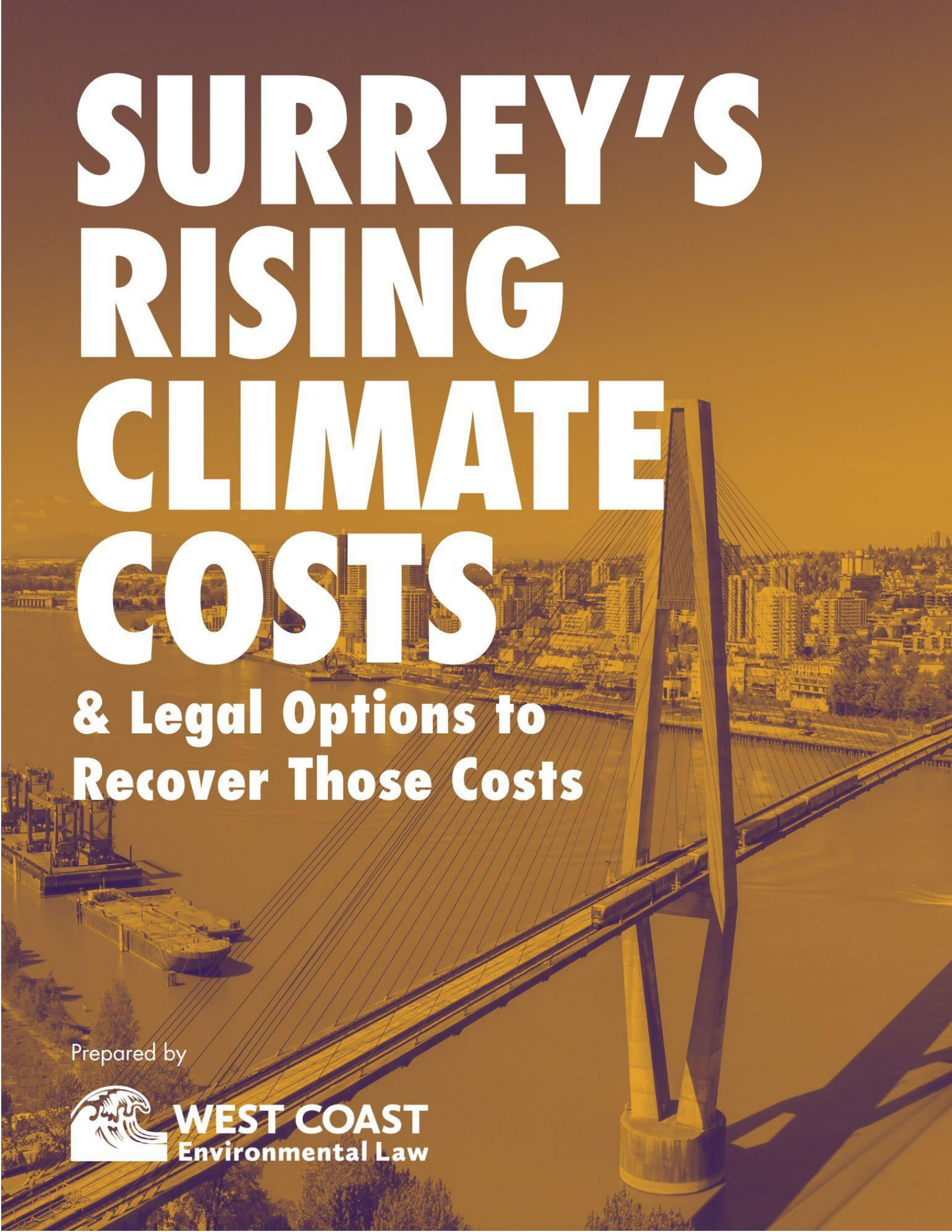
# SURREY'S RISING CLIMATE COSTS

## & Legal Options to Recover Those Costs



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# SURREY'S RISING CLIMATE COSTS
## and Legal Options to Recover Those Costs

West Coast Environmental Law, August 2025

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# INTRODUCTION

On 2 December 2024, Surrey Council voted to invite West Coast Environmental Law to prepare a report for its staff on the climate costs facing the City and legal options to recover those costs. We are pleased to submit a final version of our report for consideration by Surrey staff, Council and the Environment and Climate Change Committee.[1]

Surrey, like many BC communities, is on the frontlines of addressing climate change – and the costs of dealing with rising sea levels, increased storms, heat waves and other impacts are already putting a strain on the city's budget. The City of Surrey has a fiscal obligation to its residents and taxpayers to examine all means to protect them from increasing climate risks and costs.

One thousand Surrey residents, listed in Appendix C, have signed a Declaration, calling on the City of Surrey to protect them from the costs and impacts of climate change, including by working with other local governments towards a class action lawsuit against fossil fuel companies to recover a share of those costs. Province-wide, over 16,000 BC residents have signed.

This report makes the case that there are legal options, specifically the lawsuit proposed by the Sue Big Oil campaign, to recover some of the climate costs being incurred by Surrey due to the contribution of global fossil fuel companies to climate change.

It's unfair for communities and local governments to grapple alone with these rising costs, resulting in potentially tough decisions about balancing increased climate risks with increased taxes or reduced levels of service. The fossil fuel industry, due to its out-sized role in causing the climate crisis, must bear at least some responsibility.

Facing these realities, over 70 local and state governments in the U.S. and others around the world are now suing major polluters for a share of local climate costs. Eleven BC municipalities[2] have pledged to work together towards a class action to help pay for local climate costs, while staff in other municipalities are engaged in inter-governmental discussions about the logistics of this type of legal action. Surrey has the opportunity to join them.

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1 Staff were provided with an earlier draft of this report via email on 7 March 2025, together with a request to provide feedback and/or to meet to ensure that the information in the report is as complete as possible and that it addresses Council's concerns and questions. We have received no response to this request, other than confirmation, via email on 2 April 2025 from a member of the legal department that the report had been received by that department and was being reviewed. After no response to repeated follow ups, we regret that this report is finalized without the benefit of the considerable expertise and insights that Surrey staff would have brought.

2 These municipalities are Burnaby, Cumberland, Gibsons, Nelson, Pemberton, Port Moody, Qualicum Beach, Sechelt, Slocan, Squamish and View Royal.

# SURREY'S CLIMATE COSTS

From the perspective of a local government, the argument for taking legal action to recover climate costs is grounded in the magnitude of those costs, as well as the dual legal obligations of Councillors and Staff to keep residents and properties in the City safe from increased climate impacts and to manage taxpayers' dollars responsibly.

Surrey is not alone in incurring considerable costs due to climate change. Local governments own and maintain 60% of public infrastructure, all of which was designed to withstand a range of expected weather and other conditions. With extreme storms, droughts, wildfires and heat events happening more frequently, this infrastructure is increasingly overwhelmed.

The Insurance Bureau of Canada and Federation of Canadian Municipalities estimate that Canadian local governments collectively need to spend about $5.3 billion annually to prepare for climate impacts. Neglecting to pay these costs will lead to even higher climate costs down the road.

The following figure (from BC's Climate Adaptation and Preparedness Strategy[3]) shows some of the climate change impacts facing BC communities, almost all of which apply to some degree to Surrey.


