

Find everything you need to know about the SURE WATER campaign in the answers to our frequently asked questions below. Simply click on the link to learn more...

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2013 SURE WATER Campaign

[Why did the City of Dawson Creek undertake the SURE WATER campaign starting in 2013?](#)

- The City of Dawson Creek seeks to provide an adequate and reliable supply of water for current and future environmental, residential, commercial, and industrial uses in Dawson Creek and Pouce Coupe. To that end, City Council’s strategic priorities for 2013 included ‘water security’ and exploring water supply options to determine which are the most effective, practical, and affordable for the future.
- The City of Dawson Creek also seeks to ensure an adequate and reliable supply of water during times of drought.
- Technical studies to date have identified that the most workable measures are to increase raw-water storage, reduce the amount of water we use through education and pricing, and shift industrial use to a non-potable (non-drinkable) source such as reclaimed and/or recycled water.
- In October 2012, a group of Dawson Creek residents approached Council about constructing a water pipeline from the Murray River to the Arras Reservoir. The group believes this option will eliminate the need for water restrictions during periods of severe drought, and address water supply and quality challenges well into the future.
- Combined, these factors prompted Council to undertake Phase 1 of the SURE WATER campaign.

What were the objectives of the SURE WATER Phase 1 campaign?

- Phase 1 was conducted during April and May of 2013.
- The primary Phase 1 objective was to inform and engage the public in discussion about four options for building additional infrastructure to ensure a reliable source of water for the future. Options included:
 - Upgrading the existing water supply system as needed
 - Building a new raw-water storage reservoir
 - Tapping into groundwater aquifers
 - Building a new water pipeline.

Four options	Sufficient to an estimated population with fracking	Sufficient to an estimated population without fracking	Provide water in times of drought	Rough cost to build (over 20 years)	Rough cost to operate
Existing system with upgrades	16,000	20,000	Limited	\$16M	Medium
New storage reservoir	16,000	20,000	Yes	\$22M	Low
Groundwater aquifers	Unknown	Unknown	Yes	Unknown	Unknown
Pipeline from Peace or Murray River	26,000	32,000	Yes	\$57M	High

Figure 1: Options Presented During Phase 1 of SURE WATER in 2013

- The City was also open to other ideas and options worth exploring.

How was information shared and input gathered during Phase 1?

- The SURE WATER Campaign was a comprehensive process that provided information and gathered feedback in a variety of ways.
 - Information was shared via the City’s website, utility bills, e-newsletters, regular email updates, social media, news releases, posters, newspaper ads, a narrated webinar, a booth at the Annual Kiwanis Trade Show, a newsletter delivered to all homes and businesses, community presentations, and the Community Water Security Forum.
 - Input was encouraged through a paper survey included in the newsletter, an online survey, community presentations, the Community Water Security Forum, and a random telephone survey.

2013 SURE WATER Campaign Outcomes

What did Phase 1 feedback findings tell us?

- Council received the *SURE WATER Information & Consultation Outcomes* report in May 2013. The following findings were reported:
 - More than 1,000 Dawson Creek and Pouce Coupe residents shared their insights and ideas during the campaign.
 - Outcomes of the 611 paper and online surveys were consistent with statistically valid outcomes from the telephone survey of 400 residents.
 - Input received showed that residents are keen to discuss water-related issues, and have definite opinions about how water security should be achieved.
 - Almost 80 percent of respondents support the City investigating future water supply options, and more than two-thirds support the development of a new water pipeline to either the Peace River or Murray River (see Figure 2). This compares with 15 percent support for upgrading the existing system as needed, 15 percent support for the construction of a new raw-water reservoir, and 4 percent support for the use of groundwater aquifers.
 - Other findings of note showed that 82 percent oppose the use of fresh water for industrial purposes such as natural gas fracking, and 62 percent support increased public education about water conservation.
- These outcomes provided Dawson Creek Council and staff with a strong mandate to move ahead with the next phase of research and analysis later in 2013.



Figure 2: Public Input on Preferred Options

What did the City of Dawson Creek do in response to feedback findings?

