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THAT SINKING FEELING



Source: Turner Drake Economic Intelligence Unit & Google Earth.

In common with many Atlantic Canadian cities, Halifax's Lower Water Street is just 2.4 metres (8 ft.) above the tidal benchmark known as chart datum. During spring tides, water enters the basements and crawl spaces of the older buildings lining the street. These high tides occur every fourteen days when the Sun, Moon and Earth are in a straight line and the gravitational pull of the Moon is reinforced by that of the Sun. Halifax's waterfront is a national treasure, its boardwalk along the water's edge is a window on one of the world's most interesting harbours. The fast convoys formed up here during the last World War before running the gauntlet of German U-Boats, waiting to pounce in the Atlantic. Today cruise and container ships jostle with pleasure

craft, and the waterfront is thronged with tourists from June to October. On 28th September 2003, a very different visitor came to call; Juan a "marginal" Category 2 Hurricane rode in on a spring tide, created a storm surge, and wrecked the waterfront. It was a 100 year event, which could happen again tomorrow ... and will happen with increasing frequency as the Earth warms up. Climate change is the topic of the day, but what does it mean for coastal communities in Atlantic Canada? We set our Economic Intelligence Unit to work to find out.

Climate Change

First, forget your visions of a banana tree in the backyard: climate change does not necessarily mean global warming. In fact, Atlantic Canada has actually seen a slight cooling trend over the past fifty years and a new study which links human activity, i.e. greenhouse gas emissions, to rainfall patterns, indicates that should present trends continue, Canada's overall increase in precipitation will come in the form of snow.

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Climate change is expected to exacerbate existing hazards: the most pressing concerns for Atlantic Canada are likely to be a vicious combination of sea level rise, erosion, and increases in extreme weather events. Waterfront property owners take heed!

Provincial and municipal governments in the Maritime Provinces are making use of Geographic Information System (GIS) and Remote Sensing technologies to predict what effect climate change will have in the region. Airborne LIDAR is used to image coastal areas, creating highly accurate 3-D Digital Elevation Models (DEMs) which show changes in elevation such as building heights and topography. Scientists then use a GIS to model the effects of sea level rise to predict and visualize which areas are at risk of flooding. DEMs have been completed for Charlottetown, the North Shore of PEI and areas along the coast of south-eastern New Brunswick. A project is currently underway in Halifax to predict what effect climate change will have on the 1,300 km² area in and around the harbour. City planners will use the maps to determine the elevation at any given point so they can develop planning strategies and ensure compliance with municipal by-laws put in place to mitigate flood damage. For example, last summer's updated regional plan for HRM prohibits residential development within 2.5 m elevation above the ordinary high water mark. The new maps will show exactly where that line is drawn.

Atlantic Canada has been sinking for thousands of years, at a rate of approximately 20-30 cm per century, resulting for all intents and purposes, in higher sea levels. Climate change is expected to increase the rate of sea level rise, due to melting glaciers and ice caps and thermal expansion of the oceans. While it has been said that, compared to Europe and Japan, Canada is fortunate in having low population densities and small amounts of infrastructure at risk, this is small comfort to those living in the predominantly coastal Maritimes! More than 80% of the coastlines of New Brunswick, Nova Scotia and Prince Edward Island are identified as being moderately to highly sensitive to sea level rise (Newfoundland, with its rugged, rocky coastlines, has a much

lower proportion of high-sensitive coast). Global sea level is predicted to rise by 8 to 88 cm by 2100. The best estimate for the Maritimes is 50 cm ... on top of the 25 cm the land will sink. The grand total is estimated at a net increase of 75 cm in the next hundred years. If this occurs, part of the coast of Atlantic Canada will be permanently submerged and flooding will occur in areas that have never experienced it in the past. The steep slopes on which Halifax and Saint John are built will likely protect much of the downtown areas, but not so in Charlottetown, where the downtown is relatively flat.

