



CARBON MITIGATION

FREQUENTLY ASKED QUESTIONS

What is the Cascade Land Conservancy Carbon Mitigation Program?

How can urban forests mitigate carbon emissions?

What is the difference between “carbon mitigation” and “carbon offsets”?

What is the Green Cities Partnership Program?

What is the current problem with Washington’s urban forests?

How has Green City Partnerships assessed the forest conditions?

What are the proposed projects for carbon mitigation?

What kind of things will be done to mitigate carbon in Tree-iage Category 4?

What kind of things will be done to mitigate carbon in Tree-iage Category 7?

How do CLC mitigation projects meet key quality requirements for emissions reductions set by international standards?

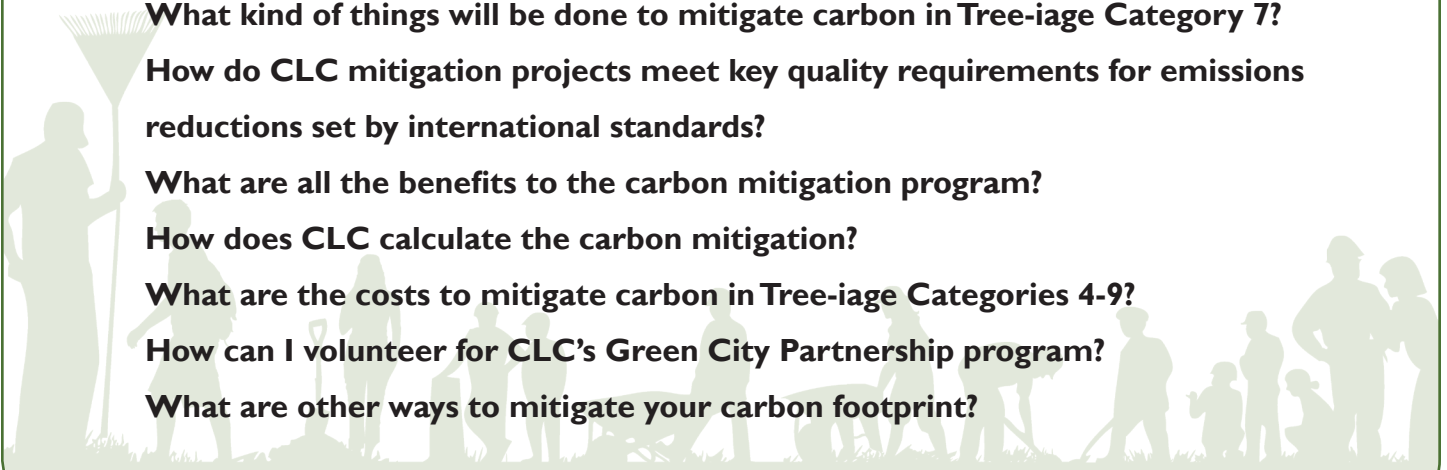
What are all the benefits to the carbon mitigation program?

How does CLC calculate the carbon mitigation?

What are the costs to mitigate carbon in Tree-iage Categories 4-9?

How can I volunteer for CLC’s Green City Partnership program?

What are other ways to mitigate your carbon footprint?



What is the Cascade Land Conservancy Carbon Mitigation Program?

Cascade Land Conservancy’s (CLC) Carbon Mitigation Program allows local companies and individuals to invest in voluntary carbon mitigation, which has the potential to reduce their carbon dioxide emissions through the reforestation of targeted acres within CLC’s Green City Partnerships’ cities. This program will help fund our current Green City Partnership stewardship projects that restore parks and open spaces in Western Washington. Investments in the carbon mitigation program will be used for planting native trees and understory plants, forest conservation, and forest restoration. This includes site planning and preparation (invasive species removal), tree and shrub planting, and maintenance for at least two years (plant establishment, mulching, replanting if necessary, weeding, etc.).