- The City responded to public feedback by:
 - Publishing a follow-up SURE WATER newsletter for all households and businesses that shared findings about the four water security options that were presented during Phase 1
 - Revising the City's Water Conservation Bylaw to prohibit the use of water for natural gas fracking during periods of drought
 - Introducing a policy that directs future industrial uses, such as fracking, to use reclaimed water from the Dawson Creek Reclamation Facility, and that also prohibits private truck fill stations from connecting to the City's water system if they aren't already licensed to do so.
- City council also directed staff to prepare a report on funding scenarios for a new pipeline. The resulting *Water Pipeline Funding Analysis* report provided three possible funding scenarios (\$55M, \$75M, and \$100M), and explored the City's borrowing capacity, taxation, water utility funds, impact on other infrastructure needs, operating costs, and public-private partnerships.

What did the Water Pipeline Funding Analysis tell us about a water supply upgrade of this size?

- A number of key questions were answered in the analysis, among them:
 - Does the City have the money now?
 - Can the City save the money? Or borrow the money?
 - What about the City's water fund? And other sources of funding?

DOES THE CITY HAVE THE MONEY NOW? The City does not have the money now to fund the design and construction of a new pipeline, whether it cost \$55M, \$75M, or \$100M.

- The City has \$16.5M in the bank, about one-third of which will be used to cover operating expenses. The other two-thirds sit in capital reserves for future capital upgrades. Some of the \$5.3M in the water capital reserve has already been allocated to other water projects.
- The City's 2013 operating budget of \$34.4M is being used for service commitments and past capital obligations.
- The City's 2013 capital budget of \$21.4M is being used to pay for upgrades to buildings, equipment, and infrastructure that support City-provided services.

CAN THE CITY SAVE THE MONEY? Yes, and this is a more flexible option than borrowing. The City would first determine how much money it would require and then save annually to meet those needs. The amount needed would depend on how much money could be raised from other sources (e.g., senior government funding and public-private partnerships) and when Council might proceed with the project.

The report lists four ways money for the water supply upgrade could be saved; by cutting services, introducing a special tax, increasing water charges, and/or taxing growth, as outlined below.

CUTTING SERVICES: As shown in Figure 3, if the City chose to cut its operating budget by 5 percent, \$1.7M could be saved annually and put into a reserve. This approach would take about 32 years to save \$55M. As well, this approach would require extensive and potentially difficult discussions regarding what services and/or programs would be cut.

Similarly, reallocating any 'general revenue' to a capital water project or reserve has the same effect as cutting services. Moving money from one fund to another does not change the total funding envelope, just the spending priorities.

INTRODUCING A SPECIAL TAX: Alternatively, as shown in Figure 4, Council could hold services at present levels and, instead, save

money by introducing a special annual tax. Again, the City would first have to determine how much to save each year. Given the current tax model, an annual tax levy per household of \$2.07/\$1,000 of assessed value (i.e., \$312/year over ten years for a \$300,000 home), combined with a commercial levy of \$6.92, would be needed over ten years to raise \$55M.

Saving Money Annually by Cutting Services in the Operating Budget	
\$55M	5% = \$1.7M = 32 years
	10% = \$3.5M = 16 years
	20% = \$7M = 8 years
\$75M	5% = \$1.7M = 44 years
	10% = \$3.5M = 21 years
	20% = \$7M = 11 years
\$100M	5% = \$1.7M = 59 years
	10% = \$3.5M = 29 years
	20% = \$7M = 14 years

Figure 3: Save by Cutting Services

Saving Money Annually by Introducing a Special Tax Levy	
\$55M	10 years @ \$5.5M/year Residential tax levy: \$2.07/year/\$1,000 assessed value Commercial tax levy: \$6.92/year/\$1,000 assessed value
	20 years @ \$2.75M/year Residential tax levy: \$1.04/year/\$1,000 assessed value Commercial tax levy: \$3.46/year/\$1,000 assessed value
\$75M	10 years @ \$7.5M/year Residential tax levy: \$2.82/year/\$1,000 assessed value Commercial tax levy: \$9.44/year/\$1,000 assessed value
	20 years @ \$3.75M/year Residential tax levy: \$1.41/year/\$1,000 assessed value Commercial tax levy: \$4.72/year/\$1,000 assessed value
\$100M	10 years @ \$10M/year Residential tax levy: \$3.77/year/\$1,000 assessed value Commercial tax levy: \$12.59/year/\$1,000 assessed value
	20 years @ \$5M/year Residential tax levy: \$1.88/year/\$1,000 assessed value Commercial tax levy: \$6.29/year/\$1,000 assessed value

