

1. Category Application

The **GreenSchools: A Model for Green Communities** is an outreach and environmental education program that will engage the local communities and schools in Houston, Texas in the creation of a Project Learning Tree (PLT) GreenSchools! model which incorporates early childhood through high school educational feeder patterns and the communities they serve. These schools will participate in a unique training program that includes teachers, school staff, students, parents, and community members. It will be designed to

- 1) Develop an understanding of the benefits of urban trees and forests to the local schools and the community;
- 2) Inventory all trees on current sites; and
- 3) Develop a site plan and management strategy based on the accomplished inventory.

The result will be to enhance tree canopy and tree health. In addition, GreenSchools! student leaders will develop action plans based upon a variety of campus investigations. These action projects will be implemented in conjunction with local partners to improve the environment on individual school sites and reaching into the broader community through the creation of green corridors.

We will approach this project by educating the greater school community in the benefits of urban forests, including potential energy savings, reduced runoff, improved air quality, and improved health benefits. This proposal connects urban forestry and the PLT GreenSchools program. PLT understands the value of urban forestry and we have incorporated activities into our curriculum that have direct relevance to urban and community forestry issues. In the PLT materials, starting with the early childhood guide, all of the lessons for the educators are about young people developing an understanding of the trees in their community. At the PreK-8 grade level, of the 96 activities, 48 are related to community and urban environment, while 13 are directly related to tree benefits, including urban trees. More than 26 are about trees, whether in an urban forest or in a national forest. In 2005, PLT was awarded a grant from NUCFAC to develop a website of urban and community forestry resources. These resources are listed in the PreK-8 guide that has been distributed to more than 150,000 educators since that first printing. This project, in addition to other tools and resources, will be designed to provide urban educators and their students with quality environmental education programs, and involve them in environmental community action projects.

While the benefits of urban forestry are many, to capture national attention GreenSchools! will highlight some examples of the efficient and cost effective environmental and social benefits that trees provide such as:

Ecological. Trees and vegetation are one of our most powerful technologies for environmental services – cooling the air, cleaning air and water, providing flood protection, holding soil in place, reducing erosion and flooding and removing pollutants from the environment. At the same time, this *technology* provides oxygen, food, and improved health for humans and other living beings.

Social. GreenSchools! curriculum also highlights that trees help to reduce violence and aggressive behavior. School violence programs help students to control aggressive behavior with training in conflict resolution and peer intervention. Positive and natural physical environments around a school also appear to play a role in social development and subsequent actions. Education scientists at the University of Michigan have found that scenes of neighborhoods with blighted streetscapes are perceived as dangerous and threatening. Those that are more cared for, including tended landscapes, contribute to reduced feelings of fear and violence.

Educational. GreenSchools! focuses on the fact that statistics indicate that trees and nature help children learn. Urban green areas, when provided as parks and walkways and incorporated into building design, provide calming and inspiring environments and encourage learning, inquisitiveness, and alertness. We know that our nation's politicians, parents, educators are all concerned with how our children are learning.

We strongly believe this model project will capture national attention. The messages this program delivers will resonate across the Nation, not just in the Houston, Texas-based efforts.

In line with educational pathways, with an emphasis on higher education, a partnership with Stephen F. Austin State University will provide scholarship opportunities and subsequent career pathways in natural resource conservation and management for high school students and other interested community members.

By educating the school staff, including classroom teachers, administrators, custodial staff, and landscapers on the importance and urgency of urban forests, they will learn appropriate strategies to increase tree plantings and care for and manage the urban forest. Examples would include the proper trees to plant on school sites and proper tree management in utility corridors and right-of-ways, as well as cohesive development of green corridors incorporating on-campus fruit tree orchards, which provide direct benefits to schools and communities.

The teachers will educate students using existing GreenSchools! investigations and adapted investigations for early childhood centers. Training will be provided for high school students and community members to reach a higher level of knowledge and skills in the arboriculture area. Over 10,000 students will be directly impacted by the training. These trainings with the community members will help to make urban forestry relevant to underserved communities.

In working with the Texas Latino Legacy: Amigos del Bosque and the Texas A&M Forest Service Diversity and Outreach Team, we will have the opportunity to work with the local community and engage them in taking care of their local environment, using their local schools as the starting point. As an example, GreenSchools! Youth Mentors, Nalleli Hidalgo and Blanca Garcia, graduates of a local GreenSchool - Stephen F. Austin High School, have worked diligently to connect the various schools and provide mentorship and leadership to the budding GreenSchools! student leaders at each school. These highly motivated youth have assisted each of the schools in the GreenSchools! Grapevine feeder pattern, thereby providing insight, motivation, mentorship and leadership that have sparked a collaboration of students, educators, administrators and community members that is palpable. These GreenSchools! Youth Leaders have written a letter and have worked with students from the elementary school in the development of environmental art invitations to be delivered to the First Lady, Michelle Obama. Their sense of duty to the community and to the youth at the various schools has blossomed and inspired additional student leadership.