How can urban forests mitigate carbon emissions?

Planting trees can capture carbon and help remove soot and other pollutants. Trees absorb carbon as they grow through the process of sequestration. They store the carbon in the woody mass of the tree as they grow, and release oxygen into the air. It is estimated that urban trees in Washington State are responsible for sequestering more than 500,000 tons of carbon per year (Nowak and Crane 2001).

What is the difference between “carbon mitigation” and “carbon offsets”?

Carbon offsets can be purchased in a carbon market, such as the Chicago Climate Exchange or the European Union Emission Trading Scheme. Carbon mitigation activities will not enter a marketplace and are not subject to future trades or other transactions. CLC is providing the service of carbon mitigation, which means that a purchaser of these services will not obtain a tradable credit or third party verified offset that would qualify for a transaction in a formal carbon exchange.

What is the Green City Partnership Program?

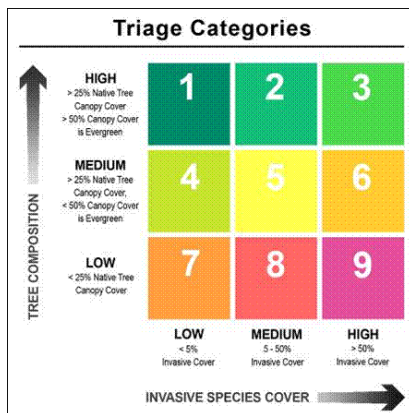
The Green City Partnerships program develops public-private partnerships with municipalities to expand community-based stewardship projects for forested parklands and natural open spaces, helping to remove the invasive plants blocking the growth of native trees and understory and replanting the understory with native shrubs and trees. The first Green City Partnership was formed between the Cascade Land Conservancy and the City of Seattle in 2004, which created a 20-year strategic plan to improve the health of urban forests. The success of the Green Seattle Partnership is now a model for other cities and four new Green City Partnerships are now active in Kent, Kirkland, Redmond and Tacoma. To date, the program has enrolled hundreds of acres into the restoration process and engaged tens of thousands of volunteers. The goals of the Green City Partnership are to connect people to nature, enhance the long-term sustainability of urban forests, improve the quality of life in cities, and galvanize an active community around restoration and stewardship of urban natural open spaces.

What is the current problem with Washington’s urban forests?

Our forested parklands –remnants of a once vast forest that covered the entire Puget Sound region –are in serious decline. After 150 years of logging, view clearing and passive management, these remnant forests are ailing. Many of our trees are at the end of their lifespan. At the same time, invasive plants, such as English ivy, Himalayan blackberry, Scot’s broom, and knotweed, have choked out the seedlings that would replace today’s forest. For generations, we saw our natural areas as self-sustaining. By the early 1990s, it became clear that urban ecosystems are subject to human pressures and require human intervention to maintain them.

How has Green City Partnership assessed the forest conditions?

Each Green City Partnership develops a strategic plan that assesses the current state of the forest and categorizes acres into 9 different value and threat levels. The Green City Partnerships program uses the historical forest condition of the Pacific Northwest as the reference habitat type for restoring and maintaining our region's forested natural areas.



High Value Site 1-3: Highest quality forest stands are dominated by mature, native evergreen canopy species with more than 50% native conifers, madrone, or forested wetlands canopy cover.

Medium Value Sites 4-6: Areas with more than 25% native tree canopy cover, but less than 50% of the cover is from conifers or other native evergreens.

Low Value Sites 7-9: Areas are forested, but have less than 25% native tree canopy cover.

What are the proposed projects for carbon mitigation?

Cascade Land Conservancy recommends an investment for carbon mitigation in areas categorized as a Tree-riage number 4 or 7 threat level because these sites require minimal invasive removal and need significant planting. Therefore, these areas are the most cost effective investment for carbon mitigation.

What kinds of things will be done to mitigate carbon in Tree-riage Category 4?

