justifies the means (a haul route).The findings do not address the fundamental acceptability of the proposed haul route(s), or the appropriateness of a proposed quarry location that relies on that route(s). As a community, we do not find any of the proposed haul routes acceptable.

For us, by contrast, these rural routes are the vital connecting links between and amongst our communities for agricultural, social, commercial, economic and recreational purposes. Our rural community is a cluster of settlements that have developed over the last century and expanded more notably over the last four decades. For three seasons, the roads are traveled by slow moving farm vehicles to transport workers, equipment, fertilizers, seeds, harvested crops, livestock and horses. Campbellville Road bears signage noting this is an active farming area. Furthermore, these are the routes used by school buses as they stop to collect and transport our children to and from the public and separate elementary schools located at the intersection of Centre Road and the 10th Concession, to and from the public elementary schools located in Brookville and Kilbride, to and from the Milton and Waterdown District High Schools, and to and from private schools in the area, such as Hillfield Strathallan College. These roads are also our sidewalks and are heavily used by equestrians, walkers, joggers, and cyclists of all ages and levels. In the winter, people snow shoeing and cross country skiing can be seen, as well as those using snowmobiles. Indeed, the Hamilton-Wentworth ROP designates these roads as part of the former region's bicycle paths, further evidence that they are not established truck routes.

The original Planning Report appears to ignore the ROP designation of Milburough Line and other roads as bicycle routes, and the traffic study and transportation and haul route

study do not address potential safety conflicts of any kind between these normal uses and the proposed quarry truck volume, in any material way. The reality that the required four season structural improvements to the haul routes may result in higher operational speeds than those assumed, or currently posted, makes the safety conflict even more unacceptable.

We remain concerned that a queue of aggregate haulers will block residents attempting to reach places of employment and elsewhere, as they try to exit driveways, and/or to turn at rural road intersections along the preferred haul route(s). The truck volume may even make it virtually impossible for school buses to operate safely in through-traffic and at stops. We still believe that EMS vehicles can be expected to encounter significant truck traffic in both directions which may impact emergency response time.

Truck volume will only be further compounded by transit over either of the level rail crossings in Campbellville where we have been told that there are approximately 40 trains per day, some up to 7,000 feet long. Motorists can already encounter waits in excess of ten minutes at these points, which would translate into backups of aggregate haul trucks creating caravans many vehicles long. The potential impact of combined aggregate fleet and train capacity on traffic volume, emergency response time, and vehicular conflict/safety is a major and serious problem. The few seconds attributed to delay in the PIC display information boards does not appear reasonable or substantiated.

Other issues related to haul routes that could develop and are not adequately documented, nor addressed, include the impairment of natural and hydrologic features, as well as contamination of source drinking water and ground water, from road salt, and from oil and diesel fuel exuding from both hydraulic hoses and run off from truck tank reservoirs.

Some eleven hundred truck trips per day, at the rate of one every 30 seconds, or more, will bring little socio-economic benefit to our communities, and will only do potential harm – to the condition of our roads; to area residents using the roads for work, school, and play; to emergency service; to the adjacent woodland and wetland features and the species that inhabit them; to human, wildlife, livestock, and plant health; and to our municipal tax base.

Summary:

- *No existing acceptable Haul Route exists to service the proposed location*
- *There is not close proximity to 400 series highways*
- *The 'close to market' argument is meaningless when the market extends to Scarborough in the east, Markham in the north, and Kitchener-Waterloo in the west*
- *The proposed Volume of Truck Traffic would force a significant change in existing roadway use*
- *The proponent's Haul Route analysis still does not fully consider local markets and significant markets southeast and southwest of the proposed location*
- *The haul route analysis is just that and is full of errors and inconsistent analysis*
- *The mechanisms suggested to ensure Independent Haulers adhere to recommended Haul Routes or Hauling Practices still rely on citizen complaints*

- *The Municipal Class EA process is not a suitable vehicle for addressing the needs of a private corporate venture; notice, process and substance requirements of environmental assessment have not been met*
- *The type of infrastructure changes that would be required are not wanted by the community and would urbanize the rural community*
- *The cost of infrastructure capital and maintenance and its assignment have not been addressed*
- *The impacts of the Haul Routes on people, the environment, and communities would be felt far beyond the quarry site*
- *The community's numerous concerns are only referenced as "considered in the evaluation" but impacts are not fully documented nor is mitigation fully assessed*
- *Noise off-site on the haul routes is not studied as per noise on-site and no attenuation is proposed*

4.1.2 Agriculture

The proposed development is completely incompatible with the current Official Plan and Zoning By-law for the lands. This has site-specific and broader regional implications for agriculture—none of which are positive. As such, the Hamilton-Wentworth Federation of Agriculture (HWFA) and the Halton Region Federation of Agriculture are objecting to both the ARA and land use planning applications and are advocating on behalf of their area members, based on a number of the issues outlined below, and upon which we concur with their assessment.

The subject lands fall within the Rural Area and were zoned Agriculture and Conservation Management for sound reasons. Indeed, the former Flamborough Official Plan outlines goals for the Rural Area in order to preserve its character and, while explicitly recognizing the presence of residences within and outside Rural Settlement Areas, states in B.1 that "it is the intent of Council that the predominant land use in the Rural Area shall be Agriculture and directly related uses". The former Flamborough Official Plan also notes the presence of regionally and provincially significant natural features.

Hamilton has undertaken a number of updating exercises, since the former Flamborough Official Plan was approved, to shape its focus and emphasize agriculture. Vision 2020 established a strong sustainability underpinning with both themes and goals that emphasize the importance of agriculture and natural corridors. GRIDS, the Growth Related Integrated Development Strategy, adopted in 2003, builds on Vision 2020 and its economic and environmental priorities, including agriculture, and the food and beverage industry, to integrate planning and infrastructure requirements for where growth will occur.

The revised Hamilton Rural Official Plan (September 2006) equally carries a strong emphasis on Agriculture. Excerpts from Chapter D – Rural Systems, Designation and Resources unequivocally state the following: "*Agricultural uses* are the primary long-term use in *Rural Hamilton*…The main purpose of the designations applying to *Rural Hamilton* is to provide a secure land base for agricultural activities…The City supports the right-to-farm concept and when applying the policies of this Plan, *agricultural uses*

will be given priority in *Rural Hamilton*." In keeping with this, the first 6 goals for rural systems land use designations apply to agriculture. They include reinforcing and supporting the significant contribution that agriculture makes to the lifestyle, environment and economy of the City; maintaining and promoting the right-to-farm concept throughout Rural Hamilton; preserving and enhancing *prime agricultural areas* and *specialty crop areas* exclusively for farming; encouraging all lands used for agriculture to remain in agriculture; directing non-farm, rural oriented development to other areas; and recognizing the diverse and innovative nature of agriculture by providing opportunities for on-farm diversification. The Rural designation (D.4.0) goes on to elaborate that "While these lands are characterized as having lower capability for agriculture due to a range of factors, the intent of this Plan is to protect and maintain *agricultural uses* as the primary and predominant land use and to protect farm operations from incompatible forms of development so as to preserve these lands for *agricultural use*."

These original purposes – farming and land stewardship protection of environmentally significant features – have also been affirmed by the Greenbelt Act and its companion Plan. The lands for the proposed quarry fall within the Greenbelt's Protected Countryside, and are completely situated in its most protected area, the Natural Heritage System.

Approval of the proposed development would result in the direct and permanent loss of over 150 acres of viable farm land as well as the additional acreage of interconnected conservation lands, necessary for a balanced ecosystem. This direct and permanent loss *does not include the additional viable farm acreage* on adjacent purchased properties upon which the proponent has stated its clear intention in the land use application Planning Report to expand the proposed quarry. While aggregate development is sometimes referred to as a "temporary use", we know that if approved, the land would not be rehabilitated to farmland in either our or our children's lifetimes, and in this case, the loss of farmland would be permanent given the proposed rehabilitation of the lands to a lake facility. The proponent has justified its decision to not rehabilitate because of its determination of the land classification to be inferior.

The original Agriculture report was submitted by Stovel & Associates in June 2004. The most recent report by Conna Consulting Inc. (Soil/Agricultural Mapping Update Proposed Flamborough Quarry, July 2008) supplements the work of Stovel & Associates. The Conna report has expanded the classification to the east of what was mapped by Stovel & Associates. This expanded area is not currently farmed. It appears that the content of the update accepts the premise for and the conclusions made by Stovel & Associates, without further validation of the previous work, and was undertaken to maximize the percentage of lands deemed to be of inferior soil class.

The proponent appears to have purposely graded the land to class 2 - 7 type soil, with only 12 ha (30 acres) of class 2-3 soil. This classification seems unreasonable for a variety of reasons. According to the *Soils of Wentworth County, Report No. 32 of the Ontario Soil Survey*, the soils on the subject lands are presented more favourably, appearing to contain *Burford Loam*, described as being well drained soils, developed on deposits of loam over gravel. The other class that is prevalent on the area being farmed is Dumfries loam. According to another source, the Canada Land Inventory, the soil classification in the cleared portion of the site varies from class 2 to class 4. The proponent's reports state that this is not prime agricultural land in a prime agricultural area. Granted, while this land is not the Holland Marsh or Niagara viticulture, it is an

active agricultural community. Virtually all of the non-tree covered lands are in use for agricultural purposes. The farmer who currently leases and farms the land, with market garden crops, has invested in fertilizer, seeds/plants, labour and machine time for, at least, the past ten years. Historic aerial photographs and research from our GIS work shows the land under agricultural uses since 1955, at a minimum. No farmer we know would continue in this manner if the land was so unproductive and the situation economically untenable.

It is also important to note that the classification of soil is simply a guide to categorize the acreage and its ability to be farmed. Soil classification was established as a guide to establish a gradient in quality of farmland inventory in Ontario in the early 1960's. It is not the sole criteria in deciding what land should be farmed. Agricultural technology has since evolved—substantially – as have best practices. When applying best practices to farming, it is not uncommon for a farmer operating on class 3 soil to outperform an operation located on class 1 soil, in terms of yields & efficiency.

Returning to examination of the site, the property owned by St Marys Cement does not appear to be described accurately in the applications. FORCE's interpretations of the soil maps do not agree with the "Agricultural Report" submitted by the proponent in 2004 or the 2008 update. The soil types are mostly Dumfries soil which, admittedly, has varying gradations. Nevertheless, the current farmer does not seem to have issues with tilling, planting and harvesting market garden produce. The farmable portion of the subject lands is free of boulders and outcropping of rocks, the land is leveled, and crops have been grown for decades. The soil is well drained and provides excellent yields in the market produce currently grown on this site and actively for over a decade. Furthermore, market gardening is a higher value crop than forage, for example, and requires much more attention and capability in farming practices to optimize the yield, as evidenced by recent crop results. Similar soils directly across the road on Concession 11 have also produced above projected yield hay crops for the same timeframe. It hardly fits the proponent's characterization in the land use planning documents that the soil is "useless muck". We note as well that the upland soils also demonstrate high recharge capability.

Further, from our own commissioned GIS mapping work, we noted errors and omissions in the maps provided by the proponent in the land use planning application. Burford Loam (parent material well drained gravel) is shown in only a very small area on Map 3 compared to the County Soils Map (Map 2). One can also see this in the Regional OP Map 5. Map 4 drainage is a poor fit to the orthophoto base and needs to be adjusted to the visible drainage features. Further field checking of drainage and direction is needed in the north east.

We also raise some methodological issues. We did not find raw data and exact mapping data where the samples were taken in the original submission. The soil mapping process is not an exact science and is somewhat subjective. As an example, if one were to test a particular mapping coordinate, one could get a completely different result 3 meters from the sampling point. Averaging the data to get representative contours is subjective. The methodology used for sampling to remap the on-site soil was a manual auger. If the land was as stony as described, a manual auger would not penetrate the substrate and the samples would not have been meaningful to create a soil profile. A power auger would likely have experienced difficulty as well, since larger stones would shear the pins of the drive on the auger. Even if an auger was successful, the samples would have more

mixing of the interfacial layers and could be interpreted to give misleading results. Core samples of the soil would have been a better methodology, where there is less disturbance of the interface at the layers, or direct excavation, exposing a true soil profile, if done carefully.

