

The Implications of Restricting Aggregate Supply in the GTA



MHBC

**Regional & Urban
Planning & Resource
Development**

**CLAYTON
RESEARCH**

Executive Summary

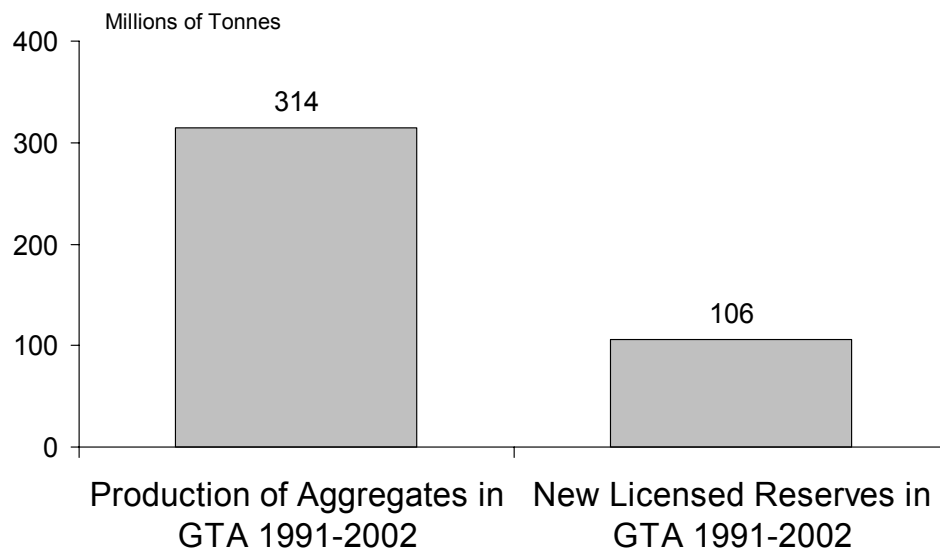
- There is a need for new close to market licensed reserves of aggregate for the GTA to replenish diminishing supply.
- For every 3 tonnes of aggregate produced in the GTA in the past 12 years, only 1 tonne of replacement supply was licensed.
- Based on expected demand, existing licensed reserves in the GTA will be exhausted within the next decade – and the impacts of scarcity are already emerging.
- Additional reliance on imports to fill the supply gap is not the answer. Over a 10-year period, additional imports to replace local GTA production would consume 820 million litres of fossil fuel and generate over 2.25 million tonnes of additional greenhouse gas.
- There would also be price implications for consumers. Transportation costs alone associated with importing more aggregates to replace amounts produced in the GTA today would be about \$4 billion over a 10-year period. And base prices of aggregates would also be expected to increase in response to product shortages and higher costs of developing new supply areas.
- As the public sector purchases over half of aggregates used in the GTA, significant increases in the price of aggregates would result in higher taxes and/or reduced infrastructure investment or supply of other government services.
- Higher imports would also mean more congestion on roads and require additional government spending on highway construction/ maintenance due to additional truck trips.

Many studies over the years have warned about the impending aggregate supply crisis in the GTA

- **The Mineral Aggregate Study Central Ontario Planning Region** (1974, Proctor and Redfern) concluded that “the potential available supply cannot continue to meet the demand within the Central Region” (which included the GTA), and that supply would be depleted during the first part of the 21st century.
- **The Mineral Aggregate Transportation Study** (Peat, Marwick & M.M. Dillon) concluded that licensed reserves would be depleted by 2000 if no new licenses were issued.
- **The State of the Resource Study** (1992, Planning Initiatives et. al.) projected that at expected demand levels and with no additional licensed reserves, that supply of aggregate in the GTA would be depleted during the current decade – and the “crisis window” was already at hand in the 1990s.
- There is a consistent theme to these studies, and the key message is clear – to avoid a supply crisis, new licensed reserves¹ are needed to replace what is being produced each year.

¹*“Licensed reserves” refers to remaining resource in an area that has been approved for extraction, and for which an aggregate license has been obtained*

But despite the warnings, the GTA is still not replacing depleting aggregate reserves fast enough



Source: MNR, TOARC and estimates by MHBC

- During the 1991-2002 period, about 314 million tonnes of aggregate were produced in the GTA.
- New licensed reserves in the GTA over the same period have been much lower – at only an estimated 106 million tonnes.
- In other words, new licensed supply has not come anywhere close to keeping pace with production – with only 1 tonne being replaced of every 3 tonnes produced.
- This is not a situation that can be sustained indefinitely – eventually existing licensed reserves will run out.

