

VALIDATION & VERIFICATION REPORT

American Carbon Registry

ACR376

Bluesource – Massachusetts Tri-City Improved Forest Management Project

Reporting Period:

17 March 2017 to 15 September 2018

Prepared for:

Bluesource

2 July 2019



AMERICAN CARBON REGISTRY



ISO 14065 Greenhouse Gas
Validation and Verification Body
#0821

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Project Title	Bluesource – Massachusetts Tri-City Improved Forest Management Project
Client	Bluesource
Project Location	Southwestern Massachusetts
Reporting Period	17 March 2017 to 15 September 2018
Prepared by	SCS Global Services (SCS)
Date of Issue	2 July 2019
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Summary

SCS Global Services (SCS) has performed the validation and verification of the Bluesource – Massachusetts Tri-City Improved Forest Management Project (“the Project”) developed by Bluesource LLC (“the Project Proponent”). This assessment covers the Project’s greenhouse gas emission reductions reported to the American Carbon Registry (the Registry or ACR) for the reporting period 17 March 2017 to 15 September 2018. This report presents the validation and verification process, the findings raised during the assessment, and the conclusion reached by SCS.

This validation and verification was undertaken to evaluate the representations provided in the project plan and monitoring report and assess whether the compiled data conforms to the assessment criteria. The evaluation was undertaken using the ACR Standard, Version 4.0, Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, Version 1.2, The American Carbon Registry Forest Carbon Project Standard, Version 2.1, November 2010, and the ACR Validation and Verification Guidelines, Version 1.1.

In the course of this assessment the SCS verifiers developed findings which included New Information Requests (NIRs), Non-Conformity Reports (NCRs) and Observations (OBSs). During this verification 20 findings were issued: 12 NCRs, 8 NIRs, and 0 OBSs. These findings are described in Appendix C. All NCRs and NIRs have been adequately responded to, resulting in their closure. OBSs are potential non-conformances that have been memorialized for future verifications.

SCS verified the adequacy of the information provided in the project plan and monitoring report, confirming that these documents meet the requirements of the assessment criteria. On the basis of the information made available to SCS and the analyses completed, SCS was able to reach a positive opinion, with a reasonable level of assurance, that the claimed emission reductions and removals presented by Bluesource meets the requirements of ACR. Thus, SCS has verified 205,997 metric tons of CO₂e reductions and removals from the Bluesource – Massachusetts Tri-City Improved Forest Management Project for the reporting period of 17 March 2017 to 15 September 2018.

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1 Introduction

SCS Global Services (SCS) is a global leader in third-party certification, auditing, testing services, and standards. Established as an independent third-party certification firm in 1984, our goal is to recognize the highest levels of performance in environmental protection and social responsibility in the private and public sectors, and to stimulate continuous improvement in sustainable development. In 2012, Scientific Certification Systems, Inc. began doing business as SCS Global Services, communicating its global position with offices and representatives in over 20 countries. SCS is currently accredited to ISO 14065 for GHG Validation and Verification by the American National Standards Institute (ANSI) and offers carbon offset project validation and verification under the Verified Carbon Standard (VCS) and the American Carbon Registry (ACR). SCS also offers carbon offset verification under the Climate Action Reserve (CAR) and the Climate, Community and Biodiversity (CCB) standards.

SCS was commissioned by Bluesource to undertake the initial project validation and verification of the Massachusetts Tri-City Improved Forest Management Project. The project is located on 13,536 acres of forest land with oak-hickory, northern conifer, and northern hardwoods. The property is owned by the cities of Westfield, Holyoke and West Springfield. Forest types are dominated by oak-hickory stands with pine-hemlock regions and riparian areas. The forestland has been used for conservation to protect drinking water supply. This report covers the verification period of 17 March 2017 to 15 September 2018 as a project deliverable into the American Carbon Registry.

1.1 Project Description

The project area is a conglomerate of three water municipalities (Westfield, Holyoke and West Springfield). The overall goals and objectives of the water municipalities are the protection of their respective water resources and supplies. The forests act as a buffer for the reservoirs in the project area. Holyoke is the only city that does not allow public access while the other two allow hiking and occasionally hunting in the forests. The forest management objectives focus on forest health, sustainable natural forest growth, and noncommercial maintenance harvests to reduce hazards for recreational uses. The aim of the project is to ensure long-term environmental benefits provided by the conservation of the forests. This will be attained by committing to maintain forest CO₂ stocks above the regional baseline level. Additionally, education and outreach are part of the project mission, which is also closely tied to the recreation opportunities available to the public.

Other forest management goals include managing invasive/exotic species such as emerald ash borer, buckthorn, oriental bittersweet, and various other minor forest pests. Much of the project area is comprised of upland forests and riparian areas which provide habitat for 23 rare species of plants and animals.

The project will achieve GHG reductions through its commitment to maintaining its forest's CO₂ stocks above the locally observed industrial management levels. This will be achieved by implementing significantly lower harvesting levels through sustainable forest management practices that include small

group selection, single tree selection, and shelterwood cuts instead of clearcutting. The project will allow the forest to progress naturally with conservative sustainable harvesting practices in Holyoke, and no commercial harvesting in West Springfield and Westfield. Overall, providing climate benefits, conservation benefits, and recreational opportunities in the area.

1.2 Audit Team

The SCS audit team consisted of the following individuals:

Lead Verifier and Cruiser: James Cwiklik, SCS Global Services, Verification Forester

Mr. Cwiklik holds a Masters of Forestry from Michigan Technological University. He completed his undergraduate work at the University of Pittsburgh, receiving a B.A. in Environmental Studies, with a minor in Religious Studies and a certificate in Geographic Information Systems. Previously he has been a Lead Consulting Forester with Davey Tree's Resource Division supervising a team of foresters for Pacific Gas and Electric's (PG&E) Community Pipeline Safety Initiative (CPSI) project. Mr. Cwiklik is a certified Arborist and has contributed to the efforts of eradicating the Asian long horned beetle in southwestern Ohio as an Inventory Arborist and Quality Control Specialist. He has also worked with the Michigan Department of Natural Resources as a Forest Technician Crew Leader to lead forest inventories across northern Michigan with an emphasis on the spread of emerald ash borer and beech bark disease. Since joining SCS in February 2018, he has conducted multiple site visits under different standards to assist with data collection, analysis, and field training.

Verifier: Michael Hoe, SCS Global Services, Verification Forester

Mr. Hoe has a M.S. in Sustainable Forest Management, with a minor in Forest Biometrics, from Oregon State University, where he also received his B.S. As a Graduate Research Assistant for OSU he organized a field crew and measurement protocol to obtain high quality field data. Previously he served as a Forester with Mason, Bruce, & Girard Inc., assisting with project management, quality control, and timber cruising in the Pacific Northwest and California. Mr. Hoe has also conducted research with the Bureau of Land Management, obtaining data on tree growth and damage through extensive field work. In addition, he has taught Forest Mensuration and plans to publish two papers on quantifying post-fire basal area mortality with multi-temporal LiDAR. Mr. Hoe is a lead verifier with SCS and has conducted several forestry verifications. During his time with SCS, he has proven to be a well-rounded carbon auditor, possessing a full gamut of technical expertise ranging from forest biometrics, growth and yielding modeling, and timber cruising. Mr. Hoe is based in Eugene, Oregon.

Independent Reviewer: Zane Haxtema, SCS Global Services, Senior Verification Forester

Mr. Haxtema holds a M.S. in Forest Resources from Oregon State University (Corvallis, Oregon, USA) and a B.S. from The Evergreen State College (Olympia, Washington, USA). A well-rounded forestry professional, Mr. Haxtema held a wide variety of positions in forest research and management before coming to SCS, ranging from work on logging and tree planting crews to experience as a wildland firefighter and research assistant. A specialist in natural resource inventory, Mr. Haxtema holds significant expertise in sampling design, inventory management and growth modeling. Mr. Haxtema is well versed in a wide variety of methodological approaches for carbon accounting, having served as a lead auditor on a wide variety of projects under the Climate Action Reserve, the Verified Carbon Standard and the Climate, Community and Biodiversity Standards.

2 Assessment Details

2.1 Assessment Objectives

The objectives of validation are to evaluate:

- Conformance of the submitted Project Plan and Project Monitoring Report with the assessment criteria;
- GHG emissions reduction project planning information and documentation in accordance with the applicable methodology, including the project description, baseline, monitoring and reporting procedures, and quality assurance/quality control (QA/QC) procedures;
- Reported GHG baseline, *ex-ante* estimated project emissions and emission reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable).

The objectives of verification are to evaluate:

- Reported GHG baseline, project emissions and emission reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable);

2.2 Scope and Criteria

The scope of this assessment will be defined as the following:

- Assessment of the management systems, data handling and estimation methods used in calculating and reporting emissions data;
- Assessment of baseline methodology and determination;
- Assessment of and issuance of an opinion on issues of leakage and additionality;
- Assessment of data accuracy and any assumptions made in the manipulation of that data;
- Validation that the organization is operating according to the methodology approved by ACR;
- Determine whether the project could reasonably be expected to achieve the claimed GHG reduction/removals;
- Assessment of completeness of the inventory;
- Verification of emissions reductions and removals reported;
- Verification of the project boundaries and continuance;
- Verification that a measurement and monitoring system is in place that is capable of delivering high quality carbon stock data;
- Verification that the organization is operating according to the methodology approved by the ACR;
- Verification that the carbon stocks reported are real; and
- Conclusions developed on the declared tonnage for registration in ACR.

- The GHG sources, sinks and/or reservoirs that are applicable to the Project:
 - Baseline:
 - Above-ground biomass carbon
 - Below-ground biomass carbon
 - Standing dead wood
 - Harvested wood products
 - Project:
 - Above-ground biomass carbon
 - Below-ground biomass carbon
 - Standing dead wood
 - Harvested wood products
- The reporting period: 17 March 2017 to 15 September 2018

SCS conducted the verification assessment of the project and project documentation against the following criteria:

- American Carbon Registry Standard, Version 4.0
- ACR Approved Methodology: Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, Version 1.2
- ACR Validation and Verification Standard v1.1

As an ANSI-accredited verification body, SCS conducted the verification to the requirements of:

- American Carbon Registry Validation and Verification Guidelines, Version 1.1
- ISO 14064-3: 2006, Greenhouse Gases – Part 3: Specification with guidance for the validation and verification of GHG assertions

2.3 Level of Assurance and Materiality

SCS performed the assessment activities to a **reasonable level** of assurance in accordance with the assessment criteria. Reasonable assurance is attained by examining a sufficient amount of information, through document review, site visits, and interviews with personnel involved in the execution of the Project. SCS applied a materiality threshold of $\pm 5\%$; meaning, the reported emissions were free of material misstatements, omissions, and errors achieving a minimum level of at least 95% accuracy, in accordance with ACR's materiality threshold.

