AUGUST 2023

Town of Brighton
Climate Action Plan

Version 1.0

Developed For
Brighton Town Council, Utah

Presented by
Kazi Sustainability Consulting, LLC

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About Kazi Sustainability Consulting, LLC

Founded on the principle that we can make a difference through combining strengths and innovation. Whether aiding an individual, business, or municipality towards their sustainability goals, KSC has incredible resources within Salt Lake City, the Ski Industry, Mountain Communities, and beyond.

We are community members that are passionate about protecting and celebrating that which makes the Town of Brighton so special and unique.

Your Consultants:

Erika Kazi

OWNER & CEO / GRANT & COMMUNITY CONSULTANT

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WASTE, WATER, & EDUCATION CONSULTANT

Introduction

The Town of Brighton, located at the top of Big Cottonwood Canyon - just outside of Salt Lake City, Utah - is facing and will continue to face the impacts of human induced climate change. As a means to reduce these impacts and enhance efforts of environmental protection, **a Climate Action Plan is required**.

This plan outlines the current state of emissions, opportunities for emissions reduction, financial support on the local and national level, collaborative opportunities for projects, and more. The information provided will lend to a deeper understanding of the state of affairs within Brighton and also yield opportunities for project implementation.

Since its incorporation in 2020, the residents and council members of the Town of Brighton have made concerted efforts to improve the livelihood and experience of all those who live, work, and recreate within Big Cottonwood Canyon. Residents of this community are passionate and dedicated to the following: educating visitors on the incredible aspects of the canyon, providing safe and opportune recreational opportunities, and promoting a healthy lifestyle for residents.

As a supplement to the Brighton General Plan delivered to the council in the Fall of 2022, and as a means to supplement the up and coming Central Wasatch Commission's Big Cottonwood Canyon Mobility Action Plan, this Climate Action Plan was requested and sought after by the Town Council. **Motivated by conversations with town members & experiences living and working within the Town of Brighton, this plan will have the opportunity to bring the Town of Brighton to the forefront of the mountain community climate efforts.** It will emphasize the strength of the community through research, networking, and implementing solutions.

Setting a Target

In order for the Town of Brighton to successfully achieve sustainability within their operations & functions, a goal must be set and publicly announced and adhered to.

We recommend the following goal:

The Town of Brighton will reach Net Zero by 2030 through energy efficiency programs, public transportation initiatives, waste reduction efforts and more. The use of offsets will be tolerated if all other means have been addressed.

Mountain Towns 2030

This group offers services and support in the form of webinars, conferences, and connections with other mountain communities striving for the same goal. Join in this effort by committing to this Net Zero by 2030 goal!

See the "Net Zero Pact" here: https://www.mt2030.org/mt2030-net-zero-pact/

MOUNTAIN TOWNS 2030

Why 2030?

The World Resources Institute's scientists have determined that in order to *avoid the worst climate impacts*, we must limit global warming to 1.5 degrees C through dropping global emissions by nearly half by 2030.

Setting a "Net Zero" goal aligns with this global effort as it takes into consideration the ability to reduce by over 1/2 of emissions while relying on offsets and supporting other sustainability projects until *TRUE ZERO* can be met.

Current State

Emissions are not currently tracked on a continued basis for the Town. **We recommend tracking emissions or using an Emissions Estimator Tool in the future (like the BEE, outlined in the appendix).**

These are the categories that should be collected:

Scope 1:

- Household/business/town operations propane & natural gas use
- Town vehicle operations
- Wood used for fires

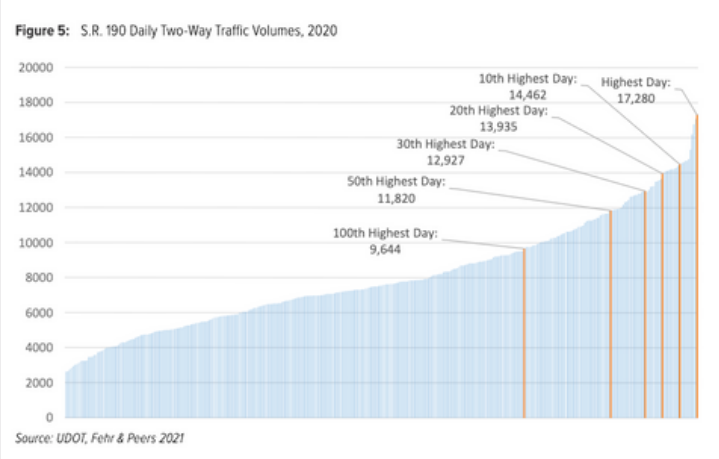
Scope 2:

- Household/business/town operations electric use through Rocky Mountain Power

Scope 3:

- Waste sent to landfill
- Current estimation: **43,280 MTCO2e**

We calculated an estimated travel emissions from canyon traffic and visitors. Data utilized for this calculation was pulled from the Mobility Action Plan.



Canyon Traffic Annually: 22,269 MTCO2e

- **Annual Travel: 2,121,562 vehicles**
  - Or 63,646,875 miles driven annually in the canyon by all visitors and residents.
- Equation used: https://saveourcanyons.files.wordpress.com/2018/01/tri_canyon_visitor_use_estimate.pdf
- Based on data collected for the 2022 Mobility Action Plan for Big Cottonwood Canyon for 85th percentile of 2020 Two-Way Traffic Volumes on S.R. 190

Townwide Survey & IRA

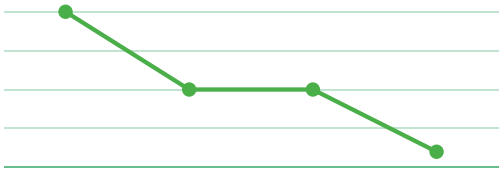
Kazi Sustainability has created a survey for residents to estimate emissions from individual households and help residents find government incentives to save money and energy.

$7,500

Electric Vehicle Rebate per household

75%

EV charger reimbursement through Rocky Mountain Power.



Cost Savings with IRA

Households and residents can expect to see prolonged cost savings through programs offered by the IRA.

$2,000

For households who implement energy efficiency systems with 20-34% reduction

In order to properly address infrastructure concerns of Brighton residents and to collect information on what benefits each resident can qualify for through the Inflation Reduction Act (IRA) of 2022, a survey has been developed.

It will include questions about:

- Residents' homeowner status
- Existing infrastructure
- Current habits of disposing of waste
- Installation of a personal Electric Vehicle Charger
- Purchase of an Electric Vehicle

Future infrastructure built will be based off of the expectations of efficiency and the Town of Brighton can utilize this information in future planning.

