Project Plan Template

General Instructions

This template guides and structures the Project Plan, to assess project eligibility and to authorize the methods and data sources that will be used to calculate emissions reductions. The Project Plan Template Instructions v1.0 should be used as a companion document to inform the completion of this template and build the Project Plan.

Following the submission of the Project Plan, the Peer Review Committee will assess this Project Plan for eligibility. The committee will either offer feedback to improve the project or the project will be accepted as a good fit for the program. All of the information you provide in the Project Plan can be used as a foundation for the creation of the Project Description Document (PDD) that you will submit to the Offset Network once the project has been implemented, that is essential if you plan to pursue peer verification and eventually generate carbon offset credits.

This template draws from the existing template guidance provided by: International Organization for Standardization – ISO-14064-2, World Resources Institute-World Business Council for Sustainable Development (WRI-WBCSD), The GHG Protocol for Project Accounting, Climate Action Reserve (CAR) – Program Manual, and American Carbon Registry (ACR) – Validation and Verification Guideline.

Duke Carbon Offsets Initiative Background

In 2007, Duke University signed the American College and University Presidents' Climate Commitment (ACUPCC) and set a target of achieving climate neutrality by 2024. To be climate neutral, Duke will have to offset an estimated 185,000 metric tons per year of carbon dioxide beginning in 2024. The Duke Carbon Offsets Initiative (DCOI) was created to help Duke University reach climate neutrality. Since the DCOI's inception in 2009, it has developed a number of innovative carbon offset projects in swine waste-to-energy, energy efficiency, residential solar, and urban forestry. Building on our experience as project developers and carbon offset project process familiarity, we work to expand offset opportunities within higher education by fostering collaborative project ideas and bolster educational missions by easing offset project implementation.

Duke Carbon Offsets Initiative
DUKE UNIVERSITY

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Carver Community Forestry Offset Program

General Project Information	
Project Title	*Carver Community Forestry Offset Program*
Date Submitted	*December 19, 2018*
Prepared by	Wyatt Carpenter, VCU Office of Sustainability
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Method of Project Review	*Peer Verification*

Table of Contents

1. Introduction

Project Summary

Briefly summarize the project, including the project purpose and objectives, and how it seeks to achieve atmospheric reductions of greenhouse gases (GHGs). Identify the specific type of GHG activity the project represents.

The Carver Community Forestry Offset Program is a community-engaged research project developed in partnership between Virginia Commonwealth University (VCU) and the Carver Area Civic Improvement League (CACIL) of Richmond, Virginia. The purpose of the project is to 1) increase the number of street trees and overall tree canopy coverage in the Carver neighborhood; 2) establish a motoring and maintenance program that facilitates student learning; 3) quantify and communicate the ecosystem service benefits of urban trees to Carver residents and VCU stakeholders; 4) claim urban forestry carbon offset credits for VCU.

The project seeks to achieve atmospheric reductions in GHGs via carbon sequestered by trees planted in the Carver neighborhood. Carbon sequestered through this project represents Scope 3 GHG emissions.

1.1 Site Details

Provide an image of the site and the surrounding landscape; this image can be a map or aerial photograph. Indicate the project size in units appropriate to the project type (e.g. acres/hectares, MWs, number of individuals, etc). Additionally, include information about the condition of the site prior to project initiation. Describe common uses for the area and how people access the project site. Include all relevant project dates.

See Attachment 1 for detailed site plan.

The project area is in the Carver neighborhood of Richmond, Virginia. Carver is a historic neighborhood in downtown, Richmond. The community includes a diverse population of long and short-term residents, the Carver Elementary School, a public park, restaurants, commercial space, houses of worship, and many examples of historic architecture. Located directly north of the VCU campus, Carver is a short and accessible commute for students, faculty, and staff participating in the project.

Covering approximately 144 acres, the Carver neighborhood's total tree canopy is less than 10 percent, well below the city-wide average of 26 percent. A 2017 study of City tree wells in Carver conducted by a VCU service learning class found there to be 431 standing street trees in Carver and 190 vacant planting locations. In 2018, this project replanted 62 of these sites. All sites are located on City of Richmond public property.

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Commented [DV1]: Does this mean 62 trees? If I am reading attachment 2 correctly, there are 58 trees listed.

1.2 GHG Impact

Provide a description of the following: (1) the ways the project will impact GHG emissions: include those Sources, Sinks and Reservoirs (SSRs) of GHG emissions that are anticipated to represent larger than a 3% (de minimis) contribution to the project impact and will be included in the GHG Assertion calculation, (2) the technologies or measures of behavior changes to be employed by the project.

1) The GHG impact of the project is carbon sequestered by project trees. We estimate 100 metric tons of carbon dioxide will be sequestered by project trees over the 40-year life of the project. See Attachment 2 for carbon sequestration estimates. We do not anticipate emissions associated with operating the project exceed the 3% me minimis threshold.

2) Technology used by this project includes 1) training student workers on tree maintenance 2) implementing an improved tree maintenance strategy that did not exist prior to the project 3) using iTree to collect and organize project data year to year.

