

The Kitsilano Climate Change Toolkit

ENGAGEMENT

ACTIVITIES

MAPS

VISIONING



Acknowledgements

We would like to thank Professor Stephen Sheppard and Cindy Cheng for their help with this toolkit.

About the Authors



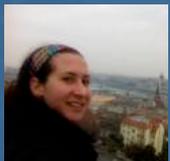
Ashley Rose is Master of Land and Water Systems student at UBC.



Roya Bennette is a Masters of Land and Water Systems student at UBC



Zack Wentz is a undergraduate in Forest Sciences at UBC



Ali Somer is a Master of Architecture student at UBC

Table of Contents

Toolkit Introduction.....	1
Climate Change.....	4
Tool # 1: Calculate Your Footprint.....	8
Tool # 2: Map Your Urban Green Space.....	14
Tool # 3: Envisioning the Alleyway.....	26
Tool # 4: Climate Change Scorecard.....	36
Disclaimer.....	42
Conclusion.....	43

Why a citizen's toolkit?

1

The answer is simple: we want to turn concern into action. We want you to share our concern about climate change and question you and your neighbour's impact on the environment. We have designed this toolkit to share our knowledge on climate change and mitigation strategies with you.

We believe in the adage; If give a man a fish, he eats for a night. If you teach a man to fish, he eats for a lifetime. Our goal is to inspire **you** make sustainable changes in your community. To get the ball rolling we are giving you the tools to implement changes in your neighbourhood.

Our toolkit offers ways for you to:

- Get your community on board
- Find out you and your neighbour's environmental impact
- Map your community and tree canopy
- Envision your alleyway
- Make changes to your lifestyle and community



How should people use this toolkit?

The way to a sustainable future is through true community engagement....

This toolkit is designed to be easy to use while providing the means to allow neighbourhood residents to conduct an in-depth analysis of the sustainability of their neighbourhood, home, and lifestyle. A more sustainable future is one where everyone is contributing to the well-being of their community and supporting each other in these endeavors.



This toolkit can be used at three levels...

Individually

Use components of this toolkit to see if your lifestyle is contributing to a greener world. For example, calculate your water footprint or use the climate change scorecard to evaluate different aspects of your lifestyle.

Household

Use the climate change scorecard to evaluate how you can make your home more efficient and sustainable. Use the Urban Forestry tools to think about what trees you might plant in front of your home to reduce storm water run-off or increase shade.

Neighbourhood

Host a neighbourhood block party and have a “sustainability” theme. Fill out the scorecard together and assess your neighbourhood. Talk about car pooling or establishing a community garden. In order for this toolkit to be used effectively, we recommend a person or a group of people be in charge of disseminating the toolkit, going door-to-door and having conversations with neighbours, and creating spaces where this toolkit can be used and where issues of sustainability can be discussed.

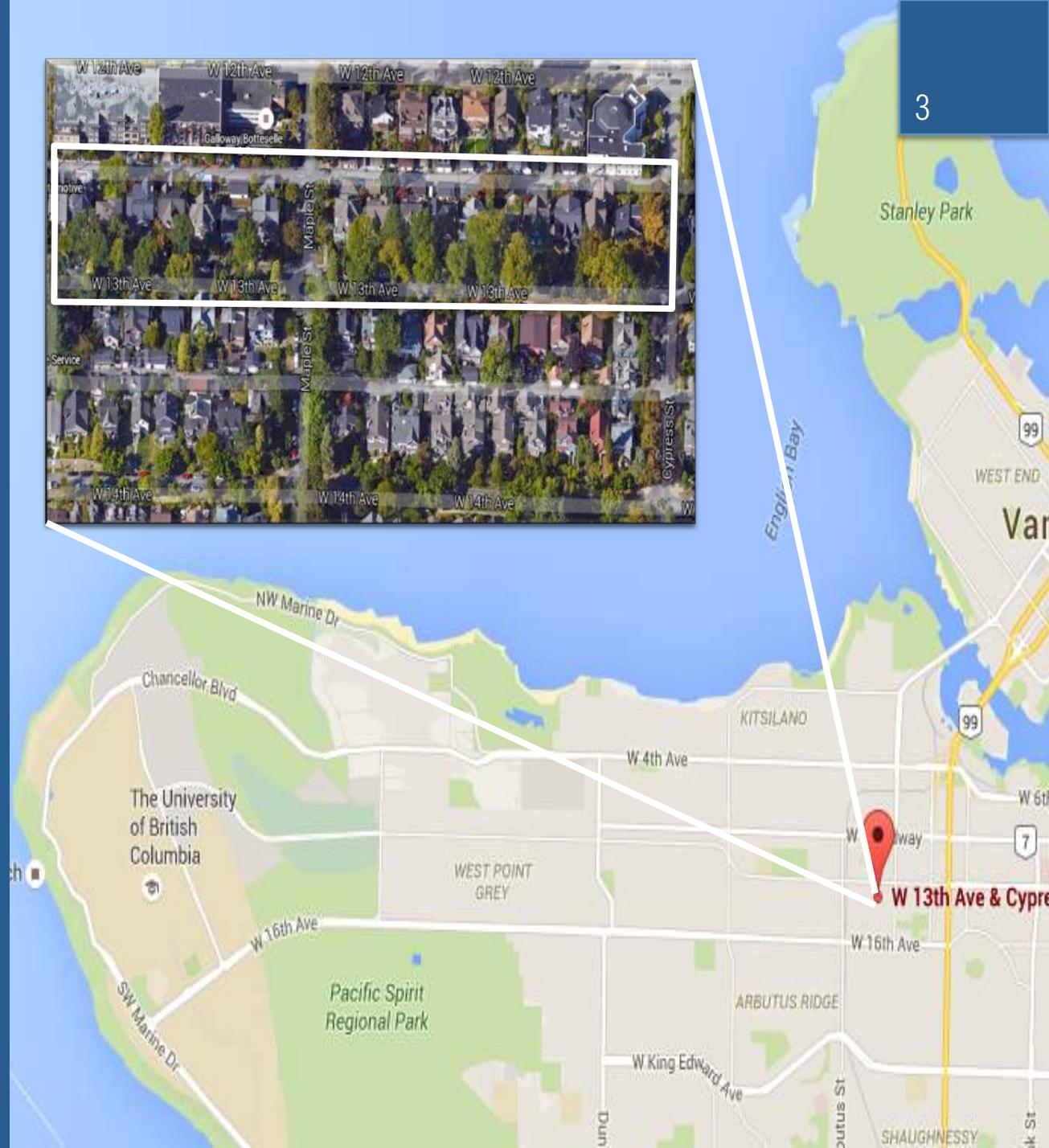
Study Site: Kitsilano

West 13th, Cypress to Arbutus

This toolkit is designed for the 1900 block of West 13th and spans from Cypress to the Arbutus corridor.* The houses in the area are mostly single family homes that have been converted into duplexes, as well coach houses. Many cars are parked on either side of the streets, only a handful of which are hybrids and car shares. Large, stately Elm trees line the sidewalks; they are a beautiful feature loved by neighbourhood residents but need to be replaced soon as they are getting old. Some residents appear to have reduced their outdoor water use by planting native vegetation in their front yards, strategically placing trees and reducing the amount of grass present.

The alleys behind the homes are bare and are only used for recycling and garbage collection. Additionally, there is a large amount of impermeable, unshaded surfaces. The alleys provide a blank canvas and an exciting opportunity to create a more sustainable neighbourhood.

*In March 2016, the Arbutus Corridor was acquired by the City of Vancouver from the Canadian Pacific Railway. It is projected to become a “green corridor” that will connect False Creek to Marpole. Plans include installing a bike lane, a walkway and a light rail. Participation of city residents will be key in the development of this area.



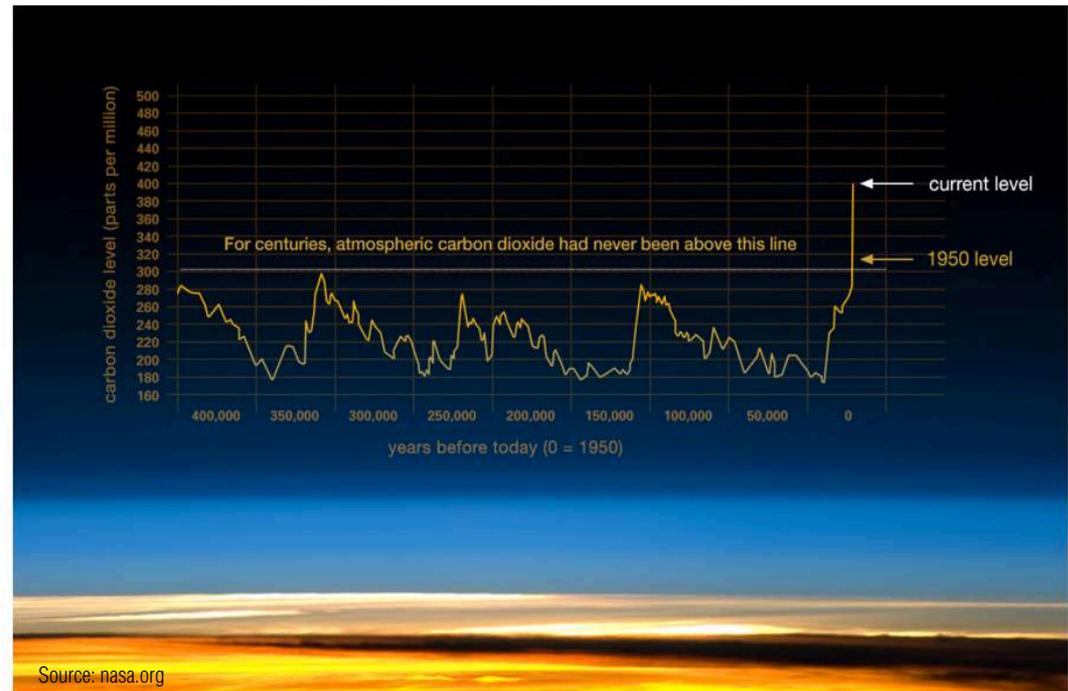
What is Climate Change?

Climate change is the alteration of the planet's long-term weather systems or average temperatures. As a result of climate change the Earth's average temperature has increased by 0.85 °C over the period of 1880 to 2012. Since 1850 each of the last three decades have been warmer than the preceding decade¹.