Planting and Monitoring: We expect planting in these areas to consist of infilling with native species and establishing conifers to be recruited into the next generation of canopy. Often these sites will also require some invasive removal and site preparation (e.g., amending with woodchip mulch). Many of these sites may be converted to a conifer forest by the addition of appropriate conifer trees.

What kinds of things will be done to mitigate carbon in Tree-riage Category 7?

Evaluate and Possibly Plant: The reasons underlying the low value can differ greatly, and we will address the stands on a case-by-case basis. Because of low levels of invasive plants, restoration may be quite cost-effective in some of the category 7 forests. We will evaluate sites in this category to determine whether conditions and timing are appropriate to move these wooded areas toward a more native forest, and what the appropriate composition of that forest should be. In some cases, it may be desirable to remove nonnative trees, especially if they are aggressive.

How do CLC mitigation projects meet key quality requirements for emissions reductions set by international standards?

International standards were set to ensure quality forest carbon projects. These standards address the following issues:

Additionality: All projects must demonstrate the additionality of carbon mitigation by showing that the emissions reductions go beyond “business as usual” activity. This is an important qualification that has been put in place to prove carbon mitigation projects are making an additional positive impact on the environment. The targeted acres for carbon mitigation within Green City Partnership cities had no guaranteed financial support before the carbon mitigation projects. The funding received from the carbon mitigation program will allow CLC and The Partnership to enroll acres of land sooner and plant trees that otherwise would not have been planted, which therefore makes the projects additional.

Permanence: This is the life of the mitigation project. In a high quality program, the carbon mitigated would not be subject to potential reversal in the future. Cascade Land Conservancy subtracted 30% of the tonnes of CO₂ mitigation per acre as an insurance against uncertainties such as tree mortality, vandalism, extreme weather, disease, or other events or conditions.

Monitoring and Maintenance: These projects will enter into a monitoring and maintenance phase that will help ensure survival. We’ll continually check our work against the best available forest science to define optimal plant stock and size, watering regimes, soil preparation, and other forest management techniques. We will document monitoring and maintenance events to describe locations, workers, and tasks. We will test and evaluate how effectively various restoration techniques remove invasive plants and promote native plant survival. This information will inform the ongoing monitoring and maintenance conducted by volunteers and the City after 2025. This maintenance will also enhance forest resilience to fire, pests and other natural disturbances, helping to prevent future losses.

What are the other benefits to the carbon mitigation program?

The Cascade Land Conservancy Carbon Mitigation Program has many environmental, economic, and social benefits that go beyond carbon mitigation. Washington’s urban forests are public assets that beautify and strengthen our local neighborhoods. These projects will provide recreational opportunities for citizens, protect native wildlife habitat, improve air quality, mitigate storm water runoff, reduce erosions, and help keep our cities cool. Most importantly, the Green City Partnerships are an investment in the local community. We have worked with a diverse group of people to inspire and educate them about forest restoration. Our volunteers and work forces have become conservation leaders in the community who will protect and steward our region’s most precious resource for generations to

How does CLC calculate the carbon mitigation?

CLC used US Forest Service's General Technical Report NE-343 (GTR-NE-343), Methods for Calculating Forest Ecosystem and Harvested Carbon with Standard Estimates for Forest Types of the United States, published in 2006, as the source for estimates of carbon stocks. The amount of mitigated CO₂ is the difference between the current state of the forest and the amount of carbon that will be stored in future forests in the next 125 years. There are a number of assumptions and deductions that must be made to calculate the carbon mitigation resulting from restored, healthy forests.

What are the costs to mitigate carbon in Tree-age Categories 4-9?

"Tree-age" Categories (4-9)	CO ₂ Tonnes per Acre	Average cost per acre	Cost per Tonnes of CO ₂
4	246	\$7,300	\$30
5	234	\$14,300	\$62
6	196	\$19,000	\$98
7	264	\$12,600	\$48
8	252	\$22,300	\$89
9	214	\$26,700	\$125

How can I volunteer for CLC's Green City Partnership program?