1.3 Program Inclusion

Identify the offset registry which this GHG program will be submitted to and indicate the protocol which this project will follow. Provide rationale for the choice of the registry and the protocol.

Registry Name: Carbon Offset Network, Innovative Project Pathway
Protocol: Urban Forestry Carbon Offset Protocol Version: 2.2, Innovative Project Pathway
Developer: Duke University
Registry URL: https://offsetnetwork.org/
Protocol URL: https://sustainability.duke.edu/sites/default/files/UrbanForestryProtocol_v2.2.pdf

1.4 Roles & Responsibilities

List the key project participants and describe their roles; include the offset project funder, project owners, project developers, project implementers, technology providers, relevant regulatory bodies, and the contact for the GHG Program (include contact information).

Identify the management structure of the project and how different groups will coordinate and manage respective responsibilities involved with the project. Additionally, identify the chain of custody of carbon offset credits; which project stakeholder(s) will possess the credits after verification?

Offset project funder: VCU and the Virginia Department of Forestry
Project owners: City of Richmond, Virginia
Project operator: VCU
Project maintainer: VCU with support from CACIL & the Richmond Tree Stewards
Subcontractors: N/A
Relevant regulatory bodies: City of Richmond Urban Forestry Division
Contact for the GHG program: (Contact information: *carpenterlw@vcu.edu, 804.628.5196)*

Participants & Roles

Virginia Department of Forestry: Provides partial project funding, expert support and guidance in project tree species selection, planting, and maintenance.

CACIL: Provides partial project funding, guidance on project goals, process, and outcomes. Supports coordinating volunteer events related to the project and facilitates communication with Carver neighborhood residents.

Richmond Tree Stewards: Provides training, support and guidance on project tree species selection, planting, and maintenance as well as overall project process. Provides support for volunteer events and training for VCU students.

VCU: Provides partial project funding, overall project management, coordinates meetings, and maintains records related to the project. Supports developing project goals, processes, and outcomes.

Maintenance Structure

As the project operator and implementer, VCU will coordinate ongoing project monitoring, maintenance, and reporting. VCU will communicate project needs during monthly group meetings with project stakeholders and provide updates as necessary via email or phone in between group meetings. Any project stakeholder is able to raise maintenance needs to the project coordinator who will schedule and implement necessary maintenance tasks. As collaboration is a key value of the project, every effort will be made make project decisions by finding consensus among project stakeholders. The VCU Office of Sustainability is currently in process with the City of Richmond to develop a memorandum of understanding that details which maintenance tasks will be completed by which organization.

Maintenance Activities:

For the first three years of the project VCU will be responsible for the following maintenance activities:

Watering – Watering will occur once a week as often as it has rained less than an inch in the proceeding week throughout summer months. Each tree will be watered with a gator bag which holds 15 gallons of water and allows water to drip onto tree root crown over an 8-10 hour period.

Weeding – Weeds will be pulled within a two-foot radius around the base of each tree. This is to minimize potential conflict between project trees and gator bags with lawn mowers and weed wackers. Weeding will occur as often as is necessary.

Pruning – Pruning will occur as needed and is intended to promote the structural integrity of project trees while minimizing potential conflict between trees and buildings, utility lines, pedestrians, and vehicle parking. All pruning will be completed from the ground with hand tools.

After the first three years of the project, watering, weeding, and pruning needs will be determined through annual tree surveys and will be completed as needed.

Maintenance Responsibility:

VCU – Will coordinate ongoing maintenance to include watering, weeding, and pruning that can be completed from the ground with hand tools and is within the scope of what can be reasonably expected to be completed by volunteers and student workers. VCU will communicating maintenance needs with project partners and the City of Richmond.

City of Richmond – Will be responsible for maintenance activities that cannot be completed from the ground, require power tools, and/or are beyond the scope of what can be reasonably be expected to be completed by volunteers and student workers.

Commented [DV2]: Does this include plantings? In Durham we found that there was significant variability in the quality of the plantings that resulted in a higher-than-expected mortality rate (to be fair: this was a planting that involved more than 1000 trees, so decentralization was unavoidable). It will help for there to be centralized control of the quality of plantings to ensure maximum survivorship of the trees.

Commented [DV3]: We found that agreements that the City (Durham, NC, in this case) makes are not necessarily conveyed to the people working on the ground. For example, the maintenance schedule the City agreed to is different than (requires annual rather than biannual maintenance) that of the City's Urban Forester.

Commented [DV4]: It is not clear below exactly how things transition after the first three years – VCU remains responsible for maintenance that can be reached from the ground and the City is responsible for the rest?

Commented [DV5]: Is there a process for replacing any that are vandalized or go missing?

Commented [DV6]: How does this work in the summer, when there are presumably fewer students around?

Commented [DV7]: Who is responsible? The City?

