

“The Tyranny of Distance” Counting the Cost of Transporting Aggregates



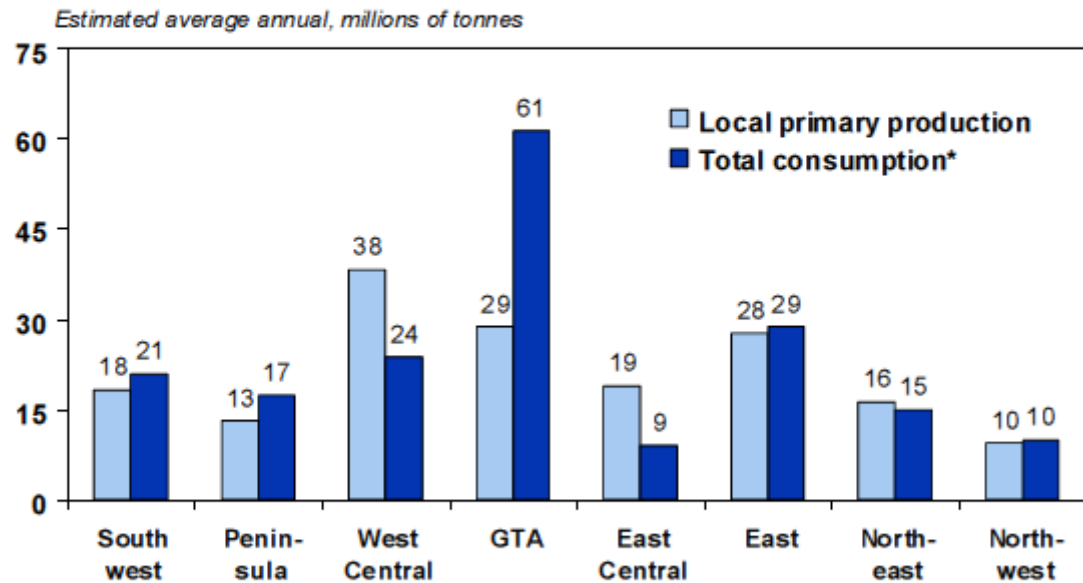
Photo courtesy of Regal Transport

“The Tyranny of Distance” Counting the Cost of Transporting Aggregates

- Access to aggregate resources in close proximity to their end use, is a growing international issue, as well as one for New Zealand and particularly Auckland.
- Aggregates can only be accessed from where they lie. There is no flexibility in moving extraction activities elsewhere.
- There are currently no known substitutes and none forecast.
- Recycling will play a part, but will not replace the requirement for continued extraction in the forecastable future.
- California is forecast to run out of aggregates in 30 years.
- There are similar examples in Europe – London imports millions of tonnes annually.
- In Canada, the Greater Toronto Area (GTA) is forecast to supplement around 50% of its requirements.

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GTA expected to continue to consume aggregate produced by neighbouring areas



* As filled by all sources – local primary production, international and interregional imports and secondary sources

Source: Altus Group Economic Consulting, see Appendix A

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- In NZ aggregate demand is roughly calculated at 7 – 10 tonnes per head of population.
- The projected population growth in Auckland is c.2 million people over the next 30 years.
- Therefore somewhere between 14 – 20 million tonnes of aggregates required per year: double that currently.
- One third of Auckland's existing quarries will close by 2020, through exhaustion of their resource or the difficulty of gaining additional consents.
- Currently it can take up to 10 years to gain a consent for a new quarry.
- Without aggregates in reasonable proximity to their end use, a region faces the prospect of significant additional costs, both in real and in holistic terms.

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- The cost of transporting aggregates doubles in the first 30km and costs continue to rise for every further km travelled.
- This is not just confined to haulage costs, but also includes:
 - Increased Maintenance of roads
 - Congestion and interface with heavy traffic
 - Greatly increased costs of fuel consumption
 - Higher carbon foot prints through diesel emissions
 - Delays to construction projects
- Failure to protect a region’s future aggregate resources can also have a profound financial effect on the communities requiring them.

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- Auckland is already importing up to 1/3rd of its aggregates from Northland and the Waikato over distances of 100km or more.
- Auckland is already paying three times the amount necessary for some aggregates and projects.
- By contrast, Canterbury is currently self sufficient in aggregates with little import requirements.
- Presently most Christchurch aggregate quarries are within 15km of the city.*
- Christchurch has a renewable resource via the extraction of river gravel for flood control from the region’s braided rivers. Auckland does not have this luxury.
- Shifting to new quarries 30km from Christchurch city through sensitivity constraints, would cost the region an estimated **\$500million** over a 30 year planning horizon.*
- A sobering demonstration of the “Tyranny of Distance”, without quantifying the additional environmental or holistic costs.

Regional Council Policy Statement, R.S. English, December 2011.

