

Strategic Master Plan
For

Tyler Arboretum

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for
Tyler Arboretum

Prepared for

Tyler Arboretum

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Letter from Executive Director

Dear Tyler Arboretum Supporter:

The process of developing a master plan consists of many factors; before an organization can envision its future path, it must first look to the path it has already traveled, as well as take a comprehensive look at where it currently stands. Fourteen years ago, the staff and Board of Trustees recognized the need for such an assessment and in 1996 Tyler's first Strategic Master Plan was completed and approved. The 1996 Plan has served the organization extremely well and we are very proud that over 50% of the Plan's objectives have been completed. Since the last Master Plan, the organization has grown in terms of size, as well as capacity. The operating budget has nearly doubled and several new and vital staff positions have been created. The Arboretum has gained recognition as a leader in the public horticulture field and the communities of the Delaware Valley have become much more aware of the programs and services that we provide. Much of Tyler's successful organizational advancement over the past decade can be traced to the close adherence by the board of trustees and staff to our first Strategic Master Plan.

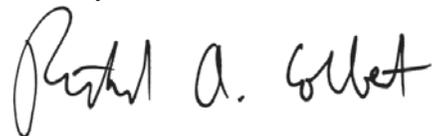
Both the staff and board continue to be truly committed to the planning process. In the 12 years since the last Plan was adopted, the world has dramatically changed and we now are facing issues that were not even on the radar screen in the late 1990s. We realize that in order to continue as a relevant and thriving non-profit organization, we must keep abreast of changes in the world around us and remain flexible in order to take advantage of opportunities as they arise and to positively leverage challenges and threats. We realize that we once again need to step back and assess where we are now and where we need to go to continue to move effectively into the future.

For the past 18 months, the staff and board once again have been engaged in a very thoughtful and comprehensive planning process to build on the successes of the '96 Plan. Under the guidance of Tyler trustee Bill Lorenz and with invaluable input from board, staff, and community members, we focused on developing a vision that defines the direction that Tyler should pursue. The 2008 Strategic Master Plan focuses on a transformation of Tyler into a regional destination site through the enhancement of current exhibits and features and the development of new exhibits. We further recognize the need to create a unique combination of horticultural and ecological themes that will be linked to the Arboretum's collections and exhibits. Our new vision focuses on creating programs and exhibits that utilize the Arboretum's plants and ecosystems in order to assist our varied audiences to become better stewards of the earth.

As a result of your support and the leadership of the board of trustees, much has been accomplished since the adoption of the first master plan. The future, as delineated by the goals of the 2008 Strategic Master Plan, holds a great deal of promise. However, as I noted in the 1996 Master Plan, "the Plan will evolve and be implemented as funds permit and, periodically, it will be revisited as needs and climate change." The Arboretum leadership remains committed to preserving this special place of 650 acres in Delaware County and this document provides the blueprint for all future growth.

This is truly an exciting time for Tyler Arboretum. We are very grateful for your interest in and commitment to Tyler and we look forward to working with you as we begin to implement the recommendations contained within the 2008 Strategic Master Plan.

Sincerely,



Richard A. Colbert

Executive Director

Letter from President of the Board

Dear Friends of Tyler:

The document in front of you sets challenging goals for Tyler Arboretum – goals that, when met over the next decade, will sharpen and solidify the new, unique vision of Tyler as a regional destination site featuring a “scenic loop” of exhibits that integrate horticultural and ecological themes designed to encourage visitors to be better stewards of the earth through the use of plants.

In addition to their fiduciary and fundraising responsibilities, the Board of Trustees is charged with helping plan Tyler’s journey and ensuring that the organization stays on track or makes the appropriate adjustments to the original strategy. I commend the Arboretum’s Board of Trustees for their diligence and determination displayed during the planning process that has resulted in this new vision for Tyler.

Trustees attended many meetings, reviewed informational and draft documentation, and engaged in considerable discussion while coming to a consensus for and a commitment to the Strategic Master Plan. Trustee Bill Lorenz deserves special mention for his invaluable help framing and facilitating the planning process.

Tyler’s trustees are now charged with putting on their fundraising hats and joining the staff to seek support for the exciting goals set forth in the plan. I am confident the Arboretum’s vision is compelling and of immense value to the surrounding communities in the Greater Philadelphia region, and that funders and donors will react favorably to our plan.

I know Tyler’s Board of Trustees is pleased and invigorated by the planning process and the goals and vision detailed in the finished guiding document. Again, my personal appreciation to the trustees for their due diligence and open-mindedness. Also, I would like to express, on behalf of the Board, our appreciation for the support and commitment of the Arboretum’s dedicated supporters and friends, who have made it possible for Tyler to dream, plan, and implement a new vision and direction.

Sincerely,

Christopher P. Marr

President

Acknowledgements

Tyler Arboretum would like to extend grateful appreciation to all of those that participated in the planning process. Numerous meetings and conference calls were held since we began the update of the 1996 Strategic Master Plan in 2006. The input and feedback provided invaluable insight allowing the Arboretum to develop a strong consensus on the future direction. A special note of gratitude is extended to Mr. Bill Lorenz, board member, who provided critical support and guidance in the development of the Plan.

Tyler Arboretum Staff

Mary Bleecker, Andrew Brundage, Suzanne Clauser, Rick Colbert, Barbara Conn, Lynne Cunningham, Chris Hackler, Ashley Harwi, Robert Herald, Carla Hetzel-Neigh, Mike Karkowski, Stella Kavalkovich, Paula King, Sam Lemon, Martha Moore, Betsey Ney, Annemarie Rapp, Janice Schell, Beverly Sizgorich, Matthew Tornabe, Mary Veale, Maria Wanenchak, Kirsten Werner, Jeff Wilson, Barbara Young McAvinue

Board of Trustees

Stephen Byrne, Jeffry Cadorette, John Colburn, Jr., Matthew Doyle, James Flandreau, Mac Given, Duane Hedlund, Jason Ingle, Robert Kunz, Nicholas Lippincott, William Lorenz, Christopher Marr, Molly Rouse-Terlevich, William Schmidt, Jr., Gary Smith, Jeffrey Stopford, Judith Strine, Timothy Sullivan, Donna Weidel, Frederick Wood

Thought Leaders

Natural Lands Trust, Bartram's Garden, Bowman's Hill Wildflower Preserve, Schuylkill Center for Environmental Education, Morris Arboretum, Rocky Run YMCA, Adkins Arboretum, Delaware Nature Society

Volunteers

Richard Baca, Jon Bauer, Paula Blessley, Lois Brooks, Dick Cloud, Louise DeCecco, Carolyn Doerfler, Beth Fast, Betty Fink, Emile Four, Pam Harper, Marilyn Keller, Wayne Keller, Linda Lorenz, Alan Mennig, Barbara Mennig, Jack Nixon, Doug Robinson, Steve Tessler, Pat Vault

Executive Summary

The 1996 Strategic Master Plan truly provided the blueprint for growth and success for Tyler Arboretum over the past twelve years. In total, more than 50% of identified Strategic Master Plan goals have been completed since 1996.

Recognizing that the non-profit world and economic climate has dramatically changed over the past decade, Tyler's trustees and staff committed in 2006 to the process of updating the Strategic Master Plan to position the organization for the next 10 to 15 years. The Strategic Master Plan update process was initiated in the spring of 2006 to clearly define the mission and vision of the organization as it adapts to a changing societal and economic climate.

Tyler began the new planning process by identifying eight local peer organizations that the planning team considered "thought leaders" - institutions that exemplified forward thinking leadership and best practices. These thought leaders are Natural Lands Trust, Bartram's Garden, Bowman's Hill Wildflower Preserve, Schuylkill Center for Environmental Education, Morris Arboretum, Rocky Run YMCA, Adkins Arboretum, and Delaware Nature Society. Staff and board members participated in site visits, meeting with key staff to gain valuable insights relevant to our planning process. In addition to these site visits, the Arboretum conducted a series of focus group meetings with Tyler staff, Board, volunteers, and members. Viridian Landscape Studio served as the lead consultant to assist the Arboretum in the development of the Master Plan. The consultant team included experts in storm water management, historic building preservation, ecosystem management, and marketing.

The 1996 Plan continued to serve as the foundation for Tyler's future growth. The seven Guiding Principles that were developed at that time, and that are integral to Tyler's identity and values, are included in this update. In addition to Tyler's mission, which was updated and is "to preserve, develop, and share our diverse horticultural, historical, and natural site resources in order to stimulate stewardship and understanding of our living world," a new vision was identified. The vision states: "We will create a unique horticultural and environmental destination that reconnects individuals with nature and provides knowledge and inspiration to help them reduce their environmental impact."

During the planning process, four "core" concepts or pillars were identified that must become a priority if Tyler Arboretum is to reach its full potential. These pillars represent institutional mandates, which were generated by the staff and board with additional input from the larger community, and which are the specific mandates for the programs and physical development of the Arboretum. These core pillars must be addressed in an integrated and cohesive manner since they support the mission and vision of Tyler.

Destination: Establish the Arboretum as a premier regional attraction by creating new and enhanced exhibits and expanding visitor services.

To tie the various exhibits together and create a site that is diverse yet accessible and navigable, the plan calls for a Scenic Loop that moves visitors from a new visitor center through the array of exhibits, giving them the opportunity to navigate all of the exhibits or easily visit selected destinations. The Scenic Loop also facilitates physical management of the Arboretum by allowing maintenance vehicles access to the exhibits while ensuring that the exhibits are minimally disturbed. The creation of the scenic loop, new visitor center, new exhibits and enhancement of the existing horticultural collections allows Tyler to position itself as a premier destination for horticulture and nature.

Preservation: Preserve its lands and historic legacy for future generations.

The plan calls for a thematic reorganization of the historic buildings to allow visitors to interpret and understand the historic landscape of the Arboretum as a whole. Suggestions for a barn renovation have been reevaluated and reexamined. By building a new center that houses many of the uses now located in the barn, the barn can be properly renovated and redesigned for formal events such as art exhibits and member and donor events, as well as rentals.

Education: Strengthen the connection between people and nature through learning and inspiration.

As Tyler Arboretum's principal focus, education is addressed and expressed throughout the plan. New exhibits with strong educational components are the Lenape Village and the Teaching Garden. Both of these exhibits mesh well with school group curricula about our national social heritage and issues of resources and biology. As with all the exhibits at Tyler Arboretum, visitors of all ages and abilities can learn and interpret from the exhibit offerings.

Natural Resource Stewardship: Restore and protect our natural resources through best management practices.

From the installation of one plant to an entire collection, to Tyler's place within the watershed, natural resource and horticultural stewardship is key. Natural resource stewardship goes hand-in-hand with education and the mission of the Arboretum. Maintaining plant collections requires a delicate balance of care and knowledge. Disruption to one part of the ecosystem impacts upon all other parts. The deer fence that was installed after the first Master Plan has proven to be a great success with a resurgence of native and diverse species within the 100 fenced acres. Fencing more of the property would be a great step in preserving and restoring the natural and horticultural resources of the rest of the site.

On an institutional level, efforts and resources must be allocated to increasing the organization's ability to secure additional funds. The ambitious but achievable goals will require a commitment by the staff and board to remain focused on development needs. The Board of Trustees will need to assume a greater role in fundraising and the governance structure of the organization must be reviewed. Operational issues must be addressed and funded if the Arboretum is to be truly successful in building the four pillars.

Overall Tyler's horticultural and ecological themes must be linked to the Arboretum's exhibits and collections. Tyler's new vision will center around the concept of helping the Arboretum's audience become better stewards of the earth and ecosystems through the use of plants and sustainable garden and land management practices. Tyler will incorporate and interpret best green practices for all new buildings and infrastructure upgrades and improvements. As a result of becoming a destination site, we expect visitation to significantly increase with a corresponding increase in membership, gift shop, and education program revenue.

Introduction

As was noted in the 1996 Strategic Master Plan: “A master plan is an instrument for purposeful growth and change. Its function is to capture ideas and possibilities, build consensus and plan strategies to meet long-term goals. Without such a plan an institution is often at the mercy of strong individuals with ill-conceived pet projects which do not receive appropriate funding or consistent follow through.” Much of Tyler’s successful organizational advancement over the past decade can be traced to the close adherence by the Board of Trustees and the staff to the 1996 Strategic Master Plan. With the plan in place, we were able to link all new projects to previous initiatives, as well as ensure that fundraising, staffing, maintenance, and education needs were addressed. In times of challenges, the plan also provided a solid base when encountering the unexpected.

In total, more than 50% of the projects identified in the first Strategic Master Plan goals have been completed since 1996. These projects include the core area perimeter deer enclosure fence, the Stopford Family Meadow Maze, comprehensive interpretative and directional signage, and construction of a new Visitor Center. Progress has also been made on several other capital projects that were recommended in the 1996 plan including: Native Woodland Walk improvements, Pink Hill and North Woods restoration, and Rhododendron Collection renovation.

In addition to these capital improvements, the 1996 plan also focused the Arboretum’s staff and board of trustees’ efforts in expanding funding and financial development, public outreach, and education and interpretation. To date, the Arboretum has increased funding from foundations, created a new fundraising event that nets over \$80,000, created a planned-giving society, hired a public relations coordinator, increased the number of events, introduced the concept of temporary exhibits, expanded adult educational programs, created family-oriented educational activities, and created a new full-time youth education coordinator position.



Tyler Arboretum, like all nonprofits, faces stiff competition. In order to thrive and grow, we must develop a clear vision so that we can attract visitors and donors. The 1996 Plan provided a blueprint for linking Tyler's horticultural legacy with the historical and environmental components found on the property. In 12 years, much progress was made crafting a more cohesive vision. The refined vision developed in the 2008 Plan will truly enable Tyler to more effectively respond to the needs of the community as a dynamic and relevant Delaware Valley destination.

Under the leadership of Tyler Trustee, Bill Lorenz, we compiled a list of eight local peer institutions that we identified as thought leaders; organizations that were forward thinking with a clearly defined vision and that met the needs of their constituents. Staff and board members visited each site to gain a perspective on the issues these organizations face, as well as to identify best practices. The information from these interviews proved invaluable and was provided to the Master Plan consultant team. The organizations included public gardens, nature centers, a land conservation agency and a YMCA.

After completing these visits, we directed our efforts to assessing Tyler's strengths and weaknesses. Facilitated meetings were held with staff, board, and volunteers in order to secure a more complete understanding of the "State of the Arboretum." As we began talking with stakeholders, we once again found that Tyler Arboretum is a very special place. The legacy of the property is an extraordinary one. There was a strong consensus on continuing the efforts to upgrade the quality of the site and the experience without changing its character. There was clear consensus on the strengths, weaknesses, opportunities, and threats that face Tyler. Although progress has been made in addressing deferred maintenance, and improving our visitor services, Tyler still needs to address issues such as limited facilities, inadequate circulation systems, and developing and presenting exhibits that will attract visitors.

In the early fall of 2006, Tyler Arboretum issued an RFP, seeking proposals for a qualified professional consultant team to work with project stakeholders to develop an updated strategic master plan. After a stringent review process, Viridian Landscape Studio was selected as the lead consultant. In addition to the staff of Viridian, the design team was represented by Cahill Associates (storm water management), SMP Architects (historic building preservation), Schultz & Williams (marketing and development), Dr. Roger Latham, (ecosystems management), and Tyler's Horticulture Committee (horticulture).



Sketch plan prepared during team workshop.



Team meeting discussing plans and opportunities. (image by VLS)

Introduction

Building on the foundation created by the 1996 Plan, this report preserves and includes the seven Guiding Principles that were articulated 12 years ago. These major underlying assumptions continue to be relevant and provide a strong framework. Tyler’s mission has remained unchanged, but a current vision was identified that will guide our efforts for the foreseeable future.

The 2008 Strategic Master Plan is organized into four Core Pillars that will be supported by the growth and development of our institutional capacity. The first Pillar is to transform Tyler into a regional destination site through the enhancement of current features and the development of new exhibits. The creation of a “Scenic Loop” path, which would serve as the Arboretum’s “backbone,” would enable visitors and staff to easily navigate the property within the fence. Expanded parking and a new visitor center, which will also house administrative and education staff and programs, will serve as a gateway to the Arboretum. Additional initiatives within this initiative include Habitat Gardens, a new Butterfly House and adjacent Pollinator Garden, and a Tree House/Canopy Walk, as well as the enhancement of existing horticultural exhibits. Finally, Tyler will continue to develop temporary exhibits.

The second Core Pillar focuses on the Preservation of Tyler’s historic heritage. Initiatives include redesigning the landscape of the Historic Core Area, new interpretive exhibits about the Arboretum’s history, and restoration and adaptive re-use of historic buildings. The third Core Pillar centers on Education and enhanced programming for schools, children, and adults through the development of innovative educational on-site programs and outreach efforts. In addition, two educational site initiatives are identified: the development of a Lenape Village to strengthen our school field trip program, as well as serve as a visitor destination; and an intensively managed Teaching Garden, which will focus on sustainable food production, botany, and ecological interactions.



Team meeting discussing plans and opportunities. (image by VLS)

The fourth Core Pillar relates to natural resource stewardship. In addition to continuing restoration and enhancement efforts in the Native Woodland Walk, Pinetum, and Serpentine Barren, new initiatives call for the development of three new key ecological exhibits: North Meadow Wetland Garden, North Woods Restoration, and Rocky Run Wetland Exhibit. All of these will be sustained through research in partnership with allied organizations and the implementation of sound ecological and sustainable management practices.

In addition to these Core Pillars, the Arboretum must address organizational capacity issues on both the staff and board level. The four pillars are built upon a foundation that in this case is Tyler's organizational capacity. The foundation must be strong enough to support the Pillars. The organizational capacity of the institution must be systematically strengthened prior to building the four Pillars.

The consultants for the 1996 documents stated that, "A master plan is a fruit that ripens slowly over the years. It is a process which will need constant recommitment and redefinition on the part of this institution, the board and the staff and all of those concerned with a healthy and dynamic future." As is often the case, the plan will be realized in increments as funds permit, but each initiative suggested is part of an overarching vision for a site that creates better stewards of the earth through the use of plants. We believe that these recommendations will gradually transform Tyler Arboretum, allowing it to become a vital community resource that is respected both regionally and nationally.



Team site visit: Learning about Tyler Arboretum and discussing potential goals for the future (image by VLS)



Team site visit: Learning about Tyler Arboretum and discussing potential goals for the future (image by VLS)

Guiding Principles

The 1996 Strategic Master Plan developed the following overarching principles which “reflect the strong agreement about the major underlying assumptions which should guide any development at Tyler Arboretum – large or small.” During the current planning process, the guiding principles were reviewed and discussed. A few minor changes were made to reflect the new vision and direction. The guiding principles provide critical continuity for the Arboretum and the revised principles are stated below.

1. The property must be preserved intact and maintain a special sense of sanctuary.

The property is a block of land that has remained largely intact and within the ownership of the same family for 350 years. It represents high quality open space, unusual natural areas and significant stretches of unbroken forest interior.

2. Tyler Arboretum must preserve and enhance its character as a unique horticultural and environmental destination.

At Tyler Arboretum, it is not just the place that is unique, but the experience of the place. While difficult to fully define, this experience is a blend of a sense of informality and the freedom to discover the place on one’s own with a sense of quietude and spirituality. The size of the property and the diversity of its components allows a wide range of visitors to enjoy the property and find their own place within it.

3. Tyler Arboretum must capitalize on its unique strengths.

Tyler has a number of significant resources:

- A large, unbroken area of land preserved largely intact since early European settlement.
- A rich history represented by: the buildings, furniture and documents; the collections; the agricultural landscapes; and the natural areas.
- The collections viewed as a scientific and horticultural resource.
- The natural areas, such as Pink Hill and the North Woods, viewed as significant ecosystems.
- The regional connections with Philadelphia area botanical institutions-especially the long-term connection with Swarthmore College.
- The educational program and its connections to area schools and colleges.
- A devoted, talented and resourceful staff.

4. Tyler Arboretum provides a valuable public service to the community which is at the core of its mission.

Tyler Arboretum is a public institution and was founded as a legacy for the future- to encourage “more intelligent and better citizens”- an idea common to both the Painter Brothers and John and Laura Tyler. The economic future of Tyler Arboretum is linked to providing a valued public service that is widely recognized by the community and that generates a broad base of support.

5. Education is the principal focus.

Tyler Arboretum has a long and successful history of providing environmental education to the community. Public education was a central concern of both the Painter Brothers and of John and Laura Tyler. The education program should emphasize “education through discovery” and develop themes which integrate horticulture and ecology.

6. The Arboretum is the primary textbook and acts as a living laboratory; integrating research of best practices with preservation and stewardship.

All environments teach-not just exhibits or designated areas we design specifically for education. Every intervention at Tyler Arboretum including interpretive themes, site organization, path journeys, plant displays, architecture and site management should demonstrate varied and positive relationships to the landscape.

7. Tyler Arboretum should be managed for long-term financial and organizational stability and sustainability.

Managing the arboretum professionally can bring many benefits. Such an approach mandates that Tyler Arboretum develop a visitor focus, create solid strategic planning, appreciate its unique market niche and maximize the full potential of the physical resources and of the staff.



Aerial View of Tyler Arboretum (Image from Google Earth).

Vision & Mission

Vision

We will create a unique horticultural and environmental destination that reconnects individuals with nature and provides knowledge and inspiration to help them reduce their environmental impact.

Mission

The mission of Tyler Arboretum is to preserve, develop and share our diverse horticultural, historical and natural site resources in order to stimulate stewardship and understanding of our living world.

Plan Framework

During the planning process, four “core” concepts or pillars were identified which must become a priority if Tyler Arboretum is to reach its full potential. These pillars represent institutional mandates, which were generated by the staff and board with additional input from the larger community, are the specific mandates for the programs, and physical development of the Arboretum. These core pillars must be addressed in an integrated and cohesive manner since they support the mission and vision of Tyler.

In addition to these core pillars, the Arboretum must address organizational capacity issues on both the staff and board level. The four pillars are built upon a foundation which in this case is Tyler’s “Organizational Capacity.” As noted in the diagram, the foundation must be strong enough to support the pillars. The organizational capacity of the institution must be systematically strengthened prior to building the four pillars. The core pillars are as follows:

Destination: Establish the Arboretum as a premier regional attraction by creating new and enhanced exhibits and expanding visitor services.

Preservation: Preserve its lands and historic legacy for future generations.

Education: Strengthen the connection between people and nature through learning and inspiration.

Natural Resource Stewardship: Restore and protect our natural resources through best management practices.