The Planning and Agriculture Reports from the land use application and the ARA application supporting materials do not detail the potential for negative impact of this proposed development on existing agricultural operations in the area – on either the Hamilton or Halton jurisdictional sides. An estimated 50-60 farm operations exist, along the same and neighbouring concessions and roads, including forage & grain crops, market gardening, apple orchards, equine breeding & training, pork, beef, lamb, alpaca, & poultry production, and greenhouses. Potential negative impacts include:

- Water quantity and quality
    - Many of the existing operations have significant water requirements for irrigation, livestock, and other farm related uses and currently extract their water requirements from wells, ponds that are spring fed, and fed from streams and ground water which will be sensitive to the dewatering process of quarry operations.
    - The subject lands include recharge/capture zones for private and community wells. The aquifer exists in a solid/fractured shale environment, as compared to a moraine, making the hydro-geological analysis critical in this less than predictable setting. The proponent's methodology, to date, is not credible, based on the INTERA analysis submitted, rendering the conclusions superficial and preliminary, at best. The dewatering process impact on volume and the potential for surface water contamination through injection back into the aquifer, on-site activities, and the final lake rehabilitation are significant considerations.
- Airborne particulate and dust
    - Particulate matter (especially those known as PM<10) is a serious matter for farm workers, livestock, and crop quality
- Livestock stress and reproductive loss in breeding operations due to percussion (transmitted ground vibration, tremors, etc.) and noise from blasting
- Interference with the movement of farm machinery
    - During the farming season, throughout the day, it is common to experience tractor traffic with wide loads, from implements and crop haulage, moving very slowly between concessions. The mix of this slow moving tractor traffic & aggressive, high volume truck traffic is incompatible & unsafe. It will have negative implications for transport of farm workers, harvested crops, irrigation & pesticide vehicles, livestock, and for basic tractor transit.

There is also the loss of critical mass of farms to seriously consider—this is an underlying premise of agricultural preservation in the Greenbelt. For agriculture to remain viable in the Halton and Hamilton-Wentworth areas, and in Flamborough specifically, in the context of this application, there must be a critical mass of farms to sustain the infrastructure (equipment, suppliers, veterinarians, etc.). Each time a farm is sold and/or farmland is approved for an alternate non-agricultural use, the viability of every other agricultural operation and directly related use is eroded.

The HWFA, in previous correspondence to the City of Hamilton, has noted that farming is the 2nd largest business sector in Ontario. Local farms contribute to local and regional food supply security, to our communities, and to our municipal tax base. Beyond the direct value of their products, the infrastructure required to produce them also contributes dollars every year to the local economy and tax base. A June 2005 news release from the Provincial Government identifies agriculture as one of Hamilton's largest economic drivers, contributing $1 billion dollars to Hamilton's economy each year. The $100 thousand dollars given by the Ontario government to help initiate the planning, development and implementation of an agricultural action plan for the Hamilton area is further recognition of the need to ensure a strong agricultural industry so that farmers can continue to produce the foods we consume. The Ministry of Agriculture and Food has continued investments in the last five years to place a focus on local food for the long term and to jump-start the rural economy via Ontario Market Investment Funds (OMIF) and support to Farmers' Markets. The Friends of the Greenbelt Foundation, along with the City of Hamilton and Niagara Region, is funding a study examining a regional distribution facility for the area, and Eat Local Hamilton's initiatives including a map of local farmers' markets and on-farm sales. The 'close to market' argument should apply equally to agriculture. Although the land use planning Peer Review process does not contemplate a Municipal Economics analysis until later in the application review process, a cost/benefit comparison of the relative contributions of area agriculture and the proposed application is certainly warranted.

In addition, Agriculture is one, if not the, largest private land use in the area, making farmers important land stewards for our ecological and hydrological features. This role is fulfilled through a variety of vehicles, through individual best practices, participation in conservation authority stewardship programs, MNR stewardship programs or Ontario's Environmental Farm Plan program, among others. With neighbouring conservation authority and management tract lands, among others, agricultural open spaces comprise a significant portion of the Greenbelt in this area, providing watershed protection and habitat for concentrations of birds, plants, and wildlife. Of note, the diversity of field and forest types within this tract (identified by the North South Environmental report, under separate cover) support an array of passerines (song birds), many of which have suffered significant breeding and rearing habitat loss, and range reduction due to land conversion to urban settlements, highways and "industrial parks" within the Golden Horseshoe over the last 40 years.

FORCE believes that agriculture and our natural heritage features will only survive and thrive if we all actively support them – by honouring existing land designations and by re-enforcing the connection between "the table and the land".

Summary:

- *Direct immediate loss of over 150 acres of viable, in use, agricultural lands*
- *Significantly greater loss when the proposed quarry implements its declared expansion plans on additional existing agricultural operations*
- *Loss of agricultural land would be permanent as the rehabilitation plans turn the property into a lake*
- *The land is currently being used for market gardening produce*
- *Has been used for agriculture since the 1950s*
- *The application's soil analysis is in conflict with the known characteristics of the site*

- *Dewatering, noise, and dust from the proposed quarry will negatively impact surrounding agricultural operations*
- *Quarry Truck traffic will be incompatible with existing Agricultural traffic*
- *The negative impact to Agriculture will extend off the site to surrounding operations*
- *To be viable, agricultural activities need a critical mass*
- *Agricultural professionals are responsible land stewards*

4.1.3 Incompatible Land Use Resulting in Social and Economic Impacts (including Real Estate Value and Municipal Tax Base Implications)

The haul routes and traffic section notes that the proponent selectively quotes from the PPSs, with emphasis on closeness to market. There are, however, other sections in these documents that pertain to source water protection, natural features, and other provincial policy interests that must receive equal attention to the mineral aggregate provisions. Interpretations of the PPS, and the relative weighting of its sections, will undoubtedly be the subject of debate in other forums. Further the mineral aggregate provisions are not absolute in favour of extraction, in and of themselves. Illustrative, they include subsections which recognize social and environmental impacts (PPS 2005, clause 2.5.2.2) and issues of public health, public safety and environmental impact (PPS 2005, clause 2.5.2.5). It is also important to note that the PPS sections, related to protection of potential mineral aggregate areas, are in reference to proposed new development surrounding these lands, which may conflict with future extraction. These sections are reflected, in turn, in municipal official plans. We note that the St Marys Cement case reflects the converse situation, however, as it is one where the new quarry proposal conflicts with existing approved residential, agriculture, and conservation developments and zoning. We wonder how the existing approved land uses will be protected from a land use which conflicts with them.

From the beginning, community residents have identified the incompatibility of this proposed aggregate development with other existing and planned neighbouring land uses. These include agriculture (as described above), elementary schools, child care facilities, and designated rural settlement areas in Carlisle, Freelton, Kilbride and Campbellville as well as the populated rural zones between them. In the case of the latter, the approved and built subdivisions and residential park facilities such as Stonebury Place, the development now known as Stonebrook Estates, Glenron, Timber Run and the three season population at Lawson Park, as well as the number of homes along Milburough Line and the adjacent Concessions, make the residential density more akin to a rural settlement area. FORCE notes that the 1984 Aggregate Resources Inventory Papers (cited in the proponent's own Planning Report and ARA Summary Statement), indicate that by the mid 1980's "…*access to much of the resource area has been adversely affected by fragmentation, environmental sensitivity, and rural residential development, including proximity to the Settlement of Carlisle."* The fact is that more rural, estate and high-density residential developments have since been approved and developed in the area since the text quoted above was written in the 1980s. Section 6 of the proponent's Planning Report concedes that there is a "relatively high degree of land fragmentation" within the area that is a "mix of rural, residential, natural areas and

agricultural". We believe that we are reaching the cultural carrying capacity in this landscape and that trade-offs are necessary.

Aggregate extraction is often referred to in the literature and policy frameworks as an interim or temporary land use. While this is technically true, insofar as extraction will eventually cease when the non-renewable resource is exhausted, this proposed quarry which is forecast to be in operation for twenty to thirty years for its initial phase, not including the intended expansion lands to the west, like its predecessors, should be viewed in this long term context. Its proposed lifespan will exceed the time most neighbouring families will occupy their homes. This lifespan will also exceed the time horizon of Official Plans, strategic plans and regional population projections. In addition, while the operation will eventually cease, the landscape will be forever altered. The impact of this proposed quarry on the environment, agriculture, health, and the social economy needs to be assessed in light of the proposed longevity of its operation and its permanent imprint on the landscape. After all, if approved, this land use would exist for several generations or more.

Beyond the reality of day to day living incompatibility discussed in a variety of this review's subsections, there are tangible financial implications that have already materialized and will continue should the proposed aggregate development be approved. The Flamborough area has been one of the hottest new home and resale real estate markets in the Hamilton/Burlington Area for close to a decade. The impact of increasing sales value on market value assessments in the area has not only rewarded individual property owners, if they have chosen to sell their properties, it has benefited the City of Hamilton's residential tax base. The proponent's public admission of its intentions to proceed with an application for a large scale aggregate development operation below the established water table in June 2004 has since dampened real estate prospects in this portion of Flamborough and has initiated a lengthy period of uncertainty until a final decision is known. This situation is compounded by the current economic downturn.

Anecdotal evidence from local real estate brokers suggest that some prospective buyers are explicitly directing that they not be shown properties near the proposed quarry. FORCE, too, receives e-mails and telephone calls about the proposed quarry from prospective purchasers. To these, we reply that we are making best efforts to professionally oppose the application but we cannot guarantee that the quarry question will be resolved readily, nor in our favour. The callers, in turn, often respond with a "Thank you. We'll look elsewhere."

Prospective purchasers reject a possible future of living with some 1140 daily truck trips through their communities along with the noise, dust, and other features of quarry operations. They are particularly concerned about the potential implications for water supply and, worse yet, water contamination. The specter of the original proponent's admission that it may be required to provide water to those residents whose water quality and quality has been negatively affected also looms large. Prospective buyers can imagine a fleet of *additional* trucks, transporting water, and entering rural neighborhoods each day to re-fill cisterns sitting on front yards or the Carlisle Water Tower. Their walk-away response leaves every property owner in these rural communities with a smaller real estate market. Properties are being listed and some properties are being sold, but the pool of prospective buyers is smaller, sales are reportedly taking much longer than would be typical, and there has been downward

pressure on price. This downward pressure on market value will have a direct impact on municipal tax revenues, as the results work their way through the Municipal Property Assessment Corporation (MPAC) process. The negative municipal economics of the proposed quarry have already begun, and the quarry is not even approved.

FORCE has worked with a conservative property value loss range of 10 – 30% in discussions with our supporters. For a home valued at $250,000, the potential loss would range from $25,000 - $75,000. For a home valued at $500,000, that potential loss range is from $50,000 - $150,000. The reality is that the true market value of a home will only be known if, and when, there is a willing buyer who is prepared to make a deal with a willing seller.

We have provided in Table 1 a modest assessment of the municipal taxes which would be lost from a small sample of listed rural roads surrounding the quarry. The assessment is illustrative as opposed to exhaustive as there are many other properties that will be impacted. Data from the Assessment and Taxes Centre was reviewed. The values were calculated by summing assessments/taxes for the street addresses on the roads listed and then applying a 10%, 20%, and 30% loss factor. The conservative impact is $165,000 to $492,000 in reduced property taxes, for the limited number of properties included.

Table 1
Taxes which could be lost from specified rural roads in the vicinity of the proposed quarry

Rural Roads	10% Loss	20% Loss	30% loss
Centre Road (part)	$16, 528.29	$33,056.58	$49,584.87
Concession 10	$31,850.62	$63,701.24	$95,551.85
Concession 11	$29,633.52	$59,267.04	$88,900.56
Concession 13	$19,763.96	$39,527.92	$59,291.88
Stonebury	$9,150.79	$18,301.58	$27,452.37
Glenron	$5,230.05	$10,460.10	$15,690.15
Timber Run	$10,081.03	$20,162.06	$30,243.09
Mountsberg	$25,087.02	$50,174.04	$75,261.06
Milburough	$18,105.44	$36,210.88	$54,316.32
	$165,430.72	$330,861.44	$496,292.15

Our illustrative analysis of the impact on residential property values, and specifically the up to 30% loss factor, is validated by a recent impact assessment completed by the W.E. Upjohn Institute for Employment Research.