Melting polar ice is also widely anticipated to increase the length of the ice-free season in the Northwest Passage, making it a viable shipping route, though it will probably be decades before the infrastructure is in place. Eventually though, it has the potential to adversely affect the Port of Halifax, which is currently positioned as a gateway to North America for ships sailing to and from Europe. Canada's sovereignty is not immune to climate change. Canada claims the Northwest Passage as an internal waterway. In 2006 the Federal Government declared that our military would henceforth refer to the region as "Canadian Internal Waters", a reaction to the ongoing refusal of the United States to recognize Canadian sovereignty there. Other countries, including China and Russia, have recently been heard murmuring about the region as international waters, as well. As the viability of utilising the Passage as a shipping route increases, expect the debate over Canada's sovereignty to heat up as well.

The frequency and impact of extreme weather events are expected to increase with climate change, with 100 year events becoming 50 year events and rising sea levels causing more severe storm surges. (A storm surge is measured as the difference between the observed water level and the highest predicted tide. When combined with a very high tide, the effect is acute).

Increased erosion due to climate change is expected to result from a variety of factors, including reduced amounts of sea ice, which protect beaches from winter storms; more

extreme weather events; and sea level rise. Marine geological surveys of the north shore of Prince Edward Island indicate an average coastline retreat of 50 cm per year for the past several thousand years; data collected since the 1930s indicates that the coastline has changed during that time; retreating in some areas, but recovering in others. Between 1935 and 1990, the value of land in the area lost to erosion was \$879,000. Future erosion rates factoring in climate change and sea level rise are predicted to be up to twice the mean rates of erosion between 1935 and 1990. The coast most sensitive to climate change is commonly low-lying, with salt marshes, barrier beaches (though in some instances, erosion can actually serve to protect beaches by adding enough material to them to keep them above water) and lagoons. A comparison of two beaches on the Eastern Shore of Nova Scotia shows that the low-lying beach has retreated landward by an average of 8 meters per year in the past fifteen years, whereas the high-crested beach shows little retreat at all. The two beaches are only separated by a few kilometres. With waterfront properties in high demand, purchasers would do well to consider their options carefully and opt for land likely to be there in 60 years' time...or invest in a houseboat.

The Bottom Line

Property owners can expect extreme weather conditions to occur with much greater frequency. In urban areas, storm water systems are unlikely to be adequate to deal with the more extreme rainfalls that will occur. The flooding in the United Kingdom this year has ignited debate there on the adequacy of sewer systems created for a more gentle environment. There is a realisation that greater capacity is now required. The Maritime Provinces face a dual problem: their land mass is sinking; sea levels are rising. The impact of hurricanes such as Juan, cause a storm surge due to (1) lower central pressure which causes the water to bulge up and (2) wind pressure which pushes the water upwards. Once that mass of rushing water meets the coast it piles up. The actual height of the storm surge is dictated by the speed of the storm, the angle at which it hits the

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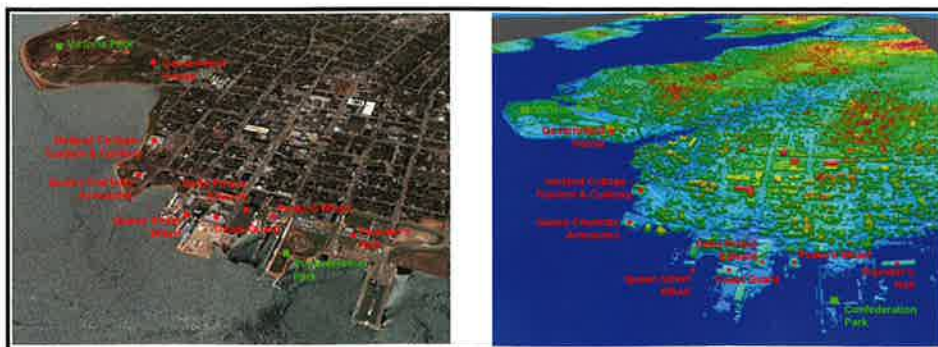
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coast, and the shape of the seabed (coastal bathymetry). We have utilised the data generated by Juan, together with historical data on the rate the land mass is sinking, and projections on the rise in sea levels due to climate change, to identify those areas of Halifax that will become increasingly at risk to flooding over the next century.