“Warming of the Climate System is unequivocal, and since the 1950s many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen” - International Panel on Climate Change, 2014.

Impacts of Climate Change

- Sea is projected to rise by more than 3 ft by the end of the century
- Ocean Acidification has increased by 30% since industrial revolution
- Glaciers have retreated almost everywhere around the world including the Alps, Himalayas, Andes, Rockies, Alaska and Africa
- The IPCC estimates that 1 billion people in dry regions may face increasing water scarcity
- Increased magnitude and frequency of storm events such as heat waves, droughts, hurricanes and flooding
- The World's population will reach 9 billion by 2050 , which means food production will have to increase by 60% . Climate change adds extra challenges for food security²



What Causes Climate Change?

Climate change is a result of excess amounts of CO₂ in the atmosphere from human activities such as burning fossil fuels (coal, oil and gas) and cutting down trees. Over the last 200 years, atmospheric concentrations of carbon dioxide, methane and nitrous oxide (greenhouse gases) are greater than they have been in at least the last 800,000 years (IPCC, 2014)

This has caused what is known as the greenhouse effect, where greenhouse gasses build up in the atmosphere and trap energy from the sun, which raises the temperature of the Earth.



NASA reported that 2015 was the warmest year on record but 2016 might be even hotter.

What is the World Doing to Tackle Climate Change?

In December 2015, at the Paris climate conference (COP21), 195 countries adopted the first-ever universally-binding global climate deal. The agreement sets out to tackle climate change by limiting global warming below 2°C.

As part of this commitment, Canada agreed to a 30% reduction on 2005 greenhouse gas emissions by 2030.

However, after accounting for land use changes and forestry it is estimated that only a 13% reduction in GHGs below 2005 levels will be made. According to the climate action tracker, Canada's pledge is inadequate to reach a 2°C pathway.

Check out climatetracker.org to see how different countries rate in their commitment and policies to limit warming to below 2°C.



How is Climate Change going to Impact your Community?

Climate Change in British Columbia

- Average annual temperatures have warmed by between 0.5-1.7 °C over the last 20th century
- Snow pack has been reduced by 50% over the last 50 -100 years and precipitation has increased by about 20%.
- Sea level rose by 4 to 12 cm along most areas of the coast
- Projected changes for BC include further warming of 0.9-1.8 °C
- Increased magnitude and frequency of extreme weather events³

Climate Change in Kitsilano

Extreme weather events can result in flooding, which can damage property & infrastructure and cause death or injury.

Prolonged periods of drought & heat waves put everyone's water resources at risk and reduces air quality. Expect water bans such as the summer of 2015 more often! Everyone must do their part to conserve the limited supplies of freshwater we have and reduce their carbon footprint.



Kitsilano Climate Change Toolkit

Find out how you can mitigate and adapt to climate change in your neighborhood!

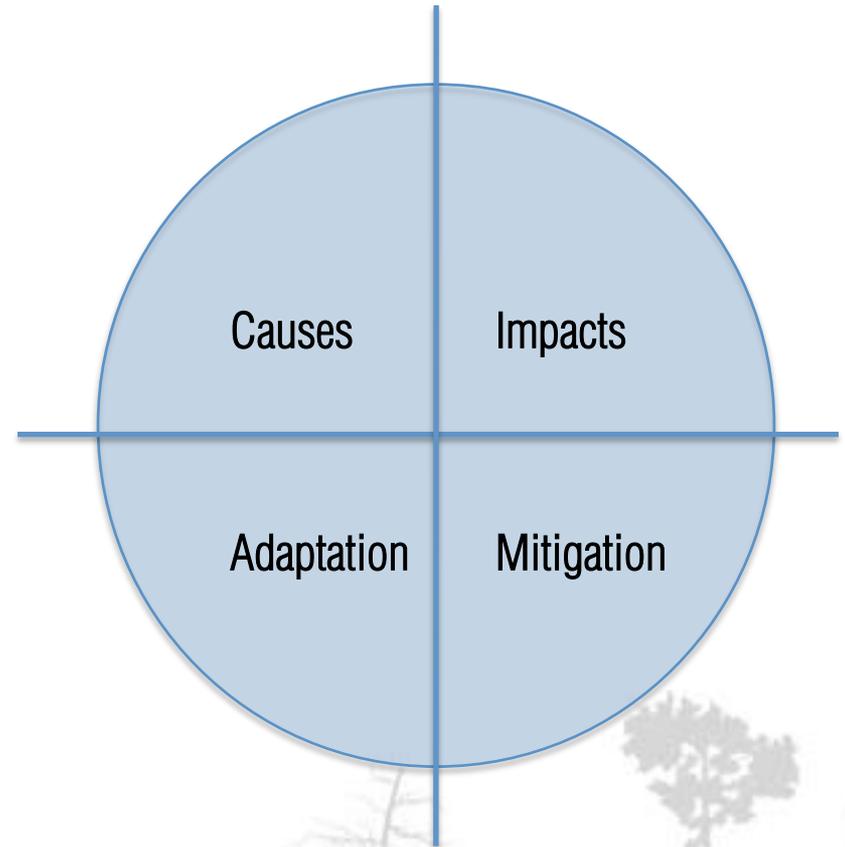
Climate Change Action

The Government of B.C has made the commitment to reduce greenhouse gases by 33% below 2007 levels by 2020 and by 80% by 2050³.

These targets have been integrated into the City Vancouver's Greenest City Action Plan with the goal of eliminating our dependence on fossil fuels.

How can you take Action?

Explore the tools in the toolkit to see how you can adapt for the unavoidable impacts of climate change and reduce your carbon footprint through mitigation efforts.



Tool # 1: Calculate Your Footprint

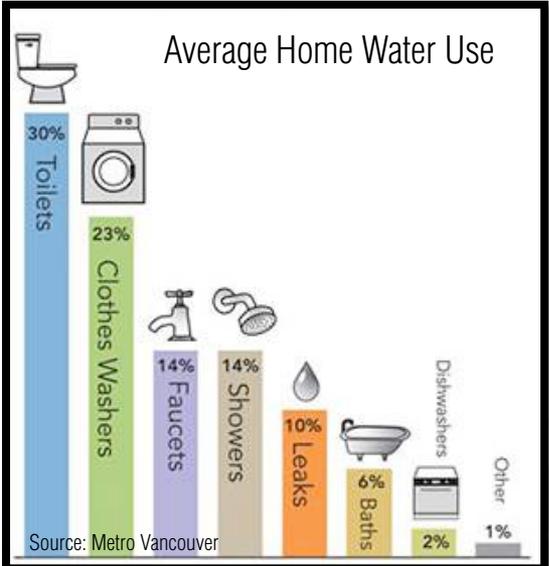
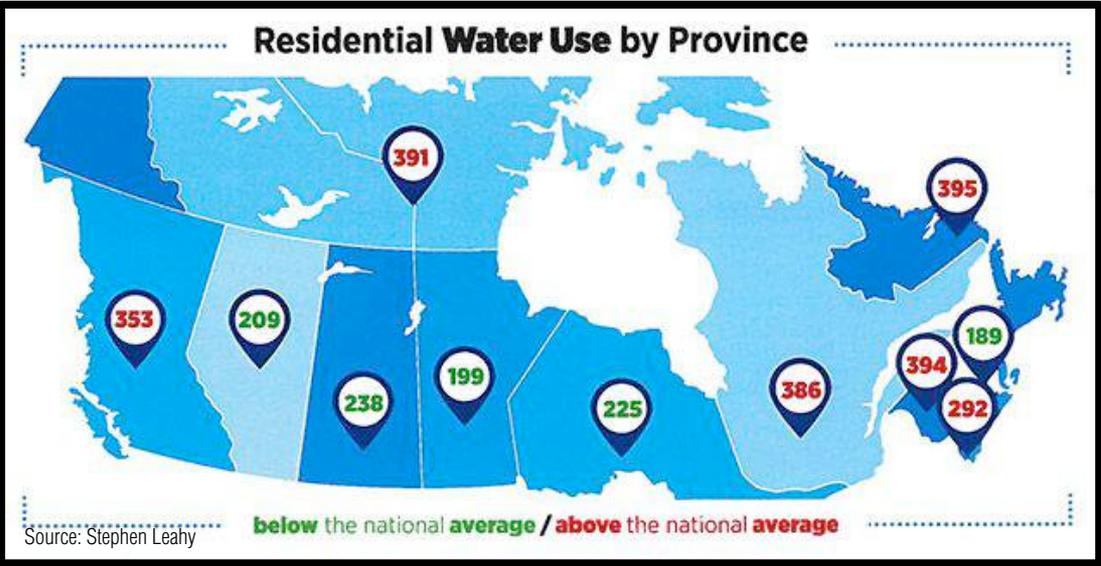
Find out how much water, land & carbon it takes to support your lifestyle!



Canada Receives a “C” Grade for Water Consumption

The Conference Board of Canada recently gave Canada a “C” grade in terms of freshwater withdrawal per capita. Canadians use more than twice the amount of water as European households and out of the 16 countries examined was rated second worse, only to the United States.

Canadian Average = 274 L/person/day¹
Vancouver Average = 490 L /person/day²



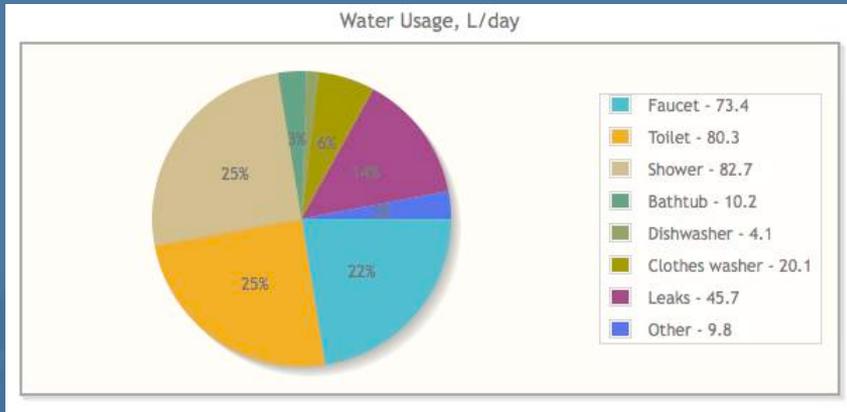
How to be a Water Conscious Community

10

Calculate your Household Water Consumption

Checkout: www.home-water-works.org

- Compare your water usage with an average house (203,113 L/year) and a water-wise house (118,864 L/year)³
- Create a plan for your household to become more water efficient!
- Record your results and see how you rate in the Climate Change Score Card!