3 Validation and Verification Process

3.1 Method and Criteria

SCS performed the validation and verification through a combination of document reviews, interviews with relevant personnel, and on-site inspections, as discussed in Section 3.3 through 3.6 of this report. At all times SCS assessed the Project's conformance to the criteria described in Section 2.2 of this report. As discussed in Section 3.6, the audit team issued findings to ensure that the project fully conformed to all requirements. The validation and verification activities included the following:

- Conflict of interest review and appointment of team;
- Kick-off meeting with the cities of Holyoke, West Springfield, Westfield and Bluesource;
- Conducting a document review including the GHG Project Plan, and supporting data;
- Development of the verification and sampling plan;
- Site visits and execution of the sampling plan;
- Review and evaluation of raw data and emission reduction calculations;
- Follow-up of non-conformities and new information requests as needed; and
- Final statement and report development.

3.2 Assessment Summary

The validation and verification process consisted of the following:

1. **Project listed with the ACR:**

The Massachusetts Tri-City IFM Project is listed on the Registry website (17 March 2017). Bluesource selected SCS as their verification body.

2. **Conflict of Interest Review.**

The conflict of interest assessment was conducted by SCS to identify any potential conflicts for the audit team and the COI form was submitted to ACR. No conflicts were identified and a determination of low potential for conflict of interest was received from ACR on 24 October 2018 prior to the commencement of verification activities.

3. **Appointment of Audit Team**

This validation and verification was performed by James Cwiklik, SCS Lead Verifier, and reviewed by Zane Hextema, SCS Internal Reviewer. Michael Hoe supported the Lead Verifier during verification services. James Cwiklik, Michael Hoe, and Zane Hextema are lead verifiers approved by SCS.

4. **Project Kick-Off Meeting**

A kick-off meeting was conducted between the verification team and Ben Parkhurst on 2 November 2018. The purpose of the meeting was to review the scope of validation/verification criteria; review the logistics of the site visit; review the timeline of the audit; discuss any changes

in the project related to the site, sources, GHG management systems; and to begin the information gathering process.

5. **Desk Review**

SCS received and reviewed the project plan and supporting documentation. A risk assessment was conducted to identify key factors that impact the reported emission reductions and removals. An Audit Plan was designed to review all project elements in areas of high risk of inaccuracy or non-conformance.

6. **Site Visit**

A site visit was conducted by the audit team on 6 November 2018 to 8 November 2018. The purpose of the site visit is to verify the project equipment, location and eligibility; to review and evaluate the project GHG management systems, data collection and handling, and emission reduction calculations and procedures in place; to assess the qualifications of relevant personnel; and to finalize the risk assessment and sampling plan.

7. **Quantitative Review**

An assessment of the emission reduction calculation inputs and procedures was performed to review the quantitative analyses undertaken by Bluesource to convert the raw inventory data into emission reduction estimates.

8. **Findings**

Throughout the verification, there is an iterative exchange between SCS and Bluesource to gather additional information for review and examination. This exchange includes the issuance of Findings—New Information Requests (NIR), Non-Conformity Reports (NCR) and Observations (OBS) — by SCS. The Project Proponent must respond to NIRs and NCRs in order for SCS to render a verification opinion. At this time all Findings have been appropriately addressed by Bluesource and subsequently closed by SCS. See section 3.5 for more information.

9. **Draft Report and Statement**

This step in the verification process includes a final review of the submitted data, completion of the Verification Report, and drafting of the Verification Statement. A draft Verification Report and Statement are completed based on the results of the verification assessment.

10. **Technical Review**

The draft report was presented to an SCS lead verifier, independent of the verification, who determined the Verification Statement to be justified given the evidence presented. The Verification Report and Verification Statement were then presented to Bluesource for review and comment.

11. **Final Report and Opinion**

Once Bluesource approved these documents, SCS uploaded them to the Registry website for administrative review by ACR. Given a positive review, ACR will register the emissions reductions

for the project and issue carbon tonnes for a reporting period of 17 March 2017 to 15 September 2018.

12. Exit meeting with client:

The exit meeting entails a review of the assessment process, summary of the verification findings, and to initiate scheduling for the next verification period.

3.3 Document Review

SCS conducted a document review to inform the planning process prior to validation and verification activities. SCS carefully reviewed the initial GHG Project Plan (the “Plan”) for conformance to the assessment criteria. The audit team also reviewed subsequent copies of the Plan as it was updated by Bluesource in response to findings issued by the team throughout the validation and verification process. A list of other documentation reviewed by the audit team is provided in Appendix B.

The validation and verification process is a risk based assessment aimed at identifying key factors that impact the reported emission reductions and removals. As a result of the document review and correspondence with project personnel, an audit plan and a sampling plan were developed for this engagement. An audit agenda was submitted prior to the site visit. SCS assessed the GHG Project Plan with actual project conditions, reviewed the baseline and project scenarios, assessed the eligibility, additionality, GHG emission reduction assertion and the underlying monitoring data to determine if either contained material or immaterial misstatements. The results of these reviews are discussed in greater detail below.

3.4 Interviews

Interviews constituted an important component of the audit process to help the audit team better understand the dynamics of the Project, the activities implemented in the Project, and how the reductions were real and accurate. The audit team interviewed the following personnel associated with the project proponent and any implementing partners. The phrase “Throughout audit” under “Date Interviewed” indicates that the individual in question was interviewed on multiple occasions throughout the audit process.

Individual	Affiliation	Date Interviewed
Ben Parkhurst Cakey Worthington	Bluesource, LLC	Throughout the audit
Justin Miller	Green Timber Consulting	7 November 2018 to 8 November 2018 (site visit)
Mark Noonan	Town of West Springfield	Kick off Meeting (6 November 2018)
David Conti	Holyoke	Kick off Meeting (6 November 2018)

Heather Stayton	City of Westfield	Kick off Meeting (6 November 2018)
Paul Cousar	Spatial Informatics Group	Throughout the audit

3.5 Site Inspections

The objectives of the performed on-site inspection were to:

- Confirm the validity of the statements made in the Plan and associated project documentation;
- Interview project personnel to determine if the Plan correctly identifies project activity and assess project personnel competencies;
- Select samples of data from on-the-ground measurements for verification in order to meet a reasonable level of assurance and to meet the materiality requirements of the Project; and
- Perform a risk-based review of the project area to ensure that the Project is in conformance with the eligibility requirements of the validation/verification criteria.

In fulfilment of the above objectives, the audit team conducted an on-site inspection on 6 November 2018. The audit team performed an in-depth assessment of the conformance of the Project to the assessment criteria. The inspection included the review of records and discussing the project activities. While touring the project area, the audit team visually observed posted boundary signs, old fence lines, and other objects for reference/boundary trees.

3.6 Resolution of Any Material Discrepancy

The Project Proponent and audit team resolved any potential or actual material discrepancies identified during the assessment process through the issuance of findings. SCS characterizes the types of findings it issued as follows:

Non-Conformity Report (NCR): An NCR signified a material discrepancy with respect to a specific requirement. This type of finding could only be closed upon receipt by SCS of evidence indicating that the identified discrepancy had been corrected. Resolution of all open NCRs was a prerequisite for issuance of a positive statement.

New Information Request (NIR): An NIR signified a need for supplementary information in order to determine whether a material discrepancy existed with respect to a specific requirement. Receipt of an NIR did not necessarily indicate that the Project was not in compliance with a specific requirement. However, resolution of all open NIRs was a prerequisite for issuance of a positive statement.

Observation (OBS): An OBS indicated an area that should be monitored or ideally, improved upon. OBSs were considered to be an indication of something that could become a non-conformity if not given proper

attention, and were sometimes issued in the case that a non-material discrepancy was identified. OBSs were considered to be closed upon issuance.

All NCRs and NIRs issued by the audit team during the assessment process have been closed. Appendix C lists all findings issued during the validation and verification process.

4 Validation and Verification Assessment

4.1 Project Design

4.1.1 Project Proponent

As indicated within the ACR GHG Project Plan Eligibility Screening form, the Project Proponent is Bluesource LLC. The Plan indicates that the ACR account holder is Bluesource, which SCS confirmed by reviewing the ACR website.

4.1.2 Project Title

The GHG Plan notes the Project title as the *“Bluesource – Massachusetts Tri-City Improved Forest Management Project”*.

4.1.3 Project Type

The GHG Plan notes the Project type as Improved Forest Management. The Project follows the approved ACR methodology: Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, Version 1.2, as stated in the GHG Plan.

4.1.4 Location

The GHG Plan indicates the Project site as 13,536 acres of forested land in Southeastern Massachusetts. The project is consisted of forested parcels owned by the cities of Westfield, Holyoke, and West Springfield. SCS confirmed the Project Location during the site visit by sampling plots, observing physical boundaries and landmarks, and assessing the Project Area via aerial imagery using GIS software. This meets the requirement that the Project be located in the United States.

4.1.5 Project Summary and Action

SCS confirmed the GHG Plan included a brief summary of the Project including the Project action. This project is a conglomerate of several adjacent or nearby parcels owned by the cities of Westfield, Holyoke, and West Springfield. The municipalities that own the property seek to earn profit through conservation activities that also protect their water resources. By committing to maintain forest CO₂ stocks above the regional baseline, the project will provide significant climate benefits through carbon sequestration.

The project activity represents a significant improvement in the carbon storage and conservation value than the more aggressive and higher return management regimes of private lands in the region. Instead of shorter, even-aged rotations, the project activity will be low with moderate levels of sustainable, commercial harvesting in West Springfield and Holyoke ownerships. An emphasis will be placed on maintaining conditions of recreational trails for usability and safety. The project also aims to prioritize outreach, education, and interpretation. These are a part of the Mass-Cities Project mission, closely related to the recreation opportunities available to the public and conservation of the associated regions.

All active harvest forestlands owned by Massachusetts Tri-City have been certified by the Forest Stewardship Council (FSC). This includes the cities of West Springfield and Holyoke. Goals of these management schemes include protecting water quality, wildlife habitat, and safety for recreational users.

During the site visit, the auditor observed recently harvested areas, posted boundary signs, old fence lines, signs for reference/boundary trees, and management system in place for the Project activities. SCS confirmed the project consisted of conservation activities with an emphasis on protecting water resources.

4.1.6 Ex Ante Offset Projection

The Project Proponent provided ex-ante estimations of the baseline emissions avoided per each vintage of emission reductions, which SCS verified in its evaluation of data and calculations. See Section 4.3 below.

4.1.7 Scope

The Project is an Improved Forest Management project, as defined by ACR, within the Land Use Change and Forestry sector as defined by the methodology: Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, Version 1.2. The Project complies fully with the criteria as set out in Section A.1 of the methodology.

4.1.8 Parties

SCS confirmed the GHG Project Plan contained the necessary list of parties and details of those roles.

4.1.9 Project Boundary

The Plan contains a description of the physical boundary, which is located in Hampden and Hampshire counties in Massachusetts. This is the physical and geographic site where project activities occur. The audit team confirmed that this boundary was well documented throughout both the document review and site visit activities.

The GHG sources, sinks, and reservoirs associated with the baseline and project scenario are shown in the section 2 above.

The sources, sinks, and reservoirs of GHG emissions within the project boundary are listed in the table below. This is the case for both the baseline and project scenarios.

4.2 Project Applicability & Eligibility

The ACR methodology provides a series of requirements for scope and applicability in Section A.2, in addition to the latest ACR program eligibility requirements as found in the ACR Standard. SCS confirmed that the GHG Project Plan indicates how each applicability condition is met including supplemental requirements stipulated by ACR.

