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Challenges and Solutions in Acquiring

Water for

Housing Development

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## Executive Summary

A study in 2015 found preliminary evidence that in some municipalities in the Calgary region, housing developers are facing challenges when it comes to acquiring licensed water allocations for new housing developments (Nicol & Nicol, 2015). This study explored the issue of water challenges and housing development in more depth. The study focussed on housing development in three of the most water-stressed municipalities in the Calgary region - the municipalities of Rocky View County, M.D. Foothills and the town of Okotoks, and involved personal interviews with 15 housing developers in the region. The study considered four main lines of inquiry: (a) developers' views of water challenges; (b) the nature and source of the problem; (c) the consequence of water challenges; and (d) solutions. An additional dimension of the study involved a preliminary assessment of the potential impact a decline in housing construction could have on the real estate sector. Key findings from the study are:

- 100% of developers interviewed believe there are challenges in acquiring licensed water allocations for housing development in the three municipalities under study;
- 73% stated acquiring a licensed water allocation is the 'primary issue' for developers;
- 60% of interviewees believe water management in the region is political, to the detriment of the housing industry;
- Another 53% believe the source of the problem also relates to government processes;
- 87% of developers believe water challenges are having a negative effect on the industry, either now or in the future;
- Two-thirds of developers say the cost of acquiring water licenses increases the price of homes;
- On average, approximately 200 homes sold yearly in the three municipalities under study comprised the resale of new homes. A 10% decline in houses constructed, by reducing the stock of homes, could translate in a decline of 20 houses sold; a 20% decline in new home construction could translate in a decline of 40 homes sold;
- All developers believe a solution lies in working together as a region but there is no clear consensus on what type of regional model will work.

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## Background

The housing construction industry in Alberta is a major economic engine. Driven by strong economic and population growth, in the relatively short period of time from 2010 to 2014, for example, the industry grew from \$6.6 billion to \$10.8 billion or 64 percent. Despite the recent downturn in the economy, in 2015 the sector still accounted for \$9.9 billion of provincial GDP (Statistics Canada(a), 2016). In terms of housing starts, the number of houses peaked in 2014 at 40,590 units before falling slightly to 37,282 units in 2015 (Statistics Canada(b), 2016).

Whether a single home or a new community development, homes need access to water to



sustain the inhabitants who live in them. Alberta allocates water under the 'prior appropriation' doctrine. The doctrine assigns rights to fixed amounts of water to license holders for particular, beneficial uses. License holders include, for example, municipalities, irrigation districts, private irrigators, and industries.

Source: <https://commons.wikimedia.org/w/index.php?curid=90182>

The demands for water have been intense, given Alberta's economic and population growth. The majority of that economic and population growth has occurred in the southern half of the province. Not surprisingly then, the demands on water from the South Saskatchewan River Basin, the main basin in the region, resulted in significant environmental distress of its river reaches. By 2005 an Alberta Environment study found 30 out of 33 river reaches had suffered some degree of environmental impact, 22 main stem river reaches were moderately impacted, five heavily impacted, and three degraded (AENV, 2005).

An unprecedented measure was taken by the Alberta government in 2005 which affects all those in need of water, including the housing development industry. That year the government put a halt to accepting applications for new licensed water allocations for the Bow, Oldman and South Saskatchewan River sub-basins. As a consequence, the extraction

of water for consumptive use has become fixed within nearly every river system in southern Alberta. This presents significant water challenges for municipalities that are experiencing growth but have limited water licensed allocation capacity such as Rocky View County, M.D. Foothills and Okotoks. Housing developers within those municipalities are also subject to this challenge given they are often left to their own recognizance in acquiring water.

Given the moratorium on the issuance of new licensed water allocations, the province required mechanisms to reallocate water within those basins. Three mechanisms that can be used to acquire existing water licenses are: (a) using the water market to buy a licensed water allocation, (b) seeking an amendment to an irrigation district license and (c) participating in regional formations whereby municipalities can acquire water through water sharing agreements.