W.E. Upjohn Institute, an independent non-profit economic research organization, completed An Assessment of the Economic Impact of the Proposed Stoneco Gravel Mine Operation on Richland Township (August 2006). It used hedonic pricing models to use a statistical regression technique to estimate the impact of one factor, i.e. proximity of a nearby gravel mine on the value of a house, while holding all of the other factors impacting the house's value constant. The Institute's work built on the seminal work of

Professor Diane Hite, an economist who has published widely in the area of property value impact analysis, and who most recently completed a rigorous study of aggregate operation impacts on property values in Ohio State. Indeed, there is now an extensive literature applying hedonic pricing models to study the effects of environmental disamenities on residential property values. These studies show that proximity to landfills, hazardous waste sites, gravel and quarry sites and the like, have a significant negative effect on the price of a residential property.

The Institute's study found that the closer the house proximity to the mine, the greater the loss in house value. Homes near the mine would experience a loss of up to 30%, homes located a half mile away would experience a 20% reduction, properties one mile away a 14.5% reduction, homes at two miles away a reduction of 8.9%, declining to a loss of 5% at a distance of three miles from the site. It is those owning properties at the time of the establishment of the mine who would experience the loss. Even if homeowners do not move as a result of the proposed gravel mine, they will lose homeowner equity as the potential sale price of their house is less. The Institute considers the value impacts to be conservative estimates.

The conservative impact of $165,000 - $492,000 in lost property taxes calculated by FORCE, from the small sampling of properties surrounding the proposed site, not including properties up to three miles away as suggested by the Upjohn Institute, clearly dwarfs the $270,000 in annual license fees, property taxes, employment and associated economic benefits that the City of Hamilton reportedly derives from *all* of the *existing* extractive industrial activity (proponent's original land use application Planning Report p.12), let alone the incremental share that the application might represent.

Clayton Research Associates (May 2006) prepared an economic benefits study for the proponent to quantify that incremental dollar share. Clayton Research Associates estimated that the proposed quarry would generate a mere $80,000 in tax revenue, even at the 2005 industrial rate, and $135,000 in annual aggregate license fees, based on the levy per tonne payable to the municipality. City staff e-mail notes from April 15, 2009 indicate that the Region of Halton has already signalled, that should the quarry be approved, that it will be looking for a share of the municipal license fees, or some other form of compensation, for haul route impacts. As the local councilor commented, "…the money the City of Hamilton will receive won't even pay for a pot-hole…".

Other economic benefits claimed by Clayton Research Associates in its study are not substantiated in any meaningful way or with rigorous methodology. For example, there is no justification or breakdown provided for the suggested 110 permanent full-time jobs and it appears to overstate employment, compared to the 30 – 35 employees per shift (2 shifts) referenced in some transportation display boards. The spending on supplies and services that is referenced is premised on a simple Stats Can multiplier for the sector. Further, it assumes the maximum tonnage extracted annually and it assumes that all spending occurs locally.

No broad-based economic cost/benefit analysis has been provided by the proponent.

Depressed real estate values and the impact on municipal tax revenues from area residential properties, farm operations and local businesses, along with cost/benefit analysis of other municipal impacts (such as haul route construction and maintenance,

water infrastructure impacts, etc.) is a topic that the municipal economics segment of the CART Peer Review process still needs to take into account.

We also note that no social impacts assessment has been conducted as would be consistent with the socio-economic report requirement of the ROP, impacts referenced in the PPS, the assessment of impact on nearby communities contemplated by the ARA, and good planning practice. Such an assessment would examine the characteristics of the undertaking (both on-site quarrying activities and off-site haul route impacts) and its potential direct and indirect effects on the community in terms of how people live, work, and recreate. Precedents for this kind of work include Walker Bros. (Niagara) and Lafarge Camden East.

No thorough assessment or scientific analysis has been conducted on social impacts. The proponent and its representatives have talked to residents at local meetings and PICs, collected a limited number of surveys on specific issues, and collected some water well information. Individual study components on impacts related to noise, blasting, and traffic are individual component assessments which do not provide a full, cumulative social analysis, even when considered in combination.

We continue to believe and document that the proposed quarry is an incompatible land use and its social and economic impacts would be too great for our communities.

Summary:

- *While considered an interim or temporary lands use, the reality is that quarries, in the area, have a history of operating over many decades*
- *The timeframe is much longer than the Official Plans and is, in fact, multi-generational*
- *The proposed land use is not compatible with existing agriculture, residences, schools, child care and other facilities*
- *The local real estate market has already been impacted*
- *Prospective purchasers and/or their realtors are contacting FORCE to inform themselves about the situation*
- *Prospective purchasers are leaving the local market upon investigation of the situation.*
- *The net economic impact of depressed real estate values will more than offset the economic gains from the proposed operation*
- *The proponent's economic benefits report is not well substantiated*
- *A full municipal cost/benefit analysis would be appropriate*
- *A social impact assessment should also be conducted*

4.1.4 Infrastructure

Infrastructure – whether in the form of roads, water and sewage systems, or storm water management facilities - is important to our communities' economic well-being and its inhabitant's health. Infrastructure construction, maintenance, and upgrading is also an increasingly significant investment for all levels of government, but notably the municipal

government level and its taxpayers. The proposed St Marys Cement development will negatively impact many of these infrastructure components.

Ontario Regulation 413/05 – Vehicle Weights & Dimensions for Safe, Productive and Infrastructure Friendly (SPIF) Vehicles - spells out standardized maximum gross allowable vehicle weights based on specific criteria and vehicle combinations. From that regulation, aggregate industry publications, and discussion with aggregate industry employees we have learned that a standard single haulage vehicle for the industry weighs 36.8 tonnes when full. If the truck is pulling a tri-axle trailer, the weight could be increased by up to 18 more tonnes. Transportation and haul route display boards provide information on the mix of vehicles contemplated for shipping from the operation.

FORCE highlights the obvious, that the repetitive use of trucks loaded with aggregate, weighing more than 35 tonnes, and making an estimated 1140 truck trips daily, will literally pulverize haul route surfaces. Such wear and tear will lead to increased costs for the City of Hamilton, the Town of Milton, and the Region of Halton. These additional costs will occur in terms of the initial structure, the pavement and other required upgrades, as well as ongoing road maintenance associated with the preferred haul route(s). This does not speak to other opportunistic haul route usage, but it would be equally applicable. As we have noted in the subsection on Haul Routes and Traffic Implications, the proponent's original Traffic Report submits that all haul routes under consideration will require significant upgrades, including such remedies as right of way widening, structural and pavement upgrading, shoulder widening, and intersection and other improvements to support the frequent heavy truck movements. The ARA Summary Statement is not as specific. It indicates that several design options are being explored, including an urban cross-section. Improvements may also still be required at the Guelph Line Highway 401 Interchange – since according to Ministry of Transportation personnel, recent improvements at the interchange were more than a decade in the planning, were designed for the short term and did not contemplate the additional traffic volume of the development. The proponent's original traffic analysis did not extend to this interchange and the ARA Summary Statement is silent on the matter. The applications are also silent on who will bear what share of these costs, but it is a reasonable expectation that many, if not all, of these infrastructure improvements will translate into an additional tax burden for citizens whose homes will have already been de-valued, and for municipalities who will lose a portion of their residential tax base revenues when these reduced assessments are reflected by MPAC.

It is important to consider the role wetlands and mature forests play in terms of water management too. There is no simple way to calculate the costs associated with the loss of these systems which work together to modulate the effects of rain and drought, to filter and purify water, and act as reservoirs to capture rain and melting snow. Should the quarry go forward and the mature forests and wetlands be degraded, we should anticipate varying levels of problems associated with possible road washouts, flooding of fields and residential properties during spring thaw and heavy rains, as well as the potential for degraded water quantity and quality.

The Greenbelt Plan, while recognizing that some new or expanded infrastructure, as well as maintenance of existing infrastructure, may be required within its boundaries, establishes specific Infrastructure Policies in section 4.2. These policies afford a greater degree of protection as well as more rigorous approval requirements to such things as

possible haul route improvements or new storm water management systems. Again, none of the proponent's materials address these issues or requirements.

Also, we call attention to the Greenbelt Plan limitations on lake based water extensions and expansions. The Green Plan states clearly in section 4.2.2.2 that where settlements do not currently have Great Lake or Lake Simcoe based water and sewage services, extensions to, or expansions of existing Great Lake or Lake Simcoe based services to such settlements are not permitted. (There is a public health caveat provided: unless such servicing is required to address failed individual on-site sewage or water services, or to ensure the protection of public health where it has been determined by a medical officer of health (or health authority) that there is a public health concern associated with existing services within the settlement.)

The potential negative risk for both drinking water quantity and quality from the proposed aggregate development, which already concerns individual well owners and homeowners in Carlisle who access their supply from the municipal wellheads, is magnified given the limitations on extension of Great Lakes water systems. This suggests that local water supplies must have "failed" or become a "public health risk" - and have been "determined" to have become so by an authority - before a decision to extend the lake based system from Waterdown, the closest existing system, could even be made. Given the time required for the municipality to undertake approvals for the water/sewer project and establish conformity to the Greenbelt Plan Infrastructure Policies, it would be years before service could be restored in a meaningful way. The recent challenges in securing a Certificate of Approval for the new Carlisle wellhead during a period of regulatory evolution are an example. In the interim, residents might face the prospect of even more truck traffic volume to fill the Carlisle water tower and/or to fill individual cisterns. Needless to say, the cost of the infrastructure replacement would also be significant and likely born by the municipal taxpayer. No information is available from the proponent in the Planning Report or its appendices, or in the ARA Summary Statement and supporting technical reports, regarding financial arrangements in such a scenario nor does the material speak to the types of trusts, surety bonding or covenants and their strengths, if wells are rendered unusable. Furthermore, it is reasonable to expect that the proponent would want causality determined, before it was prepared to pay such a bill and that that determination would not be simple given Carlisle's existing water difficulties.

The City of Hamilton and surrounding municipalities could find themselves forced to financially support the situation, assuming a worst case scenario where an aggregate operation ceases operations because of the high cost of its mitigation system and of providing local residents with an ongoing supply of quality drinking water. It goes without saying that the loss of potable water to a rural settlement area, to a local elementary school, and to individual rural residences would have a further negative effect on property values, municipal assessments and municipal tax revenues regardless of the type of trust, surety bond or covenants that the proponent might propose.

We see no socio-economic benefit—certainly in the context of infrastructure—to our rural communities of moving forward with this proposed aggregate development. We expect that the municipal economics portion of the Peer Review should include not only a benefit/cost analysis in order to compare the financial "rewards" with the financial costs, but it should present a clear understanding of the direct and contingent liability associated with this application.

Summary:

- *Infrastructure costs such as roadways will increase from the heavy demands of aggregate traffic*
- *Most of the burden of those costs will fall on the tax payer and municipalities*
- *The proposed development could endanger the natural environment which provides infrastructure services such as storm water management*
- *Should the natural environment be disturbed, the economic impact of having to deal with new infrastructure needs is unknown*
- *The potential impact on drinking water is a significant threat as current regulations limit and complicate the options for providing an alternative source of drinking water*
- *The current applications are silent on the proponent's approaches for providing alternative sources of drinking water, if necessary*
- *The City of Hamilton and surrounding municipalities might be forced to financially support the situation, should the proponent be unable or unwilling to provide the essential infrastructure service of clean, drinkable water*

4.1.5 Aggregate Supply and Demand

Much of the proponent's justification for the application's approval is based upon aggregate supply and demand. The land use planning application forecasts an "aggregate crisis" and the solution is the form of high quality stone from the site. These analyses bear scrutiny, and not simply because the Flamborough OP calls for: *demonstration of the need for and benefit of additional aggregate resource extraction*.

The proponent comments that the aggregate at this site is of the highest quality stone, close to the surface, that it is 'Provincially Significant Dolostone', and that the lands have been designated for mineral extraction. Each of these points deserves attention. The stone in question is from the Amabel Formation that covers most of Flamborough and the western portion of Halton Region. Locally, the identified deposit can be found well south of Carlisle and west across Hwy #6 past Freelton. Much of the resource in this area is thick, carries little overburden and offers similar quality stone, indicating that there is not a unique proposition with respect to the proposed site's mineral conditions. The term "provincially significant" is one used to describe and designate natural features such as wetlands and woodlands, based on extensive evaluation criteria, and in some cases, regulatory frameworks. FORCE is unaware of this term's meaning with respect to dolostone or any regulatory basis for same. Both the Hamilton-Wentworth Regional and former Town of Flamborough Official Plan Mineral Aggregate Areas Appendices, along with the 1984 Aggregate Resource Inventory Papers (ARIP), are simply vehicles which identify the existence of the mineral resource. They provide a guide around which municipalities can plan and protect the resource for potential future use. They do not mean that resource extraction is approved or imply absolute intention to extract. The ARIP, as described in a previous subsection, notes the problems associated with accessing the resource here. The current zoning, Agricultural and Conservation Management, is why there is a requirement for an Official Plan Amendment and

Rezoning application, because the proposed use is such a significant change from the current established use.