Applicability Conditions

During the document review and site visit, SCS confirmed that the project scenario consists of maintaining above baseline CO₂ stocks through carbon sequestration. The project scenario revolves around a heavy conservative management approach designed to maximize carbon sequestration and other benefits. These benefits include water quality protection and wildlife habitat preservation. The project ownership is non-federal U.S. forestland. Two out of three of the cities (West Springfield and Holyoke) have FSC certifications. No commercial harvesting will occur in the city of Westfield.

Description	Included / Excluded	Gas	Justification
Above-ground biomass carbon	Included		Major carbon pool subjected to the project activity.
Below-ground biomass carbon	Included		Major carbon pool subjected to the project activity.
Standing dead wood	Included		Major carbon pool in unmanaged stands subjected to the project activity. Project Proponents may elect to include the pool in managed stands. Where included, the pool must be estimated in both the baseline and with project cases. For this Project, standing dead wood will be included in all stands.
Harvested wood product	Included		Major carbon pool subjected to the project activity
Burning of biomass	Included	CH ₄	Non-CO ₂ gas emitted from biomass burning

The project is located in Hampden and Hampshire counties, Massachusetts and therefore meets the criteria requirement. SCS confirmed the location during the document review and site visit.

The project proponent successfully demonstrated that they maintain ownership of timber rights as of the project State Date.

4.2.1 Project Start Date

In accordance with Chapter 3 of the ACR Standard, the start date is defined as the date at which the project began to reduce GHG emissions against its baseline. SCS reviewed the GHG plan to confirm that the Project Activities for this Reporting Period began just before the inventory was conducted (March 17, 2017). March 17th, 2017 is the date that Bluesource uploaded the Tr-Cities listing form to the ACR registry. The number of plots put in were not enough to keep the total project uncertainty below 10% of the net anthropogenic greenhouse gas removals by sinks across the project. Which resulted in using uncertainty deductions. All permanent plots will be re-inventoried at least twice over the following decade to calibrate forest growth models and improve carbon sequestration projections. SCS concluded that the provided documents supported the project start date listed in the Registry website, and the Project therefore meets the start date eligibility criteria of the ACR Standard.

4.2.2 Minimum Project Term

The minimum term is forty years. SCS confirmed the Project Proponent provided a timeline with a project term of 40 years, with annual monitoring, reporting and verification in the GHG Plan.

4.2.3 Crediting and Reporting Period

In ACR, the eligible crediting period for this type of project is listed as 20 years. SCS has confirmed the crediting period of 20 years, 17 March 2017 to 16 March 2037, was indicated in section H2 of the GHG plan. SCS has concluded that the reporting period verified in this report is within the applicable crediting period of the Project.

4.2.4 Offset Title

The forestlands in the project area are owned by three separate cities. The project proponent is Bluesource LLC. The forestland has been used for conservation to protect drinking water supply. This report covers the verification period of 17 March 2017 to 15 September 2018 as a project deliverable into the American Carbon Registry. Each has provided documentation of undisputed title to all offsets that are clear, unique, and uncontested. SIG and Bluesource, LLC were responsible for calculating the Project's emission reductions, developing the GHG Project Plan, and listing the Project with ACR. Ownership was confirmed through review of the deeds provided and FSC certifications, as well as review of the physical property boundary on site, Hampden County tax parcel information, and independently obtained GIS layer of ownership parcels. SCS confirmed that the three cities retain full, legal, and beneficial title to the carbon offset credits being issued as a result of reductions in emissions from the Bluesource – Massachusetts Tri-City Improved Forest Management Project.

4.2.5 Additionality

The audit team assessed the GHG Project Plan and supporting evidence to determine whether the Project sufficiently passed the approved performance standard, as defined in the applicable methodology, and a regulatory additionality test. The audit team determined that the Project's additionality was

demonstrated in accordance with the requirements of the ACR Standard and ACR methodology. The specific evidence provided by the Project Proponent and the validation activities that the audit team performed are described in the sections below.

Regulatory Surplus

The Project Proponent must ensure that emission reductions achieved by the project activities would not have occurred in the baseline case due to federal, state, or local regulations. A regulatory review of the Project was conducted by the audit team. The results of the regulatory review indicated the Project is in compliance with Federal, State and Local regulations. There are no laws, statutes, regulations, court orders, environmental mitigation agreements, permitting conditions, or other legally binding mandates requiring the project activities. SCS reviewed the Massachusetts Forestry Best Management Practices (BMPs) Manual and found no requirements that the project activities must take place.

SCS reviewed the Attestations of Regulatory Compliance submitted by Susan Phillips dated 24 January 2019 (“Regulatory_Compliance_Attestation_2018-Westfield_signed.pdf”), submitted by David Conti dated 12 December 2018 (“Holyoke_Carbon Project Attestations 2018_signed.pdf”), and submitted by William Reichelt dated 11 December 2018 (“WestSpringfield_Carbon Project Attestations_2018_signed.pdf”) affirming the Project’s compliance status throughout the reporting period. During the site visit and desk review activities, SCS was able to confirm to a reasonable level of assurance that the Project is in compliance with local, state and Federal regulations and had no material regulatory non-conformance events. SCS reviewed the Massachusetts Forest Practice Rules and BMPs, EPA Enforcement & Compliance History Online database (ECHO), and the Occupational Safety and Health Administration (OSHA) for the current Reporting Period and found no evidence of non-compliance.

Lastly, SCS also confirmed the Project's monitoring plan indicated that the Project was in compliance with Federal, State and Local regulations based on this review, SCS concludes the Project met the Regulatory Compliance requirements of the assessment criteria.

Based on its review, SCS determined that the Project Proponent provided clear evidence in the GHG Project Plan that the GHG reduction activity is not required by any applicable and enforced federal, state, or local laws, regulations, ordinances, consent decrees, or other legal arrangements besides as noted above.

Common Practice Test

The Bluesource – Massachusetts Tri-City Improved Forest Management Project showed that similarities exist with the project and nearby industrial forestland. The main regulation on silvicultural practices include restrictions to harvest of 50% of the total basal area in buffer strips, and mandate submission of timber cutting plans for areas near wetlands, streams, lakes, and ponds. The location and size of the project would promote heavier cutting practices (clear cuts and diameter limit cuts) and the project could feasibly resemble that of industrial forestland ownership in the area.

Performance Standard

The Bluesource – Massachusetts Tri-City Improved Forest Management Project uses the three-pronged approach; therefore, this step is not required.

4.2.6 Regulatory Compliance

Projects must maintain material regulatory compliance. In order to maintain material regulatory compliance, a project must complete all regulatory requirements at required intervals. During the site visit and desk review activities, SCS was able to confirm to a reasonable level of assurance that the Project is in compliance with local, state, and federal regulations and had no material regulatory non-conformance events. SCS reviewed the EPA Enforcement and Compliance Online History database and found no violations in respect to Clean Air Act or RCRA compliance. In addition, SCS reviewed the Occupational Safety and Health Administration Website and confirmed no issues of non-compliance or violation. Lastly SCS reviewed the project proponents Attestations of Regulatory Compliance, affirming the Project's compliance status throughout the reporting period. SCS also confirmed the Project's monitoring plan indicated that the Project was in compliance with Federal, State and Local regulations based on this review, SCS concludes the Project met the Regulatory Compliance requirements of the assessment criteria.

4.2.7 Permanence

Section B8 of the GHG Plan asserts that the total risk percentage is 18% based on a risk assessment using the ACR Tool for Risk Analysis and Buffer Determination as required by the ACR methodology. SCS confirmed the above via independent re-quantification of the risk value.

4.2.8 Leakage

Section E3 of the GHG Plan states:

“All active harvest forestlands owned by Massachusetts Tri-City have been certified by the Forest Stewardship Council (FSC). This demonstrates that there will be no leakage beyond *de minimis* levels through activity-shifting leakage to other lands, as defined in section D6 of the Methodology. Therefore, leakage is limited to market leakage. We conservatively assume market leakage of 40%.”

Section 3 of the Monitoring Plan states:

“Quantification of leakage is limited to market leakage, as no activity-shifting leakage is allowed by the methodology beyond *de minimis* levels. All forestlands owned by the cities are included in the carbon project, therefore there is no activity-shifting leakage. As determined in the project GHG Plan, the applicable market leakage factor through the first crediting period is 0.4.”

SCS confirmed the above via confirmation of total harvested wood products stored for 100 years within the Baseline and Project Scenario against the requirements in Sections D6 and D7 of the ACR methodology.

4.2.9 Independently Validated and Verified

SCS Global Services is a third-party validation and verification body approved by ACR and therefore meets this requirement.

4.2.10 Community and Environmental Impacts

SCS confirmed that the GHG Plan included an assessment of the potential community and environmental impacts due to the Project. There are no negative impacts identified and therefore no mitigation plan is necessary. The audit team agrees with the assertion by the Project Proponent that any community or environmental impacts associated with this Project would be net positive due to the focused project boundary and reduction of emissions.

4.3 Evaluation of Data and Calculations

4.3.1 Baseline Scenario

The methodology defines the baseline scenario as “project-specific and must describe the harvesting scenario that would maximize NPV of perpetual wood products harvests...” The discount rate assumptions for calculating NPV vary by ownership class (see table below). Given that the Bluesource – Massachusetts Tri-City IFM Project is non-federal public land, a 4% discount rate was used, as required.

Ownership	Annual Discount Rate
Private Industrial	6%
Private Non-Industrial	5%
Tribal	5%
Non-governmental organization	4%
Non-federal public lands	4%

The GHG Plan continues to state:

“The ACR protocol defines this baseline as the mix of silvicultural practices that maximizes the net present value (NPV) of timber revenues over the 100-yr project lifespan. We used the Forest Vegetation Simulator (FVS), an empirical forest growth and yield model developed by the US Forest Service, to project carbon stocks and timber

revenues under the range of harvest scenarios considered in the baseline. We selected the Northeast (NE) variant of the FVS model, which encompasses Western MA, with model equations calibrated to Allegheny National Forest (location code: 919), the US National Forest located nearest to the project. Both scenarios use total and merchantable carbon estimates from the FVS-Jenkins model.”

“The Baseline Scenario represents an industrial harvest regime designed to maximize the 100-year Net Present Value (NPV) at a 4% discount rate, subject to operational considerations in the region. The acres to cut of each prescription by plot was determined using a linear programming model (see WMA-LP-Baseline.xlsb).”

The equations used to calculate the baseline emissions are the following (equation numbers correspond to the ACR methodology):

$$\Delta C_{BSL,TREE,t} = (C_{BSL,TREE,t} - C_{BSL,TREE,t-1}) \quad (1)$$

Where:

t: Time in years.

$\Delta C_{BSL,Tree,t}$: Change in the baseline carbon stock stored in above and below ground live trees (in metric tons CO₂) for year t.

$C_{BSL,Tree,t}$: Baseline value of carbon stored in above and below ground live trees at the beginning of the year t (in metric tons CO₂) and t-1 signifies the value in the prior year.

$$\Delta C_{BSL,DEAD,t} = (C_{BSL,DEAD,t} - C_{BSL,DEAD,t-1}) \quad (2)$$

Where:

t: Time in years.