Briefly, the first mechanism, the transfer of a licensed water allocation, is facilitated through Alberta's Water Act. The transfer can include all or part of a licensed allocation, either permanently or for a specified period of time. The second, amendments to irrigation district licenses, is facilitated through the Irrigation Districts Act. It allows for the permanent transfer of all or a portion of a district's water license outside the district for non-agricultural purposes. It is permissible only if a plebiscite is held and a majority of irrigators agree. The amendment to a license is limited to a maximum of 1,000 acre feet plus up to two percent of the remaining license volume. The third mechanism, sharing of licensed water allocations through regional formations, is legislated through the province's Land Use Framework of 2008. The Calgary Regional Partnership (CRP) is a major regional formation in the Calgary region which began in 2005 and currently comprises 13 municipalities. It has a major water-sharing component. Given that Calgary has a sufficient licensed water allocation for three times its current population, it is envisaged that Calgary would create and operate a water utility for surrounding municipalities in need of water. In 2009 the three rural municipalities of Rocky View County, M.D. Foothills and Wheatland County left the partnership, angered over housing density requirements and the voting framework which it was believed gave veto power to the City of Calgary.

Left to its own devices, the most common means for the housing development industry to obtain water is through the water market. However, this is challenging since in order to buy a licensed water allocation, the buyer must first locate a willing seller, second, negotiate a

price and third, go through an environmental review process. An earlier study of water markets in southern Alberta found that sellers were hard to locate, water was costly, and the environmental review process took up to three years (Nicol, 2005).

A more recent study involving housing developers in Rocky View County found the industry strongly believes housing development will be curtailed due to lack of water (Nicol & Nicol, 2015). The study found, first, that housing developers view the water market as difficult to navigate. Second, Rocky View County itself has succeeded in acquiring water from an irrigation district in 2006 but that may be more difficult in the future. In that year it acquired a portion of the Western Irrigation District's water licence. However, in the plebiscite of farmers, 43 percent did not support the sale, publicly the sale was highly contentious, and the water was an expensive \$6,000 dam<sup>3</sup>. Not surprisingly then, the study found the housing industry does not believe obtaining water in the future from the WID is a workable solution. Finally, acquiring water through regional entities like the CRP is not an option for municipalities such as Rocky View County since they do not belong to the partnership. The M.D. Foothills is in a similar set of circumstances. The water-stressed community of Okotoks belongs to the CRP and has an agreement in principle with the City of Calgary to use its



water and have a pipeline in place by 2017. Despite the fact the pipeline will have to go through the M.D. Foothills, the County will not be able to divert any water running through it because it is not a member of the CRP.

Source: <https://commons.wikimedia.org/w/index.php?curid=18633020>

The challenging situation for housing developers was summed up by Guy Huntingford, Chief Executive Officer of the CHBA-UDI Calgary Region Association, who said:

“The City (of Calgary) has access to water and the ability to grow for an extended period of time. The issue is everybody else. That’s where it gets contentious... It sterilizes developments, effectively, if you can’t get water or if it costs you a fortune to get it” (Burns, 2015)

## The Study

This study focussed on the water challenges faced by the housing development industry in three of the most water-stressed municipalities in the Calgary region - Rocky View County, M.D. Foothills and the town of Okotoks. Data collection involved personal interviews with 15 housing developers in the region. The interviews took place from April 14, 2016 to June 14, 2016. Each interview lasted between 30 to 45 minutes. The developers comprised a cross-section of companies working in the three target municipalities. Three developers were involved in housing construction in Calgary, Cochrane and/or Airdrie and were knowledgeable of the water challenges in the region.

The interview process was via a semi-structured interview format and probed four main themes which were housing developers' views of: (a) water challenges; (b) the nature and source of the problem; (c) the consequence of water challenges and (d) solutions. The semi-structured interview format allowed for a flexible approach to data collection, altering the sequence of questions or probing for more information where appropriate, allowing unexpected themes and insights to be explored in detail. Given the informal nature of the interviews, the standard questions were inserted into the interview at varying points that were deemed suitable. The telephone interviews were transcribed, producing 38 pages of transcripts. Subsequently, results were grouped and analysed from which major themes emerged and findings developed.

The findings, presented below, are enumerated according to the themes (a) to (d) identified above. An additional section entitled 'effect on the real estate industry' is included in the findings. It does not relate to the interview findings but involved collecting and analysing certain housing sales data to provide a preliminary assessment of the potential impact a decline in the new housing industry could have on the real estate sector.

## Findings

The study's findings are enumerated below according to: (a) developers' view of the water challenge, (b) nature and source of the problem, (c) consequence of water challenges, (d) effect on the real estate industry, and (e) solutions.