Household Tips to Reduce Water Consumption

- Switch to high efficiency devices. For example a Water Sense-labeled toilet can save you up to 35,000 L a year³
- Daily baths instead of showers can save ~40,000 L/year³
- Repair leaky faucets & pipes. One drop per second can waste 10,225 L/year³

What is a Water Footprint?

Water consumption goes beyond what comes directly out of the tap. Have you ever asked yourself how much water it takes to produce the goods and services we consume? This is your **Water Footprint**. It is the **Virtual Water** that you never see but is used to produce, process, trade & sell the goods we use daily.⁴

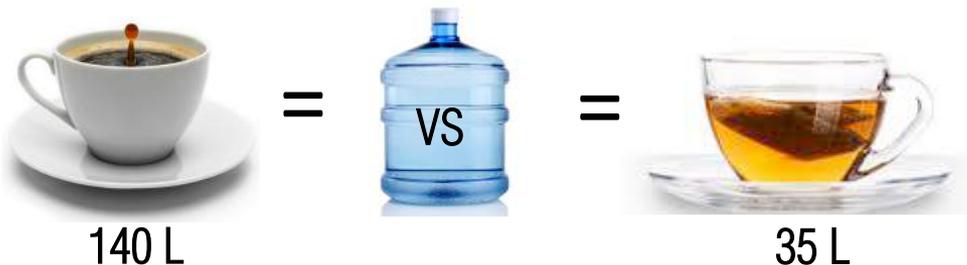
Why is this important?

Water is a scarce resource and in North America our water footprint is nearly twice the world average.

Canada = 2333 m³/yr

Global Average = 1385 m³/yr

Did you know that every year the world consumes 140 billion m³ of water for that daily cup of coffee?



1 kg of beef = 15,400 L



1 kg of Chicken = 4,300 L



1 kg of Wheat = 1000 L



1 kg of Tomatoes = 214 L



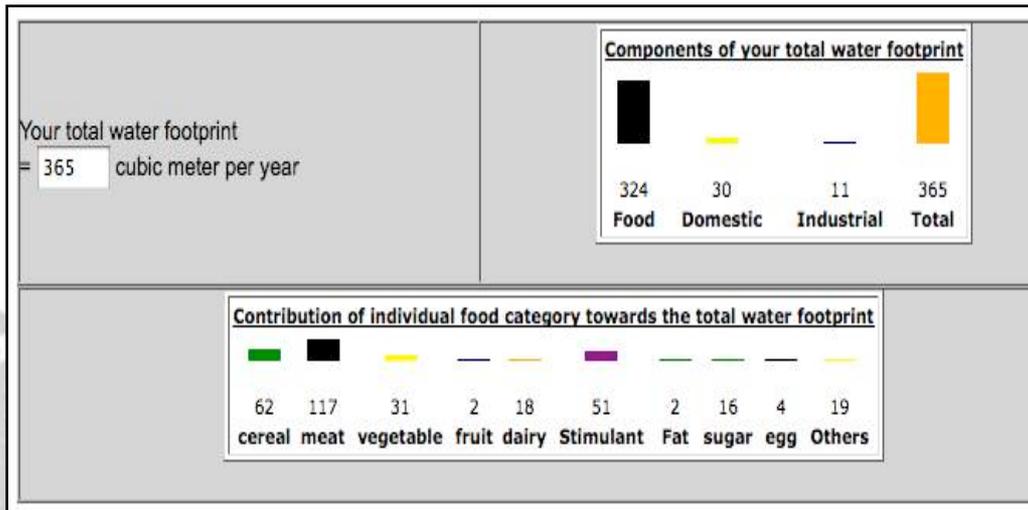
Become a better Global Water Citizen!

Calculate your Water Footprint

Checkout: www.waterfootprint.org

Estimate of how much water is required to produce the goods you consume and see how choosing different products and adjusting habits can reduce your water footprint.

Record your Water Footprint results for the Climate Change Scorecard!



Tips to Reduce your Water Footprint

- **Try not to waste or throw out food.**
 - Approximately 1.3 billion tonnes of food is lost or wasted each year⁵
 - In the US alone food waste is equivalent to pouring 40 trillion litres of water down the drain⁶
- **Eat less meat or become vegetarian**
 - Meat-based diet (3,400 calories) consumes 3,600 – 5,000 L³ of water daily, while a vegetarian diet consumes 2,300 – 2,700 L⁴
- **Reduce, Reuse and Recycle**
 - If we used our products longer and bought less we could save billions of liters of water annually.⁴
 - One pair of jeans takes more than 7,600 L & a smart phone 910 L of water to make⁴

Mitigate the Effects of Climate Change!

Calculate your Carbon Footprint

Checkout: www.carbonfootprint.com to get an estimate of how much carbon you use in your daily activities –such as driving, flying, using electricity, or disposing of waste.



See how changing some of your habits and personal habits can help mitigate the effects of climate change! Record your answers for the climate change scorecard!

Calculate your Ecological Footprint

Checkout: www.footprintnetwork.org to get an estimate of how much land it takes to support your lifestyle.

See how many planet Earth's it takes to support your lifestyle and discover ways to live more sustainably!



Tool #2: Map Your Urban Green Space



Benefits Urban Trees Provide



Heightens property value/ improves aesthetics¹

Improves air quality (sequesters atmospheric CO₂)¹

Deciduous trees provide shading reducing energy use/costs¹

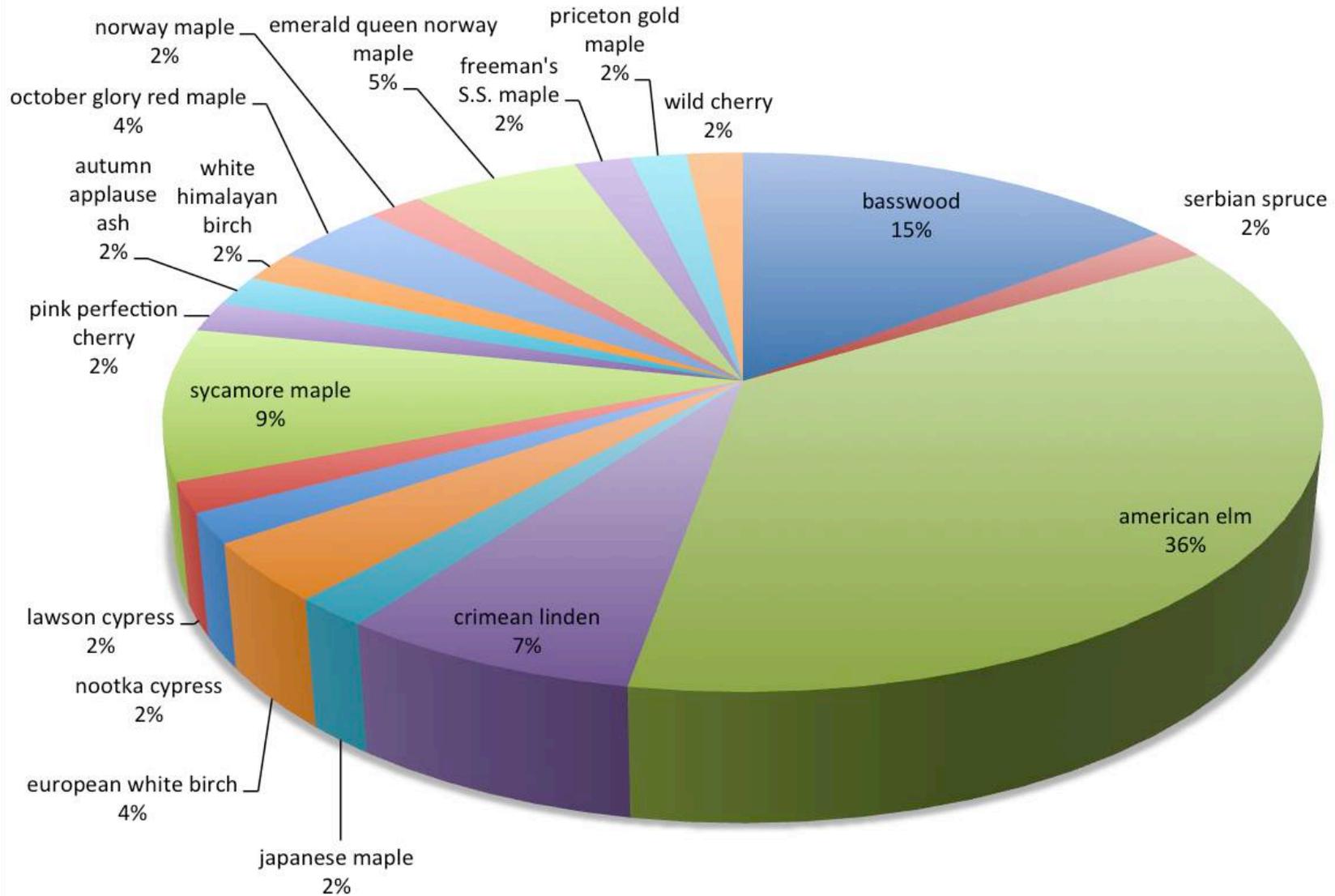
Provide soil stability/ storm water catchment¹

Potential conifer trees provide wind resistance and high storm water interception¹