Maintenance Program & Training:
To provide consistent tree maintenance and experiential learning opportunities for students, VCU created the Tree Ambassador Program. In this program VCU sponsors students to complete the Richmond Tree Steward training course – a 10 week course that covers best practices for tree planting and maintenance. After completing the course and passing a pruning exam students become certified Tree Stewards and may be hired for a summer internship. In this internship students are able to apply classroom training in Carver as they water, weed, and prune project trees. VCU piloted the Tree Ambassador program in 2019 and intends to continue the program into 2020 and 2021.

Maintenance Tools:
These include hand pruners, loppers, pole saws, pole pruners, soil knives, soil cultivators, gloves, and safety equipment.

Watering Tools:
These include hoses, hose reels, a portable water meter, gator bags, traffic cones, five-gallon buckets, bicycle cargo trailers, and bicycles.

Monitoring Structure
Ongoing monitoring will be coordinated through the VCU Office of Sustainability. VCU Tree Ambassadors will inventory project trees on an annual basis with support from the VCU Center for Environmental Studies and other academic units. Tree Ambassadors will be trained in morphological tree data collection and analysis using iTree in order to complete annual monitoring.

Reporting Structure
VCU will ensure reporting and verification occurs in accordance with the protocol's designated timeline.

Carbon Offset Credits
The City of Richmond owns all carbon credits associated with project trees. The City of Richmond and VCU are currently negotiating the terms of a carbon offset credit transfer agreement that would allow VCU to claim these credits after peer verification has occurred.

Table 1: Maintenance Schedule Summary

Year	Owner	Tasks
2019 - 2021	VCU	Water, weed, prune, conduct tree inventories.
2021 - 2058	VCU	Water, weed, prune as needed and conduct tree inventories.
	City of Richmond	Compete pruning that cannot be completed from the ground and/or requires hand tools.

Commented [DV8]: I love this idea and this covers the first 3 years of this program, but what happens if things change after 2021? Who will be responsible for maintenance, the City?

Commented [DV9]: This equipment has been acquired and will be maintained and replaced as necessary by VCU?

Commented [DV10]: See my question above for an explanation of what happens to these activities if, for some reason, VCU cannot or does not continue the Tree Steward Program

1.5 Relevant Stakeholder Outcomes & On-going Communication

Explain the anticipated outcomes of the project for each of the stakeholders identified in 1.4; are these outcomes related to learning objectives, sustainability goals, or something else? For example, the project funder's anticipated outcome might be to reduce their carbon footprint while the project developer may hope to create a unique learning experience for students through project development. Provide an explanation as to how these parties will remain in contact throughout the course of the project.

City of Richmond: Increased tree canopy cover on City-owned property.

Virginia Department of Forestry: To facilitate and support increasing tree canopy in Richmond.

CACIL: Increased tree canopy in the Carver neighborhood to help meet the CACIL mission to make Carver a better place to live, work, and visit.

Richmond Tree Stewards: Increase education contacts through volunteer events related to the project and to increase capacity for tree maintenance in the City of Richmond with VCU Tree Ambassadors.

VCU: Support community-engaged research, claim peer-reviewed carbon offset credits (following the signing of a contractual agreement between VCU and the City of Richmond), and provide experiential learning opportunities for VCU students.

Ongoing Communication: Parties will remain in contact via email, phone, and monthly team meetings to share project progress, communicate needs between partners, and coordinate project work. Team members will also attend CACIL meetings to provide updates to Carver residents on project progress and upcoming events related to the project.

1.6 Environmental Impact Assessment

An environmental impact assessment is not required for this project.

1.7 Chronological Project Plan

Project Dates

Timing	Description
November 2018	**Project Commences**
November 2018	Project tree planting in Carver neighborhood.
November/ December 2018	Project Tree Inventory – conduct initial inventory of project trees.
May 2019 – August 2019	General tree maintenance to include watering, weeding, and pruning.
May 2019 – June 2019	Peer Verification
June – July 2019	Project Tree Inventory – conduct second inventory of project trees.
July – August 2019	Project Tree Maintenance – VCU Tree Ambassadors conduct any necessary maintenance of project trees and existing trees in the Carver neighborhood.
2020 - 2021	Annual project tree surveys, watering, maintenance as needed.
2022 - 2023	Annual project tree surveys, maintenance as needed.
2024	Full project inventory, maintenance as needed.
2025 - 2028	Annual project tree surveys, maintenance as needed.
2029	Full project inventory, maintenance as needed.
2030 - 2033	Annual project tree surveys, maintenance as needed.
2034	Full project inventory, maintenance as needed.
2035 - 2038	Annual project tree surveys, maintenance as needed.
2039	End of 20 year crediting period. Make decision regarding continuing or retiring project. Full project inventory, maintenance as needed.
2040 - 2043	Annual project tree surveys, maintenance as needed.
2044	Full project inventory, maintenance as needed.
2045 - 2048	Annual project tree surveys, maintenance as needed.
2049	Full project inventory, maintenance as needed.
2050 - 2053	Annual project tree surveys, maintenance as needed.
2054	Full project inventory, maintenance as needed.
2055 - 2058	Annual project tree surveys, maintenance as needed.
2059	40 year crediting period ends. Project is retired.