### **A. Developers' View of the Water Challenge**

All 15 interviewees, 100%, believe there are challenges in acquiring licensed water allocations for housing development in the three municipalities of Rocky View County, M.D Foothills and Okotoks. The majority of interviewees, 11 in total or 73%, spoke of acquiring water licenses as being the 'primary issue' for developers. In describing the issues, some specific statements made by developers include:

Water is developers' greatest burden (interviewee #2)

It's the number one issue when acquiring land (interviewee #6)

If you never have access to water you will never develop (interviewee #8)

If you can't get water, you can't get anywhere. In Rocky View, if you don't have a transfer in progress, they will not start to look at your development (interviewee #9)

The two biggest issues are finding licenses and the cost of water (interviewee #10)

If I'm evaluating the potential for a certain parcel and there's that liability of not having enough water and I don't have a strategy or an action plan to resolve that risk, then that's absolutely going to affect what I'm willing to bid on that land (interviewee #15)

One interviewee explained the myriad requirements relating to a water license acquisition, including finding a license in the correct location and quantity. In relating the degree of complexity involved, he stated:

If there's a piece of land available for development, the first question is where is your water? If you don't have the water you don't have development and we find it more and more difficult to find licenses in good standing or in the right watershed or in the right location and the right quantity. And the license sometimes has large return-flow requirements so you need to find a license quite a bit larger than you need to satisfy the return flow requirement (interviewee #13)

Three developers spoke of the multitude of issues housing developers confront, water being just one of them:



There are enough issues in land development and water is just one of them. When a developer looks at land for development there are a number of challenges to overcome. Water is a significant one but there is also planning and the political to navigate (interviewee #8)

Developers are dollar-wise. How far do you go in either buying a piece of land, finding water for that land, and then having to start the approval process with the local government before you can say you have too much money at risk? (interviewee #9)

You have a checklist of 'have to have's' and you have to have them all. Water is one of those and if you don't have it then development doesn't happen. Water, sanitary and storm. If you can't provide those three services, you cannot develop (interviewee #12)

## **B. Nature and Source of the Problem**



In exploring the nature and source of the problem with respect to water and the housing development industry, the study found multiple reasons for this challenge depending on the developer and their experiences. The factors (some developers identified more than one), explained in more detail below, include: water management in the region being caught up in politics (9), lengthy and cumbersome government processes (8), the geographic nature of water (5), and cost of water and wastewater treatment plants (5).

Source: <https://commons.wikimedia.org/w/index.php?curid=283361>

The most common factor, given by nine interviewees (60%), was water management in the region being political in nature, to the detriment of the housing development industry. This includes: perceived lack of provincial government understanding involving water and frequent ministerial changes, perceived unfair control being exercised by the City of Calgary which has created a confrontational environment, and politics involved in the Calgary Regional Partnership initiative (interviewees #1, #2 #3, #4, #7, #8, #10, #11, #14).

Developers said:

Government controls water and government doesn't know what it costs to provide water to the public. There's a disconnect. But that's not their business. Their business is to get a vote. The development business is to sell a lot or a home. Different people, entirely different commodity (interviewee #8)

The minister (of Municipal Affairs) is changing every week so there's no consistency (interviewee #1)

Calgary controls a lot of the development, not as much by developers as people think. They use politics to get the kind of development they like (interviewee #2)

The CRP is an oxymoron. The City of Calgary, they are basically bullies (interviewee #3)

The biggest challenge from our perspective is that the outside municipalities are looking for lower density, country residential-type development, they are trying to protect that and the City of Calgary is using their water licenses to try to force them into the CRP and develop 8 to 10 units per acre (interviewee #14)

What I see now in the absence of coordination is these guys can't agree on anything when it comes to any kind of interjurisdictional issues, it's toxic relationships here between some of the municipalities, nothing gets done, they don't even talk to each other on some of these things (interviewee #4)

The Calgary Regional Partnership is very politically driven (interviewee #10)

A significant number of interviewees, eight in total (53%) cited lengthy and cumbersome government processes related to water license transfers, approvals for the re-use of water, and approvals for wetland removal as being problematic (interviewees #2, #4, #8, #9, #10, #13, #14, #15). Examples include the following three statements:

The local (government) office and water transfers – they never do it with a view to solve a problem. That's an issue (interviewee #9)

Use of grey water in homes and golf courses – governments can be very stingy about that and yet in other parts of the world they're doing that (interviewee #8)