Once surveys are completed by residents, Kazi Sustainability will use an incentive guide from the IRA to see which programs residents can qualify for and develop a recommendation. **Not only is this a great opportunity to lower individual emissions, but save money as well.**

Links:

- **Survey:** https://forms.gle/8oxk8TyLkSQRzU3z9
- **IRA Program Incentives:** https://www.rewiringamerica.org/app/ira-calculator
- **Rocky Mountain Power EV:** https://www.rockymountainpower.net/savings-energy-choices/electric-vehicles/utah-incentives.html

Climate Risk Assessment

"Climate change affects the natural, built and social systems we rely on individually and through their connections to one another. These interconnected systems are increasingly vulnerable to cascading impacts that are often difficult to predict, threatening essential services.."
- Fourth National Climate Assessment

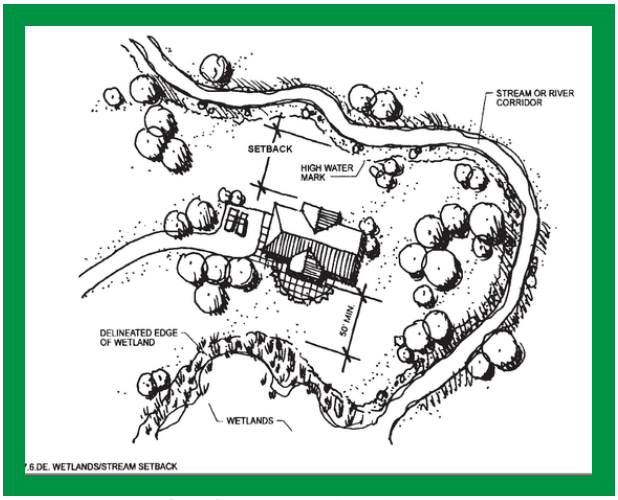
Utah's Salt Lake County, and other surrounding counties are listed as "Red Flag" for drought-like patterns based on absolute and relative changes in water supply and demand. 98% of these "LDS enclaves" are projected to experience extreme risk with drought and drought related climate catastrophes.

With these drought conditions, Northeastern Utah will see increased likelihood of wildfires, potentially experiencing up to 1 very large wildfire (ones that burn over 12,000 acres) per year.

The drought, wildfire, and lack of water will cost more than a 2% loss to Utah's GDP, with one of the hardest hit industries being the snowsports industry as the Lake Effect Snow disappears with the drying Great Salt Lake (expected to disappear by 2024 without dramatic increase in water inflow).

Big Cottonwood Canyon is especially at risk due to it's dependence on snowfall for financial income & water resources to prevent drought and wildfire. This climate action plan will provide various resources to reduce the impact of these impacts.

Water



100 foot setbacks from riparian areas for new construction to limit harmful effects on waterways and wildlife.

ALERTLABS

Installing smart leak detection systems for the community water pipes will avoid detrimental leaks in the future.

Requiring new construction to have a plan in place for adding to the drinking water and sewage treatment load for the canyon.

Rising air and water temperatures and changes in precipitation are intensifying droughts, increasing heavy downpours, reducing snowpack, and causing declines in surface water quality, with varying impacts across regions.

Future warming will add to the stress on water supplies and adversely impact the availability of water in much of Utah.

Changes in the relative amounts and timing of snow and rainfall are leading to mismatches between water availability and needs in some regions.

The Town of Brighton heavily relies on snow levels for tourism and their economy.

There are four main ways in which the Town of Brighton can improve their current water conservation methods:

1. Investing in a drinking water monitoring system, utilizing supervisory control and data acquisition for 24/7 leak detection
2. Upgrading existing drinking water supply lines & upgrading water metering
3. 100 foot setback from all waterways for new construction
4. Reduce the allowable square footage for new builds, so as not to overwhelm the drinking water & sewer systems

Waste

In 2022, the Town of Brighton sent approximately **832.5 tons of garbage** to the landfill, and diverted approximately **490 tons of recyclables** out of the landfill through recycling. For the 436 residents that call the Town of Brighton home, they produce approximately **11.5 pounds of trash per day**, which is more than double the national average of 4.5 pounds. Since the two ski resorts were excluded from these figures, it can be assumed that with the high amounts of nightly rentals found in the canyon, the number of waste produced is elevated.

833 tons

of garbage sent to the landfill from the Town of Brighton in 2022

490 tons

of recyclables that were kept from a landfill from the Town of Brighton in 2022.

11.5 lbs

produced per day for each of the 436 Town of Brighton Residents

$400

per month cost of adding compost and glass recycling for all residents.

28%

of waste deposited in landfills can be composted. This waste leads to increased methane emissions, a potent greenhouse gas.

To reduce the amount of landfill bound material, residents and visitors must be encouraged to divert and create less waste. **It is a lot easier to reduce waste than deal with waste once it has been produced.** Encouraging businesses to eliminate single use plastics and products will go a long way.

There are four steps that the Town of Brighton can take to reduce landfill bound waste in the canyon:

1. Conduct a Waste Audit
2. Food Waste and Glass Recycling Pilot Programs
3. Adding Code to require bars and restaurants to recycle glass/food respectively
4. Investing in recycling infrastructure

Performing a waste audit will outline areas that the Town can improve upon, and waste streams that aren't currently being diverted. Adding both **food waste and glass recycling** could be done for as low as **$400/month. (See Appendix C for waste bin inspiration).** Once recycling programs are established, updating town codes to require food waste and glass to be recycled at establishments that hold liquor and/or food handlers permits would be recommended. Lastly, investing in infrastructure to handle recyclables, especially hard to recycle items, would allow the Town to reduce their waste even more.

Banning Single Use Plastics & Styrofoam

To further encourage waste reduction in the canyon, **Kazi Sustainability recommends a ban on single use plastics and styrofoam**. Grab and go restaurants contribute a lot towards "take-out" plastics and styrofoam, and an effort to reduce this waste is necessary.

Plastic cutlery, to-go containers, and straws are a **main source of plastic and styrofoam pollution** in the world, and the Town of Brighton has the opportunity to reduce that source.

50% of plastics are used once and then thrown away.

Only 5% of recycled plastics are actually recycled.

It takes 500 years for styrofoam to break down and decompose.

A town-wide ban on single-use plastics and styrofoam encourages residents and visitors to bring their own containers. Resorts and restaurants can then provide accessible alternatives such as paper based to-go containers, compostable options, or aluminum based single-use options.

Electricity

PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5
Survey Distrubruted	Incentive Information	LED Bulb Transtions	Improved Infrastructure	Solar Panelling

Through the use of the town-wide survey, Kazi Sustainability is able to assist each resident with finding subsidized funding in order to **curb electricity use and increase cost savings**.

Phase 1 of our efforts includes implementing simple, energy efficient modifications to each household. By creating regulations within the Town of Brighton to transition traditional bulbs to LEDs (Light-emitting diodes), **the town of Brighton could see an 80% decrease in electricity usage and emissions as compared to traditional bulbs each year**. We recommend offering a $100 incentive to residents and businesses to help drive this change.

Surveys will also be used to determine how many bulbs are in each resident's household. From there, both savings - derived from the current cost of traditional light bulbs in each household and the cost after LEDs lights are implemented - and possible incentives will be delivered.

A midterm goal will be the implementation of **improved insulation and thermostats** on each residents' household. Many households throughout Brighton were built as summer cabins. For those who live in these houses full time, there are certain adjustments that can be made in order to make their household more energy efficient - and, in turn, more comfortable - during the cold winter months.

Our final goal for the Town of Brighton will be the **installing of solar panels in strategic places within the canyon and on participating residencies.** With this, depending on the amount of solar paneling on each household, the total cost of electricity per household could be offset each month. As Brighton is a community that typically sees a great amount of snow during the winter, cleaning services will be made available.