Hurricane Juan created a storm surge of 1.5 metres and increased the water level in Halifax Harbour to a record 2.9 metres above chart datum. If Juan had coincided with a spring tide, a lunar perigee (i.e. the Sun and Moon on the same side of the Earth, in line with it), and the twice daily high tide, the flooding would have been much worse. However Juan missed the twice daily high tide by two hours; and the higher of the twice daily tides altogether. The former would have added 0.45 metres to the water level, the latter 0.60 metres. Based on historical data we can expect the city to sink by 0.20 to 0.30 metres over the next 100 years. During that period, sea levels are expected to rise by 0.50 metres due to climate change. When another Juan visits Halifax one hundred years hence, the water level in the harbour will be 3.65 metres above chart datum ... unless it arrives on one of the twice daily high tides, in which unhappy event the water level will be 4.10 to 4.25 metres above chart datum. Properties located above the 5 metre contour are therefore probably safe from flooding ... those situated below it are less fortunate. We have plotted the 5 metre contour on the satellite photograph at the beginning of this article. Not all of the property to the east (harbour side) of the red 5 metre contour line will necessarily flood however. If there is a barrier between the low lying land and the harbour, and provided that all culverts discharging into the harbour have working back flow preventer valves, the properties will be protected. 100 years too is a long time, however storm surges above 0.6 metres do occur about twice a year in Halifax. If sea levels too were 0.75 metres higher than at present, it would only require a storm surge equivalent to that of a demi-Juan to cause a similar amount of flooding.

Low lying Charlottetown is particularly vulnerable to rising sea levels: storm surges occur about eight times a year. In January 2000, a storm surge in

Charlottetown harbour resulted in sea levels 0.4 metres above the previous record. The resultant flooding caused an estimated \$1 million worth of damage. Not very much, but add another 0.75 metres to Charlottetown's highest predicted tide, and throw in another 0.57 metres of storm surge, and losses are estimated to balloon to \$172 million. A storm surge of 1.04 metres would mean \$190 million of property damage, and a storm surge of 1.27 metres would result in losses of \$202 million. Dr. Tim Webster and S. Dickie of the Applied Geomatics Research Group, Centre of Geographic Sciences (GOGS), Middleton, Nova Scotia studied Charlottetown's vulnerability to flooding in 2004. The survey was undertaken with D.L. Forbes (Geological Survey of Canada, Dartmouth, N.S.) and R. Shreenan (Terra Remote Sensing Inc., Sidney, B.C.). It utilised airborne scanning laser altimetry (a laser hung from a helicopter) to map Charlottetown in 3-D. A geographic information system (GIS) was then used to model the potential flooding arising from a storm surge sea level increase. The image below was created by Tim Webster and is reprinted and used with the permission of the Canadian Aeronautics and Space Institute. It was originally published in the Canadian Journal of Remote Sensing (2004). The area shown coloured dark blue is water and assumes a flood level 4.93 metres above chart datum. For orientation purposes we have also shown the current Google Earth satellite photograph, without the flooding.



Conclusion

Purchasers are under pricing the risk of flooding in Atlantic Canada due to the "availability heuristic", a term coined by the Wharton Business School to describe the disaster myopia exhibited by financial institutions in the 1980s, which ultimately led to the collapse of