Figure 4: Save by Introducing a Special Tax

INCREASING WATER CHARGES: The City provides water to about 5,000 connections. Users pay a ‘variable water charge’ based on how much they use, which helps cover system operating costs. Currently, this charge is \$1.68/cubic metre for potable (drinking) water and \$1.25/cubic metre for non-potable water. The rate for resale is either \$2.90/cubic metre or \$4.50/cubic metre, depending on use.

Each customer also pays a ‘water infrastructure charge’ based on connection type and meter size. This revenue is used to cover water-related borrowing and/or capital upgrade costs. In 2013, for example, the average homeowner paid a flat fee of \$222 to help maintain the water system. The resulting \$1.5M raised is being used to pay for existing water-related commitments.

As shown in Figure 5, water charges would have to be increased significantly to support costly water supply

upgrades. To save \$55M over ten years, for example, the annual infrastructure charge for a typical household connection would increase from \$222 to \$786, not including variable water-use charges. To save the same amount over 20 years, the annual residential charge would increase from \$222 to \$393.

TAXING GROWTH: Some residents believe that a pipeline is needed to accommodate growth (e.g., the increased number of taxable properties, homes, and businesses), so exploring how much growth is needed to raise funds without affecting the current budget model provides useful information.

The average annual growth in residential assessment values from 1999 to 2013 was 10.38 percent. The average annual growth in commercial assessment values during the same period was 13.76 percent. As shown in Figure 6, these percentages, and the resulting revenues, are significantly lower than those needed to pay for costly infrastructure upgrades. It is estimated that a growth rate of 20-36 percent over a 20-year period would be needed to cover the cost of a pipeline through growth alone.

Saving Money Annually by Increasing Water Infrastructure Charges <i>(Based on a typical 5/8" residential connection)</i>	
\$55M	10 years @ \$5.5M/year <i>From \$222/year today to \$786/year</i>
	20 years @ \$2.75M/year <i>From \$222/year today to \$393/year</i>
\$75M	10 years @ \$7.5M/year <i>From \$222/year today to \$1,072/year</i>
	20 years @ \$3.75M/year <i>From \$222/year today to \$536/year</i>
\$100M	10 years @ \$10M/year <i>From \$222/year today to \$1,439/year</i>
	20 years @ \$5M/year <i>From \$222/year today to \$715/year</i>

Figure 5: Save by Increasing Water Infrastructure Changes

Saving Money Annually by Taxing Growth	
\$55M	10 years @ \$5.5M/year <i>40% increase in current residential and commercial assessments needed</i>
	20 years @ \$2.75M/year <i>20% increase in current residential and commercial assessments needed</i>
\$75M	10 years @ \$7.5M/year <i>55% increase in current residential and commercial assessments needed</i>
	20 years @ \$3.75M/year <i>27% increase in current residential and commercial assessments needed</i>
\$100M	10 years @ \$10M/year <i>73% increase in current residential and commercial assessments needed</i>
	20 years @ \$5M/year <i>36% increase in current residential and commercial assessments needed</i>

Figure 6: Save by Taxing Growth

WHAT ABOUT THE CITY’S WATER FUND? Local governments typically use three separate funds: one for general use, the others for sewer and water. Each fund has an operating budget and a capital budget for infrastructure upgrades.