Renewable Opportunities

Solar Options:

As mentioned on page 12, installation of solar panels on each residents' home is an excellent way to decrease energy consumption. With the State of Utah still seeing about **50% of its total energy coming from fossil fuels**, solar paneling for individuals and businesses provides a way to lessen that reliance.

Potential Roadblocks:

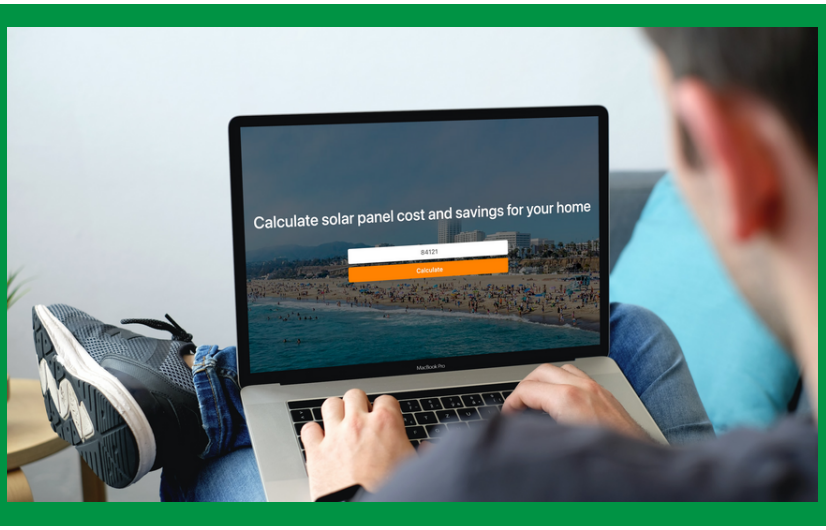
Because of the Town of Brighton is located in a federally protected forest, approval for the placement of solar panels will need to be approved by the U.S. Forest Service. This is to avoid potential eye sores throughout the canyon. A solar field, for this exact reason, will most likely not be a viable option unless the USFS approves.

With winters seeing heavy storms, potentially blocking use of the solar panels, a cleaning service will need to be offered as well. This could also benefit residents who wish to take advantage of solar, but who are hesitant to take on the upkeep. As there is no company who is currently servicing the Town for solar cleaning services, this will need to be set up.

Stats on ROI, kWh, cost per panel, etc.:

Using the provided link, an estimate on total cost per panel based on the residents' home information and power bill can be provided:

https://www.solar-estimate.org/residential-solar/solar-estimator



Heating

With data collected from the Townwide Survey and rebates offered from the IRA, Kazi Sustainability will be able to provide suggestions for each individual home for ways to improve their current heating methods. As mentioned in the previous page on Electricity, many of the houses in Brighton were built as summer rentals. Their insulation will need an update in order to maximize the heating in each resident's home.

Simple upgrades would be:

- Installing double-paned windows
- Replacing front and back doors with insulated ones
- Insuring each door as good weather stripping
- Transitioning from propane heaters to electric furnaces

Information on this will be based around what each resident enters in the survey. Along with this, Kazi Sustainability will send IRA incentives for each project recommended.

Majority of households rely on propane to heat their homes. **Propane emits about 12.6 pounds of CO_2 when combusted**, it is important for each household to properly manage the amount of propane being burned. Electric furnaces are federally incentivized and can be more cost efficient than propane, especially with renewable energy available.

Larger upgrades overtime would include:

- Improving insulation for walls
- Installing backup generators

Improved insulation can save a homeowner around 15% on total heating and cooling costs, with a 11% reduction on total energy costs. Backup generators have the potential to save residents thousands of dollars, as there will be no need to direct power to high energy appliances like refrigerators or pumps. Additional benefits. to these options are that there will be no need to reheat the household in the case of a winter power outage.

Transportation

With the phasing out of gas and diesel powered cars in the next decade, and. the issue of canyon traffic, it is important that the town of Brighton invests into funding Electric Vehicle (EV) charging stations throughout the canyon especially in strategic points.

PHASE 1	PHASE 2	PHASE 3	PHASE 4
EV Chargers	Increased Buses	EV Bus System	EV Loaner

EV charger locations are proposed to be located at Silver Fork and the Fire Station.

Chargers installed will include:

- Level 2 - 3-4 hours to charge, perfect for those hiking
- Level 3 (DCFC) chargers - 1-2 hours to charge, perfect for buses and major routes

Brighton and Solitude resorts will also be increasing their EV Charging over time.

We recommend an **EV Truck, specifically a Ford Lightning, as a loaner vehicle for residents**. This loaner vehicle will be kept at the Fire Station when not in use and would provide residents with a unique experience to be able to reduce the footprint of their Costco runs. A website will be shared with each resident that will allow them to reserve times to use the vehicle.

A secondary solution would be **electric buses to shuttle the public to ski resorts and popular hiking trails.** During the ski season, the UTA bus system does help to curb some traffic, but these busses only run for five to six months of the year, leaving summer traffic as an issue.

An Electric Bus in the canyon would look like:

- The Town of Brighton buying an EV bus and leasing it to UTA, a program similar to other mountain communities.
- Petition for increased routes that UTA buses take in the winter.
- Add two extra times to the night route during the winter, one at 7:30pm and 10:00pm for resort employees.
- Adding a bus route to the canyon during the summer.
- Collaborating with Solitude and Brighton Resort to further these efforts.

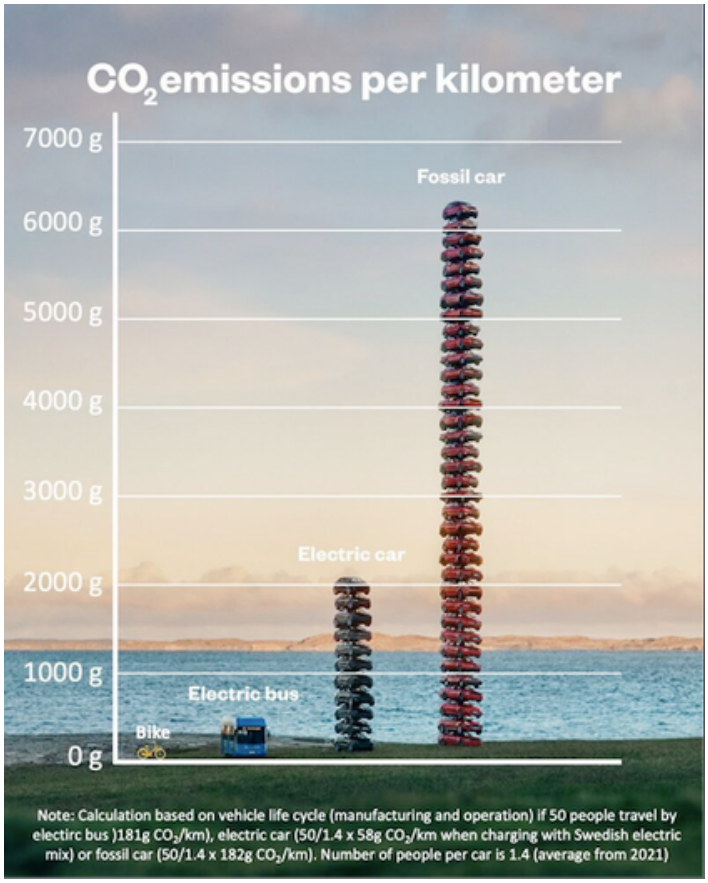
Transportation

With the exponential increase of cars in the canyon each year - topping out at more than **10,000 individual cars per day** - along with the disastrous impact it is having on air quality throughout the canyon, implementing an EV bus system will help alleviate these issues.