Surrey staff have access to more detailed information about how climate change will affect the City, and the climate adaptation, mitigation and loss and damage costs being incurred (or which could be incurred) as a result of climate change. However, Surrey residents have reason to be concerned about the huge costs from climate change facing the City and their implications for Surrey's budget, based on publicly available information. Appendix A summarizes our review of the

[3] Climate Preparedness and Adaptation Strategy (BC, 2021), p. 19, available on-line at https://www2.gov.bc.ca/assets/gov/environment/climate-change/adaptation/cpas.pdf.

publicly available information about some of the major climate costs facing Surrey, and asks Staff a number of questions intended to clarify and quantify these costs. This information is briefly summarized in the following table.

| **Category of Impact** | **Description** | **Dollar Value (if known)** |
|---|---|---|
| Sea level rise – coastal flooding | Surrey has significant areas that are at or near sea level, and extensive coastal defenses. In addition, stormwater systems have outfalls at sea level. Surrey's Coastal Flood Adaptation Strategy indicates that the City should be spending $20 million per year for the current decade. While the Strategy leaves questions about the overall cost for this work in the coming decades unanswered, it is likely that these costs exceed $1.5 billion, probably by a significant amount. | $20 million per year of expenditures from 2020-2030, and more than $1.5 billion between now and 2100. |
| Extreme storm events/infrastructure damage | Surrey has an extensive network of stormwater infrastructure, much of which will need to be upgraded to accommodate higher levels of winter precipitation. Despite recommendations made in several of Surrey's Integrated Stormwater Management Plans (ISMPs) to address climate change in the design guidance, the City's Design Criteria Manual does not appear to explicitly address climate change, raising questions about future liability. However, a study conducted for MetroVancouver and some ISMPs evaluate the impact of increased precipitation due to climate change on drainage, making various recommendations about how to address the increased costs. | Significant increases in the tens of million of dollars already spent on stormwater management – possibly as much as a 2-3 times increase in costs for some upgrades of drainage infrastructure based on 2050 IDF curves. |
| Heat death prevention | 75 deaths occurred in Surrey in 2021 due to the Heat Dome and Surrey has identified a wide range of programs, services and infrastructure which are required to protect against future heat waves. Unfortunately, the cost of this work, and how the expenses might be shared with the Province, has not been publicly released. | Insufficient data |

| | | |
|---|---|---|
| Urban forest | The replacement cost of the entire urban forest in Surrey would be about $3.7 billion, of which 42% relates to public lands. Urban forests typically have a mortality rate of about 2.5% among trees older than five years, and an academic study found that the tree mortality rate in the Pacific Northwest is doubling every 17 years. | Potentially millions of dollars annually. |
| Fire risk | Rising temperatures, summer dryness, tree mortality and other factors are dramatically increasing the risks of urban fires. We have recently seen the possible consequences of urban conflagration in L.A. and experts warn that similar fires could occur in BC urban centres. Commitments to implement Surrey's wildfire community protection plan, and to increase public education around fire safety, and also incremental increases in firefighting costs, are all required as a result of climate change. | Insufficient data. |

As the above table, and Appendix A, demonstrates, the climate costs that Surrey is already experiencing are considerable, running into the tens of millions of dollars every year, and over time expected to run into the billions of dollars. This is not a comprehensive list of those costs, and Surrey Staff may be able to answer some or all of the questions found in Appendix A and better quantify those costs and the billions of dollars facing the City in the coming decades. Surrey's current expenditures (or identified costs) appear to be in a similar order of magnitude to, and possibly more than, the $50 million per year that the City of Vancouver is currently spending on climate resilience and disaster relief. Failure to spend these funds puts Surrey residents and the City at risk of massive losses and damages (potentially in the many billions of dollars), and may open up the municipality to liability from people whose rights are compromised due to the failure of municipal infrastructure.

Surrey's climate costs are currently being passed on to taxpayers, either directly in taxes or indirectly in increased risks. It is clear that Surrey has much to gain from any legal action that could help secure compensation from global fossil fuel companies, including the certainty that would come from a court decision or settlement.

# LEGAL OPTIONS TO SECURE CLIMATE COMPENSATION

Local governments have a duty, as part of their fiscal responsibilities, to take reasonable steps to recover municipal costs that are incurred due to the irresponsible actions of others. Local governments often sue parties that have damaged municipal infrastructure or caused it to incur costs. Similarly, it would be fiscally irresponsible to pass climate costs onto taxpayers without trying to recover a share of those costs from those that have done the most to cause climate change.

If Surrey accepts that it has massive, realized, hidden and emerging climate costs, then the question is who should pay for them, and whether the burden should be borne entirely by taxpayers. Surrey's climate costs may be partly addressed by federal and provincial government funding and assistance, but in recent years, there has been growing demand from climate-affected and vulnerable communities across BC and Canada. Recently the Canadian government has turned down funding applications from Surrey for coastal flood measures, as well as for flood prevention from flood-impacted Abbotsford, Merritt and Princeton,[4] underscoring that funds from federal and provincial governments are not guaranteed. And of course, even with this funding, it is still taxpayers who are ultimately paying.

In the same way that governments have looked to hold tobacco, opioid and other manufacturers responsible for a share of the public costs associated with harms caused by their products, BC local governments can and should look to global fossil fuel companies for a proportionate share of their communities' climate costs. This is not to say that fossil fuel companies alone are responsible for the climate crisis, only that they should pay a fair share proportionate to the harm they've caused.

Local governments are considered natural persons under section 8 of the Community Charter, capable of bringing lawsuits against private parties that cause harm to municipal infrastructure and services. Box 1 – "What is a fossil fuel company's fair share" – briefly looks at the different ways that fossil fuel companies can be said to have legally caused climate costs and what that might suggest about the fair share of individual fossil fuel company defendants.

This report does not attempt to provide a comprehensive legal opinion on how a case would be structured, but explains functionally how Surrey might support a class action lawsuit to settle the legal questions and how such an approach would eliminate risk to most local governments and manage the risk to one or more local governments that agree to serve as lead plaintiff(s). **A full legal opinion on this type of case is available from the noted law firm Arvay Finlay upon request.[5]**

Many legal scholars and experts assert that the fossil fuel industry's contribution to climate change provides a solid legal basis to hold them responsible for a significant proportion of climate costs. Twenty-eight law professors from across Canada have penned an open letter, arguing that litigation is one of the only ways to protect taxpayers from massive public costs that the climate crisis

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4 https://www.abbotsford.ca/city-hall/news-media/no-flood-mitigation-funding-abbotsford-merritt-and-princeton.

5 The author provided the representative of Surrey's Legal Department with information about how to request this legal opinion from Arvay Finlay LLP via email on 2 April 2025.

brings.[6] Andrew Gage of West Coast Environmental Law has emailed your legal department to request a meeting to discuss the legal basis for a case.[7]

Climate litigation, as a tool to fight climate change, has a number of advantages, especially when brought as a class action.

1) Local governments have few ways to raise additional revenue for things like escalating climate costs outside of raising taxes. A climate lawsuit, however, can help municipalities get much needed funds for climate adaptation and damage.

2) Collaborating with other local governments on a class action lawsuit in BC will help to minimize the costs of legal action, by sharing the costs with other local governments, and will also help to reduce risk (as discussed further below.)

3) Climate litigation relies on *existing* legal rules to seek recovery of taxpayer costs. It has never been legal to knowingly sell a product that will inevitably cause massive property damage and loss of life, nor is it legal to mislead the public about the risks of those products.

4) Climate litigation forces fossil fuel companies, investors and governments to grapple with the true costs of the fossil fuel economy, creating incentives for investments in non-fossil fuel energy technologies;

5) Climate litigation can have a global impact. This is important because too often we hear that what occurs in Canada is globally insignificant. The proposed Sue Big Oil lawsuit targets multinational fossil fuel companies for their global, historical emissions, giving local governments the power to demand accountability beyond Canada's borders.

    - Canadian law on international disputes allows BC municipalities to sue global companies in Canadian courts because harm is experienced in BC.

    - There are existing legal conventions for the collection of debt owed by fossil fuel companies across provincial and international borders, once a damage order is issued by a BC court.

[6] https://suebigoil.ca/wp-content/uploads/2022/06/Climate-Litigation-LawProfsLetter_final2-1.pdf.

[7] Email from A. Gage to P. Huyhn and M. St. Cyr, dated 27 November 2024.

## Box 1 - What is a fossil fuel company's fair share?

Critics of the Sue Big Oil campaign sometimes argue that fossil fuel companies are doing no more than providing a product and therefore it is the consumers (i.e. the public) that is to "blame" for the costs of climate change.

However, if we are "all responsible" for climate change, then fossil fuel companies and consumers share responsibility. Over 75% of greenhouse gas emissions are the result of fossil fuel burning and production,[8] although some responsibility is arguably shared with the end-user. A class action lawsuit will ask a judge to identify the proportion of climate impacts caused by the companies and their products.