The Water Act and getting approval to remove a wetland is a nightmare. Processes take forever. It's something you have to think of way far in advance to get them lined up with your development timelines. We've all run into something that has caught us because the rules are constantly evolving (interviewee #10)

Further to the issue of water transfers, three developers were aware of brokers being involved in the water transfer process. Two of these developers believed brokers assisted in expediting the transfer process. However, one developer viewed the practice as a profit-taking venture which needs to be better regulated. He said:

I have seen people jump on the capital side of things to try to take advantage of the market which isn't healthy either. They're just buying a right to hold it to sell it for a profit down the road. That's not the purpose of it...You don't want to over-regulate but someone's got to look at the whole thing (interviewee #15)

Another five developers spoke of problems related to the geographic nature of water. The developers noted that in counties with large land masses, certain land is too remote and water infrastructure too costly to bring development to certain land (interviewees #7, #12, #13, #14, #15). They said, for example:

In Rocky View servicing is always an issue related to storm and water plus sanitary. These are the biggest issues all developers face in Rocky View County. It's not like a city. Rocky View is so scattered... Rocky View and Foothills have these massive land areas so they can't provide water infrastructure across the entire land mass because it doesn't make sense to do that. Then you're relying on these one-off co-ops or wells. (interviewee #12)

Okotoks could theoretically reasonably amass a good volume of (home) sales to support the construction of a water line whereas in Rocky View County, where do you develop your water line? (interviewee #14)

The third reason, also given by five developers, was the high cost of constructing water and wastewater treatment plants and the housing densities needed to make the project economical (interviewees #1, #6, #13, #14, #15). One developer noted the first stage of the water treatment plant alone cost \$20 million. As noted by one such developer:

Building treatment plants is not cheap. You need densities to make them affordable (interviewee #6).

### **C. Consequences of Water Challenges**

Several negative effects related to the water challenges in the Calgary region were identified by interviewees. The effects fall into five categories, some of which are interconnected. Perhaps not unexpectedly, the most-often cited negative effect has been on the housing development industry in the three municipalities under study (13), followed by the effects on the price of homes (9), the price of water (3), and the economy in general (2).

The effect of water challenges on the housing development industry relates to the uncertainty it creates and the attendant dampening effect on construction. This effect, experienced either now or expected to occur in the future, was identified by the majority of developers, 13 in total or 87% (interviewees #2, #3, #4, #5, #7, #8, #9, #10, #11, #12, #13, #14, #15).

Absolutely (housing development is constrained). Should regional solutions not come to fruition soon, then it will get worse (interviewee #2)

Okotoks is in a desperate situation. I can see the potential for no new development starting in 2017 unless there's a different solution for water...On the Sheep River there's very few licenses and no one wants to sell them (interviewee #9)

Housing development curtailed? Yes, definitely has. I know there is large demand for housing in Okotoks which can't be provided (#11)

You're better off hedging your bets in municipalities that have a steady water supply (interviewee #10)

(Large scale development's) water treatment and sanitary is cost prohibitive...That's a symptom of not having access to regional facilities whether that's water lines from Calgary or sanitary to tie in to (interviewee #14)

We've looked at several projects in Okotoks over the last five to seven years and we have declined on all of them and one of the main reasons being there is no water (interviewee #12)

One developer spoke of the uncertainty and confusion of home buyers when they hear of water issues, negatively affecting their decision to purchase a home in the region. He stated:

Newspapers writing about not having enough water causes more and more uncertainty in the market and that's what kills your ability to get sales. These are life investments. People are not buying a car or a hotdog. These are people buying what should be their life home. They're in the market with ambiguity (with respect to water availability) (interviewee #15)

The second consequence, identified by nine developers, or two-thirds of the interviewees, was the effect of increased water costs on the price of homes; that the cost of purchasing water licenses are passed on to the home buyer (interviewees #1, #2, #4, #5, #6, #7, #8, #11, #12). Two interviewees stated:

To have to acquire water and pay top dollar for it ...is definitely hindering. And that cost has to be passed on to the homeowner (interviewee #5)

With water, the high bid wins and the home owner suffers (interviewee #1)

Three interviewees spoke of the price of water becoming too high so as to become prohibitive to the industry (interviewees #2, #7, #9). Statements include:

I think it's terrifying water is going for that much (\$7,500 to \$8,500 an acre foot) ...Increasing the cost of providing services to a future home owner when you have that. That's actually incredibly high and then it's going to become a profit centre for license holders (interviewee #7)