As mentioned on the previous page, increasing the bus route, along with including an option for public transit in the summer, the high volume of cars will decrease, as. there will be alternative options. **UTA has already seen a 33% increase in the previous years**. With a push, this number can rise.

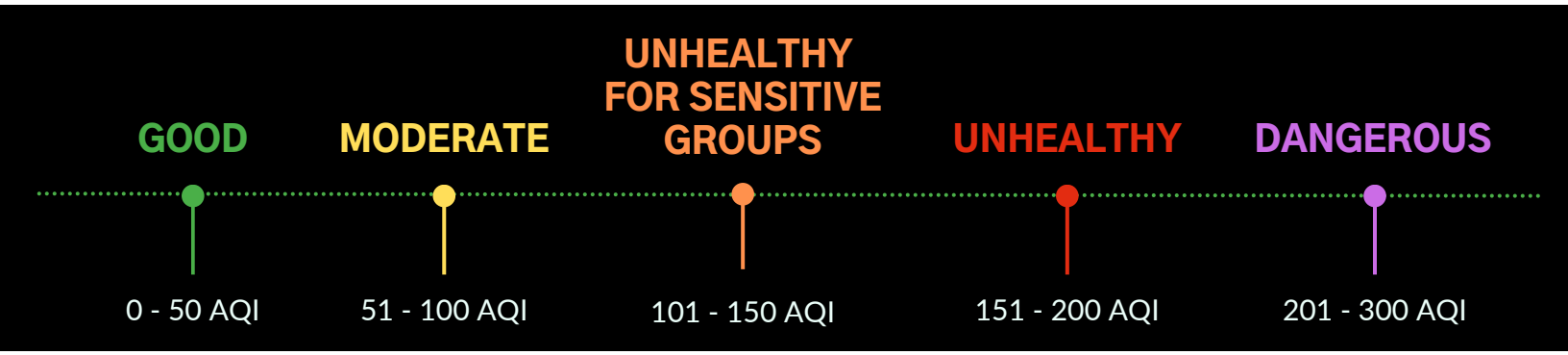
The cost for a full electric bus typically ranges from **$320,000-$400,000**; however, there are multiple funding programs from the federal government that will help to supplement this cost. To have the maximum effect, it is recommended that 3 EV buses are purchased and leased to UTA. With the Level 3 chargers installed in strategic points throughout the canyon, the electric bus system will have easy ways to charge throughout its route.

With the increase push for utilization of the bus system, more parking will be needed to accommodate. Kazi Sustainability has been in contact with Corporate Centers at the base of the canyon in order to **rent out lots for use on the weekends and holidays**. This will most likely be around $5,000/per year.



Along with the extra buses, each interested party should push the current program to current visitors of the Town of Brighton. This will include both Brighton Resort, Solitude Resort, UTA, Ski Utah, etc. The expansion of the current bus route will only stand to benefit those who reside in Big Cottonwood Canyon, along with maximizing access to tourist destinations.

Air Quality



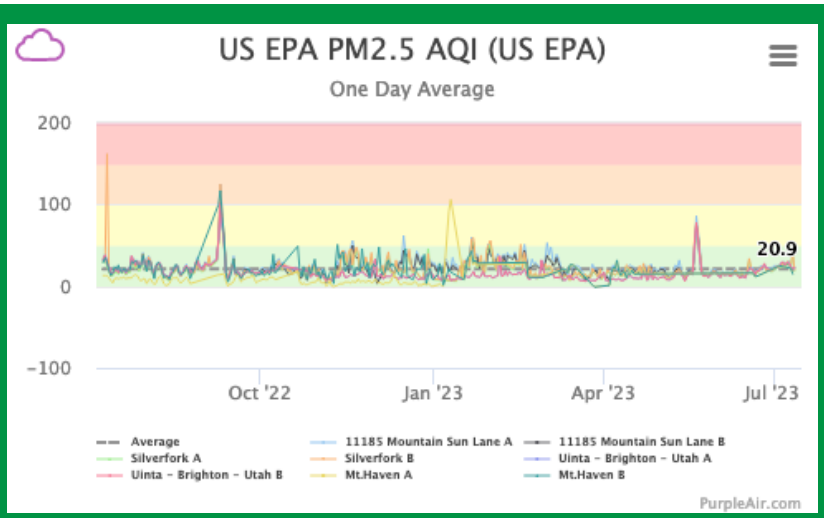
Air quality is measured in a scale from GOOD to DANGEROUS, as graphed above. There are many things that can contribute to high AQI including: wildfire smoke, inversion, and vehicle exhaust.

In Big Cottonwood Canyon, there are a few air quality measurement devices that track the level of various pollutants in the air of the canyon.

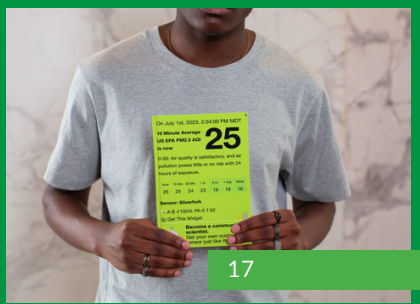
It has quickly became clear upon looking at the AQI of the canyon during winter canyon traffic that the air quality was quickly entering **UNHEALTHY** levels within the 2-3 hours of traffic just from skiers and snowboarders traveling up the canyon.

There are detrimental impacts of this on our health, not to mention the impacts on the health of the wildlife that call our beloved canyon HOME.

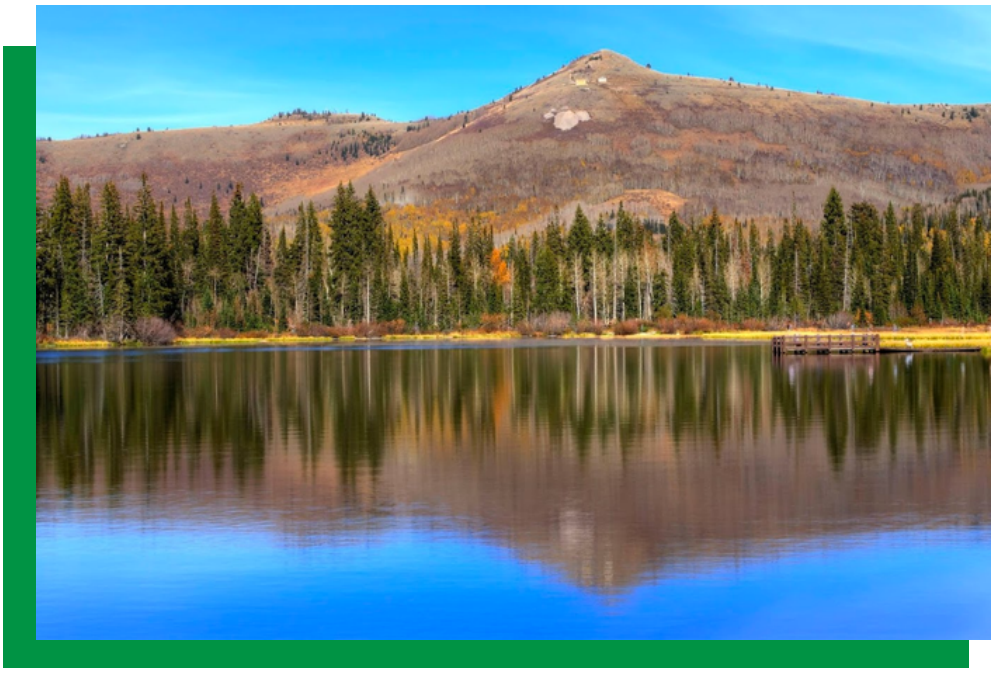
KSC recommends installing at least **5 more AQI monitors in the canyon** to better track this. Purple Air provides easily installed monitors for $259. The results of these can then be added to the websites of the Town of Brighton, Solitude Mountain Resort, Brighton Resort, Silver Fork Lodge, and any other organization in the canyon to further emphasize the importance of carpooling and taking public transportation. Purple Air can provide live AQI updates on the town website.