Under Canadian law, a manufacturer may be liable for harm caused by their products if:

(a) The product directly caused harm when used as intended (particularly if the manufacturer knew such harm would result); or
(b) They took action that contributed to the harm, over and above selling the product.[9]

Fossil fuel companies can be said to have contributed to climate change on a legally significant scale under either of these theories.[10] However, the approach taken influences the answer to the question of what a company's fair share is.

That fossil fuel companies sold products knowing that climate change would be the direct result is well documented.[11] As early as the 1960s scientists hired by the fossil fuel industry were warning the companies' senior decision makers that the burning of fossil fuels would cause a greenhouse effect that risked massive global changes in the climate.[12] By the 1970s and 1980s, the industry had detailed knowledge of the speed and severity of climate change, including many of the expected impacts.[13]

A calculation of a company's fair share based on knowingly selling products that cause climate change could draw on the research of scientist, Richard Heede, who has calculated the emissions associated with the products of 90 entities, primarily fossil fuel companies, that are collectively responsible for about 2/3 of global emissions.[14] The largest companies, such as Exxon, Shell, BP, Saudi Aramco, Chevron, etc. are each responsible for amounts in the 2-5% of global emissions range.

A judge might also rule that some of these companies engaged in tortious actions, over and above selling the products. Several fossil fuel companies played an active role in mis-information campaigns intended to undermine confidence in climate science, keep consumers buying their products, and delay or thwart any regulations that would reduce the use of fossil fuels. This active deception by the industry likely prevented full implementation of the Kyoto Protocol and other international climate agreements,[15] resulting in significant emissions since that year.

From this perspective, certain companies, such as Exxon Mobil, may have a fair share of responsibility for climate costs that are considerably larger than the emissions associated with their own products alone.

These two theories of causation and apportionment of fair share may be complementary, with a court looking at both approaches, as well as other factors, in assigning a fair share to an individual fossil fuel company defendant.

## The logistics of a class action lawsuit

Sue Big Oil asks local governments (among other climate action), to formally commit to work with other local governments towards a class action lawsuit against fossil fuel companies and to commit at least $1 per resident to support local governments that step up as lead plaintiffs.

Before examining what this means in more detail, it is important to highlight that Surrey pledging its support does **not** necessarily mean that it will be named in the lawsuit as a plaintiff or take on any risks other than the pledge to support other local governments in bringing the case and the $1 per resident. Indeed, most municipalities supporting the campaign will only provide support to the one or small group of lead plaintiffs that actually bring the case.

However, Surrey, as a large municipality that faces massive climate costs, should consider the possibility of stepping into the lead plaintiff role, and may, in any case, wish to understand the potential logistics and risks that a local government might take on in playing that role, and how the risks might be mitigated. Please keep in mind that the lead plaintiff(s) will retain its own legal team, and therefore West Coast Environmental Law's recommendations made in this report are subject to the decisions made by that lead plaintiff with their legal team.

A class action lawsuit is a lawsuit filed by one or more "lead plaintiffs" on behalf of a much larger group (known as a "class"). Class actions arise when many parties have a similar case that could be brought against the same defendant(s), and where it is more efficient for the court to hear the parts of the case that raise similar (or "common") issues in one proceeding. For the Sue Big Oil suit, one or more municipalities and/or regional districts would file a claim alleging that particular fossil fuel companies had contributed to the loss of property, additional adaptation costs and

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8 https://www.wri.org/insights/4-charts-explain-greenhouse-gas-emissions-countries-and-sectors.

9 Paraphrased from *Hoffman v. Monsanto*, 2005 SKQB 225 (Q.B.), para. 122, upheld on appeal, 2005 SKCA 105, leave to SCC denied, 2007 CanLII 55334. Knowledge of the harm (in (a)) is based on related case-law, rather than *Hoffman* itself. Although not identified in *Hoffman*, it is arguable that a third circumstance in which a manufacturer may become liable is where it becomes aware that its product is causing harm, but fails to take reasonable corrective action to reduce or eliminate the harm. This third option is not developed in this report, beyond this footnote, because the strength of this claim is less clear in Canadian law and we would like to keep the length of this report manageable.

10 Courts will generally only hear a case where a defendant's contribution to harm is "significant." It has been argued that in a climate context, emissions are significant when they are globally detectible: Gage, A. Climate Change and the Public Right to a Healthy Atmosphere. (2013) 24 J Envt'l L & Prac 257.

11 Geoff Dembicki. *The Petroleum Papers*. (Vancouver, BC: Greystone Books, 2022); John Vaillant. *Fire Weather: the Making of a Beast* (Toronto, Ont.: Penguin Random House Canada, 2024). Video Talk by Dembicki for the Sue Big Oil campaign is available at https://www.youtube.com/watch?v=zwqtypA_GVI. A brief summary of the relevant facts in the form of legal pleadings can be found in the State of California's pleadings in its lawsuit, especially pp. 35-80, available at https://climatecasechart.com/wp-content/uploads/case-documents/2023/20230915_docket-CGC23609134_complaint.pdf.

12 E. Robinson et R.C. Robbins. Sources, Abundance and Fate of Gaseous Atmospheric Pollutants (Stanford Research Institute, 1968), excerpts available at https://www.smokeandfumes.org/documents/16.

13 G. Supran *et al.*, *Assessing ExxonMobil's global warming projections*. *Science* **379**, eabk0063 (2023). DOI: 10.1126/science.abk0063.

14 Heede, R. Tracing anthropogenic carbon dioxide and methane emissions to fossil fuel and cement producers, 1854–2010. *Climatic Change* **122**, 229–241 (2014). https://doi.org/10.1007/s10584-013-0986-y.

15 Dembicki, supra, note 11, p. 97.

interference with services and other climate costs incurred by all of BC's local governments (the class).

The lead plaintiff(s) would hire a legal team, file a case in the BC Supreme Court and ask a judge to confirm that the case can be heard as a class action. There are many advantages to structuring the case as a class action, which help manage the risk to the lead plaintiffs, as well as providing possible benefits to other BC local governments. These advantages, discussed further below, include:

- Determining early in the process what legal principles are engaged by the case and whether BC's courts foresee any barriers to this type of case; ("Eliminating barriers early in the process")
- Allowing the resolution of key legal questions for all local governments in a cost-effective manner, including for smaller local governments that likely could not afford to bring a case by themselves ("Cost effective litigation");
- Maximizing the potential financial return on the case in a way likely to help secure future funding for the case ("Maximizing financial return"); and
- Protecting the lead plaintiff(s) against "adverse costs" awards, should the case prove unsuccessful ("Protection against adverse costs").

**Eliminating barriers early in the process**

As noted above, the first phase of a class action, known as "certification", asks a judge to confirm whether the case should proceed as a class action. This key step results in a ruling, early in the process, on several key issues. These include:

- Consideration of whether there is a "cause of action," meaning a valid legal claim that could be won. Because a case against fossil fuel companies raises issues that have not previously been ruled on by the Canadian courts, this is a critical opportunity for the judge to discuss the legal principles that will guide the case, the legal evidence that will be required, and whether there are any fundamental barriers that would prevent the local governments from succeeding;

- Determination of the "common issues" that will be considered through the class action, meaning legal questions that all the local governments will need answered to determine the liability of the fossil fuel companies. This would include questions like are local governments able to make a claim in respect of climate costs, are fossil fuel companies appropriate defendants, under what circumstances could they be responsible for harm caused by their products, what is each defendant's proportionate share of harm, are there any valid defences, etc. It would not include individual issues, such as the particular climate costs faced by individual local governments;

- Finding that the local governments are an acceptable "class" of plaintiffs and that the lead plaintiff(s) is (are) able to represent their interests; and

- Confirming that the case is most efficiently and appropriately dealt with as a class action.