The original land use application Planning Report, specifically Table 1, is the primary basis for the proponent's assertion of a supply crisis. Annual aggregate production within the City of Hamilton is stated to be 5.4 to 6 million tonnes (p 12) but is not fully accounted for. Table 1 lists select GTA West Area aggregate operations but it does not provide data with respect to the Lafarge Dundas and Dufferin West Flamborough quarries annual production or estimated reserves. The Table does not indicate if either of these quarries contain Amabel Dolostone nor does it list annual production and reserves from the Lockport formation. We note some inconsistency between the Planning Report and Appendix 4 – Geological Investigation which confirms (pg i, para 1) that both the Amabel and Lockport Formations provide the highest quality dolostone for the construction industries from quarries such as Lafarge in Dundas and Dufferin Aggregates in Milton. The Planning Report disagrees with this conclusion asserting that only the Amabel Formation is the highest quality stone for construction. While expansion proposals at Nelson Aggregates in Burlington and Dufferin Milton are noted; the lifespan extension, over two decades, to these operations is not. We note that the Milton expansion was approved by the Consolidated Hearings Board in June 2005 and upheld with conditions on a more recent appeal to the Lieutenant-Governor-in-Council (Provincial Cabinet) in November 2006. We also note Dufferin West Flamborough's recent application for a licence amendment to increase annual production in a portion of its existing licence area and the Lafarge North quarry expansion application. Finally, we note in the March 2005 Burlington White Paper on Sustainability, the Environment and the Burlington Official Plan, that "the Region of Halton has access to adequate aggregate resources to meet its needs" (p 12). Burlington identifies nearby communities in Wellington County and Waterloo Region who also have the capacity to service the area marketplace for "some time into the future" (p 12).

The Pembina Institute in its January 2005 study "Rebalancing the Load – the Need for an Aggregates Conservation Strategy for Ontario" found that the province lacks basic information on current demand for and uses of aggregate. Further, the province does not have up-to-date projections regarding future demand. The Ministry of Natural Resources (MNR) completed its last comprehensive "State of the Resource Report" on aggregate demand and supply in Southern Ontario in 1992. The aggregate industry body, known by the acronym TOARC, to which research capacity was transferred in 1997, updates annual production statistics. It has undertaken no recent utilization (how and where) or projected demand analyses. This lack of current, comprehensive, and publicly available data makes it impossible to properly assess claims of a supply crisis in the southern part of the province, or in the GTA. The Pembina assessment has been corroborated by Ontario's Environment Commissioner in recent media coverage, Annual Reports (2002/2003, 2003/2004, 2005/6, 2006/7, 2007/2008), and presentations to organizations such as the Aggregate Producers' Association of Ontario (now Ontario Soil Sand and Gravel Association).

Another important missing data point identified by the Environment Commissioner and detailed by the Pembina Institute is how much aggregate can still be extracted from existing pits and quarries. There are approximately 2,800 licensed aggregate pits and quarries in Ontario – some licences which are not even operational yet. Unfortunately, we have learned that MNR doesn't fully know what is still available to extract. It is also our understanding that aggregate producers refuse to make public their existing

reserves, claiming that such information is proprietary, and that its release would put them at a competitive disadvantage. MNR's knowledge gap is compounded by its limited site presence. Until 1997, MNR inspectors were required to inspect each aggregate site annually. With the budget cutbacks of the late 1990s, however, inspection has fallen off dramatically – well below the 20% per year target level. Without knowing the extent of reserves, how can one assess an "aggregate crisis". Under any circumstance, optimization of the existing resource seems a logical first step, before new aggregate developments are approved.

Building on an aggregate stakeholder roundtable effort, the Environment Commissioner restated the outstanding issues in Ontario's Stone, Sand and Gravel Extraction Policy: Overdue for Review (pp.38-44), part of the 2005/2006 Annual Report. He urged the Ministry of Natural Resources to give this area of its mandate a high priority for the coming year.

With this data context as a backdrop, and cognizant of both the importance of aggregates to society, and the societal and environmental harm from their extraction, the Ontario Greenbelt Alliance (OGA) released a paper entitled "Green Gravel – Priorities for Aggregate Reform" and launched a Green Gravel campaign in August 2007. The OGA calls on the provincial government to:

- Develop and implement a long term conservation strategy for aggregates, including independent capacity to forecast demand and supply, updating of aggregate resource inventories, optimization of existing licenses, a comprehensive 3Rs strategy, and increasing per tonne levies in order to incent 3Rs and to fund the program
- Ban new aggregate extraction in the Greenbelt, the Niagara Escarpment, the Oak Ridges Moraine, and Class I, II, and III agricultural lands adjacent to these significant areas
- Redesign the licensing and permit approvals process to make it more fair and balanced for the public interest and the environment
- Develop and implement more effective and credible mechanisms for compliance, inspection and enforcement of aggregate operations and rehabilitation.
- Address personal and environmental health concerns involving airborne particulate and CO2.

The Toronto Environmental Alliance (TEA) has taken up the Green Gravel challenge and is focusing its efforts on municipal councilors in the GTA. In April 2009, TEA released a report, and companion video, called "Dig Conservation, Not Holes". TEA notes that the GTA is literally made of stone, sand and gravel yet there is still little publicly available data on demand and supply. According to industry estimates, the GTA will use about 1.5 billion tones of aggregate over the next 25 years. TEA points out that if current usage patterns are not changed, renewing and rebuilding the GTA's infrastructure will destroy precious agricultural land and world renowned natural spaces in the Greenbelt. TEA calls on municipal governments in the GTA to take steps to:

- Make aggregate usage data publicly available, i.e. how much aggregate does the municipality use and for what? What is the percentage of virgin aggregate used and what is the percentage of recycled aggregate used? Where does the aggregate come from, including specific pits and quarries?

- Urge the province to develop new aggregate policies, including having MNR drive a 3Rs strategy
- Adopt a 3Rs approach and promote sustainable aggregate, by looking at how other jurisdictions have maximized 3Rs, by requiring the highest percentage recyclable content allowable in requests for proposals (RFPs), and by sourcing aggregate from outside the Greenbelt.

The McGuinty government committed during the 2007 election campaign to complete an updated study on the state of the aggregate resource – now known as the State of the Aggregate Resource in Ontario Study (SAROS). In January 2009, an aggregate resources advisory committee of multi-stakeholders and a technical expert panel were established. A request for proposals (RFP) for papers pertaining to SAROS has been posted. Responses were due by mid April 2009. It is expected that the papers will be completed by the end of October 2009. SAROS is expected to examine issues relating to aggregate supply and demand, constraints to the availability of aggregates, opportunities for recycling and reuse of aggregates, rehabilitation of pits and quarries, and the value of aggregates.

While this work is encouraging and we look forward to its results, to date, FORCE has not found evidence of a well developed 3Rs (Reduce, Reuse, Recycle) strategy for aggregates provincially or municipally either, as is more typical of solid waste management or energy (especially electricity). An inter-ministerial committee established to this end, during the initial stages of the Places to Grow initiative has developed no policy, plan or program and appears to have gone dormant. Estimates suggest that only 3 – 4 per cent of Ontario's aggregate consumption is supplied by non-virgin materials, despite Ministry of Transportation specifications, among others, that allow for the reuse of reclaimed aggregates, concrete and asphalt. The specifications also allow for the use of by-products, including materials such as crushed glass or ceramics. We did note some proposed changes in the recent Burlington White Paper as part of its OP review in an attempt to align strategic sustainability directions with policies carrying measurable outcomes. The Pembina study, too, concludes that Ontario needs to develop and implement a comprehensive strategy for the management and conservation of the province's aggregate resources that is also replicated through municipal policies as part of an OP. Attention is provided to the low extraction fee per tonne in Ontario compared with that in other jurisdictions and how this financial disincentive to reduce, reuse and recycle contributes to the provision of virgin aggregate. The development of an alternative approach emphasizing conservation through reduced overall demand for aggregate resources and maximized secondary material substitution over newly extracted aggregate has also been recommended by the Environment Commissioner and acknowledged as a need to complement compact growth strategies in the Greater Golden Horseshoe Growth Management Plan issued by the Ministry of Public Infrastructure Renewal.

As important, is the public debate about whether aggregates need to come from *new* sites on the Niagara Escarpment, the Oak Ridges Moraine, or elsewhere in the Protected Countryside of the Greenbelt (notably in its Natural Heritage System). There is the argument that when aggregates come from sources close to the demand, the cost and the pollution associated with trucking are minimized. There is some truth to this, but the equation must also include the full costs of the environmental impacts and land use conflicts connected with aggregate extraction in these areas in terms of the operation itself as well as haulage. Alternatives exist. We already move large quantities of

aggregates from Manitoulin Island to southern markets by water, a cheap and minimally polluting option. And although we must recognize there are sensitive lands in northern Ontario as well, surely there must be far more opportunities in central and northern Ontario to extract aggregates that could be shipped by rail or water — with fewer land use conflicts and environmental impacts. In addition, little attention seems to be accorded to so-called "waste rock" which is available and already extracted as a by-product of the mining industry.

As noted above, aggregate extraction has received attention from the Environment Commissioner in every annual report for the last number of years as he has criticized the lack of comprehensive aggregate resource strategy, lack of 3Rs (reduce, reuse, recycle), poor progress on rehabilitation, and poor compliance record combined with limited enforcement capacity at the Ministry of Natural Resources. While those themes remain constant, the Commissioner steps back, asks some fundamental questions and draws some key conclusions in his 2006/07 Annual Report, entitled "Reconciling Our Priorities". The Ontario Environment Commissioner notes that, as a broader society, we currently have priorities which conflict with one another. Think about provincial goals like protecting drinking water, protecting wetlands and woodlands, protecting endangered species, and others like extracting aggregates close to source. He charges that we are "trying to have our cake and eat it too". The ECO asks what is the true state of our aggregate resources? Do we need to develop new greenfield quarries in protected areas like the Niagara Escarpment, the Oak Ridges Moraine, and the Greenbelt? He unequivocally states that pits and quarries are not an interim land use. And, he questions who really has a say in approving pits and quarries.

The Commissioner also comments directly on the St Marys Cement case - a proposed new quarry in the Greenbelt - and applications that FORCE made, on behalf of our communities, for a request for review under the Environmental Bill of Rights, where he states that the applicants "made a very compelling case". As a result, the Commissioner recommends that the provincial government reconcile its conflicting priorities between aggregate extraction and environmental protection. Specifically, he calls for a process that screens out, at an early stage, aggregate development proposals (p.46), like the one facing our community, which conflict with identified natural heritage or source water protection values. Further, the Commissioner serves notice that he will be watching the St Marys Cement file and he may review some, or all, of the ministry decisions on the approvals required in this case in future Annual Reports.

The ECO follows up on these threads in the 2007/2008 Annual Report titled "Getting to K(NO)w". The Report is premised on a quote by Josh Billings which says that, "One half of the troubles of this life can be traced to saying yes too quickly, and not saying no soon enough."

The Report is critical of the shortcomings, and the need for better public consultation on many important environmental issues (p.5) and indicates that "*It's essential for the public to participate fully in decisions that have such profound implications for our environment and our economy*."

The 2006/7 Annual Report recommended a process that would screen out early stage *proposals for pits and quarries that conflict with identified natural heritage or source water protection values.* The Ministry of Natural Resources (MNR) responded, by stating that the current process is "adequate". The ECO *remains concerned that natural*

heritage features and functions are not adequately protected by Ontario's land use planning system (p.173).