Water has turned into blue-gold if you have it (interviewee #9)

Finally, two interviewees believe water issues will have a detrimental effect on the economy of the region in general (interviewee #2, #9). One stated:

The South Saskatchewan River Basin is not open for business. In Calgary for sure because they have way more water than they need, but elsewhere, no. It used to be an Alberta slogan. Doesn't work anymore (interviewee #9)

#### **D. Effect on the Real Estate Industry**

New residential housing is ultimately tied to the real estate market through the resale of new homes. Therefore, any decline in the new housing industry, in terms of the numbers of homes built, could have a negative effect on the real estate sector, in terms of the number of houses sold. Recall that 13 of the 15 housing developers indicated the water challenges in the Calgary regional have, or will have, a dampening effect on housing construction. This research sought to roughly estimate the potential effect a decline in new housing construction could have on the real estate sector in the three municipalities under study.

In estimating this effect, data of the number of houses sold in the Rocky View County, M.D Foothills and Okotoks for the period from 2005 to 2015 were obtained. The data are listed in the table below. A yearly estimate for each municipality was calculated. In addition, an estimate of the percentage of housing sales in the region that consisted of the resale of new homes for the 2005 to 2015 period was obtained. That estimate is 6.1 percent (CREB, 2016). Therefore, an estimate of the average number of homes sold yearly which were comprised of the resale of new homes was determined. Across the three municipalities, this comprises an average 196 homes per year.

<b>Total Residential Sales<sup>1</sup>, Resale of New Homes</b>				
<b>By Municipality</b>				
Year	Rocky View County	M.D. Foothills	Okotoks	Total
2005	1,419	1,282	567	3,268
2006	1,347	1,548	680	3,575
2007	1,368	1,439	689	3,496
2008	943	1,217	631	2,791
2009	1,138	1,204	566	2,908
2010	1,003	1,052	482	2,537
2011	1,133	1,098	523	2,754
2012	1,353	1,251	584	3,188
2013	1,521	1,330	699	3,550
2014	1,953	1,467	769	4,189
2015	1,472	1,145	559	3,176
Total, Yearly Average	1,332	1,275	614	3,221
<b>Yearly average resale of new homes (6.1%)</b>	<b>81</b>	<b>78</b>	<b>37</b>	<b>196</b>
<sup>1</sup> Source: Calgary Real Estate Board, 2016				

While the majority of developers interviewed indicated that water challenges have, or will have, a dampening effect on construction industry, when asked to estimate the decline in terms of number or percentage of homes, they were unable to do so, given the difficulty of separating other factors, such as economic, from water-related ones. However, given that on average, close to 200 houses sold in the three municipalities consist of the resale of new homes, if one were to very generally assume a direct correlation between new home construction and the resale of new homes, a ten percent decline in the construction of new homes, for example, could potentially result in a decline in the resale of new homes by 20 units yearly. A 20 percent decline in the construction of new homes could potentially result in a decline in the resale of new homes by 40 units yearly. Although these estimates are based on very broad generalizations, they do provide a sense of the magnitude of such an effect.

## E. Solutions

The study found a consistent theme amongst developers as relates to a solution, this being that the region must work together as a region. Many interviewees observe the benefit of cooperation amongst municipalities that have regional formations such as Edmonton, Vancouver and Toronto. However, developers are aware of the sometimes negative dynamics amongst some municipalities in the Calgary region which makes cooperation difficult. Many developers find the CRP flawed. Others believe the Capital Region (Edmonton) model should be considered (the Capital Region was formed in 2007 when the Alberta Government mandated 25 municipalities in the Edmonton region to work together under the Capital Region Board. All but a few of these municipalities are provided water and wastewater services through Epcor, a private utility that is 100 percent owned by the City of Edmonton). Developers stressed a regional model needs to embody fairness, a balance of power amongst municipalities, and municipal autonomy in day to day matters. Details of these findings are enumerated below.