The focus on reaching diverse populations is a cornerstone of this effort and is represented in the demographic makeup of the existing GreenSchools! in Houston. The Houston Independent School District GreenSchools have an average of 93% Hispanic and 5.5% African American student population. Newly targeted GreenSchools! recruits will have similar demographic profiles. The charter GreenSchool! Monarch, is made up of 100% students who exhibit some form of neurological challenge. These underserved and diverse population groups will be directly impacted through the successful implementation of this initiative.

In Houston, 750 new schools will need to be built over the next 40 years just to keep up with school population growth. This provides an opportunity to address the importance of making urban forestry a key component in planning for the school sites and the community's future. While this proposal will focus on assessing 11 existing school sites, the schools will share their information with other schools and school district administrators. This will potentially educate both school boards and rally students and teachers to advocate for wise planning of future school sites to reduce the unnecessary removal of trees on future school sites that is so common when people do not know proper management of trees and vegetation. An example from one of our leadership GreenSchools! provides a relevant story. We say GreenSchools! can inspire student leadership and civic engagement and that students feel empowered to have a voice. When the Houston Independent School District decided to remove a large, historic live oak from the Jackson Middle School campus, a GreenSchool! In Green Team members rallied convince administrators that the tree should remain for historical, but also because the ecological benefits the individual tree provided as a result of the GreenSchools! Investigation, which was based upon the use of i-Tree technology and the tree benefits calculator.

The result of this project will be a community that supports urban forests and the integration of planning of green spaces in all schools. There will also be an increase in the number of young people, especially in currently underrepresented and underserved urban communities to enter natural resource related fields. The best practices from this model will be shared and implemented across the country, pairing both existing GreenSchools! and the development of new schools to mobilize individuals and communities to take action for the planning of, and the care and maintenance of urban forests based on their understanding of the benefits of community forests. The transfer of this model will be facilitated through the national networks of the partners involved in this project.

2. Scope and Applicability/Justification

The **GreenSchools: A Model for Green Communities** provides a new model of implementation for GreenSchools, a unique urban forestry theme, and a new GreenSchools! Early Childhood Centers Guide that will be piloted in Houston, Texas and then made available through the extensive national networks of the project partners. This program also provides assessments, trainings, and opportunities for youth and community members to pursue careers in natural resources. The integrated community approach brings together diverse partners that share the common goals of educating underserved youth and protecting our urban environment. The objectives of this project are to:

- Create six new GreenSchools! with an emphasis on the benefits of urban forestry

- Provide professional development to the school staff, students, and community members on how best to address urban forestry concerns in the design and implementation of school site plans. The training will include a strong element of youth leadership skills. These trainings will include educators working with students from early childhood (Age 3-6), elementary, middle school, high school and even adults from the surrounding community. This age span is great, however, the trainings are targeted sessions that will have limited age ranges in each workshop, making each session age level appropriate.
- Provide a Nature Explore professional development workshop for early childhood educators and student mentors to address developmentally appropriate ways to engage young children with trees and the natural world to create more sustainable, environmentally-friendly spaces.
- Complete school site assessments and develop action plans for creating a community-based model that highlights urban forestry best management practices.
- Evaluate school site assessments as they are used to support the design process for three Nature Explore Classrooms/GreenSchools! as community demonstrations at the three early childhood education school sites.
- Provide community trainings on arboriculture
- Offer scholarship funds for high school students to attend Stephen F. Austin State University at the Arthur Temple College of Forestry and Agriculture to create natural resource career pathways.

The national target audience will be urban communities across the country working with PLT state leadership, the Arbor Day Foundation, the Tree City network, and local community based organizations. Additional partners have been added since the December application date. They include: the Fruit Tree Planting Foundation, and local partners such as Ripley House Community Centers and two Public Charter Schools, Urban Harvest and the Latino Learning Center. Other urban communities will benefit from this model by using the *GreenSchools! Early Childhood Centers Guide* and *GreenSchools! A Model for Green Communities Guide*, the GreenSchools! investigations, the professional development training agendas, and the partnerships formed through this program.