(2018 - 2041)

2. Project Eligibility

2.1 Eligibility Requirements from the Protocol

List any eligibility requirements within the Eligibility requirements of the Project Plan Instructions document and describe how the project meets those requirements. Additionally, provide all information needed to validate the eligibility of the project.

Project Location: The project falls within the Richmond Virginia urban area as defined in the 2010 United States Census by the United States Census Bureau.

Project Area: The project area is the Carver neighborhood district as defined by the City of Richmond. See Attachment 1 for a map package that includes the project area boundary.

Project Commencement: The Project Plan is submitted to the Offset Network on December 19, 2018. Project tree planting occurred on November 17 and 18 of 2018. The project plan is being submitted after tree planting due to unanticipated logistical challenges in planning tree planting. Mediating these challenges delayed completing the project plan until after planting occurred.

Additionality: We believe this project to be additional and that the project is not likely to have occurred in another scenario.

Legal Requirement: GHG removals achieved by this project will be above and beyond any GHG removals that would result from compliance with any federal, state, or local law, statute, rule, regulation, or ordinance. VCU is not under any court ordered or other legally binding mandate to implement GHG removals.

Performance Standard Test: We can assume the number of street trees in Carver has stayed the same or decreased over the past five years. The City of Richmond maintains a tree inventory with a GIS. The most recent updates to the City tree inventory in the Carver neighborhood were made in 2014, which showed 142 vacant tree wells in the neighborhood. In 2017 VCU conducted a tree inventory in Carver to a) establish a baseline for current carbon sequestration and b) identify vacant tree wells in the neighborhood. The 2017 VCU inventory found 190 vacant tree wells. In total, 48 trees were lost between the tree 2014 City of Richmond inventory and the 2017 VCU tree inventory. Based on interviews with City of Richmond Division of Urban Forestry staff, there is not a plan, regulation, or dedicated funding to support tree planting or tree maintenance in the Carver neighborhood.

Project Crediting Period: 20 years.

Minimum Time Commitment: 20 years.

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2.2 Additionality

Answer each question within the Additionality section of the Project Plan Instructions document, covering Legal Requirements, Project Finances, Project Context, Project History, Protocol-specific Additionality Questions, Relevant Literature, and how you performed your additionality assessment.

Legal Requirements

No part of the project is required by law, regulation, court order, or other legally binding requirement.

Project Finances

Before initiating this project, VCU Sustainability staff requested funding to purchase carbon offset credits on the open market. As an expensive and largely unfamiliar concept to upper administration, this request was denied. Without financial support from upper administration or internal funding available to purchase offset credits directly, VCU Sustainability initiated this project with the intention of generating offset credits locally. VCU Sustainability applied for and was awarded grant funding from the Virginia Department of Forestry to purchase project trees and a portion of project materials. While unable to fund the project entirely, VCU Sustainability was able to allocate some financial resources and significant staff time to the project. This project was initiated by VCU Sustainability for the opportunity to generate local offset credits and would not have been pursued were it not for the opportunity to do so. We believe the maintenance program developed for and the resources dedicated to supporting the project represents behavior change on behalf of the university and supports the additionality of the project.

Tree Planting

Funding for project tree planting is provided in part by $15,000 in grant money awarded to VCU in 2018 through the VDOF Virginia Trees for Clean Water grant program. Monies awarded from VDOF are intended to support tree planting projects in the state of Virginia. VCU has used award money to purchase project trees ($10,000), Gator Bags ($1,110), mulch ($850), compost ($850), safety vests ($240), gloves ($94), and flagging tape ($10). This money may have been awarded to another organization to plant trees in the Richmond area in a similar fashion to this project. In-kind contributions to the tree planting project from VCU included tool rental ($60), food for volunteers ($2,959.29), other materials related to project tree planting ($646), and staff time dedicated to coordinating the planting project. Activities carried out by VCU Sustainability staff included organizing: partner meetings, community outreach activities to gather neighborhood feedback on tree species and tree planting locations, marking underground utilities, ordering trees and related planting supplies. These financial and staff resources could have been used to pursue a variety of other sustainability projects not related to carbon offsets.

Tree Maintenance

Funding for ongoing tree maintenance has been provided in part by $16,000 in grant money awarded to VCU in 2018 through the VDOF Urban and Community Forestry Assistance grant program. Monies awarded from VDOF are intended to support sustained tree maintenance programs in the state of Virginia. This money has been used to purchase a portion of necessary maintenance supplies to include hand pruners, hoses, loppers, and hand saws as well as materials for tree watering, bike helmets, and bike locks. VCU has purchased additional maintenance supplies to include tool bags, soil knives, and hand cultivators and funded four VCU students to complete the Richmond Tree Steward training course in preparation for being hired as interns through the Tree Ambassador Program through the summer of 2019.