As Ontario's Environment Commissioner, Gordon Miller, stated in the January 6, 2005 Toronto Star, "*The Greater Golden Horseshoe is expected to have 4 million more people by 2031. This growth will necessarily require new infrastructure — and that will require the use of large amounts of aggregates. But do those materials need to be made up of virgin aggregates? It all boils down to the choices we still have time to make. We can accept the argument that we have no choice but to truck aggregates from sources close to growth centres. We can choose to make no effort to control demand, or to look at the pits and quarries we already have, or to use recycled materials. But if we make these choices, we must resign ourselves to the conversion of thousands more hectares of the Niagara Escarpment, the Oak Ridges Moraine, or the Greenbelt to pits and quarries that will not be completely used — nor rehabilitated for decades. Or we can choose to use fewer aggregates, to optimize the licensed quarries we already have, to reuse and recycle materials, and seek alternate sources of aggregates brought in by rail and water. These choices would probably cost a little more. But the landscape we leave behind would be different. It is our choice, our legacy, and future generations will judge us by it.*"

Summary:

- *The formation of Amabel Dolostone exists over a wide area, not just on the proposed site*
- *The identification of the existence of the resource in Official Plans defines potential; it does not imply approval or a predetermined intent to extract the resource*
- *Land use intent is indicated by the zoning; currently Agriculture and Conservation Management*
- *There are data inconsistencies within the planning report and with the report's assertion of an "aggregate crisis"*
- *There is limited current data on aggregate supply to justify declaring a crisis, the last study was done in 1992 and work has just begun on updating the state of the aggregate resource in Ontario*
- *Existing aggregate license optimization and aggregate 3Rs – reduction, reuse and recycling have not been fully explored as a way to mitigate the need for virgin aggregate materials*

4.1.6 Rehabilitation

The rehabilitation plan for the proposed quarry would be its legacy and it, too, is something that future generations will judge us by, should this development ever be approved.

This report does not devote extensive consideration to the particular progressive and final rehabilitation plans submitted with the ARA application because it is not clear that these will be the plans that are ultimately implemented. It is important to remember that the proponent owns significant acreage on an adjoining parcel of land, with the stated

intention of expansion of the aggregate development. If that expansion was to be approved, at some future date, it would materially impact both the progressive rehabilitation and final disposition of the original parcel. If the expansion was open to the original parcel, final rehabilitation would be delayed for the life of the expansion, some sixty or more years from first excavation, plus the number of years for the rehabilitation to be completed. Further, even if the expansion was not approved, or if it was approved but developed as a separated cell, still permitting a deep water feature on the original parcel, the final end use and zoning at the time, more than thirty years from first excavation, would dictate the final design and contours. Filling of the 'lake' is forecast to take some 10 to 15 years, putting the final rehabilitation, some fifty years, or half a century, into the future.

Despite the future determination of the site, we believe that a number of issues require attention.

- The City of Hamilton and Conservation Halton should answer the question about whether a deep water lake feature is, indeed, a desirable and suitable end use for the ecosystem and its management in this area and whether it is compatible with the other existing permitted land uses.
- This also represents a process issue from the public's perspective. The proponent indicates that the post-extraction scenario has not been completely defined, albeit that the subject lands are intended to remain in some natural state. The prospects of an amazing conservation, recreation and education facility are dangled in front of the community. Yet, the proposed design might meet the first facility, if we are generous in our interpretation. Swimming is not really feasible in the shallow wetland or from the 15 foot cliffs. Educational access in not part of the current design. The community, through its elected agents, is expected, however, to make a decision on the aggregate development, in the absence of a clear understanding of the final disposition of the land.
- We have identified issues related to water leveling, as well, including how it will be successfully accomplished, given the deep water feature, and how it will be maintained once operations cease. The original lands were contoured with an overall slope. The groundwater levels, which supported the surrounding wetland features, approximated the land contours. The water levels in the lake will be flat, to use a simplistic characterization. It is not clear how the lake level will be able to support wetland features at higher contour levels, without swamping features at lower contour levels.
- The flooded quarry and its surface water may pose water quality risks, especially to the Carlisle municipal wells, as the lake feature could be a potential bacteriological/pathogenic contaminant source within the 2 year capture zone and Wellhead Protection Area for the wells. Such a threat is not discussed or addressed by the proponent, including triggering the need for upgraded treatment of this groundwater supply.
- Public safety features are not well articulated either. In particular, we highlight site access once operations cease and the significant cliff heights on the deep water lake feature.

Compliance with the Greenbelt Plan is not clear as it pertains to rehabilitation. The ARA Summary Statement only speaks to requirements in section 4.3.2.4 and provides the interpretation of St Marys Cement and its consultants with respect to compliance with same. We note that the ARA Summary Statement again selectively does not make any

mention of the requirements in sections 4.3.2.5 and 4.3.2.6, nor does the report provide any interpretation of compliance with same. We cite, in particular, requirements for the final rehabilitation and features to be "representative of the natural ecosystem in that particular setting or ecodistrict", and minimum forest cover requirements, among others. We also see that the ARA application establishes, yet does not include any rationale for, the maximum allowable disturbed area of 45 ha, something that MNR is actually required to determine, as part of the Greenbelt Plan. There is also no analysis of the net gain of ecological health or demonstration that the quantity and quality of groundwater and surface water will be maintained, or as per other sections, that the Water Resource System will be maintained and enhanced. Again, as is noted in the FORCE expert companion report on hydrogeology, just because the proponent says it is so, does not make it so. The reliance on the unproven GRS mitigation system is not sufficient demonstration to meet these tests.

We also note that the treatment of lands affected by the proposed rehabilitation plan varies, depending on where one researches within the application. As an example, within the ARA Summary Statement itself, p.28 refers to pond (59.27 ha), naturalized area (7.17 ha) and enhanced areas outside the extraction (0.53 ha) for a total of 66.97 ha. Only some 11% of the rehabilitation is not part of the deep water feature, and there is no reference to any forest cover. Yet, in the same document, on p.32, when compliance is interpreted, the figures have been varied to open water (57.27 ha), wetlands (2.00 ha), naturalized area (2.73 ha), reforestation (4.44 ha), and areas outside the extraction are listed as split between wetlands (0.23 ha) and reforestation (0.3 ha), for a total of 66.97 ha. The narrative on p. 29 refers to the creation of the new, deep open water feature with open water fishery functions, establishment of shallow wetland shorelines, creation of a specialized cliff habitat for nesting birds, and other wildlife, establishment of areas of open meadow and thicket, specifically designed to optimize foraging habitat for butterflies and odonates, and introduction of new amphibian breeding pools. There is no mention of reforestation here. On p. 33, there is a detailed list of specific rehabilitation referred to and referenced in the site plan. Here the list is similar to that above but includes a 0.3 ha tree planting in order to close indigenous deciduous forst species to close some existing forest gaps.

Despite the significant questions raised about progressive and final rehabilitation by the original Planning and ARA applications, our community is supposed to be comforted by the ARA Summary Statement's indications that St Marys Cement has received awards from the industry, including an "Award of Excellence" by the OSSGA in July 2008, for the progressive rehabilitation completed on their licensed properties. We remain disturbed by the extent and seriousness of the outstanding issues regarding rehabilitation and note that nowhere in the report is there mention of any rehabilitation awards received by the company from independent, non-industry, third party validators, or from the communities in which St Marys Cement has operated.

Summary:

- *It is unlikely that the final rehabilitation plan proposed will ever be implemented, in light of the proponent's stated intention to expand to the adjacent agricultural lands*
- *The final rehabilitation scenario is not well defined, beyond a naturalized state with a proposed deep water lake feature*

- *It is important to determine whether a deep water lake feature is representative of the natural ecosystem in this setting and whether it is compatible with existing approved land uses*
- *Water leveling and how it will be achieved and maintained, especially post-operations, is unclear*
- *The flooded quarry and its surface water pose water quality risks to groundwater, and to the Carlisle municipal wells*
- *Public safety features are not addressed*
- *Compliance with the Greenbelt Plan is not fully addressed*

4.2 HEALTH ISSUES

The proponent has chosen not to address health related issues in either the land use planning or the ARA application. Yet, we can begin to identify at least three significant health issues arising from an aggregate development operation of this type and scale and its associated industries. The issues that affect human health and well-being are: noise and vibration, dust (air particulates) and emissions, and pedestrian/cycling/vehicular safety. The issues that arise from potential impact on water quantity and quality, and their impact on public health, are addressed by the companion INTERA Engineering Ltd. report.

4.2.1 Noise and Vibration

The introduction of persistent, uncontrollable, year round industrial noise to a rural community is a significant health issue for humans, wildlife, livestock and domestic animals. It is not simply a nuisance factor. Wildlife, sensitive to both noise and vibration, may alter breeding, and habitat patterns. Domestic animals may reduce production and breeding. Studies on humans demonstrate negative auditory and non-auditory effects. The effects are both immediate and cumulative. The former include cochlear damage; the latter include significant cardiovascular risk.

Noise is generally considered to be defined as any unwanted sound that may adversely affect the health and well-being of individuals or populations. We understand that with an open pit aggregate development operation, residents and other species will be exposed to persistent, uncontrollable, year round noise including:

- the acceleration, rolling thunder and deceleration of 1100 truck trips per day in front of homes on the designated, as well as the opportunistic haul routes
- booms associated with dynamite blasting, on an every few days or more frequent basis
- drilling, scraping, tumbling, crushing, and pushing of rock against industrial machinery
- crashing of rock against rock as stone is dumped into trucks
- grinding, squealing, and grating sounds from the operation of industrial mining machinery.

With this context in mind, we offer the following preliminary comments on the proponent's noise analysis, as reflected in the original land use planning documents, and updated by the ARA application.

The noise report, supporting the ARA application, contains a number of instances where there are references to a "proposed extension", not a new or Greenfield quarry, as the St Marys Cement site is. Some examples include p. 1, first paragraph; p. 4 under 3.4, and two references on p. 6 under 4.1. Repeated references to an extension make our community question whether the report was really prepared and written for this site application or whether it is a cut and paste of some previous work.

We believe it is important to note that the noise report explicitly acknowledges that there is the potential for the operation to *exceed* MOE noise limits. We note that the background sound in the vicinity of the proposed quarry, *at all of the residential receptors*, is considered 'quiet' in the day time, evening and night time, dominated by natural sounds or infrequent human activity. We note that the current MOE corresponding decibel rating, in the vicinity of the proposed quarry, is 45 dBA from 7:00 a.m. to 7:00 p.m. and 40 dBA from 7:00 p.m. to 7:00 a.m. (pg. 2).

Similar to the hydro-geological situation, with noise, we find a theoretical and modeled solution being proposed, which may or may not reflect actual experience, should the quarry operation be approved. The modeling done to estimate that noise levels will be mitigated, as presented in the report, is based on very specific operating conditions. That being said, the conditions are not fully described, and those that were described could easily be varied during future operation. As an example, in order to reduce noise levels, the speed of a truck travelling on the quarry property was limited. It is realistic to assume, however, that these speed and other volume restrictions proposed, may be violated, at least from time to time. The acoustical engine performance of specific vehicles could also exceed the norms assumed. No sensitivity analysis was present showing what impact variations would have on the overall operation noise and the potential to exceed the noise estimates presented in the report. Some acoustical attenuation methods are not well explained either. Illustrative, the original planning and supporting noise report proposed leaving rock walls of unexcavated material to shield the processing plant. The report does not, however, address how product stacking conveyors will pass through these walls, while still maintaining the noise shielding. It also does not specify if product stock piles are being relied upon for noise shielding. Changes to the specific operating conditions, broadly defined as "the aspects of extraction, processing and shipping operations", are merely flagged in the report, such that any change in them "*should be* reviewed by a qualified acoustical consultant".

It is important to note that the noise report assumes that the extraction occurs with a single lift. It acknowledges that a two lift operation may be required, possibly reflective of the conflicting narrative between the blasting and bench height reports, yet the noise report does not address or model the two lift potential scenario.

There is also no discussion of what happens, or any contingency plans, if the noise modeling is inaccurate. Neither could we find any discussion of ongoing noise monitoring. And, finally, there is no presentation of what happens, in terms of procedure and remedy, if noise levels are exceeded. We fear another citizen-driven complaint system is in the offing.

We note, as well, that the noise report does not address noise impacts from site preparation, overburden stripping, berm construction, initial excavations (sinking cuts), the establishment of the initial processing area, or the eventual rehabilitation of the site. These activities are excluded because they are deemed not to be part of the normal daily operation and of short duration. Our communities would beg to differ. While the activities may not occur daily throughout the entire life of the site, they will be a significant part of the operation, will occur daily for a considerable period of time, and they will cause noise impact that will interfere with the established land uses surrounding the proposed quarry site. The scope of work involved in stripping all of the natural features from the extraction area and the construction of berms around the majority of

the entire site, for example, are not short duration activities. Further, as the site will be excavated in stages, with the start of each stage, some of these activities will reoccur.