$\Delta C_{BSL,DEAD,t}$: Change in the baseline carbon stock stored in dead wood (in metric tons CO₂) for year t.

$C_{BSL,DEAD,t}$: Baseline value of carbon stored in dead wood at the beginning of the year t (in metric tons CO₂) and t-1 signifies the value in the prior year.

$$\bar{C}_{BSL,HWP} = \frac{\sum_{t=1}^{20} C_{BSL,HWP,t}}{20} \quad (3)$$

Where:

t: Time in years.

$\bar{C}_{BSL,HWP}$: Twenty-year average value of annual carbon remaining stored in wood products 100 years after harvest (in metric tons of CO₂).

$C_{BSL,HWP,t}$: Baseline value of carbon remaining in wood products 100 years after being harvested in the year t (in metric tons of CO₂).

$$\overline{GHG}_{BSL} = \frac{\sum_{t=1}^{20} (BS_{BSL,t} * ER_{CH_4} * \frac{16}{44} * GWP_{CH_4})}{20} \quad (4)$$

Where:

- t: Time in years.
- \overline{GHG}_{BSL} : Twenty-year average value of greenhouse gas emissions (in metric tons of CO₂) resulting from the implementation of the baseline.
- $BS_{BSL,t}$: Carbon stock (in metric tons CO₂) in logging slash burned in the baseline in year t.
- ER_{CH_4} : Methane (CH₄) emission ratio (ratio of CO₂ as CH₄ to CO₂ burned). If local data on combustion efficiency is not available or if combustion efficiency cannot be estimated from fuel information, use IPCC default value¹⁷ of 0.012
- 16/44: Molar mass ratio of CH₄ to CO₂.
- GWP_{CH_4} : 100-year global warming potential (in CO₂ per CH₄) for CH₄ (IPCC SAR-100 value of 21 per the Fourth Assessment Report)

$$C_{BSL,AVE} = \frac{\sum_{t=0}^{20}(C_{BSL,TREE,t} + C_{BSL,DEAD,t})}{20} + \overline{C}_{BSL,HWP} \quad (5)$$

Where:

- t: Time in years.
- $C_{BSL,AVE}$: 20-year average baseline carbon stock (in metric tons CO₂).
- $C_{BSL,TREE,t}$: Baseline value of carbon stored in above and below ground live trees at the beginning of the year t (in metric tons CO₂).
- $C_{BSL,DEAD,t}$: Baseline value of carbon stored in dead wood at the beginning of the year t (in metric tons CO₂).
- $\overline{C}_{BSL,HWP}$: Twenty-year average value of annual carbon remaining stored in wood products 100 years after harvest (in metric tons of CO₂).

$$\Delta C_{BSL,t} = \Delta C_{BSL,TREE,t} + \Delta C_{BSL,DEAD,t} + \overline{C}_{BSL,HWP} - \overline{GHG}_{BSL} \quad (6)$$

Where:

- t: Time in years.
- $\Delta C_{BSL,t}$: Change in the baseline carbon stock (in metric tons CO₂) for year t.
- $\Delta C_{BSL,TREE,t}$: Change in the baseline carbon stock stored in above and below ground live trees (in metric tons CO₂) for year t.
- $\Delta C_{BSL,DEAD,t}$: Change in the baseline carbon stock stored in dead wood (in metric tons CO₂) for year t.
- $\overline{C}_{BSL,HWP}$: Twenty-year average value of annual carbon remaining stored in wood products 100 years after harvest (in metric tons of CO₂).
- \overline{GHG}_{BSL} : Twenty-year average value of greenhouse gas emissions (in metric tons of CO₂) resulting from the implementation of the baseline.

If years elapsed since the start of the IFM project activity (t) is $\geq T$ to compute long-term average stock change use:

$$\Delta C_{BSL,t} = 0 \quad (7)$$

$$UNC_{BSL} = \sqrt{\frac{(C_{BSL,TREE,1} * \epsilon_{BSL,TREE})^2 + (C_{BSL,DEAD,1} * \epsilon_{BSL,DEAD})^2 + (\bar{C}_{BSL,HWP} * \epsilon_{BSL,TREE})^2 + (\overline{GHG}_{BSL} * \epsilon_{BSL,TREE})^2}{C_{BSL,TREE,1} + C_{BSL,DEAD,1} + C_{BSL,HWP} + \overline{GHG}_{BSL}}} \quad (10)$$

Where:

UNC_{BSL} : Percentage uncertainty in the combined carbon stocks in the baseline.

$C_{BSL,TREE,t}$: Carbon stock in the baseline stored in above and below ground live trees (in metric tons CO₂) in year t.

$C_{BSL,DEAD,t}$: Carbon stock in the baseline stored in dead wood (in metric tons CO₂) in year t.

$\bar{C}_{BSL,HWP}$: Twenty-year average value of annual carbon remaining stored in wood products 100 years after harvest (in metric tons of CO₂).

\overline{GHG}_{BSL} : Twenty-year average value of greenhouse gas emissions (in metric tons of CO₂) resulting from the implementation of the baseline.

$\epsilon_{BSL,TREE}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in above and below ground live trees (in metric tons CO₂) for the initial inventory in year 1.

$\epsilon_{BSL,DEAD}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in dead wood (in metric tons CO₂) for the initial inventory in year 1.

All of the data used for the baseline calculations above was made available to the audit team, and SCS confirmed the numbers by review of:

- ERTs-WMA-FinalAcres-AdjHrvLvls_1_25_19_w_Tables.xlsx
- ERTs-WMA-Stocking-AdjHrvLvls_6_3_19.xlsx
- OT_WMA_All_Rxs_11_20_18.xlsx
- OT_WMA_DefectAvg_10_26_18.xlsx
- OT_WMA_SiteIndexCalcs_10_26_18.xlsx
- OT_WMA_Stumpage_10_26_18.xlsx
- OT-WMA-RP_CO2_Stats_1_23_18.xlsx
- OT_WMA_Depletions_6_3_19.xlsx
- WMA-Project-Final-Acres-20181205.xlsx
- WMA-NoCut-Final-Acres-20181205.xlsx
- WMA-Baseline-Final-Acres-20181205.xlsx
- MassCities_GHG_Plan_6_3_19.pdf
- SIG_ModelingExplanation_10_26_18.pdf
- CC.key
- FVS_PlotInit.xlsx
- FVS_TreeInit.xlsx
- SEL.key
- SW55.key

- WMA_FVS_Plot_and_Tree_data.mdb
- WMA_FVS_Rx_Parameters_20180906.xlsx

The audit team reproduced the Project Proponent’s calculations and verified their accuracy based on the underlying data.

SCS concludes that the GHG Project Plan sufficiently assessed the baseline scenario and that the scenario is relevant, complete, consistent, accurate, transparent, and conservative.

4.3.2 Quantification of Project Emissions

The project scenario consists of a constrained conservation management regime maintaining carbon removals above the annual allowable cut. It is designed to maximize carbon sequestration and other co-benefits.

Harvest scenarios consists of one or two commercial thinnings, followed by shelterwood harvest and overstory removal. Another harvest scenario includes a shelterwood harvest with overstory removal without any thinnings. Selection harvests are included as well. This includes no harvests on stream or non-stream buffer areas.

The GHG plan also states “All active harvest forestlands owned by Massachusetts Tri-City have been certified by the Forest Stewardship Council (FSC). This demonstrates that there will be no leakage beyond de minimus levels through activity-shifting leakage to other lands, as defined in section D6 of the Methodology. Therefore, leakage is limited to market leakage. We conservatively assume market leakage of 40%.”

4.3.3 Quantification of Emissions Reductions

Emission reductions are calculated using the following equations.

$$\Delta C_{P,TREE,t} = (C_{P,TREE,t} - C_{P,TREE,t-1}) \quad (21)$$

Where:

t: Time in years.

$\Delta C_{P,TREE,t}$: Change in the project carbon stock stored in above and below ground live trees (in metric tons CO₂) for year t.

$C_{P,TREE,t}$: Project value of carbon stored in above and below ground live trees at the beginning of the year t (in metric tons CO₂) and t-1 signifies the value in the prior year.

$$\Delta C_{P,DEAD,t} = (C_{P,DEAD,t} - C_{P,DEAD,t-1}) \quad (12)$$

Where:

t: Time in years.

$\Delta C_{P,DEAD,t}$: Change in the Project carbon stock stored in dead wood (in metric tons CO₂) for year

t.
 $C_{P,DEAD,t}$: Project value of carbon stored in dead wood at the beginning of the year t (in metric tons CO₂) and t-1 signifies the value in the prior year.

$$GHG_{P,t} = BS_{P,t} * ER_{CH_4} * \frac{16}{44} * GWP_{CH_4} \quad (13)$$

Where:

t: Time in years.
 $GHG_{P,t}$: Greenhouse gas emission (in metric tons CO₂e) resulting from the implementation of the project in year (t).
 $BS_{P,t}$: Carbon stock (in metric tons CO₂) in logging slash burned in the project in year t.
 ER_{CH_4} : Methane (CH₄) emission ratio (ratio of CO₂ as CH₄ to CO₂ burned). If local data on combustion efficiency is not available or if combustion efficiency cannot be estimated from fuel information, use IPCC default value¹⁷ of 0.012
 16/44: Molar mass ratio of CH₄ to CO₂.
 GWP_{CH_4} : 100-year global warming potential (in CO₂ per CH₄) for CH₄ (IPCC SAR-100 value of 21 per the Fourth Assessment Report)

$$\Delta C_{P,t} = \Delta C_{P,TREE,t} + \Delta C_{P,DEAD,t} + C_{P,HWP} - GHG_{P,t} \quad (14)$$

Where:

t: Time in years.
 $\Delta C_{P,t}$: Change in the project carbon stock and GHG emissions (in metric tons CO₂e) for year t.
 $\Delta C_{P,TREE,t}$: Change in the project carbon stock stored in above and below ground live trees (in metric tons CO₂) for year t.
 $\Delta C_{P,DEAD,t}$: Change in the project carbon stock stored in dead wood (in metric tons CO₂) for year t.
 $C_{P,HWP}$: Carbon remaining stored in wood products 100 years after harvest (in metric tons CO₂) for the project in year t.
 $GHG_{P,t}$: Greenhouse gas emission (in metric tons CO₂e) resulting from the implementation of the project in year (t).

$$UNC_{P,t} = \frac{\sqrt{(C_{P,TREE,1} * \epsilon_{P,TREE})^2 + (C_{P,DEAD,1} * \epsilon_{P,DEAD})^2 + (C_{P,HWP,t} * \epsilon_{P,TREE})^2 + (GHG_{P,t} * \epsilon_{P,TREE})^2}}{C_{P,TREE,1} + C_{P,DEAD,1} + C_{P,HWP} + GHG_{P,t}} \quad (18)$$

Where:

$UNC_{P,t}$: Percentage uncertainty in the combined carbon stocks in the project in year t.
 $C_{P,TREE,t}$: Carbon stock in the project stored in above and below ground live trees (in metric tons CO₂) in year t.
 $\Delta C_{BSL,TREE,t}$: Change in the baseline carbon stock stored in above and below ground live trees (in metric tons CO₂) for year t.
 $C_{P,DEAD,t}$: Carbon stock in the baseline stored in dead wood (in metric tons CO₂) in year t.