The $1 per resident sought by the Sue Big Oil campaign is based on building a budget to get the class action certified. If the courts ultimately rule against the local governments at this stage, on any of the above grounds, then the proposed lawsuit is over, and no further funds are required.[16]

If, on the other hand, as we expect, the courts rule that the case may proceed as a class action, then this will include a ruling by a judge that the fossil fuel company defendants could be found liable for their role in causing harm to BC local governments. This would be exceptionally important and would represent a precedent that could help guide the development of case law in Canada and around the world. From the perspective of fighting climate change, this initial court ruling is likely to contribute towards changing investor and corporate behaviour as well.

All subsequent decisions by the local governments, potential funders and others about how to proceed with the case would be guided by the judge's certification ruling. The momentum from this ruling are likely to open up many funding opportunities for the lead plaintiff. The ruling would also inform any potential settlement negotiations that might occur prior to a ruling on the common issues.

**Cost effective litigation**

Bringing a class action is a cost effective way for BC municipalities to engage in litigation on a financial challenge that affects all of them.

Rather than each municipality hiring its own legal team, a class action lawsuit allows for a single legal process to settle the "common issues" that are shared among municipalities. Class actions provide a structure for local governments to pool their resources to support the lead plaintiff(s) and creates the potential for a settlement that results in damages being paid to all members of the class, all through a single legal proceeding. Smaller local governments that would never be able to raise the resources required for this type of litigation will benefit. Larger local governments, like Surrey, can share the costs of what would otherwise be a considerable expense and risk.

Finally, because class actions typically proceed with the "common issues" first, a lead plaintiff can proceed with the litigation on a phased basis, with issues related to the specific amounts of damages incurred deferred to a future stage of litigation. This allows individual municipalities to address their unique issues only after fundamental questions of liability have already been resolved, rather than requiring a trial and evidence on all issues at the same time.

**Maximizing financial return**

Damages awarded through a class action are typically much larger than with individual lawsuits (because they amalgamate many claims into one action); consequently class actions lend themselves to contingency or partial contingency arrangements and/or private financing.

Sometimes law firms will bring a case on a "contingency" basis, meaning that the law firm will be paid by a share of the winnings, should the case be successful. In other cases, private funders will

[16] In principle, if the court were to agree that there is a credible cause of action, but find that the class action should not proceed on some other basis, an individual local government might choose to bring the case. However, this would subject that local government to significantly greater risks.

front the costs of a lawsuit, in return for being repaid with interest if, and when, the case is won. These types of arrangement are most likely where the potential damages award is large.[17]

A potential lead plaintiff can, and should, canvas the possibility of a contingency arrangement with their legal team. Based on our discussions with Canadian class action lawyers, we believe that a "partial contingency" arrangement is more likely in relation to this case, meaning that the law firm will receive some guarantee that hard expenses and perhaps a share of legal fees will be covered, but at well below commercial rates, in return for a share of a successful settlement or damages ruling. At least one prominent law firm has indicated its willingness to be retained on a partial contingency basis in this type of case, and other firms are likely to be open to such an arrangement.

We believe that the lead plaintiff is most likely to be able to negotiate an acceptable legal retainer once the class action has already been certified, confirming both the merit of the case and the potential for a large damage award or settlement.

Although the size of a class action lawsuit is likely to be considerable, a budget for the lawsuit can include many potential sources of funding, many of them much more likely for a class action lawsuit. The large number of municipalities involved in the Sue Big Oil lawsuit is likely to increase the potential to secure philanthropic funding in support of the case (before or after the certification stage).

**Protection against Adverse Costs**

Under BC law, the unsuccessful party in a court case typically owes the winner "adverse costs," which represents a portion of the winner's legal fees. For a local government bringing a case involving issues that have not previously been litigated in Canada, against large corporations that are determined to drag out the legal process, the risks would usually be considerable.

[17] Many of the U.S. cases against fossil fuel companies, even when not class actions, involve multiple local governments and, given U.S. rules around punitive damages, could be for large amounts of money. Because the U.S. mass tort bar is larger and more developed than their Canadian counter-parts, we understand that most of these cases are brought on contingency or partial contingency.

However, BC's *class action* legislation (uniquely among the provinces) changes this usual rule, so that in almost all cases, each party is responsible only for their own costs.[18] This helps to minimize any financial risk for the local government plaintiff(s).

## Post Certification

Once the class action is certified, the lead plaintiff can use the certification ruling to secure the funding required for the case to proceed and make a final decision on whether and when to proceed to the next stages of litigation. While it is possible that there could be a settlement offer at this stage, the defendants will likely be reluctant to set a precedent.

The next stage of the litigation process involves discovery and disclosure. The lead plaintiffs and fossil fuel companies will need to provide information related to the case to the other parties. This will involve providing copies of any relevant documents and answering relevant questions under oath. This stage of legal process has been hugely important in past lawsuits against manufacturers of harmful products, such as tobacco and opioids, providing implicating evidence about what the defendants knew about the risks of their products and what they did with that information.

After information has been exchanged, the case may proceed to a trial on the "common issues." As discussed above, these are the issues that the court has

## Box 2 - Full costing and solving the climate crisis

In addition to being responsible fiscal management for Surrey and other municipal governments, requiring fossil fuel companies to pay a share of the harm caused by their products is good economics for the planet and the fight against climate change.

Currently the global economic system allows fossil fuel companies and their investors to benefit financially from producing the products that cause climate change, without requiring them to pay any of the resulting costs. This separation of benefits from costs, a classic externality, gives the impression that the fossil fuel industry is a hugely profitable, wealth-creating industry.

The result is an economic system in which the costs of using fossil fuels are largely invisible to businesses, investors, governments and individuals, and fossil fuel companies are incentivized to invest in expanding fossil fuel production and in taking aggressive action to prevent governments and consumers from taking steps to move away from fossil fuel use. We have decades of evidence that this economic situation, and the resulting economic and political power,[19] and behaviour,[20] of the fossil fuel industry, has contributed greatly to the continued reliance on fossil fuels, and therefore to the severity of the climate costs being experienced now by Surrey and other local governments.

Requiring fossil fuel companies to pay compensation for their role in causing the climate crisis has the potential to put climate costs on the balance sheets of these companies. Fossil fuel companies are required to notify their shareholders and investors when they are sued, and recent research from the London School of Economics reveals that filing litigation against fossil fuel companies has a measurable impact on stock prices[21] – reflecting shifts in investor decisions.

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18 *Class Proceedings Act*, R.S.B.C. 1996, c. 50, s. 37. The exceptions are primarily around improper use of the Act or legal proceeding.

19 I. Stoddard et al. *Three Decades of Climate Mitigation: Why Haven't We Bent the Global Emissions Curve*. (2021) Vol. 46 Annual Review p. 653-689, https://doi.org/10.1146/annurev-environ-012220-011104, available online at: https://www.annualreviews.org/doi/abs/10.1146/annurev-environ-012220-011104.

20 Dembicki, above, note 11.

21 https://www.lse.ac.uk/granthaminstitute/publication/impacts-of-climate-litigation-on-firm-value/.

identified in the class action certification as being common to all the local governments' claims and will determine whether the defendants can be held liable to local governments for the types of harm claimed.

Success in the trial on the common issues will hopefully confirm that the fossil fuel industry defendants are generally liable to the local governments, but it will not determine the amount of liability owed to particular communities. Since liability will be established, there is a high likelihood that the legal team can negotiate a settlement at this stage. Any settlement will need to be approved by the court as being fair to all members of the class.

If a settlement does not happen, then individual local governments will need to hire or use their own lawyers at this stage to argue the remaining individual issues on a case-by-case basis, establishing what is owed to them. Since the key issues already will have been decided, the potential for a damages award at this stage will likely be high.

The class action process will almost certainly take some years from start to finish. The benefits from the point of view of changing corporate and investor behaviour, and educating the public about fossil fuel accountability, will accrue throughout the process (See Box 2). However, the potential for cost recovery has to wait for a settlement or damages award, which will take years, perhaps as long as a decade or more. It is worth noting that local governments routinely make funding decisions regarding infrastructure that pay out over years or decades, and that obtaining a ruling will allow the City of Surrey to make informed future decisions about the availability of funding for services and infrastructure from fossil fuel defendants.