Purple Air Quality data shows spikes in air quality in Big Cottonwood Canyon relating to canyon traffic and wildfire smoke. Monitoring these changes can further drive legislative changes.



Outreach & Education



Big Cottonwood Canyon is host to many non-profit organizations that provide awesome outdoor education opportunities for residents and visitors alike. **Non-profit organizations that utilize Big Cottonwood Canyon are:**

- The Cottonwoods Canyons Foundation
- The Brighton Institute
- Tree Utah

All of these amazing organizations do great environmental education work in the canyon.

The Town of Brighton has begun planning for a community center, which would be built on the old fire station lot. Kazi Sustainability recommends applying to the **Community Facilities Direct Loan and Grant Program of Utah.** Not only will this help fund the building, it will also dedicate the space to these essential organizations.

In addition to a community center, Kazi Sustainability recommends partnering with a sister community in the Salt Lake Valley, to enrich those that may not have easy access to the outdoors. Solitude and Brighton ski resorts both partner with programs such as **Discover Winter** and **Share Winter,** which focus on getting under-represented skiers and snowboarders from the Salt Lake Valley onto the mountain. Many of these participants are from families who have never done mountain sports.

Partnering with the city that many of the participants are coming from would further provide access to outdoor programs and activities for those who may not have the chance to do so without a program.

Ski Utah is an excellent resource to make this happen.

Community Center

See Appendix B for design board.
Components:

- Recycling center
- Free Store
- EV charger
- EV Library
- ~1 community space
- ~3 offices
- Package Pick Up/Drop off
  - Amazon Locker (once renovation is completed)
  - Fed Ex package drop off
  - USPS (install a package/letter drop for pick up with USPS
  - UPS (flexible on-route pick up with box provided)

The old fire station has been detailed by the Town of Brighton as something that they would like to see developed into something useful to canyon residents and visitors.

Our proposed use of this space would be a **Community Learning Center**, a multi-use space similar to the proposed community center for the Town of Alta. There are so many great voices in the community, but they simply lack a permanent space to work out of. The proposed Community Learning Center would also have space surrounding it to act as a recycling hub, free store, package drop off/pick up, and tool library for the community.

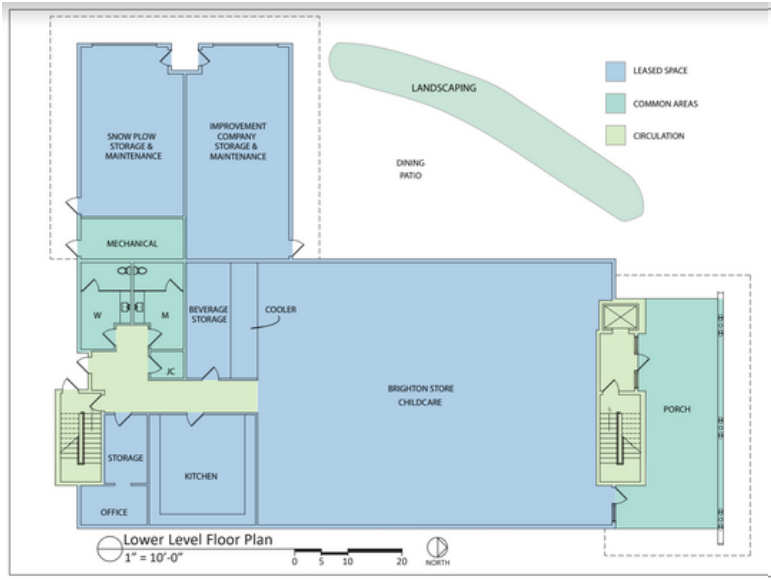
Partnering with the **Wasatch Front and Momentum Recycling**, harder to recycle items could be recycled at this particular location. Not only would added office space benefit the non-profit community greatly, a recycling hub would also create a communal space to dispose of residential waste year-round.

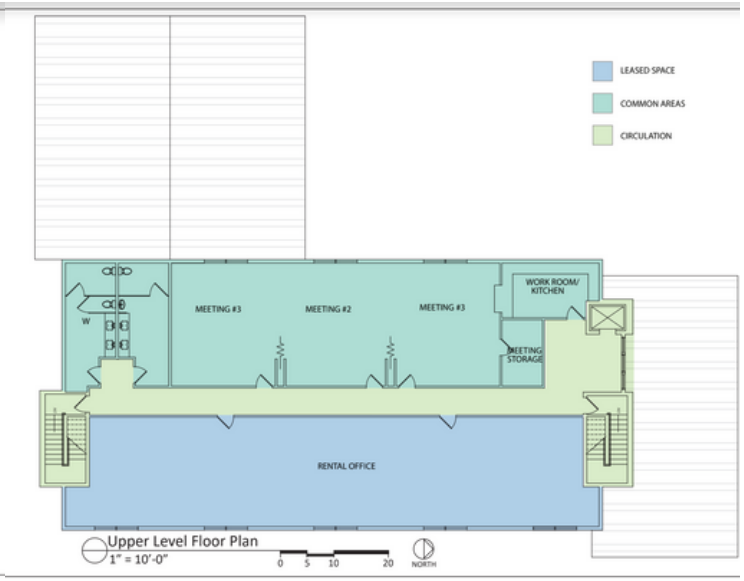
The Town of Alta has begun researching a similar community space, and have gone through the **Ennead Architects** to draft their designs. Working with a local architect, who is aware of the pristine environment that such a community center would be built upon, is critical. Having a designated space for community members and community partners to meet will only be beneficial to the Town. While the cost to construct such a building may be high, utilizing grant funding from the State of Utah could help bring costs down.

Community Center

The Town of Brighton worked with Dan Feidt Studio in 2017, to draft the specs of a Community Center to replace the old fire station. Unfortunately, since then, Dan Feidt Studio is no longer an option to work with architecturally. Reaching out to others in the canyon community who have the skills needed to design and construct the community center is required. The proposed center would have common areas as well as areas for lease. The town would be able to utilize spaces to store equipment, such as snow plows, while also allowing non-profits and other organizations to host meetings there.