There is no discussion of the noise impact away from the site, along the formal or opportunistic haul routes. We note that there was previously an August 18, 2004 report by Aercoustics, called Offsite Trucking Haul Route Noise. It appears to have been dropped. There is not even discussion of noise impact from truck queuing occurring before the site opens for shipping in the morning.

The original land use planning application confirmed that residents, up to 500m from the road centre lines, would experience some influence of haul route noise (in excess of MOE quiet conditions). The ARA application deals with noise levels on site and at receptors close to the site, but does not mention noise levels off site or along the haul route(s) in either Hamilton or Halton. The Noise Impact Study in section 7.0 states that sound levels for highway trucks are between 103 and 109 dBA and in section 5.2 that the MOE sound level limits for stationary sources are 45 dBA. To mitigate sound impacts from trucks on site, speed and volume levels are to be controlled and acoustic barriers are to be installed along the internal access routes. There is no attenuation proposed once trucks leave the site.

Haul route noise can be expected to dominate quarry noise, even for residents near the quarry site, and would dwarf existing traffic sound levels. Existing traffic generates only about 52 dBA at residential receptors along Milburough Line, according to the original Planning Report. Some 1140 truck trips per day, or more, with trucks generating between 103 and 109 dBA will generate significant noise, seemingly more than the 10+ dBA, which may be experienced by receptors referenced in display board tables by RWDI Air.

Required four season structural improvements to most of the haul routes may result in higher operational speeds than assumed and analyses should also be included for higher speed options.

The reach of this proposed operation, because of its official and unofficial haul routes, will be widespread and must be recognized as such. The subject proposal, its location, and proposed haul route(s) must be evaluated on the basis of adverse effects that will result from the proposal, and with respect to haul routes and noise, from the specific changes that will result from the introduction of quarry haulage on road(s) that, in many cases, the proponent describes as not heavily travelled in their current condition. The evaluation and comparison must be to the existing situation, not via comparison to the traffic volumes and noise levels at existing pit and quarry routes in rural settings.

Noise from blasting is similarly not addressed.

We find the noise work to be reliant on modeling and very strictly focused on what the proponent considers to be “normal routine” activities on site.

Summary:

- *The impact of sustained exposure to noise and vibration is a significant health issue, not just a nuisance factor*

- *The existing sound levels are considered 'quiet' in the day time, evening and night time, and are dominated by natural sounds or infrequent human activity*
- *The proponent concedes that the operation will potentially exceed MOE noise guidelines*
- *The noise report represents another theoretical and modeled scenario and solution*
- *The noise impact analysis is very strictly and narrowly focused on what is considered to be "normal routine" activities on site*
- *No sensitivity analysis is presented to show the impact of variations*
- *No ongoing monitoring is presented*
- *No discussion is present regarding an inaccurate modeling scenario, including contingency plans*
- *No discussion is presented for the acknowledged scenario where noise impacts exceed MOE guidelines, including procedures, and remedies*
- *Site preparation work, stripping of overburden, construction of berms, initial excavations (sinking cuts), establishment of initial processing facilities, and the rehabilitation of the site are not considered in the noise analysis*
- *Traffic noise is not considered even though noise impacts along haul routes will extend the noise issues to residents far from the quarry site and extend the time of disturbances beyond the operating times of the site*
- *Noise from blasting is not considered*

4.2.2 Blasting and Bench Height Impacts

Blasting operations for the proposed quarry will produce ground and air vibrations that could be felt on site and at neighbouring properties. Impacts need to be established on people, domestic animals, wildlife, residential and farm structures, recreation facilities such as pools, schools, and more. Bench height assessment evaluates the stability of the proposed quarry bench faces. Blasting and bench height are related insofar as bench height stability can be affected through the blasting methods and scaling after blasting.

The following notes summarize errors, gaps, concerns and questions that emerge from reviewing the Golder & Associates work regarding blasting and bench height impacts.

The site is listed as 6 km from Carlisle when homes in that Rural Settlement Area are actually located some 2.5 to 3 km away. The development to the north of the proposed site is listed as GlenIron, when it should be Glenron.

The reports speak to a single bench ranging in height from 25 to 38 meters or two benches of 16 to 20 meters. The possibility of jointing in the rock mass was previously identified in the rock mass by Golder & Associates. If the joints are continuous, the reports note that two benches would be required. These findings appear to contrast with the characterization and assumptions of a homogenous aquifer expressed in the hydro-geology studies.

The blasting report suggests that subsequent staged areas would be started before the completion of the previous staged areas. This is an assumption not made or dealt with in any of the other assessment reports.

The blasting report appears to suggest three blasts per week, if there are two benches, and one to two blasts per week, if there is a single bench. The conclusions around blast size and strength have been drawn based on the estimates of the attenuation characteristics of the formations on and around the site. There have been no measurements. Based on these estimates, recommendations have been made as to the blast sizes and formats which, theoretically, will meet specified guidelines.

The blasting report acknowledges that blasting can extend micro-cracks and existing natural discontinuities within the bedrock up to 5 to 10 meters from the blast boreholes. We note it is these existing pathways, now potentially expanding from blasting pressure, which contribute to the challenges of getting the proposed GRS to function. Over time, these paths could lead to more and more of the re-circulated water being 'short-circuited' back into the quarry and failing to support the surrounding groundwater levels, as desired. While the report speaks to keeping the energy associated with these blasts to levels that will keep the effects limited to the local area around the blasting site, there is the potential that these impacts may extend beyond and impact existing groundwater users by changing groundwater flow patterns. These changes could result in changes to groundwater quantity and quality available to existing groundwater users. There is certainly anecdotal evidence from local residents living near established area quarries that this situation does occur. Indeed, last year, there was even a report of a local quarry office running out of water, as blasting got closer to the on-site office.

We point out that the blasting report claims that repeated vibration from blasting will not have any cumulative effect on surrounding structures. The extent of vibration impacts needs to be documented and understood within the impact zone which extends more than 1 km. Again, we note that blanket assurances are disputed by local residents residing near existing area quarry operations where they believe cumulative impacts have developed in their structures. Blasting noise is not even mentioned in this report or the noise assessment, or its sound and distraction impact on people, including those who work and go to school in the area.

Blast monitoring is recommended but there is no indication as to whether that recommendation is being accepted by the proponent and there is no discussion of what notification or action would be taken if the blast monitoring indicates that planned thresholds have been exceeded. The limits discussed in the assessment use the standard of Noise Pollution Control Publication 119 (NPC) as the thresholds. There is no commentary as to how those standards impact or support the MOE decibel limits, for what has been characterized as a rural quiet environment. Further, the NPC guidelines have been characterized as threshold or safety limits. We wonder how they compare to the quality of life impacts that existing land uses will experience.

Brief mention is made of the need to comply with Department of Fisheries and Oceans (DFO) guidelines so as not to disturb egg incubation in local waterways by not blasting during those incubation periods. There is no information presented as to how spawning will be monitored and how coordination between the discovery of spawning and the quarry operation will be achieved in the blasting or natural feature reports.

The bench height report documents that “there is a risk of both planar and wedge type failures in all four main quarry wall configurations”. The risk of planar failure is described as being of “greater concern” if a single bench is used. In this case, the report indicates that a slide of “hundreds of cubic meters of rock is possible”. The report goes on to state that, if a two bench approach is taken, then the risk of these slides would be decreased by 50%. The summary of the bench height report in the ARA Summary Statement (p. 26), by contrast, provides an interesting illustration of the select fullness of the summary document. The summary statement makes no mention of the potential for planar slides of hundreds of cubic meters of rock, but does highlight that the risk of wedge type failures is low. This leads our communities to wonder what other relevant information has been left out of the ARA Summary Statement.

Despite discussion of the various implications for a single or two bench approach, there are no formal conclusions presented in either the bench height report, the blasting report or the ARA Summary Statement. Only the noise assessment report suggests a single bench approach conclusion. Our communities are left without a clear understanding of what approach will be used in the proposed operation as it pertains to bench height for this aggregate license application.

Summary:

- *The blasting and bench height reports are interrelated but there are no formal conclusions presented as to whether one or two bench heights will be used*
- *There are clear risks for planar failure and significant rock slides if a single bench approach is used; two benches only decreases the risk by 50%*
- *The jointing identified in the rock mass appears to contradict conclusions in the hydrogeology assessment which have led to homogeneous characterization of the aquifer*
- *Recommendations around blast size and strength are based on estimates, not measurements*
- *Blasting can accentuate micro-cracks and natural discontinuities making operation of the GRS more challenging and affecting groundwater quantity and quality for existing groundwater users*
- *Blasting noise is not addressed*
- *Blasting impact zones and effects are not fully documented*
- *Blanket assurances that repeated vibration from blasting will not have any cumulative effect are not substantiated*
- *Blast monitoring is only recommended, not confirmed*
- *It is unclear how NPC threshold, safety limits impact or support MOE decibel limits and the characterization of a quiet rural environment*

4.2.3 Pedestrian, Cyclist, and Vehicular Safety

As introduced in the haul route and truck traffic subsection of this Community Issues Review Report, the proximity and frequency of industrial traffic through the rural roads which constitute our neighbourhoods raises safety issues of concern. The ARA application does not address haul routes and transportation in any meaningful way. The land use planning documents are silent on safety issues and the transportation study

requested by CART, as per the terms of reference, has not yet been finalized, nor is it reported upon in the ARA documentation, other than to indicate its status and that some, or all, of the proposed routes may be adopted as preferred haul routes.

School buses travel these routes a minimum of twice per day, five days a week; children and adults travel between neighbours' homes and properties, places of employment, community facilities, and commercial locations several times a day, 365 days a year on foot, snow shoes, horseback, cross country skis, bicycles, snowmobiles, and automobiles; slow moving farm machinery is prevalent during three seasons and the area is host to numerous cycling groups, and motorcycle clubs, through three seasons. Aggregate haulers, intent on maximizing loads per day, are not compatible with this rural usage.

We remain concerned that a queue of aggregate haulers will block residents attempting to reach places of employment and elsewhere, as they try to exit driveways, and/or to turn at rural road intersections along the preferred haul route(s). The truck volume may even make it virtually impossible for school buses to operate safely in through-traffic and at stops. We still believe that EMS vehicles can be expected to encounter significant truck traffic in both directions which may impact emergency response time.

Truck volume will only be further compounded by transit over either of the level rail crossings in Campbellville where we have been told that there are approximately 40 trains per day, some up to 7,000 feet long. Motorists can already encounter waits in excess of ten minutes at these points, which would translate into backups of aggregate haul trucks creating caravans many vehicles long. The potential impact of combined aggregate fleet and train capacity on traffic volume, emergency response time, and vehicular conflict/safety is a major and serious problem. The few seconds attributed to delay in the PIC display information boards does not appear reasonable or substantiated.

Based on the proponent's own forecasts, we envision a future where every motorist could see the tail end of one truck through the windshield and the grill of the second one in their rear view mirror. We submit that there is no safe way for pedestrians, cyclists, school buses, emergency and farming vehicles, and others, to share the road with 35 tonne aggregate trucks passing by at the rate of nearly two per minute or in long caravans. One preventable accident will be too many.

Summary:

- *Introduction of incompatible commercial truck traffic will become a health and safety issue for existing road users*

4.2.4 Dust (Air Particulate) and Emissions

Not only will the truck traffic on haul routes generate dust and vehicle emissions, the very nature of an industrial open pit aggregate development operation guarantees a greater presence of fine particulates in the air than is the current status, no matter how effective vaguely documented dust suppression techniques may be. Despite this, the

proponent has not tabled any reports speaking to air quality, in support of the land use planning or ARA applications, for on-site operations or off-site haul routes.

The health effects of air pollution on respiratory development, and function is well documented. It is reported that one out of five children today grows up with asthma, when sixty years ago this disease was rare. The Ontario Medical Association has documented the effects of air pollution and particulate (notably particulate matter < 10, known as PM <10) upon children, seniors and those with a predisposition to respiratory disease as well as on the general population. Compounding community worry about air pollution and particulate is the question as to whether silica may be a component of this rock structure. As stone is disturbed from its natural setting, crushed, and transported, silica can be released as fine particulate. The respiratory disease resulting from inhalation of silica, silicosis, is documented and can be fatal. Dr. Dominy's submission, attached with this report, also raises the issues around fine particles of quartz and quartz containing radiation.