The City of Richmond does not provide a reliable tree maintenance program or regular watering for newly planted City trees. To fill this gap, VCU secured grant funding to initiate a maintenance program and prevent project reversal. While it is possible grant funding could have been awarded to another organization, it is unlikely another organization in the City of Richmond would be able to provide a similar level of tree maintenance as VCU. All equipment purchased with grant funding will be retained by VCU and used

in years after 2019. Tree Steward training, Tree Ambassador salary, and any additional equipment will be paid for by VCU after 2019.

Commented [DV11]: Is there a protocol for replacing trees that die?

Non-financial benefits

Non-financial benefits associated with this project include 1) helping CACIL achieve its mission to make Carver a better place to live, work, and visit, 2) building lasting partnerships between VCU and Richmond community organizations, and 3) providing experiential learning, research experience, and service opportunities for students.

Project Context

We are unable to provide historical budget information that outlines the number of trees planted by the City of Richmond or the cost of any associated maintenance in the past five years. This information has been requested from the City but not provided. In conversation with the Richmond Urban Forestry Division it was communicated there is not currently a formal budget or planning process for tree planting or maintenance. To the best of our knowledge, the City has not planted any new trees in Carver in the past five years.

This project was born out of mutual desire between VCU and the Carver neighborhood association to maintain and enhance the urban tree canopy in Carver in order to 1) help Carver achieve its mission make Carver a better place to live, work, and visit and 2) help VCU achieve its GHG mitigation goals. Carver residents cited lack of consistent watering and other maintenance on behalf of the Richmond City Urban Forestry Division as a concern with planting new trees in Carver. When initiated, project partners had not worked together in any formal capacity.

It is not the mission of VCU or the VCU Sustainability to plant or maintain trees on City of Richmond public property in an off-campus neighborhood. However, this project has inspired organizational change to make it an objective of VCU Sustainability to plant, monitor, and maintain trees off campus. If it were not for the potential to generate local carbon offset credits through this project, it would not have been pursued by VCU.

Project History

This project was conceived in 2017 when VCU, CACIL, the Richmond Tree Stewards, and Capital Trees were awarded $10,000 in funding from the VCU Division of Community Engagement to inventory existing street trees in Carver, identify vacant sites suitable for replanting, and build a partnership structure between Carver, VCU, and other project partners. This work identified 431 standing street trees and 190 vacant tree wells. An inventory was taken of standing trees and their ecosystem service value was calculated using i-Tree. These results were then shared with the community through print and online publications. Monthly meetings were held with CACIL to review vacant tree sites and determine where Carver community members did and did not want trees replanted. Through community feedback and a suitability analysis, 62 sites were selected for replanting. A species "menu" - a list of three suitable tree species that could be planted at each site - was developed and shared with Carver residents. Community members were given the opportunity to select the tree species they wanted to have planted in their neighborhood. Project trees were planted between November 17 and 18 of 2018 with the help of over 120 volunteers.

Duke University has been involved since 2017 as advisors in project development and offset best practices. VCU Sustainability has been heavily involved since the projects inception, providing project coordination and management.

Protocol-specific Additionality Questions

The Carver Community Forestry Offset Program encountered barriers including financial, staff capacity, knowledge, and lack of trust in development and implementation. Overcoming these barriers required active engagement and collaborative work to identify solutions and build partnerships that would allow the project to move forward successfully.

Implementation Barriers

Financial: The VCU Office of Sustainability lacked internal funding to support project start-up in full. To overcome this constraint, grant funding was secured to provide purchase project trees, related equipment, and Tree Ambassador intern salary through August 2019. The Office was able to provide financial support in full-time staff time and salary as described in the Project Finances section of this document. After August 2019, the project will be funded entirely by VCU Sustainability.

Commented [DV12]: Is this additional funding supplied by VCU Administration or a reconfiguration of the existing budget for VCU Sustainability?

Staff Capacity:
Project Coordination – Implementing an urban forestry offset program requires significant administrative oversight. None of the partner organizations involved in the Carver Community Offset Program had the capacity to coordinate this effort. To fill this gap, VCU Sustainability has served and will continue to serve as the project coordinator, dedicating many hours of staff time to project administration. This includes tasks such as organizing meetings between project partners, developing project budgets and timelines, assigning project tasks to team members, general record keeping, coordinating tree planting and ongoing tree maintenance, attending neighborhood association meetings in Carver to address community concerns with the project, interfacing with the City of Richmond, conducting background research, and writing communication materials.

Ongoing Program Support – The City of Richmond Urban Forestry Division does not have the capacity to provide the maintenance and monitoring required by the DCOI protocol. To address this barrier, VCU created 1) a tree maintenance strategy that goes beyond what is currently provided by the City and 2) the VCU Tree Ambassador Program to provide constant staffing for the project. Implementing a higher quality tree maintenance program than what is currently provided by the City is perceived by VCU as a necessary investment to protect the project from reversal.

