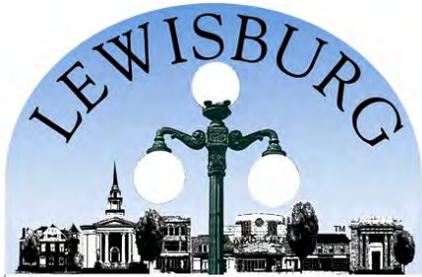


Borough of Lewisburg



The Bull Run Greenway -
"A master plan to interconnect Lewisburg's downtown parks"





The Borough of Lewisburg

The Bull Run Greenway -

“A master plan to interconnect Lewisburg’s downtown parks”

Prepared by:

Brian S. Auman / Landscape Architecture

LandStudies, Inc.

Albertin Vernon Architecture

November 2016

ACKNOWLEDGEMENTS

Study Committee

We would like to acknowledge the time, commitment and expertise of those who served on the project study committee, whose efforts were essential to the project's success:

Dina El-Mogazi – Director, Sustainable Design Program, Bucknell University

William Lowthert – Lewisburg Borough Manager

Sam Pearson – Executive Director, Lewisburg Neighborhoods Corporation

Shawn McLaughlin – Director, Union County Planning

Kathy Morris – Lewisburg Borough Council

Stacey Sommerfield – Executive Director, Lewisburg Area Recreation Authority

Linda Sterling – Executive Director, Lewisburg Downtown Partnership

Rachel Sussman – Board Member, Lewisburg Neighborhoods Corporation and Shade Tree Commission

Dennis Swank – Associate Vice President for Finance, Bucknell University

Julia Tilton – Resident of Bull Run Neighborhood and member Lewisburg Neighborhoods Corporation

Judy Wagner – Mayor, Borough of Lewisburg

Project Consulting Team

Brian Auman
Landscape Architect and Community Planner
Brian S. Auman / Landscape Architecture

Kelly Gutshall
Landscape Architect and President
LandStudies

Glenn Vernon
Architect
Albertin Vernon Architecture

Justin Spangler
Water Resource Engineer
LandStudies

Kim Wheeler
AICP Professional Planner

Kathy Hannaford
GIS Specialist



Project Funding



This project was financed by the Borough of Lewisburg with a matching grant from the Community Conservation Partnerships Program (C2P2) Environmental Stewardship Fund under the administration of the Pennsylvania Department of Conservation and Natural Resources (PA-DCNR) Bureau of Recreation and Conservation.

Copyright 2016 Brian S. Auman / Landscape Architecture, LLC

This document is an open source project that may be copied in whole or in part for any non-commercial purpose as long as the source is fully credited.

TABLE OF CONTENTS

CHAPTER 1: REPORT SUMMARY	1
CHAPTER 2: PROJECT BACKGROUND	5
CHAPTER 3: COMMUNITY INVOLVEMENT.....	21
CHAPTER 4: FEASIBILITY ASSESSMENT	45
CHAPTER 5: MASTER SITE DEVELOPMENT & GREENWAY PLAN.....	85
CHAPTER 6: IMPLEMENTATION STRATEGY	121

APPENDIX

MASTER SITE DEVELOPMENT & GREENWAY PLANS

PROJECT CD

FINAL REPORT

BULL RUN GREENWAY MASTER PLANS

IMAGES - (General Images, Historic Photos, Illustrations, Photos, Plans and Maps, Site Survey)

SURVEY AND DEED

SITE INVENTORY AND ANALYSIS

PNDI (PA Natural Diversity Index) Report

PARK AND GREENWAY USER SURVEY

REPORT SUMMARY

CHAPTER 1

REPORT SUMMARY –

WELCOME

Mayor Judy Wagner, Borough Council, and Residents of Lewisburg

It has been a pleasure working with you, the Lewisburg Neighborhoods Corporation, and the highly motivated and engaged residents of Lewisburg Borough to develop this park, greenway and streetscape master plan that will serve the community now and long into the future. Parks, natural areas, and community gatherings spaces are essential for human health and for a healthy and vibrant community. We look forward to an on-going collaborative working relationship with the community, tapping into the bountiful knowledge and expertise found in this college town, as we move from planning to implementation of this unique plan.

The Bull Run Greenway, as envisioned by the residents of the greater Lewisburg area, is highly innovative and will achieve a wide range of benefits when implemented. The stream restoration, in conjunction with an expanded and re-imagined park, represents a great opportunity for Lewisburg Borough. The community has created a design solution that maximizes both economic and environmental return on investment. The Bull Run Greenway will achieve the following:

- Creating an outdoor living room for the community; a place to relax and recreate, commemorate and celebrate, together. The park space will be a highly visible public investment to encourage private re-investment in downtown and neighborhoods.
- Planning the extension of the Buffalo Valley Rail Trail to connect to Lewisburg's downtown and Bucknell University. This will transform the existing recreational trail into one that will provide residents with alternative transportation options and finally bring the economic benefits of being a 'trail town' to the Lewisburg community.
- Establishing a regional outdoor entertainment venue by re-imagining Hufnagle Park's stage and amphitheater. The new design will improve acoustics and function, while creating a signature architectural element in the park.
- Updating the recreational offerings of the park with something for all ages and abilities. The playground will diversify into areas of 'nature and adventure play;' the greenway extension will encourage active living and pedestrian and bicycle use in the downtown; there will be both active and passive recreational spaces, as well as activity areas geared towards college students and teens.
- Restoring Bull Run will achieve multiple benefits including improved aesthetics and stream health, as well as increased floodplain holding capacity to help make the neighborhood more flood resilient.
- Moving towards a more natural aesthetic that is more environmentally friendly and sustainable. Naturalized landscaping and use of native plants will reduce maintenance costs by reducing mowing and chemical application.
- Raising watershed awareness – The Bull Run Greenway begins the process of thinking as a watershed community. Understanding human as well as watershed connections in how people, wildlife and water all flow through our community. To address nuisance flooding on Bull

(Limestone) Run, will require a multi-municipal approach and coordinated effort to restore the stream and reconnect floodplains by building the Bull Run Greenway.

The Bull Run Greenway plan was developed through a participatory planning process is based on the belief that the best plans derive from an intimate knowledge of place from the people who live, work and recreate there. This process had robust community involvement through focus groups, key person interviews, public survey, as well as a highly successful community-design (charrette) workshop. We synthesized these numerous citizen inputs into a plan that creates a cohesive, functional and beautiful park space. This plan captures the vision and changing needs of residents and identify partnerships and a step-by-step sequence to implement park, trail, performance, streetscape, stream, and recreation program improvements. The project is not intended to be built at one time – but is intended to serve as a guide to be built incrementally as funding and opportunity arise.

The plan is also a call to action for residents to make the park their own. There are park elements that would benefit greatly by residents getting actively involved in the design, implementation, maintenance, and programing of the park. Some self-initiated park elements and programs may include:

- A food forest were all the plants (trees, shrubs, vines and herbaceous plants) are edible.
- Creation and programing of the Nature Play and Adventure Play Areas – to encourage engagement with nature and creative play-making.
- A Green Gym – where volunteers will assist in the maintenance of the park’s landscaping, while exercising outdoors and in the company of friends and neighbors.
- Outdoor Classrooms to engage students, teachers and faculty from pre-school through college.
- Calling all artists – the park offers local artists the opportunity to create murals, sculpture and performing arts throughout the space. From the railroad piers, greenway trail and re-imagined streetscape, to the stage of the large performance venue to the natural amphitheater – the arts are given space to thrive.

Success of the Bull Run Greenway will be measured by the number of projects built, as well as the number of residents that become actively engaged in the use and ‘ownership’ of the park. The Greenway’s success will also be measured by the number of people walking and biking in downtown, the use and vibrancy of the park space, the economic benefits to downtown businesses and scale of neighborhood reinvestment.

It has been a pleasure working with you on this important project. As a resident of the Lewisburg community I remain committed to the project and will be available for questions and assistance in moving the project towards realization.

All the best!!



Landscape Architect and Community Planner

PROJECT BACKGROUND

CHAPTER 2

PROJECT BACKGROUND

How did we get here?

The Community

The Borough of Lewisburg with a population of 5,775 (2014 US Census estimate) is the Union County center of government as well as a commercial and cultural hub for the county and surrounding region. Lewisburg's 19th century downtown is on the National Register of Historic Places and along with historic neighborhoods is a distinct and vibrant 'River Town' in the Middle Susquehanna Region. The community is one that prioritizes and appreciates quality education with the Lewisburg Area School District being ranked in the top 5% of school districts in the state, as well as Lewisburg being the home to Bucknell University, one of the nation's best liberal arts colleges. Lewisburg's downtown bustles with a mix of cafes, restaurants, bookstore, retail shops, professional offices and small business incubator space. This successful mix is greatly enhanced by a collaborative partnership between Lewisburg Borough and Bucknell University. Lewisburg's neighborhoods are sought-after places to live. As college students transition to on-campus housing, the former student rental housing will need transform to other uses – posing both opportunities and challenges for the town.



New Challenges

The historic downtown is in a constant state of flux as suburban growth and development continues to pull limited resources out of the downtown. Within the last few years downtown Lewisburg has had some significant setbacks, including: the Lewisburg Area School Districts decision to relocate the high school out of downtown; the loss of many student rentals as Bucknell University now provides more on-campus housing; the loss of the pharmacy, market and state store, and; continued loss and disinvestment in housing due to flooding and flood insurance impacts.

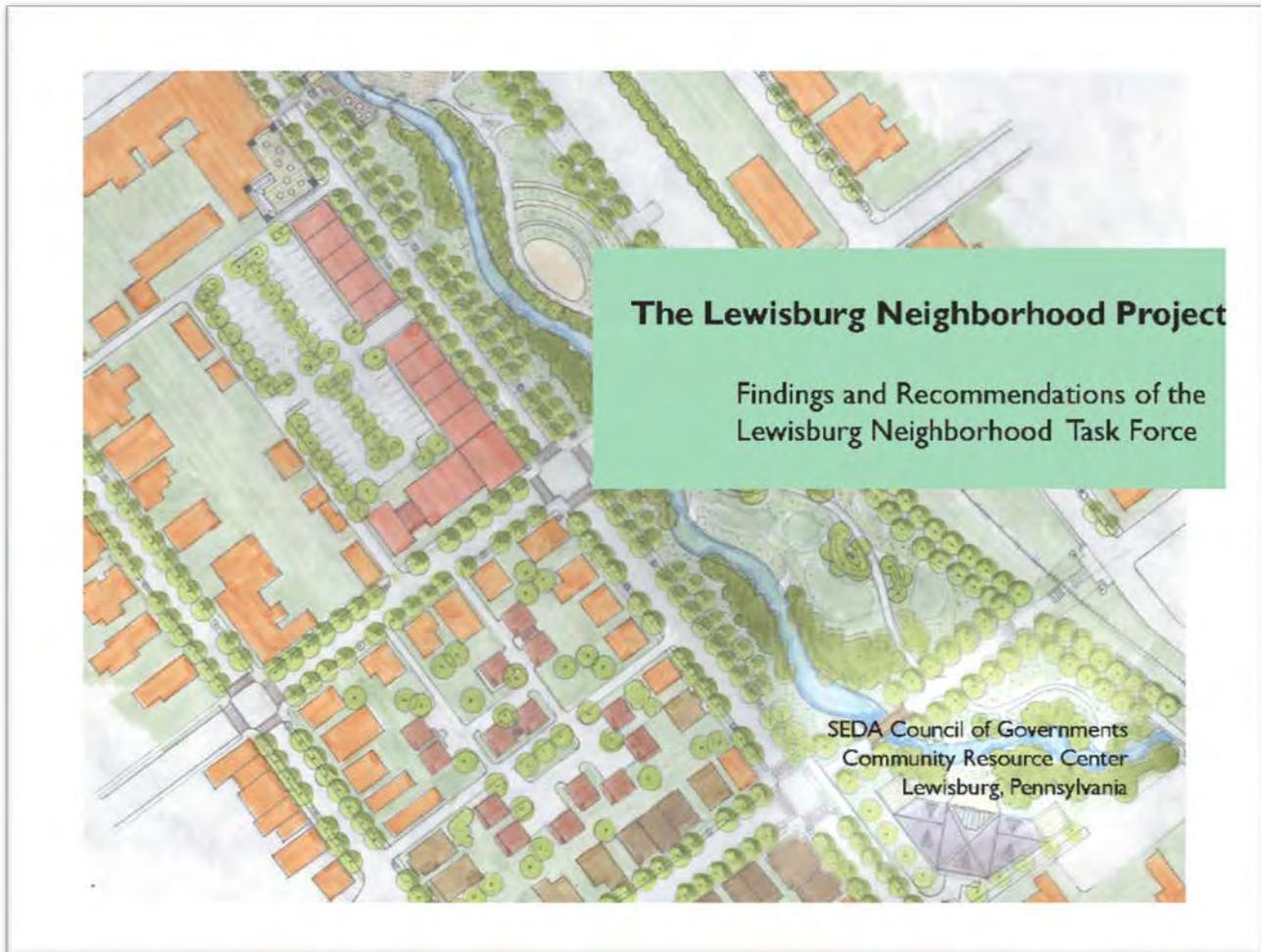
The cumulative impact of all these will necessitate a transformation of downtown and in particular in the blocks of South 5th, 6th and 7th Streets where a majority of homes were formerly student housing. In addition, the community is anticipating the economic impacts associated with the Biggier Waters Flood Insurance Reform Act of 2012, and the Homeowner Flood Insurance Affordability Act of 2014, which will result in higher flood insurance premiums that seek to reflect the real risk of flooding. These Acts are the result of the National Flood Insurance Program (NFIP), which currently covers approximately 5.5 million properties nationwide, and is currently \$24 billion in debt. It is estimated that about 20% of the NFIP covered properties are receiving discount rates of less than half of what a private insurance company would charge. Critics of the NFIP say that these government subsidies encourage building and rebuilding homes in vulnerable flood prone areas. The Borough of Lewisburg and its residents are grappling with these two issues simultaneously – a glut of former student housing in need of repurposing, and the prospects of increasing home insurance rates for many borough residents.