- $C_{P,HWP,t}$: Annual carbon (in metric tons CO₂) remaining stored in wood products in the project 100 years after harvest in year t.
- $GHG_{P,t}$: Greenhouse gas emission (in metric tons CO₂e) resulting from the implementation of the project in year t.
- $\epsilon_{P,TREE}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in above and below ground live trees (in metric tons CO₂) for the last remeasurement of the inventory prior to year t.
- $\epsilon_{P,DEAD}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in dead wood (in metric tons CO₂) for the last remeasurement of the inventory prior to year t.

$$UNC_t = \frac{\sqrt{(\Delta C_{BSL,t} * UNC_{BSL})^2 + (\Delta C_{P,t} * UNC_{P,t})^2}}{\Delta C_{BSL,t} + \Delta C_{P,t}} \quad (19)$$

Where:

- UNC_t : Total project uncertainty in year t, in %.
- $\Delta C_{BSL,t}$: Change in the baseline carbon stock and GHG emissions (in metric tons CO₂) for year t.
- UNC_{BSL} : Percentage uncertainty in the combined carbon stocks in the baseline.
- $C_{P,DEAD,t}$: Carbon stock in the baseline stored in dead wood (in metric tons CO₂) in year t.
- $C_{P,HWP,t}$: Annual carbon (in metric tons CO₂) remaining stored in wood products in the project 100 years after harvest in year t.
- $GHG_{P,t}$: Greenhouse gas emission (in metric tons CO₂e) resulting from the implementation of the project in year t.
- $\epsilon_{P,TREE}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in above and below ground live trees (in metric tons CO₂) for the last remeasurement of the inventory prior to year t.
- $\epsilon_{P,DEAD}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in dead wood (in metric tons CO₂) for the last remeasurement of the inventory prior to year t.

If calculated UNC in equation (19) is <10%, then UNC shall be considered 0% in equation (20).

$$C_{ACR,t} = (\Delta C_{P,t} - \Delta C_{BSL,t}) * (1 - LK) * (1 - UNC_t) * (1 - BUF) \quad (20)$$

Where:

- $C_{ACR,t}$: Annual net greenhouse gas emission reductions (in metric tons CO₂e) at time t.
- $\Delta C_{P,t}$: Change in the project carbon stock and GHG emissions (in metric tons CO₂e) for year t.
- $\Delta C_{BSL,t}$: Change in the baseline carbon stock (in metric tons CO₂) for year t.
- LK: Leakage discount.

- BUF: The non-permanence buffer deduction. BUF will be set to zero if an ACR approved insurance product is used.
- UNC_t: Total Project Uncertainty, (in %) for year t. UNC_t will be set to zero if the project meets ACR's precision requirement of within ±10% of the mean with 90% confidence. If the project does not meet this precision target, UNC_t should be the half-width of the confidence interval of calculated net GHG emission reductions.

Any negative project stock change ($C_{ACR,t}$) values from time t will carry over to the following year through a balance of negative emission reduction tons ($C_{NEG,t}$) which is calculated using equation 21.

$$C_{NEG,t} = C_{NEG,t-x} + C_{ACR,t} \quad (21)$$

Where:

- $C_{NEG,t}$: Negative balance of annual net greenhouse gas emission reductions (in metric tons CO₂e) at time t.
- $C_{NEG,t-x}$: Negative balance of annual net greenhouse gas emission reductions (in metric tons CO₂e) at the last valid verification report x years ago (time t-x).
- $C_{ACR,t}$: Annual net greenhouse gas emission reductions (in metric tons CO₂e) at time t.

If the value of $C_{NEG,t}$ is less than zero in any year prior to the end of the Crediting Period, ERT values are calculated using equation 22, otherwise equation 23 is used.

$$ERT_t = 0 \quad (22)$$

$$ERT_t = C_{NEG,t-x} + C_{ACR,t} \quad (23)$$

Where:

- ERT_t: Emission Reduction Tons issued with vintage year t.
- $C_{NEG,t-x}$: Negative balance of annual net greenhouse gas emission reductions (in metric tons CO₂e) at the last valid verification report x years ago (time t-x).
- $C_{ACR,t}$: Annual net greenhouse gas emission reductions (in metric tons CO₂e) at time t.

All of the data used for the project calculations above was made available to the audit team, and SCS confirmed the numbers by review of:

- MassCities_GHG_Plan_6_3_19.pdf
- ERTs-WMA-FinalAcres-AdjHrvLvls_1_25_19_w_Tables.xlsx
- ERTs-WMA-Stocking-AdjHrvLvls_6_3_19.xlsx
- OT_WMA_All_Rxs_11_20_18.xlsx
- OT_WMA_DefectAvg_10_26_18.xlsx
- OT_WMA_SiteIndexCalcs_10_26_18.xlsx
- OT_WMA_Stumpage_10_26_18.xlsx
- OT-WMA-RP_CO2_Stats_1_23_18.xlsx

- OT_WMA_Depletions_6_3_19.xlsx
- WMA-Project-Final-Acres-20181205.xlsx
- WMA-NoCut-Final-Acres-20181205.xlsx
- WMA-Baseline-Final-Acres-20181205.xlsx
- SIG_ModelingExplanation_10_26_18.pdf
- CC.key
- FVS_PlotInit.xlsx
- FVS_TreeInit.xlsx
- SEL.key
- SW55.key
- WMA_FVS_Plot_and_Tree_data.mdb
- WMA_FVS_Rx_Parameters_20180906.xlsx

SCS concludes that the GHG Project Plan sufficiently assessed the emission reductions and calculated them accurately and correctly.

4.3.4 Monitoring Plan

The monitoring parameters and the quantification approach employed by the Project Proponent in the baseline and project scenarios conform to the parameters and quantification methods required by the Methodology. SCS determined that the Project Proponent sufficiently documented and quantified each parameter. Bluesource monitored each parameter throughout the reporting period, and the resulting data was subsequently provided to the audit team.

<i>Data or Parameter Monitored</i>	A1
<i>Unit of Measurement</i>	Acres
<i>Description</i>	Area of IFM Project
<i>Data Source</i>	GIS shape file derived from GPS coordinates
<i>Measurement Methodology</i>	Strata area figures adjusted based on stocking levels and species distribution projected in modeling and verified through inventory updates
<i>Value applied:</i>	13,536
<i>Monitoring Frequency</i>	Every 5 years , following with inventory update
<i>Reporting Procedure</i>	Hand held GPS unit, GIS software
<i>QA/QC Procedure</i>	Meta data is kept current and uncorrupted
<i>Purpose of Data</i>	Calculation of project emissions
<i>Calculation Method</i>	Calculated in ArcGIS
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	T
<i>Unit of Measurement</i>	Year(s)

<i>Description</i>	Number of years between monitoring ($T = t_2 - t_1$)
<i>Data Source</i>	Monitoring reports
<i>Measurement Methodology</i>	
<i>Data Uncertainty</i>	None
<i>Monitoring Frequency</i>	Calendar
<i>Reporting Procedure</i>	
<i>QA/QC Procedure</i>	All calculations double checked for accuracy prior to submission for verification
<i>Purpose of Data</i>	Calculation of project emissions
<i>Calculation Method:</i>	Subtraction
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Diameter at breast height of tree
<i>Unit of Measurement</i>	Inches (to 1/10th of an inch)
<i>Description</i>	Tree diameter measure 4.5 feet above ground
<i>Data Source</i>	Field measurement
<i>Measurement Methodology</i>	Measured with Loggers Tape or calipers
<i>Monitoring Frequency</i>	Every 5 years after the first inventory
<i>Value Applied:</i>	
<i>Reporting Procedure</i>	Hand held GPS unit or cruise tally sheet
<i>QA/QC Procedure</i>	Equipment will be maintained in excellent condition. Breast height marked with permanent paint on all record trees >5in in diameter
<i>Purpose of Data</i>	Calculations of project emissions
<i>Calculation method:</i>	N/A
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Tree Height (H)
<i>Unit of Measurement</i>	Feet
<i>Description</i>	Height of tree to 4" DOB and Phantom Height for Broken Tops
<i>Data Source</i>	Field measurements
<i>Measurement Methodology</i>	Measured with clinometer or hypsometer
<i>Monitoring Frequency</i>	Every 5 years after the first inventory
<i>Value Applied</i>	
<i>Reporting Procedure</i>	Hand held GPS unit or cruise tally sheet
<i>QA/QC Procedure</i>	Equipment will be maintained in excellent condition. All heights will be double checked for reasonableness prior to submission for verification
<i>Purpose of Data</i>	Calculations of project emissions
<i>Calculation method:</i>	N/A
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Decay class
<i>Unit of Measurement</i>	
<i>Description</i>	Qualitative degree of decomposition
<i>Data Source</i>	Forest Inventory
<i>Measurement Methodology</i>	Qualitative assessment of dead tree into 1 of 4 decay classes based on class descriptions
<i>Data Uncertainty</i>	None
<i>Monitoring Frequency</i>	Every 5 years after the first inventory
<i>Value applied:</i>	
<i>Reporting Procedure</i>	Hand held GPS unit or cruise tally sheet
<i>QA/QC Procedure</i>	Equipment will be maintained in excellent condition. All decay classes will be double checked for reasonableness prior to submission for verification
<i>Purpose of Data</i>	
<i>Calculation method:</i>	
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Tree Live or Dead Status
<i>Unit of Measurement</i>	
<i>Description</i>	Live or dead
<i>Data Source</i>	Forest Inventory
<i>Measurement Methodology</i>	Live and dead trees greater than 5.0 inches are to be sampled on plot and assigned status 1 (Live Tree), 2 (Dead Tree) or 3 (Removed).
<i>Data Uncertainty</i>	None
<i>Monitoring Frequency</i>	Every 5 years after the first inventory
<i>Value applied:</i>	
<i>Reporting Procedure</i>	Hand held GPS unit or cruise tally sheet
<i>QA/QC Procedure</i>	Equipment will be maintained in excellent condition. All tree statuses will be double checked for reasonableness prior to submission for verification
<i>Purpose of Data</i>	
<i>Calculation method:</i>	
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Defect
<i>Unit of Measurement</i>	Percent (%)
<i>Description</i>	Qualitative percent of missing biomass
<i>Data Source</i>	Forest Inventory
<i>Measurement Methodology</i>	Tree defect is qualitatively assessed for missing biomass in the

	bole from 1ft stump to 4" DOB Height. The exception is for broken tops below 4" DOB when the percent biomass missing is calculated from 1ft stump to broken top. Top height and phantom height are measured and missing biomass in the broken portion is calculated post-inventory.
<i>Data Uncertainty</i>	None
<i>Monitoring Frequency</i>	Every 5 years after the first inventory
<i>Value applied:</i>	Tree-specific
<i>Reporting Procedure</i>	Hand held GPS unit or cruise tally sheet
<i>QA/QC Procedure</i>	Equipment will be maintained in excellent condition. All tree defects will be double checked for reasonableness prior to submission for verification.
<i>Purpose of Data</i>	
<i>Calculation method:</i>	
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Tree Species Composition
<i>Unit of Measurement</i>	Percent (%)
<i>Description</i>	Spp composition as a percentage of basal area.
<i>Data Source</i>	Forest Inventory
<i>Measurement Methodology</i>	Derived from basal area calculations from inventory data.
<i>Data Uncertainty</i>	None
<i>Monitoring Frequency</i>	Every 5 years after the first inventory
<i>Value applied:</i>	
<i>Reporting Procedure</i>	
<i>QA/QC Procedure</i>	Species identification is confirmed at verification.
<i>Purpose of Data</i>	Calculation of project emissions
<i>Calculation Method</i>	Basal Area = 0.005454 * DBH ²
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Harvested Wood Products
<i>Unit of Measurement</i>	Metric tons CO ₂
<i>Description</i>	Carbon remaining in stored wood products 100 years after harvest for the project in year t.
<i>Data Source</i>	Harvest reports produced by Wigmore Forest Resource Management.
<i>Measurement Methodology</i>	Wood volumes harvested will be monitored using the whichever recordation system is appropriate for the harvest (lump sum v. pay as cut).
<i>Data Uncertainty</i>	None