Knowledge Gaps: VCU Sustainability lacked adequate knowledge around urban forestry and the Carver neighborhood when the project was initiated. To overcome this barrier, VCU Sustainability worked to build partnerships in order to share knowledge between project partners. Information was shared between partners during project meetings and planning. This included considerations for tree species selection, requirements around tree planting in the City of Richmond, how to coordinate a planting event, and best practices for tree planting and maintenance. One of the most significant knowledge gaps this project overcame was understanding the needs and concerns of the Carver community and shaping project processes and outcomes to address them.

Trust: When this project was initiated, there was a lack of trust between members of the Carver neighborhood, VCU Sustainability, and other project partners. Trust was built between project partners by carefully articulating expectations, needs, and desires between partners. Incremental goals were set over the course of the project to demonstrate accountability between partners and build trust over time. Trust was established with the Carver neighborhood by 1) regularly attending CACIL meetings to share updates on project progress 2) listening to and answering questions from community members related to the project 3) involving the community in the decision making process to include things like tree planting locations and tree species selection 4) continuing to attend CACIL meetings and be a resource where community members can feel welcome to ask questions and share concerns.

2.3 Additionality Checkbox

Choose the statement that applies best to your project from within the Additionality Checkbox of the Project Plan Instructions document; provide a detailed description of the reasoning for your answers.

Section 1

I can think of one or several scenarios in which the project is non-additional, but none seem likely.

Another organization could have used grant funding awarded to VCU to support a tree planting project in a similar manner to this project. However, it is unlikely another organization would have 1) allocated the same amount of staff time to a new program that could have been otherwise used to support existing initiatives, 2) prioritized community-engagement and partnership building between organizations to ensure community support for the program, 3) developed a long-term maintenance program above and beyond what is provided by the City of Richmond. Without the program developed by VCU project trees would almost certainly not have been planted in Carver and they would not receive the maintenance necessary to ensure tree survival for the life of the project.

Commented [DV13]: I agree that this project meets the Additionality requirement.

Section 2

It is likely that the project is Additional.

The City of Richmond has no formal funding for or plans to plant trees in Richmond or in the Caver neighborhood. Furthermore, the City has no formal maintenance program to ensure the survival newly planted trees. The maintenance program provided by VCU is additional to what is currently provided by the City. VCU has created new internship positions for students and implemented a new maintenance program – neither of which existed before in the City of Richmond. Without the maintenance program designed and implemented by VCU to support this project, project trees would likely experience high rates of mortality. This would cause project reversal and reduce the carbon impact of the project.

Below, create a summary list identifying the factors supporting the additionality of the project and those that point to the possibility that the project is not additional. For the purpose of proving additionality, brainstorm reasons that someone may propose that a similar project would have been done without this carbon offset project.

Supports Additionality	Does Not Support Additionality
The City of Richmond has no formal tree planting plan or strategy.	Funding for planting could have been awarded to another project.
Project includes a long-term maintenance program additional to what is currently provided by the City of Richmond.	
VCU staff time dedicated to project.	
Partnerships developed through project.	

3. Emissions Reduction Data, Methods, and Calculations

Many of the below sections may request information that is not yet available from the project and will become available once the project is implemented. Should this be the case, please provide written answers, to the best of your ability, under each heading in this section outlining how you intend to identify and determine this information through project development. Provide a brief narrative if specific details are not available.

3.1 Project Sources, Sinks, and Reservoirs

Baseline

List of included emissions sources:

Scope 3 emissions: None

List of excluded emissions sources:

Not applicable.

List of sinks and reservoirs:

None

Project

List of included emissions sources:

As we are using bicycles for the majority of our transportation it is likely our emission sources are below the 3% "de minimis" consideration of the protocol. We will perform more calculations for the creation of the PDD.

List of excluded emissions sources:

Not applicable.

List of sinks and reservoirs:

Project trees.

3.2 Data Sources

Provide the following: (1) expected key data sources that will inform calculation of the project impact, (2) how the data will be collected and (3) how the data will be monitored. If some of these data sources and methods are still unclear, provide the information to the best of your ability.

1) Key data sources include annual tree inventory data to estimate tree growth, carbon sequestration, and carbon storage.
2) Annual tree inventory data will be collected with the help of students through a class, independent studies, or the VCU Tree Ambassador program. Carbon sequestration and storage will be estimated with iTree.
3) Tree inventory and carbon sequestration data will be stored and monitored with iTree.

Commented [DV14]: Measurement of dbh at a consistent height from year to year is very important to the accuracy of your data. I know from classes I have taught that students vary in their attention to and interpretation of instructions so there needs to be some level of guidance or oversight that minimizes the kinds of variation you get from student-collected data.

3.3 Determination of the Baseline Scenario

Describe the baseline scenario and how that scenario was determined. Explain what alternative baseline scenarios were considered and why they were eventually excluded. It is recommended to utilize local information to determine baseline scenarios whenever possible.

For this project we are establishing a baseline based on Option 2 under Establishing a Baseline for a Tailored Project in the offset protocol.