- The capital portion of the City’s water fund is supported by water infrastructure charges paid by all residential, commercial, and industrial customers. While residential and commercial contributions will likely remain stable or grow, new fracking regulations and technologies make it unlikely that future industrial contributions will be secure.
- The 2013 water fund budget was \$5.5M, including \$1.9M for capital reserves (a very small portion of the total needed to build a pipeline), \$2.5M for operations, and \$1.1M for annual debt payments.
- The outstanding water fund debt is \$8M, with annual payments of \$1.1M. The current debt will be retired in 2027. Council could choose to defer any borrowing for new infrastructure until the debt from previous upgrades is paid off.
- Council would also have to consider the increased costs associated with operating a pipeline. Annual water pumping costs, for example, could increase from the \$125,000/year paid today, to a projected cost of between \$1.1M and \$1.7M annually.

CAN THE CITY BORROW THE MONEY?

An alternative to saving is borrowing, which is undertaken when savings or other funding sources are not available, or in combination with other sources. This option is more costly due to associated interest costs.

- In 2013, the City owed \$29M in outstanding debt, including general fund debt of \$19M (65.5 percent), sewer fund debt of \$475,000 (6.1 percent), and water fund debt of \$8.2M (28.4 percent). The annual principal and interest payments on this debt are about \$4M.
- In 2013, Council committed to borrowing another \$11.29M for road upgrades, the Loran Reservoir, and the sewer trunk line. This brings total debt to \$40M, with annual principal and interest payments of \$5.2M.
- In keeping with provincial regulations, the City is allowed to increase debt servicing costs up to 25 percent of annual revenues from the previous year. The limit changes every year as revenues increase or decrease. A \$1M change in revenues affects the City’s borrowing capacity by \$250,000. See below for a 2013 example of borrowing capacity.

Borrowing the Money	
<i>Current General Fund Debt = \$19M</i> <i>Current Water Fund Debt = \$8.2M</i> <i>Annual General Debt Payment: \$2.7M</i> <i>Annual Water Debt Payment: \$1.1M</i>	
\$55M	Debt payment over 20 years \$4.6M/year with \$37M in interest charges
\$75M	Debt payment over 20 years \$6.6M/year with \$50M in interest
\$100M	Debt payment over 20 years \$8.4M/year with \$67M in interest

Figure 7: Borrowing the Money

<p>2013 Borrowing Capacity = 25 percent x \$40M in Revenue = \$10M Allowable Principal and Interest</p>
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With an interest rate of 5 percent and a 20-year payback, the City can borrow up to a maximum of about \$120M, with associated annual debt servicing charges of \$10M. Given that the City already pays \$5.2M to cover previously committed debts, there’s not enough debt-servicing capacity left to borrow all the money needed to design and construct a pipeline.

WHAT ABOUT OTHER SOURCES OF FUNDING? Cost-sharing with other levels of government and public-private partnerships are potential sources of alternative funding.

- **SENIOR GOVERNMENT FUNDING:** Other levels of government often support local government projects. The City has successfully shared costs with senior government for the Multiplex, the Calvin Kruk Arts Centre, and other water projects.

Due to the slower economy, however, federal and provincial governments are giving less money to fewer projects. For this reason, staff didn't include a cost analysis for senior government funding in its report to Council. However, if Council chooses to proceed with a water supply upgrade, sources of senior government funding will be investigated at that time.

- **PUBLIC-PRIVATE PARTNERSHIPS:** These types of partnerships are often complex to administer and can cause asset ownership and/or management challenges.

Funding for the Water Reclamation Facility was provided through a partnership between the City and Shell Canada. In this case, however, the City retained ownership and operation of the facility. In exchange for \$18.3M in funding, Shell connected a pipeline to the facility and receives three-quarters of the 4,500 cu/m produced daily.

A similar model for the pipeline would require an arrangement agreeable to both the City and a private-sector partner.

WHAT ABOUT OTHER FUNDING MODELS? If the community and Council decide to proceed with a water supply upgrade, other funding models will be explored. Whatever model is chosen, the probable impacts include:

- Increased consumption and infrastructure charges
- Increased taxes
- Increased municipal and community risk
- Reduced capital spending and operating budgets for other services
- Reduced growth.

CAN WE AFFORD TO DO THIS NOW? OR SHOULD WE WAIT? These are questions that can be answered only after the City has engaged its residents in meaningful, inclusive, and productive dialogue about Dawson Creek's water security options and their associated social, cultural, environmental, and economic implications.