The proposed space is **11,227 Square Feet,** which at ~$400/sqft. would cost roughly **$4,490,800.** There are grant programs, like the Community Facilities Direct Loan & Grant Program, which could help to fund a community-centered space as proposed here.





Native Plants & Wildlife Habitat

Primary challenges to conserving wildlife in Utah include habitat loss from road and trail expansion and more along with fire cycle alteration.
http://www.landscope.org/utah/priorities

A good way to begin with encourage wildlife habitat within Big Cottonwood Canyon and the Town of Brighton is to incentivize and provide aid in the development of community wildlife habitats certified by the National Wildlife Federation in individual properties whether homeowner or a business.

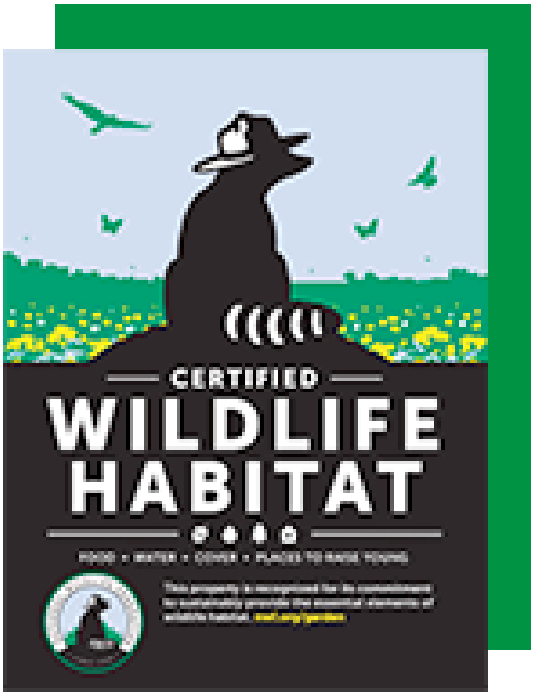
Certified Wildlife Habitats include elements of each of the following:

- Food
- Water
- Cover
- Places to Raise Young
- Sustainable Practices
- 50-70% Native Plants

https://www.nwf.org/CERTIFY

Native plants produce and sustain the right kinds of food at the right time for the animals and insects that live in or migrate through our community.

Clean air, clean water, protection from erosion and floods, and healthy soil are all ecosystem services offered by our native plant species.



The Audubon provides a native plant database:
https://www.audubon.org/native-plants

Native plants have many benefits, including:

- they are low maintenance
- they are beautiful
- they provide healthy places for people
- they help the climate
- they conserve water
- they provide habitat that is vital for our wildlife

To order plants with Brighton Resort from Dryland Horticulture, place order with Abby Layton (alayton@brightonresort.com).

Orders must be in by: October 1st, 2023

Beavers in BCC

Beaver populations are measured in active dams per kilometer (dams/km). The historic beaver dam capacity for Town of Brighton in Big Cottonwood Canyon, based on modeling with the Beaver Restoration Assessment Tool (BRAT) from Utah State University, is more than 533 beaver dams, or 14 dams/km (Fig 1). Current potential capacity based on the same modeling with human infrastructure included is 10 dams/km and a total capacity of 376 (Fig 1). **The town is currently at only 1% of its dam capacity and now hosts less than 20 beavers, with 3 active beaver dams (Smeeding 2022).**

There are four main steps that the Town of Brighton can take to enable beavers to make a healthy population comeback:

1. Educate residents and visitors on beaver/human coexistence
2. Designate a Town Council Member as the "Beaver Helpline"
3. Limiting construction that inhibits beavers from having healthy habitat
4. Creating a Beaver Action Plan

By educating residents, nuisance beaver calls will decrease. **When the Division of Wildlife Resources is called on a nuisance beaver, that beaver has a very low chance of survival.** Educating residents on ways that they can coexist and help beavers feel safe and comfortable relocating is essential.

Beavers located in the right spots are very beneficial to the watershed, especially in wetland areas, such as Silver Lake. **Beavers provide great water retention through their dams, helping alleviate flooding due to snow and storm runoff, as was seen this spring.** While a Beaver Action Plan will provide the town with steps they can take, coexistence and education need to come first.

Beavers in BCC

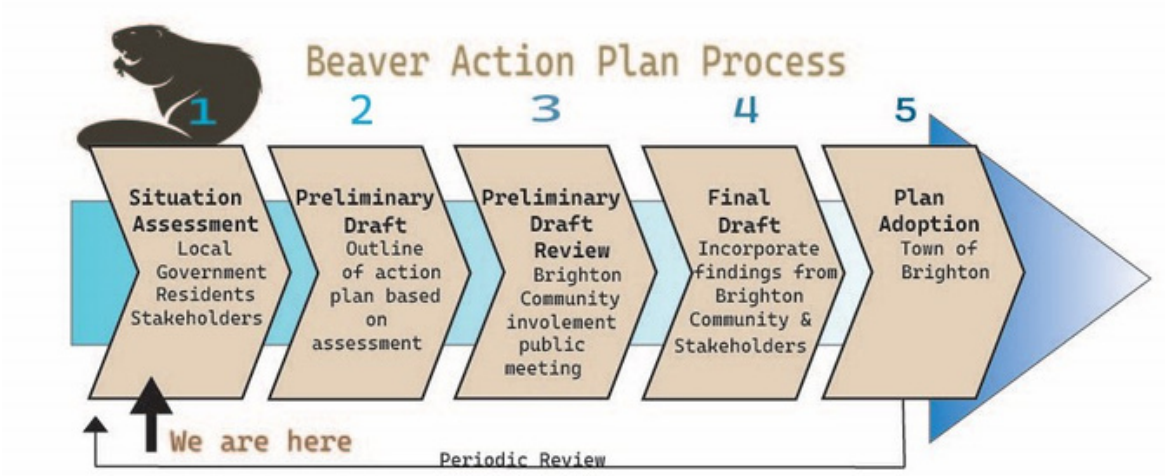
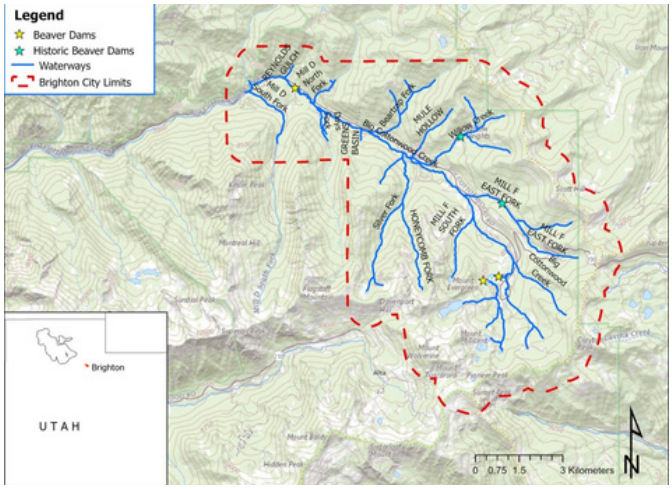