Baseline – Planting & Maintenance

In 2011, the City of Richmond published its first sustainability plan, RVAgreen – A Roadmap to Sustainability. In this plan there is a stated goal to increase tree canopy in the City of Richmond. No specific tree planting goals are identified in the plan and additional funding was not dedicated to planting, maintaining, or monitoring City of Richmond trees. In a 2017 update to the RVAgreen Sustainability Plan, it was reported that the City planted 2250 trees in 2013, 2245 trees in 2014, and 2052 trees in 2015. Data has been requested from the Richmond Urban Forestry Division to estimate tree planting figures for 2016, 2017, and 2018. No information has been provided to date.

Based on interviews with the Richmond City Arborist there is no formal tree planting, monitoring, or maintenance plan in place for the City of Richmond and no budget specifically dedicated to any of these tasks. The number of trees planted each year is variable year to year and depends on annual budget cycles. There is not a way to predict how many trees will be planted in a given year. It was also indicated there have not been and are not tree planting, monitoring, or maintenance plans specifically for the Carver neighborhood. The City Arborist expressed her support for this project as it included planting and a dedicated maintenance program that would be, in her view, additional to work currently conducted by the City.

When this project began, the City of Richmond provided a street tree inventory GIS for the Carver neighborhood. This inventory reflected 142 vacant tree wells in the neighborhood. It is not clear when this inventory was completed by the City. A 2017 survey of Carver street trees completed by VCU found 190 vacant tree wells. This is 48 more vacancies than reported in the street tree inventory provided by the City. Based on increase in vacant tree wells between the City of Richmond and VCU inventories and the downward trend in tree planting throughout the City as reported in RVAgreen, it can reasonably be assumed that the number of street trees have been decreasing in Carver over the past five years. As such, the business-as-usual tree planting scenario for Carver is zero trees planted in a given year.

Baseline – Carbon Sequestration

A 2017 survey of Carver street trees completed by VCU found 431 standing street trees of which 411 were large enough to be included in an iTree analysis. With guidance from VCU Sustainability, the class calculated annual carbon sequestration and carbon storage for trees in Carver. The annual carbon sequestration rate for the 411 existing trees was as follows:

Total annual carbon sequestration: 3.375 tons
Total carbon stored in all trees: 89.23 tons

Commented [DV15]: For purposes of Additionality it is important that the City does not consider the trees in this project to be among the number they count as planted in 2018.

3.4 Estimation of Emissions Reductions/ Sequestration

Estimate the impact of the project on emissions and carbon storage. Also, provide information regarding the confidence in your estimation.

Using the iTree Planting Calculator tool, we estimate project trees will sequester a total of 100 tons of carbon dioxide over the 40 year life of the project with an average yearly sequestration rate of 2.5 tons. See Attachment 2 for complete iTree estimates. We are highly confident in this estimate as iTree is a peer-reviewed software suite from the United States Department of Agriculture.

Sequestration Summary:
Total carbon sequestration for the life of the project: 100 tons
Average carbon sequestration per year for the life of the project: 2.5 tons
Average carbon sequestration per tree for the life of the project: 1.6 tons
Average carbon sequestration per tree, per year for the life of the project: 0.04 tons

3.5 Explanation of Methodological Choices

Identify the chosen project methodology. What alternations do you anticipate making to the methodology? These can include any proposed changes from the protocol reporting, monitoring, and verification requirements. Include the rationale for changes to the methodology for any alternations to standard protocol. Depending on the extent of modifications, these may be approved through the Peer Review process or may require use of the innovative offset project process.

This project follows the methodology provided by the Urban Forestry Carbon Offset Protocol 2.2 as developed by Duke University. The only alteration that may occur is conducting full tree inventories more frequently so as to provide more regular opportunities for student participation in the project.

4. Risk Assessment & Future Consideration

4.1 Double Counting

Double counting is considered to have occurred if the reductions achieved by the project are claimed twice, either by more than one entity, or twice by one entity. Consider answering the following questions in your narrative to describe how your project actively avoids double counting:

Who owns the credits? Have attestations against double counting been signed? Was the project implemented within your organization's emissions inventory boundaries?

The Project was implemented off-campus, outside VCU's emissions inventory boundaries. As project trees are sited on City of Richmond public property, the City of Richmond owns project trees and any carbon project trees sequester and store.

VCU and the City of Richmond are currently working to finalize an attestation against double counting. The City of Richmond has indicated VCU may claim carbon sequestered by project trees and that budgets or goals set by the City will not be changed as a result of the Project. The City would like to count Project Trees towards urban tree canopy goals. Barring objection from the Offset Network, VCU is inclined to allow project trees to be included in City of Richmond urban forest canopy cover goals as it would 1) be difficult to separate project trees from other city trees in an aerial imagery analysis and 2) leave little incentive for the City to allow VCU to claim carbon sequestered by Project Trees if the City cannot realize the benefit of counting canopy cover associated with Project Trees towards City tree canopy goals. A formal agreement has yet to be signed. VCU has signed an attestation against double counting (Attachment 3) to ensure any credits though this project are claimed once and only once and to the best of its ability, identify and reduce risk of double counting.