While the SURE WATER Campaign has been designed primarily to present financial information, there are many other complex factors that will impact discussion outcomes. As stated in staff's report to Council:

- "The community and the City of Dawson Creek are experiencing enormous change."
- "The pace of development is stressing existing infrastructure and the businesses and people who manage it."
- "All levels of government are under increased scrutiny to keep costs low and affordable for taxpayers, but cost pressures of maintaining failing infrastructure keep rising."
- "The uncertainty of climate change and future market volatility further stress current systems."

- “Increased regulation often makes every day managing much more complex, and finding and keeping qualified people to manage business operations in this environment is getting harder and further exasperates the situation.”

FUNDING SUMMARY

These challenging scenarios show how significant the impacts could be if the City were to cut services, introduce a special tax, increase water charges, and/or tax growth to fund a large-scale water supply upgrade.

The funding analysis to Council notes that, “It wasn’t that long ago (2011) that the first water infrastructure charge and increased water rates were applied.” This created much conflict and anger”...”especially from low and fixed-income residents.”

The analysis goes on to state that, “Funding a new pipeline using these sources would undoubtedly create further conflict and anger, but more importantly it could create an environment of enormous financial stress for many businesses and residents.” And because “people have limited amounts of disposable income to pay their bills,” they “could move to an area they believe is affordable.”

During Phase 1 of the SURE WATER Campaign, the majority of residents who participated in the process supported the construction of a new pipeline from the Peace or Murray River. But given this new information, and its short- and long-term financial implications for current and future taxpayers, Council believes the public will want to reconsider the pipeline along with the other water supply options.

What else have we learned since the Phase 1 campaign?

- New information has also come to light about population projections and the water storage capacity provided by the existing Bearhole Lake control weir.
 - **POPULATION PROJECTIONS:** Together, Dawson Creek and Pouce Coupe have about 13,000 residents. Population projections for last year’s SURE WATER campaign were based on annual growth of two percent. Using that as a guide, it was estimated that the current water supply system would be sufficient until the population reaches 16,000—or until about 2024. Since then, BC Stats has conducted a more detailed survey of the region and is predicting an annual growth rate of one percent. At that rate, the current system would be suitable until 2034.
 - **WATER STORAGE CAPACITY OF EXISTING SYSTEM:** Recent monitoring shows that the Bearhole Lake control weir has greater water storage and refill/recharge capacity and, therefore, more drought resiliency than previously thought. Storage could boost the City’s water supply for about ten months, which is up from the previous estimate of six months.
- Combined, these factors indicate that the existing system could meet our water supply needs for longer than anticipated.

What are the campaign objectives for Phase 2 of SURE WATER?

- The overall intent of the Phase 2 campaign is to continue the community conversation about the future of the community's water supply. Building on the success of the Phase 1 campaign, key objectives for Phase 2 are to:
 - Recap Phase 1 information and outcomes
 - Provide an update on the ongoing/necessary improvements to existing water services
 - Provide an update on changes to water used for fracking policies based on feedback from the spring consultation
 - Provide a summary of potential funding scenarios for the pipeline option
 - Provide an update on recent population projections that may impact planning horizons
 - Provide an update on the Kiskatinaw River weir and its impact on water supply
 - Provide an update on other provincial guidelines and policies regarding water use and water conservation in BC
 - Seek feedback from residents about their preferred approach to water supply system upgrades, timing, and costing.

What does the public need to know about the pipeline option?

- During Phase 1 of the SURE WATER campaign, we presented the public with four water supply options and asked them to choose their preferred approach. Outcomes show that more than two-thirds of respondents support development of a new water pipeline to either the Peace or Murray River.
- This outcome prompted the City of Dawson Creek to explore funding scenarios for three ballpark costs (\$55M, \$75M and \$100M) and their potential financial implications. The resulting *Water Pipeline Funding Analysis* provides more detailed information for the public to consider.
- Since the research was done for Phase 1 of SURE WATER campaign, annual population projections for the Dawson Creek area have been lowered from 2 percent to 1 percent, meaning that the existing system with upgrades would be adequate for a longer period of time.
- Recent monitoring of the Bearhole Lake control weir show that there's greater drought resiliency than originally thought.
- Council directed that this new information, combined with the findings from the funding analysis, be presented to the public for further discussion.