Due to the national interest in GreenSchools! the project should be implemented without delay to take advantage of this excitement. Last year, the U.S. Department of Education instituted a Green Ribbon Schools Award program, which was designed to recognize the efforts of schools to lower their environmental impact. PLT helped to develop the criteria, which includes school site improvements with an emphasis on appropriate tree plantings.

In addition to the emphasis on green schools, there is also an increased attention in the development of early childhood centers that focus on natural environments and these centers are seeking strategies to improve their outdoor habitats. Lastly, the nation's universities have identified a need for students from diverse backgrounds who are interested in entering natural resource management fields and STEM related jobs. Statistics from the Department of Labor indicate that out of the 20 fastest growing occupations projected to 2014, 15 of them require significant mathematics or science preparation. Their statistics also indicate that the U.S. will have over 1 million job openings in STEM-related fields by 2018; yet, according to the U.S. Bureau of Statistics, only 16% of U. S. bachelor's degrees will specialize in STEM. These

statistics demonstrate that we are not graduating nearly enough STEM majors to supply the demand. This project will help inspire and prepare the next generation to take advantage of the opportunities within these fields.

3. Literature Review

Responsible citizenship is an educational focus area in relation to environmental education (Hungerford & Volk, 1990). Nationwide, schools are being viewed as key mechanisms to obtain environmental sustainability. Schools can teach children how to be more environmentally aware through implementation of science-based learning coupled with improvements in operational efficiency through green practices such as water and energy conservation, implementation of sustainable landscapes, native tree planting projects, and reduction and recycling efforts, both on campus and community-wide (Stevenson, 2010). School grounds that exhibit sustainable landscaping and a natural diversity of design features promote a positive, physically active student body and improved mental and physical health (Bell & Dymont, 2006).

Environmental education seeks to fulfill a number of objectives such as, 1) creating an awareness and a sensitivity for the environment and its issues, 2) helping to develop responsible attitudes, values, and feelings of concern for the environment, 3) assisting in the development of skills for identifying and solving environmental issues, and 4) providing opportunities to be actively involved and participate in the creation of resolutions to solve environmental problems (Hungerford & Volk, 1990). Educators and community leaders as partners have a unique opportunity to educate and model green practices that will lead to healthier communities and a healthier planet.

Applying leadership skills to everyday life situations in the classroom can assist in transforming individuals into strong civic leaders who have the understanding of the importance of voice and action related to creating their own pathway to a stronger community. (Covey, 2009; Tough, 2012). Empowerment provides people with the knowledge that they can make changes and resolve important issues (Hungerford & Volk, 1990).

Schools in the U.S. continued to increase in diversity and representation of a variety of races, ethnicities, religions, languages, socio-economic classes and different learning needs. Both in- school and out-of-school experiences have been shown to be beneficial for cognitive expansion and growth (Moseley Dunn, 2010). It is critical that program developers be aware, sensitive, and responsive to the cultural and socioeconomic nuances of diverse audiences. By doing so, relevant programs can be developed to enhance experiences and provoke positive behavioral changes toward natural resource stewardship (Chavez, 2000; Lopez et al., 2005; Chavez, 2005; Roberts, et al., 2009). It is also important to understand knowledge, values, and perceptions of different audiences, to facilitate improved communication and a subsequent connection between various demographic segments and the natural world in order to improve knowledge of natural resource management and conservation issues, and to provide subsequent pathways for natural resource stewardship (Macie & Hermansen, 2002).

4. Organization/Methodology

We are proposing a two year project from October 2013 to September 2015. Following are the 10 steps we propose to successfully complete this project:

1. Assemble a GreenSchools! A Model for Green Communities Advisory Team (October 2013– September 2015)
2. Develop a GreenSchools! Early Childhood Centers Guide (October 2013-January 2014)
3. Conduct Professional Development Workshops (February- April 2014)
4. Assist in the School Site Assessments (April 2014 – September 2015)
5. Conduct Nature Explore Professional Development Workshop (October – Nov. 2014)
6. Design consultations with stakeholders at the three early childhood sites (November 2014-June 2015)
7. Create School Site Action Projects (October 2014 to May 2015)
8. Offer Career Pathways for High School students and community members. (October 2013 – September 2015)
9. Conduct the Formative and Summative Evaluation (October 2013-September 2015)
10. Develop the guidelines for replicating this process based on the results of the evaluation and distribute through our extensive networks. (October 2013-September 2015)

5. Product

A) Assemble a GreenSchools! A Model for Green Communities Advisory Team

Members will include the GreenSchools! student youth leaders, GreenSchools! Youth Mentors, parents, educators, administrators, custodial staff, urban foresters, environmental/conservation educators, community leaders from the Houston Hispanic Chamber of Commerce, soil and water conservationists, and others. The Advisory Team will assist with ideas, support the partnerships in the communities, assist with volunteer days and fundraising, provide leadership for the project, and will provide formative evaluation of the project. The Team will be managed by the Friends of the National Forests and Grasslands in Texas - Latino Legacy.