# NEXT STEPS

We recommend that Surrey's Legal Staff obtain a copy of the legal opinion that has been prepared by Arvay Finlay[22] and meet with West Coast Environmental Law and other legal experts to confirm the strength of the proposed court case.

We hope that Surrey Council and Staff will agree that it is in Surrey's best interests to work with other BC local governments to bring a class action lawsuit to make major polluters pay a fair share of climate costs. The alternative is to assume that Surrey's taxpayers will be on the hook for an indeterminate and growing tax burden that the City has little control over. The only fiscally responsible option is to take steps towards recovery of these costs through litigation, either by supporting other local governments in bringing a class action or by taking steps to file an action itself as a lead plaintiff.

Given Surrey's size, we hope that Council will instruct Staff to work with other local governments, West Coast Environmental Law and the Sue Big Oil campaign, potential funders and lawyers and other interested parties to explore how to become a lead plaintiff while appropriately managing the risks of such litigation.

[22] Above, note 5.

If Surrey choses not to be a lead plaintiff, Surrey's support for the case, with the intention of working collaboratively with the other local governments that have made similar pledges to figure out how to proceed, is still crucial. That commitment would involve passing a bylaw or resolution, committing to support such litigation with at least $1 per resident. We have included the Resolution passed by the City of Burnaby in Appendix B for reference, but other resolutions that have been used by other local governments can be provided.

We are also in touch with the staff of U.S. local governments that have already sued fossil fuel companies, who can speak to the considerations weighed by elected officials and staff from those local governments in pursuing litigation, should this be useful.

## Other resources on the Sue Big Oil lawsuit

We recognize that Staff and Council may have a wide range of questions before pledging support for the class action or moving to initiate such a case.

We are available to answer your questions and provide support where we can.

One BC city, for example, requested West Coast Environmental Law to appear before Council *in camera* with a class action specialist to answer questions on the proposed case, which helped pave the way for that Council to pledge its support.

In addition, the following resources may assist in understanding the proposed class action and the potential role of Surrey and other local governments in it.

- Legal opinion – by Arvay Finlay (available from Arvay Finlay to local governments upon request)
- Suing Fossil Fuel Giants: An Introduction for Local Governments[23] – This document outlines how climate lawsuits work and how they can help BC communities build a safer, healthier future.
- Sue Big Oil Frequently Asked Questions.[24]
- The Local Government Guide to Sue Big Oil[25] – An overview of the reasons that a local government might choose to participate in the campaign, with links to additional resources. Some of the content of this report is drawn from the Guide.
- The Next Sue Big Oil Steps[26] – An overview of the class action process and how litigation by local governments might proceed.
- Geoff Dembicki on the Fossil Fuel industry's role in causing the climate crisis.[27]

[23] https://suebigoil.ca/wp-content/uploads/2022/06/SBOUpdate_SuingFossilFuelGiants-IntroforLocalGovernments_Feb2023.pdf.
[24] https://docs.google.com/document/d/1sODQJIN7JeU0QYokn8PAZfuCT5HQyfCp0-4rJN_A2Zg/edit?tab=t.0.
[25] https://suebigoil.ca/wp-content/uploads/2023/09/Local-Government-Guide_updated.pdf.
[26] https://suebigoil.ca/wp-content/uploads/2023/09/NextSteps_Oct-30-2023.pdf.
[27] https://www.youtube.com/watch?v=zwqtypA_GVI.

# CONCLUSION

Surrey faces a large and growing burden of climate costs that exceeds the city's ability to pay. Asking major polluters to bear some of those costs is not about blaming the industry or denying individual responsibility – it's about acknowledging our shared responsibility. A fiscally responsible Council has no choice but to pursue all legal avenues to protect taxpayers from these costs. The one thousand Surrey residents who are listed in Appendix C demand that Surrey take action to protect them from climate change and to recover a fair share from the fossil fuel industry.

Litigation can change corporate behaviour even in the short-term, but in the longer term it has the potential to help Surrey and other BC communities pay to protect themselves from future climate disasters and impacts.

# APPENDIX A – AVAILABLE INFORMATION ABOUT SURREY CLIMATE ADAPTATION COSTS

In this Appendix we have attempted to identify publicly available information about Surrey's climate costs.[28] From this research, it is evident that Surrey is already incurring tens of millions of dollars a year in climate costs. Surrey staff are much better placed to quantify these costs, and so rather than trying to make a rough estimate, we end each discussion with a series of questions for staff. We recognize that providing a comprehensive answer to all of these questions may be time consuming, but hope that Staff recognize the importance of the questions raised and their implications for current and future Surrey budgets.

## Sea Level Rise and Coastal Flooding

Sea Level Rise and Coastal Flooding are perhaps the aspects of climate adaptation that Surrey has worked on the most, including identifying the costs of adaptation. The City's award-winning Coastal Flood Adaptation Strategy (CFAS) maps out the areas at risk of flooding from sea level rise, as well as work to be done between 2020 and 2030, and in the coming decades. CFAS identifies 46 specific actions to be carried out between 2020 and 2100, intended to protect the approximately 20% of Surrey's land area that falls within the floodplain.

The costs identified in CFAS include $200 million between 2020 and 2030, or an average of $20 million per year.[29] At the time that the Strategy was written, the City had received $76.6 million towards 13 projects through the federal Disaster Mitigation and Adaptation Fund,[30] leaving Surrey taxpayers on the hook for a significant portion of the required funds. The DMAF application calculated that these 13 measures would avoid approximately $23.5 billion in climate damages.[31]

Since then Surrey made a second application to the DMAF, for a further $46 million, as part of a $116 million budget for coastal and riverine adaptation work,[32] focused on addressing climate resilience on the Nicomekl-Serpentine floodplain, with the remainder of the budgeted amount to be paid from the City's Drainage and Utility budgets, with a likelihood of some contribution from provincial funding. It is our understanding that DMAF did not approve funding for this second application, raising questions about how Surrey plans to fund this work, with a minimum shortfall of $46 million.

The longer-term costs are less clear, but are considerable, and CFAS repeatedly calls for the development of an investment strategy. Appendix I to CFAS sets out a rough estimate of the costs associated with each measure identified in the Strategy, and which decades they will be incurred in. The average of costs associated with each measure would suggest an overall cost for the CFAS of over $800 million, and a maximum cost of $1.4 million. However, it is not clear how these

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28 We contacted Surrey staff on multiple occasions to request a meeting to confirm the information discussed in this report, but to our surprise were unable to secure a meeting or other information regarding the City's climate costs.

29 Surrey. Coastal Flood Adaptation Strategy (2019), at p. 66; available at https://www.surrey.ca/sites/default/files/media/documents/CFASFinalReportNov2019.pdf.

30 Ibid., p. 68.

31 Ibid., p. 69.

32 https://www.surrey.ca/sites/default/files/corporate-reports/CR_2023-R079.pdf.

estimates match with the graph shown on page 66 of the Strategy, which seem to suggest the costs are on the higher end of that range.

CFAS also quotes, with apparent agreement, a 2012 report commissioned by the province that estimated that Metro Vancouver municipalities will need to spend $9.5 billion, and Surrey $1.5 billion, by 2100 to address sea level rise.[33] However, this provincial study was a rough estimate based on far less detailed specific actions than CFAS, and also does not reflect increases in construction costs since 2010.

In addition, it appears that the details of some of the measures identified in CFAS are still to be developed, suggesting that the costs could be considerably higher. Perhaps the most important example of this is Crescent Beach, where both the language of CFAS, and the history of the development of CFAS in the area, suggests that there are considerable risks and costs not yet entirely addressed in the strategy.