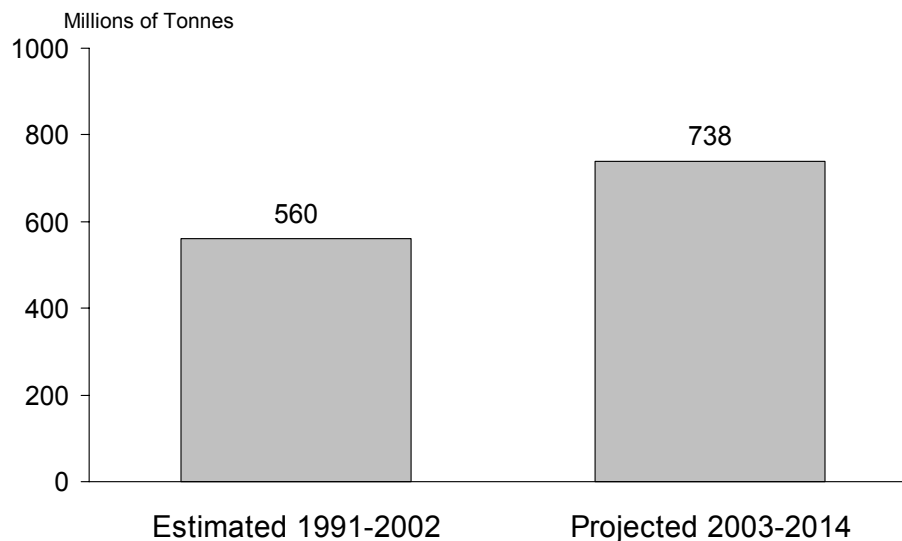
And rather than facilitating new licensed reserves, many policies have instead restricted potential future aggregate extraction

- The Niagara Escarpment Plan Area and Oak Ridges Moraine are the major GTA Aggregate source areas. Over 75% of GTA's production is from these areas. The majority of GTA existing licenses are over 30 years old and depleted reserves need replacing.
- 70% of the Niagara Escarpment Plan Area cannot be considered for new licenses. New licenses can only be considered in the Escarpment Rural Area.
- The Oak Ridges Moraine Conservation Plan significantly reduced future potential supply. It sterilized over 50% of the high potential resource on the Moraine.
- In the case of Caledon, the regional and local planning constraints removed 60% of the identified aggregate resource.
- There are many other constraints on top of the policy restrictions. These constraints will further reduce the available area for licensing because of other environmental features, rural non-farm residential uses, accessibility, resource fragmentation (i.e. deposit too small to justify cost of licensing) and ownership. MNR estimates the total constraints could be as high as 85% of the identified deposits in some areas.
- As a result, unconstrained deposits are difficult to assemble and license. The approval process can take up to 10 years and cost several million dollars. This is a barrier for small companies and discourages investment from medium to large companies.

- Prices for aggregate in the GTA have been increasing above inflation in recent years, at least in part a reflection of the supply constraints imposed by these policies.
- Any further restrictions on new sources of aggregate supply within the GTA can be expected to exert additional price pressure.

The supply problem will be compounded by higher demand for aggregate in the GTA in the future

Total Consumption of Aggregates (Demand)



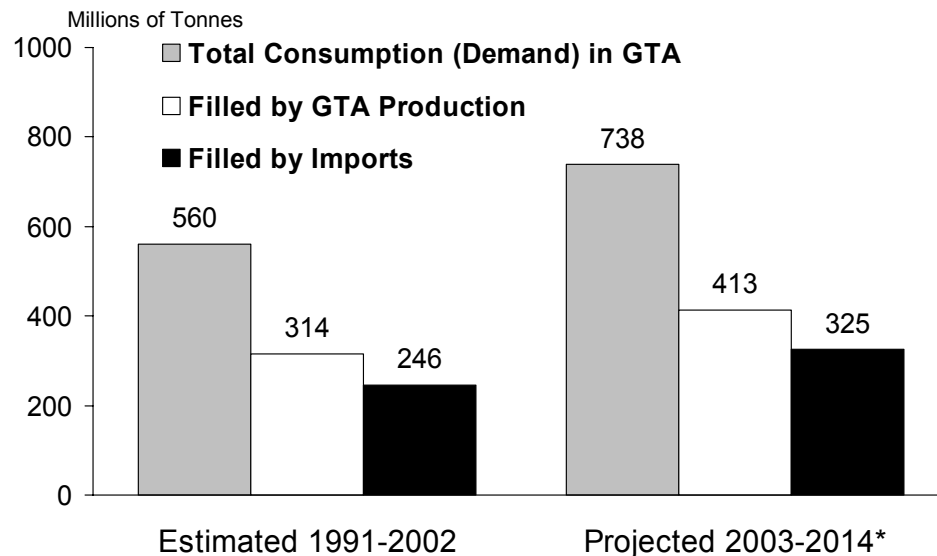
Source: MNR, TOARC and estimates/projections by Clayton Research

- Consumption² of aggregates within the GTA is expected to be about one-third higher over the 2003-2014 period than it was in the previous 12 years, according to projections by Clayton Research.
- An estimated 738 million tonnes of aggregate are expected to be needed to meet demand in the GTA in the 2003-2014 period – or 178 million tonnes more than was needed in 1991-2002.