B) GreenSchools! Early Childhood Centers Guide

The development of GreenSchools! Early Childhood Centers (GECC) Guide will be an adaptation of the PLT GreenSchools! Investigations currently used in more than 2000 schools. The guide will include a process that early childhood educators/administrators and GreenSchools! middle and high school students will use for assessing the current early childhood center school sites. Included will be easy-to-use tools to inventory and evaluate the current health of the trees on the site, the process to create a scale map of the outdoor space, and a survey to measure the existing use of the school site by young children and their educators. The process will include suggestions for school site natural enhancements such as appropriate trees, native pathway plantings, and gardens that support rich child-initiated exploration and developmentally-appropriate environmental education experiences.

The GECC Guide will complement the successful *PLT Environmental Experiences for Early Childhood*, which is currently in distribution nation-wide. It will also reference other helpful tools, resources, and research that will support early childhood educators in their “greening” efforts. The development of the GECC Guide will be based on the North American Association for Environmental Education Early Childhood Guidelines for Excellence and will be provided free of charge to workshop participants.

C) GreenSchools! Green Communities Workshops

Using the five Houston leadership schools (Berry Elementary Environmental Science Magnet School, S.F. Austin High School, Lantrip Elementary Environmental Science Magnet School, Jackson Middle School, and Monarch School) the program will integrate Professional Development training workshops for six new schools to join the GreenSchools! network in this region. Selected schools will be connecting feeder schools to the existing five school leadership network. We are estimating that two trainings will be held late in the spring of 2014. The first session will focus on middle school/high school and the second session on Early Childhood and Elementary. A third training would take place during the design process for the GreenSchools/Nature Explore Classrooms and would focus on early childhood education.

The following resources will be provided free of charge to participants at the workshops: GreenSchools! Early Childhood Centers Guide, PLT GreenSchools! Investigations, *PLT Environmental Experiences for Early Childhood*, *PLT PreK-8 Environmental Education Activity Guide*, Nature Explores Environmental Action Kit and “Going Green” guide, *PLT’s Exploring Environmental Issues: Focus on Forests* secondary module, ReLeaf Materials, iTree, and site inventory tools, Early Childhood Guidelines for Excellence, and Woodsy Owl – ABC’s in English and Spanish and associated materials.

In addition, the *PreK-8 Environmental Education Activity Guide* and *Environmental Experiences for Early Childhood* guide are available in Spanish. These translations provide valuable resources to English as a Second Language (ESL) educators, students and community partners in urban areas which exhibit high Latino populations.

Participating schools will send teams of participants to the training. The training will be on investigating the School Site with an emphasis on urban forestry topics. Connections between the personal benefits of the urban forest and the quality of life within the community will be shared. An inventory of all the trees on the school site will include determining tree health, conducting tree measurements, understanding tree maintenance, determining ecological services by use of iTree, planning the site for tree planting, and assisting with long term site planning involving native tree and native grass selection.

The GreenSchools! workshop model being used in this proposal was recently evaluated as part of a Corporation for National & Community Service Grant (Easton, 2009 and 2012). According to data from an independent 2012 GreenSchools! evaluation that included 77 students, 93% of the respondents participated in action projects. A total of 64% of the students rated their experience conducting a GreenSchools! investigation as excellent and 32% as good. In the same study, 58 teachers responded, and more than 90% of these educators planned to conduct new GreenSchools! Investigations and action projects that demonstrate the principles of service- learning and environmental stewardship. “I do not ever anticipate the project to be completed because they will always improve and add to the outdoor classroom”, stated a GreenSchools! teacher which is a testament to the sustainability of this program. Educators shared that GreenSchools! developed student’s academic and life skills. Respondents attributed significant increases in student’s:

- o teamwork;
- o leadership;
- o problem-solving.

GreenSchools: A Model for Green Communities mirrors this paradigm in which teachers, school staff, students, and community members go far beyond the typical “one and done” community service model. They all collectively play a sustained and active role in not only developing an understanding of the benefits of urban trees and forests but, more importantly, creating and implementing action plans and projects to improve their school sites.