Potential fruit needs³

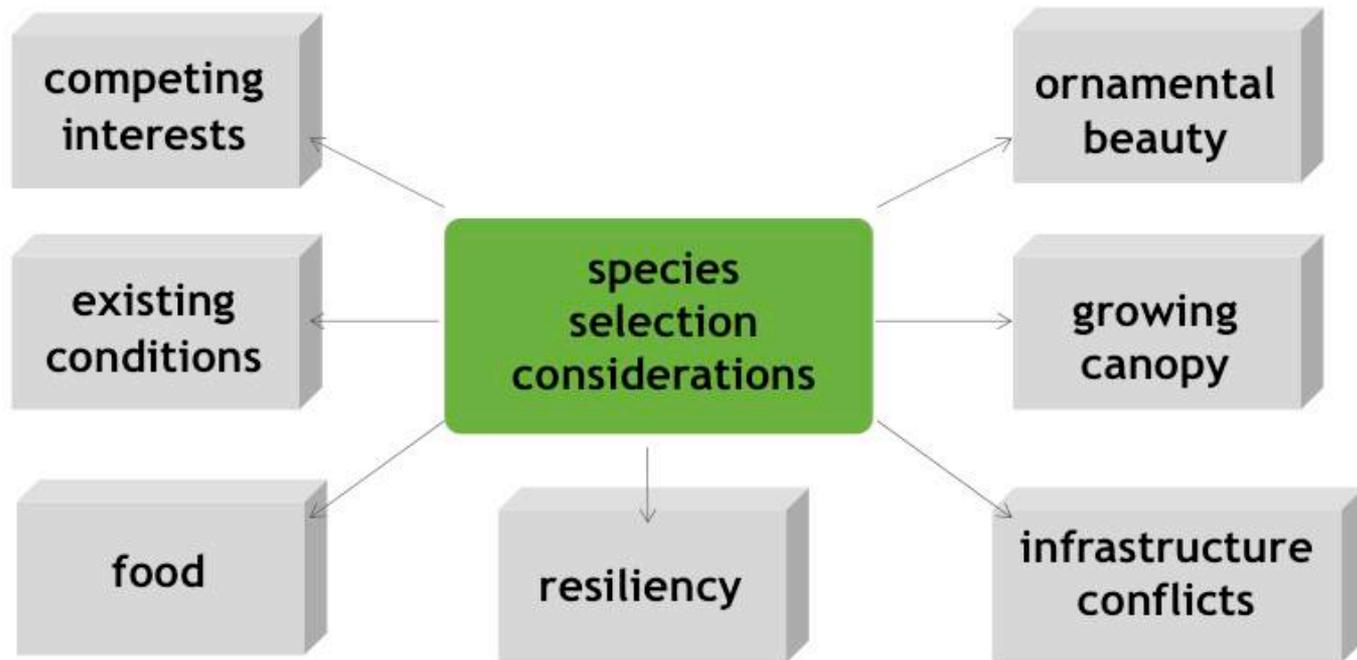
Source: Google Earth⁴

Current Distribution of Tree Species Across Block



Vancouver's Urban Forest Strategy

Factors in deciding WHAT to plant.



Source: City of Vancouver Urban Forest Strategy²

As demonstrated above, there are many factors involved in deciding what species of trees to plant in each location. Due to preserving aesthetic value and reducing infrastructure conflicts, prioritizing trees that are already found on the block is our focus.²

Utilizing This Strategy on Your Block

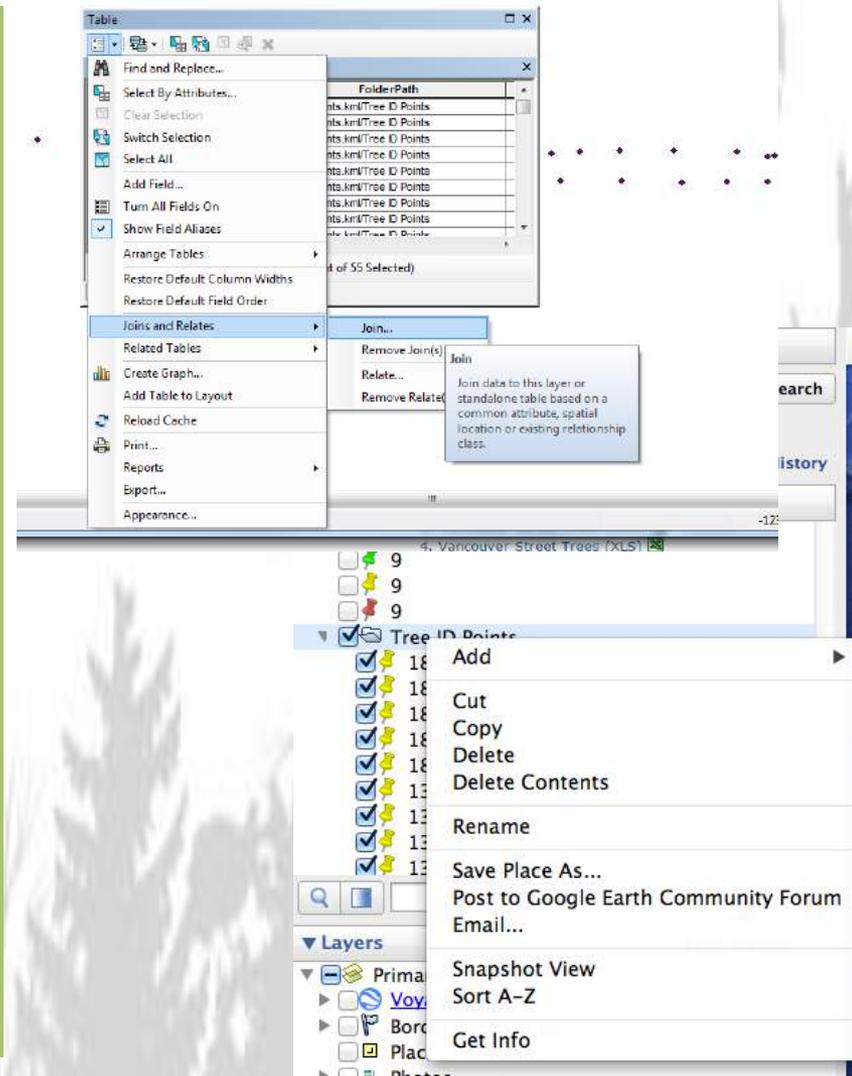
Steps to Mapping Your Street Tree Species:

1. Open Google Earth and find your block (13th and Cypress)⁴
2. Open the Vancouver Tree data at: <http://data.vancouver.ca/datacatalogue/streetTrees.htm>⁵
3. Open the Excel document named 'StreetTrees_Kitsilano'. This document will list tree species in relation to the civic address where it was planted.
4. Find all the trees on the block by identifying all the civic addresses of your block (highlight these trees in a specific color). Delete all the remaining trees that do not pertain to your block.
5. Using Google Earth, place pins at each location of each tree (best if done in Google Street View for highest accuracy). Name each tree that you place pins under the associated TREE_ID number from the Excel document (e.g. if choosing the tree in front of 2049 W. 13th Ave, choose TREE_ID of 13325 to tie the Excel data to your digitized tree pin. See attached image for details).

31	13317	2014	W 13TH AV
32	13319	2015	W 13TH AV
33	13323	2035	W 13TH AV
34	13324	2036	W 13TH AV
35	13325	2049	W 13TH AV
36	13326	2046	W 13TH AV
37	13329	2057	W 13TH AV

Utilizing This Strategy on Your Block cont.

6. After all pins are placed and named as the TREE_ID identification in the Excel document, group these new pins into a folder in Google Earth. Place all of the trees on the block into this folder.
7. Save these tree digitizations as a KML file by right clicking on the folder, choosing SAVE AS, and then choose the file type of a KML.
8. Using ArcGIS, or another similar GIS program, import the digitized trees by importing the KML file. The points will appear as discrete points in ArcGIS.
9. To associate the tree characteristics (height, species, diameter, etc) with these points in ArcGIS, use the 'Join' function by right clicking on the points layer and selecting 'Join'.
10. Ensure that for both the table that you are joining and the layer that you join the table to are selected with the TREE_ID field in both dialogue boxes.
11. Perform the Join, and now each point will be identified with tree species type, height, and diameter across your block in ArcGIS!
12. If you wish to view the tree distribution in Google Earth again, save the existing ArcGIS file as a KML, and import this layer into Google Earth.



So...How Much Benefit Does These Street Trees Have?

Now that you know what is on your block (and where each tree is planted), find out what ecosystem services each tree gives you!

Prioritize future urban forest management based on ecosystem services they provide^{1,6,7,8,}

American Elm

Ulmus americana
Average Diameter: 13.5cm
Average Height: 6m



Source: https://627.227.221.91/~ncwid/flowerovr/images/plants/Ulmus_american_a_maybe_2011-5-

Ecosystem Services Estimated Ecological Services Each Tree Supplies per Year:

- Energy savings from heating/cooling/natural gas: \$210.08(\$10.54)
- Atmospheric CO₂ savings: \$13.60 (\$0.68)
- Air quality improvements: \$1.20 (\$0.06)
- Increase in property value: \$4178.20 (\$208.91)
- Storm water management: \$85.00 (\$4.25)

Total Gains (+): \$4488.08 (\$224.44)

Cost to Plant (-): \$654.40 (\$32.72)

Overall Annual Ecosystem Services Provided: \$3833.68 (\$191.72)

*Note: Costs are in CAD, first number indicates total for the whole block while number in "()" indicates cost per tree of average diameter

For more information, go to: treebenefits.com/calculator



Crimean Linden

Tilia euchlora x
Average Diameter: 9cm
Average Height: 3m

Ecosystem Services Estimated Ecological Services Each Tree Supplies per Year (for Tilia cordata):

- Energy savings from heating/cooling/natural gas: \$1.96 (\$0.49)
- Atmospheric CO₂ savings: \$0.48 (\$0.12)
- Air quality improvements: \$0.88 (\$0.22)
- Increase in property value: \$149.84 (\$37.46)
- Storm water management: \$12.32 (\$3.08)

Total Gains (+): \$165.48 (\$41.37)

Cost to Plant (-): \$592.68 (\$148.17)

Overall Annual Ecosystem Services Provided: -\$427.20 (-\$106.8)

*Note: Costs are in CAD, first number indicates total for the whole block while number in "()" indicates cost per tree of average diameter

For more information, go to: treebenefits.com/calculator



Source: http://www.alexanderwater.com/plant-finder/media/catalog/product/cache/1/image/9df78eab33525d0865f6d27136e95173/tilia_laurel_6.jpg



Source: http://www.citrusimage.com/Trees/Crimean_Linden_1.jpg



Source: http://www.kcarboratum.org/images/treepic/tilia_x_euchlora/05-05-15.jpg



Source: <http://www.cumberland.k12.il.us/Pages/HighSchool/Starwalk/Starwalk%20Projects/Ecology%20web%20pages/American-Elm-leaves.jpg>



Source: http://www.bobrandels.edu/fldbio/Survival/Gold_Vigour/images_Ecology/elm_bark.jpg

Can calculate the economic benefit of ecological services provided by each tree and for the block as a whole^{1,6,7,8,}