<i>Monitoring Frequency</i>	Annual data summed for the monitoring period, applied as average annual for the monitoring period
<i>Value applied:</i>	
<i>Reporting Procedure</i>	
<i>QA/QC Procedure</i>	Harvest volumes cut and delivered to the mill will be either (1) weighed at the mill on scales tested annually by the state of Massachusetts (or neighboring state) and converted to wood volume in an appropriate software, or (2) directly scaled to volume by log scalers certified by the state of Massachusetts (or neighboring state).
<i>Purpose of Data</i>	
<i>Calculation method:</i>	
<i>Notes</i>	

<i>Data or Parameter Monitored</i>	Forest Carbon
<i>Unit of Measurement</i>	Metric tons of CO ₂
<i>Description</i>	Carbon stores in above and below ground live trees at the beginning of the year t.
<i>Data Source</i>	Forest Inventory
<i>Measurement Methodology</i>	Consistent with 'SIG_Tri-City_Forest_Inventory_Manual_v20170503.pdf'
<i>Data Uncertainty</i>	To be calculated as the mean +/- 90% confidence interval
<i>Monitoring Frequency</i>	Every 5 years or less, or at request for ERT issuance.
<i>Value applied:</i>	
<i>Reporting Procedure</i>	
<i>QA/QC Procedure</i>	'SIG_Tri-City_Forest_Inventory_Manual_v20170503.pdf' - The inventory will use a random sample design and re-measure the same permanent plots established in 2017, which targeted a precision level of +/- 10% of the mean live tree biomass with 90% confidence.
<i>Purpose of Data</i>	
<i>Calculation method:</i>	
<i>Notes</i>	

4.3.5 Verification Body Data checks

The audit team assessed the Project Proponent's emission reduction calculation inputs and procedures to convert the raw inventory data into emission reduction estimates. This review included a detailed look at the Project's data aggregation and processing procedures, recordkeeping and data storage, and the quality control and assurance procedures. Additionally, the audit team conducted in person interviews with relevant personnel involved in these activities.

4.3.6 Parameters Monitored

SCS devoted a portion of the verification assessment to the review of the manner and propriety by which Bluesource quantified their net GHG reductions and removals. This assessment included a review of the baseline determination, review of project assumptions, raw data inputs and accuracy of calculations. The formulas and raw data inputs used to determine emission reduction calculations as described in the methodology and the calculation spreadsheets were first reviewed for compliance. The main parameters were verified via independent re-quantification and are listed in sections 4.3.1 and 4.3.3 of this report. In some cases, a random sample was selected as all of the data could not be examined during verification services.

Emission Reductions

The audit team verified that the Project Proponent used the appropriate emissions factors and GWP's to calculate total emission reductions, which is adherent to the ACR Methodology. The team recalculated the final emission reductions and confirmed that they are without material discrepancy.

The ERT's associated with the first reporting period are reported in the ERT workbook and are verified by the validation/verification team are as follows:

- Total: 205,997 tCO₂e (Emissions reductions at the end of the current reporting period including deductions for uncertainty, risk, and leakage)
- 16% buffer contribution
- 40% Leakage deduction

Variances or Deviations

For this reporting period, there were no variances or deviations.

Uncertainty

The baseline uncertainty of 10.84% was verified within "ACR_BS_MC_RP1_StartCarbon_V1-0_041719.xlsx", "OT-WMA-RP_CO2_Stats_1_23_18.xlsx", and "ERTs-WMA-Stocking-AdjHrvLvl-20190416v.xlsx" – "Summary" tab via independent requantification (see table below).

Percentage uncertainty in the combined carbon stocks (UNC_{BSL})		
(UNC_{BSL})	10.88%	<- SCS Value
(UNC_{BSL})	10.84%	<- Recalculated Client Value
	-0.03578203%	<- difference
		Reasonable

The Project Uncertainty and Total Uncertainty are reported in "OT-WMA-RP_CO2_Stats_1_23_18.xlsx" – "Stats-start-date" tab was confirmed to be consistent with the ACR methodology.

Materiality

$$\% \text{ Error} = \frac{(\text{Project Emission Reduction Assertion} - \text{Verifier Emission Reduction Recalculation})}{\text{Verifier Emission Reduction Recalculation}} * 100$$

$$\% \text{ Error} = \frac{(205,997 - 202,166)}{202,166} * 100 = \frac{3,831}{202,166} * 100 = 1.90\%$$

5 Validation Conclusion

SCS confirms that the GHG Plan for the Bluesource - Massachusetts Tri-City Improved Forest Management Project conforms to the validation criteria, as set out in the ACR Standard, Version 4.0, Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, Version 1.2, and the criteria referenced in Section 2.2 of this report. No qualifications or limitations exist with respect to the validation opinion reached by the audit team.

6 Verification Conclusion

The audit team affirms with a reasonable level of assurance that the Bluesource – Massachusetts Tri-City Improved Forest Management Project has been designed and, for the duration of the reporting period 17 March 2017 to 15 September 2018, implemented in accordance with the verification criteria, as set out in the documents referenced in Section 2.2 above.

On the basis of the information made available SCS and the analyses completed during the verification, SCS was able to reach a positive opinion, with a reasonable level of assurance, that the emission reductions represented by the project proponent during the monitoring period of 17 March 2017 to 15 September 2018 are free from material misstatement and in conformance with the assessment criteria.

The following provides a summary of the verification results:

Reporting Period	Baseline Emissions tCO ₂ e	Project Emissions tCO ₂ e	Net GHG Emission Reductions tCO ₂ e	Gross GHG Emission Reductions tCO ₂ e
17 March 2017 to 15 September 2018	-411,832	55,088	205,997	245,235

Note: final numbers are rounded for simplicity.

Buffer Contribution = 39,238

Leakage = 186,768

<p>Lead Verifier's Approval</p>	 <p>James Cwiklik, 02 July 2019</p>
<p>Technical Reviewer's Approval</p>	 <p>Zane Haxtema, 02 July 2019</p>

Appendix A: SCS Certification Mark

Congratulations on receiving a positive verification for the Bluesource – Massachusetts Tri-City Improved Forest Management Project. Your project is now eligible to use the SCS Kingfisher Certification Mark B for Carbon Offset Project Verification, as represented on the cover page of this verification report. The SCS Kingfisher Certification Mark increases the recognition of your achievements with your verification carbon offset project.

Please refer to the *SCS Kingfisher Certification Mark Labeling and Language Guide: Mark B* provided to you by the GHG Verification Program staff for more information about your Mark and usage. Should you have any additional questions regarding your Mark, use, messaging, or other marketing opportunities, please contact the GHG Verification Team or SCS Marketing Staff at NRmarcom@scsglobalservices.com.

Appendix B: List of Documents Reviewed During Audit Proceedings

GHG Plan & Monitoring Report

- MassCities_GHG_Plan_6_3_19.pdf
- MassCities_RP1_MonitoringReport_6_3_19.pdf

GIS Information

- MassCities_Boundary_10_26_18.shp
- MassCities_Strata_10_26_18.shp
- MassCities_Strata_12_04_18.shp
- BlueMeadowBrook.shp
- BreakNeckBrook.shp

FVS files (growth and yield modelling)

- SIG_ModelingExplanation_10_26_18.pdf
- CC.key
- FVS_PlotInit.xlsx
- FVS_TreeInit.xlsx
- SEL.key
- SW55.key
- WMA_FVS_Plot_and_Tree_data.mdb
- WMA_FVS_Rx_Parameters_20180906.xlsx

Quantification workbooks

- ERTs-WMA-FinalAcres-AdjHrvLvls_1_25_19_w_Tables.xlsx
- ERTs-WMA-Stocking-AdjHrvLvls_6_3_19.xlsx
- OT_WMA_All_Rxs_11_20_18.xlsx
- OT_WMA_DefectAvg_10_26_18.xlsx
- OT_WMA_SiteIndexCalcs_10_26_18.xlsx
- OT_WMA_Stumpage_10_26_18.xlsx
- OT-WMA-RP_CO2_Stats_1_23_18.xlsx
- OT_WMA_Depletions_6_3_19.xlsx
- WMA-Project-Final-Acres-20181205.xlsx
- WMA-NoCut-Final-Acres-20181205.xlsx
- WMA-Baseline-Final-Acres-20181205.xlsx

Inventory workbooks

- SIG_Tri-City_Forest_Inventory_Manual_v20170503.pdf

Title document

- Deeds-Holyoke.pdf
- Deed-Jensen.pdf
- Deed-Maentz.pdf
- Deeds-GranvilleReservoir.pdf
- Deed-BearHoleReservoir.pdf
- Deed-Thomaspdf
- Deed-MittineaguePark.pdf

Supplemental documents (Certifications, Easements, Attestations, and Management Plans)

- Determination of Harvested Wood Products_5_22_19.pdf
- RegionalForestPractices_SummaryNotes_9_21_18.pdf
- Ltr to Blue Source on MDFW patch clear cuts.docx
- Mass_CitiesFinancial_Implementation_Test_5_23_19.pdf
- OT_Cashflow_Financial_Barrier_NPVs_5_23_19.xlsx
- 2017 Rainforest Alliance Audit.pdf
- Memo_WSpringfield_Consent_042615.pdf
- Bear Hole Wilderness Report_DRAFT_070215.pdf
- Westfield_March2002PioneerValleyPlanningCommissionMap.pdf
- Holyoke-FSCConsentForm.pdf
- WMA_ACR_NPVs_20181205.docx
- BlueMeadow Brook South HWW002 Summary of Timber Products.xlsx
- HWW ST002 Blue Meadow Brook South Contract.pdf
- HWW ST002 Blue Meadow Brook South HCP.pdf
- Holyoke_Carbon Project Attestations 2018_signed.pdf
- Offsets_Title_Attestation_2018-Westfield_signed.pdf
- Regulatory_Compliance_Attestation_2018-Westfield_signed.pdf
- Westfield_AnnualProjectAttestation_2018_1_31_19.pdf
- WestSpringfield_Carbon Project Attestations_2018_signed.pdf
- MassachusettsTri-City_ACRListingForm_3_17_17.pdf

****Please note that many of the quantification workbooks as well as the GHG plan and Monitoring Report have multiple versions, these were all examined but the final version listed here****

Appendix C: List of Findings

Please see Section 3.6 above for a description of the findings issuance process and the categories of findings issued. It should be noted that all language under "Client Response" is a verbatim transcription of responses provided to the findings by project personnel.