CFAS identifies four measures required in respect of Crescent Beach (maintenance of the dyke, maintenance of shoreline, drainage improvement and the 'expanded edge' approach,) collectively costing between $80 million and $250 million. However, there is a significant disconnect between these costs estimates and those offered during the consultations during the development of CFAS:

- The "expanded edge" option, as described in 2018, includes "raising and expanding the dikes to approximately 2.5m from their current heights," as well as raising roads and other associated infrastructure.[34] This option was estimated in 2018 at $100M-$1B, with maintenance costs of $11M-$100M, but would only address sea level rise to 2100, after which time new measures would be required.[35] The final Strategy, by contrast, estimates the costs associated with **all** Crescent Beach-related measures at $80 million to $250 million (and expanded edge measures between $10 million and $50 million), which seems very low compared to the cost estimate communicated to the public in 2018. No mention is made of the fact that these sunk costs will become obsolete by 2100.
- We also note that managed retreat was consider as a safer, and in the long-term cheapest, option during the strategy development process (the other options were all subject to catastrophic failures),[36] and that this option was estimated to cost $1-4 billion in capital costs,[37] although it was ultimately taken out of consideration.[38]
- Further, CFAS acknowledges that there are unanswered questions about the actual costs associated with Crescent Beach and the option outlined. For example: "Given the technical complexity, archeological significance to Semiahmoo First Nation, and **considerable cost considerations**, the Strategic Direction … will require more detailed planning."[39] Similarly,

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33 Ibid., p. 66.

34 Rebecca Gunderson. *Emergence and Disappearance: How did managed retreat move from an 'emerging direction' to being removed as a policy option in Crescent Beach, Surrey, B.C.?* (SFU Thesis, 2023), p. 32, available on-line at https://summit.sfu.ca/_flysystem/fedora/2023-05/etd22346.pdf. The expanded edge option is also described at p. 30 of Appendix III to the Strategy: Northwest Hydraulic Consultants Ltd., Coastal Flood Adaptation Strategy – Technical Background Document, available on-line at https://www.surrey.ca/sites/default/files/media/documents/CFAS_Technical_Background_Document.pdf.

35 Gunderson, ibid, quoting Surrey consultation documents from 2018.

36 Ibid, p. 84, quoting City Staff; see also p. 31-32.

37 Ibid., p. 32.

38 https://www.surreynowleader.com/news/managed-retreat-option-dropped-from-surreys-coastal-flooding-strategy-2937933.

39 Above, note 29, p. 43, Emphasis Added.

the maintenance of the Crescent Beach dyke will require "an extensive capital program … to be developed after further monitoring and consultation."[40]

Finally, CFAS, while otherwise comprehensive, appears to under-estimate the costs of sea level rise in that it costs the measures required to protect against a one-metre sea level rise by 2100 only, without looking to measures that will need to be incurred during this century to protect against sea level rise in the next one. As a result, most of the measures identified are wrapped up decades before 2100, and the costs are shown in the graph on page 66 as actually **declining** between now and 2100. The reality, of course, is that by the 2070s, we will need to be planning for further rises in sea level, and incurring new costs as a result.

**Questions for Staff – Sea Level Rise**

It is easy to see why the Coastal Flood Adaptation Strategy received an award for its careful consideration of the options to protect Surrey against sea level rise. It provides important information about what Surrey should be spending, at least in the short term, on coastal protection (about $20 million per year), as well as estimates of costs in future decades.

1. How much has been spent by Surrey in developing and implementing the Coastal Flood Adaptation Strategy to date?
2. What is the raw data behind the graph on page 66, and the total cost by decade of the measures identified in CFAS?
3. What level of uncertainty is built into the estimates? Which measures identified are fully costed and which will require further investigation?
4. What is the relationship between estimates of the costs of measures provided in 2018 during consultations and the costs estimates contained in CFAS?
5. Is Surrey on-track in terms of the implementation of the measures identified in CFAS and if not, is this due to a funding shortfall? How much additional funding is required to get implementation back on track?
6. How is the short-fall in funding caused by the failure of the second DMAF application being addressed and where will the funds come from?
7. What is the relationship between BC's estimate of Surrey's $1.5 billion in sea level costs by 2100 (cited at p. 66 of CFAS) and the costs estimates of the measures contained in CFAS? If the latter does not include all adaptation costs, what is Surrey's estimate of all required SLR-related adaptation costs?
8. What is the status of the Investment Strategy referenced by CFAS? How much has been invested and how does this correspond to CFAS requirements?
9. Have Engineering and Legal staff evaluated the possibility that litigation to recover costs could form part of the investment strategy? If not, why not?

[40] Above, note 29, p. 62.

## Stormwater Infrastructure and Flooding from Extreme Precipitation

Surrey has 23 Integrated Stormwater Management Plans in place, and a further one in development.[41] The more recent of these plans generally identify shifts in storm patterns and sea levels arising from climate change, but the plans vary considerably to the degree to which specific costs associated with climate-change in the short- and mid-term are identified. In many cases climate costs are not evaluated or are simply flagged as future costs to be monitored.

In 2013 Surrey adopted a Climate Adaptation Strategy that called on the City to:

> Incorporate climate change into the City's Integrated Stormwater Management Plans (ISMPs) and other efforts to integrate land use planning and stormwater management.[42]

Several of the ISMPs developed after this Strategy grapple with climate costs and make some specific recommendations that may suggest the possible costs associated with making Surrey's stormwater systems climate resilient.

The Bon Accord North Slope ISMP, developed by Associated Engineering in 2015,[43] considers the estimated increase in precipitation in Surrey in 2050, noting that "the City will experience an increase in peak rainfall intensity of 21% on 'very wet days (>95th percentile)." It then modelled the capacity of stormwater systems to handle this increase in intensity over a 5 year return period, identifying particular portions of the system that were unable to handle the increased flow.[44]

However, Associated Engineering notes that their modelling is unlikely to fully address the impacts of climate change on the stormwater systems, from increased erosion in watercourses to sea level rise preventing the draining of culverts beneath the South Fraser Perimeter Road and the CN railway, among other impacts.[45] Associated Engineering recommends that climate resiliency must be integrated into Surrey's Design Criteria Manual to ensure that future construction of stormwater infrastructure reflects increased precipitation levels:

> We recommend [that] ... the manual ... [p]rovide clear guidance to designers as to how to incorporate climate change impacts into sizing of drainage infrastructure. This may be addressed through a more rigorous 'minor system' return period (10- or 25-year return period), or through more simplified measures, such as adding a 20% allowance to any peak flow derived based on current methodology. The details of how climate change impacts should be accounted for in infrastructure sizing is beyond the scope of this ISMP, yet is critical, and should be addressed immediately.[46]

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41 https://www.surrey.ca/services-payments/water-drainage-sewer/stormwater/integrated-stormwater-management-plans.

42 Surrey. Climate Adaptation Plan (2013), available at https://www.surrey.ca/sites/default/files/media/documents/ClimateAdaptationStrategy.pdf.

43 https://www.surrey.ca/sites/default/files/media/documents/BonAccordNorthSlope_ISMP.pdf.

44 Ibid., p. 5-12.

45 Ibid.

46 Ibid., p. 9-1.

Other ISMPs make similar recommendations. The South Westminster ISMP, developed in 2015 by Parsons Engineering,[47] said that the City should "[r]eview the most recent data and reports on extreme rainfall events, revise the City's design IDF curves and incorporate these revisions into the Design Criteria Manual ..."[48]

The South Westminster ISMP also examined the possible impact of climate change on pumping stations used to address high levels of flow in the Fraser River, demonstrating that additional pumps could have a significant effect in lowering peak water levels during exceptional events. The ISMP noted that increasing pump capacity at the current pump stations "would be expensive," and recommended that Surrey conduct "a detailed analysis of the future design criteria for South Westminster that account for increased rainfall, sea level rise, and land-use conditions."[49]

Finally, the Fleetwood Greenway North Creek ISMP, prepared by Kerr Wood Leidal in 2016,[50] also considered different climate change scenarios, which they included for information purposes only, "as the City has not yet determined a comprehensive approach to account for and address climate change impacts on stormwater infrastructure."[51]

The Design Criteria Manual was updated in 2024, but surprisingly makes no explicit mention of climate change or how it is addressed in the development of ISMPs or other water infrastructure. At pages 59-60, the Manual requires the use of three tables showing rainfall data to calculate stormwater flow (IDF curves). We hope that these Tables have been updated to reflect climate projections, although the Manual itself seems to suggest that the tables draw on historical data from three rainfall gauges.[52]

If the Tables provided in the Manual have been updated in light of climate projections, this would provide a clear basis on which to calculate the increase in costs to the City associated with the change in the size of pipes and other costs associated with climate-resilient infrastructure.