Flooding in Hufnagle Park in 2011.

The Neighborhood Plan (2004)

In 2003 and 2004, the Borough of Lewisburg and Bucknell University collaborated in the “Lewisburg Neighborhood Task Force” which produced a report entitled ‘The Lewisburg Neighborhood Project.’ The project made recommendations for the enhancement of the South 5th, 6th and 7th Street neighborhoods with specific strategies for organizational development and environment, streetscape and neighborhood revitalization. The formation of the Lewisburg Downtown Partnership was an outcome of the neighborhood plan and resulted in unprecedented town-gown collaboration in reinvestment into the downtown.



The Lewisburg Neighborhood Project report cover depicting a conceptual design for the Bull Run Neighborhood (SEDA-Council of Governments, 2004).

The neighborhood plan also anticipated, a decade before, the transition of students out of the downtown neighborhoods. The Neighborhood Plan envisioned park, streetscape and neighborhood improvements and reinvestments seeking to meet the needs of all stakeholders including property owners, neighborhood residents, Lewisburg Borough, and Bucknell University. The redevelopment concepts created in The Neighborhood Plan include:

- University Village
- Neighborhood Village
- Bull Run Neighborhood Center
- Fifth Street Park Overlook
- Seventh Street Gateway
- Bull Run Greenway

One of the more straight-forward of these redevelopment concepts – the Seventh Street Gateway – has been implemented in the years following the plan, with improvements to the streetscape, sidewalk, customized paving and crosswalks. The project helped to create an enhanced gateway between the downtown and Bucknell – and functions as a primary motorized vehicular gateway to the university.

Other neighborhood revitalization concepts contained in the plan needed more time to develop, the Bull Run Greenway was one of these. Some of the original concepts developed in 2003 - 2004 were at the time – not feasible and some were considered highly controversial. The illustration below, depicting a park-like connection to Bucknell along South 6th Street, proposed the removal of privately owned streamside homes. With additional flooding events and a concerted effort for a comprehensive FEMA buyout of the most at-risk homes, the conditions were finally right, a decade later, to holistically plan the Bull Run Greenway. With the FEMA buy-out of 10 homes scheduled, the Borough of Lewisburg applied for PA Department of Conservation and Natural Resources funding to plan for an expanded park and to create better pedestrian and bicycle trail connections that build upon the success of the Buffalo Valley Rail Trail.



Concept sketch of South 6th Street depicting the removal of stream-side homes, an expanded park, and naturalized stream corridor, as depicted in the 'The Lewisburg Neighborhood Project' in 2004.

Flood Buy-Out Acquisition Process

Lewisburg Borough, working with the private owners of 10 homes along Bull Run, established an agreement for voluntary buyout of the properties. The project was undertaken to address repeated flooding and to reduce risk to citizens and private property. The Buyouts acquired 5 properties with Hazard Mitigation Grant Program (HMGP) funding, and five properties with Repetitive Flood Claims (RFC) grant program funding. These vulnerable structures were constructed on the banks of Bull Run (Limestone Run), and were located in the streams delineated floodway. Given the current age and condition of the structures, having been repeatedly flooded throughout the years, elevation or relocation of the structures was not a viable option.

The Borough of Lewisburg has suffered the effects of floods since before it was established in the 1700's and, as recently as 2011. Some of the events have caused significant loss of both life and property in the Borough. Flooding is expected to occur once every three years, with an estimated annual loss of \$1,305,932. Given the location of the structures within the floodway and their usage, there is significant risk remaining to individuals and rescue responders in the area.

The ten (10) properties acquired and demolished with HMGP and RFC funds were off-campus student housing rentals for those who attended Bucknell University. Acquiring these highly sought after rentals was difficult at first. However, Bucknell University issued a new off-campus housing policy that mandated the vast majority of its students move back on campus, reducing the market for off-campus housing. With

the new policy, some of the property owners reconsidered the buyout option, and were willing to work with the Borough for the voluntary acquisition of their property.

Lewisburg Borough was approved for \$1,383,922 (75% federal share and 25% state share) in Hazard Mitigation Grant Program (HMGP) funding on January 31, 2012, for the acquisition and demolition of 44, 54, 108/110, 204/206, and 208/210 South Sixth Street, located in the Borough of Lewisburg.

On March 13, 2012, Lewisburg Borough was approved for \$1,470,400 (100% federally funded) of Repetitive Flood Claims Program (RFC) from PEMA for the acquisition and demolition of 40, 102, 112/114, 120 and 138/140 South Sixth Street, located in the Borough of Lewisburg.

Flooding and Flood Insurance – A National Issue

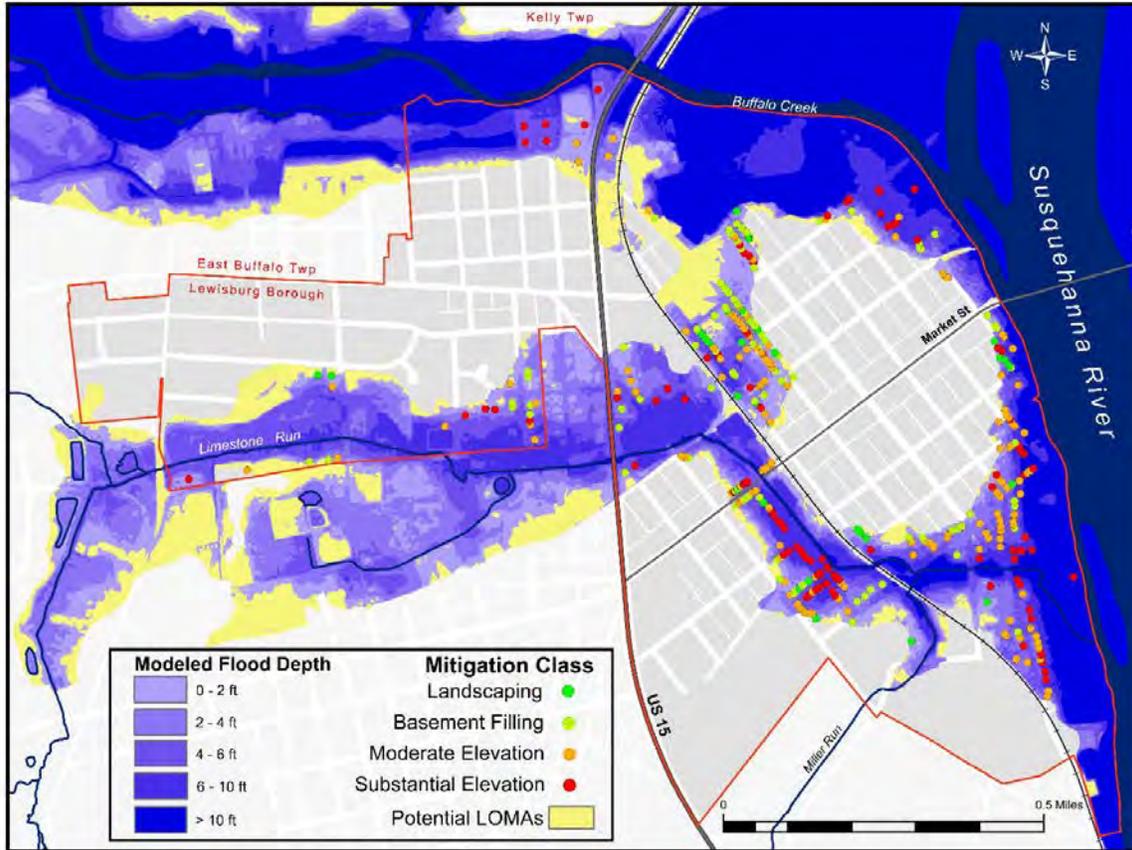
The National Flood Insurance Program (NFIP) is a program created by Congress in 1968. The program enables property owners in participating communities to purchase [insurance](#) protection, administered by the government, against losses from flooding. This insurance is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

Participation in the NFIP is based on an agreement between local communities and the federal government that states that if a community will adopt and enforce a floodplain management ordinance to reduce future flood risks to new construction in Special Flood Hazard Areas, the federal government will make flood insurance available within the community as a financial protection against flood losses. The intent was to reduce future flood damage through community floodplain management ordinances and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection. The NFIP is meant to be self-supporting, though in 2003 the GAO found that repetitive-loss properties cost the taxpayer about \$200 million annually. Congress originally intended that operating expenses and flood insurance claims be paid for through the premiums collected for flood insurance policies. NFIP borrows from the US Treasury for times when losses are heavy, and these loans are paid back with interest.

Since 1978, the National Flood Insurance Program has paid more than \$38 billion in claims (as of March 31, 2011). More than 40 percent of that money has gone to residents of Louisiana. The Biggert–Waters Act of 2012 mandated that the NFIP charge actuarial rates, resulting in a large rate increase for consumers. As of November 2013, legislation is pending in both the House and Senate that would delay implementation of these rate increases for four years

The program was first amended by the Flood Disaster Protection Act of 1973, which made the purchase of flood insurance mandatory for the protection of property within SFHAs. In 1982, the Act was amended by the Coastal Barrier Resources Act (CBRA). The CBRA enacted a set of maps depicting the John H. Chafee Coastal Barrier Resources System (CBRS) in which federal flood insurance is unavailable for new or significantly improved structures. The National Flood Insurance Report Act of 1994 codified the Community Rating System (an incentive program that encourages communities to exceed the minimal federal requirements for development within floodplains) within the NFIP. The program was further amended by the Flood Insurance Reform Act of 2004, with the goal of reducing "losses to properties for which repetitive flood insurance claim payments have been made."

The Biggert-Waters Flood Insurance Reform Act of 2012 (Biggert-Waters) modified the NFIP. At the conclusion of 2011, as congress passed Biggert-Waters, the NFIP cumulative debt was over \$17 billion. A core principle of Biggert-Waters was to change the NFIP premiums to match actuarial risk-based premiums that better reflected the expected losses and real risk of flooding. These changes included removing discounts to many policies which were being sold below actual actuarial risk targets and eliminating "grandfathering" of older rates.



Floodplain map of Lewisburg and surrounding area modelling depth of 100 year flood, as well as potential mitigation strategies for impacted structures (From: Miller, G., Griffin, D., Pearson, S. (2015). The Emergent State of Flood Insurance Reform in Lewisburg, PA. Bucknell Institute for Public Policy).

In January 2014, the United States Senate passed the Homeowner Flood Insurance Affordability Act of 2014. This bill changed the process used to alter subsidized premiums and reinstated grandfathering of lower rates; effectively delaying the increases in flood insurance premiums to obtain risk-based premiums under Biggert-Waters and spreading the cost of the lost premiums over all of the remaining policy holders. The National Flood Insurance Program was \$24 billion in debt at the beginning of 2014, and taxpayers will be forced to pay for any additional payouts until that situation is solved.

Mitigation Class	Criterion	Borough Structures	Placeholder Cost	Totals
LOMA (Letter of Map Amendment)	BFE < 0	144	\$500	\$72,000
Landscaping	FFE > 2' above BFE	36	\$5,000	\$180,000
Basement Filling	FFE < 2' above BFE	101	\$15,000	\$1,515,000
Moderate Elevation	FFE < 3' below BFE	154	\$25,000	\$3,850,000
Substantial Elevation	FFE > 3' below BFE	111	\$50,000	\$5,550,000
Total				\$11,167,000

Flooding Impact on Lewisburg

As show in the map and chart above, hundreds of homes and businesses are at, with half of these structures receiving more than 2 feet of flooding above Base Flood Elevation (BFE). The modeling also depicts some likely inaccuracies in the existing FEMA designated floodplain, with possibly 144 structures having no flood depth, suggesting potential removed from the FEMA floodplain, and therefore flood insurance obligations through pursuit of a Letter of Map Amendment (LOMA). Other mitigation options exist for structures at or below Base Flood Elevation include: Landscaping, Basement Filling, Moderate Elevation, and Substantial Elevation (From: Miller, G., Griffin, D., Pearson, S. (2015). *The Emergent State of Flood Insurance Reform in Lewisburg, PA*. Bucknell Institute for Public Policy).

The Homes Come Down - A new era for the Bull Run Corridor

In 2014 and 2015 10 homes were removed from the banks of Bull (Limestone) Run and the property is now owned and controlled by the Borough of Lewisburg. Because the properties were flood mitigation buyouts through the FEMA (Federal Emergency Management Act) program, they are subject to deed-restrictions requiring the land to remain forever as public open space, and the land can never be sold or developed. The physical space creating by the home removals will allow for an expansion of the existing parks known locally as Hufnagle Park and Kidsburg Playground, along South 6th Street. The space created by the removal of the homes will also allow the community to redefine its relationship with the stream with the potential to create an aesthetic amenity and corridor of greenery in the heart of downtown.



Redefining our relationship with Bull Run

For decades the community has been redefining its relationship with the West Branch Susquehanna River and Bull (Limestone) Run. Physical damage to structures, and economic impacts of repairs and insurance rates as a result of recurring flooding, is continually redefining the pattern of the town. This is nothing new, it's been going on since Ludwig Derr modified the stream to power his mill. The utilitarian use of water and streams has always come at a cost – primarily flooding. Today the struggle involves how much space needs to be relinquished to stream and river to find an equilibrium where both community and stream / river can thrive. While the removal of streamside homes opens some space to re-establish a floodplain along Bull Run – it is still a narrow corridor compared to the delineated 100 year floodplain. The Bull Run Greenway project will advance the process of establishing a mutually beneficial relationship with the stream – but it should be viewed as a beginning and not an end in this on-going work.

