



ELIZABETH TWP, PA – BUENA VISTA HEIGHTS CONSERVATION AREA Project Design Document

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PROJECT OVERVIEW

Basic Project Details

Project Name: Elizabeth Twp, PA – Buena Vista Heights Conservation Area

Project Number: 009

Type: Preservation Project (under the Tree Preservation Protocol – 40 years, version 8.40, dated February 7, 2020)

Project Start Date: June 30, 2020

Project Location: Elizabeth Township, Allegheny County, Commonwealth of Pennsylvania

Project Operator Name: Allegheny Land Trust

Project Operator Contact: Alyson Fearon, Community Conservation Director –
afearon@alleghenylandtrust.org

Project Area Parcels

List of parcel or parcels covered by the Preservation Commitment(s), collectively defining the Properties, noting which ones contain the Project Area, each with a unique identifier.

Jurisdiction / Location	Property Name	Property Parcel Number	Description / Notes
Elizabeth Twp, PA	Buena Vista Heights	998-H-281	These three parcels represent 156 acres of forested area with a variety of topography and headwaters for a local stream. The project area is 123.91 acres.
Elizabeth Twp, PA	Buena Vista Heights	997-J-3	
Elizabeth Twp, PA	Buena Vista Heights	1128-E-2	

Project Area Ownership

Project Operator must demonstrate ownership of potential credits or eligibility to receive potential credits. If the Project Operator is not the same as the landowner, provide agreement(s) between Project Operator and landowner authorizing Project Operator to execute this project. Include documentation including title/filename as an attachment.

Project Owner: Allegheny Land Trust

Additional Notes: Allegheny Land Trust will remain the Property Owner and Project Operator for this project.

Title/filename of relevant attachment(s): ALT Buena Vista Heights Recorded Deed 20200706

LOCATION OF PROJECT AREA (Section 1.3, 1.4)

Location Eligibility

Project Areas must be located in parcels within or along the boundary of at least one of the following criteria. Describe how the Project Area(s) meet the location criteria.

- A) The Urban Area boundary (“Urban Area”), defined by the most recent publication of the United States Census Bureau*
- B) The boundary of any incorporated city or town created under the law of its state;*
- C) The boundary of any unincorporated city, town, or unincorporated urban area created or designated under the law of its state;*
- D) The boundary of land owned, designated, and used by a municipal or quasi-municipal entity such as a utility for source water or water shed protection;*
- E) A transportation, power transmission, or utility right of way, provided the right of way begins, ends, or passes through some portion of A through D above.*

Project Area(s) location eligibility description. *Include title/filename of relevant attachments.*

The project is located within an Urban Area Boundary as defined by the most recent publication of the United States Census Bureau (2010). The Project Area is comprised of three parcels, and is a total of 123.91 acres.

Maps

Provide a map of the Project Area with geospatial location vector data in 1) pdf form and 2) any file type that can be imported and read by Google Earth Pro (example KML, KMZ, or Shapefile format). Map should include relevant urban/town boundaries. Include title/filename of relevant attachments.

Geospatial location (boundaries) of Project Area

Title/filename of relevant attachment(s): CFC_ALT_BVHts_CarbonProject.shp

Regional-scale map of Project Area

Title/filename of relevant attachment(s): CFC_ALT_BVHts_CarbonProject_Regional with UA.pdf and CFC_ALT_BVHts_CarbonProject_Regional_CtyandMuni_with UA.pdf

Map(s) of Project Area

Title/filename of relevant attachment(s): CFC_ALT_BVHts_CarbonProject_Muni.pdf
CFC_ALT_BVHts_CarbonProject_ProjectArea.pdf

DEMONSTRATION OF THREAT OF LOSS (Section 4.2, 4.3)

Project Operator must demonstrate that the Project Area is eligible per existing land use designations. Provide evidence to support the following statement: “Prior to the Preservation Commitment(s), the Project Trees were not preserved from removal through a Recorded Encumbrance, Governmental Preservation of Trees on Public Land, or other prohibitions on their removal.”

Describe all “overlay zones”, critical areas and their protection buffers, legal encumbrances, and any other pre-existing tree/forest restrictions that may have hindered removal of the Project Trees (in the pre-Preservation Commitment condition). If such pre-existing tree/forest restrictions cover any portion of the Project Area, explain how such restrictions still permitted development and tree removal (such that

there was a verifiable threat of loss consistent with your Quantification) and provide supporting evidence including a map.