Developers spoke of the benefits of municipalities working together as a region:

There's benefit for municipalities to cooperate. You look at a large city like Vancouver or Toronto, cities kind of blend into cities. I think there has to be some sort of sharing in large infrastructure...Something has to be in place to manage that cost and manage the taxes for all regions to make it fair (interviewee #11)

What's good for the region is good for Okotoks or Calgary or whatever (interviewee #4)

Some regional cooperation would certainly help. It would provide some certainty around water licenses...For developers it's all about risk and timing. If we know what we're dealing with then we're okay (interviewee #13)

I don't necessarily agree with them (Calgary) forcing their power beyond their borders but there is cause of a case for regional planning (interviewee #14)

I do believe the municipalities absolutely have to work together to make sure we're spending infrastructure dollars in the right way... Every time they fail to spend infrastructure dollars effectively, it erodes affordability for homeowners (interviewee #15)

Seven developers were critical of the CRP because of housing density requirements and perceived power inequities (interviewees #1, #2, #3, #6, #10, #11, #12). Statements include:

The cities still have the big stick. We need to look at this under a wider lens. The CRP has its own challenges. At some point we've got to move forward with this and

start singing from the same song sheet...What we don't want is for communities to become sterile and unable to grow in their own right. (interview #1)

The CRP and the densities (of housing development) is the City (Calgary) insisting upon it. The CRP should not be able to dictate the densities that goes on in those MD's and hold them to ransom (interviewee #2)

I think at the core the CRP is good but I still understand the concern of Rocky View County and Foothills. Calgary's veto power...If that was dealt with, everything else is fine with the people I have talked to at the staff and county councillor level (interviewee #6)

(Being a member of the CRP) is a double-edged sword. In terms of water availability and licenses the answer is yes but overall, is it beneficial for Rocky View to be a member of the CRP? I lean towards more of a 'no' (interviewee #12)

Three interviewees cited the Capital Region (Edmonton) model as being an effective prototype to consider, indicating:

We should study this, what works and what doesn't (interviewee #3)

Some people get freaked out about having another layer of government but most metropolitan areas have some degree of coordinated effort and I think that's a good thing as long as they let those cities and town have autonomy and their own decision making. The Edmonton model actually works pretty good (interviewee #4)

Stelmach forced a partnership in the Edmonton region. A lot of developers think that was not a bad thing. And I think a lot of people here would see the benefit of it (interviewee #8)

However, two interviewees did not believe the Edmonton model would work in the Calgary region, given the confrontational dynamics that exists amongst some municipalities in the Calgary region. They describe the adversarial relationship in the Calgary region:

(Edmonton) never had a Rocky View versus Calgary dynamic. They had cooperation to start with. Rocky View working with Calgary is a fight in the sand...They don't play in the sand so they build trenches and you don't dare cross over my trench. So in the capital area it was forced by the government at the time when the neighbours were comfortable working together (interviewee #9)

Every municipality I've worked in has its own little intricacies, nuances, that kind of thing. Our region is much more adversarial than the Edmonton region (interviewee #12)

Finally, one interviewee believed some form of political intervention is necessary saying: "provincial intervention or the threat of provincial intervention will solve the issue" (interviewee #7).



## Conclusions

Evidence gathered in this study underscores the extent of water challenges in the Calgary region; the importance of the issue to the housing development industry; and the subsequent negative consequences imposed on the housing construction and real estate industries, home buyers, and the economy in general. Unequivocally, all study participants believe there are challenges in acquiring licensed water allocation for housing development in the three municipalities under study, and the vast majority of developers believe it is the most pressing issue for them. The consequences have several dimensions. First, according to a majority of study participants, the issue of accessing licensed water allocations creates uncertainty and has, or will have, a dampening effect on housing construction. A decline in houses constructed can have a subsequent negative effect on the real estate industry given that approximately 200 homes sold annually in the three municipalities under study consist of the resale of new homes. Second, the cost of acquiring licensed water allocations in the marketplace is passed on to the home buyer in the form of higher housing prices. (Some even worry that such costs will become so high as to be prohibitive to the industry). Still others say there is a detrimental effect on the regional economy as a whole.

While developers believe the consequence of the water challenges in the region are multi-dimensional, so too are the sources of the problem. Problems are grounded in: (a) sociological and institutional factors including the political dynamics in the region and lengthy and cumbersome government processes, b) geographic factors including water located long distances from prospective utilisation sites, and (c) economic factors including the high cost of building water and wastewater treatment plants.

In searching for a solution, developers echoed a consistent theme that a resolution to water issues in the region lies in some form of regional model through which water can be shared. Many developers see flaws with the Calgary Regional Partnership. Some believe the Capital Region model should be examined and suitable parts transplanted to the Calgary region. However, given the confrontational relationship amongst some municipalities in the region, a regional solution might not be easily crafted.

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