- Based on information presented earlier in this document, and using an assessed property value of \$300,000, estimates for increased costs to taxpayers are as follows:

Pipeline Costing	Estimated water infrastructure charges for an average household IF ONLY WATER INFRASTRUCTURE CHARGES ARE INCREASED OVER 20 YEARS (no added tax)	Estimated special tax levy for an average household IF ONLY THE SPECIAL TAX IS APPLIED OVER 20 YEARS (no increase in water infrastructure charges)
Pipeline Cost (\$55M)	Current annual charge \$222 Estimated annual charge \$393	\$1.04/\$1,000 of assessed value (\$312/year for \$300,000 home)
Pipeline Cost (\$75M)	Current annual charge \$222 Estimated annual charge \$536	\$1.41/\$1,000 of assessed value (\$423/year for \$300,000 home)
Pipeline Cost (\$100M)	Current annual charge \$222 Estimated annual charge \$715	\$1.88/\$1,000 of assessed value (\$564/year for \$300,000 home)

Figure 9: Estimated Household Costs for Pipeline

How will the SURE WATER Campaign unfold to educate and engage residents?

- The campaign will be conducted between April and June of 2014, as shown below:
 - **April 11-13** – Dawson Creek Annual Kiwanis Trade Show
 - **April 28** – SURE WATER newsletter with feedback questions mailed to all homes and businesses via Canada Post
 - **April 28-May 31** – Online information and feedback form available
 - **May 8** – Community Water Security Forum at Encana Events Centre from 5-9pm a presentation, panel discussion, and Q&A starting at 7pm
 - **May 8-31** – SURE WATER Talks: Community Conversations
 - **June** – Report out

BACKGROUND INFORMATION (Water Sources)

What is the current source of water for Dawson Creek and Pouce Coupe?

- The City of Dawson Creek’s water source is the Kiskatinaw River located about 18kms west of the city. The river originates about 60km south of the city at Bearhole Lake.
- The City holds a permit received in 1960 to withdraw up to 18,000 cu/m per day from the river, up to an annual volume of 3.3 million cu/m.

Who uses the water?

- Water use statistics from 2008 show that residential use in Dawson Creek and Pouce Coupe accounts for 44 percent of total usage. About 38 percent is used by industrial/commercial/institutional connections, and 1 percent by agriculture. The remaining is unmetered usage and includes leakage, firefighting, and hydrant and sewer flushing.

How much water do we use? And how much are we expected to use in the future?

- Current daily water demand for all residential, industrial (gas fracking), commercial, and agricultural uses for Dawson Creek and Pouce Coupe is about 550 litres per person per day. This represents about 44 percent of the 18,000 cu/m per day the City is permitted to draw from the Kiskatinaw River. (When the river is low—typically in late summer, fall, and winter—the City can extract only 9000 cu/m per day.)
- Our current water supply system, with no upgrades, is sufficient for all uses (including gas fracking) until Dawson Creek and Pouce Coupe’s current combined population of about 12,000 reaches 16,000.
- If fracking use was eliminated, daily per-person consumption would drop to about 435 litres, and as a result, the current water source would be adequate until the combined population reaches 20,000.

What is ‘fracking,’ and how does it affect our fresh water supply?

- Fracking, short for hydraulic fracturing, is a drilling technique used by the oil and gas industries to release petroleum and natural gas from shale rock layers deep within the earth. Vertical and horizontal drilling units inject highly pressurized fracking fluids (including fresh water), which creates new channels within the rock from which natural gas is extracted at higher than usual rates.
- It is anticipated that the use of fresh water for fracking in the gas industry will continue to diminish as it has in recent years. Here are the estimated amounts of water used by industry for fracking for the past three years:
 - 2008: 310,000 cu/m (12 percent of all water usage)
 - 2009: 359,000 cu/m (13 percent)
 - 2010: 450,000 cu/m (17 percent)
 - 2011: 390,000 cu/m (16 percent)
 - 2012: 322,700 cu/m (13.5 percent)
- It is expected that these levels will continue to drop as the industry enables and encourages water recycling and salt-water drilling solutions. The potential for new provincial or federal government or industry regulations to govern water for fracking is also very real.