Planning for the Future

- Prioritize maintaining trees with highest benefits
- Replace low benefit trees with those of higher benefits (e.g. Crimean Linden with American Elm)
- Plant the right trees in the right places!
 - Shade trees near yard to provide shading for homes⁹
 - Conifers on SW side of yard to protect against wind from storms⁹
 - Fruit trees on private property to provide sustainable food system⁹
 - Conifer trees near street to intercept storm water and control runoff flows⁹

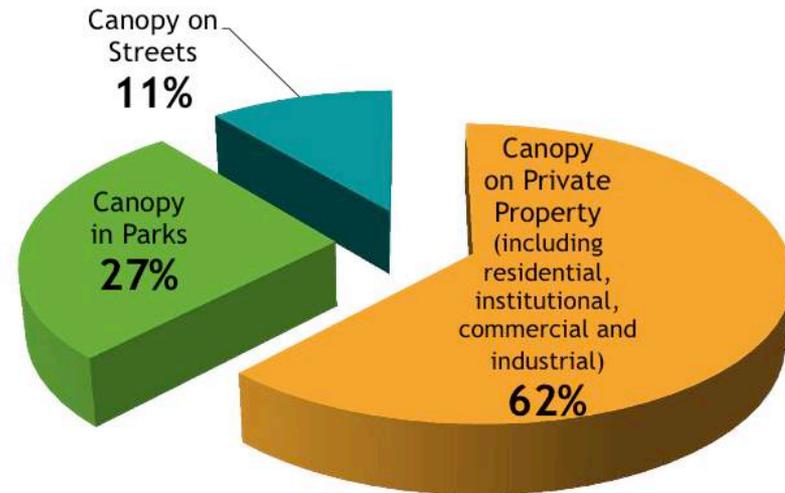


Source: <http://arbodayblog.org/wp-content/uploads/2010/08/Treeforshade-Update-300x249.jpg>

But....YOU Can Make The Biggest Impact on Your Block!

According to Vancouver's Urban Forestry Strategic Plan, and City of Vancouver VanTree mapping, 62% of tree canopy is contained on private property (and hence not even mapped by the city)²

We also found that most of our canopy is on private property.



Source: City of Vancouver Urban Forest Strategy²

Therefore, YOU have the responsibility to plant your own trees with these benefits!

Recommend planting on private property: fruit trees (plum, apple, cherry³) and conifers (spruce) to provide food and wind resistance respectively.

References

1. Casey Trees. National Tree Benefit Calculator. <http://treebenefits.com/calculator/treeinfor.cfm?zip=&city=&state=&climatezone=Pacific%20Northwest>
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9. City of Vancouver, 2015. 2020 Action Plan; Part 2: 2015-2020. *City of Vancouver*: 1-93.

The Impermeable Problem!

The First Flush Phenomenon

Impermeable surfaces on your property such as rooftops, driveways, and concrete pose serious problems upsetting the natural balance and flow of water in your watershed. Lack of vegetation and permeable surfaces in urban environments causes water to rush across the landscape at an accelerated pace, carrying with it pollutants which get deposited in aquatic ecosystems, degrading stream health. This has led to what is known as the first flush phenomenon, where high concentrations of contaminants are transported into waterways within the first 10-15 min of a runoff period¹

Climate Change

Reducing impervious spaces in your neighborhood and utilizing green infrastructure can help you adapt to climate change by reducing runoff and lessening the impact of large storm events on stream health.

Harvesting rainwater in wet months will make your home more resilient to drought and reduces the amount of non-point sources of pollution that ends up in groundwater or streams.

What can you do?

Install green infrastructure such as rain gardens, rain barrels, porous pavement, infiltration swales and green rooftops on your property to reduce peak water flows.



Become a Stewart of your Watershed with the Web Balance Model Express Tool

24

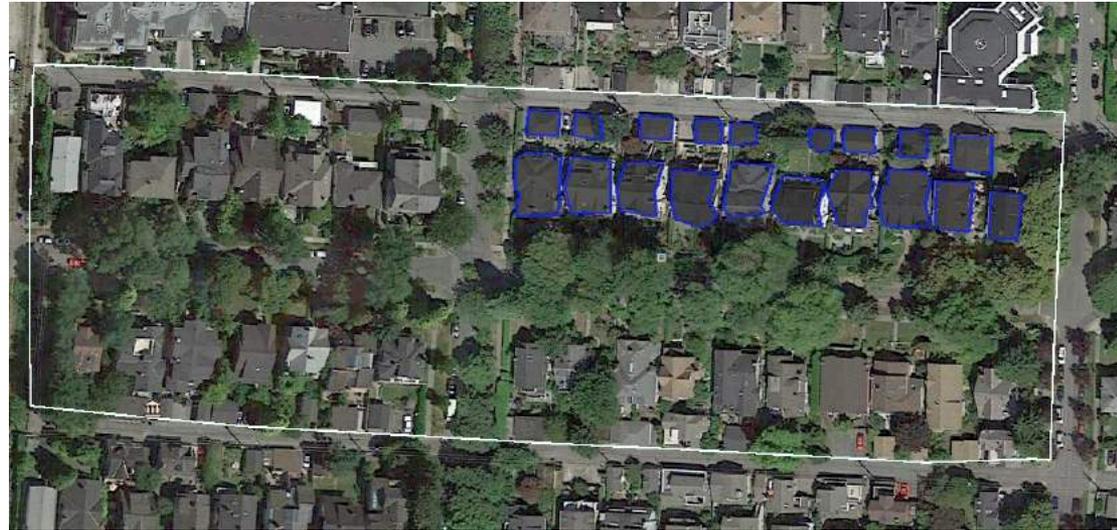
The WBM express tool was designed for landowners to explore ways to use green infrastructure to slow runoff generated from the hard surfaces on their property and mimic natural systems in order protect stream health.

Tips to get started!

Go to: www.dnv.waterbalance-express.ca

1. Sign up and start a new project
2. Find your watershed. Skip this step and just click on the green highlighted area on the map to start
3. Enter in information about your property
4. Determine the amount of impermeable area on your property by utilizing the measuring tool in Google Earth, OR enter information about your property with the following parameter that are specific for 13th Ave West Block of Kitsilano & Cypress:
 - Site Condition: Disturbed with rain absorbent characteristics'
 - Soil Type: Silty clay-loam
 - Average Property Area: 566 m² or 50ft x 112 ft
5. Experiment with the various rainwater capture devices to see how you can help protect stream health.

Use Google Earth to map the impermeable area on your property or block!



Check out the online video tutorial on YouTube:
[Water Balance Model Express Demo](#)

Water Balance Model Express

The WBM Express tool can be used to calculate the volume of rainwater that runs off the hard surfaces on your property. For example, a house (~156 m²) in your neighborhood generated 12.37 m³ of runoff, which once connected to a rain garden with storage improved stream health by almost 25%.

Slow it, Sink it Spread it!"

Landowners choose between slow release storage devices and **absorbent landscaping** devices to "slow, sink and spread" runoff from hard surfaces on their property.

The **Stream Health Dial** lets you know if the green or blue devices you chose are working to protect stream health to slow water down at the site level.



BUILDING (HOUSE, GARAGE, SHED) **HARD SURFACE (DRIVEWAY, PATIO, PATH)** **LANDSCAPING** **INFILTRATION SWALE**

INFILTRATION SWALE WITH STORAGE **RAIN GARDEN WITH STORAGE** **CISTERN WITH STORAGE** **POROUS PAVING**

Project » Kitsilano Toolbox Save Changes Print

- Site Plan -

Total Area: 604 m²

Available Area: 7 m²

Green = Healthy Stream

Building | 1915 Main House

The most important element of a GRAY BUILDING block (e.g. house, garage) is the size of the roof area. The larger the roof area, the greater the volume of rainwater runoff.

Building Properties

Target Volume

Reference Name 1915 Main House

Percentage Lot: 25.83 %

Stream Health AFTER adding rainwater devices

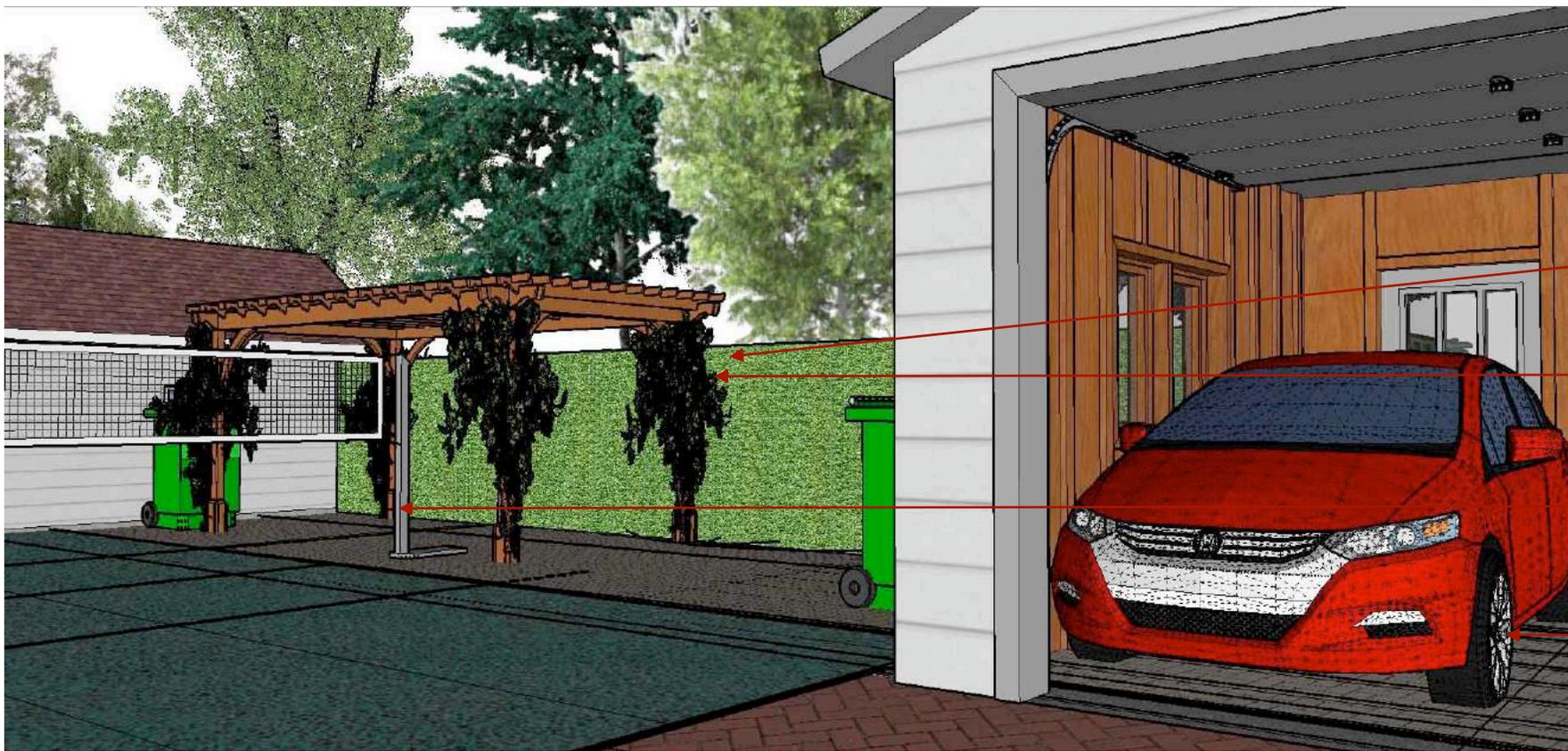
Stream Health BEFORE adding rainwater devices

Orifice Size

The device is now connected and volume has been directed to a BLUE storage device.