We are also concerned about the effects of diesel exhaust which contains carcinogenic particulates, nitrogen oxides, carbon monoxide, sulphur dioxide, and ozone. An increase in emissions will also be a contributor to smog. We note that last year again, there were a record number of smog alerts declared by the MOE in the province, including in this air shed. Nitrogen oxides and sulphur dioxide are particularly damaging to the lungs and the heart. Particles, the size of viruses up to the size of pollens, from motor vehicle emissions, tire fragmentation and the re-suspension of road dust will be inhaled by residents who live and recreate along the haul routes. The residents who will be particularly affected by exhaust emissions and air particulates, are those who live anywhere near a point where a queuing effect will occur, for example, at the entrance to the proposed quarry and near railroad crossings. Dr. Rosenbloom's submission, attached with this report, documents these concerns more fully.

We also note the 2003 Air Quality Health Assessment Study prepared for Clean Air Hamilton by Michael Jerrett of the McMaster Institute of Environment and Health (MIEH). It estimated that five key air pollutants – nitrogen oxide, ground-level ozone, inhalable particulate matter (PM<10), sulphur dioxide, and carbon monoxide – contribute to about 100 premature deaths, 140 respiratory hospital admissions, and 480 cardiovascular hospital admissions each year in Hamilton. These estimates, which are based on the most recent health studies, and on Hamilton's air quality and health statistics, identified nitrogen oxide and ozone as the air pollutants responsible for the greatest number of these health impacts. The full report can be located at www.cleanair.hamilton.ca.

In 2005, the Ontario Medical Association (OMA) updated their estimated cost of illness associated with air pollution. This update of the association's 2000 report reflects the improved understanding of the health effects, including new studies on the chronic effects of exposure to air pollution. The OMA report estimates the cost of air pollution to the economy of Ontario at $16 billion per year. Hamilton's share is $1 billion per year, based on the proportion of the local population to the population of the province. The estimated health impacts on the health of Hamiltonians as a result of smog in 2005 are: 290 premature deaths, 810 hospital admissions, and 2,840 emergency visits. These numbers are projected to rise to 500 premature deaths, 1,200 hospital admissions, and 4,250 emergency visits, all things being equal. Again, the full report is accessible via Clean Air Hamilton.

Work by C. Somers and J. Quinn of the Department of Biology at McMaster University and C. Yauk, P. White and C. Parfett of the Mutagenesis Section, Environmental & Occupational Toxicology Division, Health Canada, using sentinel mice populations in urban and rural (NE Flamborough) locations, showed that air pollution also induces heritable DNA mutations, particularly through the paternal line (2002 – www.pnas.org/cgi/doi/10.1073/pnas.252499499). Follow-up research, again using sentinel mice populations in the two locations, by Somers, Quinn, B.McCarry (Department of Chemistry, McMaster University) and F. Malek (Lakeland College School of Environmental Studies) demonstrated that reduction of particulate air pollution lowers the risk of heritable mutations (www.sciencemag.org 14 May 2004 vol. 304).

The proponent has not adequately discussed measures to prevent or mitigate against these documented harmful agents.

Summary:

- *Health issues from airborne particulate matter and poor air quality are well documented. The proposed operation, and its associated product shipment on area haul route(s), could significantly increase the amount of airborne particulates and lower air quality*
- *The proponent's land use and ARA applications do not address these issues*

4.3 PROCEDURAL ISSUES

4.3.1 The Big Picture

Our communities believe that consideration of the St Marys Cement license application needs to address the "big picture" question of whether this proposed development is a good idea and of net benefit to the people of the province and this area and whether the location is the appropriate site for a massive Greenfield industrial extractive open pit mine, in light of its nature, magnitude and breadth of impact, and given the presence and density of surrounding schools, homes, farms, and small businesses, and the extent and sensitivity of the natural and water features present. To use a colloquial phrase, it is important that we remain able to "see the forest" and do not lose sight of it, "for the trees".

We raise a concern that the iterative nature of both the ARA and land use planning processes carry with them the type of 'inherent presumption of development' cited in the Environment Commissioner of Ontario's 2006/2007 report that does not facilitate answering the big picture question. He noted that quarry development applications may be continually amended until they are finally approved, and no one asks the fundamental question about whether we need to develop the new quarry in the protected area, at all. Using the St Marys Cement case, as illustrative, he recommended an early screening mechanism to sort out applications which conflict with natural heritage and source protection values, as one possible solution.

An earlier section of this report explained how the Environment Commissioner elaborated on this theme in his 2007/2008 report, where a major underpinning was better models for public consultation and decision-making with respect to development proposals and the ability to reach a NO outcome based on rational arguments and competing societal values.

We do not question that there must be some 'back and forth' between a proponent and the relevant governments/agencies. The iterative process can, however, become a strategy of incrementalism, death by a thousand cuts, if you will, because the approvals process artificially limits the scope of discussion and prevents or never asks the one big question. One grey area, then, is where the iterative process assumes the development proceeds, and become a means for continuing to improve its quality. Another grey area is where the iterative process shifts evaluation of a proposal by a regulator, to such a level of engagement, there may become unknowing advocacy, of its content.

Our communities have witnessed the original land use planning documents and technical reports be roundly and soundly criticized by the City of Hamilton Peer Review Team for methodological, analytical and interpretational errors, gaps, and omissions. In our words, the material was basically graded 'F'. The proponent is then able to incorporate the feedback and criticisms and resubmit the material to the municipality and to provincial agencies, such as under the ARA. In our view, the material could be submitted to receive a 'higher grade'. We have also seen, and supported, in part, MOE grading St Marys Cement an 'F' for its July 2008 water pumping test via its decision that the data results were unacceptable. We note, however, that the opportunity to redo the

test is still provided, even though the 2008 test was, in part, a redo of a previous failed pumping test.

We further highlight that the next stage of the ARA process, that we will collectively enter, is referred to as resolution of objections. Having identified objections through the public notification and consultation phase, the company will attempt to resolve these objections within slightly less than two years, before submitting a final package to MNR on the status of objections and resolutions. We flag that trying to resolve objections from individual “persons”, in respective “issue silos”, so as to eliminate the person and the issue from a given list of objections, is not necessarily conducive to answering the bigger question about whether the nature and magnitude of the proposed development is appropriately suited to the location. Rather, an approach that focuses on resolution of objections seems predisposed to an affirmative outcome.

Similarly, each of the approval and commenting agencies are expected to operate within their “silos” of responsibility. There does not appear to be an overarching authority who can ask the “big picture” question. And, more to our concern, if each approving and commenting agency decides that the harm in its area of responsibility is not too great, who is to say that the cumulative adverse impact from all the harm in all those geographic or specialty areas is not too great?

In a December 6, 2007 Hamilton Spectator article, Ontario’s Environment Commissioner states, “The essential point here is that the ARA process is very deterministic. It is extremely difficult to get to a no, even if you have a site with all kinds of environmental impacts. If the applicant persists, you always get to a yes.”

More simply put, if a student gets an ‘F’ on a test at school, he fails, but it seems that if you are an aggregate company trying to develop a new quarry in the Greenbelt, in a municipality’s drinking water protection area, you can keep getting ‘F’s, get more chances to resubmit your reports, redo your tests, resolve objections, and still advance your way through the development process.

It is also of concern to our communities that the land use planning and ARA applications only consider the initial quarry proposal, because that is what the proponent has chosen to apply for, despite publicly stated intentions to expand the site to adjacent property, owned by the proponent. We continue to believe that the full magnitude and the direct, indirect and cumulative impacts of this operation, including its expansion, should be evaluated from the outset the relevant levels of government and agencies, as part of its big picture considerations.

Finally, we point out that the decision-making time horizon under traditional approvals processes is relatively short term, rather than incorporating a longer term, big picture focus. Most impacts in the ARA reports are, if measured against temporal criteria, evaluated against the current scenario. There is little in the way of forward time horizon and impact projection. And, despite the very real challenges facing our natural and built communities in the future from scenarios, such as climate change and its impacts on groundwater and features, no risk assessments for same appear to be contemplated.

It is our hope, that despite the very real limitations of the existing processes, we will all be able to refocus on the big picture question and whether the St Marys Cement

proposed Flamborough quarry is, indeed, an appropriate development of net benefit to the province and people of this area in this location.

Summary:

- *The big picture question as to whether this proposed development is of net benefit to the province and the people of this area, including whether this location is appropriate, should be answered and should not be allowed to be lost*
- *The iterative nature of the land use planning process and the objection identification and resolution process of the ARA process carry the inherent presumption of development and/or approval by incrementalism*
- *The full magnitude and the direct, indirect and cumulative effects of the proposed quarry operation and its haul route(s), including the stated expansion lands, should be evaluated from the outset*
- *The evaluation should not be static but should include projected impacts for the lifespan of the operation and risk assessment scenarios, including climate change modeling*

4.3.2 Earning a Social License to Operate

"Social license to operate" is a term that has entered corporate and community parlance in recent years. Where environmental concerns and associated liabilities were a new and unknown aspect of corporate and community risk in the 1970's, today social concerns and the associated conflicts they can generate constitute a rapidly expanding area of emphasis. Corporations usually use "social license to operate" to refer to some kind of "approval", and for some corporations actual "consent", they must obtain from local communities in areas where they (wish to) operate, as compared to the legal license they must obtain from governments. The concept has emerged globally, in particular, with regard to the extractive industries, such as oil and gas, mining and aggregates, which often directly impact local communities because of the "taking" of land, water, and other resources.

Resource industries are accepted by the public at large, on some level, because of the role they play in society, providing the essential materials for society's needs and well-being. There has certainly been a historic role for natural resource industries in the advance of societies and the economic growth and industrialization of specific countries. At the level of individual projects, however, this acceptance is neither automatic nor unconditional. Today, there is, increasingly, the need to gain and maintain the support of the people that live and work in the area of impact and influence of any given project – to have a social license to operate. There is ample evidence that a failure to gain and maintain this license leads to trouble for the proponents of a project. This trouble may be difficulty in gaining government approvals, project delays, operational challenges and cost overruns.

In fields of academic study, the notion of the "social license to operate" is strongly linked to several other concepts such as legitimacy, reputation, stakeholders, and corporate social responsibility/performance. Furthermore, various theoretical frameworks exist in

this domain, such as: political economy theory, stakeholder theory, accountability theory, reputational theory, and legitimacy theory.

In the field, the social license to operate is site specific and recognized as comprising the community perceptions of the social legitimacy of the project, the credibility of the project and its proponent, and the presence or absence of trust. These elements are acquired sequentially and are cumulative in building towards the social license. The project must be seen as legitimate before credibility is of value, and both must be in place before meaningful trust can develop. That being said, how the proponent builds social legitimacy and credibility is a crucial factor in building trust. Further, the concept of an informal social license to operate is compatible with legal norms in countries that operate under the principles of common law. Progressive companies, communities, civil society and regulators see the social license in terms of a dynamic, ongoing relationship between the company and its community stakeholders.

The literature speaks to the complexity involved in gaining and maintaining a social license to operate. Difficulties arise most frequently when companies are unable or unwilling to make the mind shift and the requisite investment.

With the sale of Lowndes Holdings Corp., the original proponent, to St Marys Cement, wholly owned by Votorantim, a Brazilian conglomerate, in June 2006, a multi-national company that billed itself as a “good neighbour”, the community expected a high standard of corporate behaviour. This has, unfortunately, not been the community’s experience. Some illustrative examples are listed below.

- St Marys Cement does not appear to understand our community and our expectations of a neighbour to neighbour relationship. This does not appear to have been part of the homework that the company did as part of its due diligence, on the purchase from Lowndes Holdings Corp., nor of its monitoring of the project since its inception.

- St Marys Cement has shown an unwillingness to openly share information with the community and with FORCE, as its representative, especially prior to submission of the ARA application.

- St Marys Cement fails to represent itself consistently.

- Notifications by St Marys Cement are not consistent, they are not always done as required by regulators, and they are not always done in a way that best reaches the community.

- St Marys Cement has undermined its own credibility by not abiding by local regulations, by providing unreliable information, and by not being accountable for its own actions or those of parties representing it.

- St Marys Cement has failed to keep commitments to the community.