BACKGROUND INFORMATION (Water Storage Capacities & Enhancement Options)

What is the City’s current water storage capacity?

- The City’s original water supply system from the Kiskatinaw River was built in 1943 and included very little storage.
- In 1960, the City received a permit from the province to withdraw up to 18,000 cu/m per day from the river, but no more than an annual volume of 3.3 million cu/m.
- Over the last 40 years, a number of projects have helped build storage capacity to 2.5 million cu/m.
 - **Trail Reservoir:** Located just west of the water treatment plant, this reservoir was built in 1975 to increase storage by 454,000 cu/m. It holds enough water for about 60 days.

- **Hart Reservoirs:** Located at the highest point of the raw-water system, these reservoirs have provided storage capacity of about 27,000cu/m for the last 30 years. It holds enough water for about 5 days.
- **Arras Weir:** Installed in 1992, this project provided a small catchment area of about 300,000 cu/m that allowed the City to draw water in times of severe drought.
- **Water Main Upgrade:** The raw water main between the Kiskatinaw River and Hart Reservoir was upgraded to address leakage problems and to accommodate future demands.
- **Hansen Reservoir:** Located just east of the Kiskatinaw River, the reservoir was built in 2004 to increase capacity by 380,000 cu/m. It provides additional off-river storage and initial treatment for the river's highly turbid water. It holds enough water for about 50 days.
- **Bearhole Lake Weir:** Completed in 2009, this 0.84-metre weir on the headwaters of the Kiskatinaw River holds back water and provides storage of about 1.4 million cu/m that can be released in times of drought. It provides enough water for about ten months.
- As our need for supply and/or storage increased, the City partnered with senior governments, industry, and universities to research, design, and implement effective, practical, and affordable solutions. While upgrading the existing system could continue to meet our short-term water supply needs, there's no guarantee this approach would accommodate future water demands or reduce the impacts of drought.

What water supply options were presented during Phase 1?

- **UPGRADE EXISTING WATER SUPPLY SYSTEM AS NEEDED**
 - The current water supply system, with incremental upgrades, could meet residential and commercial/industrial water demands until Dawson Creek and Pouce Coupe's current combined population of about 13,000 reaches 16,000. If water use for fracking was discontinued, the existing system with upgrades could meet the residential demands of about 20,000 people.
 - The estimated cost of this option over 20 years is about \$16 million.
- **BUILD A NEW RAW-WATER STORAGE RESERVOIR**
 - Additional raw-water storage has been recommended in every engineering study conducted for the City since 1960.
 - Former Dawson Creek Councils approved the development of a raw-water storage reservoir that would increase capacity by almost 2 million cu/m. In 2007 the City bought 150 acres west of the city, and in 2012 preliminary engineering design work began to better understand the requirements and costs of moving forward with this option.
 - When full, the new reservoir along with the existing reservoirs, would sustain water supply at current usage for an entire year without having to draw any from the Kiskatinaw River at the Arras Weir.
 - The estimated construction cost of this proposed reservoir is \$22 million, which does not include operations or maintenance.
 - Plans to proceed with reservoir design and costing were put on hold in October 2012 when a group of local residents proposed an alternative option that Council agreed

should be considered by the public along with the reservoir option and any other workable ideas.

▪ **TAP INTO GROUNDWATER AQUIFERS**

- The City has explored what appear to be significant volumes of water available in the Arras area aquifers, as identified by the University of Northern BC and industry partners.
- Storage scenarios that would boost existing supplies from the Kiskatinaw River are based on the assumption that there will be wet and dry years, or wet and dry periods within a year. In these cycles, water trapped during wet periods could be used during dry times, as is being done on Vancouver Island.
- Unlike the above-mentioned opportunities, this groundwater option would meet only a portion of the City's water supply needs, and only during times of drought.
- The viability and cost for this option have not been determined.