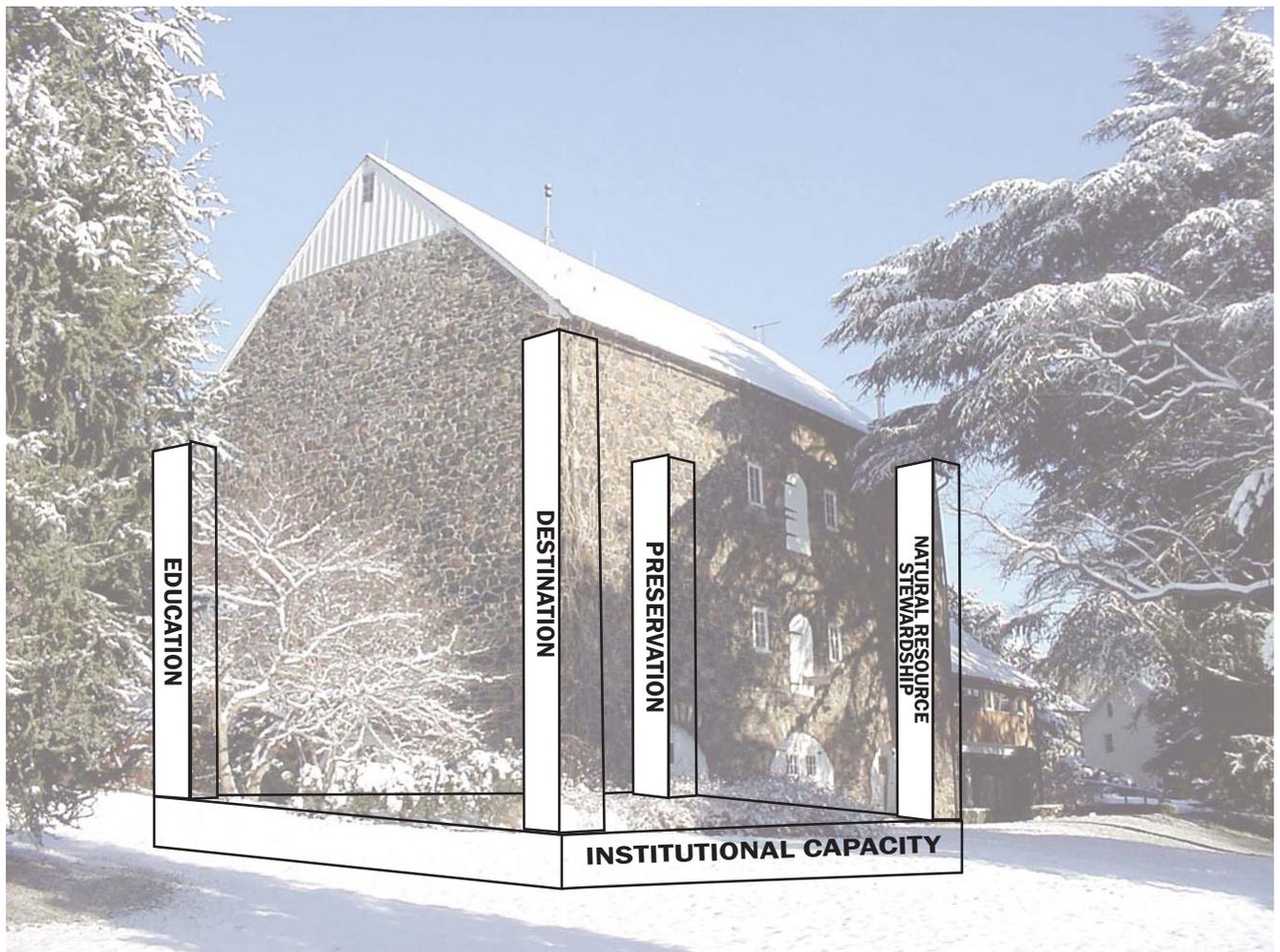
To tie the various exhibits together and create a site that is diverse yet accessible and navigable, the plan calls for a Scenic Loop that moves visitors from a new visitor center through the array of exhibits, giving them the opportunity to navigate through all of the exhibits or easily visit selected destinations. The Scenic Loop also facilitates physical management of the arboretum, by allowing maintenance vehicles access to the exhibits while ensuring that the exhibits are minimally disturbed. The creation of the scenic loop, new visitor center, new exhibits and enhancement of the fabulous existing collections allows Tyler to position itself as a premier destination for horticulture and nature.

The plan calls for a thematic reorganization of the historic buildings to allow visitors to interpret and understand the historic landscape of the Arboretum as a whole. Suggestions for barn renovation have been reevaluated and reexamined. By building a new center that houses many of the uses now located in the barn, the barn can be properly renovated and redesigned for formal events such as art exhibits, member and donor events as well as rentals.

As Tyler Arboretum’s principal focus, education is addressed and expressed throughout the plan. New exhibits with strong educational components are the Lenape Village and the Teaching Garden. Both of these exhibits mesh well with school group curricula about our national social heritage and issues of resources and biology. As with all the exhibits at Tyler Arboretum, visitors of all ages and abilities can learn and interpret from the exhibit offerings.

From the installation of one plant to an entire collection, to Tyler's place within the watershed, natural resource and horticultural stewardship is key. Natural resource stewardship goes hand in hand with education and the mission of the arboretum. Maintaining plant collections requires a careful balance of care and knowledge. Disruption to one part of the ecosystem impacts upon all other parts. The deer fence which was installed after the first master plan has proven to be a great success with a resurgence of native and diverse species within the 100 fenced acres. Fencing more of the property would be a great step in preserving and restoring the natural and horticultural resources of the rest of the site. Additionally, Tyler should explore partnering with Ridley Creek State Park to work on restoring Rocky Run stream corridor.

On an institutional level, efforts and resources must be allocated to increasing the organizations ability to secure additional funds. The ambitious but achievable goals will require a commitment by the staff and board to remain focused on development needs. The Board of Trustees will need to assume a greater role in fundraising and the structure of the governance of the organization must be reviewed. Operational issues must be addressed and funded if the Arboretum is to be truly successful in building the four pillars.



Institutional Capacity

In order for the Arboretum to reach the ambitious goals outlined in this plan, significant efforts must be allocated to addressing institutional capacity. New staff will be required and additional funding will be needed for various operational systems. The board of trustees will need to grow and strengthen if the Arboretum is to secure the funding required to make the master plan recommendations a reality. Institutional capacity represents the foundation upon which the four Core Pillars (Destination, Education, Preservation, and Natural Resource Stewardship) rest. Without strengthening institutional capacity, the pillars will not be able to withstand the challenges that will undoubtedly be encountered in the future.

Board of Trustees

Tyler understands that in today's intensely competitive environment, the vitality of the organization depends on attracting outstanding board leadership that is motivated to put forth exemplary performance in financial development.

- Develop a fundraising council that would assist the board in raising additional funds.
- Assure that every Tyler board member is aware of his or her responsibility to commit time, talent, or personal resources to meet the fundraising needs of Tyler Arboretum.
- Continue to recruit board members specifically to help with fundraising.
- Strengthen the Planned Giving Program by committing staff and operational resources in order to secure additional pledges and commitments. Initiate conversations with all trustees regarding their estate planning in relation to supporting Tyler.
- Strengthen the Development Committee to increase the fundraising capacity of the organization.
- Replace the Nominating Committee with a new Board Development Committee. In addition to securing the best possible board members, this new committee will also be charged with addressing ongoing board issues such as governance, board expectations, board training, and board succession.

Staffing

Tyler is justly proud of the consistent high level of professionalism and performance displayed by the Arboretum's staff in all departments. Tyler also recognizes that the staff needs additional support at this juncture in order to respond to the coming challenges and goals delineated in the Strategic Master Plan.

1. Take steps to maximize the efficiency and well-being of staff
 - Hire a weekend security officer in order to significantly reduce the amount of weekends that full-time staff must work.
 - Increase the amount of matching funds for Tyler's 401 (k) program.
 - Secure additional funds to expand the duties of the cleaning service.
 - Provide additional financial support for IT and training needs.
2. To ensure that staff has the resources to operate efficiently and safely, secure funding to address deferred maintenance needs.
 - Develop a capital replacement schedule for all capital items and secure funding for these needs.
 - Secure funding for all currently identified equipment that must be replaced.

Estimated Capital Cost: \$500,000

Endowment: \$10,000

3. Increase the staff capacity of the Arboretum.
 - To assure that the Executive Director has the time to concentrate on his core responsibilities, create a business manager position to assist in accounting and financial management.
 - Convert the part-time communications coordinator to a full-time position.
 - Convert the part-time volunteer coordinator to a full-time position.
 - Hire additional horticulture staff to assist in the care of the collections and exhibits.
 - Continue to build a flexible and knowledgeable core of part-time educators to meet the needs of expanding programs.
4. Consider creating a consulting service on environmental or horticultural issues.
 - Create a business plan prior to launching a consulting effort.

Operational Resources

Tyler understands that in today's intensely competitive environment, the vitality of the organization depends on attracting outstanding board leadership that is motivated to put forth exemplary performance in financial development.

- Due to new insurance regulations, staff can no longer climb trees to perform arborist duties. Therefore, we must increase the amount of funds allocated yearly to tree work.
- Current horticultural staff allocates a considerable amount of time to mowing of turf. Utilizing an outside contractor to mow would allow the horticultural trained staff to concentrate on maintaining the collections and exhibits.
- Limited funds are currently allocated for marketing and promotional purposes. As the Arboretum increases its community profile, additional fund will be required to increase the awareness of Tyler and its programs.
- The Arboretum needs to conduct a professional visitor survey in order to identify potential concerns as well as opportunities to pursue new directions.
- Limited funds are currently allocated to maintaining the natural areas. In order to address issues such as the spread of invasive plant species, additional resources will be required.
- Adequate funds are currently budgeted for staff development and training. As the organization continues to grow, additional resources will be required in order to properly train staff.
- The Arboretum needs to update several technologies, including, a Point of Sale system for the Gift Shop, new GPS equipment to survey the collections, and various audio and visual equipment.
- Due to lack of indoor space in the Maintenance Building, several pieces of important equipment are stored outside. We are also in need of storage bins to house bulk items such as mulch, stone and other items. A new pole barn and storage facilities are needed at the Maintenance Building to solve these issues.

Foundation

Organizational Development

Organizational Development - In order for the Arboretum to reach the ambitious goals outlined in this planning document, significant efforts must be allocated to increasing the organizations ability to raise additional funds. Progress is being made however, additional resources must be allocated for new development staff and the board of trustees will need to assume greater fundraising responsibilities.

1. Make every Tyler board member aware of his or her responsibility to commit time, talent, or personal resources to meet the fundraising needs of Tyler Arboretum.
2. Develop a fundraising council which would assist in raising additional funds.
3. Review and update board expectations for all board members and establish goals and responsibilities for board members.
4. The Nominating Committee needs to assume a development perspective and approve a job description for board members that will clearly spell out the fundraising responsibilities of current, new and potential board members.
5. Continue to recruit board members specifically to help with fundraising.
6. Establish a governance committee to review the current model of governance for the Arboretum.
7. Strengthen the Planned Giving Program by committing staff and operational resources in order to secure additional pledges and commitments.
8. Strengthen the Development Committee.

Administrative Structure and Operations (Describe the needs in accounting, Networking of computers, Additional marketing and public relations efforts, Address deferred maintenance needs, Create weekend security staff position, Cleaning service, etc

1. Take steps to maximize the satisfaction and efficiency of staff
 - Hire a weekend security officer
 - Review 401(k) plan and provide additional resources to increase Tyler's match.
 - Network all computers at the Arboretum.
 - Secure additional funds to expand the duties of the cleaning service.
 - Provide additional financial support for IT needs.
2. Secure funding to address the deferred maintenance needs.
 - Develop a capital replacement schedule for all capital items and secure funding to replace equipment.
 - Secure funding for all currently identified equipment that must be replaced.
3. Build the capacity of the Arboretum.
 - Hire a business manager to assist in accounting.
 - Convert part-time communications coordinator to a full-time position.
 - Secure baseline funding for temporary exhibits.
 - Secure baseline funding for ongoing arborist work.
 - Convert part-time volunteer coordinator to a full-time position.
4. Consider creating a consulting service on environmental or horticultural issues.
 - Create a business plan prior to launching a consulting effort.

Maintenance Center

Estimated Capital Cost: \$900,000

Endowment: \$250,000

Infrastructure Needs

1. Maintenance Roof- Current roof is 13 years old and needs to be replaced. Estimated cost \$30,000 to \$40,000.
2. Pole Building and Storage Bins - A pole barn allows equipment such as wagons to be "A stored under cover. Storage bins for mulch, sand, stone and other materials are required. Estimated cost for both projects \$25,000.
3. 4-Wheel Drive Dump Truck - The current dump truck is a 19:H Chevy 2 wheel drive model. Estimated cost \$30,000.

Operational Issues

1. IT Support- We currently do not have enough funds allocated for IT support. Additional funds estimated of \$12,000 per year would be required to establish adequate technical support.
2. Cleaning Service- The current budget includes\$11,000 for a cleaning service. Public Restrooms are cleaned only twice a week and other public areas are cleaned even less frequently. Estimated additional expense to provide more inclusive cleaning service \$5,000 to \$10,000 per year.
3. Arborist Funding- The 2007 budget includes\$3,000 for contractual tree work. Due to insurance regulations, we must contract tree work. Additional allocations of \$15,000 per year are required in order to provide adequate care.
4. Contract Mowing - Staff members currently perform all mowing. Having a contractor handle mowing would allow staff to concentrate or horticultural efforts. Cost to hire a contract mowing firm \$30,000.
5. Educational Registration Software - Registration for all educational programs is now handled via pen and paper. Estimated cost for software and hardware is \$7,000.
6. Marketing FIR Funding - Current budget does not include any funds for marketing or promotional projects. Baseline funding of \$15,000 - \$30,000 per year will be required in order to initiate a public awareness program.
7. Temporary Exhibit Funding - For each temporary exhibit; we must raise all required funds for each exhibit. Securing a baseline of funding to cover a portion of the expenses is required in order to include the frequency of temporary exhibits. Between \$15,000 and \$25,000 are required for each exhibit.
8. Development funds are required to acquire professional programs such as wealth engine, Planned Giving brochures etc. Estimated cost \$6,000 to \$10,000 per year.
9. Visitors Survey- A professional visitor survey must be conducted. Estimated cost \$30,000to \$40,000.
10. Invasive Control including Burning - Additional funds should be allocated to contract a firm for control of invasive plants. Between \$5,000 - \$15,000 is required per year.
11. Staff Development - Additional funds are required in order to provide appropriate opportunities for training and staff development. Estimated cost \$6,000 to \$10,000.
12. Plant Acquisitions- Currently \$1 ,500 is budgeted to purchase plants for the collection. An additional \$4,000 per year is required.
13. Staffing - List by department the additional staffing needs.
14. Point of Sale System - Purchase of system to capture sales and visitation data. Estimated cost
15. Technology Equipment - LCD projector and associated equipment, Estimated cost \$3,000.
16. GPS Equipment- Purchase of survey equipment and hardware. Estimated cost \$4,000.
17. Network all buildings - Estimated cost \$30,000.

Core Pillar

Destination: Establish the Arboretum as a premier regional attraction by creating new and enhanced exhibits and expanded visitor services.

Destination Overview

Tyler will position itself as a regional destination of choice. Tyler's horticultural heritage led to the formation of the Arboretum, beginning with the Painter brothers and continuing through the development of the Wister Collections and current ecological exhibit plantings. With the continuing development in the region, Tyler's natural areas of woodlands, meadows and streams are an increasingly valuable community resource. The creation of a scenic loop, new visitor center, new exhibits, and enhancement of the regionally and nationally significant existing collections allows Tyler to position itself as a premier destination for horticulture and nature.

Destination Goals

1. Provide for enhanced visitor experience through visitor services such as adequate parking, expanded visitor center, accessible paths and exhibits, clear wayfinding, and visitor amenities such as additional restrooms and benches. Develop natural areas to showcase horticultural heritage and ecological stewardship. Programs: Offer compelling programs to increase value and extend the visit.
2. Create a mix of permanent and temporary exhibits and facilities that attract broad audiences and enhance revenue opportunities.
3. Offer compelling programs to increase value and extend the visit.
4. Highlight opportunities to reconnect with, and learn about, nature and horticulture through passive recreation.

Key Elements to Fulfill the Vision

- Scenic Loop Path
- New Visitor Center/New Parking
- Visitor Services
- Destination Exhibits
 - Habitat Gardens
 - Butterfly House & Pollinator Garden
 - Treehouse & Canopy Walk
 - John C Wister Rhododendron Garden
 - Painter Tree Exhibit
 - Stopford Family Meadow Maze
 - Wister Collections, Fragrant Garden & Other Collections
- Temporary Exhibits



(Image from Tyler Arboretum)



(Image from Tyler Arboretum)



(Image from Tyler Arboretum)

Core Pillar - Destination

Visitor Services

Project Description:

As Arboretum visitation has increased and our programs continue to grow, visitor services must serve the needs of our audience so that they feel comfortable and welcome, and encouraged to revisit Tyler.

Project Goals

- Enhance or create basic visitor amenities:

Provide adequate and accessible restroom facilities in key areas. Priority locations are the new Visitor Center and the Barn. Possible supplemental sites are the White Cottage, and possibly the Pinetum and Rhododendrons.

Provide conveniently located picnic facilities.

Develop a plan for bench locations throughout the Arboretum to serve as rest areas for those that need it, as well as areas for contemplation and renewal.

Consider mobility assistance aids such as appropriate strollers, motorized carts or wheelchairs.

- Improve the wayfinding system so that visitors can easily navigate the property without the concern of becoming lost.
- Rental Facilities: Develop garden areas for wedding ceremonies and photo opportunities

Core Pillar - Destination

New Entrance & Parking Lot

Project Description

The entrance drive is redesigned to provide a graceful transition between the outside community and the Arboretum. It clarifies vehicular circulation to the main visitor services and to the maintenance building area. Additional visitor parking both formalized and overflow is provided. The driveway is set within an enhanced cherry collection and leads to the new parking lot set within a collection of flowering trees. Views to the maintenance building are screened. Overflow parking is located at the northern edge of the meadow extension of the North Meadow Wetland Garden.

Project Goals

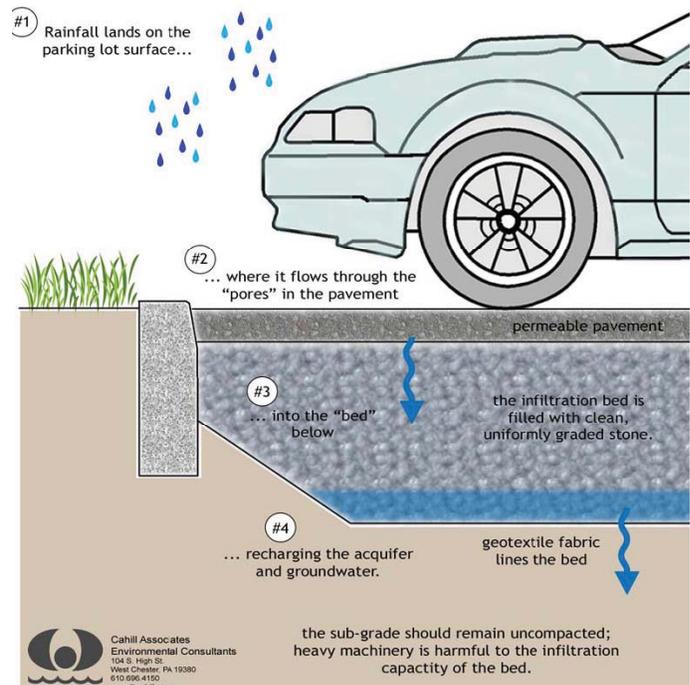
- Provide a new access point into the Arboretum.
- Provide and demonstrate sustainable stormwater management for both existing and new construction.
 - i. Install infiltration swales and depressions adjacent to the existing parking lot.
 - ii. Use porous pavement on roads and new parking lots.
- Provide 100+/- additional parking spaces in addition to the 40 existing spaces.
- Stabilize 100+/- overflow parking spaces to stop soil compaction and to demonstrate sustainable stormwater management.
- Partner with Penn State University and other neighboring institutions to share overflow parking during major arboretum events.

Educational Themes

- Develop interpretive signs and programs about the importance of permeable paving and other techniques for ameliorating storm water runoff.
- Use the parking lot plantings to discuss the selection and management of appropriate trees and plants for urban and roadside growing conditions.

Estimated Capital Cost: \$1,000,000

Endowment: 10,000



Section diagram of permeable paving parking lot (image by Cahill Associates).

Core Pillar - Destination

Butterfly House / Pollinator Garden

Estimated Capital Cost: \$1,100,000

Endowment: 500,000

Project Description

Set within the native grasses, wildflowers, and shrubs of the North Meadow Wetland Garden, the Butterfly House/Pollinator Garden will provide a stunning new exhibit that anchors the west end of the Arboretum. Featuring native plants and butterflies, this exhibit provides an in-depth look at life cycles and interrelationships of both plants and insects. From egg to larva to pupa to adult, the butterfly's life will be celebrated highlighting each stage's environmental and dietary needs.

One possible vision for the Butterfly House is that of a remnant historic foundation. This structure would be covered during portions of the summer while housing caterpillars and butterflies for close visitor observation and uncovered for the rest of the year.



(images by Tyler Arboretum)



The Butterfly House at Hershey Gardens in Hershey, Pennsylvania (image by Tyler Arboretum).



The Butterfly House at the Missouri Botanical Garden. (image from www.butterflyhouse.org).



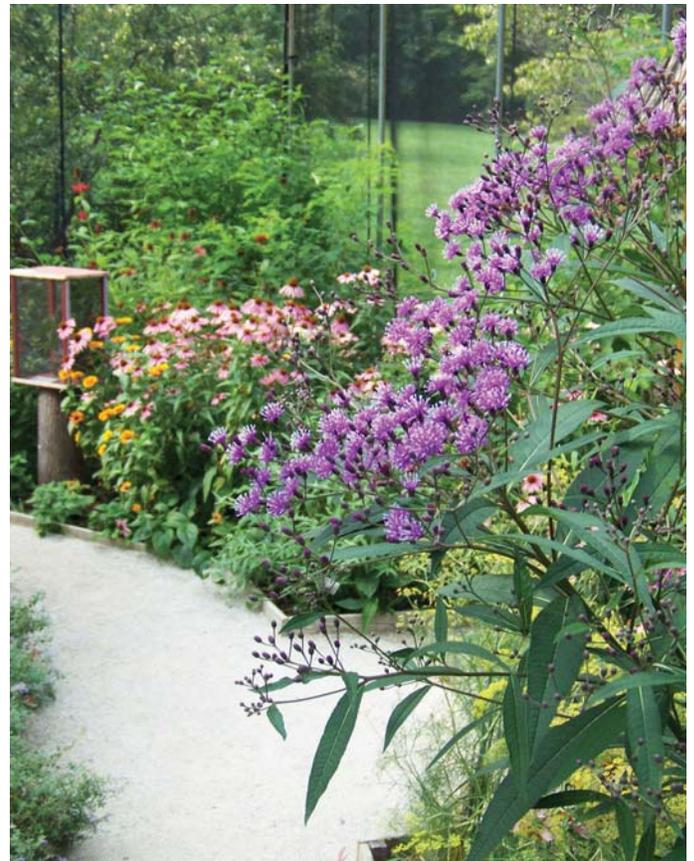
The Butterfly House at the Missouri Botanical Garden. (image from www.igougo.com).

Project Goals

- Capitalize on the success of the current temporary Butterfly House
- Design a permanent Butterfly House Structure (possibly a historic ruin) to house butterflies during the summer months.
- Create a Pollinator Garden adjacent to the Butterfly House with a variety of grasses, wildflowers and shrubs that are integral to the life cycle of butterflies and other pollinators.
- Provide homeowners with an alternative planting option other than lawns.
- Develop interpretative materials such as signs and brochures to enhance and inform the visitor experience.

Educational themes

- Plant and butterfly symbiosis with emphasis on the importance of larval food host plants.
- Butterfly life cycles and habitat needs.
- Range of pollinators and the critical role that they play in enhancing biodiversity.
- Demonstrate sustainable gardening practices.