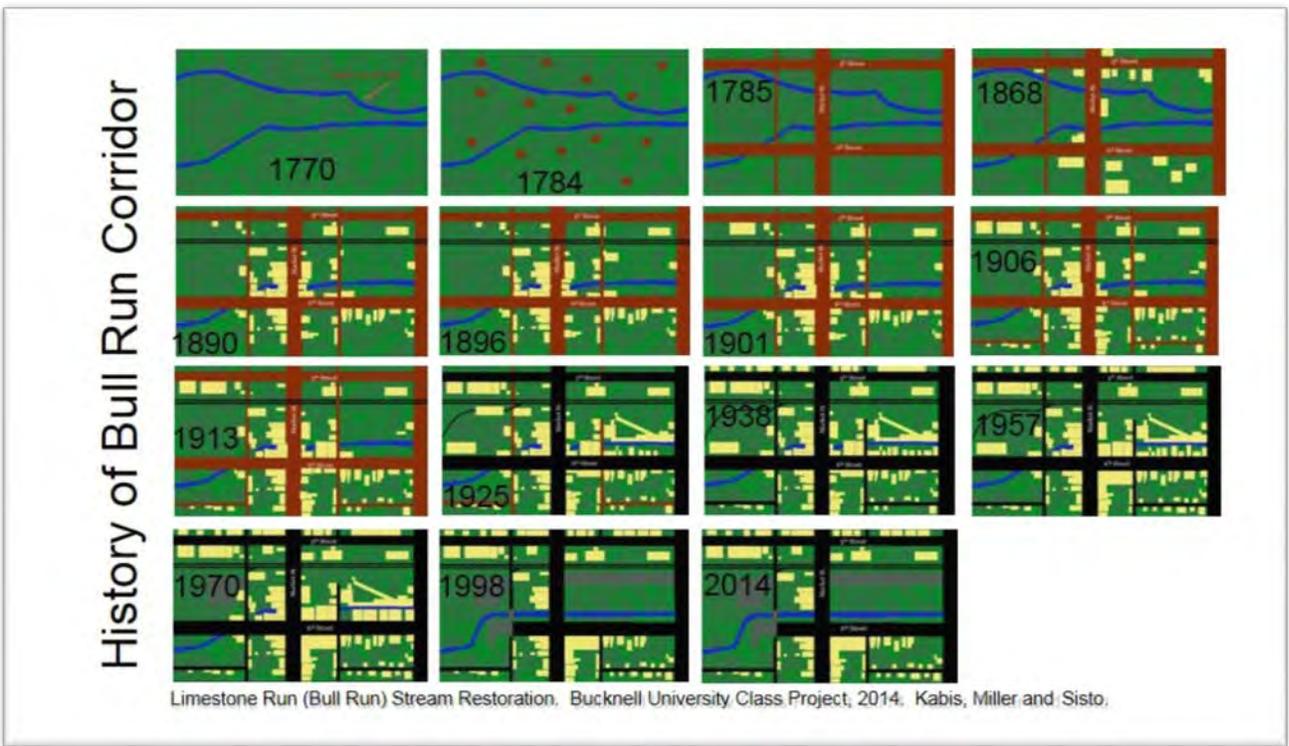


Illustration depicts nearly 250 years of continual change in Lewisburg’s Bull Run Neighborhood (Bucknell University Class Project under the direction of Ben Marsh, by Kabis, Miller and Sisto, 2014).

The aesthetics of the Bull Run stream corridor can be enhanced with design and landscaping, however this project seeks a more holistic approach. In addition to aesthetics – the stream restoration has the potential to begin to address the issue of flood-resiliency – asking the question “what can be done in the design of the stream that will mitigate the impact and risk of future flooding?” A question many communities around the country and around the world are grappling with in an era of climate change and increased recurrence and severity of flood events. Lewisburg has the potential to be a case study in addressing community and neighborhood flood resilience by looking at the Bull Run stream corridor in the study area, and looking at water quality and water quantity enhancements throughout the watershed.



Bull (Limestone) Run stream channel assessment by LandStudies, Inc.

Place making

An important aspect of creating aesthetic, vibrant and functional spaces were people want to be, is the art of placemaking. Placemaking is defined as a multi-faceted approach to the planning, design and management of public spaces that capitalizes on local community assets, inspiration and potential, with the intention of creating public spaces that promote human health, happiness and well-being. Placemaking is both a process and a philosophy. As an all-encompassing idea, placemaking is a hands-on approach for improving a neighborhood, town, or region, inspiring people to collectively reimagine and reinvent public spaces as the heart of every community (Project for Public Spaces).

Placemaking is inherently political since it involves the design, creation and management of the public realm and must consider ideas and values of a wide and diverse constituency including residents, neighbors, taxpayers, business owners, park users, visitors, elected officials, volunteers, students, municipal staff, as well as tapping into the skill and knowledge base of the community. The art of placemaking creates functional and inspired spaces that are a unique solution given layers of the natural and cultural resources and values of the community. Participatory planning is at the core of this project – with the intent to create a plan that is unique for Lewisburg.



Artist's rendering of downtown Lewisburg.

Our Turn – creating a park to serve Lewisburg for the next century

Master planning for the downtown Lewisburg Parks and Bull Run Greenway represent a unique opportunity for the community. The project involves recreation and greenway planning, but also the potential to restore Bull (Limestone) Run, creating a high quality natural environment in downtown. The expanded park has the potential to enhance and diversify active and passive recreational uses, as well as

creating a long sought after connection between downtown and campus. The project's connectivity with the Buffalo Valley Rail Trail will allow for the transformation of a recreational trail, to an alternative transportation corridor to benefit downtown businesses, adjacent neighborhoods, and students, faculty and staff at Bucknell University.

Greenway's represent the evolutionary next step in parks and open space. The Bull Run Greenway challenges us to think more holistically about Lewisburg's downtown park system. Instead of creating designs for Kidsburg, Hufnagle, Town Green and Daniel Green Park – we need to create a unified, contiguous park space.

The consultant team for the Bull Run Greenway master plan consists of landscape architects, architects, engineer, hydrologist, natural resource planner, and professional planner with the expertise to address the technical needs of the project, and who are equally skilled at facilitating a participatory planning process so important to the project's ultimate success. The team recognizes the importance of this project at a critical time of change for the greater Lewisburg community, and we enjoyed working with residents and key stakeholders to design a linear park that fits with the community's historic context, but is designed to serve recreational needs of the 21st century.



The Solidarity March culminated with speakers and performances at Hufnagle Park in October, 2015. The gazebo at Hufnagle Park is the community gathering spot for events such as music in the park.

THE BULL RUN GREENWAY ITS NEEDS AND OPPORTUNITIES

There is a lot at stake when faced with a ‘once in a generation’ opportunity to remake the heart of a community like Lewisburg, and everyone recognizes the importance of this undertaking. What follows is a list of some of the unique and tangible benefits to the community as we reimagine, plan, and design the Bull Run Greenway.

CREATING A TOWN – CAMPUS GATEWAY FINALLY BECOMING A COLLEGE TOWN

Lewisburg has the region’s most attractive and successful downtown and Bucknell University is one of the nation’s premier schools of higher education – but the town lacks an iconic public space where the community’s two greatest assets come together. The South 6th Street / Bull Run Greenway project offers the opportunity to creating a high-quality public gateway between town and campus.

TRANSFORMING THE BUFFALO VALLEY RAIL TRAIL FROM RECREATION TO AN ALTERNATIVE TRANSPORTATION ROUTE

The Buffalo Valley Rail Trail (BVRT), as it currently exists, is a very nice recreational feature. As the BVRT is extended into the downtown, the project must transform from a ‘nice to have’ amenity, into a functional transportation route that accommodates visitors to downtown and commuters to town and campus.

GREENWAYS / CREATING CONNECTIONS FUNCTIONAL ROUTES FOR PEDESTRIANS AND BIKES

The study area must accommodate a wide range of community connections. The park, railroad corridor, street and sidewalk network accommodate connections to downtown, neighborhood and campus with widely varying degrees of success and efficiency. The planning process needs to map origins and destinations, and understand the pattern of ‘desire lines’ bicyclists and pedestrians have created, and synthesize that information in the park’s final master plan.

ENHANCED ENTERTAINMENT MULTIPLE AND IMPROVED STAGE VENUES

The Hufnagle Park Gazebo and Amphitheater is the hub of outdoor entertainment in the downtown. The planning process will explore how to enhance the existing stage / amphitheater and consider other potential performance / community gathering spaces in the expanded park / greenway corridor, including a potential of a more natural, creek-side amphitheater on the north side of Market Street, across from the Town Tavern.

RESTORING BULL RUN CREATING A NATURAL AREA IN THE HEART OF DOWNTOWN

Bull (Limestone) Run in the downtown, is little more than a stream in an engineered ditch. The removal of the homes on the east side of South 6th Street offer an opportunity to create a more natural stream channel in the park. Potential benefits of stream restoration include increased flood-holding capacity, streambank stability without use of rip-rap, improved water-quality and an aesthetic amenity in the heart of downtown. A restored stream will improve public access to the stream, allowing people of all ages and abilities safe access to the water, and an improved connection with nature.

RECREATION FOR ALL

MOVING BEYOND JUST 'KIDS' -BURG

The South 6th Street and Bull Run Greenway has the potential to design and create aesthetic and functional places for everyone, all ages, and all abilities. Our community involvement process will create a dialog with groups that are often overlooked in park and recreation planning and design, engaging teens and seniors, exploring unique ways to accommodate Bucknell student activities, and envision ways to enhance the park experience of those who already use the park. In addition to recreation, the linear park should consider creating wi-fi and seating clusters to get more people outdoors, even if you have to work.

BUILDING PARTNERSHIPS

DEFINING MUTUALLY BENEFICIALS OUTCOMES FOR LEWISBURG AND BUCKNELL

The interactive planning process is designed to bring together a wide range of support for the project as it moves into final design and construction. The process places a significant emphasis on engaging the two most significant players – Lewisburg Borough and Bucknell University. We will work to define points of agreement and common interest in the park and greenway project, as well as laying the groundwork for future neighborhood improvement collaboration.

BUILDING A FLOOD RESILIENT COMMUNITY

UNDERSTANDING THE WATERSHED INFLUENCES ON THE SITE IS FIRST STEP

The restoration of the Bull (Limestone) Run can reconnect the stream with its historic floodplain and improve flood-holding capacity, while also improving water quality, groundwater recharge, streambank stability, and biodiversity. In order to address flooding issues comprehensively, it is critical that we look both upstream and downstream of the designated project area to understand cause and effect. Floodplain constrictions, historic alterations to the stream channel, and floodplain encroachments are all influences that need to be understood in order to provide a resilient and sustainable design for the project.

COMMUNITY INVOLVEMENT

“The starting point in developing a concept for any public space agenda should be to identify the talents and resources within the community — people who can provide historical perspective, insights into how the area functions, and an understanding of what is truly meaningful to the local people. Tapping this information at the beginning of the process will help to create a sense of ownership in the project that can ensure its success for years to come.”

Project for Public Spaces



“Our true destiny is a world built from the bottom up by competent citizens living in solid communities, engaged in and by their places.”

David W. Orr

CHAPTER 3

COMMUNITY INVOLVEMENT

Participatory Planning

Implementing a highly-visible, engaging, and meaningful participatory planning process is the most important element of a successful plan. The community involvement process engaged a large and diverse cross-section of area residents in the planning and design process, to build support for the project, and develop the partnerships necessary for implementation. The following methods were used to engage the community in the planning and design of the Bull Run Greenway:

- Project Study Committee
- Focus Groups
- Key Person Interviews
- Community Design Workshop (Charrette)
- Park and Greenway User Survey

Project Study Committee

The first step in any successful planning process is the formation of a diverse and knowledgeable project Study Committee. We are pleased that this committee has already been formed and that the prescribed planning process will engage the study committee in helping to inform and guide the planning process. There were 12 members of the Study Committee representing diverse perspectives and interests in the community. The Study Committee met 6 times during the process of creating the Bull Run Greenway Master Plan.



Providing input at a break-out session at the Community Design Workshop (Charrette).

Focus Groups

Focus Group discussion are an ideal way to actively engage community residents in the park and greenway planning process. Focus groups engage diverse groups of people in a guided discussion to provide feedback and generate ideas that will be integrated into the park and greenway master plan. The participants are strategically selected, due to their insight, knowledge, and potential role each may play in the project as it moves forward. By engaging key community stakeholders in a meaningful way, at the 'ground floor' of project development, the goal is to pique their interest in, and gain their long-term support for project implementation. The following is a suggested list for 8 topical Focus Groups to address the full range of issues relevant to the project.

FOCUS GROUP: BULL RUN AND THE WATERSHED PERSPECTIVE

September 11, 2015 - 8AM – 9AM

Union County Government Center

16 Participants

Summary Comments:

- Opportunity to expand floodplain – providing stability to streambanks without use of rip-rap?
- Removing as many constrictions as possible can reduce erosion and sediment transport.
- Park is a high profile site to raise awareness of stream and floodplain restoration.
- Covered bridge is a constriction of the stream AND block visual access to the stream corridor.
- Less Rock – more natural vegetation; diversify in-stream habitat with pools, riffles; provide access to the water for kids.
- Improve habitat and water quality in the park – make the watershed connection to make improvements throughout the watershed.
- Opportunities – reforestation opportunities throughout the watershed, riparian buffers along Old Schoolhouse Lane, and Ag BMPs on farms throughout the watershed.
- New Giant supermarket – wetland is a good example of Stormwater Management and floodplain restoration. We can build upon this.
- Conservation District is continuing their work on stream restoration projects.
- Stream does have very high bacteria concentration levels. Ducks are a huge problem and contributor.
- Discuss and map various restoration opportunities in the watershed: St. Mary Street Park, East Buffalo Township Municipal Building Area, Old Schoolhouse Lane, south of 192, and others.
- Need multi-municipal cooperation to address watershed issues like flooding and water quality.
- Need participation of willing private landowners.

FOCUS GROUP: THE FUTURE OF RECREATION

September 21, 2015 – 4:30PM – 5:30PM

Lewisburg Downtown Partnership Office – S. 4th Street

12 Participants

Summary Comments:

- Little League has made significant improvements of restrooms and concession stands, but struggle with poor field drainage.
- Buffalo Valley Recreation Authority is pleased with the new segment of rail trail into the Borough bringing us closer to connecting our community.
- Need public spaces for all ages and abilities – game tables, informal play spaces.
- The 'Green Gym' concept – combines exercise and community service in nature program.
- In the short-term – can we create a plant nursery to grow the plants that will ultimately be planted throughout the park and along the stream once it is restored?
- The Park needs to connect with downtown and into the neighborhoods so it is walkable, bikeable, and accessible.