Land use designation(s) for the Project Area:

R-2 Medium Density Residential

Overall Explanation:

The Buena Vista Heights Conservation Area was acquired from the developer-owner who had a Planned Residential Development (PRD) created for the site. The Zoning Code for Elizabeth Twp does not include special protections or overlay districts in this area.

The PRD Ordinance includes a requirement for a 20% open space set-aside in any PRD, along with guidance that development should avoid floodplains, steep slopes, waterways and the taking of shade trees.

Elizabeth Twp Zoning- PRD <https://www.ecode360.com/34141893>

§ 1304 Common Open Space.

1304.1

Areas Required.

A.

Common open space shall comprise at least 20% of the total gross site area of the PRD.

B.

Of the required open space area, not more than 50% may be covered by water.

C.

Recreational facilities or structures and their accessory uses located in common open space areas shall be considered improved open space as long as the total impervious surface area constitutes no more than 5% of the total common open space.

D.

To the extent feasible, steep slopes, streams, lakes, ponds, woodlands and other environmentally sensitive areas shall be incorporated into the common open space.

E.

No less than 35% of the required open space area shall have slopes of 15% or less and shall be suitable for development of active recreation facilities such as walking trails, ballfields, picnic areas, tennis courts, swimming pools and similar facilities.

F.

The active recreation proposed by the applicant shall be appropriate to the needs of the anticipated residents of the PRD and shall be subject to approval by the Board of Commissioners, upon recommendation by the Planning Commission.

1304.2

Protection of Common Open Space. Common open space in a planned residential development shall be protected by adequate covenants running with the land or by conveyances or dedications. A planned residential development shall be approved subject to the submission of a legal instrument or instruments setting forth a plan for the permanent preservation, care and maintenance of such common open space, recreational areas and other facilities owned in common. No such instrument shall be acceptable until approved by the Board of Commissioners as to legal form and effect. In cases where the Township will not be accepting dedications of streets, recreation areas or common open spaces, the developer shall provide for an organization or trust for ownership and maintenance of the common open space and common facilities.

1304.3

Common Open Space Maintenance. In the event that the organization established to own and maintain the common open space, or any successor thereto, shall at any time after establishment of the final development plan fail to maintain the common open space, including all streets, driveways and recreational facilities, in reasonable order and condition in accordance with the development plan granted final approval, the Township may take remedial action to cause the common open space and common facilities to be properly maintained, as provided for in Section 705(f) of the Pennsylvania Municipalities Planning Code.^[1]

[1]

Editor's Note: See 53 P.S. § 10705(f).

<https://www.ecode360.com/26857677#26857682>

§ 505 General Goals for Design and Development.

[Ord. 859, 4/6/2009]

Subdivisions and land developments shall be designed to achieve the general goals or outcomes that are listed in this section.

A. Minimize Damage to the Environment. All subdivisions and land developments shall be designed to minimize environmental damage to the maximum extent possible, by carefully fitting the subdivision or development to the existing conditions and natural features of the site.

(1)

Minimize Grading. Roads, building sites and lots should be laid out in a manner that will minimize disturbance of the land. Roads should generally follow existing contours, where doing so will minimize cuts and fills. Naturally level areas should in general be utilized for building sites. Clustering of development on less-steep areas of the site is strongly encouraged, as an alternative to mass grading.

(2)

Protect Steep Slopes. Wooded hillsides are important environmental and aesthetic resources of Allegheny County. Development should be located to avoid disturbance of steeply sloped areas and to preserve the visual character of wooded hillsides.

(3)

Protect Watercourses and Wetlands. Watercourses are the county's natural drainageways for the conveyance of surface waters, including runoff and floodwaters. Streams, land bordering streams and wetlands provide habitats for aquatic and terrestrial plants and animals and may function as wildlife corridors. The county's larger streams and rivers are primary elements of the visual character of the county and are also important resources for recreation and commerce. Development should be designed to preserve and protect the county's watercourses and wetlands so that they can continue to serve all of these functions.