Inside of Butterfly House at Tyler Arboretum (image by Tyler Arboretum)

Core Pillar - Destination

Scenic Loop

Estimated Capital Cost: \$2,000,000

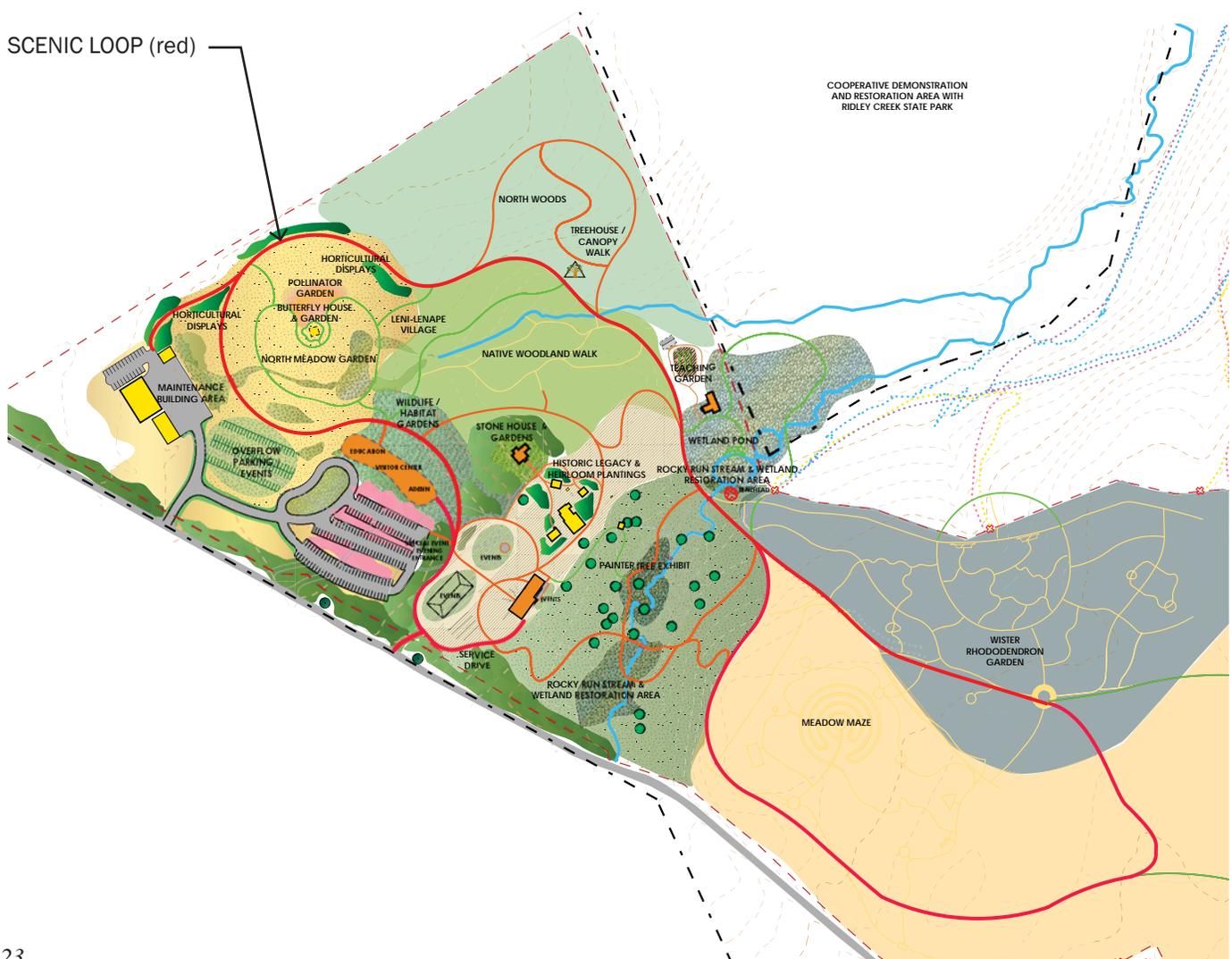
Endowment: \$25,000

Project Description

The 1.5 mile Scenic Loop links all Arboretum exhibits in a clear, meaningful manner. The universally accessible pedestrian path begins at the parking lot and offers visitors a choice to travel west to the North Meadow Wetland Garden, Butterfly House/ Pollinator exhibit and North Woods or east to the historic core and beyond. The Loop is carefully woven into the landscape to allow visitors to experience the breadth and depth of the Arboretum's sunny meadows, shady woods, stream valleys, horticulture collections and historic features. Carefully crafted views reveal the Arboretum in ways not previously possible.

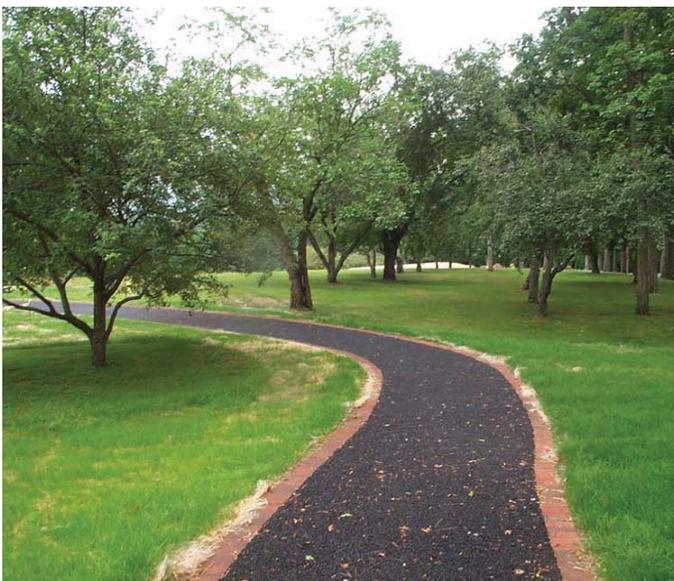
Project Goals

- Create a single path that links the entire Arboretum core area and its exhibits to allow easy visitor navigation. Include three interlocking loops – short, medium, and fully extended – to allow visitors a choice of options.
- Include portions to accommodate service vehicles and pedestrian traffic, and other areas to serve pedestrians and small off road service vehicles.
- Provide ADA access on the Scenic Loop.
- Provide clear access to the secondary exhibit path systems within the fenced area of the Arboretum and to the trail system beyond the fence.
- Craft the Loop to reveal and conceal views to create a dramatic visitor experience.
- Where possible use permeable paving (porous asphalt) to limit storm water runoff and reduce impact on adjacent environment.

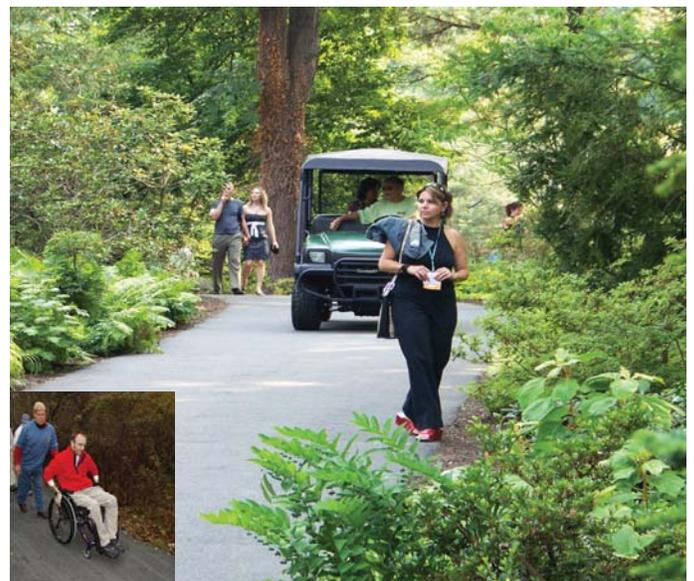




The scenic loop will run along existing key trails and will be laid out to reveal dramatic views. (images by Tyler Arboretum)



A porous pavement pathway at Grey Towers National Historic Landmark, Milford, Pennsylvania. (image by Cahill Associates)



Asphalt scenic loop path at Brookside Gardens. The scenic loop will allow for ease of maintenance and provide a continuous ADA accessible path through the arboretum. (main image by Tyler Arboretum. Inset image from www.dec.ny.gov)

Core Pillar - Destination

New Visitor / Education / Administration Center

Estimated Capital Cost: \$8,500,000

Endowment: 65,000

Project Description

The programming study recommends that the Administration, Education, and Visitor Services functions be combined into a new building, or group of buildings, in order to adequately meet the needs of staff and visitors. The improved facilities for these program elements will provide the access and support that is required for these departments to successfully collaborate to provide for Tyler's current needs and future goals.

The current Visitor Center welcomes and orients visitors, monitors attendance, and offers retail sale merchandise. Originally built as a temporary structure, it is in good condition but it does not meet the current needs of the visitors or staff. There are no public restrooms (visitors are often frustrated to learn that these are located in the Barn) and when attendance is high, there is not enough room and the line for admission extends beyond the entrance. The storage area is very limited; the staff area is too small (and provides no private space); the exhibit area does not accommodate large groups; the retail area has limited display options and is small (a retail plant area is desired); and the food/drink options are too limited. The Visitor Center staff registers individuals for educational programs and ideally would be housed closer to the education staff. The Visitor Center also serves to support special events such as the Spring Plant Sale and Pumpkin Days. The current facility also does not meet the needs of visitors. A larger building is required in order to meet the needs of an organization that is experiencing significant increases in attendance.

Space for educational programs and staff offices within the Barn are inadequate, particularly given the goal of significantly expanding our programs. In addition, the dual use of the Barn space for education and rentals creates conflicts and negatively impacts both programs. Moving educational programs to a new facility designed for this purpose and that is closer to participant parking will allow for expansion and optimal resources.

Tyler's administrative staff is currently located in the historic Lachford Hall. As the organization continues to grow, they too are outgrowing this space. In addition, the working conditions are sub par and infrastructure resources are inadequate.

Project Goals

- Relocate the visitor services into a new structure adjacent to Administration and Education and designed to accommodate numerous program components.

- Relocate the visitor services, administrative staff and education staff and program space into a new structure or adjacent structures designed to accommodate numerous program components.
- Reuse the Visitor Center as flex space while other facilities are being renovated or constructed (consider as temporary volunteer coordination space). Remove the current Visitor Center at a future date after the construction of new facility.
- Consider using Lachford Hall for expanded historical exhibits, storage, and/or staff housing (see Preservation Core Pillar – Historic Buildings and Artifacts, (page 37).
- Adaptively renovate the Barn for use as a multifunctional space (see Preservation Core Pillar – Barn Remodeling, (page 38)
- Garden areas surrounding the new building should demonstrate sustainable practices applied to fine garden design.
- Construct a LEED certified building.

Educational Themes

- Interpret through signage, brochures, and programs, the green sustainable technologies used to create the building.
- Create a space in the Visitor Center for an interpretive exhibit about the Arboretum and the role that it plays in regional biodiversity.



Sandstone Visitor & Orientation Center, New River Gorge National Park, West Virginia. SMP Architects - architect; Viridian Landscape Studio - landscape architect (image by Gregory Benson).



Visitor Center Ogden, Utah (image by Tyler Arboretum).

Core Pillar - Destination

Habitat Gardens

Project Description

An array of new Habitat Gardens will be located adjacent to the new visitor center. The Habitat Gardens will provide an opportunity for homeowners to learn about sustainable horticultural design and practices. The gardens demonstrate how to attract wildlife as well as inform gardeners of the issues associated with invasive plant species. Working with landscape professionals, Tyler will utilize the habitat gardens for educational programs and workshops. The habitat gardens will integrate ecology and horticulture themes in order to create aesthetically appealing gardens.

Examples of Habitat Gardens:

- A shady garden with a water feature fed by stormwater runoff from the building via a detached downspout.
- Garden featuring native plants that tolerate dry soil conditions.
- A site showing homeowners how to create a composting station.
- Garden that attracts birds.

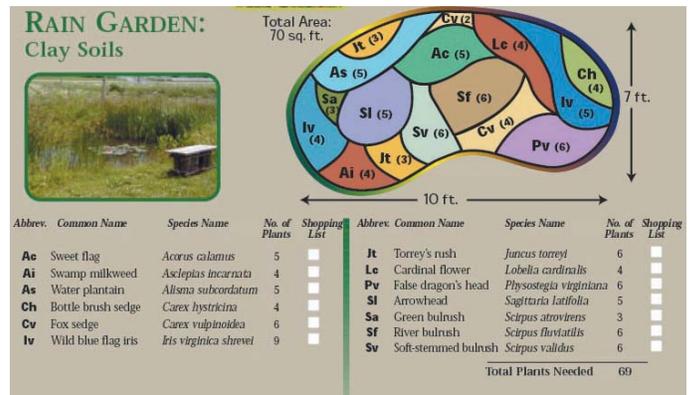
Project Goals

- Strive for both ‘Wow’ experiences of intense bloom and for multi-seasonal interest.
- Complement woody plantings with appropriate low-maintenance and ecologically suitable herbaceous plantings.
- Demonstrate that ecologically positive and sustainable displays can also be beautiful.
- Continue to use horticultural exhibits to enhance the ecology of Tyler and promote biodiversity.

Educational Themes

- Demonstrate the four elements necessary to wildlife survival: food, water, shelter and a place to raise young.
- Provide exhibits in a variety of design styles from highly formal to very naturalistic to demonstrate aesthetic options for homeowners.
- Utilize native plants and teach their ecological importance compared with exotics.
- Include information about invasives and native alternatives.

Estimated Capital Cost and endowment: Incorporated in Visitor Center



Sample Rain Garden Plan (image from Taylor Creek Restoration Nurseries website www.appliedeco.com/tcrn).



(image by Mark Gormel) (image by Mark Gormel)



(image by Rolf Sauer)

Core Pillar - Destination

Tree House / Canopy Walk

Estimated Capital Cost: \$1,900,000

Endowment: \$500,000



Treehouse and canopy walk by Forever Young Treehouses. (image by Forever Young Treehouses)

Project Description

The North Woods, which is located to the north of the Native Woodland Walk, provides an excellent setting for the addition of two new exhibits. The North Woods is approximately 13 acres and it represents a forest that is protected from deer browse and contains mature stands of Tulip Poplar, Beech and Oak species. The Tree House and Canopy Walk could be implemented as two distinct exhibits or one combined experience. In both cases, visitors would be exposed to the wonders of nature's trees in a mature forest with the opportunity to enjoy the quiet power of trees in today's world.

The canopy walk would begin at the top of the ridge and an elevated walkway would extend over the descending hillside. Portions of the walk would be ADA accessible and would lead to a viewing platform and perhaps other interactive features such as rope bridges. Visitors would find themselves traveling amongst the treetops, discovering the remarkable aerial ecosystem rarely seen from their normal ground perspective. Interpretive materials at the viewing platform would be on display allowing visitors to learn more about the tremendous variety of life found in the canopy.

If the tree house is built as a separate exhibit, the structure could be placed at several locations. Tree houses, as was discovered with Tyler's 2008 temporary exhibition, provide an opportunity for youth and adults to come in close contact with nature while serving as a catalyst for imagination and creativity.

Project Goals

- Develop ADA accessible paths to both exhibits.
- Design and construct exhibit using techniques which ensure the health and safety of all trees and demonstrate best practices.
- Develop innovative and interactive interpretative program elements

Educational themes

- Demonstrate the life cycle of trees.
- Share the ecological benefits of trees: shelter and food for wildlife and insects, temperature remediation, water absorption and runoff amelioration, carbon sequestering, role in the ecological web of life.
- Importance of trees to people, how trees are threatened, and actions which homeowners and others can take to protect trees and woodlands

Core Pillar - Destination

Painter Plants

Estimated Capital Cost: \$400,000

Endowment: \$600,000

Project Description

In the 1850s Minshall and Jacob Painter systematically planted over 1,000 trees, shrubs and herbaceous plants on their ancestral farm: sowing the seeds for what was to become Tyler Arboretum. Currently 28 historic trees and shrubs survive and the Arboretum possesses very accurate records on what and where these specimens were planted. The Quaker brothers left a legacy of reverence and respect for the natural world, sentiments embodied by the present-day Arboretum.

The Painter Plant Exhibit would reflect the plans and look of the landscape created by the Painter brothers. Located in the valley between the historic buildings and the Rocky Run Stream, visitors would circulate through the area on an ADA accessible path. Meadow grasses, large swaths of bulbs, and low herbaceous plantings would be featured.

Project Goals

- Continue to propagate Painter plants to maintain germplasm at the Arboretum and to distribute as appropriate.
- Identify the original locations of the Painter specimens using landscape archaeology and use interpretative signs to inform the public of these research efforts

- Recreate portions of the rows that were created by the Painter brothers when re-establishing the plantings.
- Convert mowed turf areas to managed meadow in phased increments. Incorporate meadow grasses, bulb plantings and other herbaceous plantings to recreate a landscape that would represent the site as planted in the 1850s. These efforts will greatly improve the health of Rocky Run by reducing storm water runoff.
- Create an accessible porous asphalt ADA path, which would allow visitors to experience the current and new plantings.

Educational themes

- Share the history of plant collections and displays in the Delaware Valley.
- The Painter brothers' collection focus and original Arboretum planting plan.
- Heritage trees and the importance of stewardship and preservation.
- Provide information on historic landscapes and alternatives to lawn.



(images by Tyler Arboretum)

Core Pillar - Destination

John C. Wister Rhododendron Garden

Estimated Capital Cost: \$1,800,000

Endowment: 1,000,000

Project Description

The Wister Rhododendron garden is an important heritage collection and represents the culmination of the vision of the Arboretum's first director, Dr. John C. Wister, who transformed a 12-acre overgrown forest into a naturalistic garden filled with thousands of exquisite rhododendrons. Primarily planted in the 1950s, the rhododendron collection was Dr. Wister's "testing ground" where he planted thousands of plants, conducted hybridization research, and strived for incomparable colors. The garden currently contains more than 1,500 specimens, many found nowhere else.

Since the completion of a site plan for the garden in 2002, Arboretum staff has made progress in stabilizing the collection, including removing invasive plant species, pruning and removal of trees, as well as documenting and surveying the collection. Remaining work includes the installation of a comprehensive circulation system, educational stations, installation of utilities, and installing additional rhododendrons and other companion plants.

The design recommends a series of gardens as well as several educational stations. In the center of the exhibit, a semi-circular path would be installed creating a "horticultural cathedral" where visitors could enjoy a panoramic view of the garden. The path would be bordered by low stone walls and ample benches would be located around the walkway. Paths would be established throughout the exhibit, enabling visitors to experience a wide variety of rhododendrons that would be appropriate for the home gardener. The major and secondary paths will be designed and placed to improve accessibility with gently graded slopes and paved primary paths.

Project Goals

- Create a major visitor destination, focused on the Wister rhododendron collection, with regional and national significance as a collection and as a designed garden.
- Preserve the integrity of this major plant collection, which represents one of Dr. Wister's most important legacies.
- Reconfigure the path system in a hierarchy of major and secondary paths in order to improve accessibility, as well as wayfinding.
- Provide educational gathering spaces within the garden to facilitate groups without interfering with visitor access.
- Take advantage of the educational opportunities offered by the collection.
- Complement Tyler Arboretum's prevailing sense of place.
- Secure endowment funding in order to hire a full-time

gardener to maintain the garden.

Educational Goals

- Feature the story of Dr. Wister and explain the role of collecting and hybridizing horticultural plants featuring well-known cultivars that he developed.
- With the enhancement of the canopy and herbaceous ground layers, interpret plant associations and natural ecological issues.
- Identify best practices information about rhododendrons and azaleas for homeowners and provide cultural information about how to grow them.
- Develop classes for adults on propagation and use of rhododendrons as garden plants, and for school groups on plant genetics and hybridization



(image by Tyler Arboretum)

Core Pillar - Destination

Stopford Family Meadow Maze

Estimated Capital Cost: \$600,000

Endowment: 400,000

Project Description

Located within the Pinetum, the Stopford Family Meadow Maze was installed in 1998 and covers approximately three acres. The educational message of the exhibit focuses on the interrelationships between plants and animals. Several key components include a labyrinth, educational stations with interpretative signage, a butterfly river, and a raptor roost. The exhibit represents the first new permanent exhibit at Tyler in over 20 years and was created in order to increase visitation to a portion of the Arboretum with low visitation and to take advantage of the natural beauty of the meadow within the Pinetum.

The Meadow Maze has proven to be a popular destination for visitors. However, without a staff member dedicated to the garden, maintenance has been challenging. In particular, the spread of invasive plant species has affected the quality of the meadow and aggressive native and invasive plants have negatively impacted the ability to maintain the butterfly river.

The recommended enhancements will enable staff to address the issues of invasives, as well as increase the destination value of the exhibit.

Project Goals

- Design and develop a meadow management program, including the establishment of a comprehensive program to control invasive plant species.
- Diversify and enhance the meadow maze and surrounding meadows with additional shrubs and herbaceous plants in order to extend the season of interest into the fall.
- Design additional interactive educational interpretative elements that will create greater interest in visiting the exhibit.
- Install mass plantings of woody plants to screen Painter Road from the view of visitors, as well as provide visual interest for those driving along Painter Road.
- Secure endowment funding in order to hire staff to maintain the exhibit.

Education Themes

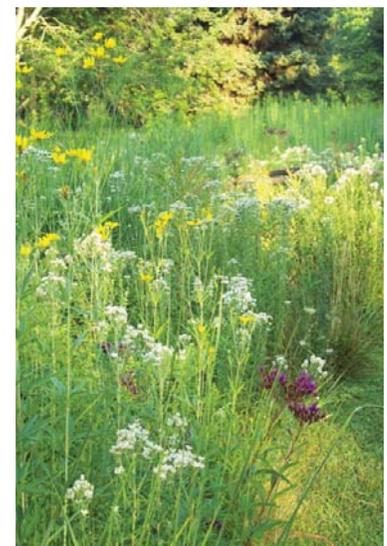
- Meadow ecology including plants, animals, insects and birds.
- Predator/prey relationships.
- Meadow management and stewardship.



Butterfly River in full bloom (image by Tyler Arboretum)



Stopford Family Meadow Maze (image by Tyler Arboretum)



Butterfly River in Stopford Family Meadow Maze (image by Tyler Arboretum)

Core Pillar - Destination

Wister Collections

Estimated Capital Cost: \$400,000

Endowment: \$200,000

Project Description

The Arboretum's first director, Dr. John C. Wister created numerous horticultural collections at Tyler including: Magnolias, Lilacs, Crabapples, Cherries, Conifers, and Hollies. Planting began in 1951 and continued until the early 1960s. In most cases, Dr. Wister was selecting the best varieties of each genus for this region. The number and quality of the specimens within each collection vary, but in general they are in satisfactory to good condition.

With the exception of the Hollies, all collections are planted within the same general area. Horticultural staff is responsible for maintaining all collections and assessments of the Lilac and Holly Collections have been completed.

The Wister collections represent an important legacy to Tyler's past. Where appropriate they should be preserved or integrated into the balance of the greater horticulture display. Recommendations for each specific collection are as follows:

Project Goals

- Magnolia Collection – Due to challenging soil conditions, several specimens die each year. Currently the collection has only 28 specimens. The new administrative/education/visitor center will be located within the collection. Recommendation: Remove the collection from this location and integrate plantings of magnolias throughout the Arboretum.
- Lilac Collection – The original collection contained a double alley of lilacs between the Magnolia Collection and the Native Woodland Walk. Over time, almost 40% of the specimens have been lost. In the spring, the lilacs are a favorite destination for visitors. Recommendation: Recreate the collection in an appropriate area featuring the best 50 lilacs for the region. Additional companion plantings for interest such as spring bulbs should be included to enhance the visitor experience.
- Crabapple Collection – Located near the property line between Ridley Creek State Park and the meadow in front of the Maintenance Building, the collection includes mature specimens and provides a pleasing visitor experience both in bloom and in fruit. The new scenic loop will allow visitors to pass through this collection. Recommendation: As the current specimens reach the end of their useful life, additional crabapples should be planted.

- Holly Collection – Tyler is a designated official Holly Arboretum. The majority of the holly collection is located behind and around the Maintenance Building and is generally inaccessible to visitors. Recommendation: Where feasible, specimens should be moved to more appropriate locations. Rather than keeping the new Holly Collection as a contiguous collection, specimens will be integrated throughout the Arboretum.

Education Themes

- Overall interpretation will focus on the history of plant collections in public gardens.
- Specific interpretation will relate to the contents of each collection focusing on best plants for the region, cultural information, and environmental attributes.