We have solid evidence that our lessons have an impact on student awareness, knowledge, skills, and attitudes and we see academic performance improve. Our GS studies show that not only do the students have intention to act, but they do act. More broadly, we know that the environmental education research literature suggests that there is a good correlation between “intent to act” and actually taking action.

Locally in Texas, we have evidence that PLT is used after people have attended a workshop. In pre-service teacher program at Stephen F. Austin State University pre-service teachers participate in a program including PLT training. Research (Sowards & Boyette, 2012) found significant gains in efficacy after participating in the program ($p=0.000$). The test had reliability rate of $\alpha=.831$) 91% of the students participating in this PLT training program indicated that after having used PLT in this program with elementary students they were likely to very likely to use PLT when they enter the classroom.

In a national survey of PLT workshop participants, Greenwald (2000) reported that 77% were using the PLT materials when they returned to the classroom. In five similar state studies the figures ranged from 65% to 77%.

D) Nature Explore Using Your Outdoor Classroom Workshop

The “Using Your Outdoor Classroom” workshop is designed for adults who work with children in many ways – from schools, to early childhood programs, to environmental education programs. Participants will experience techniques for using outdoor classrooms as an integral part of children’s daily learning. They will see how well-designed outdoor spaces facilitate healthy physical, emotional, intellectual, and social development in a variety of settings and will discover strategies for meeting teaching standards assessing children’s learning in outdoor environments.

E) School Site Assessments and Action Projects

A key element of this grant proposal is site assessments conducted by trained GreenSchools! students (with knowledgeable adults) to establish tree inventories at the site locations selected for the Nature Explore Classrooms. Through this process, that also assesses existing tree health and value, both the students and the school will gain understanding of the importance of protecting and preserving existing trees. That assessment will be conducted prior to the on-site design consultation process with a specially trained landscape architect-educator team who will create a site-specific concept plan for the Nature Explore Classroom and the campus landscape as a whole, that incorporates existing healthy trees as part of the space. Each of the 11 schools will complete a school site assessment and will develop plans for maintaining tree health and suggest a planting agenda. Schools will develop proposals to submit for funding. Funding will be disbursed through action grants administered by PLT. The action grants would average \$1000.

The Latino Legacy: Amigos del Bosque (Friends of the Forest) will be the local leader of the project. Amigos del Bosque, TFS Diversity and Outreach Team, and students and alumni from the Arthur Temple College of Forestry and Agriculture at Stephen F. Austin State University will assist with investigations and action grant facilitation, training, mentoring, and developing career pathways and opportunities.

Each school will propose a project to improve the school site from a planting perspective. They will share the projects with their communities in innovative and exciting ways developed by youth leaders. Community trainings such as arboriculture, native plant gardening, composting for the garden, rainwater harvesting, and others, will be conducted in conjunction with other school events.

An important part of the site design will be posted signs, informational brochures, and website information on how the site has been changed and why. It will also include easy steps for parents to follow to make changes in their own homes and communities. The location would then become a model for the parents, extended families, and community members that visit the school location.

F) Design Three Nature Explore Classrooms

The project will incorporate the design, training, and starting support for creation of certified Nature Explore Classrooms at three selected early childhood education sites in Houston. The nationally recognized Nature Explore program is a collaboration of the Arbor Day Foundation and Dimensions Educational Research Foundation. This program applies research-based, field- tested principles to designing age-appropriate outdoor classrooms that connect young children with nature and trees at schools or childcare centers while enhancing green infrastructure and improving infiltration in the urban forest.

The outdoor classroom design process includes 2-day visits for each of the three early education sites. The design process includes all stakeholders (site educators and administrators, maintenance staff, parents, and community members). The team will use information gathered from the development of the GreenSchools! Early Childhood Centers Guide process as part of their design planning. Arbor Day Foundation partners in this national Nature Explore initiative (Keep America Beautiful and Tree City USA) will be invited to participate in the design consultation to help support the site's specific resource needs. These partners may be able to offer sites access to free or reduced price trees or plant materials, natural materials such as logs, and connection to community volunteers. *Is the claim that Arbor Day -Tree City and Keep America Beautiful can supply materials free or at low cost true? This is a case by case situation. The history of our team in the Houston area is very positive and we are confident of their support. In previous projects in Houston, Keep Houston Beautiful provided two free trees to classroom sites. Tree City connections in many urban areas have provided logs and tree cookies. Across the country, it varies from city to city what these groups can and are willing to do. This network of support exists in most urban regions and helps to make the project replicable across the country.