(4)

Preserve Woodlands and Mature Trees. New developments should be designed to preserve and protect existing woodlands, as excessive cutting of trees and clearance of woodlands in conjunction with subdivision and land development causes soil erosion, increased runoff, loss of habitat, and diminution of one of the county's most significant visual resources: the wooded hillsides that are so prominent throughout the area. Except for regulated commercial timbering operations, the cutting of mature trees and clearance of woodland shall commence only after final approval of a plan for subdivision or land development, and then only to the extent required for the construction of roads, utilities and buildings.

(5)

Protect Other Identified Natural Resources. Special care should be taken in the design and construction of subdivisions and land developments to protect habitats in which rare or endangered plants or animals are found and other ecologically important sites.

(6)

Protect Historic, Architectural and Archeological Resources. Sites containing structures of historic or architectural significance should be designed to preserve, enhance or reuse such structures, in accordance with any applicable state regulations.

(7)

Protect the Quality of the County's Air and Water. All land development shall comply fully with federal, state and county laws and regulations concerning air and water pollution.

Title/filename of relevant attachment(s): Elizabeth Twp - Zoning Ordinance and Map.pdf,
CFC_ALT_BVHts_CarbonProject_ProjectArea_ImprovedUse%

PRESERVATION COMMITMENT

Provide a complete copy of the written Preservation Commitment. Include title/filename, date, and term. If the Project Operator (PO) is not the same as the landowner and the carbon rights (right of PO to receipt and disposal of credits) are not established in the Preservation Commitment itself, then attach the agreement establishing these rights. If Project Area does not have the same boundaries as Preservation Commitment, please state the reasons why, and reference the PDD section(s) where those reasons are discussed in detail.

Title/filename of relevant attachment(s): ALT Buena Vista Heights Recorded Deed 20200706

Deed Protection Language

GRANTEE shall not engage in any commercial or other timbering on the Property conveyed hereby nor shall Grantee cut down, remove or destroy any trees on the Property except as may be necessary, in Grantee's reasonable judgment and discretion, (a) to control, prevent or mitigate hazard or threat to life or damage to or destruction of property, (b) to promote or protect forest health and habitat, (c) to remove diseased, dead or damaged trees, or (d) to prevent or mitigate fire or conditions that may directly or proximately cause or exacerbate fire. The use of motorized vehicles or any vehicle with an internal combustion engine powered by petroleum is prohibited. This restrictive covenant runs with the land and is binding upon Grantee and its successors and assigns.

Date: Effective date is June 30, 2020; recorded date is July 6, 2020

Preservation Term (years applicable): 40 years

Additional Notes: None

MONITORING AND REPORTING

Describe your plans for continuity of operation of this Carbon+ Project, including monitoring and reporting. If Project Operator plans to claim credits for future growth, describe methods that will be used to quantify future growth.

As an accredited land trust under the Land Trust Accreditation Commission, ALT is required to meet minimum standards for all conservation projects including and not limited to a management plan and annual monitoring and reporting. As such, Allegheny Land Trust will include the City Forest Credits monitoring and reporting requirement into the annual rotation of our existing requirements. As the monitoring report is required only triennially, ALT will be familiar with the site and be able to identify changes in the forest and landscape to include in the report. Changes may be severe storm damage, bug or pest infestation, fire, or the introduction of a new invasive species.

All plans to claim future growth will follow the original quantification method and will be primarily measured as canopy density increases. ALT does not plan to apply for these additional credits until such time that the canopy is considered sufficiently increased (overall >90%) or the credits are needed.

As a Pennsylvania Non-Profit Corporation, Allegheny Land Trust has a continuity plan in place should, for any reason, the corporation need dissolved. However, with the additional funds earned we will increase the stewardship endowment for the property, which includes all future staff time requirements. Therefore, we expect to be fully capable of monitoring and reporting over the 40-year credit lifespan.

QUANTIFICATION DOCUMENTATION (Section 10)

Follow detailed instructions in the Protocol for conducting quantification and utilize the Carbon Quantification Spreadsheet to show calculations. Ensure that your requested credit issuance schedule (issuance dates) is accurate and complete in the spreadsheet. Project Operators should describe and appropriately reflect in their carbon quantification any and all planned future activities that may affect the % canopy or carbon stocking in any way.