Core Pillar - Destination

Fragrant and Bird Gardens

Estimated Capital Cost: \$500,000

Endowment: \$250,000

Project Description

The Fragrant Garden is located to the west of the barn and is comprised of two long terraced rectangular beds. The garden has been maintained by the Philadelphia Unit of the Herb Society of America for over 25 years and the members have expressed an interest in maintaining the relationship with Tyler. The garden is used for both formal education programs and for drop-in visitors. Chapter members are interested in moving the garden to a new location either adjacent to Lachford Hall or behind the new Education building.

The Bird Garden is a small feature planted at the west end of the Barn. The garden includes plants that provide food and shelter for birds. The site is used extensively by the education staff and has the potential to be a major feature for the casual visitor.

Project Goals

- Relocate the Fragrant Garden to a more accessible location: either near Lachford Hall or near the new Visitor Center/Education/Administration Building.
- Refine the educational themes of the Fragrant Garden.
- Consider moving the Bird Garden to a more accessible location, possibly the new Visitor Center/Education/Administration Building.

Education Themes

- If the Fragrant Garden is moved near Lachford Hall, include historic and medicinal uses of herbs in addition to fragrance and culinary.
- Explain the relationship of herbs to pollinators and beneficial insects.
- If the Fragrant Garden is moved to the new Education Building, include plants with a variety of flower types for use in botany classes and flower dissection.



Bird Garden at Tyler Arboretum (image by Tyler Arboretum)

Core Pillar - Destination

Temporary Exhibits

Estimated Capital Cost: \$200,000

Endowment: \$750,000

Project Description

Beginning in 2001, Tyler launched an initiative to host temporary exhibits. Big Bugs, which featured large wooden sculptures of various insects, was extremely successful. Tyler experienced significant increases in admission income as well as gift shop sales and new memberships. The Arboretum also benefited from the additional exposure generated by hosting the exhibit. In subsequent years, primarily due to high cost of assembling an exhibit, Tyler hosted two small exhibits: Birds Abode and Amazing Butterflies. While they were successful, they did not match the results of the Big Bugs in 2001.

Tyler is currently hosting Totally Terrific Treehouses which is an exhibit that features 17 exhibits that interpret and celebrate trees. Although the exhibit has been open for only two months, visitation has increased over 500% and membership and gift shop sales have increased almost 150%. The exhibit provides an excellent opportunity to increase the awareness of Tyler Arboretum as well as educate the public on a particular theme.

Based upon the success generated by these exhibits, a schedule of upcoming exhibits will be developed, as well as a new budget and funding model in order to host temporary exhibits on a more regular basis.

Project Goals

- Hire a part-time special exhibits manager to oversee the Arboretum's temporary exhibits.
- Develop a comprehensive rolling 3 - 5 year schedule of temporary exhibits.
- Secure endowment funds to permanently fund a portion of the base line costs for temporary exhibits.

Education Themes

- Continue Tyler's model of creating exhibit themes that link plants to other aspects of the natural world (bugs and plants, the ecological importance of trees, etc.).
- Utilize exhibit themes to create a springboard for special programs for casual visitors, groups, and school audiences.
- Use temporary exhibits to connect with related subject areas such as art and literature.

Core Pillar

Preservation: Preserve the Arboretum lands and historic legacy for future generations.

Preservation Overview

The history of the Quaker farmstead and development of the original Painter Arboretum are integral to the character and identity of Tyler Arboretum. The plan calls for a thematic reorganization of the historic buildings to allow visitors to interpret and understand the historic landscape of the Arboretum as a whole.

Preservation Goals

- Create pedestrian-friendly circulation system and landscape to highlight historic core and connect buildings and the historic arboretum area. Where appropriate, limit vehicle access within the core pedestrian area.
- Maintain the physical structures and systems of the significant historic structures on the site: Painter Library, Lachford Hall, Historic Greenhouse, Springhouse, and Barn.
- Adaptively renovate the Barn to preserve its historic character and integrity.
- Create a new exhibit focusing on the comprehensive history of the Arboretum that would be located in Lachford Hall.
- Conduct a historic structural assessment for all historic buildings.
- Hire a part-time Building Manager to assist in the care and maintenance of all buildings.

Key Elements to Fulfill the Vision

- Historic Core Landscape
- Historic Buildings and Artifacts
- Barn Remodeling and Adaptive Re-Use

Core Pillar - Preservation

Historic Core Landscape

Estimated Capital Cost: \$300,000

Endowment: \$100,000

Project Description

The historic core is represented by the area surrounding Lachford Hall, Painter Library, Barn, Greenhouse and the Stone House. A new path system would unite these buildings into one exhibit experience that would allow visitors to come to the front of Lachford Hall. The landscape would showcase heirloom species and in particular those planted by the Painter Brothers. The historic core would demonstrate the 18th and 19th centuries approach to land use management.

Project Goals

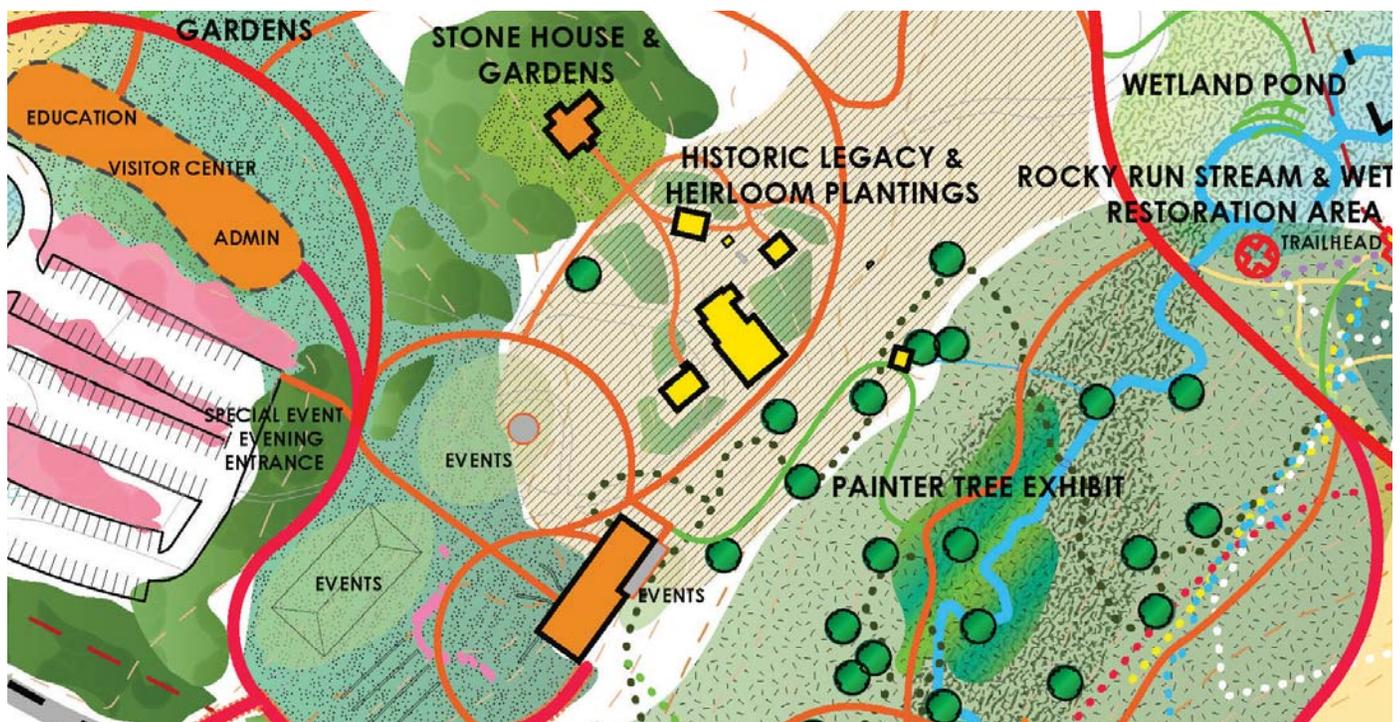
- Create an ADA accessible path between the historic buildings.
- Design historic landscapes that share the story of how the Painter Brothers would have gardened.
- Consider relocating the Fragrance Garden to this area.
- Create a strong pedestrian experience separating vehicular access routes from pedestrian routes.

Education Themes

- Historic landscapes and how they evolve over time.
- Heirloom plants.



(image by VLS)



(image by VLS)

Core Pillar - Preservation

Historic Buildings and Artifacts

Estimated Capital Cost: \$3,600,000

Endowment: \$500,000

Project Description

Lachford Hall, the Painter Library, and associated historic core outbuildings collectively tell the story of the Minshall/Painter/Tyler family history. Some, such as the Library, are unique to the region and should be preserved and interpreted to tell the fascinating story of Minshall and Jacob Painter. Other buildings should be maintained or adapted to best meet the current needs of the Arboretum. Specific recommendations are detailed below:

1. Maintain and enhance the exhibit in the Painter Library. The history and artifacts of the Painter Brothers distinguishes Tyler's history as unique and distinct from other historic sites in the area. Create pedestrian-friendly circulation system and landscape to highlight historic core and connect buildings and the historic arboretum area. Limit vehicle access.
 - Continue to use this space to tell the story of the Painter Brothers and interpret their horticultural and natural sciences studies and civic involvement utilizing original artifacts. Create a series of permanent displays.
 - Provide first-person interpretation with volunteers and work to extend the time that the Library is open to the public.
 - Change the exterior surface grade at the entrance to remove steps and improve accessibility.
2. Transfer ownership of Painter and Tyler documents to Swarthmore Friends Library.
 - These documents are currently stored at the Swarthmore Friends Library which provides proper climate control and security. Transferring ownership will enable the Friends Library to move forward on cataloging and making the documents accessible to researchers.
3. Discontinue the historic display in Lachford Hall. The current "house museum" exhibit model, using domestic furniture and artifacts, does not significantly contribute to telling the story of the Minshall/Painter/Tyler legacy.
 - De-accession all artifacts that are not useful in the interpretation of the Library or other Tyler educational programs. These may be donated to other historic organizations, or sold to raise revenue that can be used to maintain the buildings.
 - Create a comprehensive self-guided interpretive exhibit in the four front rooms of the building, focusing on Tyler's history from the indigenous Lenape culture, through the Quaker heritage of the Minshall/Painter/Tyler family, to the creation of the public Arboretum and work of Dr. Wister, to the present horticultural and land stewardship mission.
 - After administrative staff has moved to the new Visitor Center/Administrative Building, consider using space in the second floor of Lachford Hall for intern or staff housing, or storage.
4. Restore and maintain the Greenhouse.
 - Utilize for horticultural operations and/or educational programming.
5. Maintain secondary outbuildings such as the Outhouse and Fruit Vault.
 - Remove the old restroom building located in the Magnolia collection.
6. When the Stone House ceases to be rented as housing, consider using the first floor for conference or small event space and the second floor for intern or staff housing.

Core Pillar - Preservation

Barn Remodeling and Adaptive Re-use

Estimated Capital Cost: \$3,300,000

Endowment: \$500,000

Project Description

After a thorough analysis, the recommendation is to completely renovate the barn and create an open and flexible floor plan for the entire structure. By building a new center that houses many of the uses now located in the barn, the barn can be properly renovated and redesigned for formal events such as art exhibits and Arboretum functions and events.

The barn, built in 1833, is a large and beautifully constructed example of a Pennsylvania banked barn. The east end of the structure was rebuilt under Dr. Wister's guidance and at that time, the lower level was used as a garage and tool shop while the upper floor was used as a meeting room. In the mid 1980s, the barn underwent a number of extensive renovations, including converting the garage to a lecture room, updating the upper level of the east end, installing a new kitchen and installing a new ramp to the third level.

The barn is currently being used for classroom space for all educational programs (school field trips, adult and family programs, and summer camp), for Tyler's events and receptions, storage, as well as for our rental business. The barn also contains education offices and Tyler's only public restrooms are on the second floor. The third floor is currently used for storage. With the increase in educational programming and public visitation and the growth of the rental business, the barn can no longer accommodate all the current users and functions.

The Barn should be adaptively renovated to preserve its historic character and integrity. The structure of the building was assessed by two architectural firms and a space needs assessment was performed. Based upon these analyses, the interior of the barn must be completely gutted and renovated. The incremental renovations during the past 35 years must be removed.

The rental business directly competes with the education programs and if the Arboretum continues to remain in the rental business, these two functions cannot remain in the same building. The barn is ideally suited for a multi-function facility and should be renovated to contain three floors of flexible open floor plans. Educational offices and teaching spaces would be moved to the new administrative/education/visitor center building and additional restrooms would be installed on all three levels of the barn. Additional kitchen facilities would be installed to accommodate both Tyler's and caterer's needs.

Project Goals

- Relocate the education staff to a new building that would house administration as well as development staff.
- Renovate the entire building and create a flexible open space floor plan for all three levels. Incorporate restrooms on all three floors and upgrade kitchen facilities.
- Consider the addition of an elevator to make the building accessible on all levels.

Education Themes

- Demonstrate historic architecture and adaptive reuse of historic spaces.



Illustration from Tyler Arboretum Visitor Guide (image by Tyler Arboretum)



(image by VLS)

Core Pillar

Education: Strengthen the connection between people and nature through learning and inspiration.

Education Overview

Delaware County and the surrounding region is heavily populated and developed. Tyler's greenspace serves as a natural oasis and environmental resource for its near neighbors and the regional community. As Tyler Arboretum's principal focus, Education is addressed and expressed throughout the plan. With its rich horticultural and ecological resources, Tyler should become a leader in providing innovative and quality learning opportunities for a diverse audience in sustainable horticulture and environmental subjects. In addition to the destination exhibits previously described, two new exhibits with strong educational components are the Lenape Village and the Teaching Garden. Both of these exhibits mesh well with school group curricula about our national social heritage and issues of resources and biology. As with all the exhibits at Tyler Arboretum, visitors of all ages and abilities can learn from and interpret the exhibit offerings.

Education Goals

- Serve as a venue and catalyst to reconnect children and adults to nature.
- Offer experiences and learning opportunities to foster an interest in nature and plants, and an appreciation and understanding of their importance in our lives.
- Demonstrate and stimulate attitudes of environmental stewardship and advocacy to foster citizen action and involvement.
- Become the leading provider of high quality formal and non formal environmental education for the Greater Philadelphia region
- Create opportunities for family and group social interaction within natural settings to encourage comfort and involvement with the natural world.
- Create additional interactive children's features as destinations throughout the Arboretum to enhance the sense of exploration, discovery, and play.

Key Elements to Fulfill the Vision

- Enhanced Programming
- Lenape Village
- Teaching Garden

Core Pillar - Education

Enhanced Programming

Project Description

The regional climate for public and private education has changed significantly in the past five years. Schools are experiencing tighter budgets and decreased revenues, an increasing emphasis on student performance and structured accountability, and a stronger focus on technology – all of which have greatly impacted educational programs offered by public gardens and similar institutions. To successfully meet the Arboretum’s overall goal of providing quality environmental education, Tyler must move forward to revise its existing programs and create new ones that are up to date, relevant, and that consistently meet the needs of teachers and related curriculum. To successfully accomplish its overall goal of expanding its effectiveness as a family oriented destination and learning site, Tyler must proactively respond to the community’s need for quality children’s programs (summer camp, scouts, nature classes), and programs for individuals and families.

Project Goals

1. Redevelop and expand school programs to meet the needs of the education community and increase participation.
 - With the assistance of members of the Education Committee, revise current school programs and develop new ones to more fully align with local, state, and national standards and curriculum guidelines.
 - Expand programs beyond Pre-K and elementary levels to include middle and high school.
 - Cross link science and environmental programs with math and language skills.
 - Develop a comprehensive outreach program.
 - Partner with schools for specific programmatic modules. Focus on neighboring districts including districts with under served student populations.
 - Offer teacher training and enrichment programs.
2. Partner with local colleges, universities and other educational organizations.
 - Continue to provide opportunities for research utilizing Tyler’s unique ecosystems.
 - Work with local college professionals and instructors to utilize Tyler’s grounds for teaching.
3. Provide learning and enrichment opportunities for children and families focusing on nature and discovery.
 - Continue to grow and expand the summer camp program with a focus on the environment and connecting kids with nature.
 - Increase fee-based programs for kids and families and expand the age range.
 - Create self-guided and experiential discovery programs for drop-in visitors.
 - Create and enhance exhibits and signature destinations that facilitate interactive and creative play opportunities for children with a focus on connecting to nature.
4. Develop learning and enrichment opportunities for adults, focusing on nature, environmental issues, and horticulture.
 - Interpret and utilize on-site environmental, sustainable, and horticultural exhibits to educate drop-in visitors and program participants about best practices for home and community landscapes.
 - Expand on-site fee-based classes, workshops, lectures, and field trips to focus on environmental and horticultural sustainability.
 - Establish a self-funding educational outreach program designed to assist homeowners and community groups in managing landscapes in a sustainable and low-impact manner.
5. Partner with similar organizations to enhance our programmatic opportunities and reach additional audiences.
 - Work with groups such as the USDA Forest Service in the North Woods restoration initiative, the YMCA in programming for inner-city youth, and the Natural Lands Trust.
 - Work with Cooperative Extension and other interested individuals to establish a Teaching Garden focusing on sustainable food production and related topics to facilitate educational opportunities.

Core Pillar - Education

Lenape Village

Estimated Capital Cost: \$200,000

Endowment: \$250,000

Project Description

Visitors will come upon a scene that may very well have once existed on Tyler Arboretum property. The Native American Lenape Indians inhabited the Delaware Valley prior to European settlement and descendants were still in the area in the latter part of the 17th century. As they enter the recreated village, visitors and school groups are transported back to a time prior to European contact to discover first hand how the Lenape lived on, and protected the land. Bark-covered wigwams and longhouse, drying racks for fish or hides, fire rings and cooking areas, and a small garden of corn, beans, and squash demonstrate the Lenape lifestyle. Interpretive signs and programs for school children and the public introduce the culture of the "Original People" and their strong commitment to nature and stewardship practices.

Project Goals

- Relocate the Lenape teaching station and develop additional buildings and structures to enhance the current Lenape teaching display.
- Demonstrate Lenape lifestyle with an emphasis on ecology and earth stewardship that was an intrinsic part of their culture.

Educational Themes

- Pre-European forest and wetland ecology.
- Environmental sustainability as demonstrated through Lenape culture and practices.
- Post-European ecological impact.



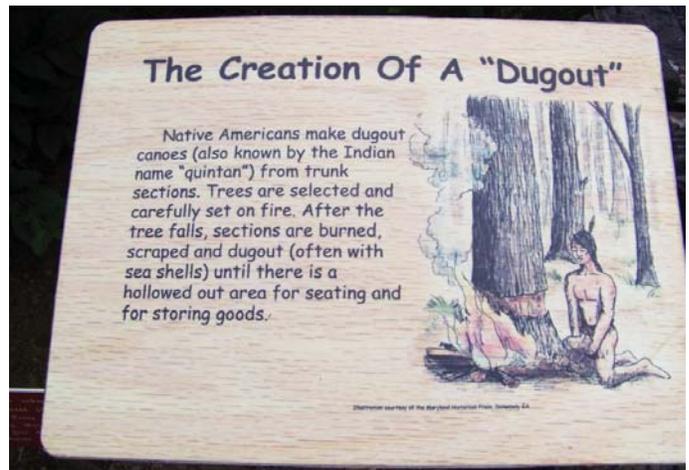
Lenape Village at Brookside Gardens in Wheaton, Maryland (image by Tyler Arboretum)



Lenape Game at Brookside Gardens in Wheaton, Maryland (image by Tyler Arboretum)



Example of a Lenape dugout canoe (image by Tyler Arboretum)



Sign describing Lenape dugout canoe (image by Tyler Arboretum)

Core Pillar - Education

Teaching Garden

Estimated Capital Cost: \$500,000

Endowment: \$250,000

Project Description

The Teaching Garden will be a destination exhibit for Tyler's visitors as well as an invaluable educational tool for school, camp, and public programs. Located behind the White Cottage, this dedicated space is an intensively managed food and flower garden demonstrating a variety of cultural techniques, the integration of plants to attract beneficial insects, using built structures in the garden, creating fun activity spaces in gardens for children, mulching and cover crop techniques, extending the garden growing season, promoting heirloom varieties, and using vegetables ornamentally.



(image by Tavis Dockwiller)

Project Goals

- Connect visitors and program participants with where food comes from and foster an interest in home food gardening.
- Demonstrate sustainable gardening including organic principles and techniques, integrated pest management (IPM), and gardening for beneficial insects, composting, pollinator stewardship
- Demonstrate a variety of gardening techniques such as succession cropping, season extenders, vertical gardening, raised beds, and container gardening.
- Create child-oriented interactive areas for exploration and discovery.

Educational Themes

- Interpretive signs, handouts, docent-led demonstrations, and discovery carts will be used to offer informal learning opportunities for drop-in visitors.
- School and summer camp programs will focus on plant life cycles and basic botany. Programs will be developed to support the Pennsylvania Academic Standards sections on agriculture and IPM. The Teaching Garden also offers an ideal opportunity to discuss nutrition and healthy lifestyles to students. The Teaching Garden can be used to show students where food comes from, how to eat nutritionally, and how to grow their own food.
- Classes for adults will feature hands-on opportunities to learn about food gardening and sustainable practices, and youth and family programs will engage participants in interactive programs about where food originates.

Core Pillar

Natural Resource Stewardship: Restore and protect our natural resources through best management practices.

Natural Resources Stewardship Overview

Tyler's 650 acres, with approximately 550 in natural areas, is a significant ecological resource and green space for the region. These ecosystems, which include a serpentine barren, meadows, forests, and stream valleys, should be preserved, enhanced, and managed for educational and public purposes. Tyler will demonstrate best practices in the management and restoration of its natural resources, and could provide advice and consulting services on how these management practices can be used on other regional sites including private residences and corporate campuses. Horticultural and ecological practices should be developed synergistically throughout the Arboretum.

Natural Resources Stewardship Goals

1. Ecological restoration and long-term management of natural areas and cultivated areas.
 - Create a full-time Natural Lands Manager position to focus on ecological stewardship issues.
 - Develop and implement a control plan for invasive plants for woodland, meadow and wetland ecosystems.
 - Maximize biodiversity through the addition of appropriate native plant species and enhanced habitat development for birds, mammals and insects.
 - Conduct a comprehensive survey and assessment of the trail system. Continue trail maintenance and management to provide access and diverse visitor experiences while minimizing erosion and other negative impacts. Use the trail system to disperse visitors throughout the 550 acres outside the fence. Continue efforts to close access points from Ridley Creek State Park into the Arboretum to eliminate dogs, bicycles and other inappropriate activity.
2. Based on the recommendations of Certified Wildlife Biologist Bryon Schissler, who asserts that it is not possible to effectively manage the deer population in Tyler's natural areas, consider fencing the remaining 550 acres to exclude deer.
3. Expand the North Woods Restoration Exhibit
 - Explore options with Ridley Creek State Park to manage the area adjacent to the North Woods and west of Rocky Run as a cooperative demonstration and restoration area to more fully develop the exhibit and research potential of a woodland free of deer browse.
4. Place the property under a conservation easement to assure that it remains undeveloped in perpetuity.
5. Implement the recommendation from the Adjoining Lands Study to acquire key properties on Tyler's boundaries. Innovative educational, outreach and research programs

Key Elements to Fulfill the Natural Resource Stewardship Vision

- Hire Natural Lands Manager
- Develop restoration management plans for various ecosystems
- Develop research partnerships
- Develop Natural Resource Stewardship Exhibits
 - North Meadow Wetland Garden
 - North Woods Restoration
 - Native Woodland Walk
 - Rocky Run Wetland
 - Pinetum
 - Serpentine Barren

Core Pillar - Natural Resource Stewardship

North Meadow Wetland Garden

Estimated Capital Cost: \$800,000

Endowment: \$700,000

Project Description

Located in the meadow south of the Maintenance Building, this exhibit provides the backdrop for the new Butterfly House/Pollinator Garden. The North Meadow Wetland Garden landscape would feature native grasses, wildflowers, and shrubs. The site would treat the storm water from the Maintenance Building and Ridley Creek State Park in an ecologically sensitive manner, thus reducing erosion currently taking place in the Native Woodland Walk and allowing for the restoration of this meadow area. Vernal ponds would be created and a series of boardwalks would be installed. A pergola could be integrated into the exhibit to create an educational station for teaching and special events. The new Lenape Village would be located on the perimeter of the exhibit.