² “Production” of aggregates refers to the amount removed from pits and quarries located within the GTA. “Consumption”, or demand, refers to the amount that is used within the GTA (some of which is produced within the GTA, and some of which is imported). There is little aggregate produced in the GTA than is exported to other areas.

The GTA already relies heavily on imports to meet its needs

**Total Consumption of Aggregates (Demand)
And Amount Imported**



* Assumes 44% of demand filled by imports during projection period (same as estimated for 1991-2002)
Source: MNR, TOARC and estimates/projections by Clayton Research

- About 44% of the aggregates consumed within the GTA since 1991 have been brought in from other areas – or more than 20 million tonnes a year.
- Assuming a similar proportion applies to expected demand over the next 12 years, the GTA will need to import about 80 million tonnes more than it did in the previous 12 years – or an additional 6-7 million tonnes per year – just to maintain its current degree of contribution to its own needs.
- Any additional restrictions on replacement licensed reserves will only exacerbate the reliance on imports – which, as will be seen, will have economic and environmental impacts.

There are only a limited number of options for making up the aggregate supply gap

- As shown, the GTA is going to need more aggregate, not less, in the future.
- Available information indicates that, without significant increases in new licensed reserves, existing licensed reserves are likely to be depleted within the next decade.³
- Therefore, given long lead times of 5-10+ years from selection of sites to full production, the supply situation in the GTA can already be considered to be critical – even without further supply-side restrictions.
- There are only a limited number of options for making up the supply gap:
 - By using more recycled material
 - By using more substitute products (e.g. plastic, steel, etc.)
 - By increased reliance on imports:
 - increased imports from areas outside the GTA already supplying to the GTA
 - from new, further away areas
 - By increasing local licensed reserves within the GTA:
 - issuing of new licenses for new sites
 - expansion to existing licensed sites (either through wider area, or allowing deeper extraction)
- A review of each of these options follows.

³ An argument can be made that it is not sufficient for licensed reserves to just match the expected level of demand for a given period, but rather than reserves well in excess of expected demand levels need to be available to help avoid emerging shortages and escalating prices (see Witness Statement of C.F. Osler, Niagara Escarpment Plan Review, December 24, 1991)

Substitutes/recycling unlikely to fill much of the gap

- Recycling of asphalt is already extensive (estimated at over 75%), so potential increases in this source are limited.
- Moreover, for some applications, recycled material is not of sufficient quality to meet more restrictive specifications.
- **The State of the Resource Study** estimated that waste and by-products re-use unlikely to increase to more than 5% of aggregate requirements in Ontario.
- Substitute structural products (e.g. plastic, steel, etc.) if able to compete price-wise may help with some specific building applications, but unlikely to replace aggregates in substantial amounts over the next 10-15 years.⁴

⁴ *Steel price increases over the past year suggest that this option unlikely to gain much ground in the near future*

More reliance on imports would mean higher costs to consumers

- Without adequate replacement of licensed reserves in the GTA as existing reserves are depleted, the likely response to fill the supply gap will be higher levels of imports.
- The cost of aggregate to consumer incorporates an underlying “base” selling price, plus transportation costs to have it hauled to where it will be used. The transportation component makes up over half of the delivered price (on average).
- If more aggregate needs to be imported, there are implications for both of these components.
- Looking first at the transportation cost impacts:
 - No additional reserves are licensed within the GTA (and Greenbelt study area) over the 2003-2014 period
 - Current reserves are depleted at some point during this period, such that the GTA at that point is replacing all of the 34 million tonnes per year it was producing locally (see page 6) with additional imports
 - An average additional haul distance of 75 kilometres for these additional imports
 - Haul prices of 15 cents per tonne per kilometre (in 2003 dollar terms)
- Given these assumptions, the added transportation costs for the additional imported aggregates used in the GTA would be \$383 million per year (in 2003 dollars) – over a 10-year period the amount would be \$3.8 billion (in 2003 dollars).
- Looking at a specific example, on a per tonne basis, importing crushed stone presently produced in the west end of the GTA from the Carden Plain or Grey County could add over \$12.00 per tonne to the price of delivered stone based on transportation costs alone.