As part of the design consultation process, the early childhood center sites will receive the research-based Nature Explore *Learning With Nature Idea Book*, a comprehensive implementation guide, site-specific concept plans, materials suggestions, an estimate of material volumes and field-tested family engagement resources. As the program is replicated nation-wide, the GreenSchools! Early Childhood Centers Guide will highlight the Learning With Nature Idea Book as the tool for sites wanting to create PLT GreenSchools!/Nature Explore Classrooms.

G) Career Pathways for High School students and community members

Two evening trainings for up to 50 community members on arboriculture will be held in 2014. These will build on the GreenSchools! trainings for high school and middle school. It will provide an opportunity for students to reach a higher level of knowledge and skills in the arboriculture area. The Arthur Temple College of Forestry at Stephen F. Austin State University (ATCOFA-SFASU) will provide an opportunity for participants to apply for scholarship funds to attend ATCOFA- SFASU to pursue a forestry or environmental science related field.

In addition to the ATCOFA- SFASU partnership, leadership at the Southern Research Station has pledged to provide employment opportunities for these incoming students to be stationed at the Southern Research Station Research Lab. This partnership supports the Cultural Transformation Initiative through providing opportunities for diversity candidates in the pursuit of natural resource careers through the USFS Pathways Program.

An example of this leadership opportunity was partially displayed during the phone call on March 1, 2013. The NUCFAC review team had the opportunity to hear from Nalleli Hidalgo, a former GreenSchools! student leader and now serving as a GreenSchools! Youth Mentor, employed by the Texas Latino Legacy – Amigos del Bosque conservation education and community outreach program. As a GreenSchools! leader in one of our five model Houston GreenSchools! Nalleli learned concepts that could be taken with her into her community and provide opportunities for a career pathway. Nalleli now serves as a GreenSchools! mentor to other students as she is now pursuing a college degree and is working with a 501-C3 which is supportive of the GreenSchools! efforts. She has used her knowledge gained during GreenSchools! training and activities, to share with others, develop green initiatives in her community and take action in community greening efforts.

Two local campuses from the Tree City USA program will be invited to participate in these sessions. Rice University and Texas Southern University are participating members of the Tree Campus USA, which is a program of the Arbor Day Foundation. Tree Campus USA

colleges and universities strive to engage their student body as well as their broader community to establish and sustain healthy community forests for the benefit of current and future residents. College and university students involved in the Tree Campus USA program will have the opportunity to mentor GreenSchools! high school students and support and encourage the GreenSchool! students' on-going engagement and interest in environmental careers. Currently there are 152 active Tree Campus programs in the United States (nine in Texas) which would serve as a network of support as the project is replicated across the country.

Tree Campus USA has a popular national certification program. We believe that Tree Campus USA is a great program and this is why we choose to include two local campuses from the Tree

City USA program in Texas to participate in this project. Currently there are 152 active Tree Campus programs in the United States (nine in Texas) which would serve as a network of support as the project is replicated across the country.

GreenSchools! has more than 2000 registered schools representing all 50 States and the District of Columbia. There is a growing Certification Program for PLT GreenSchools! and about 15 schools have applied and been approved in the last two years. Thirteen of the PLT GreenSchools! were selected in 2012 for Green Ribbon Awards from the U.S. Department of Education. For certification of the Early Childhood Center, the Nature Explore Classrooms has over 500 schools already certified or in the process of certification.

In addition, the Arbor Day Foundation is a partner with this proposal. A truly unique feature of this grant proposal is that it creates a developmentally-appropriate transition of educational experiences related to trees and nature from early childhood through college. Each school level involved in participation in this program will have certification elements. All three Certification Programs would provide support for programs from Early Childhood to the University level. This pilot project will help to enhance and improve urban forestry across the U.S.

H) GreenSchools! A Model for Green Communities Guide

The GreenSchools! A Model for Green Communities Guide will make it possible for schools and communities in urban areas across the country to replicate this project. We will develop the guide based on our findings during the operation of the grant. It will emphasize our process of engaging the community. It will help education stakeholders and community members integrate urban forestry and tree management not only in their school's administration, but into the education of its students. The guide will be available free on the GreenSchools! and partner websites. The guide will include the following topics: What is Urban Forestry", and Why is it important?; How to make this happen in YOUR school and community!; How to assemble a Green Communities Advisory Team; Partnering with local community organizations connected with urban forestry; How they can help schools accomplish their Urban Forestry Goals; How to conduct GreenSchools! Green Communities Workshops; Assessing your School Site and conducting tree inventories; How to use the GreenSchools! website and investigations; Funding and Implementing School Site Green Action Projects; Building natural resources career pathways for HS students and community members; How to host arboriculture training sessions for students and community members; Working with Tree City USA campuses that can partner with your HS GreenSchool!; How to evaluate your performance; and What to expect – Houston Project Evaluation Baselines

I) Evaluation Process

Formative and summative evaluations will document the processes and effectiveness of the GreenSchools! A Model for Green Communities pilot project in demonstrating the connection between the personal benefits of the urban forest and the quality of life within a community through community engagement. This evaluation will demonstrate the effectiveness of this model for an urban forestry recruitment program that begins in early childhood with retention strategies for Pre-Kindergarten -12 grade students, university students, and the adult community.