Project Goals

- Highlight the seasonal changes in this habitat and demonstrate the positive ecological benefits created by decreasing the amount of runoff and increasing the degree of water filtration.
- Create additional habitats for birds, mammals, and amphibians.
- Remove invasive plants and create small vernal ponds and successional wetlands to protect the Rocky Run stream.
- Plant an enriched meadow of herbaceous plants and shrubs.

- Develop an interactive educational component that will engage the public.
- Create a series of paths, including turf, boardwalks and pervious materials that will connect the major elements of the North Meadow.
- Demonstrate sustainable storm water management and stream protection techniques.
- Demonstrate practical, effective approaches to reclaiming wetland and meadows.

Educational Themes

- Naturalistic gardening and sustainable meadow and vernal pond habitat management.
- Sustainable storm water management.
- Plant, animal, and insect habitats and relationships in native meadows and vernal wetlands.
- Amphibian and insect life cycles in vernal pond environments.



Shelter in a meadow (image by VLS)



Boardwalk through a wetland (image Ted Wathen)

Core Pillar - Natural Resource Stewardship

North Woods Restoration

Estimated Capital Cost: \$1,200,000

Endowment: \$250,000

Project Description

The North Woods Restoration exhibit provides an opportunity for visitors to observe Pennsylvania forests as they were prior to the overpopulation of white-tailed deer and the spread of invasive plant species. Surrounded on two sides by Ridley Creek State Park, the area is protected by a 12' tall deer enclosure fence and is comprised of 13 acres of mature hardwood forest. Invasive plant species will be eliminated and native trees, shrubs, and herbaceous plants will be planted to allow visitors to understand the multi-layered plant communities that exist in a healthy forest ecosystem. Working with experts in the field, Tyler will partner with other institutions specializing in forest restoration.

A path system will be created and educational signage and brochures will be developed in order to share the messages of forest ecology. The North Woods will also be the home for the new Canopy Walk and Tree House exhibits.

Tyler should explore developing a partnership with Ridley Creek State Park in the care and management of the adjoining approximately 68 acres to the North Woods. If approved, Tyler would fence and manage the property along with the current 13 acres, in order to more effectively protect Rocky Run, a tributary to Ridley Creek.

Project Goals

- Develop a long term management plan for the North Woods area. Utilize the adaptive resource management (A.R.M.) approach, where specific management techniques are tested with control plots on a small scale, and are monitored for long term results.
- Demonstrate practical, effective ways of restoring native forest diversity and habitat structure emphasizing enhancement of native species diversity.
- Develop a path system that highlights existing features and restoration efforts and connects the Canopy Walk and Tree House to the Scenic Loop.
- Develop signage and brochures that support the exhibit.
- Identify and develop partnerships with mission related institutions, such as the USDA Forest Service to protect, restore, and preserve the forest ecology.
- Develop a cooperative demonstration and restoration project for the adjacent 68 acres with Ridley Creek State Park.

Educational Themes

- Serve as a demonstration site for healthy native woodland ecosystems without deer or invasive plant pressures.
- Make available results of research and restoration project work to the broader community, as well as visitors, to increase land management knowledge base.

Core Pillar - Natural Resource Stewardship

Native Woodland Walk

Estimated Capital Cost: \$500,000

Endowment: \$250,000

Project Description

This exhibit highlights woodland gardening techniques and the rich native Mid-Atlantic palette available to the home gardener. Building upon the 1994 plan, the exhibit will expand to include both sides of the current tributary. The exhibit features native shrubs, trees, and herbaceous plants and includes a path that allows visitors to navigate the four acres of a semi-forested ecosystem.

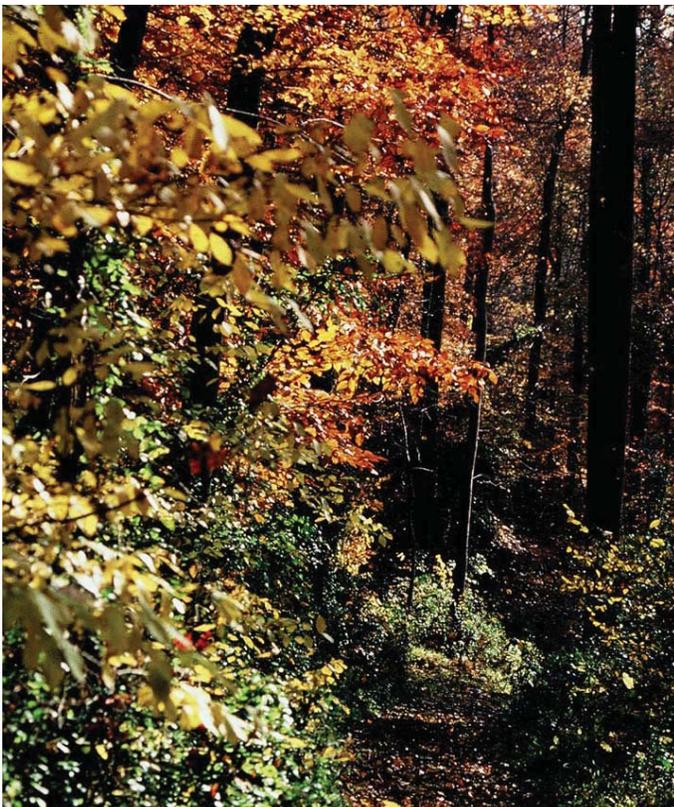
Since the mid 1990s, additional plantings have been established, interpretive signage has been installed, and an educational brochure was produced. An irrigation line was installed and 10 faucets were located around the mulched paths. With the runoff and erosion issue addressed by the North Wetland Meadow Garden, the erosion caused by storm water can be corrected. Additional bridge crossings will be developed, allowing visitors to experience the North Woods and the Canopy Walk/Tree House. New streamside plantings will be located along the previous erosion gully.

Project Goals

- Continue to implement the recommendations of the 1996 Plan. Incorporate additional plantings and, where appropriate, remove the non-native plant species.
- Expand the size of the exhibit by including the area on the north side of the tributary.
- Connect with the North Meadow Wetland storm water system to restore the tributary and incorporate streamside plantings.
- Review the design and layout of the paths and install additional bridges where appropriate to connect to the paths in the North Woods.

Educational Themes

- Demonstrate appropriate native woodland plants in a designed landscape for the home gardener and other land managers.
- Demonstrate and promote sustainable storm water management.
- Discuss woodland ecology including forest layers, the interconnections of plants, animals, and insects, and soil ecology. Plant life cycles.



(image by Tyler Arboretum)



Visitors to Mt. Cuba Center go on woodland walk to observe native species.
(image by Rolf Sauer)

Core Pillar - Natural Resource Stewardship

Rocky Run Wetland

Estimated Capital Cost: \$1,600,000

Endowment: \$800,000

Project Description

Located in the valley between the historic Painter Arboretum and the Stopford Family Meadow Maze, the Rocky Run stream provides an unparalleled opportunity to showcase wetland restoration and management techniques. Due to excessive runoff from Arboretum property and the adjoining neighborhood, the stream suffers from erosion and in some locations deep channels have been formed. With the support of Middletown Township and the local community, the project will transform the stream valley and allow for the complete restoration of the pond.

The banks of Rocky Run will be reconfigured and additional plantings will be incorporated, providing habitats for aquatic plants and animals. If required, grading within the Painter Plant exhibit must be carefully designed in order to protect this important collection. The ADA accessible path within the Painter Plant Exhibit would feature stream overlooks and bridge crossings to reveal the beauty stream and the enriched plantings along Rocky Run.

In addition to the stream restoration, the pond adjacent to the White Cottage will be restored. The active spring under the White Cottage will be redirected to the stream and a series of wetlands will be created between the structure and the pond. The restored pond will incorporate best practices for pond management and opportunities will be created to allow education program participants direct access to the pond edge for direct hands-on experiences.

The new path system will be linked to the scenic loop path. Visitors will experience wetland boardwalk crossings, stepping stone crossings, and education stations along the path and around the pond.

Project Goals

- Demonstrate practical, effective approaches to reclaiming wetland and stream ecosystems including increased infiltration, reduced stream and pond contamination, sedimentation, and eutrophication.
- Plant a variety of wetland shrubs, trees, and herbaceous species to create attractive displays.
- Engage Middletown Township and neighbors to manage the upstream runoff in a more sustainable manner.
- Develop a long-term management plan for the stream valley and pond.
- Develop a path system that highlights existing features and restoration efforts. Link the paths to the Scenic Loop and create ADA accessible portions.
- Develop educational signage and a brochure that supports the exhibit.

Educational Themes

- Stream, pond, and wetland ecology including plant, animal, and insect interactions and life cycles.
- Native and horticultural plants appropriate for wetland and aquatic environments and restoration of home landscapes and corporate and public areas.
- Restoration practices for stream, wetland, and ponds.



(image by Tyler Arboretum)



(image by Tyler Arboretum)

Core Pillar - Natural Resource Stewardship

Pinetum

Estimated Capital Cost: \$400,000

Endowment: \$200,000

Project Description

The Pinetum is located within the southern end of the deer enclosure fence and is approximately 32 acres in size. Dr. Wister began planting the Pinetum in the 1950s with the concept of planting conifers in groups of three as well as a single specimen. The collections are surrounded by meadows that contain native grasses and flowering meadow perennials as well as invasive plant species. Additionally, deciduous trees such as red maples, tulip poplars, and dogwoods can be found in the Pinetum. Some were deliberately planted and others existed on the site or have seeded in. All are accessioned.

The meadow and the collections provide an excellent habitat for birds, mammals, and insects. The site contains numerous scenic vistas and is particularly attractive in fall and winter. The beauty and sanctuary of the Pinetum should be preserved and new accessible paths will be installed to encourage guests to visit this ecosystem.

Project Goals

- Restore key vistas by removing volunteer trees and planting groves of specimen trees to emphasize vistas.
- Prune vegetation along the plateau edge to allow views into the woods on the north side and enhance the south facing edge with flowering trees. Utilize the adaptive resource management (A.R.M.) approach, where specific management techniques are tested on a small scale, with control plots monitored for long term results.
- Demonstrate practical, effective methods of native grassland and meadow restoration, emphasizing enhancement of native species diversity.
- Develop a design intent statement for the site with species and locations of conifers, as well as what specimens should be removed.
- Develop a management plan for the meadows including consideration of controlled burns and herbicides to control invasive plant species and tree seedlings.
- Create a series of paths to encourage visitors to explore various areas of the exhibit.

Educational Themes

- Utilize the Pinetum conifer collection to increase understanding of the diversity of species and as a study collection for landscape gardeners.
- Demonstrate and promote sustainable meadow management practices with an emphasis on biodiversity.
- Make available results of research and restoration project work to the broader community, as well as visitors, to increase land management knowledge base.



(image by Tyler Arboretum)

Core Pillar - Natural Resource Stewardship

Serpentine Barren

Estimated Capital Cost: \$500,000

Endowment: \$250,000

Project Description

The serpentine barren is located outside the deer enclosure fence adjacent to the intersection of Painter and Barren Road. Comprising approximately three acres, this area (also known as Pink Hill) represents the last remaining undeveloped serpentine barren in Delaware County. In the eastern United States, barrens can be found from Alabama to Canada and several significant outcroppings can be found in Southeastern Pennsylvania and Northern Maryland.



(image by Tyler Arboretum)

Since the early 1900s the size of the barren has decreased as the surrounding woodlands began to change the composition of the soil structure found on the barren. Based upon aerial photographs, the barren is now only 25% of the original size. Recent test plots have successfully demonstrated that with the excavation and removal of the accumulated top soil and invasive plants, the plant species native to the barren will return.

The soil structure found on a serpentine barren is unique and additional research is required in order to determine how to best manage this rare ecosystem. The impact of white-tailed deer on Pink Hill is unknown. The barren should be restored to the size found in the early 1900s. Given the historical significance of serpentine rock in local buildings, the exhibit provides an opportunity to demonstrate the significance of Tyler's barren and the challenges in managing this ecosystem.

Educational Themes

- Serpentine barrens are rare and should be protected and managed for long term viability.
- The barrens represent unique local ecosystems that demonstrate plant and insect adaptations to specific geology and soil types.
- Explain the local use of serpentine stone in its historic and architectural context.

Project Goals

- Prepare and implement a detailed serpentine barren restoration and long-term management plan.
- Undertake a restoration program to re-establish portions of the barren lost during the last century to forest encroachment.
- Tailor stewardship actions, including burning and removal of invasive plant species, to the needs of the high-priority species of special conservation concern.
- Establish and quantify a long-term monitoring program to track the effectiveness of various management techniques including: trends in populations of endangered, threatened or rare plant species, trends in populations of endangered, threatened, or rare animal species and their host plants and effects on community composition and ecosystem structure of various management and restoration techniques relative to control plots.
- Determine the effect of browse by white-tailed deer and if fencing will be required to protect the ecosystems.



(image by Tavis Dockwiller)

Project Implementation

2008 - 2012 Five-Year Goals

The implementation of the Master Plan is proposed as a series of phased projects, each of which should undergo a careful review process before, during, and after completion. It is essential that that project construction and maintenance is of the highest quality possible, so that each finished project can raise the standards of the organization and propel fundraising efforts for future projects.

The board of trustees along with the staff reviewed all the prioritized capital projects into three categories: 5-Year Infrastructure, 5-Year Priority Destinations and Future Opportunities. Capital costs as well as yearly operational costs have been included for each project.

With the completion and approval of the Master Plan, the Arboretum anticipates the launching of a major capital campaign to fund the priority projects outlined. As is the case with most fundraising campaigns, a feasibility study will be conducted. Selected projects from the prioritized list will be included in the campaign based upon the results of conversation with our donors. The prioritized list is as follows:

Tyler Arboretum Master Plan

Conceptual Estimate of Probable Costs

Prepared by Viridian Landscape Studio, Landscape Architects, Philadelphia PA

Project Implementation

	Capital Cost	Operational Cost/Year
I. 5-Year Infrastructure*		
a. New Entrance & Parking Lot	\$ 1,000,000	\$ 10,000
b. Institutional Capacity	\$ 500,000	\$ 150,000
c. New Visitor/Education/ Administration Bldg./Habitat Gardens	\$ 8,500,000	\$ 65,000
	\$ 10,000,000	\$ 225,000
II. 5-Year Priority Destinations**		
	Capital Cost	Endowment
a. Scenic Loop	\$ 2,000,000	\$ 25,000
b. Butterfly House/ Pollinator Garden	\$ 1,100,000	\$ 500,000
c. Tree House/Canopy Walk and North Woods Restoration	\$ 3,100,000	\$ 750,000
d. North Meadow Wetland Garden	\$ 800,000	\$ 700,000
e. Rocky Run Wetland	\$ 1,600,000	\$ 800,000
f. John C. Wister Rhododendron Garden	\$ 1,800,000	\$ 1,000,000
	\$ 10,400,000	\$ 3,775,000
III. Opportunities		
a. Lenape Village	\$ 200,000	\$ 250,000
b. Barn Remodeling & Adaptive Re-use	\$ 3,300,000	\$ 500,000
c. Painter Plants	\$ 400,000	\$ 600,000
d. Native Woodland Walk	\$ 500,000	\$ 250,000
e. Serpentine Barren	\$ 500,000	\$ 250,000
f. Teaching Garden	\$ 500,000	\$ 250,000
g. Stopford Family Meadow Maze	\$ 600,000	\$ 400,000
h. Wister Collections	\$ 400,000	\$ 200,000
i. Fragrant and Bird Gardens	\$ 500,000	\$ 250,000
j. Historic Core Landscape	\$ 300,000	\$ 100,000
k. Historic Buildings & Artifacts	\$ 3,600,000	\$ 250,000
l. Pinetum	\$ 400,000	\$ 200,000
m. Temporary Exhibits	\$ 200,000	\$ 750,000
n. Maintenance Center	\$ 900,000	\$ 250,000
	\$ 12,300,000	\$ 4,500,000
Total:	\$ 32,700,000	\$ 8,500,000

* Additional operating costs to be funded by new earned and contributed revenue sources.

Appendix

Building Programming Study

Tyler Arboretum Natural Areas and Landscape Management Review

Stormwater Management Opportunities

SMPARCHITECTS



Building Programming Study

Tyler Arboretum

Media, PA

August 31, 2007

produced in support of the Viridian Landscape Studio Master Plan

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- I. Introduction
 - II. Goals and Process
 - III. Recommendations
 - IV. Buildings Space Summary
- Appendix A: Historic Building Observation Report
Appendix B: Senior Staff Example Questionnaire

I. Introduction

SMP Architects prepared this Building Programming Study as part of the Viridian Landscape Studio 2007 Master Plan design process. SMP evaluated the current and potential future uses of the buildings at Tyler Arboretum. This study was begun and developed during the early phases of the master plan process in order that the building program recommendations could be fully integrated and evaluated as a collaborative step in defining the overall master plan.

It is important to note that this study should be viewed and interpreted within the overall goals and Tyler mission set forth in the Master Plan document.

The primary goal of this Building Programming Study was to review spaces and uses (existing and potential). The detailed goals and process of this study are outlined in Section II of this document. It is important to clarify that detailed survey of existing buildings, code reviews, structural / building systems evaluations, and preservation analyses are beyond the scope of this study. Although general budgets for this work will be considered in the overall master plan cost evaluations, detailed estimates were not performed due to the preliminary nature of the recommendations contained within this study. SMP Architects suggests that a feasibility study, specific to each building project, be conducted as the first step in developing any of the recommendations contained within this report.

II. Goals and Process

The primary goals of the Building Programming Study are:

- to review *how the existing buildings* are currently used.
- to recommend *adjustments to the existing uses*.
- to understand *what additional building program components* are needed.

The process covered a series of collaborative exercises that included:

- *observation* of the existing facilities.
- *one-on-one initial interviews* with the administrative staff.
- *participation* in the master planning presentations and workshops.
- *evaluation and analysis* of the interviews and workshop information.
- *review meetings* with staff to reach consensus on recommendations.
- *recommendations* for adjusting and/or expanding the current building program.

The buildings/program components that are addressed include:

- Tyler Barn
- Lachford Hall
- Painter Library
- Stone House
- White Cottage
- Greenhouse (Grapery)
- Carriage House (Hay Wagon Shed)
- Springhouse
- Outhouse
- Root Cellar (Fruit Vault)
- Visitor Center (*existing*)
- Maintenance Building
- Administration (*new construction*)
- Education (*new construction*)
- Visitor Center (*new construction*)

III. Recommendations

The following recommendations are based on senior staff interviews (see example questionnaire in Appendix B), site observations, administrative staff meetings, design team/administrative staff workshops, and discussions with the Tyler Board of Directors.

Note: The square footages noted below are approximate and were scaled from existing conditions drawings from the Tyler Arboretum archive files.

Tyler Barn

The Tyler Barn is currently used for meetings, school group/summer camp education, adult seminars, weddings/events, and education staff offices. There is a large storage area on the highest level of the main barn, but only the central bay area is configured for use (the two side bays are open to the spaces below). The Sequoia and Terrace Rooms are well-used, but the Terrace Room has significant HVAC, acoustic and moisture problems. The only public bathrooms at the Arboretum are located in this building. The education offices are inefficiently configured and have HVAC problems. In addition, the education staff is remote from both the administration staff in Lachford Hall and the visitor services staff in the Visitor Center. The Tyler Barn is well-used by staff and visitors, and it is the first structure that visitors encounter after passing through the Visitor Center. For these reasons, the Tyler Barn requires detailed consideration regarding its program uses. Its current dual use as education/meeting and weddings/events is very problematic; however, it would be ideal as a dedicated multi-function facility for public programs.

Tyler Barn General Stats:

Built: 1798; addition 1832

Condition: exterior: good; interior: lower right-fair; lower left (Terrace Room)-poor; upper right-fair (underutilized); upper left (Sequoia Room)-good

Net Square Footage: 7640 sf

Previous Use: barn/storage

Tyler Barn Recommendations:

- relocate the education staff to another facility more closely linked to administration and visitor services.
- redesign the lower level vacated education staff space for event space and support space, including relocation of the catering kitchen to the lower level.
- renovate and update the Terrace and Sequoia Rooms as multi-function spaces.
- consider expanding the public programming venue by renovating the highest level of the barn into a large multi-function space.

The renovation work to the Tyler Barn should be considered in its relationship to any new construction for the Education and Visitor Services functions as outlined in later sections of this document.

Lachford Hall

Lachford Hall is currently used for administrative staff offices, special events storage and limited access house museum. The building is picturesquely sited on a small plateau with the original portion of the building facing south; unfortunately, the current visitor typically approaches the building from the rear, where there is a less handsome two story addition. The staff members located in Lachford Hall are remote from the entry point at the Visitor Center and are on multiple levels in a non-code compliant building with acoustic and HVAC problems. Lachford Hall, along with the Painter Library and Tyler Barn, are the primary buildings in the historic core, and therefore, reuse of this building is critical. Due to its location and interior configuration, it is not well-suited to its current program with perhaps the exception of the current limited-access house museum component.

Lachford Hall Stats:

Built: 1738

Condition: fair: exterior stucco is peeling; exterior trim is peeling

Net Square Footage: 5390 sf

Previous Use: residence

Lachford Hall Recommendations:

- relocate the administration staff to another facility more closely linked to Education and Visitor Services
- reprogram the first floor rear addition for a more public use, such as restrooms or exhibits
- dedicate the first floor of the main building to cultural exhibits utilizing period style, but not historically valuable, furniture (*if* Tyler determines this is an appropriate direction)
- renovate the second floor rear as a non-public, limited staff access function, such as a residential apartment for intern staff
- renovate the second floor front as "limited access" collections storage (*if* Tyler determines that keeping portions of the collection in a minimally climate-controlled facility is an appropriate direction)
- as an alternative to the recommendation noted directly above, renovate the second floor front as general multi-function storage
- relocate the special event materials on the third floor to a more accessible storage location and consider limiting storage on the third floor to "archive" materials

Painter Library

The Painter Library is currently used as limited-access exhibit space. The specimens and scientific equipment are quite interesting and in good condition. This facility and its contents provide a unique view into the life of the Painter Brothers. The building is in relatively good shape, and it is well-suited to its current program.

Painter Library Stats:

Built: 1863

Condition: good: miscellaneous stone repointing and trim repair

Net Square Footage: 1100 sf

Previous Use: research/reference library

Painter Library Recommendations:

- provide improved interpretation of the current building and contents
- improve exterior accessibility as the current four steps are difficult to navigate

Stone House

The Stone House is currently used as a residential rental property. It is a handsome building and is in good condition. However, Tyler is not interested in continuing to serve as a residential landlord (although the income will need to be replaced).

Because the building is in good condition and has been minimally altered from its original 1932 design, it would be ideal if it could be reused in its current configuration, or with minor interior renovation work.

Stone House Stats:

Built: 1932

Condition: very good: minor stone repointing and window sealing

Net Square Footage: 3280 sf

Previous Use: residence of arboretum director

Stone House Recommendations:

- reuse as residence for staff or intern housing in its current configuration
- reprogram first floor public programs, corporate rentals or small events
- reprogram second/third floors for staff/intern housing
- reuse as flex space while other facilities are being renovated or constructed

White Cottage

The White Cottage is currently not in use due to extensive moisture problems. It is likely that removal of the one story addition will be necessary due to the moisture damage. If the building is to be used in any way other than non-sensitive storage such as fencing and gardening equipment, the moisture problem must be addressed. If repairs are too costly, removal of the building could be considered, but only as a last resort.