It would be preferable if the Manual were clear on this point because, of course, the Engineers and Geoscientists BC requires its members to include climate change in the design of infrastructure,[53] and a failure to do so could potentially open the City of Surrey up to liability for flooding and property damage arising from negligent design of its stormwater systems.

Another resource that may be useful in calculating Surrey's stormwater costs is the 2018 study prepared by GHD Engineers for Metro Vancouver, *Study of the Impacts of Climate Change on Precipitation and Stormwater Management*, which updated IDF curves for the region.[54] This study explored three case studies to better understand the impact of the climate change driven IDF

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47 https://www.surrey.ca/sites/default/files/media/documents/UpperSerpentineISMP.pdf.
48 Ibid., p. 125.
49 Ibid., p. 124.
50 https://www.surrey.ca/sites/default/files/media/documents/FleetwoodGreenwayNorthCreek_ISMP.pdf.
51 Ibid., p. 5-4.
52 https://www.surrey.ca/sites/default/files/media/documents/2024-Design-Criteria-Manual.pdf.
53 https://tools.egbc.ca/Registrants/Practice-Resources/Guidelines-Advisories/Document/01525AMWYXOJJABJXV2JBKDAA5525CDJ6B/Sustainability%20Guidelines.
54 https://metrovancouver.org/services/liquid-waste/Documents/climate-change-impacts-precipitation-stormwater-for-2050-2100-report-2018.pdf.

curves on infrastructure costs, with two of the three case studies finding that the 2050 costs of infrastructure upgrades were increased by two or three times respectively.[55]

Surrey's Engineering Department's 2023-2032 Ten Year Servicing Plan identifies $375 million in drainage related servicing costs, among other infrastructure that could be impacted by increased winter precipitation.[56] Similarly, in 2023 the City of Surrey spent $25.1 million on capital expenditures related to drainage, about five million more than the budgeted $20.1 million. The proposed budget for drainage in 2025 is $27.8 million (up from $23.3 in the 2024 budget).[57] Although the Drainage Utility obviously does more than just upgrading existing systems, the two to three times increases in upgrading costs found in the Metro Vancouver case studies is concerning.

Most of the above discussion is about building climate resilient infrastructure to address extreme precipitation, but it must be emphasized that the impacts of such precipitation, can include:

- Flooding and damage to property;
- Creekbank erosion;
- Landslides;
- Road closures, potholes and other damage to transportation infrastructure; and
- Impacts/loss of aquatic habitats.

The City is well aware of the risks of the impacts of extreme precipitation, and the importance of maintaining resilient infrastructure, as indicated in the Staff Report regarding the 2021 atmospheric river,[58] which documented the success of infrastructure in withstanding the atmospheric river, but also areas where flooding and landslides did occur, the City's efforts to support neighbouring Abbotsford, and other impacts and costs associated with the event.

**Questions for Staff – Extreme Precipitation:**

Again, we appreciate the expertise of Surrey Staff and the knowledge, skill and hard work that goes into keeping Surrey residents safe from flooding. However, the above discussion raises a number of questions:

1. Does the Design Criteria Manual implicitly include a systematic approach to increased precipitation and other climate costs, as recommended by several of the City's own Integrated Stormwater Management Plans? Do the IDF Curves in the manual reflect the available climate models?
2. If the Manual does reflect climate resiliency, what is the expected increase in upgrade and climate resiliency costs associated with the climate-resiliency requirements? If not, has Surrey evaluated the expected costs to municipal infrastructure, residences and businesses, and possible liability for Surrey, arising from the inadequate infrastructure mandated by the Manual?

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[55] Ibid., p. 24 and 27. In the third case study, the 2050 IDF curves could largely be accommodated within existing infrastructure, so there were only limited (5%) increases in upgrade costs, but there were considerable costs (5-7 times) involved in upgrading to 2100 IDF curves. (p. 31) This last case study concerned a sanitary sewer, rather than stormwater systems (as was the case in case studies 1 and 2).

[56] https://www.surrey.ca/sites/default/files/corporate-reports/CR_2023-R031.pdf at p. 5.

[57] From the 2024-2028 Financial Plan, p. 303. https://www.surrey.ca/sites/default/files/media/documents/2024-2028-Surrey-Financial-Plan.pdf.

[58] https://www.surrey.ca/sites/default/files/corporate-reports/CR_2021-R246.pdf.

3. Given the expected increase in upgrade costs based on 2050 IDF curves, and the case studies suggesting a two to three times increase in upgrade costs, what is the increase in costs to Surrey?
4. Have Staff quantified how much shifts in precipitation are likely to cost the City and worked to identify measures, including potentially litigation, to secure those funds?

## Extreme Heat

In 2021, 619 British Columbians, of whom 75 were residents of Surrey, died from excess heat, the second largest number of deaths in a BC municipality (after Vancouver). While per capita Surrey's death rate was lower than some other lower mainland communities, it represents an additional 13.2 deaths per population of 100,000.[59] Although no official figures exist, it can be estimated that about 750 Surrey Residents suffered heat stroke, dehydration or other serious injuries during the heat dome.[60]

While these impacts and associated costs were borne by individuals and by the health care system, the City of Surrey has a moral and perhaps legal obligation to prepare for future heat waves and to provide infrastructure and systems to protect its residents.

Acting on its obligations, in 2024 Surrey prepared a Surrey Extreme Heat Response Guideline ("Extreme Heat Guidelines"), which outlines the specific measures that Surrey commits to before, during and after future heat waves.[61] The costs implications are not fully developed in the Guideline, and Appendix 1 to the Guideline suggests seeking reimbursement from federal and provincial emergency response programs. Nonetheless, at least some of the costs associated with planning and developing emergency response infrastructure and protocols will most likely be borne by Surrey taxpayers.

**Questions for Staff – Extreme Heat:**

1. Which of the measures identified in the Extreme Heat Response Guideline will be borne by the City and what are the costs associated with each?

## Urban Forest

Extreme heat and drought are also likely to compromise Surrey's urban forest. As noted in the Extreme Heat Guidelines, the rate of heat-related death in Surrey in 2021 was highest in areas of low tree cover, so the replacement of urban trees is a cost directly associated with protecting residents, but is most likely not covered by other levels of government.

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59 https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/death-review-panel/extreme_heat_death_review_panel_report.pdf.

60 https://www.wcel.org/media-release/physicians-lawyers-call-bc-investigate-thousands-heat-dome-injuries.

61 Surrey Extreme Heat Response Guidelines (2024). Specific commitments by Surrey are listed at pp. 9-11 (pp. 10-12 in the pdf numbering). Available at https://www.surrey.ca/sites/default/files/media/documents/2024-surrey-extreme-heat-response-guideline.pdf.

Surrey's Urban Forest Management Strategy notes that many trees in the urban forest are experiencing heat and drought stress: "In general, drought stress was observed in trees along streets, in parks and on private property. Tree loss will likely occur with climate change and an increase in the frequency of weather events similar to the heat dome in 2021."[62]

With 42% of Surrey's Tree cover located on public lands, the City is responsible for a significant portion of the resulting costs.[63] The Strategy outlines a wide range of activities and goals related to maintaining and expanding the urban forest. Such activities clearly represent real and ongoing costs for the City, but the Strategy does not provide an estimate of the associated costs.

The increased stresses on trees is likely to lead to general cost increases associated with more active or interventionist forest management, such as thinning, replacement planting, dealing with diseases, etc. It will be necessary to shift the species planted to more heat/drought tolerant species that can better withstand climate change.