A final summary report will document the ability of this model to mobilize individuals and communities to take action for the planning of, and the care and maintenance of urban forests based on their understanding of the benefits of the community forest.

For details on the project Evaluation see Number 8 in this Proposal – page 13.

6. Collaboration

The Arbor Day Foundation (ADF) is the largest non-profit membership organization dedicated to planting trees and creating worldwide recognition of trees as a solution to global issues. With over one million members, supporters, and partners, the Arbor Day Foundation fulfills its mission “to inspire people to plant, nurture and celebrate trees” through community improvement programs like Tree City USA, which impacts more than 135,000,000 people living in more 3,400 towns and cities. The Arbor Day Foundation partners with **Dimensions Educational Research Foundation** on the national **Nature Explore** program that provides educators, designers, and families with research-based comprehensive resources to connect children with the natural world on a daily basis in efforts to foster the next generation of environmentally literate and capable environmental stewards and tree planters.

The **Nature Explore** program applies research-based, field-tested principles to designing age- appropriate outdoor classrooms that connect young children with nature at schools or childcare centers while enhancing green infrastructure and improving infiltration in the urban forest. The Nature Explore national initiative includes the Nature Explore Classroom Certification Program that recognizes schools and other organizations that have made a commitment to providing outdoor classrooms and comprehensive programming to help children use the natural world as an integral part of learning. These sites must show they have a well-designed, nature-rich outdoor space, provide staff development to their teams and offer family involvement experiences designed to increase family awareness and involvement in nature education. The three early childhood sites selected in this grant would become both Certified Nature Explore Classrooms and Little Green Schools.

The Friends of the NFGT-Latino Legacy is a conservation education and outreach program sponsored and supported by the USFS in collaboration with traditional and non-traditional partners such as the Texas A&M Forest Service Diversity and Community Outreach Team, Chikawa Aztec Cultural Group and many others.

Texas A&M Forest Service – Diversity and Community Outreach Team builds upon a shared commitment with the Latino Legacy program and other partners to reach diverse audiences with natural resource conservation education and stewardship opportunities.

Chikawa Aztec Cultural Group is an educational, cultural group whose mission is to spread knowledge and to inspire appreciation within schools and communities, of the cultural roots of the Americas Native peoples with a focus on Aztec cultural traditions.

Tree Campus USA is an initiative of the Arbor Day Foundation designed to award national recognition to college campuses and the leaders of their communities for promoting healthy urban forest management and engaging the campus community in environmental stewardship.

7. National Distribution/Technology Transfer of Your Findings

In order to replicate this project in communities across the country, we will develop and distribute the *GreenSchools! A Model for Green Communities Guide*. (See Product H in section five). This guide will be developed based on lessons learned throughout this project. The formative and summative evaluations will provide documentation of the best practices for national replication of this innovative model. The best practices from this model will be shared and implemented across the country, pairing both existing GreenSchools! and the development of new GreenSchools! to mobilize individuals and communities to take action for the planning of, and the care and maintenance of urban forests based on their understanding of the benefits of the community forest. It will be shared through the extensive network of our partners, including national, state, and local PLT leaders, Arbor Day partners, and the USDA Forest Service. The guide will be available free on line for community organizations and schools. We will promote the work we are doing during the project on social media sites and traditional media, utilizing student and staff voices.

The national target audience will be urban communities across the country. We will disseminate the program through our partner programs: Project Learning Tree (PLT) state leadership, the Arbor Day Foundation and Nature Explore, the Tree City network, Keep America Beautiful and local community based organizations like Ripley House Community Centers and Public Charter Schools, Urban Harvest and the Latino Learning Center.

Project Learning Tree and its GreenSchools! program is a robust national network that reaches into classrooms and communities across the country. We have state partners in all 50 states and the DC. With over 90 state coordinators who work for state agencies, non-profits and universities, we have a network of over 2000 active local PLT facilitators. They in turn conduct training and provide on-going support to over 32,000 additional educators each year.