White Cottage Stats:

Built: unknown, extensively altered in a series of renovations

Condition: very poor: suffers from extensive moisture problems

Net Square Footage: unknown; existing conditions drawings not available

Previous Use: residence for property caretaker; originally a springhouse

White Cottage Recommendations (assuming moisture issue is addressed):

- remove 1950's addition
- renovate as a "destination" wet lab classroom associated with the pond
- support space for nearby CSA garden

Greenhouse/Grapery

The Grapery/Greenhouse is currently used for very minor wintering of plants (recently replaced by poly-house near maintenance facility). Although the base and lower level are in relatively good condition, the wood framed glazing is extremely deteriorated. If the facility is reprogrammed in anyway, the framing must be repaired as it currently poses a potential hazard to occupants. This structure tells a unique story of the lifestyle of the Painter Brothers, and therefore should be used as an exhibit in some way.

Greenhouse/Grapery Stats:

Built: 1871

Condition: poor: glazed roof is extremely deteriorated

Net Square Footage: 600 sf

Previous Use: grapery

Greenhouse/Grapery Recommendations:

- renovate as a "destination" classroom
- renovate as a demonstration exhibit
- restore exterior only as an exhibit in the landscape

Carriage House/Hay Wagon Shed

The Carriage House/Hay Wagon Shed is currently used as a seasonal classroom and overflow storage area. The main floor interior has recently been economically renovated with new finishes and lighting. Although it has fulfilled a temporary need, the space is not ideal as a classroom because it is remote from the restrooms. The exterior is in need of repair, but due to its relationship to the other historic buildings and the story that it tells of the original farmhouse shifting to a more dedicated residential function, demolition is not recommended. Upon further consideration of the overall phasing of the building renovations, this facility could serve a variety of purposes, but it important to note that it is not currently connected to plumbing.

Carriage House/Hay Wagon Shed Stats:

Built: post 1872

Condition: fair: requires stone repointing and siding repair

Net Square Footage: 610 sf

Previous Use: storage

Carriage House/Hay Wagon Shed Recommendations:

- reprogram as a “destination” classroom (perhaps with gardening or other messy activities that are undesirable in typical classroom spaces)
- relocate classroom function and reprogram as dedicated storage

Springhouse

The Springhouse is currently used as a seasonal classroom. It has been renovated recently and is in good shape. It has an active spring at the lower level.

Springhouse Stats:

Built: 1798

Condition: good

Net Square Footage: 300 sf

Previous Use: springhouse

Springhouse Recommendations:

- continue with its current use as seasonal classroom
- expand its use to include educational exhibits for those times when the classroom is not in use

Outhouse

The outhouse is currently used for miscellaneous storage. However, it was not reviewed in detail.

Outhouse Stats:

Built: 1873? (date confirmation is not available)

Condition: not reviewed

Net Square Footage: 40 sf

Previous Use: toilet facility (non-public)

Outhouse Recommendations:

- conduct additional research on the history of the facility and the potential role it might play in Tyler’s future building programming of the historic core
- consider using it to conceal mechanical/electrical equipment for one or more of the adjacent historic buildings.

Root Cellar/Fruit Vault

The Root Cellar/Fruit Vault is currently not in use. The interior could not be accessed. Due to its original use for cold storage, there is excellent potential for an educational

exhibit as it is an example of an alternative to modern day refrigeration. At a minimum, the structure should be stabilized and remain an exhibit in the landscape.

Root Cellar/Fruit Vault Stats:

Built: 1858

Condition: fair to poor (although interior not reviewed)

Net Square Footage: 110 sf

Previous Use: cold storage

Root Cellar/Fruit Vault Recommendations:

- conduct investigation to determine access and interior condition
- consider reuse for educational exhibit

Visitor Center

The Visitor Center is currently in use as its original program to orient visitors, monitor attendance, and house retail sales merchandise. Originally built as a 10 year temporary structure, it is in good condition, but it does not meet the current needs of the visitor services staff. The storage area is very limited; the staff area is too small (and provides no private space); the exhibit area does not accommodate large groups; the retail area has limited display options and is small (a retail plant area is desired); and the food/drink options are too limited. Visitors are required to enter the Arboretum by passing through the Visitor Center (and paying an admission fee), but its configuration and signage do not make this function clear. The visitor services staff also schedule educational seminars and ideally would be housed closer to the education staff. The Visitor Center also serves to support the Spring Plant Sale and Pumpkin Days. The facility does not include public rest rooms, and visitors are often frustrated to learn that these are located in the Barn. For its size, this building fulfills many needs that would be better served by a larger facility.

Visitor Center Stats:

Built: 2001

Condition: good (built as 10 year temporary building)

Net Square Footage: 700 sf

Previous Use: constructed for current use

Visitor Center Recommendations:

- relocate the visitor services into a new structure adjacent to Administration and Education and designed to accommodate numerous program components
- reuse as flex space while other facilities are being renovated or constructed
- consider as temporary volunteer coordination space
- remove structure at a future date to be determined

Maintenance Facility

The Maintenance Facility currently houses work areas, storage, offices, and locker rooms/restrooms. Directly adjacent to the main building are exterior storage areas, a poly-house, and a recently added storage shed for the catering company. The maintenance staff is the most remote of all staff. This relationship is appropriate due to the nature of the work performed here; however, it often times isolates the staff. (Better means of electronic communication could improve this situation.) Although there is loft storage, additional storage space is needed. Pole barns could fulfill additional storage needs for equipment that remains outside year-round. Although the offices are currently adequate, additional space will be needed should the staff be expanded. In addition, the quality of office space is minimal (for example, daylight is provided in the Director's office only). The general location of the Maintenance Facility is appropriate because it is removed from the arrival point and historic core. However, because it is on the edge of the Arboretum, additional screening on the north side of the building is desirable as it currently serves as one of the "public" faces to the neighboring property.

Maintenance Facility Stats:

Built: 1982

Condition: fair to good: in need of roof repair

Net Square Footage: 7395 sf

Previous Use: constructed for current use

Maintenance Facility Recommendations:

- provide additional storage via open pole barn(s) at 20' deep x 100' wide
- provide additional storage in closed addition or new structure
- provide screening at north property line
- provide additional staff space (as staff size requires)

New Facilities

This programming study recommends that the Administration, Education, and Visitor Services functions be combined into a new building, or grouping of buildings, in order to adequately meet the needs of staff and visitors. The grouping and improved facilities for these program elements will provide the access and support that is needed for these departments to successfully collaborate to provide for not only Tyler's current needs, but also for its future goals.

The approximate square footage for each department is listed below:

Administration:	3783 sf
Education:	7865 sf
Visitor Services:	5005 sf
TOTAL	16,653 sf

A preliminary space program summary for the new facilities is included in Section IV of this report. It is provided for reference in contributing to the Viridian Landscape Studio 2007 Master Plan. This summary includes assumptions on future staff expansion and estimate storage needs. The square footages and spaces are recommendations based on discussions with the current Tyler staff and the experience of SMP Architects in designing similar facilities. However, each new program element should be studied, tested and revised where necessary, as part of a full feasibility study prior to beginning design work on the actual facility.

As previously noted, it is suggested that the feasibility study for the Barn be performed in parallel with that for the new facility. The proposed programs for the existing Barn and new facility are intended to complement each other in order to most efficiently meet program needs while minimizing the duplication of spaces, which might otherwise lead to overbuilding and unnecessarily raising the cost of the new construction.

IV. Buildings Space Summary

TYLER ARBORETUM				Proposed Program
		existing	new	
TYLER BARN				
	<i>First Floor Left (East)</i>			
	Terrace Room	1207		public programs
	Utility Room	25		renovate and reuse
	<i>First Floor Right (West)</i>			
	Open Classroom	446		public programs
	Gathering	232		public programs
	Volunteer Meeting	192		support for public programs
	Office 1	105		support for public programs
	Office 2	118		support for public programs
	Office 3	84		support for public programs
	Office 4	180		support for public programs
	Office 5	178		support for public programs
	Storage/Utility	47		support for public programs
	Circulation	298		support for public programs
	Stair 1	100		renovate and reuse
	Stair 2	98		renovate and reuse
	<i>Second Floor Left (East)</i>			
	Sequoia Room	1415		public programs
	<i>Second Floor Right</i>			
	Vestibule	134		renovate and reuse
	Catering Kitchen	180		relocate to lower level
	Kitchen Storage	55		relocate to lower level
	Corridor	480		renovate and reuse
	Office (Education)	245		support for public programs
	Meeting Room	154		support for public programs
	Men's Room	106		renovate and reuse
	Women's Room	112		renovate and reuse
	Stair 1	100		renovate and reuse
	Stair 2	105		renovate and reuse
	Storage/Utility	675		support for public programs
	<i>Third Floor Right</i>			
	Center Bay	568		renovate as large public program area
	Side Bays (no floor/open to below)		1560	infill floor for large public program area
	TOTAL	7639	1560	

IV. Buildings Space Summary

TYLER ARBORETUM				Proposed Program
		existing	new	
LACHFORD HALL				
<i>Basement</i>				
Utility/Storage	1353			utility
<i>First Floor</i>				
Reception	255			reprogram: public restrooms
Copy/Support	180			reprogram: public restrooms
Museum 1	206			historic exhibits
Museum 2	175			historic exhibits
Museum 3	192			historic exhibits
Museum 4	180			historic exhibits
Restroom 1	18			renovate or remove
Restroom 2	22			renovate or remove
Stair Hall	62			historic exhibits
Back Stair	15			renovate for residence access
Corridor	56			historic exhibits
Storage/Utility	8			renovate and reuse
<i>Second Floor</i>				
Office 1	215			reprogram: storage
Office 2	170			reprogram: storage
Office 3	218			reprogram: storage
Office 4	195			reprogram: storage
Office 5	98			reprogram: staff residential apt.
Office 6	70			reprogram: staff residential apt.
Conference Room	148			reprogram: staff residential apt.
Corridor	96			reprogram: staff residential apt.
Back Stair	27			renovate for residential apt. access
Stair Hall	91			open to educational exhibits below
Storage/Utility	60			renovate and reuse
<i>Third Floor</i>				
Storage Area 1 (north)	232			storage for residential apt.
Storage Area 2 (south)	584			archive storage
Storage Area 3 (low under rafters)	210			archive storage
Corridor 1	88			renovate and reuse
Corridor 2	151			renovate and reuse
Back Stair	18			renovate and reuse
	TOTAL	5393		

IV. Buildings Space Summary

TYLER ARBORETUM				Proposed Program
	existing	new		
PAINTER LIBRARY				
<i>Basement</i>				
Utility/Storage	410			utility
<i>First Floor</i>				
Library	203			educational exhibits
Vault	91			exhibits
Stair	49			renovate and reuse
<i>Second Floor</i>				
Library	203			exhibits
Vault	91			exhibits
Stair	49			renovate and reuse
	TOTAL	1096		
STONE HOUSE				
<i>Basement</i>				
Laundry	147			utility
Storage/Utility	770			utility
Back Stair	27			renovate and reuse
<i>First Floor</i>				
Entry Hall	112			renovate and reuse
Living Room	365			reprogram: public programs
Dining Room	210			reprogram: public programs
Kitchen	132			support for public programs
Pantry	27			support for public programs
Main Stair	42			renovate and reuse
Back Stair	27			renovate for residential apt. access
<i>Second Floor</i>				
Bedroom 1	196			reprogram: staff residential apt.
Bedroom 2	163			reprogram: staff residential apt.
Bedroom 3	126			reprogram: staff residential apt.
Bedroom 4	132			reprogram: staff residential apt.
Hall	60			renovate and reuse
Closets	60			renovate and reuse
Bathroom	72			renovate and reuse
Main Stair	33			renovate and reuse
Back Stair	21			renovate for residential apt. access
<i>Third Floor</i>				
Open Room	560			reprogram: staff residential apt.
	TOTAL	3282		

IV. Buildings Space Summary

TYLER ARBORETUM		existing	new	Proposed Program
WHITE COTTAGE				
<i>Basement</i>				utility
Utility/Storage				
<i>First Floor</i>				reprogram: classroom or storage
Living Room				reprogram: classroom or storage
Kitchen				demolish
Den				
<i>Second Floor</i>				support for classroom or storage
Bedroom 1				support for classroom or storage
Bedroom 2				renovate and reuse
Bathroom				renovate and reuse
Closets				
TOTAL		not available		
GRAPERY				
Main Level		312		renovate as exhibit
Lower Level		290		renovate as exhibit
TOTAL		602		
CARRIAGE HOUSE / HAY WAGON SHED				
Main Level		306		event storage
Loft		300		storage
TOTAL		606		
SPRINGHOUSE				
Main Level		144		classroom and exhibit
Lower Level (wet)		156		exhibit
TOTAL		300		
OUTHOUSE				
Stall 1		19		utility/storage or remove
Stall 2		19		utility/storage or remove
TOTAL		38		

IV. Buildings Space Summary

TYLER ARBORETUM				
		existing	new	Proposed Program
ROOT CELLAR / FRUIT VAULT				
	Cellar/Vault	108		exhibit
	TOTAL	108		
VISITOR CENTER (existing)				
	Lobby/Information	250		flex space; eventually remove
	Retail	156		flex space; eventually remove
	Reception	180		flex space; eventually remove
	Staff Bathroom	45		flex space; eventually remove
	Front Vestibule	36		flex space; eventually remove
	Rear Vestibule	35		flex space; eventually remove
	TOTAL	702		
MAINTENANCE FACILITY				
	Large Equipment	4895		reuse
	Small Equipment	246		reuse
	Office	110		reuse
	Meeting Room	220		reuse
	Men's Locker Room	270		reuse
	Women's Locker Room	100		reuse
	Mechanical Room	108		reuse
	Storage 1	80		reuse
	Storage 2	98		reuse
	Storage 3	68		reuse
	Loft Storage	1200		reuse
	Pole Barn(s)		2000	new construction
	TOTAL	7395	2000	

IV. Buildings Space Summary

TYLER ARBORETUM			Proposed Program
	existing	new	

ADMINISTRATION (new construction)

Executive Director		150	private office
Administrative Assistant		100	open office layout
Bookkeeper		100	open office layout
Director of Development		150	private office
Development Associate		100	open office layout
Development Assistant		100	open office layout
Development Staff		100	new position
Special Events Coordinator		100	open office layout
Communications Coordinator		100	open office layout
Major Gifts Officer		150	new position; private office
Business Manager		100	new position; open office layout
Future Staff		150	private office
Future Staff (4)		400	open office layout
Conference Room		200	
Copy/Fax/Storage		200	
Staff Restrooms		260	
Office Supplies Storage		150	
File Storage		300	
<i>subtotal</i>		2910	
Grossing Factor for Circ/Utility/Mech (30%)		873	
TOTAL		3783	

EDUCATION (new construction)

Director of Programs		150	private office
Registration		100	private office
Volunteer Coordinator		100	private office
Education Coordinator		100	new position; private office
Support Staff (5 part-time)		250	50 sf per workstation
Student Interns (5 part-time)		250	50 sf per workstation
Future Staff (2)		200	private office
Future Staff (2)		200	open office layout
Volunteer Gathering Space		300	
Meeting Room			share with Admin
Classroom #1		600	
Classroom #2		600	
Classroom #3		600	
Classroom #4		600	
Classroom #5		800	folding partition for (2) 400 sf
Classroom #6		800	folding partition for (2) 400 sf
Staff Restrooms			share with Admin
Public Restrooms			share with Visitor Center
Education Supplies Storage		400	
<i>subtotal</i>		6050	
Grossing Factor for Circ/Utility/Mech (30%)		1815	
TOTAL		7865	

IV. Buildings Space Summary

TYLER ARBORETUM			
	existing	new	Proposed Program

VISITOR SERVICES (new construction)			
Lobby/Exhibits and Interpretation		600	
Reception		250	
Retail		400	
Outdoor Retail (garden/plants)		200	
Retail Storage		200	
Café (seating/service/storage)		600	
Staff Office Area (5 part-time)		250	50 sf per workstation
Future Staff (full-time)		100	retail manager
Future Staff (2 part-time)		100	50 sf per workstation
Public Restrooms		500	
Entry Vestibule		150	
General Storage		500	
<i>subtotal</i>		3850	
Grossing Factor for Circ/Utility/Mech (30%)		1155	
	TOTAL	5005	

Appendix A: Historic Building Observation Report

Tyler Arboretum Historic Building Observation Report

On April 4, 2007 Rick Colbert, Executive Director of Tyler Arboretum, and David Ade and Missy Maxwell of SMP Architects conducted a site visit to review the general condition of the existing historic buildings at the Tyler Arboretum. The review was a general observation of the historic buildings in order to inform the programming report. Information on recent repairs and utilities was provided by the Executive Director.

SMP also reviewed several reports commissioned by Tyler Arboretum. They include two reports prepared by 1:1:6 Technologies Incorporated: *Tyler Arboretum – Building Survey*, dated September 29, 2005, which prioritized recommendations for repairs to the Stone Bank Barn, Painter Library, Lachford Hall and the Carriage House, and a report on the analysis of the *Lachford Hall Stucco*, dated October 17, 2005; the *Preliminary Feasibility Report for the Adaptive Reuse of the Tyler Arboretum Barn*, prepared by Kise Straw & Kolodner, dated January 12, 2007; and a *structural report* from Carl Baumert of Keast & Hood, dated February 12, 2007.

Tyler Barn (1861)

The Barn is a dramatic and imposing field stone structure, consisting of two main sections: a three-level bank barn section on the west (informally referred to as 'right side') and a two level addition with on the east (informally referred to as 'left side'). Both roofs are sheathed with asphalt shingles. Those on the bank barn section were installed in 1985. The lower roof shingles were installed last year.

West Side (Right Side)

Access to the ramp or hay mow level (Third Floor) of the bank barn section is from a concrete ramp leading to wood barn doors in the center of the north elevation. There is a wood plank floor in the center of this level, which is used primarily for equipment storage and other miscellaneous items. The sections on either side are open to the lower level. The wood post and beam structure of the barn is exposed. The structure has been somewhat modified and metal plates added to the joints. The rafters and wood roof decking are exposed and the roof and walls are un-insulated.

There is a door to the Second Floor under the ramp. This level contains ADA accessible public restrooms constructed in the 1990's and an office behind them on the south side. On the west side is a large a storage area with a plywood floor, which is used for a haunted house around Halloween. A stair in the corner and one east of the restrooms lead to the First Floor.

At the east end of Second Floor is a catering kitchen with two convection ovens. A hot water heater in an adjacent closet supplies the kitchen and the restroom. There is a door at the east wall that leads into the Second Floor of the east section of the barn.

The First Floor has an exterior door on the end gable wall and several along the rear wall. This level contains a classroom, former gift shop and more offices (the office of the volunteer coordinator also functions as a bridal changing room) which have been shoe-horned into the space. The offices were constructed in the 1970's and 80's. This level has a concrete floor which appears to have been raised judging from the low height of the exterior doors.

East Side (Left Side)

The First Floor of the east section, known as the Terrace Room, consists of one large room, which can accommodate about 80 people. The room has a stone floor with raised platforms at each end. The room has continuous doors along the south side. The north wall is below grade. It is furred out but the room has a moisture problem. The ceiling is drywall with cove lighting around the perimeter. The acoustics are poor, and Tyler plans to add acoustic tile to the center of the ceiling to improve the acoustics of the space. Most of the rental events take place outside this room on the south terrace under a large tent, which stays up for most of year. The tent cuts off much of the daylight to the Terrace Room. There is no access to public restrooms on this level.

The Second Floor of the east section, called the Sequoia Room, is the largest assembly space at the Arboretum and will accommodate about 85 people. The room has direct exterior access from the north side. There is an interior connection to the catering kitchen and public restrooms on this level. Tyler considers the folding partition that divides the space in half very useful. Originally conceived as a demonstration space, there are built-in counters that contain plumbing. The walls have been furred out, with the exception of the west wall of the bank barn section, which is exposed stone. At the east end of the room a series of L-shaped built-in storage cabinets line the walls of the room. The ceiling has acoustic tile and ceiling fans.

Building Systems

The offices on the First Floor have electric baseboard heat, which makes the space very drafty. The east addition has oil heat. The heater for both levels is located in a closet in the Terrace Room, which makes this room very noisy. The Terrace Room is the only room in the barn that has air conditioning. The condensers are located outside the east end of the barn. An oil tank is buried near the base of the ramp. The Barn is on the public sewer system.

The Preliminary Feasibility Report for the Barn by Kise Straw & Kolodner focuses on the bank barn section and notes several areas of possible concern: cracking in the down slope masonry wall, deterioration in the bases of some of the wood columns at the basement and the capacity of the structure to support possible new loads if floors and new assembly uses were to be added to the ramp level. The report recommends that a structural assessment be performed. Other condition issues mentioned in the KSK report are the poor condition of the west garden wall, failing paint, and inappropriate pointing in some areas.

Structural engineer, Carl Baumert of Keast & Hood, also visited the barn and submitted a report on February 12, 2007. The K&H report does not note any critical items that would demand attention and recommended spot pointing of open joints.

Overall Condition

The 1:1:6 Report addresses the Barn, identifying repairs recommended from 1 to 10 years in the future. These included immediate replacement of the roofing on the bank barn addition, which has been completed, and stone repointing, wood repainting and window repair.

The Barn is in good condition structurally but would benefit in the short term from pointing, painting and window repair mentioned in the reports. Depending on the proposed use, further analysis and more extensive work may be required.

Lachford Hall (1738)

Lachford Hall is a three story stuccoed stone house with a basement and a two-story rear addition. A one story wood porch stretches across the front façade. The front portion of the house dates from 1738. An addition was added in the 19th century and the house was "Victorianized" at that time. According to the 1:1:6 Report, both the front section, which was originally exposed stone, and the rear addition were stuccoed with dark gray stucco. The stucco was later painted.

The front portion of the house is a center hall plan. The front rooms of the house are used as a house museum from April through September, entirely staffed by volunteers, and contain many antiques from the Minshall, Painter and Tyler families. The rear addition and the second floor of the house function as office space for the Arboretum. The third floor is used for storage. There are two small powder rooms on the first floor; their location in a former passageway prevents direct connection between the front and rear portions of the building at the first floor. The first floor of the rear addition has a sheet vinyl floor. Moisture problems are apparent by peeling paint here as well as the front section of the house. There is a crack above the first floor window on the west wall.

The second floor of the front section has plaster walls and wood floors with wide plank floors in front rooms of second floor. Front offices have exposed painted beam ceilings and corner fireplaces, painted wood floors. The wood floors have no sub floors so light and noise filter through them. Paint is peeling typically throughout the interior. Tyler currently does not have a maintenance staff to do this kind of work and relies mainly on high school volunteers.

The third floor rear addition has low plaster ceilings and wood floors. Rafters in exposed eave spaces have been sistered to strengthen them. This space is used for storage including papers, special event materials, and overflow historic furnishings.

There is a full basement under both the front and rear sections of the house. Stone walls are whitewashed. The concrete slab is broken and cracked. The joists in the front section have been shored up by steel columns in the center and wood posts and beams along the exterior walls. Some rot is apparent in the framing. There is some asbestos insulation on the piping. A portion of the basement ceiling is plastered and part of this has fallen off.

Moisture problems such as peeling paint and plaster failure on the interior indicate a problem with the stucco. 1:1:6 Technologies Incorporated was hired to prepare a condition assessment of the stucco at Lachford Hall. Their report states that the stucco is failing because moisture is penetrating the walls, from the roof and flashings as well as from the foundation, and is being trapped by the paint coating. The report recommends that the roof be replaced in order to stop the source of moisture. Then further testing should be done to determine whether the paint coating could be removed. If it is possible, then the coating should be removed along with damaged stucco and the building repaired. If it is not possible, then all stucco must be removed and new stucco applied to match the existing. The question of whether to restore the front section to its original stone appearance was raised during SMP's site observation. It is important to note that other changes were also made to the building when the stucco was added; these include changes to window openings, and the addition of a center gable at the roof line. If there is a desire to restore the stone, additional restoration work will be necessary to return the structure to its pre-Victorian configuration.