- There will also be additional costs associated with the new roads and/or additional maintenance to existing roads needed to support the longer haul routes.
- Aside from extra costs related to additional haul distances for increased imports, there will be additional upward pressure on base prices if no additional aggregate reserves are licensed within the GTA in the near future.
 - Supply side price pressures will emerge even before existing licensed reserves are depleted:
 - As local producers cut back on annual production levels to try to “stretch out” their reserves over more years to keep operations going longer
 - As annual limits on individual licenses prevent remaining sites from upping production to replace depleted licensed sites
 - As supply gaps emerge sooner for specific products, particularly as remaining supply in some cases is of lower quality
 - Higher costs of site acquisition – some larger producers looking to increase their supply may be willing and able to pay a premium to acquire holdings of smaller players – which would impact their cost structure and be passed through in higher prices – this situation would occur as GTA producers look outside for new sources of supply, but also within the GTA (assuming licensed reserves that could be acquired still exist).
 - Higher costs of new site development – alternative new sites developed outside the GTA may be at a cost premium, as they will not necessarily be the “first choice” in terms of economic feasibility.
 - Less competition/choice - as some producers within the GTA close down depleted sites.

All sectors will share in these increased costs

- The impact of higher aggregate prices on construction costs will be felt throughout the economy – by households, businesses and government.
- **Public sector (Provincial and Local governments)** – higher costs of public infrastructure (roads, public transit, hospitals, schools, etc which currently account for more than half of aggregate usage in the GTA) – would result in higher taxes, and/or offsetting cutbacks in other government spending.
- **Households** – directly through higher costs of housing; indirectly through higher taxes to pay for increased costs of government purchased construction work and/or reduced servicing in other areas.
- **Businesses** – directly through higher costs of offices, industrial, retail space; indirectly through higher taxes to pay for increased costs of government purchased construction work.

Greater reliance on imports will also have negative impacts on the environment

- The additional transportation distances associated with the additional imports will also have impacts on fuel consumption and greenhouse gas emissions within the province.
- Assuming additional imports of 34 million tonnes per year, an additional haul distance on average of 75 kilometres (150 kilometre included the back trip), there would be over 146 million additional kilometres driven per year.⁵
- The impacts of this extra haulage are estimated as follows:
 - Additional fuel consumption: 82 million litres/year⁶ (820 million litres over a 10 year period)
 - Additional greenhouse gas emissions: 225,000 tonnes per year (CO² eq.)⁷, or 2.25 million tonnes over a 10 year period)
- Increased distances traveled by trucks will also add to road congestion.

⁵ Assuming 35 tonne trucks

⁶ Assuming 0.56 litres of fuel per kilometer (Allan Jenkins, Ministry of the Environment, November 2002)

⁷ Assuming 0.001544 tonnes of greenhouse gas per kilometre (CO² eq.) (Environment Canada, June 2002)

More licensed reserves in the GTA the better option

- The better response to dealing with the rapid depletion of existing licensed reserves is to issue more licenses for replacement supply. This option:
 - Is consistent with **Provincial Policy Statement**:
 - *“As much of the mineral aggregate resource as is realistically possible will be made available to supply mineral resource needs, as close to markets as possible”*
 - Reduces haul distances (relative to increasing the level of imports), which means:
 - Reduced environmental and social impacts
 - Lower transportation costs – and ultimate costs to consumers
 - Increases competition (if new licenses are issued to different producers) – more competition is beneficial for containing prices for consumers⁸
 - Allows producers more choice in developing sites that are more economically feasible, and at potentially lower costs (with less upward pressure on prices)

⁸ Further restrictions of new close to market licenses reserves for the GTA would have the opposite effect. If it is more difficult (and therefore more expensive) to get new licenses, it may be prohibitive for smaller players. Also, larger producers may attempt to increase their reserves by acquiring existing licenses of smaller players.

Additional licensed reserves also needed in nearby areas

- New licensed reserves are needed within the GTA itself in order for the GTA to continue to contribute in a substantial way to its own needs.
- However, given the current heavy reliance on imported aggregates to meet a large portion of GTA demand, there is also the need to ensure that sufficient new reserves are licensed in nearby areas. This would ensure on-going replacement of aggregates currently being exported to the GTA, as well as supply local needs in these areas which are also experiencing significant growth (e.g. Waterloo Region/Guelph area).
- The nearer these additional licensed reserves are to the GTA, the less negative the impact on the economy and the environment.

In conclusion, new licenses are needed for the GTA in order to replenish close to market supply. Further sterilization of close to market deposits would lead to increased importation from more distant supply areas. This would be inconsistent with Provincial Policy and have serious negative economic, social and environmental consequences.