Volunteer opportunities are an important part of CLC's Green City Partnership program. This program is an investment in the community that engages and educates a diverse groups of people about the restoration and stewardship our urban forests. We encourage all people to take part in our carbon mitigation efforts by volunteering at one of our Green Cities locations. Please visit the website below for a list of our Green City Partnership cities and volunteer opportunities. <http://www.cascadeland.org/stewardship/green-cities>

What are other ways to mitigate your carbon footprint?

Cascade Land Conservancy recognizes that the first step to addressing climate change is to reduce or prevent the emissions of greenhouse gases at home, in the car, or in the office. CLC partners with communities across the region to help cities make smart choices that encourage walkable, compact and transit oriented development, all of which greatly reduces carbon footprints. We can all be part of the solution by working close to home, riding public transit and living in compact communities. Here are some other simple suggestions from the Washington State Department of Ecology on ways to reduce your carbon footprint:

Drive Less: More than half of our CO₂ comes from vehicles, so use public transit, carpool, vanpool, bike, walk, or telephone from work to home if possible. You save one pound of carbon dioxide for each mile of driving you eliminate. Choose a fuel efficient vehicle for your next car.

Stop Idling: Don't idle your vehicle engine if you are stopped for more than 10 seconds (unless you are in traffic). Turn off your engine when you are picking up your children at school or waiting in a drive-through line. This cuts fuel use and air pollution.

Weatherproof Your Home: Install storm windows and close curtains at night to reduce heat loss and energy use. Upgrade insulation in walls, basements and attics to save up to 30% of your energy bill.

Change Your Lights: Replace regular light bulbs with compact fluorescent light bulbs to eliminate 150 pounds or more of CO₂ for each bulb per year. You also can cut costs, energy use and CO₂ emissions by turning out lights when you leave a room.

Cut Hot Water Use: Turn your hot water heater thermostat down to 120 degrees and wrap your hot water heater in insulation. Use low-flow showerheads and wash clothes in cold or warm water. Run the dishwasher and washing machine only with full loads.

Adjust Your Thermostat: Moving your thermostat down just 2 degrees in winter and up 2 degrees in summer could eliminate about 2,000 pounds of CO₂ a year by reducing power use. Install a programmable thermostat for best efficiency. Turn the heat down before sleep at night or when leaving the house.

Turn Off Power: Some TV models use more electricity when they're off than when they're operating. Plug them and other appliances into a surge protector; switch off the surge protector after you turn off the appliances. When you buy new appliances, look for power-saving Energy Star ratings.

Purchase Green Power: From your utility to support clean, renewable electric power. For more efficient, clean energy, consider an energy-efficient furnace, geothermal heat pump, or solar roof top panels. Learn more about renewable energy.

Plant Trees and Vegetation: Trees absorb CO₂ and give off oxygen. One tree will absorb over a ton of carbon dioxide during its lifetime. Trees and bushes make effective wind breaks; they can reduce winter heating costs by 40 percent and summer cooling costs by up to 50 percent. Just three properly placed trees can save homeowners between \$100 and \$250 a year in heating and cooling costs, according to some estimates.

Recycle and Reuse: Recycle your waste newsprint, cardboard, glass, metal, and recyclable plastic containers. Reuse items instead of discarding them, donate to charity, or sell them on 2 Good to Toss. It takes less energy to make products from recycled goods than from new raw materials.

Shop Smart: Buy products with less packaging and reusable or recyclable packaging. That means less energy is needed to produce packaging such as cardboard, which in turn reduces fewer oxygen-producing trees are cut down.

This information came from: The Washington State Department of Ecology: "what You can do to Fight Climate Change." For more information on ways to reduce your carbon footprint please visit <http://www.ecy.wa.gov/climatechange/whatucando.htm>