The Arbor Day Foundation is a key partner in this grant. With over a million members nation- wide and a strong focus on the urban forest, they have the broad reach to homes, educators and policy makers through their national newsletter, Arbor Day. Also, through their national collaborative Nature Explore program, they reach thousands of early childhood educators in urban settings across the country. Nature Explore has additional collaborators like Tree City USA and Keep America Beautiful that also add strength to national reach and distribution.

Social media will also be a tool for transfer. Green Team members will also be encouraged to post real-time Facebook updates and Instagrams. Not only does this expose more people to the message, but our young participants who are excited about environmental journalism, citizen

journalism or outdoor writing would have a chance to practice real-world job skills. Green Team members with video ready cameras will also collect video. These video clips will be integrated into the webinar and our social media efforts through a custom, dedicated YouTube Channel.

8. Project Evaluation

Formative and Summative evaluations will document the processes and effectiveness of the project in demonstrating the connection between the personal benefits of the urban forest and the quality of life within a community through community engagement. This evaluation will demonstrate the effectiveness of this model for an urban forestry recruitment program that begins in early childhood with retention strategies for Pre-Kindergarten -12 grade students, university students, and the adult community.

Formative assessments will ensure that the project remains on track for successful completion of project goals, and will provide documentation of the best practices for national replication of this innovative model. Instruments for data collection will include progress reports from the grant partners, minutes for the Advisory Group meetings, and communications between the evaluator and the American Forest Foundation, Friends of the National Forests and Grasslands of Texas Latino Legacy: Amigos del Bosque, and the Texas A&M Forest Service Diversity and Outreach Team. Summative evaluation will include the development of three evaluation tools to measure impacts and outcomes of the pilot project. These evaluation tools are designed for easy use and modification to meet the specific needs of sites nationwide.

1. Performance Rubric to evaluate the students' Site Assessments and Site Plans. The rubric will include, but is not limited to, measurement of assessment accuracy and comprehensiveness, and site plan creativity, usability, sustainability, and practicality. Site assessments and Plans will be scored, using the rubric, by a minimum of three trained raters. Raters will be recruited from area professional foresters, certified arborists, landscape architects, and other environmental professionals.

2. Youth Urban and Community Forestry Leadership Survey. This survey will be used with the youth leaders from the project high schools trainings. The survey will be administered pre and post training using open-ended questions and rating scales for students to self-report knowledge about the importance and benefits of urban and community forests and the students' beliefs about their leadership skills for advocating for urban forests.

3. Advisory Group Interview. This guided reflection can be used as an individual respondents' self written survey or as a guide for a roundtable type discussion. Questions will be designed to capture the self-reported new knowledge about the importance and benefits of urban forests, attitudes about urban forests, and experiences participating in the processes of the project.

A final summary report will document the ability of this model to mobilize individuals and communities to take action for the planning of, and the care and maintenance of urban forests based on their understanding of the benefits of the community forest. The summary will include participant demographics, and comparison of pre-post youth ratings of urban forestry knowledge and leadership skills, and text mining of project surveys to identify both common and unique experiences and attitudes of participants. Text mining or data mining, sometimes called text analytics, refers to a process of retrieving information from text typically by the devising of

patterns and trends through mining tasks such as text categorization. A discussion of the results of the Performance Rubric scores for students' Site Assessment and Site Plans will be included. Other statistical analysis deemed relevant during final program design will be included.

9. Experience/Personnel/Adequacy of Resources

The American Forest Foundation (AFF) is a multi-faceted environmental education and conservation organization. Our staff has over 25 years of expertise in implementing environmental education programs throughout the country. Working at a local level with partner organizations allows us to adapt our program to fit the needs and context of local communities.

The Arbor Day Foundation is another national member of our team. Nature Explore, a program of the Arbor Day Foundation and Dimensions Educational Research Foundation, has been supporting the development of Early Childhood and Elementary School outdoor education sites and activities for years. The Arbor Day Foundation also brings the network of Tree City USA communities for input and outreach.

The local community partners selected for the project have long been working in the areas of urban forestry, environmental education, and natural resource management. Our multiple local partners have a strong presence with the local communities, particularly the Latino community. The community also has a strong "youth voice" presence on the project, with past students playing an active role in the project. They truly are the foundation of this proposal.

In addition to local partners, AFF has also partnered with numerous Federal agencies and conservation organizations including the US Forest Service in which we have been the recipient of several grants in the past. Because environmental education is a major initiative for the organization, AFF has dedicated the appropriate amount of resources to ensure that the project will be executed effectively. For individuals involved in this project, please see the appendices.

10. Budget Justification

The budget narrative table is included in the appendices.