Method for determining canopy cover (e.g. i-Tree, inventory, other): i-Tree Canopy

Brief description of approach to quantifying carbon (e.g. Forest Service tables, inventory, other):

We used approach 10.1.A. in the Tree Preservation Protocol, which includes referencing US Forest Service General Technical Report (GTR) NE-343 Table B2 Maple-Beech-Birch. The stand age was determined by referencing state and federal government produced historical aerial photos and imagery of the property and two separate site tours. The percent canopy was determined using iTree Canopy by uploading the project area shapefile and completing a 250-point Tree/Non-Tree Inventory.

Title and filename of attached Excel version of your completed Carbon Quantification Spreadsheet:

ALT Buena Vista Heights Carbon Quantification 20200406.xlsx

Summary numbers from Carbon Quantification Spreadsheet

Project Area (acres)	123.9144
Does carbon quantification use stratification (yes or no)?	No
Percent tree canopy cover within Project Area	82.9%
Project stock / acre (tCO ₂ e/acre)	17,571
Accounting Stock / acre (tCO ₂ e/acre)	14,057
On-site avoided biomass emissions (tCO ₂ e / acre)	12,651
On-site avoided soil carbon emissions (tCO ₂ e / acre)	7,435
Deduction for displaced biomass emissions (tCO ₂ e / acre)	2,315
Deduction for displaced soil emissions (tCO ₂ e / acre)	2,253
Credits from avoided biomass emissions (tCO ₂ e / acre)	10,336
Credits from avoided soil emissions (tCO ₂ e / acre)	5,182
Total credits from avoided biomass and soil emissions (tCO ₂ / acre)	15,518
Credits attributed to the project (tCO ₂), excluding future growth	15,518
Contribution to Registry reversal pool	1,552
Total credits to be issued to the Project Operator (tCO₂) <i>(excluding future growth)</i>	13,966

Data Sources & Filenames Referenced in Carbon Quantification Spreadsheet (Section 10)

The following list of information is only a summary for ease of navigation of your PDD.

Accounting Stock Measurement Method

Description of quantification, including methods, forest type, and data sources.

Allegheny Land Trust used method 10.1.A with iTree to determine Project Stock (Project Stock = Stock * Percent) and then multiplied by 80% to determine Accounting Stock.

Title/filename of relevant attachment(s): ALT Buena Vista Heights Carbon Quantification 20200406.xlsx

If stratification is used, maps of strata and stratum definitions: N/A

Stand Maps

Explanation / statement of method(s) used: Allegheny Land Trust used a combination of PA State and Federally Produced Imagery data and site visits to determine stand age and forest composition.

Title/filename of relevant attachment(s):

CFC_ALT_BVHts_CarbonProject_ProjectArea_Over1956_StateImagery.pdf

Forest Age

Explanation / statement of method(s) used: Allegheny Land Trust used a combination of PA State and Federally Produced Imagery data and site visits to determine stand age and forest composition. To simplify the calculation, we used the Forestry table age of the average of 35 and 45 years.

Title/filename of relevant attachment(s):

CFC_ALT_BVHts_CarbonProject_ProjectArea_Over1956_StateImagery.pdf

Forest Age

Age and explanation / statement of method(s) used: Allegheny Land Trust used a combination of PA State and Federally Produced Imagery data and site visits to determine stand age and forest composition. To simplify the calculation, we used the Forestry table age of the average of 35 and 45 years.

Title/filename of relevant attachment(s): State Imagery APS-3R-20.zip

CFC_ALT_BVHts_CarbonProject_ProjectArea_Over1956_StateImagery.pdf

Forest Composition

Composition and explanation / statement of method(s) used: ALT staff member, VP of Land Resources Emilie Rzotkiewicz, possesses a MS in Forest Resources from Penn State University and has been part of the City Forest Credits application process. Emilie has visited the site several times and made notes about species, canopy cover, and general stand character. Her general notes are compiled below. The evaluation of site began with a detailed review of the historical images from Penn Pilot. It was determined that the majority of the site was previously farmed which had gone fallow around 1975. The hillsides, stream valleys, and several small blocks of land were older trees as they were unsuitable for farming. During the three site walks, Emilie made notes of tree species, age and condition. The majority of the parcel would be described as early successional forest with young maple, cherry and a diversity of understory shrubs. A recent infestation of the Emerald Ash Borer (EAB) eliminated the