commercial property markets worldwide at the end of that decade. Cognitive psychology has established that decision makers, even trained statisticians, formulate opinions on "the ease with which the decision maker can imagine the event will occur" ... and that, in turn, is heavily influenced by the "recency" of a similar event. The market meltdown of the commercial property market hit Atlantic Canada in 1990. During the subsequent five years it was virtually impossible to finance commercial property purchases because conventional lenders exited the market and "long term" holders of real estate such as pension plans, rushed to liquidate their portfolios at knock down prices. During the next five years lenders created new ways to finance property e.g. conduit financing, and investment in real estate proceeded at a tepid pace. By 2005, the events of 1990 had been forgotten; financial institutions had found ways of selling their risk forward and purchasers such as Real Estate Investment Trusts (REITS) and pension plans, were investing in real estate at yields below that of the 1980s. The tenure of the "availability heuristic" therefore appears to be 10 to 15 years after the triggering event: it is priced into the risk at 10 years, but the risk premium decays and is totally eliminated after 15 years. Parts of Charlottetown flooded in 2000; Hurricane Juan destroyed the Halifax waterfront in 2003: neither event was of significant magnitude to impact property values. Commercial properties located in the vicinity to the waterfront do not yet carry a risk premium and indeed

are often viewed as being more desirable because they command higher rents and lease more readily than their non-waterfront competitors. Hurricane Juan was categorised as a "100 year" event, and whilst statistically it could occur tomorrow, investors will believe it when it happens.

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Consult our web site www.turnerdrake.com → Corporate Site → News & Research → Research → Meltdown for information on the great property crash of 1990: unless you prefer to sleep well at night, in which event do not bother.

Your Business is Important To Us ...



Source: Turner Drake Quality Survey March 2007

... so we have placed you on hold whilst we bombard you with messages explaining why we are too busy to answer your call. If you have the tenacity to continue holding we may eventually disconnect your call ... but not before cheerfully advising you we are going to do so, because after all, your business *is* important to us. Should we fail to discourage you, we may reward your patience by forwarding your call to one of our centres in Timbuktu, Tashkent or Turkestan. Our friendly operator there will persuade you to solve the problem yourself ... or to call back, in which happy event you will again be challenged to finger your way through our mathematical maze. If you succeed we will place you on hold so that we can again assure you how important your business is to us: for quality purposes this call will be recorded ... but don't worry we've no intention of speaking to you. Oh, by the way, did we mention your business was important to us? Sorry we missed your call, but our operators are too busy doing more useful things ... why don't you call back later? After all your business *is* important to us.

Sound familiar? Not if you call Turner Drake! Only our most senior Support Staff answer your call. Every six months we poll all clients for whom we have undertaken assignments during the previous six months, to check how we are doing. You can read the results on our web site www.turnerdrake.com → *Quality Surveys*.

PROPERTY TAX DIVISION

Nova Scotia

Service Nova Scotia, the Provincial Assessment Department, is once again embroiled in a new computer system, ... to serve us better, and as a result has been unable to publish its 2008 "pre-roll". This

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Trenton, Nova Scotia
(\$82,500/annum - 15% in tax savings)

"pre-roll" is unique to Nova Scotia and was initiated eight years ago following a meeting between the then Minister and Deputy Minister responsible for property assessment, and senior members of our Property Tax Division. It benefits everybody: by allowing us to negotiate the proposed assessments prior to implementation of the official assessment roll in January, clients know their property tax load prior to their budget year ... and municipalities are in a similar position. We harbour the hope that pre-roll negotiations will be re-installed next year for the 2009 tax year. In the interim, Service Nova Scotia had the courtesy to demonstrate their new computer system to us. At first blush, it should improve the efficiency of the appeal process by allowing Service Nova Scotia to transmit assessment records electronically to taxpayers. However the devil is in the details. At one stage in the recent past, Service Nova Scotia attempted to insist that we, or the appellant, had to physically attend the assessment office containing the records, to personally receive the copy to which the property owner was entitled under the Freedom of Information Act. Fortunately that bizarre process was quickly abandoned after we objected. Service Nova Scotia's new computer system does afford the Province the opportunity to substantially improve the assessment process by allowing appellants access to it, thereby reducing the probability of unwarranted appeals, decreasing the cost of valid appeals, and improving the accuracy of the assessment process itself. We have approached them on that very subject and will keep you posted as to their response.