- St Marys Cement has further undermined its own credibility by taking on authority greater than its own. The company, and its consultants, have created and used terms which are not defined or approved approaches in government regulatory circles, including by MNR, and it has pushed the boundaries on the role that accepted concepts should have.

It is clear that in our community at least, on a range of fronts, St Marys Cement has failed to prove the social legitimacy and credibility of the project, and to gain community trust. St Marys Cement has failed to earn its social license to operate.

Summary:

- *Social license to operate is a term that has entered corporate and community parlance in recent years*
- *The social license to operate is site specific, earned by the company, granted by the community and recognized as comprising the community perceptions of the social legitimacy of the project, the credibility of the project and its proponent, and the presence or absence of trust*
- *St Marys Cement has failed to earn its social license to operate*

5. Appendices

5.1 David Rosenbloom - The Health Impact of a Limestone Aggregate Quarry in Flamborough

April 4th, 2009
B.Sc., B.S., Pharm.D
Professor of Medicine, McMaster University

It appears that limestone does not pose major health problems, although the particle size has a bearing on this in that very small particles may predispose to lung and heart problems, similar to diesel fumes (see below). If there is silica in the limestone, this can give rise to a lung condition known as silicosis, which can be fatal. The conditions in the quarry for controlling dust emissions have to of the appropriate standard to minimize these risks. It is not clear how much blasting will take place and what the resulting noise and vibration effects will be.

The main purpose of this report, however, is to address the impact of the diesel traffic on the health of the population living on the proposed routes. The number of trucks is estimated as one every 45 seconds.

Exhaust from diesel trucks consists of particles and gases. Particles are a mixture of solids and liquids suspended in the air and varying in size and chemical composition. Primary particles are emitted directly into the atmosphere, such as diesel soot, whereas secondary particles are created through physicochemical transformation of gases, such as nitrate and sulphate formation from gaseous nitric oxide and sulphur dioxide, respectively. The particles come from motor vehicle emissions, tire fragmentation and resuspension of road dust, among other sources. These particles vary in size from 0.1 micrometres (the size of viruses) to 10 micrometres (the size of cells or some pollens). The importance of the size of the particles is that the smaller ones get into the fine airways and alveoli and the larger ones affect the larger airways. Burning of diesel fuels also causes various gases to be formed, principally nitrogen oxides, carbon monoxide, sulphur dioxide and ozone.

It was thought that the particles tend to fall off within 50 – 100 metres and that this will affect many of the houses along the proposed routes. More recent research demonstrates that children living within 500 metres of a highway (and the traffic pattern from the trucks will mirror a highway) will severely decrease lung function in children (Gauderman et al, Lancet: 369: 571-577, 2007). The gases have a wider distribution. The health effects of the combined types of pollution are described in the next section.

Children and infants are particularly vulnerable to developing pollution-related problems. In addition to the association between air pollution and respiratory symptoms, asthma exacerbations and asthma hospitalizations, recent studies have found links between air pollution and preterm birth, infant mortality, deficits in lung growth and possibly the development of asthma. (Pediatrics 2004; 114: 1699-2166). While these outcomes are also associated with poverty, as is traffic pollution, the studies reviewed and summarized in this report covered a wide variety of sociodemographic settings.

These problems on airway disease do not stop after infancy. Exposure to air pollution causes chronic, adverse effects on lung development in children from 10 – 18 years of age. These children have decreased lung capacity as they reach adulthood (Gauderman et al NEJM 2004; 351: 1057-67). In other words, children growing up along the proposed routes will have more respiratory health problems and less chance of having full lung function than those growing up with less exposure to traffic pollution.

There are also considerable health risks for adults. Transient exposure to traffic increases the chance of a myocardial infarction (heart attack) by 2-3 fold, whether the time is spent riding a

bicycle or in a car (Peters et al NEJM 2004; 351: 1721-1730). In other words, exercise does not prevent this risk. Traffic noise is also a serious stressor. Studies estimating the degree of annoyance and disturbance from traffic noise concluded that the noise led to a 1.7 – 3 fold increase in heart disease in healthy people (Babisch et al Occup Environ Med 2003; 60: 739-745). While these results may be confounded by an effect from the pollution from the traffic, the noise appeared to exert a separate mechanism on heart disease through a separate physiological perspective. Either way, exposure to traffic and traffic noise is unhealthy. A study by Miller et al (NEJM 356: 447-458, 2007) has also demonstrated that long-term exposure to fine particulate air pollution is associated with cardiovascular disease and death in postmenopausal women.

Finally, the American Cancer Society has estimated that for each 10 mcg/m2 increase in average exposure to PM2.5 (the smaller particles), long term and all-cause mortality increases by 4%, 6% and 8% respectively.

In conclusion, having the anticipated volume of diesel traffic, whether in close vicinity to the homes along the proposed routes or at a distance from the houses, poses major health risks to pregnant women, children, patients with respiratory or heart disease and to the healthy population as well. There are medico-legal implications that should be considered by both the contributors to the pollution as well as to the bodies providing legal approval for the quarry.

5.2 Dr. Cliff Dominy – Analysis of the St Marys Cement Flamborough Quarry ARA submission

Dr Cliff Dominy
8327 Milburough Line, RR2, Campbellville, ON, L0P1B0
Tel 905-6594964 Email: cnd@scientist.com

I would like to submit for consideration my assessment of the St Marys Cement ARA application for their proposed quarry in Flamborough. I have twenty years experience in biohydrometallurgical research [1,2], my doctoral dissertation [3] focusing on the ecology of bacteria existing in groundwater supplies of arsenopyrite ores. I have grave concerns regarding the proposed quarry that specifically relate to the quantity & quality of groundwater as a result of the extractive nature of quarry operations.

Before I itemize my concerns, I would like to comment on the application as a whole. The technical reports, specifically the ones relating to the hydrological and hydrogeological data, all point to a significant disruption in the groundwater quality & supply to the area. Strikingly in the summary analysis of the data these fundamental flaws are quickly passed off as minor technicalities at worst. To quote the AECOM consultant involved "*Don't worry, it'll be okay …. If anything goes wrong we'll fix it*" Sadly once the proposed quarry causes major disruptions to the groundwater, it may be too late. Nevertheless the "Don't worry, be happy" Summary document remains steadfastly in conflict with the core data gathered by the proponents own consultants. One suspects that the technical reports attached to the submission are not actually meant to be read, and the reader is instead to be reassured by the extensive, yet meaningless, verbiage which litters the Summary document.

However the most egregious error is the lack of data accompanying the quality of the groundwater required to sustain the wetland a which area residents will need to consume after any putative quarry is in operation. Section 5.3 of the hydrological report devotes a little over a page to water quality issues, noting reassuringly that zinc levels are below the lethal toxicological benchmark. *That's it*! Here are a few other parameters for reviewers of this proposal to consider:

1.0 **Groundwater levels:** Quarries by their very nature disrupt the ground and groundwater [(4)]. The vast majority of them are situated in rural areas where quarry operators usually mitigate the impacts on rural water supply by trucking in household water to the affected area residents [(5)]. By contrast the proposed Flamborough Quarry site contains a Provincially Significant Wetland (PSW), dozens of private wells, three housing surveys which border the site, as well as the towns of Carlisle, Freelton, Campbellville and Kilbride. Specifically the town of Carlisle has experienced significant water flow issues over the years and its aquifer, which originates on the proposed quarry site, cannot tolerate any further disruptions.

A case in point is the study by Ohio University into the effects of dewatering at a quarry in Northwestern Ohio (5). Its location on the other side of Lake Erie is not too distant from Flamborough, at least in geographic and geologic terms. Recent publications have pointed out that residents in this predominantly rural area have experienced a) loss of water b) reduced well recharge and c) poor water quality in a "cone of depression" up to 5 km away from the quarry. What implications would these results have in Flamborough an area with similar geology?

The proponent has put forward a groundwater recirculation system (GRS) to mitigate any dewatering effects of the quarry. The prevailing attitude amongst the consultants I spoke with was "if this don't work, nothing will". **GRS systems don't work on large scale operations!!** I have spoken with numerous people in the hydrogeology business and "googled" the topic extensively. The Wiremu Rd quarry in New Zealand operated by Winstone Aggregates employed a GRS system in one of its gravel pits and managed to reintroduce 12.5 litres per second of water back into the ground [(6)]. This is considered impressive. The Flamborough quarry anticipates returning 1000 litres per second back into the wetland in order to preserve it. AECOM consultants pointed to the existence of GRS systems in quarry operations in Florida, an area of incomparable geology, but the success of these systems couldn't be evaluated as nothing has been published on them in the peer reviewed scientific literature. One has to wonder why ?

2.0 **Air & Water quality** : The proposed Flamborough Quarry site is coveted for its medium grade Amabel Dolostone deposits at depths up to 40 metres below grade. Dolostone is primarily composed of dolomite, a sedimentary calcium- magnesium carbonate mineral used in the aggregate industry. Dolomite is not its sole component however, with varying levels of quartz being present as inclusions in the rock. In sparsely populated areas where most quarries are situated, this doesn't typically present any health side effects to the local population due to there being too few people affected to gather meaningful statistical data. However that will not the case with the proposed Flamborough Quarry.

Quartz, once crushed, forms fine particles which have been proven to be lung carcinogens once aerosolized [7,8]. How is the proponent planning on mitigating this risk factor? By pumping the FPQ (fine particle quartz) back into our water supply, but not our wetland? Quartz also contains readily detectable amounts of radiation, principally in the form of Radon-222 [9]. Radon is the radioactive gas derived from the element radium believed to have caused the aplastic anaemia which killed Marie Curie (discoverer of radiation) in 1934. Studies have been able to detect this released radioactive material in natural ventilation systems in underground quarries in France [9]. The health implications of this substance close to higher-density living areas is troubling to say the least.

What are the silica levels in the dolostone deposits in Flamborough? A number of studies have highlighted increased mortality levels in quarry workers exposed to respirable crystalline silica [10]. What other risk factors are out there? Humans, apparently, should not be inhaling finely crushed aggregates.

3.0 **Bacteriology & Virology of groundwater :** With memories of the Walkerton tragedy [11] so fresh in our memories, I would now like to move on to address the concerns that I have with water quality after aquifer disruption by quarrying activity. The proponents hydrogeology consultants freely admit, along with most other experts, that the presence of a 150 acre quarry will extensively alter the groundwater flow patterns of the Carlisle aquifer ie water will tend to flow toward the quarry rather than away from it, as it currently does. If the GRS system fails, as it surely will, one AECOM solution would be to simply pump the excess water along with aggregate washings etc into the Bronte Creek watershed system, where presumably it would be free to percolate back into whichever aquifer the creek happens to be flowing over, downstream of the site. It isn't possible to model via computer the impact of altered flow patterns of *E.coli* and other human pathogens that are naturally present in farming areas containing cattle alongside private septic sewer systems. There is abundant evidence that these pathogens are long-lived and have been readily detected in groundwater systems around the world [12,13].

Viruses are also readily detectable in the water supply. *Noroviruses, caliciviruses*, and even *poliovirus* are found to be biologically active in groundwater [14,15]. They cause enteric and or neurological disease in humans and cannot be treated with antibiotics.

Conclusions

The main thrust of this review bears repeating - most quarries don't affect enough human beings to allow for meaningful statistical analysis of human health issues. The proposed quarry in Flamborough is different, with thousands of individuals living and working within a few miles of 11th Concession and Milborough Line. This is well within the quarries cone of depression ie area of influence. There are too many multivariate human health factors at play here, with no similar project of equivalent size, scope and situation to compare it to. All of the above issues do not represent hysterical fear-mongering, they are legitimate scientific areas of concern published in respectable North American, Asian and European peer reviewed journals – its just not worth the risk! The consequences from health, environmental, political and legal standpoints could be enormous.

My report has just touched on a few areas within my professional expertise. Issues such as the biological destruction of PSW wetlands as important as the headwaters of the Bronte Creek, as well as traffic, noise, safety etc are just as important as the issues outlined above. I rely on my neighbors and colleagues to cover them in greater detail than I possibly could. Suffice to say, the proponents of the proposed quarry haven't answered any of the issues to any degree of satisfaction. They have routinely demonstrated their asocial unwillingness to cooperate with local authorities - from unauthorized potholes to uncompleted pumping tests. Perhaps they didn't like their own data, or possibly they simply don't care.

Situating a quarry of such magnitude at the Flamborough site is inappropriate and the proponents application should be rejected.

Yours sincerely
Cliff Dominy PhD

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