Tool #3: Envisioning the Alleyway





Green Fence

Trellis with Grape Vines

Volleyball Court (Permeable)

Hybrid Car

The concrete has got to go!

The current alleyway is completely impermeable. That means that all of the rainwater that touches the concrete pavement goes into the storm sewers. In times of intense rain, the storm sewers may overflow causing streets to flood.

The current slope of the concrete may also be causing you and your neighbours some problems. The concrete is sloped so that it drains towards the houses, with the apex of the concrete at the centre of the road. The water is draining towards the houses. That's bad news for your basement.





Rain Garden

Tree (reducing Urban Heat Island Effect)

Vertical Garden

Porous Asphalt

Porous Asphalt

Permeable Soft Gravel Aggregate

Got it, not more concrete but, what should we use?

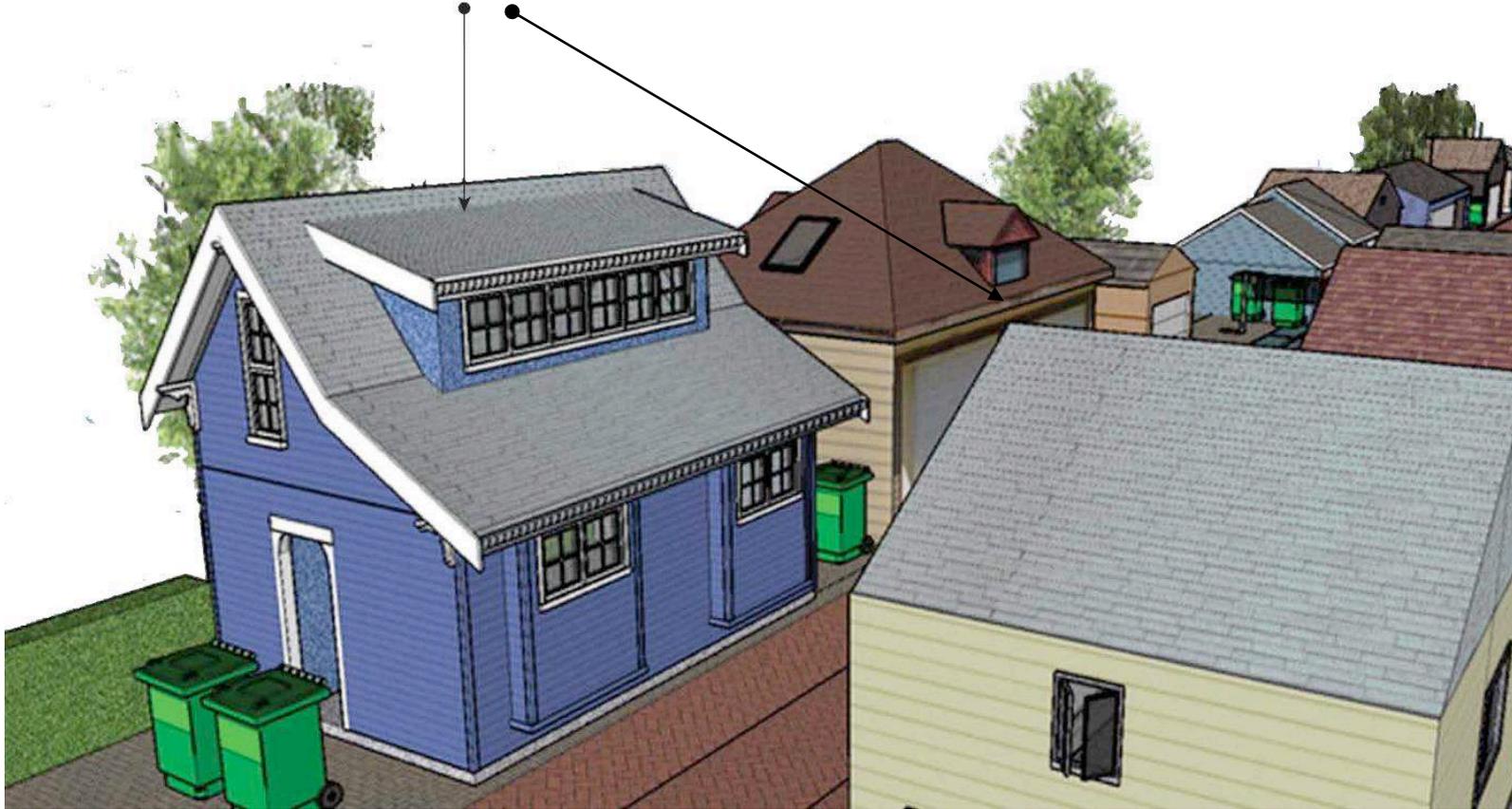
There are several permeable options that allow for rainwater to seep through the hard surface and be held as ground water slowing the rate of flow into the storm drains.

Pavers like bricks and outdoor tiles work great however, they are your most expensive option. Additionally, with cars and heavy garbage trucks going over the pavers, the ground below shifts and this can cause drainage problems.

Another other option is porous asphalt. This is a cost conscience and durable choice. Best of all, porous concrete can be stamped and dyed to look exactly like pavers.¹



Light Coloured Roof to Reduce Heat



Oh no! What can we do about this?

There are several solutions to this problem. Using light coloured (high albedo) pavement and roofing will help reduce the urban heat island effect. But to really make a big difference, add trees to your alleyway to shade the pavement and reduce the temperature.

Our alleyway is too hot to use in the summer, why does this happen?

This problem is most commonly referred to as an urban heat island effect. This occurs when the built up areas are hotter than surrounding rural areas. Heat islands can increase summertime peak energy demand, air conditioning costs, air pollution and greenhouse gas emissions, heat-related illness and mortality, and water quality.²

For more information visit, <https://www.epa.gov/heat-islands>. For local information visit, <http://www.urbanheatislands.com/vancouver>





Green Roof

Bike Rack

What other options do I have for my roof?

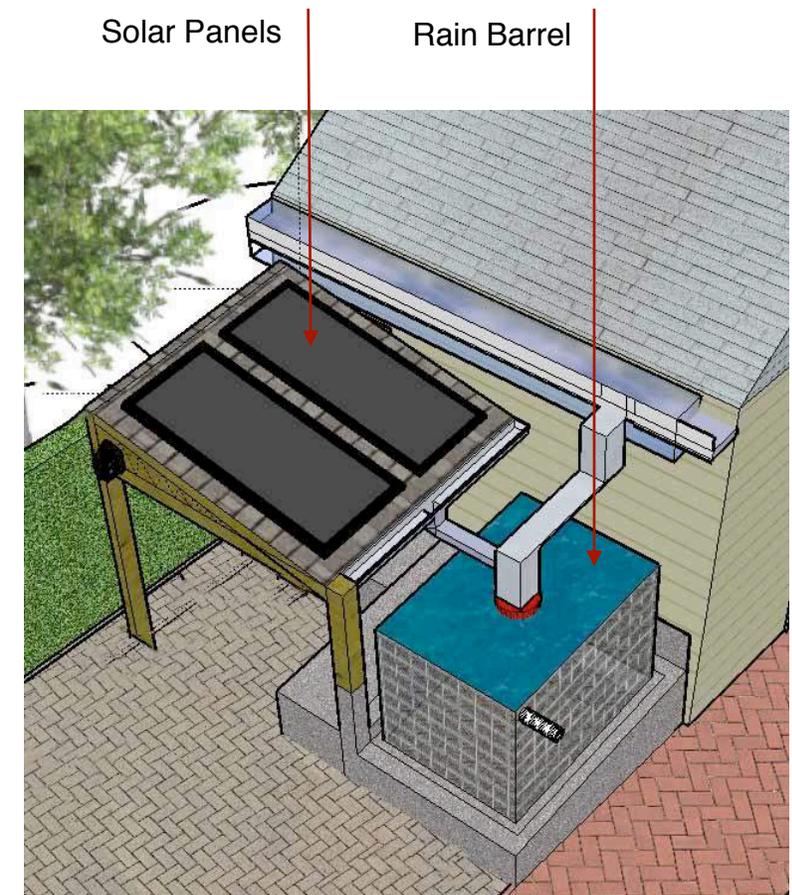
You might want to consider installing solar panels or a green roof. These options cost more upfront but in the long run could save big bucks.