Building Systems

The heating system consists of two oil fired boilers, one for the front and one for the rear. The house is heated by radiators and the piping is exposed. The electrical panel feeds the Painter Library. The house has security and fire alarms systems as well as IT. New wiring is primarily surface mounted. The main telephone lines feed into this building and exit from here serve the other buildings. The lighting in the offices is inefficient and poorly located.

General Conditions

The existing asphalt shingle roof was replaced in 1988. There are metal roofs on the rear addition and porches. Chimneys have been capped. Exterior woodwork is peeling in many places and requires painting and repair.

No matter what use is recommended for Lachford Hall, a decision must be made about the stucco. A stucco finish on both the front and rear sections of the building would be consistent with what is there now and what existed when the addition was added. So much of the front section has been changed, the gable dormer, the porch, the windows, the fireplaces, etc. that it would be difficult to restore it to its original appearance. In addition, the rear section would not have been there at the time of stone finish at the front section.

Painter Library (1863)

The Painter Library was constructed in 1863 by Minshall and Jacob Painter to house their large collection of books, specimens and scientific equipment. The building is a two story field stone structure with attic and basement. The building has a metal standing seam gable roof and wood 6 over 6 windows.

The stonework is in good condition although there are some open joints since the stone has not been pointed in 15 years and was previously covered by ivy. The roof was recoated 4 years ago. The brick chimney has been capped but there are open joints there as well. The windows require glazing/putty repair work and repainting, especially at the exterior sills. Recommendations for repair of these and other conditions are included in the 1:1:6 Report.

An interior stair on the east side of the building connects all floors. Each of the two main floors has one large room and a vault with a barrel ceiling at the west end of the building. These vaults are vented by small holes in the exterior walls. The interior walls and ceilings of the first and second floors are plastered. There is some peeling paint and a crack over one of the front windows on the first floor.

The wood rafters and wide board sheathing are exposed in the attic. Stains on the rafters and sheathing indicate water infiltration at some time. The attic floor is wood. The first and second levels have plaster walls and ceilings and splatter painted concrete floors. The supports for the second floor are concealed by the plaster ceiling. The first floor is supported by steel open web joists visible in the basement. The basement walls are whitewashed stone. The floor of the main section is brick and in the vault area, it is gravel. The ceiling of the vault area is a rough stone barrel vault.

Building Systems

The building has steam or hot water heat and the boiler is relatively new. Electrical service comes from Lachford Hall. The building has fire and security systems.

Overall Condition

The Painter Library is in relatively good condition. If the use is not changing, the exterior work proposed by the 1:1:6 Report should be completed.

Stone House (1932)

The Stone House is a three-story Colonial Revival field stone house built in 1932 by the well-known architect, Robert McGoodwin. The house has a full basement, four bedrooms, one bath, and front and back stairs.

The interior is in excellent condition. Wide board oak floor, wood trim, paneling, and plaster on stone walls are in good condition. Some paint on the interior wood window jambs and head is peeling, mainly at the rear elevation, indicating possible moisture problems at the windows. The basement walls are stone, the floor concrete. Some moisture issues are evident on the walls.

The stone pointing is very good condition. On the front façade, a few minor diagonal cracks below the windowsills were visible as well as a few hairline horizontal cracks at the line of the lintels over the windows. On the rear elevation, joints at the metal flashing above the windows could be a source of the moisture problems, which are apparent on the interior. Sealant has been applied between the window trim and the stone where mortar was missing. One side of the rear porch has separated from the house by about one inch. On the gable end, there were gaps between the window trim and the stone.

A new asphalt roof was added in 1994, and the house has been painted within the last 10 years. Downspouts spill onto splash blocks. The wood windows appear to be original and exterior aluminum storm windows have been added except for the third floor. The tenant noted that the wood windows operate but many of the ropes are broken.

Building Systems

The heating system is approximately 4 years old and consists of an oil fired boiler and radiators. The house is not air-conditioned. Asbestos has been removed. There is an electric hot water heater. The house is on public water and uses the same septic system that serves the White House and Lachford Hall. The house has knob and tube wiring but has had some upgrades.

General Condition

The Stone House is probably in the best condition of any of the buildings in the Arboretum. Addressing the exterior issues mentioned above and repainting the woodwork would solve the moisture penetration problems.

White Cottage (unknown)

The White Cottage is a small stucco building built in three increments. The original section is a one-story stuccoed stone building with a gable roof and basement, built over a spring. The second section is a two-story addition with a basement. The third section is a rear one-story frame addition constructed in the 1950's over a crawl space.

The interior of the first section consists of one large room with a high gable ceiling and a corner fireplace. In the basement, the spring is covered by a wooden platform. A single stair in the second section connects the levels of the house. There is one bathroom on the second floor of the east addition. The house has wood flooring. The framing is concealed except for the basement, where the wood joists have been shored up along the middle of the space with wood posts sitting on blocks on the floor. The basement has a concrete floor, which is in poor condition.

Within the last 8 years, Tyler has made some exterior improvements, which have included a new asphalt shingle roof, chimney repair, and replacement insulated aluminum window sash. The dormers, eaves, fascias and other areas have been sided with vinyl siding. It is not known whether the original wood in these areas was removed before residing. The porch along the front of the second section has new pressure treated decking and a new railing. Tyler also began some interior renovations to the building several years ago but stopped the process after John Milner visited the property and evaluated the extreme moisture problems in the house.

Building Systems

An oil hot air heating system was installed within the last 10 years. It is not clear whether the oil tank still contains oil. The house is currently on public water and has a septic system. Relatively new lighting and ceiling fans are apparent.

General Conditions

The house is plagued by moisture and mildew, probably due to several factors. The spring in the basement is a constant source of moisture. Water also appeared to be seeping into the basement along the rear of the main section. The location of the building is also problematic since it sits in a kind of bowl with the surrounding grade sloping down to it. The ground on the east side of the rear addition was very wet and spongy. The crawl space under the rear addition is either unvented or the vents are blocked. It is very likely that the basement joists have suffered significant damage from the moisture.

Because of these conditions, the house is probably in the worst condition of any of the buildings in the Arboretum. The moisture problems must be addressed before the house could be considered for use of any kind. At that time, further investigation of the structural condition, the interior finishes and HVAC, plumbing and electrical systems should be conducted.

Grapery/Greenhouse (1871)

The Greenhouse or Grapery is an asymmetrical gable structure on a low stone foundation with a below grade lower level. Both levels are accessed by doors at varying grade. The end walls of the structure are stone, covered with stucco, which is in poor condition. The roof framing is wood. The upper level is accessed from a door at the upper grade level. The steeper side of the gable has asbestos shingles on the exterior. The west side has sloping wood window sash glazed with modern acrylic panels. The glazing may have been salvaged from a former greenhouse on the side of Lachford Hall. Some of the sashes are operable but the frames have deteriorated so significantly that they have little material left to support them.

The structure was renovated in 1965 when a new pressure treated wood floor supported on posts sitting on concrete blocks at the lower level was installed. The upper level contains wood potting tables and the lower level is used for pot storage. Because the glazing is only on one side, the greenhouse does not work well for growing plants. It is less expensive for Tyler to buy nursery stock than to grow it.

Building Systems

The building has a propane space heater at the upper level as well as electricity and minimal industrial lighting.

General Conditions

If Tyler continues to use the Greenhouse, the asbestos shingles should be removed and replaced, the stucco repaired, the window sash and framing examined more carefully for repair and/or replacement. Depending on the use, the floor in the basement should also be addressed.

Carriage House/Hay Wagon Shed (post 1872)

The Carriage House is a wood post and beam structure with a gable roof, resting on a stone foundation. The building floor plan consists of one room accessed by two pair of wood garage doors on the north and a single door on the west. The exterior has painted vertical board and batten siding, which shows signs of deterioration. One area of siding at the rear has been replaced. Mortar is missing from the exposed foundation on the south side. A new asphalt roof was added within the last 7 years and the decorative bargeboard was also replaced at that time.

The main level has been renovated for classroom space although it also doubles as storage space. The slightly raised stone foundation is exposed around the concrete floor, which is cracked and needs repair.

The attic level is accessed by a ladder built into the exterior wall. The upper level framing and solid board sheathing are exposed. The attic was used for storing fencing at the time of SMP's observation.

Building Systems

The building has lighting and electricity at the lower level but no water or sewer systems.

General Condition

The board and batten siding is in poor condition. The 1:1:6 Report recommends repair and repainting of the exterior siding and stone repointing within 1 to 5 years.

Spring House (1798)

The Spring House is a two story stone structure with a gabled roof, which is set over a spring. The stonework is in good condition although there are some minor cracks and missing mortar near grade. There is a small vertical crack over the center window on the south elevation facing the stream. The wood shingle roof was replaced and the exterior wood trim was painted within the last 4 years.

The interior has one room on each floor with exterior access but no interior connection between floors. The upper floor has been recently renovated to serve as a classroom space. The walls are plaster on stone. New pressure treated wood flooring and joists have been installed at the upper level. The exposed roof rafters have been sistered near the ridge. New wood lintels have been installed over the windows. The lower level has a stone floor, which is covered by the water from the spring.

The interior is in good condition although some mildew is apparent on the interior walls at the upper level. Tyler has been trying to ventilate the building to deal with the moisture from the spring.

Building Systems

There are no services in the building.

General Condition

Due to the recent renovations, the Spring House is in good condition requiring only minor repointing on the exterior.

Outhouse (1873?) confirmation not available at issuance of this report

The wood frame outhouse near Lachford Hall was not examined.

Root Cellar or Fruit Vault (1858)

The underground root cellar or fruit vault is accessed from the exterior by a wood door on the south side, set into a partially exposed stone façade in need of pointing. The space was not accessible due to soil and debris at the base of the door.

Visitor Center (2001)

The Visitor Center is not considered an historic building and therefore was not included in this review. The overall condition of the building is good.

Maintenance Facility (1982)

The Maintenance Facility is not considered an historic building and therefore as not included in this review. The main area of concern is a new roof, work for which is currently being planned by Tyler.

Appendix B: Senior Staff Example Questionnaire

STAFF: _____

DATE: _____

Gift Shop (also Visitor Center)

Is the current overall size of the shop adequate?

What is good about the current location of the shop?

What is bad about the current location of the shop?

Are there any adjacency requirements for the shop with the other program components?

If the area immediately outside was “controlled” via fence or other means, is there any desire to have an exterior sales area? For example, for plants, garden items and/or seating for café/snacks.

Would having the shop open (in good weather) to a “controlled” exterior generate any concerns about temperature and/or other issues? Is the shop currently ever open to the exterior during pleasant spring/fall weather?

The current shop also serves as a ‘gatekeeper’. What are the pros and cons of this approach? Should a new shop utilize a similar approach?

How do shipping and deliveries currently work? Is it desirable to have another system?

Are there any current goals for expanding the type of merchandise? If so, what would those be?

What percentage of patrons are school groups?

What percentage of patrons are special event attendees?

What percentage of patrons are private rental event attendees?

What percentage of patrons are simply general visitors?

Are there any figures on how many overall visitors use the shop?

Is the shop involved in ‘special events’ such as spring plants or pumpkin days or maple breakfast? If so, how?

Café (currently does not exist)

Is food service desired by patrons? Is food service desired by Tyler?

What type of food service? Would snacks be enough or are meals desired? If there are meals, would these be pre-packaged or prepared on site?

What would be the ideal hours for a café?

Should the café be a stop during a visit to the Tyler Arboretum, or should it be a destination in itself as well?

If the café/restaurant could be anywhere on the property, where would it be and why?

What other program element adjacencies would be desirable?

What are the current guidelines or rules for food and drink on the property?

How much of a concern is litter? How much of a concern are future trash cans throughout the site (assuming they could be aesthetically pleasing)?

Kitchen (currently in the Barn)

Is the size and layout of the kitchen adequate for catering? If not, what changes should be considered?

Is the location of the kitchen *currently* appropriate for catering events? What location or adjacencies should be considered?

If the kitchen could be relocated to a different location or a new building, would you view this as a good or bad? Why?

Does the education component ever use the kitchen? If so, how? If not, is there a desire to have a kitchen component?

Multifunction Space (Barn Addition)

We understand that the Barn is currently used for educational programs and other private rental events. Are weddings only held outside in a tent on the terrace? Are there currently other uses?

Describe how the “meeting wing” is currently used.

Describe how the lower level “education” is currently used.

How might the currently unrenovated upper space be used? How is lower level of space used?

What are the positives about using the Barn for these activities?

What are the negatives about using the Barn for these activities?

If the current program functions were to be removed from the Barn, is there sufficient content for historic interpretation of this building?

What adjacencies are important for this space to function most efficiently? Does the current location achieve this?

Would adjacent outdoor area be beneficial for this space (such as a classroom or informal seating area)?

If this educational /multifunction space could be located anywhere on the property, where would it be?

Education (currently in lower level of the Barn)

Can you provide a general description/overview of the education program?

What are the best features of the current education facility?

What are the challenges of the current education facility?

How was the location of the current education facility determined?

Is the education office intentionally separate from the other administration offices?
If the education facility could be located anywhere on the property, where would it be?

Any desire for a greenhouse integral to the education facility?
Is the historic greenhouse ever used for education?

Is there a desire to have a 'science' classroom to interpret historic legacy? Do you already do it?

Are the current educational goals being met in the current facilities? If not what is missing? What about future goals?

A potting or similar activity is one 'take home' possibility. Is such a 'planting' activity desired? If so, what might it be?

When would the planting activity take place during a visitor experience (beginning, middle, end)? Where on the property would it ideally take place?

Private Rental Events

What types of rental events occur?

What are the current spaces used for these events? How are they used? Is it one space or do groups move to different areas during the event?

Are there any types of spaces missing for rental events? (for example, bride changing room)

Are there other types of rental events you would like to pursue?

Is there currently a limit to the number of people that can be accommodated in a private rental event? Have you had to turn away larger groups? If so, why? If so, would you like that to change?

Administration Building

Why was the admin function located where it is? When was it located here?

If it could be anywhere on site, where would the admin function be?

Are there adequate daylight and views, connections to the property in the admin function?

Is the Executive Director's office adequate and in the right location?

Is the conference room the right size and location? If not, what changes should be made?

What are the current administrative positions?

Are there currently any projections to enlarge the administrative staff? If so, what are they?

What types of spaces do volunteers need? Are these needs currently being met? Where are they located? If so, where? If not, what is needed?

What are the current major concerns about this space?

Maintenance Building

Is the director of horticulture/facilities office adequate and in the right location?

What is the current staff? Any plans to change it?

Is the size of the maintenance barn adequate? If not, what changes should be made?

How was the location of the maintenance barn determined? If it could be anywhere on site, where would it be?

Historic Interpretation

We understand that there is a limited time (Sunday afternoons) when the historic facilities are open. Please provide a brief overview of current interpretation in these buildings and elsewhere.

When can we anticipate that the Board will make a decision on historic interpretation?

General

Is there currently any consensus on moving out vs. keeping the current programs in the historic structures? If these programs were moved out, is there a desire/possibility to re-interpret these spaces historically?

Are there any wishlist spaces that you are currently missing? For example (café, visitor center, etc.)

Ideally what is the first building that a visitor should see upon arrival?

Who/what currently serves as “the greeter” to visitors? Ideally who/what would serve as the greeter in the future?

What are the least public program elements?

What are the most public program elements?

Are there any program elements that should be off limits completely? (such as certain admin offices? maintenance?)

What program spaces require vehicular access on a regular basis?

If the future buildings were to include a visitor center, what types of spaces would be desired? (lobby, exhibits, meeting/assembly room(s), classrooms, restrooms, museum shop, orientation video, science lab, greenhouse, storage, etc.)

What are the physical considerations for the ideal location of the visitor center (adjacent to historic buildings, near the entrance/away from the entrance)?

There are currently restrooms in the upper (and lower?) level of the Barn. How do these currently function? Location? Number?

Would it be preferred to have larger, centrally located restrooms or just additional facilities distributed throughout the site?

What are your thoughts on what if any green building and sustainability should play in the renovation of existing buildings or construction of new buildings?

What are the current security procedures for the buildings? How do they differ during arboretum ‘open’ hours and ‘closed’ hours?

What are your thoughts about security regarding the existing or future buildings, both personal security (harm to people) and facility security (harm to the infrastructure)?

What are *your* thoughts regarding visitor opinions on security regarding the existing buildings, both personal security and facility security?

Tyler currently does not have an onsite caretaker. Is this a consideration for the future? Why/why not?

Tyler Arboretum natural areas and landscape management review

Notes by Roger Latham for Tyler Arboretum staff and planning team meeting on 18 July 2007

Preservation and enhancement of the character of sanctuary inside and outside the fence

Challenges: minimizing to the extent possible ...

- noise
- visibility of infrastructure, equipment or cars
- trail deterioration
- litter

Suggested initiatives:

- Work toward the ultimate closing of Painter Road from Barren Road to Carriage Drive.
- In the interim, promote construction of several speed *humps* (not bumps) 10 to 15 feet in length (similar to those on some streets in the borough of Media) and consider placing an additional stop sign.
- Appeal to Mt. Cuba Center staff to replace unsightly, dilapidated deer exclosures for *Lilium philadelphicum* at Pink Hill with structures that are unobtrusive, durable, and readily removed, transported and stored. Set them out only during the species' flowering and fruiting season.
- Consider proposing a trade of some or all of the Arboretum land across Barren Road for the wedge of Ridley Creek State Park that borders the North Woods and includes part of the Rocky Run riparian corridor. (If the Arboretum were to put strict conservation restrictions on the deed, retain a conservation easement, or convey a conservation easement to a third party, the land across Barren Road could continue to give the Arboretum the same benefits as it does now, without the liabilities of ownership.)

Ecological restoration and long-term management of natural areas outside the fence

Challenges: minimizing or reversing ecosystem degradation caused by ...

- invasive, non-native plants in meadows and forests
- unprecedented high white-tailed deer population
- 50-year decline of serpentine grassland community, habitat for rare, threatened and endangered species at Pink Hill

Suggested initiatives regarding invasive plant management:

- Draw on knowledge bases pertinent to invasive species control in nature preserves (see Global Invasive Species Initiative web site, <http://tncweeds.ucdavis.edu>).
- Prioritize invasive plant species and sites for mechanical treatment by volunteers and herbicide treatment by staff.

- Plant treated areas with site-appropriate native species to discourage reestablishment of invasive species.

Suggested initiatives regarding deer management:

- Consult with Natural Resource Consultants, Inc. to complete a deer management plan with the goal of forest ecosystem recovery and indefinite maintenance.
- Engage Ridley Creek State Park and other surrounding landowners in forming a deer-management co-op.

Suggested initiatives regarding Pink Hill restoration and management (outlined in greater detail in 24 April 2007 memo):

- Prepare a detailed serpentine grassland restoration and long-term management plan.
- Tailor stewardship actions to the needs of high-priority species of special conservation concern.
- Commit to a permanent serpentine grassland maintenance program.
- Undertake a restoration program to re-establish portions of serpentine grassland lost during the last century to forest encroachment.
- Establish a long-term serpentine barrens monitoring program to track the effects of management activities, evaluate success or failure, discern the need for changes in methods, and watch out for early signs of any new problems. It should quantify ...
 - trends in populations of endangered, threatened and rare plant species
 - trends in populations of endangered, threatened or rare animal species and their host plants
 - effects on community composition and ecosystem structure of various management and restoration procedures, relative to control (untreated) areas
- Establish a dedicated, ongoing source of funding for stewardship at Pink Hill.

High-profile demonstration areas

Challenges:

- Maximize beauty and instructional clarity at the same time — may involve trade-offs.
- Effectively communicate the contrasts between “before” and “after.”

Suggested initiatives regarding Native Woodlands Walk and North Woods trails:

- Demonstrate practical, effective ways of restoring native forest diversity and habitat structure.
- Use the adaptive resource management (A.R.M.) approach, with management trials designed as small-scale, controlled and replicated experiments and with long-term monitoring of results. The Arboretum’s A.R.M. results will help fill the present vacuum of information sources on forest-understory restoration methods.
- The “before” contrast will be visible outside of adjacent fence until well after deer management plan has succeeded.

Suggested initiatives regarding Rocky Run stream corridor and vernal wet meadow:

- Demonstrate practical, effective approaches to reclaiming wetland and meadow “ecosystem services,” including increased infiltration, decreased storm water runoff, decreased erosion, reduced stream and pond contamination, sedimentation and eutrophication, and enhanced habitat for songbirds, butterflies and other native wildlife.
- The “before” contrast could be provided using photographs on interpretive signs.

Suggested initiatives regarding Pinetum and adjoining meadows:

- Demonstrate practical, effective methods of native grassland and meadow reclamation, emphasizing enhancement of native species diversity and benefits to wildlife.
 - Convert mowed turf areas in phased increments.
 - Plant patches of varied species composition to maximize species and habitat diversity.
 - Mow and remove cut material close to trees, timed to minimize impact on wildlife.
 - Conduct prescription burning of treeless areas, rotated among patches in different years and timed seasonally to optimize plant species diversity (e.g., occasional late-summer burns to prevent warm-season grass monoculture).
 - Remove patches of plants within areas that have become monocultures and planting a variety of native species.
- Use the adaptive resource management (A.R.M.) approach, with management trials designed as small-scale, controlled and replicated experiments and with long-term monitoring of results. The Arboretum’s A.R.M. results will help fill the present vacuum of information sources on native meadow reclamation methods for the mid-Atlantic region.
- The “before” contrast could be provided using photographs on interpretive signs.

Innovative educational, outreach and research programs

Challenges regarding research:

- Finding funds for cooperative research projects with qualified outside investigators
- Establishing and sustaining productive relationships with qualified outside investigators
- Persuading outside investigators to undertake research that benefits the Arboretum and its visitors and clients

Suggested initiatives regarding research:

- Reach out to institutions with research programs and curricula that could dovetail with the Arboretum’s resources and initiatives.
 - Swarthmore College
 - West Chester University
 - University of Pennsylvania
 - Villanova University
 - St. Joseph’s University

Tyler Arboretum Master Plan – Stormwater Management Opportunities

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Tyler Arboretum Master Plan – Stormwater Management Opportunities

A. Stormwater Management

The management of stormwater on the Tyler Arboretum property has several goals; First, to assure that any new land development prevents any increase in stormwater impacts, both quantitative and qualitative, to the watershed; Second, to reduce or eliminate any impacts from the present site; Third, to mitigate and restore the land and drainage system, especially the Rocky Run; and Forth, to teach by example how to apply conservation or Low Impact stormwater measures to contiguous properties that impact Tyler, and on the larger scale to serve as a regional demonstration site for such measures. The larger goal of serving as a community resource in teaching conservation design should be a basic part of the long term mission plan for the Arboretum. Since a tree is the single best solution to sustaining the hydrologic cycle, reducing global warming, and ultimately sustaining the habitat for our species, Tyler can serve as a living laboratory for sustainable solutions.

Figure 1 illustrates the various elements for stormwater management discussed in the following sections.