- Park needs to be a space that attracts and brings people together.
- Estimate 5% of Bucknell Students know of the Rail Trail – park can be access gateway to the rail trail and outdoor activity center for students.
- Basic Needs: replace port-a-toilets with real restroom, improve aesthetics and access to stream, and improve safety for kids – safer parking area and street crossings.
- Maintain part of the park in open lawn for events and pick-up games.
- Better, more open, access to the park from Market Street. Physical and visual access improvement needed.
- Gazebo is very limiting as a performance stage or event staging area such as races.
- Likes idea of Adventure Playground, but feels elements of it won't 'fly' in this community. Possibility of starting small and experiment with the idea over time.
- Playword is a long-term partner with the Borough on Recreation and want local playgrounds to be a reflection of their best products.
- Kids need more unstructured play and opportunity to reconnect with nature.
- Connect kids to the stream – offers the potential of raising awareness of stormwater, hydrology, watersheds, water quality and connections with the Chesapeake Bay.
- Bull Run Greenway needs to ultimately connect with the West Branch Susquehanna River

FOCUS GROUP: TRANSPORTATION AND CREATING CONNECTIONS

LEWISBURG DOWNTOWN PARTNERSHIP OFFICE

DECEMBER 9, 2015 – 2:30PM

13 Participants

Summary Comments:

- Need to make safe connections to real destinations (public library, downtown, campus). We've made progress but have a long way to go.
- Rural PA is vehicle centered, and not friendly to pedestrian and bicyclists.
- Cars must yield to pedestrians in the crosswalk – it's the law.
- Need a program to raise awareness and change attitudes.
- Community is slowly building a critical mass for bikes.
- Parking meters in park – lots of them, visual clutter. Can they be replaced with parking pay kiosk or just free parking?
- Low volume streets are fairly safe for adult cyclists.
- Must make parking accessible – some lots (like the one accessed by Cherry Alley) are not well marked and due to Limited access – should it really be signed and promoted?
- Much of downtown is not accessible for those in wheelchair.
- Bus Service – 90% of bus service customers are from Bucknell, but community does not want to lose downtown stop that services its residents.
- Railroad has been there since 1883. Current traffic is increasing with trains going to Cargill facility in Winfield.
- Borough owns former railroad land from Market to St. Louis Street. Railroad wants 8' from the rail for a buffer. According to PUC there can be nothing within 12' of the centerline of track.
- Railroad South of St. Louis Street – ownership of the land is same since 1883 – land ownership for double track in Kidsburg.
- Kidsburg Area a major point of concern for Railroad with trespassing and public safety.
- Railroad willing to work with the community for extending the rail with trail, but only if liability issues are addressed.
- Noting desire lines has limits due to currently insurmountable elements like stream and walls.
- Bucknell civil engineering faculty and students could be engaged in the design of pedestrian bridges. Design a bridge that is flood resilient / designed to be submerged in flood events.
- A direct and convenient connect to Bucknell is needed.
- Infrastructure to support biking: trail head, bike share, shelter, bike repair tools,

FOCUS GROUP: LEWISBURG GARDEN CLUB – EXECUTIVE COMMITTEE

ST. JOHNS CHURCH

FEBRUARY 1, 2015 – 10:30AM

17 Participants

Summary Comments:

- Lewisburg Garden Club has nearly 30 years of volunteer service to the community.
- Interested in being part of the park planning process.
- Club can assemble 100 volunteers for weeding and other projects.
- Main feature is Hufnagle Park – gateway at Market Street.
- Elements: Tulips, geraniums, annuals
- Club is considering a shift from annuals to perennials to provide benefits: constant interest and bloom, help pollinators, attract butterflies, etc.
- The master plan will depict the north end of Hufnagle Park – planting design in a general way.
- The club will work with the plan and the borough to develop a planting design that will enhance visual and physical access to the park and serve the club as a highly visible and aesthetic project in the downtown.
- The plan will respect and incorporate the existing memorial.
- The re-design of the space will be a design activity for the club.
- What other elements are proposed for this area? How can we incorporate the bus stop in this area that works for users and the garden? Is this a place where we can re-purpose the gazebo?

FOCUS GROUP: BUCKNELL OUTING CLUB

FEBRUARY 16, 2016, 9:00PM

BUCKNELL LANGONE CENTER – LL CONFERENCE ROOM

15 Participants

Summary Comments:

- Gazebo - not a good space for performances. Needs more space and acoustics very poor.
- Park needs the feel of continuity of space. You don't feel the space is interconnected.
- Edwards House – strategically positioned. Place for Bucknell Students.
- Invite students with open play space for frisbee and catch, and things like slack line.
- Students looking for place to work / do homework
- CVS moved out of town - can the trail better connect students with the new CVS location?

- Rail Trail connection to campus would give students better access - and alternative to Stein and Smoketown Roads which are dangerous.
- Need efficient connection downtown. Zig-Zag is not efficient. Straight connection at St. Catherine Street.
- Walks the Railroad. Didn't know it was not 'legal.'
- What attracts students? - Donuts !! Portable Donuts, Flying Bison, Food Trucks like the Thai Truck.
- Destinations - theater, Cherry Alley Café.
- Students don't feel welcome in the park. Designed for children only.
- Walk from new housing is at least 15 minutes to downtown now - but students still want to be connected to the town
- Piers - climbing wall. can the piers be chipped away to create more natural climbing holds (instead of plastic hand holds bolted to them?)
- New trend – instead of Bouldering or 'Buildering' - climbing on buildings and other pieces of architecture.
- Game Tables, Benches, Natural Seating - in a green environment would attract students
- Events - open mic night, movie night - organized and advertised for students.
- Bike Trails and Pump Track - you don't need a lot of space to do one. Examples - near Denver. Valmont Bike Park is very large – but there are good examples of small bike parks

**FOCUS GROUP: PARK OPERATIONS AND MAINTENANCE
& THE ROLE OF BUCKNELL UNIVERSITY IN NEIGHBORHOOD REVITALIZATION
BUCKNELL UNIVERSITY – COOLEY HALL, ROOM #4
FEBRUARY 22, 2016 – 2PM**

7 Participants

Summary Comments:

- Bucknell in Academic West did undertake a different design look – with green buildings, and focus on sustainability. Opportunity for education and sharing between maintenance staff at the university and borough, on the maintenance of naturalized landscapes, stream corridors, wetlands, bio-swales.
- BU President about to convene a new Sustainability Council. Bucknell is interested in how to get students and faculty involved with the community and with the project.
- Project fits with Bucknell plans. University Village from the 2004 Neighborhood Plan, as well as Bucknell campus master plan.
- 6th and 7th Street Neighborhood – private ownership and student rental focus. Its location in the flood zone makes its future highly uncertain. How many more building will need to come down?
- The HARB – recognizing the challenges associated with the neighborhood has expressed a willingness to be more flexible in working with homeowners on property modification for flood mitigation/reduction strategies.
- Seeking a balance between FEMA’s tear it all down, and HARB’s desire to preserve everything. Floodplain strategies – move, elevate, remove and replace
- There are now two stream gauge monitors on Bull Run – at covered bridge and at St. George Street. Have data. Sediment Load calculations. One gauge is attached to covered bridge – need to coordinate with any bride relocation. Project will engage in watershed restoration class this semester.

- Project seems a good fit for Bucknell. Continuation of the university’s commitment to the town that includes, the business incubator, Campus Theater, Bookstore, Purity Candy Building and Post Office projects.
- University works to encourage students visiting downtown. Anecdotal evidences says that student numbers are down. Loss of CVS may be a factor. An attractive downtown and attractive neighborhood is important to Bucknell.
- Buffalo Valley Rail Trail – connection to campus would be great for students – encourage safe routes to run and bike.
- Risk Management – concern with students using space (especially the diagonal pathway through kidsburg) late at night. Lights for the walkway and security call box will likely be needed.
- Likes the idea of the 6th street – ped-bike oriented promenade connection to Bucknell. Vedder Hall area is an important gateway between campus and downtown.
- Opportunities for Bucknell Engagement: outdoor education, outdoor classrooms, an expanded arboretum tour, as well as Bucknell Center for Sustainability and the Environment.

FOCUS GROUP: BUSINESS OWNERS AND EVENT COORDINATORS
DOWNTOWN AND NEIGHBORHOOD DEVELOPMENT & REVITALIZATION
Lewisburg Downtown Partnership Office, and Lewisburg Borough Council Chambers
FEBRUARY 26 & 29, 2016 – 2PM and Noon

12 Participants

Summary Comments:

- Retailer Traffic is way down. How do we respond? Who is the customer?
- There are Destination Stores – what we need is Daily Errand Stores... Loss of CVS significant
- Successes: Ice Festival – Great turn out – good or record sales; “Lewisburg Loyal” program was successful – Spend \$5 / 15 Stickers to win Gift Certificates; Small Business Saturday
- Downtown Hit with Perfect Storm: Students Leave Neighborhood, CVS, Liquor Store
- Downtown has been through many challenging times in the past – this one feels different
- Video of Lewisburg from 1937 – glimpse into the past – chair factory, Lewisburg Inn, Gas station, schools.
- Route 15 vs. Downtown
 - Intact Downtown, many offerings.
 - Need to get people downtown
 - Rail Trail Activity and Gateways discussed
- Lamp-Post Project – from River Bridge to Route 15 – Improve the aesthetic of the street
- How to lure the random Traveler into town?
- The Role of the Park: Good Park (People Place) vs. Events
 - Parks can attract people every day.
 - Need Foot Traffic - Rail Trail Connection is important
 - Also Connect to the River
- Lewisburg – similarities with State College – loss and shift of stores from the downtown.
- Encourage Involvement with the River Town Group
- Gazebo does offer dual orientation – small crowds or pivot to overflow lawn area
- River Stage performances typically 150 People
- Large Performances fill entire green (lawn) area
- Important to attract families, seniors. Senior Facilities provide bus drop at park – bring their chairs
- Small Play Area – good idea, but shift further from the stage to minimize distraction; additional play area in the lawn – near tree
- Shakespeare in the park – Gas Pipe Theater – get about 150 People
- Don't over engineer the space. Have open / un-programmed areas for spontaneous use
- Park should not have a commercial focus. Provide quality park space, green space, an oasis in the town
- Stage could use better utilities. There is no back stage / green room / staging room. These things are 'created' with screens by the current users. Not ideal

- Need to define your target population. Who is the park users? Internal population (residents – walking distance to the park), Driving Population (residents and visitors – Danville, Bloomsburg, Williamsport, Selinsgrove), Bucknell Students / Parents
- Bucknell Gateway is important; build partnership with university
- Make direct walking / biking connection from Bucknell to downtown the diagonal connection across Kidsburg
- N. Shore Railroad – Excursion Trains. Real asset and opportunity to work with the railroad
- Importance of History – Interpretation of the past. Use new technology to update walking tours and interpretation program
- Railroad Piers could be used for art / sculptural displays / murals
- Keys to Park – make it green, make it nice – and don't over engineer it
- Tie the Survey Results with the Plan – show this was a democratic process and that public input was considered

ENGAGING THE BUCKNELL COMMUNITY FACULTY AND STUDENTS – PARK USER SURVEY AND FOCUS GROUPS

Managing for Sustainability and Presidential Scholars Program

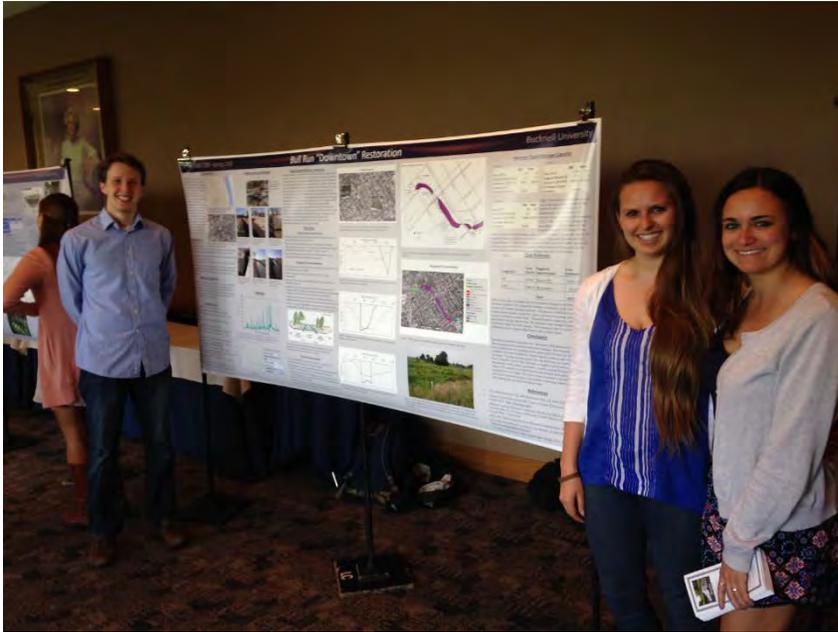
Eric Martin and Neil Boyd, Bucknell Associate Professors of Management and Bucknell Managing for Sustainability Program, secured 4 Presidential Scholars to assist the Bull Run Greenway project. The students produced a unique visual assessment tool for use in both the Community Design Workshop and an on-line survey. The students also led an outreach program to the Bucknell Community through a series of focus groups to identify opportunities for Bucknell University engagement for recreation, research, service learning, as well as university engagement and investment in the park and surround neighborhoods.



Bucknell student Dan McCall helps facilitate the 'Future of Recreation' break-out session at the Community Design Workshop.

Bucknell University – Stream Restoration Study

Bucknell faculty Ben Hayes and Craig Kochel co-taught a course in which the students complete a comprehensive study of the Bull Run watershed. The work will involve stream gages newly installed on the stream. Previous work completed on Miller Run has resulted in securing funding and completing a stream day-lighting and stream channel restoration work in at the Bucknell University golf driving range on Miller Run.



Bucknell student present stream restoration concepts for Bull Run in downtown Lewisburg.