NIR 1 Dated 21 Nov 2018

Standard Reference: ACR Validation and Verification Standard v1.1, section 9.A Information/Records to be Reviewed

Document Reference: ERTs-WMA-WST-AdjHrvLvls_10_26_18 OT_WMA_DefectAvg_10_26_18
OT_WMA_SiteIndexCalcs_10_26_18 OT_WMA_Stumpage_10_26_18 OT-WMA-
Depletions_10_26_18 OT-WMA-RP_PlotCO2_10_26_18

Finding: The standard states "The GHG information and records the VVB shall review include, but are not limited to: ...Documentation of quantification methodologies...Determine whether the data used are appropriate and sufficient to allow for the accurate calculation or estimation of GHG emission reductions and/or removals;" During the initial modelling call it was noticed that a number of the provided documents related to calculations of carbon values were outdated. Please send along any/all updated files related to section 9.A of the standard.

Project Personnel Response: All updated files have been provided in the verification folder.

Auditor Response: Files have been uploaded to the shared folder. This finding is now closed.

Bearing on Material Misstatement or Conformance (M/C/NA): C

NCR 2 Dated 21 Nov 2018

Standard Reference: ACR Standard v4.0 section A.3.1 AFOLU Land Classification

Document Reference: MassCities_Strata_10_26_18.shp MassCities_Boundary_10_26_18

Finding: The standard states "For projects in the United States, Project Proponents shall use the U.S. definition below...Land with at least 10% cover (or equivalent stocking) by live trees of any size, including land that formerly had such tree cover and that will be naturally or artificially regenerated. To qualify, the area must be at least 1 acre in size." During the site visit on 07 November 2018, the auditor identified a beaver pond/wetland area, roughly 7-10 acres in size, which included areas of substantial open water. This area has been included in the project area with tree height attributes listed as Low, Medium, and High. The OBJECTIDs for the referenced area are 3910, 3934, 3935, 3992, and 3997 in MassCities_Strata_10_26_18.shp. The highlighted area does not meet the definition for Forest, with 10% cover, therefore currently the project is not in conformance with the standard. Please review and update the project area, paying special attention to non-forested areas.

Project Personnel Response: Corrections to project area and boundary have been made to removed non-forested regions identified as wetlands/beaver ponds. The updated shapefile for boundary is "MassCities_Boundary_12_04_18.shp" and the update shapefile for strata is "MassCities_Strata_12_04_18.shp"

Auditor Response: Upon issuance of this finding, the client updated the associated shapefiles and quantification for the size of the project. Non-forested areas were removed. The audit team reviewed the shapefiles and consider this finding closed.

Bearing on Material Misstatement or Conformance (M/C/NA): M/C

NCR 3 Dated 21 Nov 2018**Standard Reference:** ACR Standard v4.0 Chapter 3

ACR Validation and Verification Standard v1.1 section 6.D Offset Title

Document Reference: N/A**Finding:** The standard states "The Project Proponent shall provide documentation and attestation of undisputed title to all offsets prior to registration, including chain-of-custody documentation if offsets have been sold in the past. Title to offsets shall be clear, unique, and uncontested." Please provide this attestation to be compliant with the standard.**Project Personnel Response:** The attestations can be found in the shared verification folder**Auditor Response:** Upon issuance of this finding, an Offsets Title Attestation was provided, this finding is now closed.**Bearing on Material Misstatement or Conformance (M/C/NA): C****NCR 4 Dated 21 Nov 2018****Standard Reference:** ACR Standard v4.0 Chapter 3**Document Reference:** N/A**Finding:** The standard states "Project Proponents are required to provide a regulatory compliance attestation to a verification body at each verification. This attestation must disclose all violations or other instances of non-compliance with laws, regulations, or other legally binding mandates directly related to Project Activities." Please provide this attestation to be in conformance with the standard.**Project Personnel Response:** The attestations can be found in the shared verification folder**Auditor Response:** All regulatory attestations have been provided. This finding is now closed.**Bearing on Material Misstatement or Conformance (M/C/NA): C****NCR 5 Dated 21 Nov 2018****Standard Reference:** ACR Validation and Verification Standard v1.1 section 6.E Impermanence and Risk Mitigation**Document Reference:** N/A**Finding:** The standard states "For projects with a risk of reversal of GHG emission reductions/removals, Project Proponents must assess risk using an ACR-approved risk assessment tool and enter into a legally binding Reversal Risk Mitigation Agreement with ACR." Please provide this agreement to be in compliance with the standard.**Project Personnel Response:** The Risk Mitigation Agreement will be provided at the conclusion of the verification and the finalization of the GHG Plan, per the RMA's requirements.**Auditor Response:** This will be checked upon completion of the verification. The finding is closed as of now.**Bearing on Material Misstatement or Conformance (M/C/NA): C**

NCR 6 Dated 21 Nov 2018**Standard Reference:** ACR Standard v4.0**Document Reference:** N/A

Finding: The standard states "ACR requires that all projects develop and disclose an impact assessment to ensure compliance with environmental and community safeguards best practices...Project Proponents shall disclose in their Annual Attestations any negative environmental or community impacts or claims thereof and the appropriate mitigation measure. ACR reserves the right to refuse to list or issue credits to a project based on community or environmental impacts that have not or cannot be mitigated, or that present a significant risk of future negative environmental or community impacts." Please provide the required attestation to be in conformance with the standard.

Project Personnel Response: The attestations can be found in the shared verification folder

Auditor Response: Upon issuance of this finding, the client provided a signed copy of the annual attestation. This finding is now closed.

Bearing on Material Misstatement or Conformance (M/C/NA): C

NIR 7 Dated 21 Nov 2018**Standard Reference:** ACR Standard v4.0**Document Reference:** MassCities_GHG_Plan_10_26_18

Finding: The standard states "FINANCIAL BARRIERS include high costs, limited access to capital, or an internal rate of return in the absence of carbon revenues that is lower than the Project Proponent's established and documentable minimum acceptable rate. Financial barriers can also include high risks such as unproven technologies or business models, poor credit rating of project partners, and project failure risk. If electing the financial implementation barrier test, Project Proponents shall include solid quantitative evidence such as net present value and internal rate of return calculations."

Currently the GHG plan states "Carbon funding is reasonably expected to incentivize the project's implementation. The implementation of the carbon project represents an opportunity cost to lost revenue associated with the potential timber harvesting that could legally and feasibly occur on the property in the lifetime of the carbon project. A financial feasibility assessment is provided separately for verification demonstrating the financial barrier carbon funding overcomes in project implementation." Please provide the referenced assessment to for verification purposes and to comply with the standard.

Project Personnel Response: A more detailed explanation of the NPV analysis has been provided in the NPV Explanation folder.

Auditor Response: Upon issuance of this finding, the client provided a detailed explanation of how the NPV was applied, how prices were calculated, and a general walk through of the process. This finding is now closed.

Bearing on Material Misstatement or Conformance (M/C/NA): C

NCR 8 Dated 21 Nov 2018

Standard Reference: ACR Tool for Risk Analysis and Buffer Determination V1.0

ACR Validation and Verification Standard v1.1 section 6.E Impermanence and Risk Mitigation

Document Reference: MassCities_GHG_Plan_10_26_18

Finding: The ACR Tool for Risk Analysis and Buffer Determination states " Natural Disaster risks: These risks are applicable depending on the specific project type. These risks are associated with natural events that lead to unintentional reversals. Some risk categories allow projects to claim a lower risk score (as noted) by providing evidence in support of the claim. Evidence may include written communication from State, Federal or Local independent experts in the applicable field, peer reviewed literature, or other scientific documentation or reports. This evidence must be current at the time of verification. Evidence must be verifiable and presented to a verification body at the time of GHG Project Plan validation, and during subsequent full verifications (every 5 years)."

The selection of a 4% Default Value for Diseases and Pests (Category F) does not provide evidence. Please provide verifiable evidence that 4% is accurate and correct to be in conformance with the standard.

Project Personnel Response: Evidence supporting the 4% default value for Diseases and Pests is in the shared Dropbox subfolder Regional Forestry Docs: "Re: Pest and Disease confirmation"

Auditor Response: Upon issuance of this finding, the client provided an email correspondence addressing the pest and disease value chosen. No current epidemic issues are with the district of the project area. This finding is now closed.

Bearing on Material Misstatement or Conformance (M/C/NA): C

NIR 9 Dated 21 Nov 2018

Standard Reference: N/A

Document Reference: MassCities_GHG_Plan_10_26_18

Section H2

Section G1.2

Finding: Referencing the GHG plan, section H2, Project Timeline, states that the Project Start Date source is "CDMA contract signing". Please provide this contract to the audit team for verification purposes. Additionally, Section G1.2 of the GHG plan states "Emissions reductions rights are owned by the Project Proponent." Please provide evidence of the statement made in G1.2.

Project Personnel Response: A redacted copy of the final CDMA contract stating the project proponents and start date has been added to the ProjectSupportingDocs folder.

Auditor Response: Upon issuance of this finding, a redacted copy of the CDMA contract was provided. This states the project proponent, start date, and owner. The finding is considered closed.

Bearing on Material Misstatement or Conformance (M/C/NA): C

NIR 10 Dated 21 Nov 2018

Standard Reference: ACR Validation and Verification Standard v1.1 section 4.B Common Practice Test

Document Reference: MassCities_GHG_Plan_10_26_18

Section C2. Common Practice

Finding: The GHG plan "The Bluesource – Massachusetts Tri-City Improved Forest Management Project is located in Western Massachusetts and shares similar forestry practices as that of eastern New York, Vermont, and New Hampshire timber markets. The common harvesting practices in this region are clearcuts in twenty-to-thirty acre patches for song bird habitat which has been promoted and subsidized by the state..."

While the standard states "To validate the results of the common practice test, the VVB shall review the documentation provided by the Project Proponent to demonstrate that the GHG project is not common practice. In addition to this documentation, the VVB should review all original reference sources cited in the Project Proponent's documentation, such as independent consultants' reports designed to describe common practice technologies/practices, to confirm the raw data and conclusions drawn thereupon." Please provide evidence for the information claimed in the Common Practice section, including documents and references cited.

Project Personnel Response: Evidence for the common practice is provided in the shared Dropbox subfolder Regional Forestry Docs: "Re Common Forestry Practices" and "RegionalForestPractices_SummaryNotes_9_21_18.pdf". The Summary Notes is a document write up of an interview Bluesource conducted with regional forestry expert, Mary Wigmore, who has worked on the Mass Cities lands and surrounding region over several decades. The email is a confirmation that she agreed with the summary write up of our call.

Auditor Response: Upon issuance of this finding, the client provided a clear and concise document of the evidence of the common practice in the region that was obtained from a local forestry expert. This satisfies the requirement for the common practice section and this finding is closed.