The spread of pest species, such as the Hemlock Looper Moth which decimated trees in Stanley Park and parts of North Vancouver, is directly related to climate change – as these species expand their ranges and encounter stressed trees that are more vulnerable.[64]

Obviously, Surrey staff will have more information about the current, and perhaps future, mortality rate for Surrey's urban forests and the costs of keeping those mortality rates to acceptable levels. However, a literature review of tree mortality rates in urban forests found a median annual mortality rate for trees before 5 years of age of 6.6-7%, and for more than 5 years, 2.3-2.6%.[65]

Academics have noted that the tree mortality rate in urban forests will be affected by a range of factors arising from climate change,[66] and a 2009 study estimated that tree mortality in the Pacific Northwest is doubling every 17 years.[67]

The Urban Forestry Strategy estimates the cost of replacing the entire urban forest at $3.7 billion.[68] Consequently, the financial impact of a doubling of a 2.3-2.6% mortality rate, even if limited to the 42% of the urban forest that is publicly owned, would seem considerable.

**Questions for Staff – Urban Forest:**

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62 Surrey Forest Management Strategy, at page 51, available at: https://www.surrey.ca/sites/default/files/media/documents/surrey-urban-forest-management-strategy.pdf.

63 Ibid., p. 27.

64 https://www.nationalobserver.com/2024/06/05/news/stanley-park-looper-moth-hemlock-climate-change-Vancouver.

65 D. Hilbert et al. Urban Tree Mortality: A Literature Review. Arboriculture & Urban Forestry 2019. 45(5):167–200, p. 174.

66 Manuel Esperon-Rodriguez et al. Assessing climate risk to support urban forests in a changing climate. 18 January 2022. Plants People Planet. https://doi.org/10.1002/ppp3.10240.

67 P. Van Mantgem et al. Widespread Increase of Treat Mortality Rates in the Western United States. Science, 23 Jan 2009, Vol 323, Issue 5913, pp. 521-524; https://www.washington.edu/news/2009/01/22/tree-death-rate-in-pacific-northwest-doubled-in-17-years/. Encouragingly, a 2023 study found that old growth forests may be resistant to this trend: Steven A. Acker et al. Stable background tree mortality in mature and old-growth forests in western Washington (NW USA), Forest Ecology and Management, Volume 532, 2023, 120817.

68 Above, note 62, p. 14.

As with many of the plans and strategies reviewed, we were impressed by the work that had gone into the Urban Forest Management Strategy. However, the Strategy does not quantify the clear losses associated with climate change or the costs of adaptation/resiliency measures required to address those losses. Consequently, our questions for Staff include:

1. What are the costs associated with climate resiliency/tree health measures identified in the Urban Forest Management Strategy, and general urban forestry programs, and how are these currently funded?
2. Have staff observed an increase in tree mortality and what is the expected increase in mortality due to climate change in the coming decades?
3. What is the cost of replacing trees given the current tree mortality rate, and future rates associated with climate change?
4. How is Surrey's goal of expanding the urban forest, and costs associated with doing so, impacted by increases in tree mortality from climate change?

## Fire Preparedness

As we have seen with the recent fires in Los Angeles, even larger urban centres are not immune from the threat of fires fueled by climate change. While rural wildfire interface areas may be more vulnerable, rising temperatures, harm to urban trees, and dryer summers all contribute to a worsening of fire risk for all communities.

A study just released in Nature Cities models the likely increase in urban fires, and associated deaths, arising from climate change.[69] This study likely understates the current impacts, since the baseline data was drawn from 2011-2020, which is already warmer and dryer than historic levels, but it is clear that many types of urban fires are likely to increase in frequency and severity, requiring changes in fire preparedness and fire fighting.

Similarly, experts have noted the potential for urban conflagrations in the Lower Mainland, devastating whole neighbourhoods as occurred in Los Angeles, because "[w]hen you make things hotter and drier, they burn more easily."[70]

Obviously the costs of such a disaster in a dense area of Surrey could be massive, both in terms of loss of life and financially, but even the increased threat of fires is large, from increased firefighting costs, increased public education and increased insurance costs, among others.

Surrey's Climate Adaptation Plan[71] recognizes these risks, and charges the Parks, Recreation and Culture with implementation of the City's Community Wildfire Protection Plan (which it states was

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69 Shi, L., Wang, J., Li, G. *et al.* Increasing fire risks in cities worldwide under warming climate. *Nat Cities* (2025). https://doi.org/10.1038/s44284-025-00204-2.

70 D. Gee. Could Vancouver burn like L.A.? Yes, says Vancouver author of Fire Weather. (Vancouver Sun, January 16, 2024), available at https://vancouversun.com/news/could-vancouver-burn-la-easily-author-canadian-wildfires. John Vaillant. Vancouver narrowly dodged a fire disaster, but nowhere is truly safe. Globe and Mail, August 12, 2024, available at https://www.theglobeandmail.com/opinion/article-vancouver-narrowly-dodged-a-fire-disaster-but-nowhere-is-truly-safe/.

71 Climate Adaptation Plan, above, note 42, p. 85.

completed in 2013), and the Fire Department with both education of the public on fire smarts[72] and emergency preparedness.

We were unable to locate a copy of the Community Wildfire Protection Plan, or any estimates of the costs of the measures found in the Plan. Moreover, implementation of the plan may not reflect increased costs of firefighting and other day-to-day measures to combat urban fires, particularly given new information about fire risk since 2013.

**Questions for Staff – Fire Preparedness:**

1. What are the measures, and the individual and total costs of those measures, in the City's Community Wildfire Protection Plan?
2. Are there additional measures required to protect Surrey from increased risk of urban fires resulting from climate change in light of new scientific information on fire risk and the recent Los Angeles and Jasper fires? What are the costs associated with those measures?
3. How much is the City's firefighting and emergency management functions expanding or evolving, and what are the associated costs, as a result of increasing risks of fire and other climate-impacts?

## Conclusions about Surrey's Climate Costs

The above is not a comprehensive list of the types of climate costs experienced directly and indirectly by Surrey. However, as we were unable to secure further information from Surrey staff, this appendix represents the best available public information that we were able to identify on Surrey's known climate costs. Further specific actions are found in Surrey's Climate Adaptation Plan. Surrey Staff are much better placed to confirm the precise amounts of costs associated with each measure and to fill in the gaps in the information reviewed.

However, it is clear that the current costs that Surrey is either paying, or should be paying to prevent larger future losses, as a result of climate change is in the tens of millions of dollars each year.

The overarching question for Staff, addressed in the main part of this Report, is whether some portion of these considerable costs might be recovered from companies that have benefited financially from selling the products that cause climate change and have worked actively to delay a move away from those products. If there is a credible chance that a share of these costs might be recovered, this would represent an important part of the funding sources available to Surrey in keeping its residents safe from climate change.

[72] https://www.surrey.ca/about-surrey/surrey-emergency-program/urban-wildfire-preparedness.

# APPENDIX B – CITY OF BURNABY RESOLUTION IN SUPPORT OF A MUNICIPAL CLIMATE CLASS ACTION

**Resolution No. 2024 – 198**
**Passed May 13, 2024**

THAT the City of Burnaby commit to work towards a proposed class action suit against selected global fossil fuel companies, contingent upon other BC municipalities joining and raising a combined minimum of $500,000, and to set aside the equivalent of $1 per resident for this purpose; and

THAT any money awarded to the City as a result of a settlement, or court order, arising from this lawsuit be used to mitigate any current or future damage caused in Burnaby due to climate change; and

THAT the additional conditional participation in principle thresholds be achieved:

- a minimum pledge amount of 250,000 persons in other BC local governments; and
- at least one other pledge by a local government of 150,000 population or more.

CARRIED
(Opposed: Councillor Lee)

# APPENDIX C – SURREY SIGNATORIES OF THE SUE BIG OIL DECLARATION

Over 15,000 BC residents have signed the Sue Big Oil Declaration calling on their local governments to:

- take urgent action to reduce our fossil fuel use and protect us from future heat waves, wildfires, flooding and other climate impacts;
- set aside at least $1 per person towards a community fund to sue Big Oil;
- join with other local governments to file a class action lawsuit to recover a fair share of our climate costs;
- work to build equitable, sustainable systems for transportation, housing and food that put people and the planet before corporate profits; and
- cooperate with Indigenous peoples in doing so.

Over 1000 residents of Surrey have signed the Sue Big Oil Declaration calling on the City of Surrey to take these steps. To protect their privacy, their names and postal codes are being submitted in a separate document.