Watershed and stream channel assessment work being conducted by Justin Spangler of LandStudies, Inc.

ENGAGING TEACHERS AND STUDENTS – LEWISBURG AREA SCHOOL DISTRICT CLASSROOM PROJECTS AND ACTIVITIES

Explorations in Environmental Science and History

Lewisburg high school environmental science students, under the direction of Van Wagner, Van Wagner, conducted research on riparian buffers. The class estimated what percentage of Union County's streams are buffered on both sides by vegetation. The students found that the stretch of Limestone Run that goes through the heart of town to be among the lowest percentage regarding riparian buffers. Students have been studying the many benefits provided by buffers.

In the fall (2015), Van Wagner's students did some investigation on-site investigation of the land use history of the park. The students found a lot of evidence of human activity from the 1800's through today. Pavers (bricks), coal ash, glazed pottery fragments, hand-forged nails, marine muscle shells, and other proof that the park was at one time an area of residence and industry.



Lewisburg high school environmental science students display the results of their water-quality monitoring work, as well as the cultural resources found in the park sites.



ENGAGING YOUNG ARTISTS

Bryce Snyder, High School AP Arts Program teacher, engaged his students in the design of the park as they applied what they learned in Elements of Art & Principles of Design. Students created 3D 'Maquettes' of their design ideas for the park. The students were given a site overview by landscape architect Brian Auman who is working on the park master plan. A few of the most commonly mentioned features that HS students would like to see integrated into the park are:

- Swings
- Sand Volleyball Court
- Picnic Tables
- Sculptural Water Fountain
- More Landscaping - Trees and Shrubs
- Bike Rental
- Wi-Fi
- Rock Climbing Wall
- Smoothie Bar and Food Trucks
- Improved Amphitheater

Amy Matukaitis – First Grade Teacher Kelly Elementary School

Class Project - The class did a 2-day writing lesson where kids illustrated their "perfect park" and then wrote about it. For the second day I took pics/video of the space and told kids to add in what would fit in the space the best. We had such fun! Kids said:

- A ship by the creek (or over the creek)
- A pirate theme
- A castle with a moat
- Treehouse
- Tire swings
- A rock climbing wall
- Quiet music like crickets
- A place to lay on your back and look up (at the sky)
- Lots of trees (shade was mentioned by a few)
- Benches for dogs/places to read with your dog
- Space for legos with a "lego table" on tree trunks
- Swings for 2 people
- Giant chess boards
- Sand
- Twisty slides
- Climbing ladders
- Candy theme (bridge of lollipops) with free candy at the park !!
- Star Wars theme (with discussion that Wookies are not real and do not need a place of their own in the park)
- "old-fashioned" monkey bars
- Bridges that move (mentioned by several)

KEY PERSON INTERVIEWS –

While focus groups are great venues to create synergy and generate ideas among a group of people, discussion on some topics are best done one-on-one. Two key person interviews were conducted as part of the study:

Lewisburg Garden Club – Executive Committee

Will Sanders – West Shore Railroad

PlayWorld Staff – Discussions of the Future for Kidsburg

**BOROUGH OF LEWISBURG - BULL RUN GREENWAY
 COMMUNITY DESIGN CHARRETTE (WORKSHOP)
 November 10, 2015 – 5:30PM – 9PM
 Larison Hall at Bucknell University**

**MAKE YOUR MARK ON THE PARK
 HELP DESIGN THE FUTURE OF LEWISBURG’S DOWNTOWN PARKS**

**Danny Green Field – The Towne Green – Hufnagle Park –
 Kidsburg – 6th Street – Campus Gateway**

WHAT IS A DESIGN CHARRETTE?

A ‘Charrette’ is defined as a collaborative session in which a group of community stakeholders ‘design’ a solution. In this instance the participants will be tasked with creating design concepts for the study area’s streets, parks, and greenway. Break-out groups will work on various elements of the design problem – such as Recreation Needs; Event Space; Stream Restoration; Neighborhood Connections / Trail Concepts and Creating a Park where People Want to Be. At the end of the evening the various break-out groups will present their ideas. Professional Planners and Designers will help facilitate the breakout groups, with each group producing a verbal and graphic ‘Idea Board’ to be featured in a public display.

Agenda:

Pre-Workshop Park Walk –

Meet at Covered Bridge across from Town Tavern –

Walk 6th Street and discuss site and key opportunities – end at Larison Hall.....5:30 – 6:00PM

Welcome and Orientation6:00PM

Break-Out Sessions - Topics and (facilitators) – give elevator introduction to the key issues / opportunities that will be addressed in the group...

- *Being Green – Park Greening and Landscaping (Sarajane Snyder)*
- *We Need to Talk – Redefining Our Relationship with Bull Run (Justin Spangler)*
- *Creating Connections – Walking and Biking Trail(Kim Wheeler)*
- *Future of Recreation – Recreation for All Ages and Abilities (Alice Trowbridge)*
- *Here We Are Now Entertain Us – Creating Great Performance Venue(s) (Glenn Vernon and Claudia Albertin)*
- *Creating People Places – Spaces People Want to Be... (Dina El-Mogazi)*

Break Out Session #16:15 – 7:15PM

Break Out Session #27:15 – 8:15PM

Report Back – 5 Minutes per group – the facilitator and any participants.....8:15 – 8:45PM

Next Steps – Plan, Design, Engineer, Implementation – Stay Involved8:45 – 9PM

Planning Team – Summary and Breakdown till 10 or 11:00PM

Summary Boards (Brian) 10:30 – 2:00AM

**Make Your
Mark
On the
Park**

LEWISBURG
NEIGHBORHOODS CORPORATION

Provide Your Ideas
for the Future

**Lewisburg Parks &
Bull Run Greenway**

Community Design Workshop
November 10th

5:30PM Park Walk Meet at Town Tavern - 600 Market Street
6:00PM Design Workshop at Bucknell's
Larison Hall - St. George St. Between 6th and 5th

The flyer for the Community Design Workshop (above), and the workshop agenda (previous page).

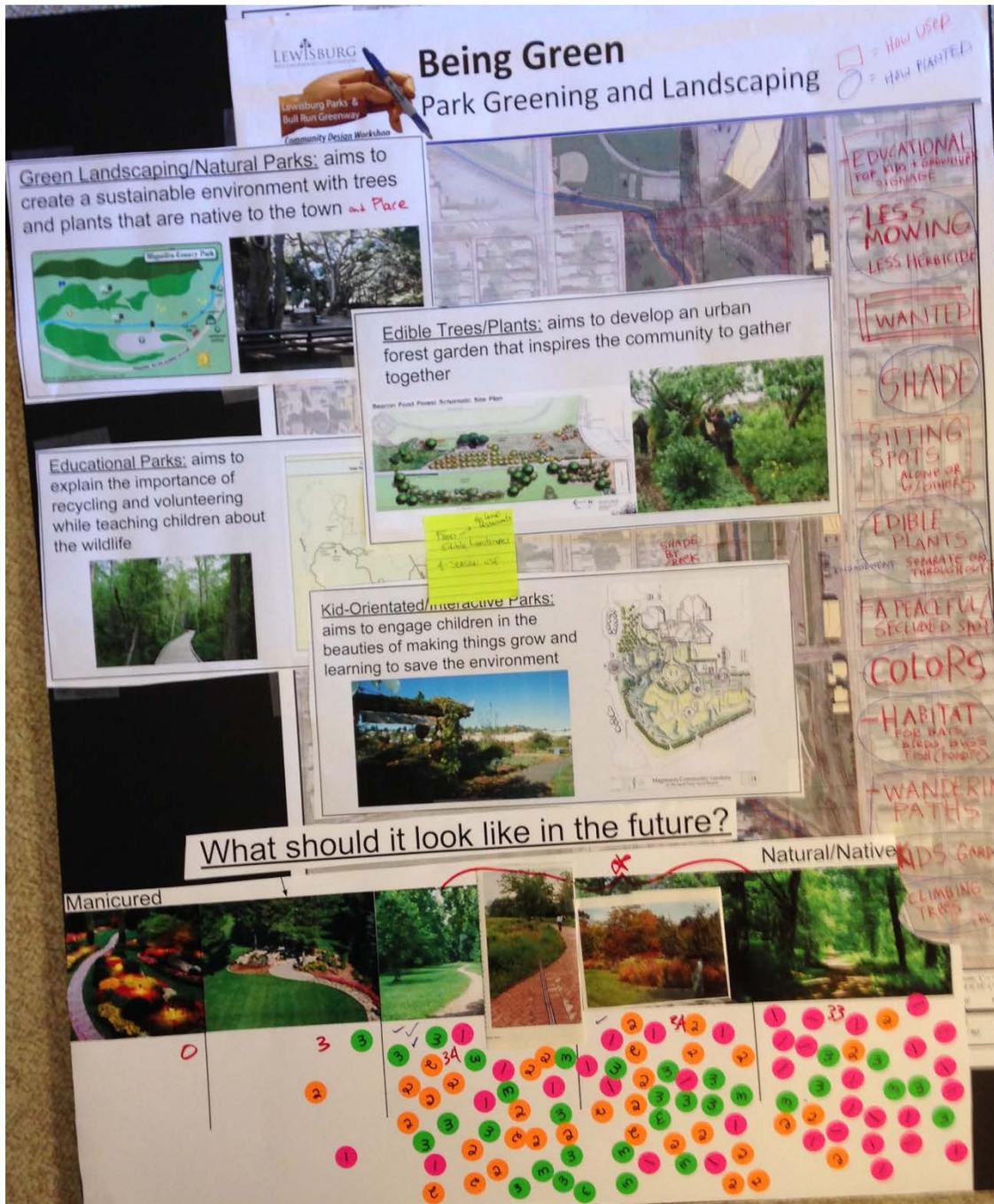
COMMUNITY DESIGN WORKSHOP (CHARRETTE) - SUMMARY

Despite terrible weather, the Community Design Workshop, was a tremendous success. The workshop was attended by 120 community residents. The event also had a great turn out and active participation by young people with students from both Lewisburg Area School District and Bucknell University in attendance. The breakout sessions, facilitated by members of the consultant design team and local experts, engaged participants on their ideas and visual preferences associated with the stream, landscaping, stage and amphitheater, recreation, pedestrian and bicycle connections, and people places, and produced some clear preferences and priorities.



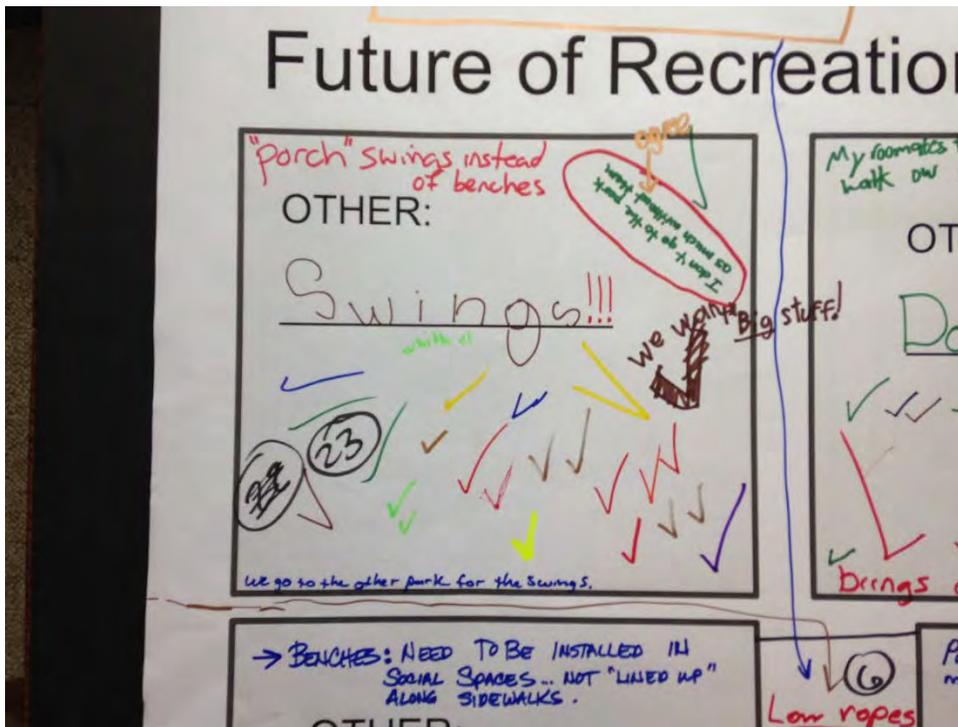
Mayor Judy Wagner welcomes the participants to the Community Design Workshop at Bucknell's Larison Hall.

The workshop residents clearly expressed the desire for the park to move in a more green, natural, native, and organic direction. This was expressed in the clear preference for a more naturalized Bull Run stream corridor and for overall park landscaping. However this theme of a more natural park was also expressed in the popularity of a 'Nature Play' type of playground that connections people to water, stream and naturalized landscapes. The nature theme was also reinforced in the visual preference for the visual character of the performance stage – with wood and shed-roof structures at the top of the preference list. The breakout session on 'People Places' also identified 'stream access' and naturalized seating places as priorities.



Visual Preference displays were one way to get community input on the look and feel for the future park. In the 'Being Green' break-out session, participants showed a clear preference for a park with more trees, and with a more natural landscape character.

Other popular elements for the park include swings, programmed movie nights in the park, bike racks, big chess board, game tables, Ping-Pong tables, art and murals, fun seating (swings) for adults, shade / shaded seating areas, food trucks, moveable seating, and wi-fi workspace. Residents also expressed a strong desire to move beyond portable toilets – towards permanent structure facility.



Swings were popular in the 'Future of Recreation' break out group.



Architect Glenn Vernon facilitates a break-out session on the design of an improved performance venue for the park.

PARK AND GREENWAY USER SURVEY –

Many residents will choose NOT to participate in a public event such as a Design Charrette, but will be willing to participate in a survey. As such, we seek to reach a much greater percentage of the residents through the development of an on-line survey. A park and greenway user survey will be developed to ascertain resident support for recreation, identify recreational needs, and establish priorities for park and open space improvements.