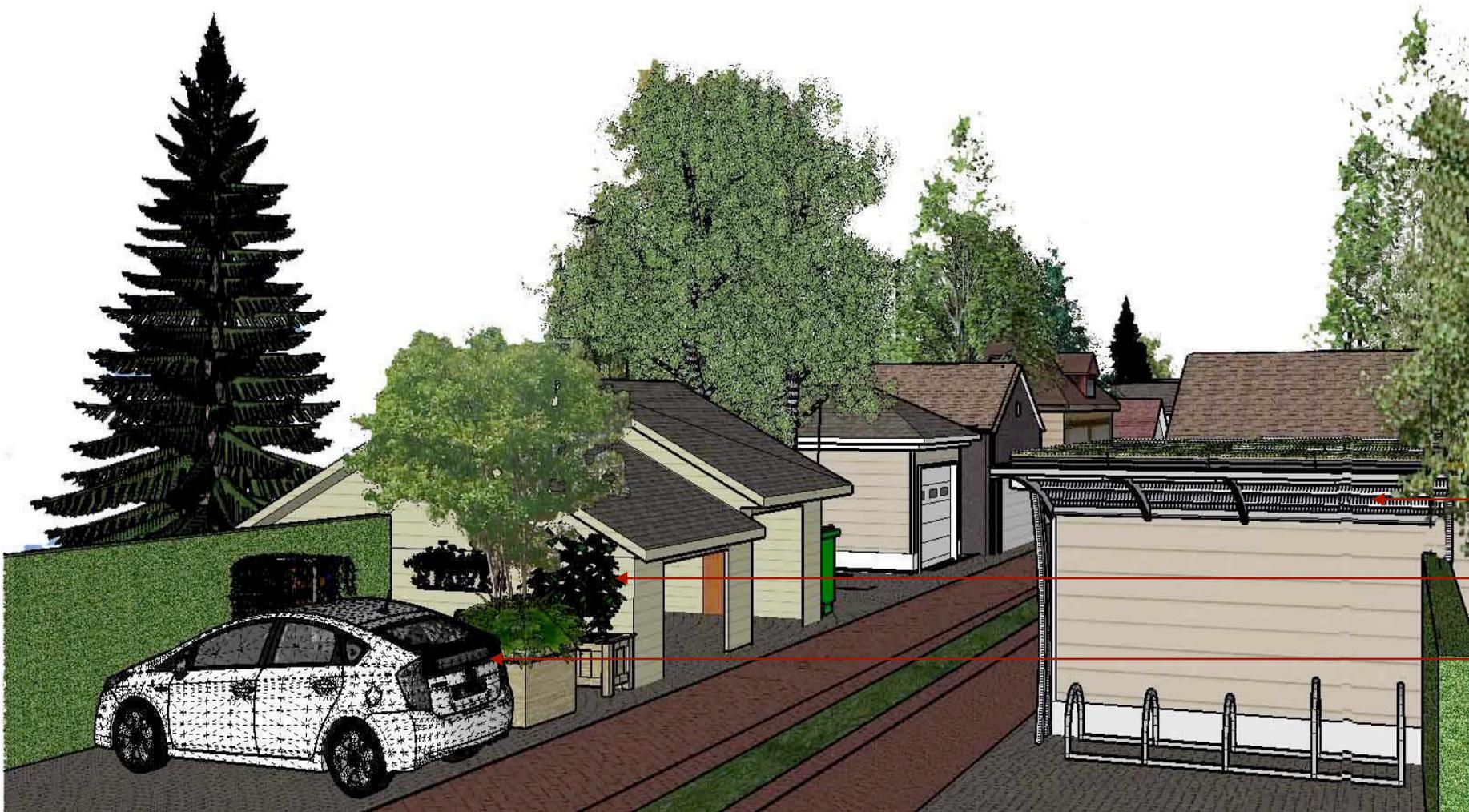
According to the City of Chicago website, green roofs cost about \$18-\$25 (US)/Square Foot. This cost includes everything from vegetation to insulation. A green roof can extend the life of a conventional roof by at least 20 years because the vegetation prevents the roof from being exposed to ultraviolet radiation and cold winds.³

Did you know that green roofs, in comparison to conventional roofs, can reduce cadmium, copper and lead in runoff by over 95 percent?⁴

For more information visit, http://www.cityofchicago.org/city/en/depts/water/supp_info/conservation/green_design/green_roofs_be_stmanagementpractices.html.

For more information about the benefits and costs of solar panels visit, <http://www.solar-power-made-affordable.com/solar-panel-calculator.html>.





Bike Rack

Vertical Garden

Hybrid Vehicle



I want to work on reducing my greenhouse gas emissions. How does this relate to my alley?

Growing your own food is a great start. Not a lot of space? You can use vertical gardens to grow climbing vegetables and fruits.

Why not add a community bike rack? It will encourage people to be active and reduce their car dependency.



Tree reducing the
Urban Heat Island
Effect

Vertical Tomato
Plant

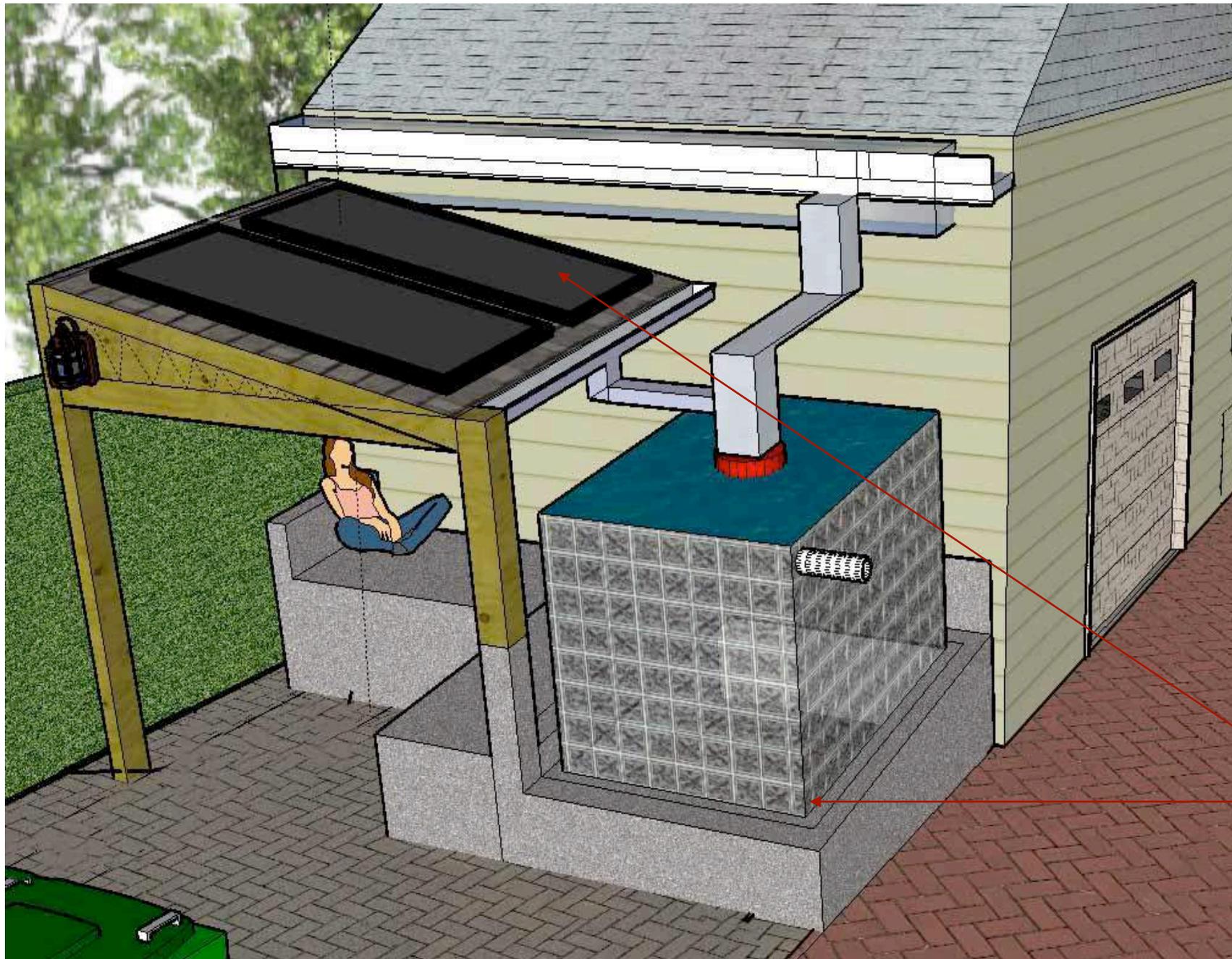
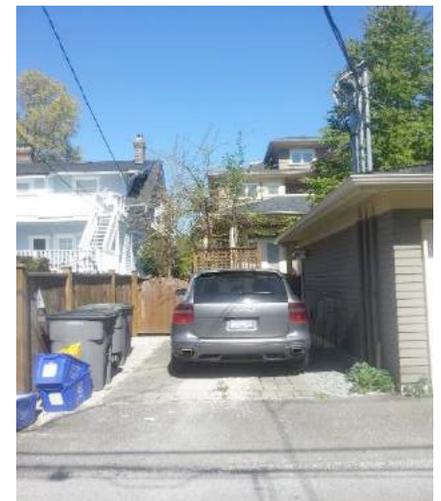
Rain, rain don't go away!

Believe it or not, Vancouver may soon have a problem with not having enough rainfall, leading to water-use restrictions in your neighbourhood. This is bad news for your trees and shrubs. Don't fret! Get a rain barrel. This will store run off water from your roof for future use. It's green for your house and your wallet. The city of Vancouver will subsidize 50% of the rainwater barrel and you will save money on your monthly water bill.⁵

For more information, visit <http://enviroworld.ca/vancouver>.

Solar Panels

Rain Barrel





We like the idea of the alleyway being a social space. What other ideas do you have for us?

There are so many things you can do. We encourage you to get creative. We envisioned outdoor eating areas and a volleyball court.

For some more fun ideas visit, [http://www.sf-planning.org/ftp/files/plans-and-programs/in-your-neighborhood/market octavia living alley/Market-Octavia-Living-Alleys-Toolkit_FINAL-WEB.pdf](http://www.sf-planning.org/ftp/files/plans-and-programs/in-your-neighborhood/market%20octavia%20living%20alley/Market-Octavia-Living-Alleys-Toolkit_FINAL-WEB.pdf) and <http://pavementtoparks.org/plazas/>.

Let's keep the ball rolling!

Want to use your laneway to inspire others? Vancouver city hall wants you to as well. Why not try to be a part of Laneway 2.0?

For more information visit, http://vancouver.ca/files/cov/SelfGuided_Laneways_Tour_of_the_West_End_June_2013.pdf.

Tool # 4: Climate Change Scorecard



Climate Change Scorecard: How Green is your Home/Neighbourhood/Lifestyle?