The Assessment portion of Service Nova Scotia is transmogrifying itself into a "private" corporation, albeit staffed by the same personnel, without the necessity to make a profit, absent any shareholders to hold them accountable, and with governance only by a Board chosen by the province and the municipalities, primarily the latter. (The Province has only one director and he/she is a non-voting member. All of the Board members are municipal councillors and administrators, other than the Provincial non-voting member. The Board may appoint two independent

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members after 1st December 2008). The model for this Property Valuation Services Corporation (PVSC) appears to be Ontario's discredited Municipal Property Assessment Corporation (MPAC). The latter's assessment activities produced near riots in the province and its lack of expertise and accountability was so severely criticised by the Provincial Ombudsman that the Ontario Government forced it to suspend its assessment activities until it could sort itself out. That process is still continuing, but today one third of its 15 member Board are high calibre taxpayer representatives such as a Director of Daimler Chrysler. By contrast there will be no independent taxpayer representatives on PVSC's 12 member Board unless they chose to appoint an additional 2 members in 2009. In addition the Act incorporating the PVSC specifically provides that the Board and employees cannot be sued for "acts or omissions" and that they "do not owe a duty of care to persons who use the assessment roll for information purposes". Just in case that is insufficient, the Act provides that "assessors and other persons employed by the Corporation are not subject to the Real Estate Appraisers Act" (the latter's purported purpose is to protect the public). So we have a Corporation responsible for assessment, the Board and employees of which are completely unaccountable. It is a curious way to inspire confidence in the assessment process. Unfortunately the Act does not stop there: it also envisages an expanded role for the PVSC competing with the private sector for property appraisal business by undertaking the "valuation of properties for purposes other than that of the delivery of assessment services to Nova Scotia municipalities, provide expertise, technology, instruction, information and other assistance to municipalities and other persons, within and without the Province, and may levy fees for the rendering of such services". It will no doubt come as something of a surprise to property owners to learn their tax dollars are to be used to subsidise this adventure, an enterprise in which PVSC has no expertise, experience or demonstrated competence. Of greater concern is the fact that PVSC will be using confidential sales, income and expense data, ostensibly collected from property owners for assessment purposes, for their non-assessment activities: information forced out of property owners by threat of retribution if they did not co-operate.

☎ For more information on the Property Valuation Services Corporation visit www.gov.ns.ca/legislature/legc/bills/60th_1st/3rd_read/b094.htm.

Newfoundland

The 2008 Assessment Notices for Newfoundland (outside of St. John's) were mailed on 12th October 2007. There is a 30 day appeal period. This is the second year of the tri-annual assessment cycle so your assessment should not have changed from last year unless you have demolished or added to your property.



St. John's, Newfoundland
(\$663,000 - 47% in tax savings)

The basis for your 2008 assessment is supposed to be the market value of your property on 1st January 2005 (the "base date") ... but there is a uniformity provision in the Assessment Act which mandates that your property has to be assessed in a uniform manner with other properties in the Municipality. So if the Municipal Assessment Agency, the provincial body responsible for assessing properties outside the City of St. John's, has underassessed all properties, on average, by say 20%, you will be overassessed if your Assessed Value is greater than 80% of its market value on the base date. You can carry out a rough check yourself to determine if your property is assessed in a uniform manner. Divide your Year 2008 Assessment by the square footage of the buildings and compare the result with similar properties, analysed in the same manner. You can find the Year 2008 assessments of your "benchmark" properties at www.maa.nf.ca ... provided you know their Parcel Identifier Number or civic address. You also need to know their building size: there is no public source for this information.

☎ For advice on your assessment call our Newfoundland Tax Team, Rick Escott or André Pouliot at 1-800-567-3033: or visit our web site www.turnerdrake.com and following the links (Corporate Site → Property Tax).