The Park and Greenway User Survey was a collaborative effort with Bucknell University faculty advisors and students participating in the Bucknell Presidential Scholars Program. The survey generated 587 total responses over the course of one month. There were 234 responses from Lewisburg Area (residents from the Lewisburg Area School District living in East Buffalo, Kelly and Union townships), 157 from Bucknell students, 156 from Lewisburg Borough Residents, and 40 from areas beyond the school district.

<u>Responses</u>	<u>Locations</u>	<u>% of Total</u>
156	Lewisburg Borough	26%
234	Lewisburg Area*	40%
157	Bucknell Students	27%
40	Other**	7%

*Lewisburg Area includes residents of East Buffalo, Kelly and Union townships.

**Other includes residents outside of Lewisburg Area

The total number of responses reflect a significant interest in the park and greenway project. Nearly $\frac{3}{4}$ of survey respondents do not live in Lewisburg Borough – indicating the importance of the park as a regional recreation destination and community activity hub. The survey response reinforces the view of Lewisburg Parks, Events and Programs proving recreational resources and experiences for residents from a much larger region.

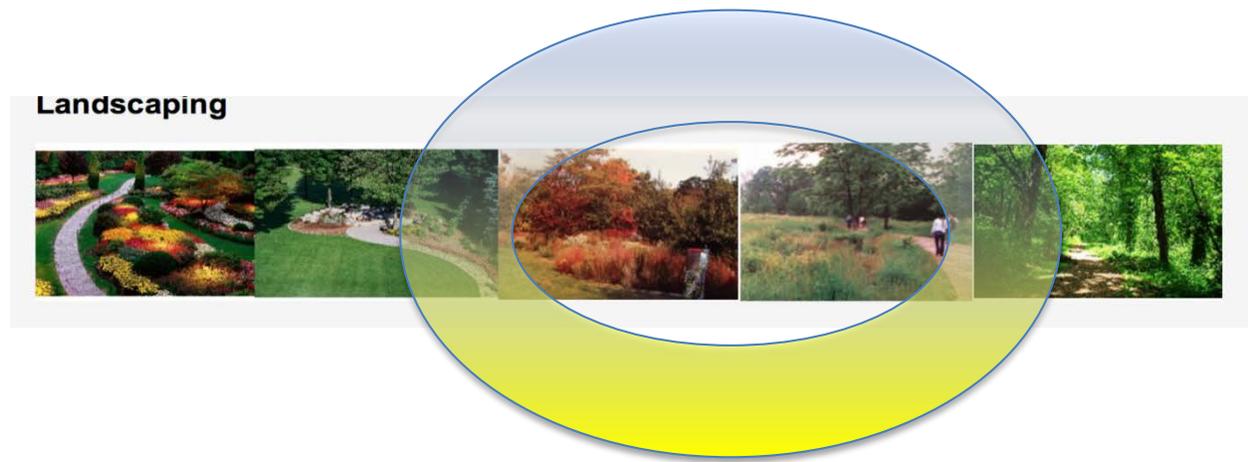
The survey engaged the public to assess their views on park improvement priorities, as well as what the park should look like in the future. Residents were provided 5 or 6 images depicting a range of different aesthetics to determine respondent's visual preferences in such areas as the stage / amphitheater, landscaping, stream corridor, walkways and bridges. Averages were calculated for the stream restoration (range 1-6) and the landscaping (range 1-5).

Throughout all responses, it was clear the public preference for a more natural, green and organic aesthetic. Most people favored a more natural stream, with average rating of 5.06 out of 6, over a stream that is heavily engineered and lined with concrete, walls and rock.

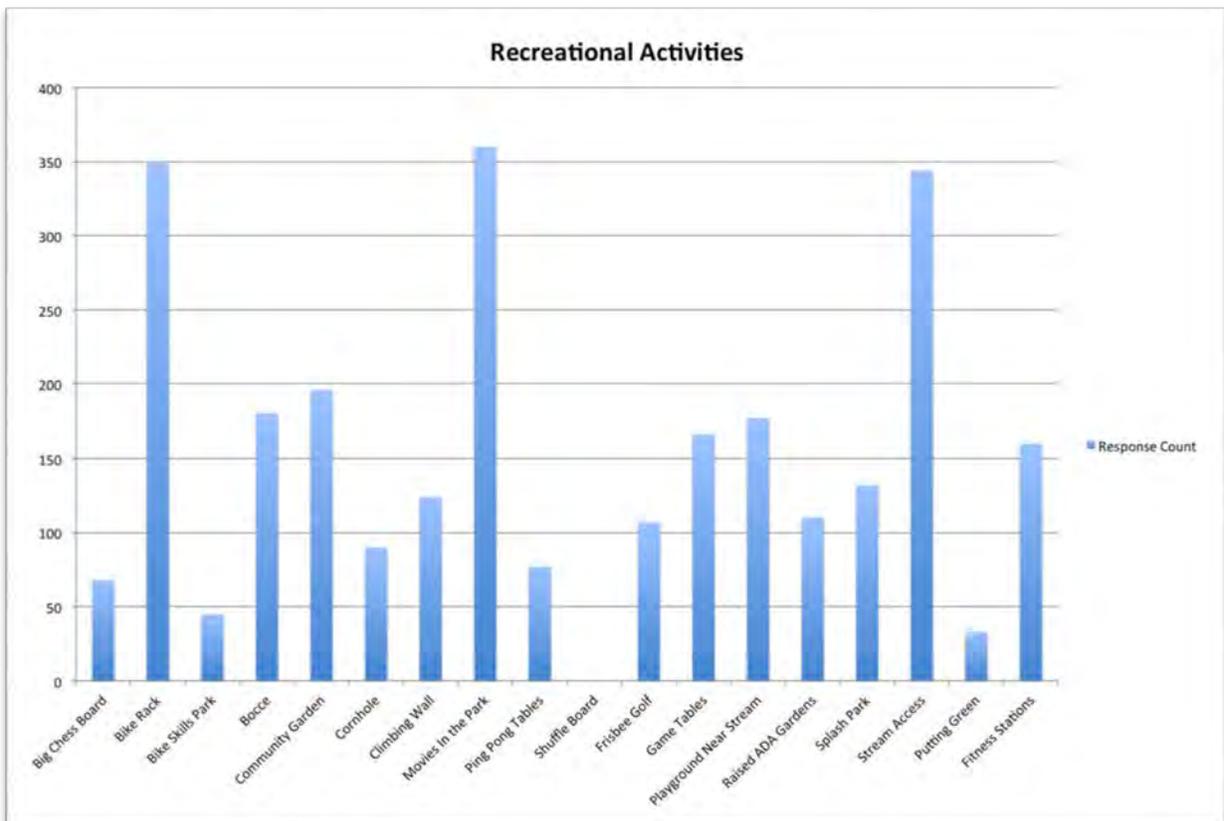
Stream



Similarly, the visual preference for the landscaping, with an average of 3.65 out of 5, favored a natural, organic and native plant aesthetic.



When it came to determining park priorities, the top choice was for programming movies in the park'. Other top choices include physical changes for stream restoration / improved stream access, as well as providing bike racks, and picnic tables. Other park user priorities include: extension of the rail-trail, informal seating, more trees and shaded seating options, and 'nature play,' a playground style that would reconnect children and adults to the natural world.



Lewisburg – Community Profile

Lewisburg, unlike other similar sized towns in the region such as Milton, Watsonstown, Northumberland, Mifflinburg, benefits from a more diverse and stable economic base. Lewisburg benefits from jobs, in education, health care, municipal government, and the federal corrections facility, which generally provide stable, good paying and family supporting wages. The stable local economy, quality downtown, and performance of Lewisburg Area School District’s highly rated public education – the community attracts professional from throughout the region.



Market Street in downtown Lewisburg, one block from the park.

The greater Lewisburg community also benefits from other trends and factors. College towns in general are attractive places for people to move to for retirement. Attracted by the vibrancy and culture offered by the university, in a quaint and rural setting is an ideal mix sought by many mature adults. These retirees often become actively engaged in the community, offering their time and expertise as a way to become an active part of the community. These new arrivals will be ready advocates for enhancements to recreation, accessibility, walkable and bike-friendly amenities, and social connection.

Another trend for the greater Lewisburg area is the flowering of a culture that celebrates innovation, education, the arts and the entrepreneurial spirit. The Arts Festival is a long-running community tradition, but the community, over the last few decades, has attracted a wide range of artists and members of the ‘creative class.’ The Lewisburg Area attracts many in the ‘creative class’ who could choose to live anywhere in the region. These residents include: Bucknell faculty, staff and administrators; doctors and professional staff with Geisinger and Evangelical Hospitals; a disproportionate number of artists and designers, and; new business start-up entrepreneurs. The human capital of the Lewisburg community – may be its greatest asset as it moves into an uncertain future.

Lewisburg –Demographics

Lewisburg – Demographic Information – US Census Bureau

Population (2014) -	5,775
Population (2010) -	5,792
Population Change (2010 – 2014) -	-0.3%
Household Units -	2, 224
Land Area -	0.97 Square Miles
Density -	5,953 persons / square mile

Demographics

- Persons under 5 Years 2.7% compared to Pennsylvania 5.7%
- Persons under 18 Years 9.2% compared to Pennsylvania 22.0%
- Mean travel time to work 17.9 minutes, compared to Pennsylvania 25.9 minutes

Lewisburg Area Demographics (17837 Zip Code)

Population -	20,142
Median Age -	35.5
Median Income -	\$50,900
Consumer Spending -	\$468 MM
Consumer Spending -	\$70,390 (Household)



Local residents and Bucknell students Participants in the CommUNITY Event in Hufnagle Park.

Lewisburg – Market Segments

Most Common Market Segments* for the Lewisburg Area:

Big Fish, Small Pond –

Older, upper-class, college-educated professionals, the members of Big Fish, Small Pond are often among the leading citizens of their small-town communities. These upscale, empty-nesting couples enjoy the trappings of success, including belonging to country clubs, maintaining large investment portfolios, and spending freely on computer technology.

Greenbelt Sports –

A segment of upscale exurban couples, Greenbelt Sports is known for its active lifestyle. Most of these older residents are married, college-educated, and own new homes. And few segments have higher rates for pursuing outdoor activities such as skiing, canoeing, backpacking, boating, and mountain biking.

Traditional Times –

Traditional Times is the kind of lifestyle where small-town couples nearing retirement are beginning to enjoy their first empty-nest years. Typically in their fifties and older, these upper-middle-class Americans pursue a kind of granola-and-grits lifestyle. On their coffee tables are magazines with titles like Country Living and Country Home. But they're big travelers.

God's Country –

When city dwellers and suburbanites began moving to the country in the 1970s, God's Country emerged as the most affluent of the nation's exurban lifestyles. Today, wealthier communities exist in the hinterlands, but God's Country remains a haven for upscale couples in spacious homes. Typically college educated Baby Boomers, these Americans try to maintain a balanced lifestyle between high-power jobs and laid-back leisure.

Golden Ponds –

Golden Ponds is mostly a retirement lifestyle, dominated by downscale singles and couples over 65 years old. Found in small bucolic towns around the country, these high school-educated seniors live in small apartments on less than \$35,000 a year; more than one in five reside in a nursing home. For these elderly residents, daily life is often a succession of sedentary activities such as reading, watching TV, playing bingo, and doing craft projects.

**Nielsen Segmentation & Market Solutions Data for the 17837 Zip Code from website: www.claritas.com*

Community Profile Summary

Lewisburg is a community that respects its past, yet embraces the opportunity to create a better future. The community is progressive in thought, though conservative in politics and fiscal management. The community prioritizes quality education and the arts, and recognizes the important role that parks play in human health and resident's quality of life. The community is a magnet for people seeking a vibrant community within context of a beautiful, rural region. The community is attractive place to live work and play. The community is the place to be in the region for families with children with access to excellent public schools; for entrepreneurs creating a new business venture, and; highly-educated and active adults moving towards retirement.

PUBLIC MEETINGS

Public meetings offer the opportunity for any community resident to be involved and provide their input into the park and greenway plan. Our team proposes the following public meeting venues and topics for the project.

Public Meeting #1 – Community Design Workshop (Charrette) November 10, 2015

Public Meeting #2 – Borough Council & Study Committee – Present Draft Master Plan – January 2016

Public Meeting #3 – William Cameron Fire Hall – Presentation of Draft Master Plan – March 2016

Public Meeting #4 – Public Meeting – Presentation of Final Plan and Report to Lewisburg Borough Council – December 2016



Draft Plans on display at the public meeting in March, 2016.