▪ **BUILD A NEW WATER PIPELINE**

- In October 2012, a group of Dawson Creek residents approached Council about constructing a water pipeline from the Murray River to the Arras Reservoir. The group believes this option will eliminate the need for water restrictions during periods of severe drought, and address water supply and quality challenges well into the future.
- Group members presented information comparing the water quality and supply properties of the Peace and Murray Rivers to those of our existing source, the Kiskatinaw River. Their understanding is that both the Peace and Murray Rivers provide higher volumes of better quality water, with their preferred option being the Murray River.
- Group members recommended that work begin immediately to develop the Murray River as a new source to supplement the existing system with an additional 14,000 cu/m per day. The group's long-term vision is to convert totally to the Murray River system, which would meet water demands until Dawson Creek and Pouce Coupe's current combined population of roughly 12,000 reaches about 26,000 (with fracking), and about 32,000 (without fracking).
- Estimated costs of \$1,000/metre of pipeline result in a proposed project cost of \$57 million, which does not include operating or maintenance costs.
- It should be noted that the Murray River option—and another one that included the construction of a water pipeline from the Peace River to the Trail Reservoir—was studied by the City in 2003 and found to be too costly. It would put the City at the limit of its financial capacity, and cause increased debt and higher water rates and taxes. It could also reduce or eliminate funding for other infrastructure projects or service enhancements.
- Presentations to Council regarding infrastructure projects are common (e.g., recent requests for a performing arts centre, homeless shelter, water park). Council must balance competing requests with limited resources and decide which expenditures are most appropriate for the community at large.

What about using recycled or reclaimed water to boost existing supplies?

- In 2006, the City began looking at industrial water demands and options that would meet industry's needs without compromising its fresh water supply. The resulting Water Reclamation Project will take effluent from the sewage lagoons at the waste water treatment plant and treat it to provincial standards for water reuse.

- The City partnered with Shell Canada to fund the \$18.5-million project in exchange for 3,400 cu/m of the 4,500 cu/m produced daily by the water reclamation plant, which opened in 2012.
- The remaining reclaimed water can be directed to other industry users.

Will water supply solutions be linked to watershed management efforts?

- Yes. The City of Dawson Creek water stewardship program enables and encourages water source protection and sustainable supply. It builds understanding about the watershed to improve water management practices by all users.
- A three-year study with UNBC is nearing completion; preliminary results have revealed valuable information about river flows, groundwater recharge, water quality, and land-use changes. These and other program outcomes will improve our ability to accurately predict the possible effects of changing climate and land-use practices on both water supply and quality.

Is water supply a challenge for other BC communities?

- Yes. In response to the concerning trend toward more frequent droughts, the province released a Handbook for Water Suppliers in BC to identify best practices for drought preparation.
 - Its key recommendations to water suppliers are to protect existing sources rather than develop new ones. To that end, water suppliers are encouraged to increase public awareness about water supply (i.e., Dawson Creek’s current SURE WATER Information/Consultation Campaign) and to enable and encourage water-use efficiency through watershed education, school visits, and the water page on the City of Dawson Creek’s website.
- The City also used the *Handbook for Water Suppliers in BC* to help develop other water supply-related tools such as rate incentives and a water restriction bylaw, and to help guide decisions regarding leak detection, water meters, reclaimed water, and flow monitoring. It also helped elected officials and staff understand the importance of watershed stewardship and source system management. That work has proceeded in partnership with the province, academic institutions such as UNBC, and industry initiatives such as Geoscience BC.

NEXT STEPS

How can water users learn more and share their thoughts?

- Watch for the information newsletter coming to your home and/or business the last week in April
- Join us for the public meeting at the Encana Events Centre May 8th from 5-9pm (open house at 5pm, presentation at 7pm)
- Visit the water page on the City of Dawson Creek website at www.dawsoncreek.ca/water/
- Add your name to our email distribution list – simply send us your email to water@dawsoncreek.ca
- For more information contact Kevin Henderson, Director of Infrastructure and Sustainable Development, at 250-784-3622 or khenderson@dawsoncreek.ca.