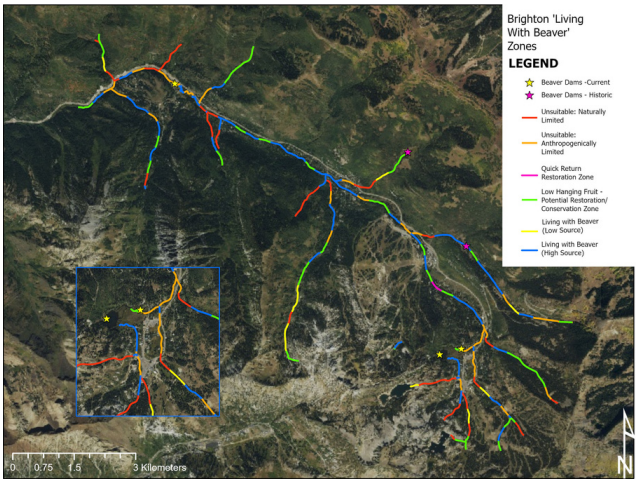
Fig 1:

	BRAT Outputs Statistics Summary									Capacity in Restoration Zones			
	Length of Stream (kilometers)	% of Drainage Network	Existing Capacity (Density)	Historic Dam Capacity (Density)	Existing Capacity	Historic Capacity	Existing Count	Exisiting Dam Density	% of Exisiting Capacity	% of Historic Capacity	Additional Dams at Full Capacity	Additional Dams at 50% Capacity	Additional Dams at 20% Capacity
	Km		Average Dam Density (Dams/Km)		Total Dams			Actual (Dams/Km	%		Potential Restoration Goals		
Total Brighton Stre	37.4	100%	10	14	376	533	3	0.08	1%	1%	NA	NA	NA
Low-Hanging Fruit	8	22%	17	19	141	151	0	0	38%	28%	141	71	28
Quick Return	0.25	1%	8	24	2	6	0	0	1%	1%	2	1	NA
Living With Beaver (High Source)	12	31%	15	20	175	237	2	0.17	47%	44%	173	86	33
Living With Beaver (Low Source)	2	6%	3	3	6	6	0	0	2%	1%	6	3	2
Unsuitable, Naturally or Antropogenically Limited	14	37%	NA	NA	NA	NA	1	0.07	NA	NA	NA	NA	NA

Map of Historic and Current Beaver Activity in Big Cottonwood Canyon



Map of Recommended Beaver Habitat Zones within Big Cottonwood Canyon



Funding Opportunities

Grant Name	Due	Amount	Project	Link
Charging and Fueling Infrastructure Grant	6/13/2023	$500,000	EV Charging on SR 190	https://www.fhwa.dot.gov/environment/cfi/
Building Upgrade Prize	7/18/2023	$400,000	Brighton Loop Fire Station	https://www.herox.com/BuildingsUP/timeline
Federal Transit Administration EV Bus Funding	4 years after purchase	$1,200,000	EV Bus System	https://www.transit.dot.gov/lowno
Community Facilities Direct Loan & Grant Program of Utah	Open Year-Round	$7,000,000	Brighton Community Center	https://www.rd.usda.gov/programs-services/community-facilities/community-facilities-direct-loan-grant-program/ut#overview
Electric Vehicle (EV) Charging Station Rebate	Open Year-Round	Up to 75% of total cost, cannot exceed $1,000	Household EV Charger Installation	https://www.rockymountainpower.net/savings-energy-choices/electric-vehicles/utah-incentives.html
Alternative Fuel Heavy-Duty Vehicle Tax Credit Program	Open Year-Round	$12,000-$13,5000	EV Loaner Truck	https://www.rockymountainpower.net/savings-energy-choices/electric-vehicles/utah-incentives.html
Qualified Plug-In Electric Drive Motor Vehicle Credit	Open Year-Round	$7,500	Personal EV Vehicle, Purchased 2023 or after	https://www.irs.gov/credits-deductions/credits-for-new-clean-vehicles-purchased-in-2023-or-after

Project Costs

These projects, as outlined in this document, represent the opportunities available for the Town of Brighton. to reduce their impact on the environment. These projects are outlined in greater detail on the next page. These costs are provided by 3rd party services.

Project / Initiative	Cost	Reduction Potentail
Composting & Glass Recycling for Town	$400/month	2,000 lbs waste diverted
LED Retrofit Supplement ($100/household)	$5,000	<90% reduction in kWh
Lightbulb Recycling Bin	$144	Toxic waste avoided from landfill.
EV Library Truck	$96,000	2.3 lbs CO2e per trip
EV Bus (~50 passengers)	$400,000	203 lbs per trip
EV Chargers (Fire Station and Donut Falls)	$4,900 per Dual Port	Promote the use of EVs within canyon.
Community Center	$6.1 million	N/A

Project Summaries

1. **Composting & Glass Recycling for Town** - Adding glass and composting stations in strategic locations within the Town, a large amount of waste will be redirected from the landfills. Solitude and Brighton Ski Resorts already participate in a composting program through Momentum Recycling, so costs for the Town to join will be low.
2. **LED Retrofit Supplement** - By providing financial incentive of $100 reimbursement, the town can promote households to replace their non-LED bulbs. This number has been rounded up to include financial benefits for businesses within the canyon. Switching lightbulbs is a "low hanging fruit" in emission reduction efforts! LEDs use up to 90% less energy and last up to 25 years longer than traditional light bulbs.
3. **Lightbulb Recycling Bin** - EasyPak Universal Lightbulb recycling bin - fill it up and mail it out. This recycling program meets the State of Utah's requirements for proper disposal of flourescent bulb recycling. This is the type of closed loop systems that will be esentail for the prolonged sustainability of the Town of Brighton. https://tcrwusa.com/collections/easypak/products/easypak%E2%84%A2-universal-lamp-recycling-box
4. **EV Library Truck -** The Town of Brighton can work together to reduce their impact on the environment by providing residents an electric truck for rent. Imagine being able to conduct your big Costco runs or pick up a piece of new furniture in the valley using a lended truck! We recommend (and even test drove) a Ford F-150 Lightning.
5. **EV Bus** - Each zero emission (electric) bus will reduce carbon emissions by upwards of 270,000 pounds per year compared to diesel and CNG buses (source: US Dept. of Transportation). If the Town of Brighton purchases or leases a few electric buses, then they would be able to contribute to transportation solutions within the canyon while supporting residents and employees that suffer most extensively from the traffic within the canyon. Initial contacts have been established for a relationship with parking infrastructure at the mouth of the canyon.
6. **EV Chargers** - By investing in electric vehicle chargers along the 190 corridor that is Big Cottonwood Canyon, the Town of Brighton will be proactively supporting the transition to zero emission vehicles for visitors. There are ample funding opportunities for these types of installations.
7. **Community Center -** The Town of Brighton greatly needs a communal place to meet and host different non-profit groups. The space is already there, and through grant funding, the costs that the Town would incur would be limited.