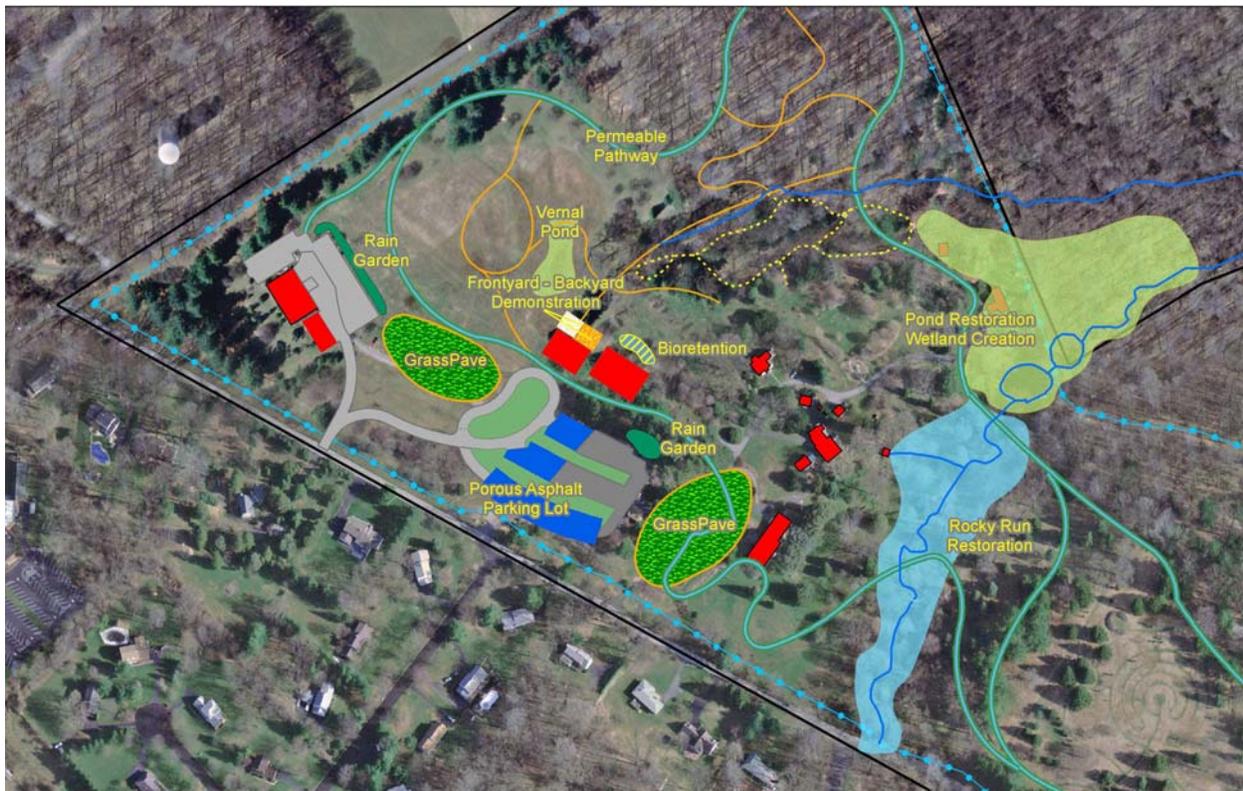


Figure 1. Proposed Stormwater Management Measures

1. Stormwater Management at the Maintenance Building

The Maintenance building is situated at the higher elevations of the Rocky Run tributary sub-basin and currently has no stormwater management, with direct runoff creating erosion at the edge of the pavement (Figure 2), and adding to downstream impacts. Rainfall capture tanks (rain barrels) should be installed at roof downspouts, with re-use for irrigation or non-potable needs at the yard (washing, etc.). Rain gardens/bioinfiltration beds (Figure 3) could be constructed alongside the screened yard, with the configuration to match existing/future pavement edge. Plantings could include native vegetation and would serve as an educational and functional component of the Arboretum landscape. The storage could provide additional irrigation for planting beds.



Figure 2. Edge of pavement at maintenance building

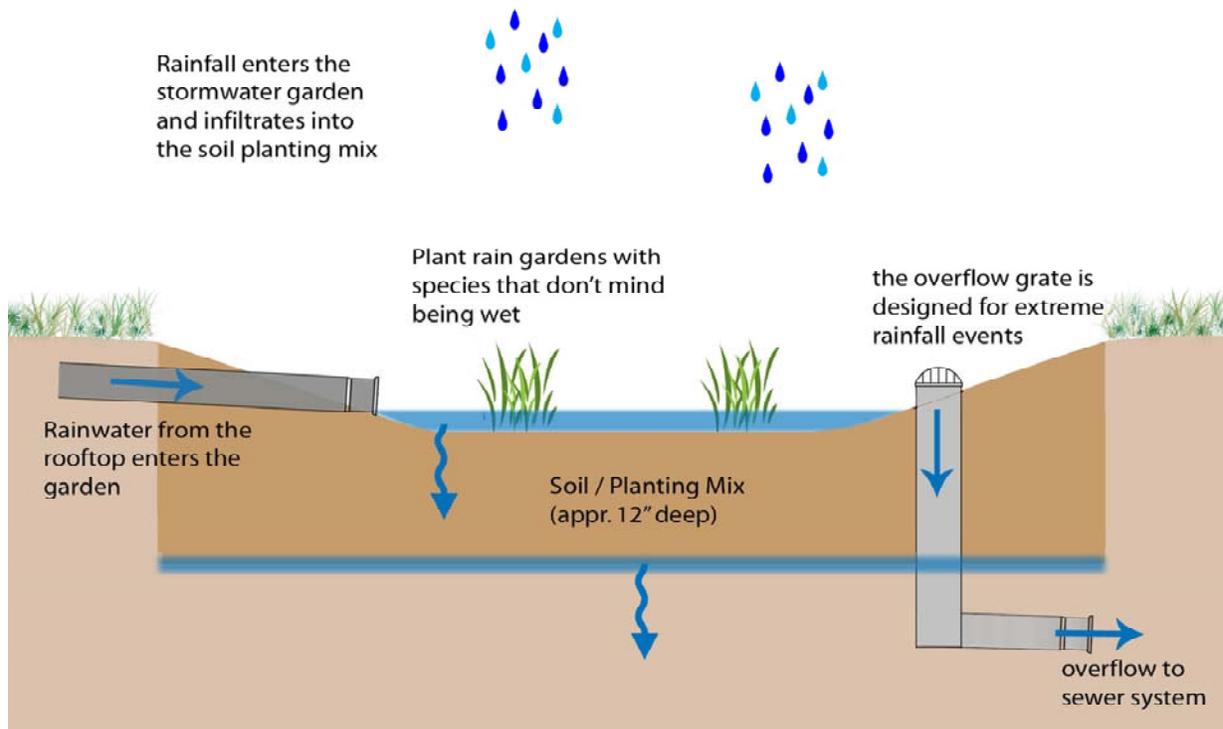


Figure 3. Schematic Detail of Rain Garden/bioinfiltration bed



Figures 4 and 5. Rain garden at the Wayne Art Center, Radnor Township, PA



Figure 6. Example of Bioinfiltration bed at Pennsylvania State University



Figure 7. Example Rain Barrel at Tinicum National Wildlife Refuge

2. Stormwater Management at Visitor’s Parking Lot

Assuming that the existing parking area remains impervious, a raingarden should be constructed to manage the stormwater runoff. Any new parking areas could be constructed as porous asphalt with groundwater recharge beds beneath, but would be uphill of the existing pavements and thus the need for the rain gardens. The Delaware County Soils Map shows much of the Arboretum contains the Glenelg soil – a well-drained soil with an HSG classification B. Glenelg is very suitable for infiltration oriented stormwater management, though detailed infiltration testing would need to be undertaken. The vegetated islands between the parking bays could remain as such, with any overflow from the beds directed into a vegetated infiltration basin.

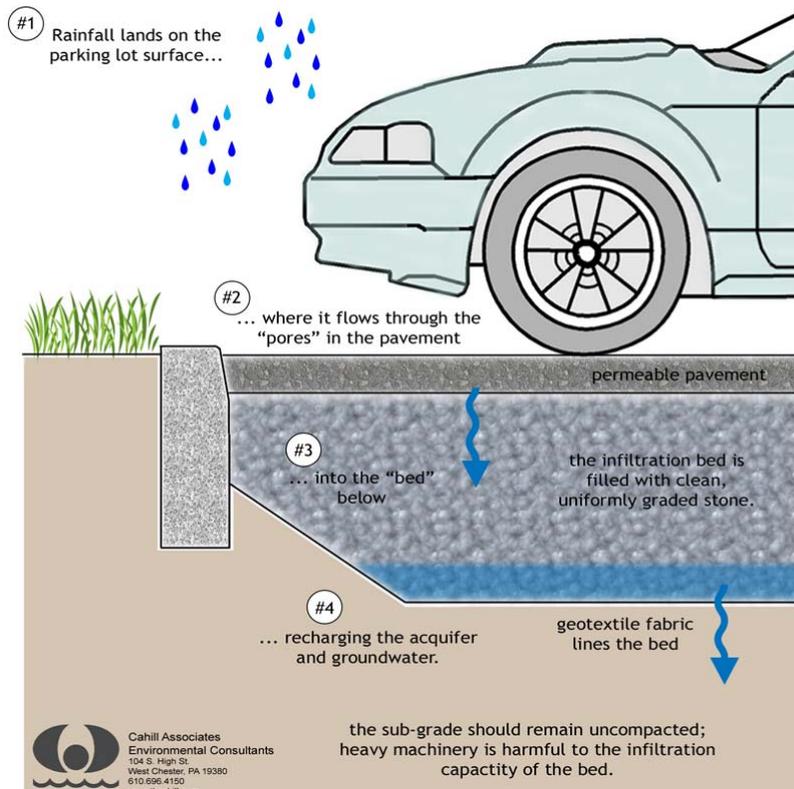


Figure 8. Porous asphalt parking area with recharge bed



Figure 9. Standard and Pervious asphalt parking area at the Morris Arboretum

3. Stormwater Management at Special Events Areas

The need for additional parking capacity, during festivals, weddings, plant sales and other special events at Tyler, has compacted the soil and grass area near the maintenance building and significantly increased runoff and pollutants for the headwaters of the Rocky Run tributary. Soil restoration measures should be applied to those areas which will remain in vegetation, and infiltration beds installed beneath a vegetated surface system, such as GrassPave™, which provides structural support for parking, and protects the vegetated root systems from compaction. Heavy usage of such systems will destroy the vegetation.



Figures 10 and 11. Examples of GrassPave

4. Stormwater Management along the Scenic Loop

A 7,000 +/- feet long, 10-foot wide paved path is proposed to allow both pedestrian and maintenance vehicle circulation throughout the property. Where soil and grade conditions allow, the pavement should be constructed of porous AC underlain by a stone storage/infiltration bed. This new Scenic Loop would be used primarily by pedestrian and bicyclists, but must also serve Arboretum maintenance vehicles. This pathway could also be constructed with other permeable materials, including porous concrete or pavers, both of which could be constructed on top of a shallow recharge bed, but the unit cost would be substantially greater.



The pathways at the Gray Towers National Historic Landmark are constructed of porous asphalt and incorporate a brick edging for aesthetics (Cahill Associates, Inc. 2005). Underneath the paths is an infiltration bed.



Figure 13 and 14. ADA Accessible Porous Asphalt Path at Swarthmore College



Figure 15. Standard asphalt pathway with GrassPave edges for fire truck access

5. Restoration of Understory along Rocky Run tributary in North Woodland

The unnamed tributary to Rocky Run has been impacted by the lack of stormwater management at the Maintenance Building as well as the compaction of the grassed meadow. Once the stormwater issues are addressed upstream at the maintenance building and overflow parking area (see below), the creation of a riparian understory will further protect and minimize stormwater impacts to the Rocky Run tributary. This restoration will utilize both small check dams where appropriate and vegetation along the small stream riparian corridor, with some temporary erosion mats in selected areas.

6. Rocky Run Riparian Restoration Program

Rocky Run, as it flows through the Arboretum, suffers primarily from an “inherited” stormwater problem from upstream sources, but is also impacted by land activities on the Arboretum property. Approximately 30 homes in the residential neighborhood across Painter Road drain into a system of inlets and pipes that conveys runoff onto the Arboretum property. The stormwater runoff results in increased runoff volume from impervious surfaces (roads, rooftops, driveways) and water quality impacts from the “lawnscares” and street scouring of NPS pollutants. The eroded and degraded Rocky Run stream corridor on Tyler property and the hyper-eutrophic pond demonstrate the impacts of this development.

A *Rocky Run Restoration Program* should be undertaken which would incorporate stormwater management measures at both off-site residences and Tyler buildings demonstrate how to reduce the development impacts, and combined with measures within the stream channel to restore full function to the natural drainage system. These measures would include:

- Reduction of off-site residential drainage by individual measures
- Reduction of runoff from existing Tyler buildings
- Restoration of the natural stream geomorphology
- Check dams along stream channel and bank stabilization
- Dredging and enlarging of pond with wetland edge and buffer upstream



Figure 17. Checkdams can be constructed to provide volume control and reduce erosive velocity

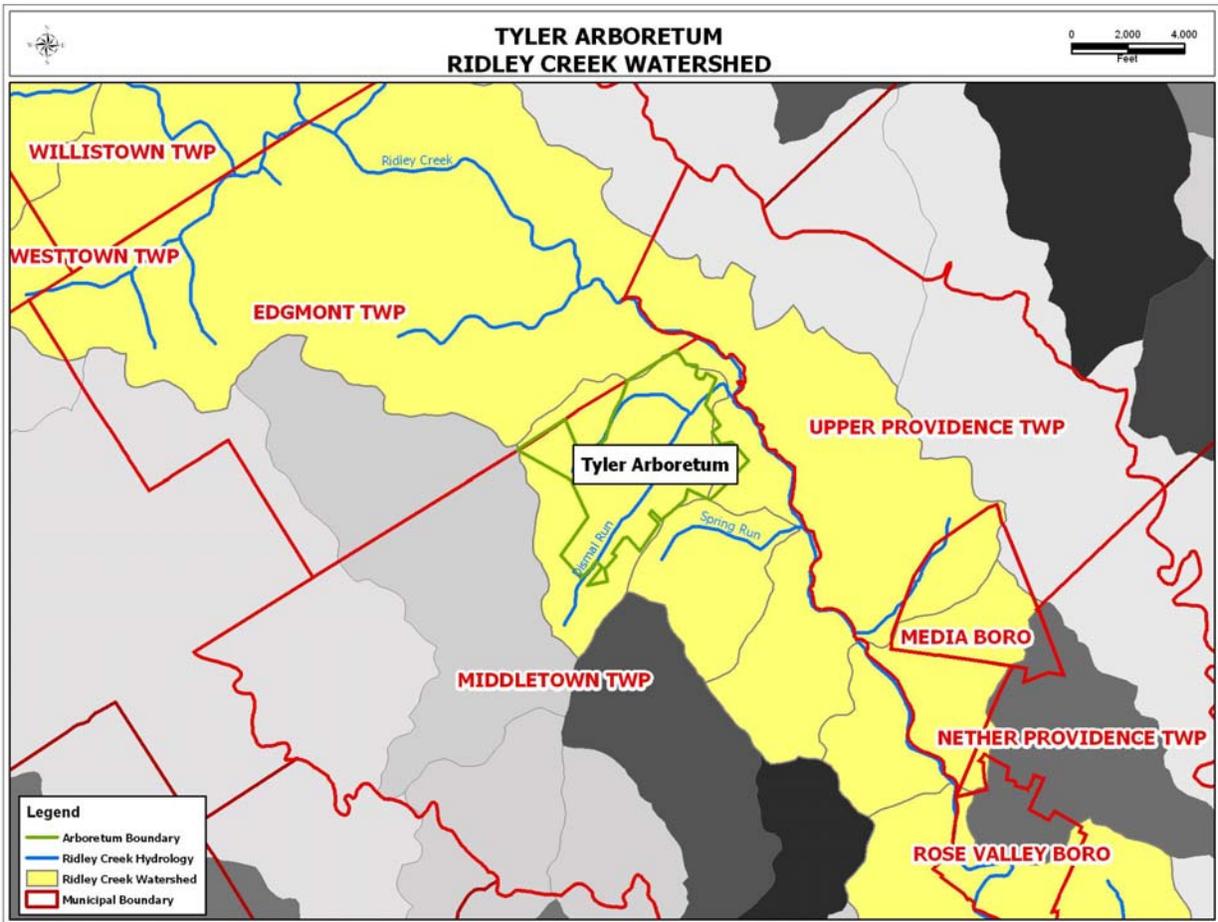
7. Development of Watershed Demonstration Projects at Tyler Arboretum: *Reaching Out to the Watershed - Reaching Out for the Watershed*

The Front Yard/Back Yard Educational Demonstration at Tyler: From Part of the Problem to Part of the solution

The Problem: Tyler Arboretum is located in the middle of the Ridley Creek Watershed, a tributary of the Schuylkill River (see Figure below). Ridley, like its neighboring Crum and Chester Creeks (and so many other mid-sized streams systems throughout the Philadelphia Region) is a stream which has been heavily impacted by suburban development (much of it residential in nature) in past decades. This watershed development, usually with no stormwater management and occasionally with partial detention management, has proliferated and resulted in major changes to the natural hydrology of the watershed system, Ridley Creek included. Total volumes and peak rates of runoff have increased for the frequent small storms as well as for the largest storms. Water quality has suffered. Severe channel erosion and undercutting, increased flooding, declining stream baseflows, impacted aquatic communities and other problems are now all too common. Studies such as the Act 167 Stormwater Management Plan for the Ridley Creek Watershed () and the River Conservation Plan for the Ridley Creek () document this array of problems facing the watershed in which Tyler finds itself.

Although Tyler is not located on the Ridley Creek Mainstem, this watershed problem is illustrated in microcosm along Rocky Run, a Ridley tributary, where upstream single-family residential development, lacking proper stormwater management, has altered stream hydrology

and impacted Tyler downstream areas, eroding and undercutting streambanks, exaggerating both flood flows and low flows, scouring substrate and impacting aquatic life and its richness.



The Solution: Solving these problems to a large extent in these already developed areas, virtually all of which are privately owned, means retrofitting individual residences, lot by lot. Technically, solutions are totally feasible and can be grouped as arrays of “front yard” and “back yard” actions that include development of (include multiple images as space allows):

1. **Infiltration-oriented BMPs fitted into driveways, walkways, patios and other existing impervious areas, as appropriate.**
2. **Capture/re-use rain barrels and cisterns, installed at residences to reduce runoff and reduce water supply needs.**
3. **Vegetative BMPs, such as rain gardens and vegetated swales and filter strips, integrated into residential lots as appropriate.**
4. **More comprehensive re-forestation/meadow/native landscaping themes incorporated into the lot, as appropriate.**
5. **Riparian buffer planting along stream banks**

These front yard/ back yard solutions necessarily must vary with lot conditions and site realities. Guidance needs to be provided to help residents pick what will work best. Clearly, important considerations will relate to:

- cost
- ease of development (slope, vegetation, soils, other natural features)
- ease of maintenance
- aesthetics
- other user factors.

Perhaps most critical is to show watershed citizens how successful application of these techniques can be – how attractive they can be – how their home values can be enhanced. Seeing is believing. Front yard and back yard prototypes can be carefully integrated into the rear facades of the proposed new visitor center structures, including virtually all of the elements of the program (as set forth above; note that the riparian buffer elements will be illustrated in other Tyler locations). Demonstration site design would optimize attractiveness as well as environmental function. All of the elements will be thoroughly explained (liberal use of signage via a self-guided walking tour); additional explanatory brochures will be available to further explain front yard/back yard details.

(Note to Team: although we have not carried the concept this far, Cahill would appreciate being able to exploit a Team member to sketch a rendering of either/both the front yard and/or back yard concept, fitted onto the exterior of these proposed visitor structures. Secondly, we have not as yet pushed further into grant programs, though understand that those mentioned here are potential sources of \$. We don't want to push until we get some authorization.)

Such a watershed demonstration program makes perfect sense in this watershed where so much of the watershed problem relates to unmanaged residential runoff in scores – hundreds – thousands of residential lots, where many structures are undergoing improvement and where owner incomes can support retrofitting work. Furthermore, grant sources (Delaware Estuary Program, PADEPs 319 and *Growing Greener* programs, other foundation grants) offer potential subsidy. Note that there is virtually no other similar demonstration site in the Ridley Creek watershed (for that matter, in the entire Philadelphia Region). Such an attractive and environmentally-committed educational experience promises to attract new visitors and make Tyler an increasingly popular destination.

8. Stormwater BMPs within existing buildings – education/demonstration

While the proposed new Visitors Center can offer a number of opportunities for demonstration of stormwater management BMPs, the existing buildings on the property can also serve as demonstration sites. The concept is to show the local community how to and such measures, while improving the overall value of their home and improving aesthetics. The existing buildings on the Arboretum property could be improved in the same way, and the relationship and benefit to Rocky Run can be explained and illustrated in a practical fashion. These measures could be designed immediately a first step in the larger restoration program, and show the commitment by the Arboretum to regional water quality.

B. Stormwater Management from Adjacent Parcels

1. Development of Watershed Demonstration Projects in the Tyler Neighborhood: *Reaching Out to the Watershed - Reaching Out for the Watershed*

The Rocky Run Demonstration Program: A Public/Private Partnering for Neighborhood Stormwater Retrofitting

Repeat the introduction to the Watershed Problem. In addition to the existing residential development upstream of Tyler in the Rocky Run Sub-Basin, a system of residential roadways has been constructed, which creates its own runoff problems as well as intercepts unmanaged residential lot runoff flow, making the stormwater problems considerably worse (possible insert figure of sub-basin). In some cases, stormwater solutions can be posited which target this roadway flow as well, in addition to residential lot solutions. Again, all of this worsened flow adversely impacts downstream Tyler areas (specifically, the areas).

The Solution: Tyler proposes to take the lead on a Rocky Run demonstration program, in which two major types of stormwater retrofitting actions, public and private, are proposed to address roadway and residential lot problems. Because roadways here are owned / maintained by Middletown Township, the Public part of the Program involves the township and its Department of Public Works. Depending upon available funding and grant options, a segment(s) of roadway where both the extent of problem has been observed and where right-of-way (ROW) solutions are feasible should be identified. ROW solutions such as infiltration trenches, vegetated swales, and so forth should then be proposed and constructed by the Township.

In parallel with this Public action, a front yard/back yard implementation program (Private) should be mounted within this Rocky Run Sub-Basin neighborhood. Tyler could organize and host necessary program interactions. Although installation of residential retrofits (front yard/back yard) would be funded by each homeowner, Tyler staff and its agents would review and approve the various residential lot plans which result, consistent with front yard/back yard program guidance, as developed above. The Middletown Township Engineer also should review these Program actions as well.

C. Potential Stormwater Management Partnerships

- Chester Ridley Crum Watershed Association
- PADEP
- Delaware County Conservation District
- Middletown Township
- Neighborhood Associations
- Local Schools
- Ridley Creek State Park

D. Potential Funding Sources

- William PENN Foundation
- Middletown Township
- Delaware Estuary Program

- PADEP's 319 Program
- Growing Greener Fund
- PA DCNR

The potential for grant funding from the PA DCNR is greatest when the restoration of stream corridors is the basic concept, and park or open space elements are included. The *Rocky Run Restoration Program* could include all of the land uses and impacts along the small stream valley. The Proposal should include the full stream reach, including the portion passing through the Ridley Creek State Park, and might be encouraged by the transfer of lands between Tyler and Ridley, as illustrated. If this were too difficult politically or required too much time and paperwork, the full program could still be completed with two separate owners, if the design were integrated.

The Rocky Run Restoration Program could also be presented to the William Penn Foundation as a case study of suburban application of Low Impact Design, with water quality in the Ridley-Crum-Darby watersheds as the target goal. The pond should be dredged, deepened and enlarged, with wetland shallows created adjacent to and upstream along the channel. A detailed topographic survey will be required before this design can be finalized, with all major vegetation elements located for preservation in any earthwork. A new control structure (dam) will probably be required, with other small stone structures along the channel. The section of stream below the existing pond is in desperate need of restoration, and the channel restoration program should continue through the contiguous parcel to the Tyler property. The stream channel from the roadway to the pond will be restored with both structural elements to reduce erosion and velocity, interspersed with vegetation for stability. The full section should be at least 50' to 75' wide, and the path could weave along the stream with signage for instruction.