FEASIBILITY ASSESSMENT

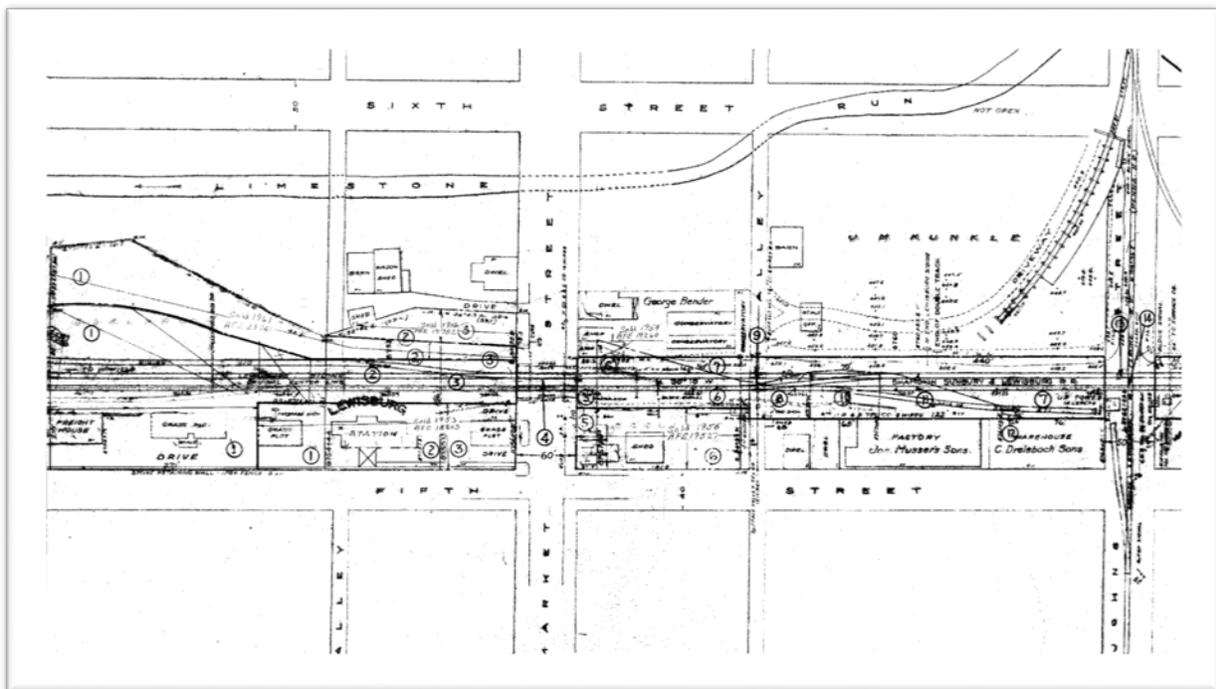
CHAPTER 4 FEASIBILITY ASSESSMENT

Can we build it? The Legal, Physical, Political, Design and Financial Feasibility of the Bull Run Greenway

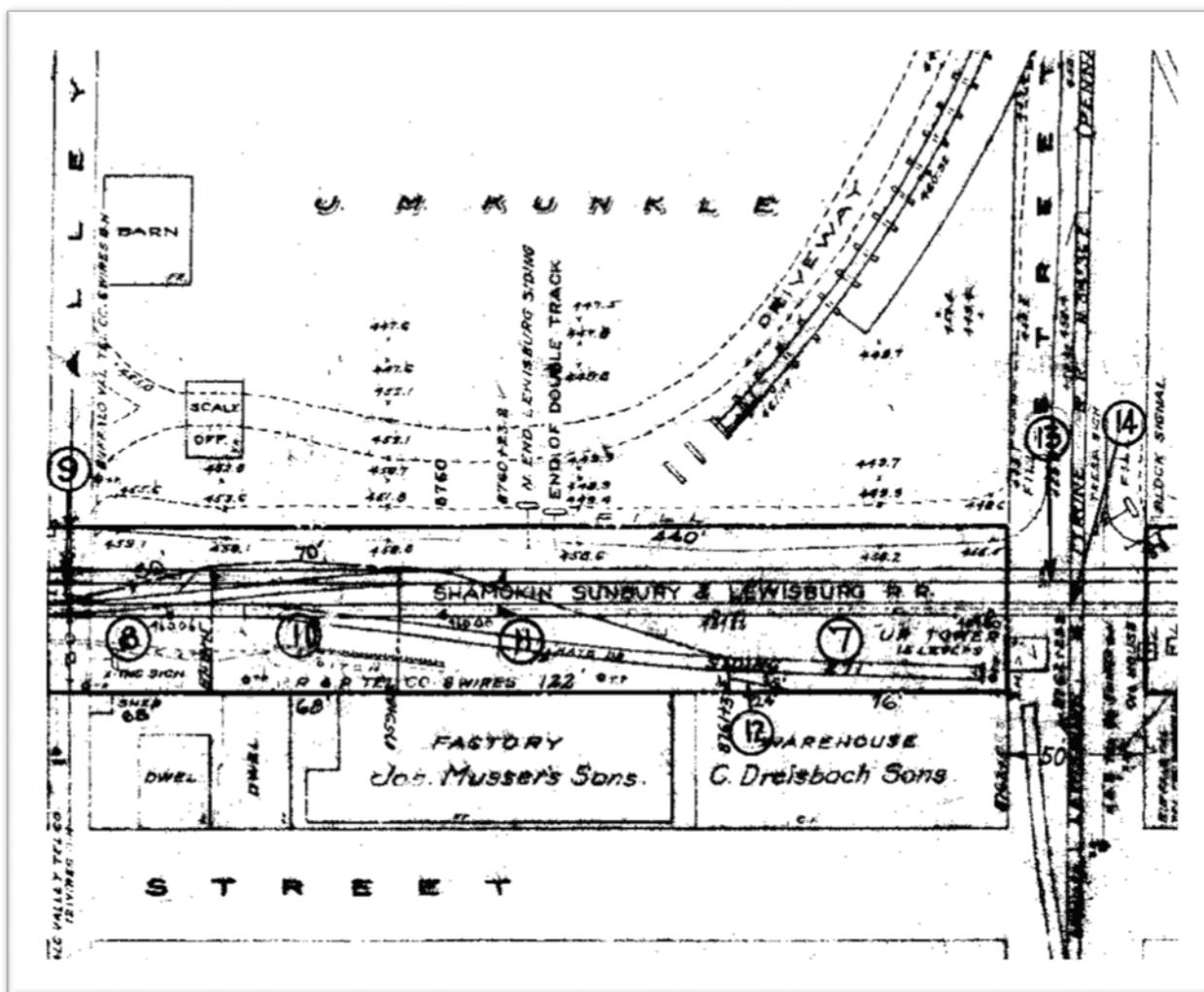
Legal Feasibility –

Land Ownership

Gradually, over time, Lewisburg Borough has assembled the ownership of many individual parcels of land that comprise the downtown park system. This land includes Kidsburg and Hufnagle parks, the lands residents most associate the downtown park system, but also include the Town Green, as well as Daniel Green Park. The Borough does NOT own the parcel of land separating Daniel Green Park and Route 15, that parcel is in the ownership of the Culligan business, through the owner allows the use of the site for event parking and winter snow stockpiling. In 2014 and 2015 – Borough land ownership increased with the purchase of 10 flood prone properties along S. 6th Street.



Shamokin, Sunbury & Lewisburg Railroad, right-of-way and track map, from 1917 (Map from the collection of Will Sanders).



Detail of area just north of Market Street shows an industrial railroad corridor through of heart of Lewisburg (Map from the collection of Will Sanders).

As owner of the property, the Borough of Lewisburg has the right to possess and use the property as it sees fit – with recreation being a logical use to serve the community need. Recreational uses change over time and the Borough seeks to create a park that meets the needs of how residents play and socialize today. The park will provides something for all residents, as well as attract visitors to the community.



Sledding in 'The Grove' at Bucknell University (From: Lewisburg – History of 19th Century Lewisburg Architecture, 1976).

The land for the park system was primarily acquired as a result of flood buy-outs – starting after the devastating flooding of 1972 and continuing till today. Flood property buy-outs do come with specific constraints on what can and cannot occur on the property in the future and these restrictions run in perpetuity with the property. The intent of these buy-out programs is to improve public safety and reduce the extent of recurring flood damage in the future.

Zoning and land use regulations are tools of municipal government to establish different areas of the community for different uses, as well as maintain compatibility among the various land use types. The park land owned by the Borough of Lewisburg is zoned Open Space (OS). The newly acquired properties were re-zoned to OS in January 2015. Open Space is described in the Borough Subdivision and Land Development ordinance as:

“A parcel or parcels of land and/or an area of water within a municipality designed and intended for the use or enjoyment of all municipal residents, not including areas set aside for public grounds (see "public grounds," Subsection B), i.e., sites for schools, sewage treatment, refuse disposal and other publically-owned or operated facilities. Such space should be substantially free of structures but may contain such improvements (recreation space) as are indicated in the County or Borough Comprehensive Plans and/or are appropriate for the recreation of county or Borough residents. See "public grounds," Subsection A, and "recreational space.”

Permitted uses in the Lewisburg Borough's Open Space designed zoning areas include:

Permitted uses:

- Agriculture and horticulture
- Water-related uses such as docks, piers, wharves and bridges
- Passive recreation, including trails, bike paths, open space and nature walks
- Forestry

Conditional uses:

- Public memorials and monuments
- Outdoor public recreational facilities and accessory uses or structures
- Cemeteries
- Active recreation



The current design for Hufnagle Park began to take shape in the mid-1980's with the construction of the gazebo and walkways.

The downtown parks also occur in the town's Historic District – with oversight from the Borough's Historic Architectural Review Board. All buildings, structures, signs and uses shall comply with the provisions of the Lewisburg Borough Historic District Ordinance and the Lewisburg Borough Code of Ordinances.

The Borough Floodplain Ordinance states:

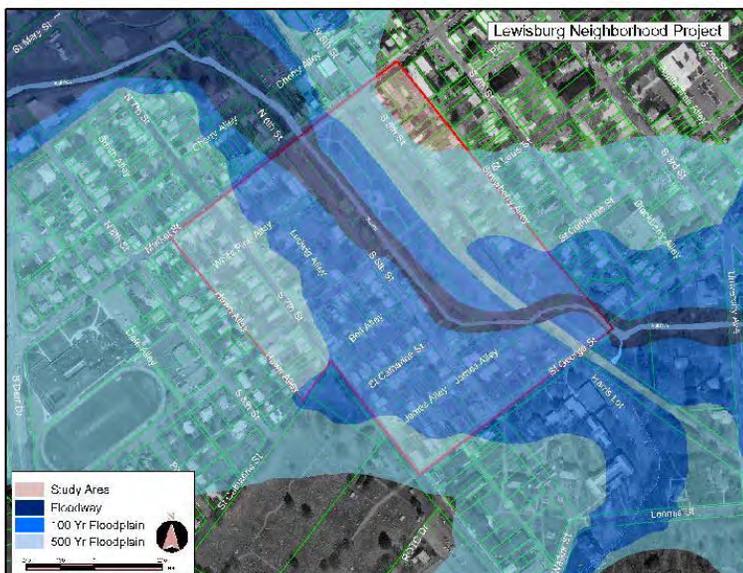
“Low-lying land subject to flooding hazards as defined herein shall not be developed for residential or such other inappropriate uses, unless adequate provisions are made to alleviate such hazards. Developers shall consult Chapter 179, Floodplain Management, maps and regulations to determine flood areas and associated building requirements.”



The 1972 flood of Bull (Limestone) Run looking west on Market Street.

Similarly the Borough ordinance describes floodways as:

“The channel of the watercourse and those portions of the adjoining floodplains, which are reasonably required to carry and discharge the one-hundred-year frequency flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the one-hundred-year frequency floodway, it is assumed, absent evidence to the contrary, that the floodway extends from the stream to 50 feet from the top of the bank of the stream.”

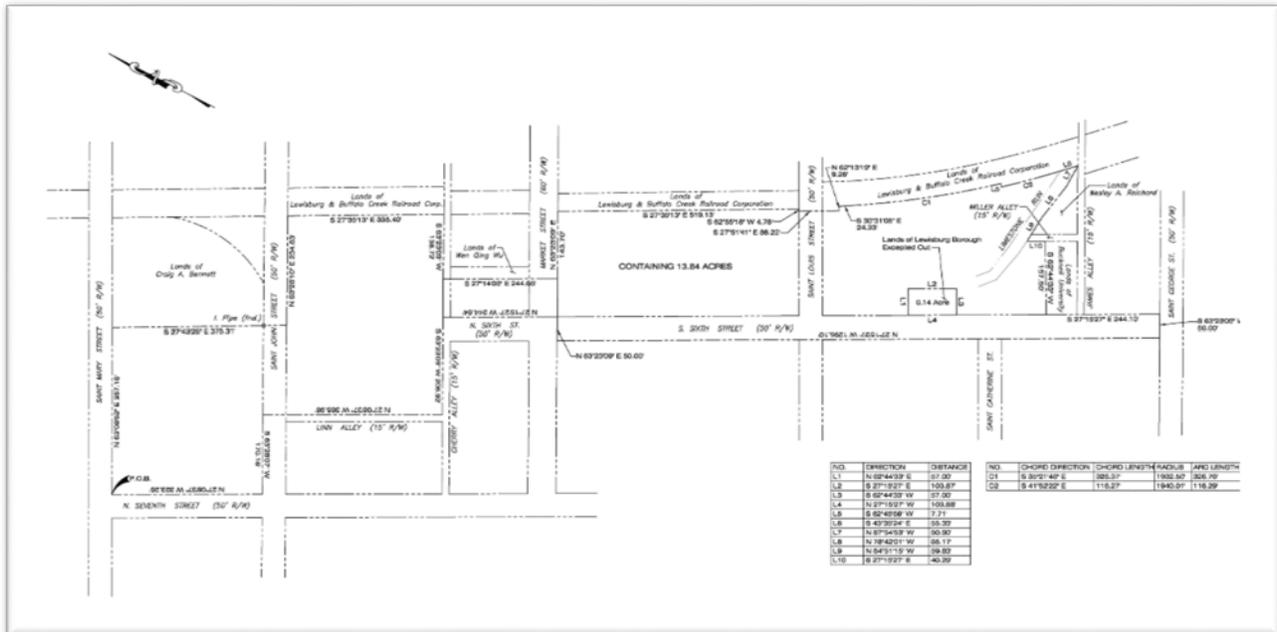


The extent that development and infrastructure such as roads and bridges have encroached on the floodway (dark blue) and 100 year floodplain (medium blue) significantly impacts the stream’s ability to carry and discharge flood waters.

Site Survey and Deed Research

Boundary Survey –

A site boundary survey was performed by Coukart & Associates, Inc. for Lewisburg Bull Run Greenway study area, as well as a written boundary description. The park land, including the 6th Street Right-of-Way is 13.84 Acres. See Boundary Survey and Description in the Report Appendix.



Bull Run Greenway Study Area – Boundary Survey for Lewisburg Borough Owned Property (Coukart & Associates, Inc., 2016).

FEMA / PEMA - Land Use and Oversight

The acquisition and demolition of 10 flood prone properties is an important move in the right direction, improving public safety and reducing risk of property loss. This effort will reduced reliance on disaster resources and the National Flood Insurance Program (NFIP) in the future. A requirement of the buy-out funding program is that deed restrictions have been placed on the ten (10) properties acquired by the Borough. As part of the acquisition of the properties, deed restrictions were recorded for each property, enforcing mandatory requirements of the program to ensure that each property remained as open space use in perpetuity.