Implementation Strategies

KSC Project	Value	Target
Waste Audit	$2000	Waste
Food Waste / Glass Recycling Pilot Management	$2500	Waste
EV Charger / Vehicle Implementation	$1750	Transportation
Beaver Action Plan	$1500	Water
Native Habitat Analysis & Certification Help	$1000	Habitat
Emissions Tracking (Scope 1)	$5000	Emissions
Emissions Tracking - last 24 months (Scope 2)	$1000	Emissions
Home Infrastructure ($100 per household/business)	$4500	Emissions
Transportation Grant Funding & Implementation	$1250	Transportation
Corporate Center As Parking Strategy	$1500	Transportation
Kazi Sustainability On Call	$150/hour	ETC

These are estimated costs to hire Kazi Sustainability Consulting for the projects that have been outlined in this document. These are subject to change and are presented here as a reference for the members of the Town Council for the Town of Brighton only. Additional services available upon request.

The goal of each project provided by Kazi Sustainability is to provide individual projects beneath the $5,000 budget of which any prices above would require an RFP for the town.

Kazi Sustainability is also happy to recommend or aid in the search of other providers for the aforementioned projects. The town has no obligation to continue this partnership.

For inquiries, contact us.

www.kazisustainability.com
info@kazisustainability.com
801.876.0558

kazi SUSTAINABILITY CONSULTING

Appendix

Appendix A - Resources
Appendix B - Brighton Loop Community Center Concept Board
Appendix C - Community Center Cont.
Appendix D - Food Waste Enclosure Concept Board

Resources & Links

Appendix A

Water

- https://saveourcanyons.org/images/pdfs-doc/SOC_UDOT_DEIS_Comments_20210903_.pdf
- https://www.alertlabs.com

Waste

- https://www.plasticpollutioncoalition.org/takeaction/guides/plastic-free-eateries#:~:text=Plastic%20litter%20from%20takeout%20orders,into%20the%20natural%20environment%20annually
- Styrofoam Facts - https://www.sej.org/publications/backgrounders/styrofoam-facts-why-you-may-want-bring-your-own-cup
- Single Use Plastics - https://plasticoceans.org/the-facts/
- Why most plastic isn't getting recycled - https://thehill.com/changing-america/sustainability/environment/3712999-why-most-plastic-isnt-getting-recycled/

Habitat

- Davis, Troy. “Relocating Commotion-Causing Beavers.” Utah Division of Wildlife Resources, 23 Aug. 2018, wildlife.utah.gov/news/wildlife-blog/427-relocating-commotion-causing-beavers.html

Climate Risk Assessment Sources

- CNN - Great Salt Lake Disappearing - https://www.cnn.com/2023/01/06/us/great-salt-lake-disappearing-drought-climate/index.html
- Salt Lake Climate Disaster NY Times- https://www.nytimes.com/2022/06/07/climate/salt-lake-city-climate-disaster.html
- US Climate Change - https://impactlab.org/map/#usmeas=change-from-hist&usyear=2020-2039&gmeas=absolute&gyear=1986-2005&usrcp=rcp85&usvar=mortality&usprob=0.5
- Climate Migration - https://projects.propublica.org/climate-migration/
- Mapping Climate Risks by County/Community - https://www.americancommunities.org/mapping-climate-risks-by-county-and-community/
- Forest Risk - https://www.biology.utah.edu/eeob/global-analysis-identifies-at-risk-forests/
- UDOT Analysis - Save Our Canyons - https://saveourcanyons.org/images/pdfs-doc/SOC_UDOT_DEIS_Comments_20210903_.pdf

For More Information

- EPA Emission Calculator: https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results

Resources & Links Cont.

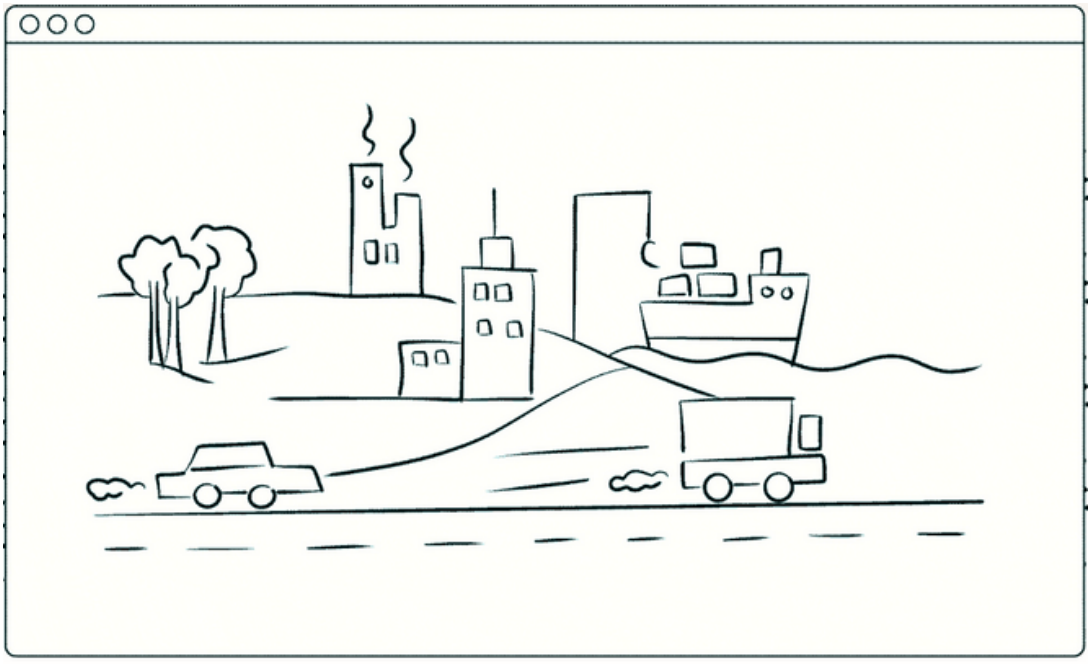
Appendix A

Townwide Survey

- Survey - https://forms.gle/8oxk8TyLkSQRzU3z9
- IRA Program Incentives - https://www.rewiringamerica.org/app/ira-calculator
- Rocky Mountain Power EV - https://www.rockymountainpower.net/savings-energy-choices/electric-vehicles/utah-incentives.html

Heating

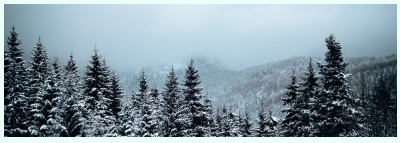
- Propane Emissions - https://thegogreenpost.com/propane-greenhouse-gas-emissions/#:~:text=According%20to%20the%20U.S.%20Energy,of%20carbon%20dioxide%20per%20gallon.
- Insulation Savings- https://www.energystar.gov/saveathome/seal_insulate/methodology#:~:text=EPA%20estimates%20that%20homeowners%20can,and%20accessible%20basement%20rim%20joists.



BEE IMPACT ESTIMATOR

- A resource through Climate Neutral, the BEE will provide an estimated footprint for the Town of Brighton. It is free to use and a very basic calculation tool. This is a great first step for the town if they choose to become a Climate Neutral Community. https://www.climateneutral.org/bee

Appendix B
Brighton Loop Community Center Concept Board



See the Town of Alta's Community Center Feasibility Study https://www.ennead.com/work/alta-community-center-feasibility-study

Appendix C
Fire Station & Brighton Loop Composting Shelter Concept Board