Bearing on Material Misstatement or Conformance (M/C/NA): C

NIR 11 Dated 21 Nov 2018**Standard Reference:** ACR Standard v4.0**Document Reference:** MassCities_Strata_10_26_18.shp

Finding: The core GHG Accounting Principles in the standard states "Accuracy - Reduce bias and uncertainties as far as is practical." During the site visit on 07 November 2018, the auditor identified a beaver pond/wetland area, roughly 7-10 acres in size, which included areas of substantial open water and grass, if any trees were there, they were long since dead. This area has been included in the project area with tree height attributes listed as Low, Medium, and High. The OBJECTIDs for the referenced area are 3910, 3934, 3935, 3992, and 3997 in MassCities_Strata_10_26_18.shp. The associated attribute data does not seem to accurately reflect the conditions on the ground. Please provide an explanation of where this data came from and how it was used.

Project Personnel Response: Corrections to project area and boundary have been made to removed non-forested regions identified as wetlands/beaver ponds. The updated shapefile for boundary is "MassCities_Boundary_12_04_18.shp" and the update shapefile for strata is "MassCities_Strata_12_04_18.shp". The spatial data for the project was developed by the consulting forester for the land, Mary Wigmore of Wigmore Forest Resource Management.

A combination of LiDAR and high resolution imagery was used to estimate the height of every tree across the project area. The model used a clumping algorithm to identify stands of similar heights. This information was used to classify the stands into either Low, Medium, or High average heights, based on the highest number of trees in each height class (see the associated stratification shapefile). Stands with the highest proportion of trees 30 meters or taller were classified as High, stands with the highest proportion of trees 25 meter was classified as Medium, and stands with the highest proportion of trees 20 meters or lower classified as Low.

Auditor Response: Upon issuance of this finding, the project area and boundary have been updated. The LiDAR description also answers the questions in the finding. Additional inquiry into the use of the LiDAR data will be reviewed during the verification process. This finding is considered closed.

Bearing on Material Misstatement or Conformance (M/C/NA): M/C**NCR 12 Dated 9 Apr 2018****Standard Reference:** ACR Standard v4.0**Document Reference:** MassCities_GHG_Plan_1_25_18.pdf
MassCities_RP1_MonitoringReport_1_25_19.pdf

Finding: The standard state "The ACR Standard v5.1 supersedes the ACR Standard v5.0 (February 2018). Any project listed subsequent to August 1, 2018, must follow all requirements of and be validated against the ACR Standard v5.1." The monitoring report states an older version of the ACR standard and methodology. Please update to be in conformance with the standard.

Project Personnel Response:**Auditor Response:** The GHG plan was updated to reflect the proper standard references.**Bearing on Material Misstatement or Conformance (M/C/NA): C**

NCR 13 Dated 9 Apr 2018**Standard Reference:** ACR Template for GHG Project Plans v1.0**Document Reference:** MassCities_GHG_Plan_1_25_18.pdf**Finding:** There are a few locations in the GHG plan that include blank pages, including page 24 and 48. Please remove these blank pages to be in conformance with the ACR Template for GHG Project Plans.**Project Personnel Response:****Auditor Response:** The GHG plan has been updated to follow the template. This is now closed.**Bearing on Material Misstatement or Conformance (M/C/NA): NA****NCR 14 Dated 9 Apr 2018****Standard Reference:** ACR Standard v4.0**Document Reference:** MassCities_GHG_Plan_1_25_18.pdf

MassCities_RP1_MonitoringReport_1_25_19.pdf

Finding: The standard states "A GHG Project Plan is a document that describes the Project Activity; addresses ACR eligibility requirements; identifies sources and sinks of GHG emissions; establishes project boundaries; describes the baseline scenario;" The sources and sinks listed in the GHG plan do not match the monitoring report, specifically defect and inventory. Please update documents to include all the monitored data and parameters.**Project Personnel Response:****Auditor Response:** Documents have been updated so they are now reflect all sources and sinks. This finding is now closed.**Bearing on Material Misstatement or Conformance (M/C/NA): C****NIR 15 Dated 16 Apr 2018****Standard Reference:** N/A**Document Reference:** MassCities_GHG_Plan_1_25_18.pdf**Finding:** The GHG plan currently states that "Both West Springfield and Holyoke are certified through FSC." Please provide a copy of the certifications or their respective license code for verification.**Project Personnel Response:****Auditor Response:** The certifications were provided for review. This finding is now closed.**Bearing on Material Misstatement or Conformance (M/C/NA): C**

NCR 16 Dated 9 Apr 2018

Standard Reference: The American Carbon Registry Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal US Forestlands V 1.2

Document Reference: ERTs-WMA-FinalAcres-AdjHrvLvls_1_25_19_w_Tables.xlsx

Finding: The methodology states: "The uncertainty in the baseline scenario should be defined as the square root of the summed errors in each of the measurement pools. For modelled results use the confidence interval of the input inventory data. For wood products and logging slash burning emissions use the confidence interval of the inventory data. The errors in each pool shall be weighted by the size of the pool so that projects may reasonably target a lower precision level in pools that only form a small proportion of the total stock." Currently, the Uncertainty in the baseline does not incorporate the twenty-year average value of annual carbon remining in stored wood products 100 years after harvest. This is not in conformance with the methodology, please update accordingly to be in conformance.

Project Personnel Response:

Auditor Response: Uncertainty in the baseline added the carbon from stored wood products per the methodology. Please refer to client workbook: ERTs-WMA-Stocking_AdjHrvLvls-20190416v.xlsx, worksheet: ERTS, cell C8. This finding is now closed.

Bearing on Material Misstatement or Conformance (M/C/NA): M

NIR 17 Dated 24 Apr 2018

Standard Reference: N/A

Document Reference: OT-WMA-RP_CO2_Stats_1_23_18.xlsx

Finding: The Stats-start-date and data tab list the net live carbon stocks by strata and plot. However, there is a difference in the carbon stocks as of the inventory versus those reported for the start date. According to the GHG Plan and modelling description, the raw inventory data was not degrown to the start date because the change in carbon stocks was negligible. Therefore, the client elected to use the raw inventory data as the start date inventory. Please clarify why there is a difference in carbon stocks as of the inventory date and that of the start date within the identified tabs and workbook.

Project Personnel Response:

Auditor Response: Paul from SIG, confirmed that the GHG plan and the calculations were consistent with one another. The issue was within an older workbook version and he stated "that it should not be part of the verification package". The proper workbook with accurate numbers were delivered in ERTs-WMA-Stocking-AdjHrvLvls-20190416v.xlsx.

Bearing on Material Misstatement or Conformance (M/C/NA): M

NIR 18 Dated 20 May 2019

Standard Reference: The American Carbon Registry Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non Federal US Forestlands V 1.2

Document Reference: OT_WMA_Depletions_20190509.xlsx

Finding: Section 3.2 Step 1(b) states that “actual harvested wood volumes and species must be based on verified third party scaling reports, where available. Where not available, documentation must be provided to support the quantity of wood volume harvested.”

During the review of the actual harvested wood volumes presented in “OT_WMA_Depletions_20190509.xlsx” worksheet “1st Harvest Levels”, the audit team found a description of the harvest activities that occurred during the reporting period. As we understand it, Holyoke harvested 50% of its planned, annual harvest in the years 2017 and 2018 (155 MBF per year) while the other two counties harvested nothing. However, we were unable to identify any supporting documentation, such as a mill tally receipt, which would allow us to verify the harvested volume. Please provide documentation to support the quantity of wood volume harvested during the reporting period as required.

Project Personnel Response: Please see an updated Depletions file in the Calcs folder, which contains updated harvested wood product calculations based on the lump sum harvest volumes from the one sale that was cut during the reporting period. These calculations have been used to update the ERT spreadsheet, as well as the Project LP calculations. Please see the Harvests/HarvestVolumeEmail folder for an email exchange between Josh Strauss and Mary Wigmore confirming that, as of the end of the reporting period, 70% of the Breakneck Brook harvest had been cut.

Auditor Response: The documents have been reviewed and adequately allows us to verify the volume harvested. This finding is now closed.

Bearing on Material Misstatement or Conformance (M/C/NA): C

NIR 19 Dated 20 May 2019

Standard Reference: The American Carbon Registry Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal US Forestlands V 1.2

Document Reference: N/A

Finding: Section 3.2 of the ACR methodology provides 5 specific steps which are all required during the estimation of carbon stored in wood products for the project scenario. More specifically, actual wood harvested during the reporting period must also follow these requirements. The five steps required to account for the harvesting of trees and to determine carbon stored in wood products are:

1. Determining the amount of carbon in trees harvested that is delivered to mills (bole without bark).
2. Accounting for mill efficiencies.
3. Estimating the carbon remaining in in-use wood products 100 years after harvest.
4. Estimating the carbon remaining in landfills 100 years after harvest.
5. Summing the carbon remaining in wood products 100 years after harvest.

During the review of the actual carbon stored in harvested wood, the audit team was unable to identify the method(s) used to estimate carbon stored in wood products. More specifically, the audit team was unable to determine if each step was applied and followed, as required. Please provide a workbook which demonstrates each step, clearly, such that the audit team can confirm that:

1. The correct specific gravity was used to convert MBF into dry weight.
2. The correct conversion(s) were used to compute carbon and CO₂e.
3. The correct mill efficiency was used.
4. The correct storage factor was used.
5. The estimation of the actual carbon stored in wood products 100 years after harvest is correct and consistent.

Project Personnel Response: Please see the Determination of Harvested Wood Products_5_22_19 PDF in the Modeling Explanation folder for a thorough explanation of how the HWP calculations meet these requirements.

Auditor Response: The Modeling Explanation provides a walkthrough of the material requested. It also shows how they followed the methodology and specifically references section 3.2 per requested.

Bearing on Material Misstatement or Conformance (M/C/NA): C

NIR 20 Dated 20 May 2019**Standard Reference:** ACR Forest Carbon Project Standard V2.1**Document Reference:** MassCities_GHG_Plan_5_9_18.pdf**Finding:** The ACR Forest Carbon Project Standard V2.1 states the following (p. 25):

“To apply the common practice test, the Project Proponent shall evaluate the predominant forest industry technologies and practices in the project’s geographic region, as determined by the degree to which those technologies or practices have been adopted in that region, regulatory framework, forest type, and by similar landowners. The Project Proponent shall demonstrate that the proposed project activity exceeds the common practice of similar landowners managing similar forests in the region. Common practice for large industrial vs. small non-industrial private landowners, or public vs. private forest lands, or for different forest types on similar ownership types, may be very different.”

The language suggests that public/private ownership status should be considered a factor in determining what is a “similar” landowner. Please provide evidence for how the project passes this test specifically within a public landowner scenario in the region.

Project Personnel Response: We have confirmed with Mary Wigmore that our baseline harvests are in line with common practices of similar ownerships in the region. Mary Wigmore is sending email confirmation, which we will forward to SCS upon receipt.

Auditor Response: Bluesource provided a written letter from Mary Wigmore discussing the common practice of public lands in the area, which includes clear cuts and large patch openings for the introduction of young forests for desired habitats. The Massachusetts Division of Fisheries and Wildlife advocate for large patch creations on their lands and public lands. This provides evidence that public lands in the region will manage with differing approaches that include more aggressive forest management. This demonstrates that the project activity is not common practice and will reduce GHG emissions below levels within a comparable environment.

Bearing on Material Misstatement or Conformance (M/C/NA): C