New Brunswick



Fredericton, New Brunswick
(\$12,500/annum - 18% in tax savings)

Service New Brunswick (SNB), the provincial body
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responsible for assessment, will not publish the 2008 Assessment Notices until March 2008. The appeal period has now expired for 2007: if you missed it, perhaps your dentist can prevent you grinding your teeth. Better still, prepare for 2008 by calling our New Brunswick team leader André Pouliot at 1-800-567-3033 and ask him how our PAMS™ Property Tax Manager program can reduce and control your property tax burden.

Ontario



Ottawa, Ontario
(\$220,000 - 13% in tax savings)

Following the Provincial Ombudsman's scathing report on the activities of the provincial assessment authority MPAC (Municipal Property Assessment Corporation), the proposed annual re-assessments in 2006 and 2007 (for the 2007 and 2008 taxation years) were cancelled so that MPAC could put its house in order. MPAC intended to undertake province wide re-assessments on a rolling four year program, i.e. one quarter of the assessments would be reviewed every year, starting in 2008 (for the 2009 taxation year). The basis for the assessed value was to be the market value on January 1st of the year prior to the taxation year. Properties are currently assessed using a January 1st "base date" for the taxation years 2006, 2007 and 2008. That base date would change to 1st January 2008, for the 25% of properties re-assessed for the 2009 taxation year. Assessment increases for residential, farm and managed forest properties were intended to be phased in over four years. Confusion now reigns supreme. MPAC's web site is somewhat dishevelled and they inform us that matters are "up in the air" until "after the elections". We note that they too are implementing a new computer system.

If you own commercial property in Ontario and would like to discuss your assessment, call our Ontario Tax Team, Mark Turner or Rick Escott at 1-800-567-3033.

BROKERAGE DIVISION

Innovative Solutions



Turner Drake

The Challenge

The Executors of the Estate faced a multi-faceted challenge. They were obliged to satisfy themselves, and the Beneficiaries, that these two parcels of land were sold for the highest price; some of the Beneficiaries had expressed an interest in purchasing one of the properties; and the Halifax Regional Municipality was in the midst of a comprehensive Municipal Development Plan Review which had shaken the confidence of the development community. This property comprised two physically divorced parcels; a 19 acre serviced block of land ripe for immediate development, and a 93 acre lakefront property with little foreseeable development potential.

The Approach

NAI Turner Drake's Valuation Division was retained to value both properties. They advised that the on-going Municipal Development Plan Review had created considerable market turbulence, and a dearth of current sales data on which to base their valuations, because landowners were "sitting tight" awaiting the results of the Review, expected at an undetermined point in the "near" future. They nonetheless were able to establish "probable" values but cautioned that these had to be tested on the anvil of the marketplace, in an environment which provided some pricing guidance to prospective

purchasers, but which also encouraged them to compete with each other. NAI Turner Drake's Brokerage Division determined that this could best be achieved by a quasi-tender approach in which offers would be invited in excess of published minimum prices by an offer closing date. In order to take as much risk out of the transaction for the purchaser as possible, to encourage them to tender their best bid, NAI Turner Drake's Brokerage Division carefully prepared a comprehensive Master Sales Prospectus detailing the physical, fiscal and legal attributes of the property. They then exposed the properties to the general market using a target list of prospective purchasers drawn from their extensive database, signage on the properties, and wide exposure to the brokerage community. After extensive consultations and discussions over a two month period, a formal assignment was executed. Within 25 days of authorising the Listing Agreement, NAI Turner Drake was able to present the vendor with thirteen bona fide offers.

The Outcome

NAI Turner Drake was able to generate thirteen offers for the two properties, several in excess of the minimum price threshold. The interested Beneficiaries were able to participate in the bidding process. The method achieved the highest value and did so in a manner which was open and transparent. The Executors and Beneficiaries could be confident that both parcels were sold at the highest price despite the uncertainty engendered by the Municipal Development Plan Review.

*Our Brokerage Division is a member of **NAI** Global, the world's leading managed network of commercial real estate firms. **NAI** Global's managed network, entrepreneurial structure and best in the class technology helps clients everywhere in the world tap into 8,000 experts in 375 offices across 55 countries. Visit our web site www.naihalifax.com for more details.*

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