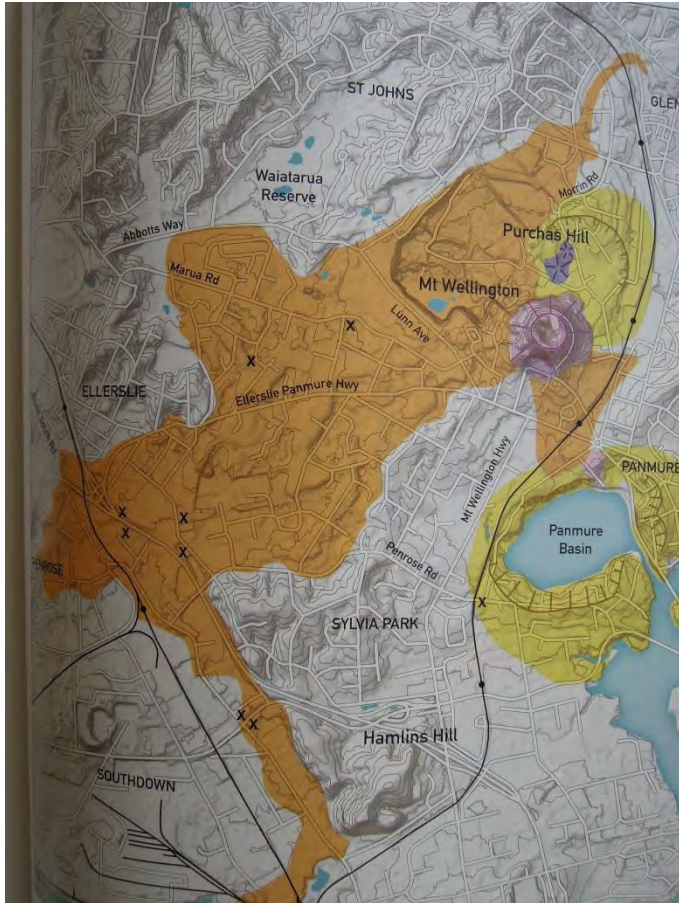
“The Tyranny of Distance” Issues

The key issues facing the Quarry industry and Auckland City Planners are:

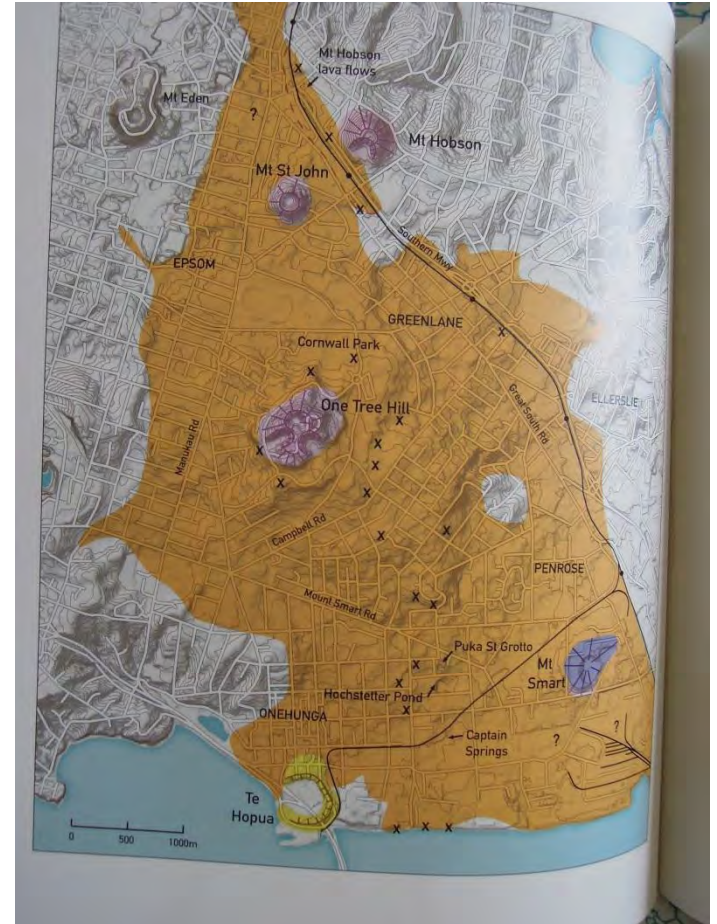
- The “**Sterilization**” of known, future aggregate resources, through previous or new, inadvertent planning over sites: for example by locking them up forever underneath a rural residential sub-division.
- The impact of “**Reverse Sensitivity**” on existing quarries or those planned for the future, by allowing the egress of non compatible neighbours in proximity to the quarry and its main haulage ways.
- The impact of other **Overlying Constraints**:
 - Environmental
 - Planning
 - Agricultural

“The Tyranny of Distance” Speaking of Sterilization

Mt Wellington Lava foot print



One Tree Hill Lava foot print



Source: Volcanoes of Auckland, B.W Hayward, G. Murdoch, G. Maitland,
Auckland University Press, 2011

“The Tyranny of Distance” Aggregates – “Who needs them?”

- Quarried Aggregates play a major role in modern societies. Some of the more common uses include:
 - Roads, Footpaths, car parks and driveways
 - Farm tracks, bases and foundations for implement sheds, dairy sheds etc.
 - Filter material for pasture plus municipal and domestic drainage systems
 - Concrete for industrial, commercial, civil, rural and residential construction
 - Concrete pipes and culverts
 - Pipe and cable trench bedding
 - Railway Ballast
 - Airport runways and surfacing
 - Water purification and sewage treatment plants
 - Filling, embankments and retaining wall construction
 - Asphalt and chip seals for road surfacing

“The Tyranny of Distance” The Way Forward

- Auckland City Planners have recognised many of these issues covering quarrying during the development of the **Draft Unitary Plan**.
- Our industry will continue to work with Council staff to refine:
 - identification, protection and access to known future resources
 - the protection where possible of existing quarries from reverse sensitivity issues
 - a better understanding and encouragement of recycling
 - the reinstatement of existing and future quarries as important municipal and public resources
 - engagement with the local community during quarrying and re-instatement