Purpose of the Scorecard

The climate change scorecard is not by any means exhaustive. Its purpose is to help you look at your lifestyle, your home and your neighbourhood, and see if you need to think about making some changes in any or all of those realms.



How to use this scorecard

Fill out the three different components of the scorecard and assess how sustainable your lifestyle, home, and neighbourhood are. Refer to the “How did you do?” box on this page for some final thoughts based on how many green/yellow/red boxes you filled out.

If you find that your lifestyle and home are actually pretty sustainable, how can you use your knowledge and experience to help your neighbours? How can you make your neighbourhood a greener place to live?

If you want to learn about how to live a greener lifestyle or how to make your home and neighbourhood more sustainable, refer to the “Climate Change Scorecard: Suggestions” Page.

Also included in this toolkit is a laminated hardcopy of the scorecard.

Lifestyle

Primary mode of Transportation	Bike/Walking	Green
	Car (Hybrid/Fuel efficient)	Yellow
	Car (non-fuel efficient)	Red
Do you recycle?	Yes	Green
	No	Red
Do you compost?	Yes	Green
	No	Red
How often do you eat meat?	None	Green
	A few times a month	Yellow
	Multiple times a week	Red
Do you eat locally sourced food that is in season?	Yes	Green
	Sometimes	Yellow
	No	Red
How many flights do you take a year? * Also depends on distance	0 - 3	Green
	3 - 5	Yellow
	More than 5	Red
How does your water footprint compare to the global average (1385 m ³ /yr) and to the Canadian average (2333 m ³ /yr)?	Less than or equal to 1385 m ³ /yr	Green
	Less than or equal to 2333 m ³ /yr	Yellow
	Greater than 2333 m ³ /yr	Red

Want more insight into how green your lifestyle really is? Use the carbon footprint calculator:

http://www.livesmartbc.ca/homes/h_calc.html

Calculate your water footprint here:

<http://www.waterfootprint.org>

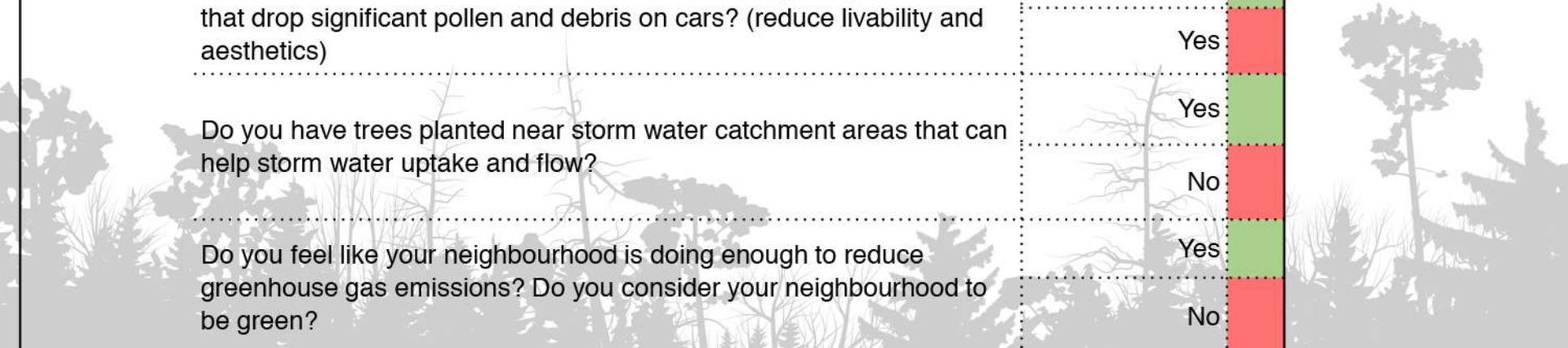
Household

How do you water your lawn?	Rainwater/I don't	Green
	Hose/Sprinklers infrequently	Yellow
	Hose/Sprinklers frequently	Red
Do you use machines to maintain your garden? (e.g. lawn mower, leaf blower)	No	Green
	Sometimes	Yellow
	Yes	Red
Are your lightbulbs LED?	Yes (all)	Green
	Some	Yellow
	No (none)	Red
How do you heat your home?	Mostly renewable energy (solar, hydro)	Green
	Fossil Fuels (natural gas, propane, heating oil)	Yellow
	Combination of renewable and fossil fuels	Red
Do you have water efficient devices installed in your home? (e.g. high efficiency toilet, washing machine, shower or dishwasher)	4 devices or more	Green
	2 devices or more	Yellow
	0 devices	Red
Do you collect rainwater?	Yes	Green
	No	Red
Do you have double glazed windows? (for insulation)	Yes	Green
	No	Red
What is the colour of your roof?	Light	Green
	Medium	Yellow
	Dark	Red
Do you grow veggies on your front lawn?	Yes	Green
	No	Red
Do you recycle wastewater in your home?	Yes	Green
	No	Red
Do you have deciduous trees with strong rooting structure positioned close to your home? (Increases shading, sustainable home energy use and storm water management)	Yes	Green
	No	Red
Do you have evergreen tree species positioned on the western side of your property? (increases wind resistance from storms/increases biodiversity and wildlife habitat)	Yes	Green
	No	Red



Neighbourhood

	Less than 5 min walk	<input type="checkbox"/>
	5 – 15 min walk	<input type="checkbox"/>
	More than a 15 min walk	<input type="checkbox"/>
Nearest Green Space? (e.g. Parks)		
Do you use your alley for anything besides parking and garbage removal?	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
Do you have any trees that provide shade in your alley?	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
Are there any neighbourhood gardens that grow veggies?	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
Is recycling common/convenient/visible in your neighbourhood?	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
Is composting common/convenient/visible in your neighbourhood?	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
Is your neighbourhood bike friendly?	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
Are there American elm trees located near roadways on your block that drop significant pollen and debris on cars? (reduce livability and aesthetics)	No	<input type="checkbox"/>
	Yes	<input type="checkbox"/>
Do you have trees planted near storm water catchment areas that can help storm water uptake and flow?	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
Do you feel like your neighbourhood is doing enough to reduce greenhouse gas emissions? Do you consider your neighbourhood to be green?	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>



Climate Change Scorecard

Some Green Suggestions

Lifestyle

1. Shop local to reduce greenhouse gasses! Visit the Kitsilano Farmers' Market on 2690 Larch St at 10th Ave on Sundays from 10:00 am – 2:00 pm (May 20 to October 1). **It's a 15 minute walk or a 4 minute bike ride from this neighbourhood!**
2. Find out where to recycle anything in the City of Vancouver:
<http://metrovancoverrecycles.org/>
3. Consider driving less and using your bike more! Use google maps to see how long it would actually take you to get places and make a commitment to using sustainable transportation options at least once a week.
4. One of the largest source of greenhouse gas emissions are often from flights. Consider ways you can decrease the amount of traveling you do; take local vacations, see if you can skype into a work meeting instead of flying to a destination.
5. Consider reducing your meat consumption

Home

1. To reduce your water consumption: Pick up a water saving kit from the City of Vancouver for only 12\$! Refer to this website for more information:
<http://vancouver.ca/home-property-development/indoor-water-saving-kits.aspx>
2. Find energy efficient appliances from Energy Star:
<https://www.energystar.gov/products>
3. Check out BC Hydro's tips for lowering your energy consumption and bills
<https://www.bchydro.com/powersmart/residential.html>
4. Change your lightbulbs to LED! Call a home hardware or Canadian Tire in advance to see if they have any in stock.
5. Buy a rain barrel for rainwater collection from Canadian Tire. Call the compost hotline for more information on rain barrels: 604-736-2250
6. If you use a cleaning service, use a green one! <https://www.aspenclean.com/> or buy green products from them

Neighbourhood

1. Consider how you can engage all of the residents in your neighbourhood; what are there barriers to participating? Who has strengths you can draw on?
2. Consider creating a space in your neighbourhood for
3. Is there potential for car-pooling with neighbours?
4. Use the Urban Tree section of the toolkit to figure out what trees you can plant in the alley ways.
5. Check out what the City of Vancouver is doing to other Vancouver neighbourhoods and get some ideas!
<http://vancouver.ca/home-property-development/neighbourhood-planning-projects.aspx>

Alley visualization

The alleyway visualization is a tool for people to be able to assess the possibilities available to them for creating more sustainable alleyways. However, the feasibility (economic or otherwise) of installing solar panels, for example, have not been assessed in this visualization. The feasibility of the various suggestions would have to be assessed before people could go forward with the ideas in this section.

Climate change scorecard

The climate change scorecard is not by any means exhaustive and probably excludes some critical assessment factors. This is an ongoing project and we are open to any suggestions for scorecard improvements. The suggestions listed after the scorecard are also not exhaustive, and again any input from residents is encouraged.

Implementation of this toolkit

The successful application of this toolkit is dependent on the willingness of the residents to engage with the material and cannot be left up to a select few individuals to implement. Additionally, though the components of the toolkit were discussed with one resident of the neighbourhood, engagement with a wider pool of residents would have been more helpful in developing this toolkit.

Scale of the neighbourhood

The scale of the neighbourhood was suggested to us by our professor, a resident in the area. This may not be the most natural boundary of the neighbourhood, and this toolkit may apply to a larger or smaller area than we had initially mapped out.

Carbon and water footprint calculator

These online calculators are helpful for getting a general idea of your water and carbon footprint, however they are not exact measurements.

Urban Forestry

Disclaimer: The extent of this project was limited on the basis of mapping a few components of the urban forest ecosystem for the 13th and Cypress block, and by no means represents a complete explanation of the urban forest ecosystem. Do not use these tools as the sole resource when making your urban forest management decisions; rather use them to get a general idea of your block's urban forest composition and benefits.

Conclusion

There is often a disconnect between recognizing the cause and effects of climate change in our own communities and finding local solutions to living a more sustainable lifestyle. Sustainability is defined by the United Nations as “meeting the needs of the present generations without comprising the ability of future generations to meet their needs.” The Kitsilano Toolbox is designed with the goal of helping people apply this big picture concept to make a positive impact in their own communities and make sustainability at home a reality. The engagement activities in this toolbox will give the residents living in the block of 13th and Cypress the power to recognize the relationship between causes, impacts and solutions to climate change and to take action. By doing so, your neighborhood can set a new standard for sustainability in Metro Vancouver and eventually the world at large. The toolkit will aid your community in leading the way towards a more sustainable future by encouraging you to “think globally and act locally.”



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