Commented [DV16]: This is good

4.2 Leakage

Leakage occurs when a project that reduces emissions in one place causes an increase in emissions elsewhere. Consider answering the following questions in your narrative to describe how your project reduces and accounts for leakage:

Does the project result in a reduction in production of any product? Does the project provide sufficient profits to a project participant so that production may increase? If leakage does occur, what monitoring procedures are in place to track these sources? Will future maintenance needs exceed the project maintainer's capacity?

The Project does not result in reduced production of any specific product. However, the project provides sufficient benefits to project participants that there has been expressed interest in expanding planting projects to other parts of the City in the future.

Using gas-powered vehicles and power tools is the largest potential sources for project leakage. However, this is not likely to occur as we are using bikes and hand tools to complete ongoing project maintenance. Products purchased to support the project are high quality to maximize lifespan of tools and other materials.

Refurbished iPads were purchased for the project to support re-using electronics. Project materials are printed on 100% recycled paper. The project is located adjacent to campus making it easy for students and staff participating in the project to walk or bike to the project area without needing to use a personal vehicle. The majority of watering and maintenance will be completed by bicycle. Currently, we do not have monitoring procedures in place to track leakages.

As project trees mature and increase in size, maintenance needs may surpass what can be reasonably managed by VCU. If this occurs, VCU will consult with the Richmond City Urban Forestry Division to assess maintenance needs and delegate maintenance tasks to the City as necessary.

Commented [DV17]: A gallon of water weighs more than 8 lbs. A 15 gallon gator bag of water will weigh in excess of 120 lbs, which is a lot to be toting around on a bicycle. You might not be able to water your trees as you suggest.

Commented [DV18]: Your current plan minimizes leakage as necessary, but changes to the plan, as per my comment above, need to be estimated for additional carbon cost.

4.3 Permanence

Permanence is a concern for carbon storage projects, like forestry and soil carbon projects, because of the risk that the carbon will be released back into the atmosphere. Consider answering the following questions in your narrative to describe the possible risks of project reversal, and how these risk factors will be mitigated and accounted for:

How will unintentional risks to permanence, such as fire, flood, and geologic events, be accounted for and minimized? How will intentional risks, such as the discontinuation of the project, be minimized? If carbon storage is reversed, what will be done to mitigate the effects?

The primary risk for project reversal is trees needing to be removed due to age, damage, safety concern, or utility work. Risks associated with damage from cars or people has been mitigated by planting trees in locations away from intersections and in spaces where they are not likely to be damaged by cars. Utilities were marked prior to planting to site trees off of utility lines where they will hopefully not be damaged if utilities need to be accessed. With proper maintenance, trees should have a long lifespan and not pose safety concerns, reducing the risk of trees needing to be removed. If trees do need to be removed, every effort will be made to use tree biomass in such a way that stored carbon will be preserved.

Commented [DV19]: Given the newness of this to VCU Sustainability and to the University, and given that the City of Richmond does not have a protocol that would allow it to maintain these trees without the help of VCU, I think you need to address this question in detail.

4.4 Additional Risks

Provide information regarding any additional risks that may impact the project.

Urban trees face many potential risks including damage from cars, pedestrians, bikes being locked to them, etc. Project trees may be damaged or removed during infrastructure and utility upgrades, repair, or installation.

5. Project Monitoring Plan

Using the project protocol as a guide, how do you anticipate monitoring will occur? Who will be responsible? Identify the data that is important to the project impact to monitor and the methods required for successful monitoring. This Project Monitoring Plan is optional and is only meant to facilitate thinking about future monitoring.

Project monitoring will be coordinated by and is the responsibility of VCU. Data that is important to the project includes morphological data for each tree, change in growth over time, carbon sequestration by trees, and ecosystem services provided by trees. Data collection will be coordinated by the VCU Office of Sustainability and carried out by VCU Tree Ambassadors and volunteers. Data will be collected on iPads with the ArcGIS Collector Application and analyzed with iTree. Data will be stored in a VCU Office of Sustainability database and shared publicly online. Monitoring will occur on an annual basis with surveys conducted each year and full inventories conducted every five years. Full inventories may be conducted more frequently to provide more regular opportunities for student participation and experiential learning.

6. Project Verification

If you are planning to pursue Peer Verification, please specify an institution that has been selected to perform verification, or which institutions may act as verifiers.

American University has been identified as a possible institution to complete peer verification. An official agreement has yet to be reached with American University.

7. Additional Information

Please provide any additional information you think will be useful in reviewing program eligibility concerning the Project Plan.

Innovative Project Transition Plan: Past 2019, VCU Sustainability intends to provide program financing through the VCU budget without grant support in order to resolve any concerns around the additionality of program financing. We are developing an opt-in carbon offset program that faculty, staff, and students may elect to contribute to in order of offset their campus carbon footprint. Monies collected through this program will be used to buy offset credits on the open market and support future tree plantings and tree maintenance. We have also requested additional funding from upper administration for ongoing program management.

8. Document Author(s) & Contact

Please add the name of the document author(s) and provide their contact information.

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