presence of young ash trees, but they are already making a comeback in the understory with abundant small seedlings: but we don't expect them to reach maturity as EAB is still found in the region. With abundant sunlight and nutrients, the remaining maple and cherries are growing to quickly close any remaining gaps. As the forest turns from an early succession forest to a mid-aged stand, Emilie expects more of the eastern hardwoods to develop. The young oaks and hickories found will wait their turn until the opportunity arises to overtake the faster growing early species. For now, the early successional forest is providing critical habitat for those species in peril, as early successional forest are in great decline. Using iTree and current aerial imagery, we were able to determine that the property canopy cover is at 83%. Emilie indicates that the die off of Ash has greatly reduced the canopy coverage of the past few years and expects that it will grow and lock in over the next decade. Data was taken on present tree species: 35% Sugar Maple/ 5% Oak/Hickory & 60% Cherry (black and sweet) with other early successional natives, which most closely matches GTR Table B2, and age class along with iTree data to determine the details for the application.

Title/filename of relevant attachment(s): N/A

Canopy Cover

Percent cover and explanation / statement of method(s) used: Allegheny Land Trust used iTree with a 250-point sample set to determine canopy cover with a combination of PA State Produced Imagery data and site visits to determine stand age and forest composition as references.

Title/filename of relevant attachment(s): CFC_ALT_BVHts_iTreeCanopy.dat, CFC_ALT_BVHts_iTreeCanopy_.kmz, and i-Tree Canopy_ Cover Report - 3_25_20 -CFC_ALT_BVHts.pdf

Fraction of Biomass at Risk

Fraction at risk and explanation / statement of method(s) used: The Suburban Residential R2 zoning in Elizabeth Township allows one-acre lots if there is no public sewer, and lots of 10,500 ft² if there is public sewer.

Under both scenarios, ALT can credit 90% of the Project Area.

Title/filename of relevant attachment(s): ALT Buena Vista Heights Carbon Quantification 20200406.xlsx

Impervious Limits

Maximum fraction impervious cover and explanation / statement of method(s) used: Section 10.4.B.

Title/filename of relevant attachment(s): ALT Buena Vista Heights Carbon Quantification 20200406.xlsx

Existing Impervious Area

Existing impervious cover fraction and explanation / statement of method(s) used: Project Area does not contain existing impervious surfaces.

Title/filename of relevant attachment(s): ALT Buena Vista Heights Carbon Quantification 20200406.xlsx

Planned Project Activities

Description / statement of method(s) used: N/A

Title/filename of relevant attachment(s):

Additional Notes: None

CO-BENEFITS QUANTIFICATION DOCUMENTATION

Optional: If Project Operators has conducted co-benefits quantification for this Project, please summarize results and list source / supporting files here.

The Co-Benefits quantification for the Project Area was based on 100% deciduous tree cover for 123.91 acres in the Northeast Climate Zone.

\$290,797.24*40= \$11,631,889.60

Title/filename of attachment: ALT Buena Vista Heights CoBenefits 20200406

Table 2. Co-Benefits per year with current tree canopy cover.

Ecosystem Services	Resource Units Totals	Resource Units /Acre Tree Canopy	Total Value (\$)	Value (\$) /Acre Tree Canopy
Rain Interception (m3/yr)	63,375.6	511.4	\$133,951.00	\$1,081.00
CO2 Avoided (t, \$20/t/yr)	262.9	2.1	\$5,258.29	\$42.43
Air Quality (t/yr)				
O3	2.2021	0.0178	\$4,584.67	\$37.00
NOx	0.9434	0.0076	\$1,964.12	\$15.85
PM10	1.0819	0.0087	\$4,077.95	\$32.91
Net VOCs	0.1450	0.0012	\$151.96	\$1.23
Air Quality Total	4.3723	0.0353	\$10,778.70	\$86.99
Energy (kWh/yr & kBtu/yr)				
Cooling - Electricity	192,440	1,553	\$26,960.83	\$217.58
Heating - Natural Gas	7,966,028	64,287	\$111,415.19	\$899.13
Energy Total (\$/yr)			\$138,376.03	\$1,116.71
Grand Total (\$/yr)			\$288,364.00	\$2,327.12