The Borough acknowledges it's responsibly for reporting on property compliance with the open space requirements during the Period of Performance (after acquisition) and after the Grant closeout. Likewise, the Borough will submit to PEMA and FEMA, in writing, proposed uses on the property (if any such proposals are made) for open space compatibility determination; and monitor and report, as needed, on property compliance. Furthermore, the Borough acknowledges that each property is no longer eligible for coverage under the NFIP for damage to structures occurring after the date of settlement; and as such, the properties will be dedicated and maintained in perpetuity as open space for the conservation of natural floodplain functions.

Certificate of Title and Deed Research -

A Certificate of Title and deed research for the Lewisburg Borough park property was conducted by solicitor Andrew D. Lyons, Esquire in May, 2015, for 12 individual parcels comprising the park land. The summary of the Deed Restrictions are as follows:

1. **Compatible Uses.** The Property shall be dedicated and maintained in perpetuity as open space for the conservation of natural floodplain functions. Such uses may include: parks for outdoor recreational activities; wetlands management; natural reserves; cultivation; grazing; camping (except where adequate warning time is not available to allow evacuation); unimproved, unpaved parking lots; buffer zones; and other uses consistent with FEMA guidance for open space acquisition, Hazard Mitigation Assistance, Requirements for Property Acquisition and Relocation for Open Space.
2. **Structures.** No new structures or improvements shall be erected on the Property other than:
 - a. A public facility that is open on all sides and functionally related to the designated open space or recreational use;
 - b. A public rest room; or
 - c. A structure that is compatible with open space and conserves the natural function of the floodplain, including the use described in paragraph 1.a of this section, and approved by the FEMA Administrator in writing before construction of the structure begins.

Any Improvements on the Property shall be in accordance with proper floodplain management policies and practices. Structures built on the Property according to paragraph b of this section shall be flood-proofed or elevated to at least the base flood level plus one (1) foot of freeboard, or greater, if required by FEMA, or if required by any State, Tribal, or local ordinance, and in accordance with criteria established by the FEMA Administrator.

3. **Disaster Assistance and Flood Insurance.** No Federal entity or source may provide disaster assistance for any purpose with respect to the Property, nor may any application for such assistance be made to any Federal entity or source. The Property is not eligible for coverage under the NFIP for damage to structures on the Property occurring after the date of the property settlement, except for pre-existing structures being relocated off the Property as a result of the project.
4. **Transfer.** The Grantee including successors in interest, shall convey any interest in the Property only if the FEMA Regional Administrator, through PEMA, gives prior written approval of the transferee in accordance with this paragraph.
 - a. The request by the Grantee, through PEMA, to the FEMA Regional Administrator must include a signed statement from the proposed transferee that it acknowledges and agrees to be bound by the terms of this section, and documentation of its status as a qualified conservation organization if applicable.
 - b. The Grantee may convey a property interest only to a public entity or to be a qualified conservation organization. However, the Grantee may convey an easement or lease to a private individual or entity for purposes compatible with the use described in paragraph a of the section, with the prior approval of the FEMA Regional Administrator,

and so long as the conveyance does not include authority to control and enforce the terms and conditions of this section.

- c. If title to Property is transferred to a public entity other than one with a conservation mission, it must be conveyed subject to a conservation easement that shall be recorded with the deed and shall incorporate all terms and conditions set forth in this section, including the easement holder's responsibility to enforce the easement. This shall be accomplished by one of the following means:
 1. The Grantee shall convey, in accordance with this paragraph, a conservation easement to an entity other than the title holder, which shall be recorded with the deed, or
 2. At the time of title transfer, the Grantee shall retain such conservation easement, and record it with the deed.
- d. Conveyance of any property interest must reference and incorporate the original deed restrictions providing notice of the conditions in this section and must incorporate a provision for the property interest to revert to the State, or local government, in the event that the transferee ceases to exist or loses its eligible status under this section.



The Bull Run stream corridor after the removal of homes along South 6th Street.

Pennsylvania Natural Diversity Index (PNDI)

The Pennsylvania Natural Heritage Program is a member of NatureServe, an international network of natural heritage programs that gather and provide information on the location and status of important ecological heritage programs that gather and provide information on the location and status of important ecological resources (plants, vertebrates, invertebrates, natural communities and geologic features). Our purpose of the program is to provide current, reliable, objective information to help inform environmental decisions. The information can be used to guide conservation work and land use planning, ensuring the maximum conservation benefit with the minimum cost.

A Pennsylvania Natural Diversity Index search was completed for the Bull Run Greenway study area and produced the following results:

PNDI Project Environmental Review Receipt Project Search ID: 20151228543451

1. PROJECT INFORMATION

Project Name: Bull Run Greenway - Master Plan
Date of review: 12/28/2015 1:43:47 PM
Project Category: Recreation, Campgrounds/parking lots, playgrounds
Project Area: 16.6 acres
County: Union Township/Municipality: Lewisburg
Quadrangle Name: LEWISBURG ~ ZIP Code: 17837
Decimal Degrees: 40.964150 N, -76.887813 W
Degrees Minutes Seconds: 40° 57' 50.9" N, -76° 53' 16.1" W



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Page 1 of 5

PNDI Project Environmental Review Receipt

Project Search ID: 20151228543451

Current Status: Special Concern Species*

Scientific Name: Lasmigona subviridis

Common Name: Green Floater

Current Status: Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE: No impacts to federally listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum Materials to be submitted:*

- ___ SIGNED copy of this Project Environmental Review Receipt
- ___ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
- ___ Project location information (name of USGS Quadrangle, Township/Municipality, and County)
- ___ USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.

- ___ A basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
- ___ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
- ___ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with

Page 3 of 5

Future park improvement projects will require further review by the Pennsylvania Fish & Boat Commission to resolve any potential negative impacts on Green Floater or Elktoe mussels.

Green Floater (*Lasmigona subviridis*)

Freshwater Mussel Species of Concern

State Rank: S2 (imperiled), Global Rank: G3 (vulnerable)

Identification

The green floater (*Lasmigona subviridis*) is a small mussel, usually less than 55 mm in length. The shell is thin and the mussel has a subovate or trapezoidal shape. The color varies from a dull yellow to green with many dark green rays visible, especially in young individuals. This species may be confused with the creek heelsplitter (*Lasmigona compressa*) (NatureServe 2005, Strayer and Jirka 1997). The creek heelsplitter is larger, thicker shelled, and less ovate. Also, the creek heelsplitter has only been found in the Ohio River Drainage in Pennsylvania while the green floater is also present in the Susquehanna and Delaware River Drainages.



photo source: PNHP

Habitat

The green floater is often found in small creeks and large rivers and sometimes canals. This species is intolerant of strong currents and occurs in pools and other calm water areas (NatureServe 2005, North Carolina Mussel Atlas, Strayer and Jirka 1997). Preferred substrate is gravel and sand in water depths of one to four feet. This species is more likely to be found in hydrologically stable streams, not those prone to flooding and drying. Good water quality is also important for this mussel species (North Carolina Mussel Atlas).

Host Fish

Glochidial (larval) hosts for the green floater are not known (NatureServe 2005, Strayer and Jirka 1997).

Status

From New York south to Georgia and west to Tennessee the green floater is found. This species is not very common in Pennsylvania, but has been found in the Susquehanna, Delaware, and Ohio River Drainages (NatureServe 2005). The state status of the green floater is imperiled (S2), as it is not frequently encountered within its expected range (www.naturalheritage.state.pa.us/invertebrates.aspx). The small size of this species may make it difficult to locate live animals during surveys. Shells of dead green floaters tend to get buried in the surrounding habitat. More extensive surveys are necessary to determine the current status of this species in Pennsylvania and the United States.

The green floater was listed as threatened in an assessment of the conservation status of the freshwater mussels of the United States by the American Fisheries Society (Williams et al. 1993). The green floater has been historically widespread in the Susquehanna River drainage in New York; however, populations have declined since the early 1990s, probably due to pollution (Strayer and Jirka 1997). Decline in the abundance of this species in other places could be due to stream transport of their preferred habitat, as well as increases in pollutants. The introductions of zebra mussels and Asian clams have also negatively impacted abundance of this species in surveys. However, since this mussel species is hermaphroditic, small populations might survive slightly better than other mussel species in less than ideal conditions (NatureServe 2005).

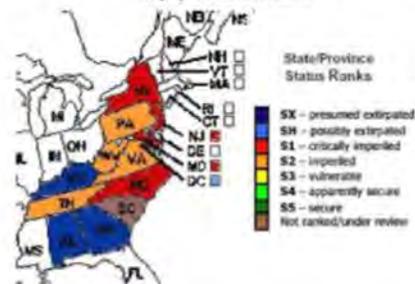
Pennsylvania Distribution by County



Pennsylvania Natural Heritage Program data 2007

North American State/Province Conservation Status

Map by NatureServe (2007)



References

- NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: September 4, 2007).
- North Carolina Mussel Atlas, Species Information and Status. Website: www.ncwildlife.org/nc07/WildlifeSpeciesConcern7b1a1_9.htm
- Pennsylvania Natural Heritage Program. Biota of Concern in Pennsylvania (BOCBP) Lists. Website: www.naturalheritage.state.pa.us/invertebrates.aspx
- Strayer, D.L. and K.J. Jirka. 1997. The Pearly Mussels of New York State. The New York State Education Dept., Albany, NY. 113pp and plates.
- Williams, J.D., M.L. Warren, K.S. Cummins, J.L. Harris, and R.J. Nevas. 1993. Conservation Status of Freshwater Mussels. Fisheries 18(9): 6-22.



Elktoe (*Alasmidonta marginata*)

Freshwater Mussel Species of Concern

State Rank: S4 (apparently secure), **Global Rank: G4** (apparently secure)

Identification

The Elktoe (*Alasmidonta marginata*) is a moderately sized mussel, commonly reaching 75 mm in length. The shell is trapezoidal or rhomboid shaped, inflated, and thin (Parmalee 1998, Strayer and Jirka 1997). The anterior margin is rounded, with a somewhat straight ventral margin. The ventral and posterior margins meet in a blunt, squared point (Parmalee 1998). The posterior ridge is the focal point of the shell and is sharply angled. The posterior slope is flattened with fine, well-developed ridges crossing the growth lines. The beaks are high, inflated, and are comprised of three to four heavy double-looped ridges. The periostracum (outer covering) is usually yellowish or greenish, with green rays and darker spots that may appear connected to the rays (rays may appear interrupted). Lateral teeth are vestigial and appear as nothing more than indistinct bumps along the hinge line. The nacre (inner iridescent coloring) is usually bluish-white (Parmalee 1998, Sietman 2003, Strayer and Jirka 1997).



Photo:
http://www.livesources.com/misouri_mollusks/mussels/images/a_marginata.jpg

Habitat

The Elktoe can be found in medium to large size streams, but is most common in smaller streams. This species is present in greatest abundance in small shallow rivers with a moderately fast current and riffles. The preferred substrate is fine gravel mixed with sand (Parmalee 1998; Sietman 2003; Strayer and Jirka 1997; NatureServe 2005).

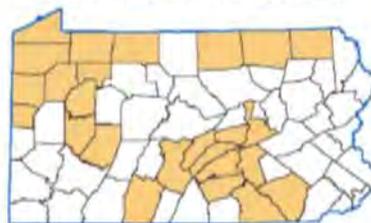
Host Fish

Hosts for Elktoe glochidia include the white sucker, northern hogsucker, shorthead redhorse, rockbass, and warmouth (Parmalee 1998, Strayer and Jirka 1997).

Status

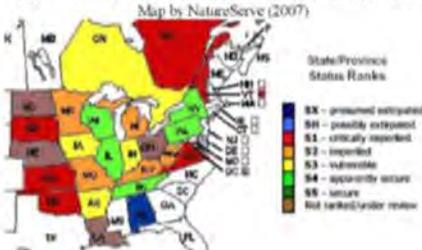
Populations of *Alasmidonta marginata* can be found from Ontario, Canada to Alabama. Its eastern boundary ranges along the east coast from New York to Virginia and the western boundary ranges from North Dakota to Oklahoma. Most populations are located in Ohio, Indiana, and Illinois. This mussel is thought to have been extirpated from Alabama since it has not been reported during surveys for several decades (NatureServe 2005; Parmalee 1998, Strayer and Jirka 1997). This species is not common in Pennsylvania but has been found in the Susquehanna River and Ohio drainages. The proposed state status of the Elktoe is not ranked (N), meaning there is insufficient data available to provide an adequate basis for assignment to specific categories concerning the security of known populations (PNHP). The state rank of this species suggests it is secure at some sites within Pennsylvania state boundaries. However, more surveys are required to determine the status of this species and other freshwater mussels in Pennsylvania.

Pennsylvania Distribution by County



Pennsylvania Natural Heritage Program data 2007

North American State/Province Conservation Status



Alasmidonta marginata is typically thought of as an interior basin species. It is not well understood how *Alasmidonta marginata* reached the Susquehanna River basin from its native range. Some researchers believe it may have drifted from the Allegheny River basin to Susquehanna via postglacial influences. An alternative theory states this species was introduced to the Susquehanna River basin via human activity (Strayer and Jirka 1997).

References

- NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer/>. (Accessed: September 4, 2007).
- Parmalee, P.W. and Bogart, A.J. 1998. The Freshwater Mussels of Tennessee. The University of Tennessee, Knoxville, TN. 328 pp.
- Pennsylvania Natural Heritage Program. Biota of Concern In Pennsylvania (BOCIP) Lists. Website: www.pnhp.state.pa.us/ri/riweb/bocip.htm
- Sietman, B.E. 2003. Field Guide to the Freshwater Mussels of Minnesota. Minnesota Department of Natural Resources, St. Paul, MN. 140 pp.
- Strayer, D.L., and K.J. Jirka. 1997. The Pearly Mussels of New York State. The New York State Education Dept., Albany, N.Y. 113 pp and plate.



Physical Feasibility

Existing Conditions –

Daniel Green Park Inventory and Analysis -

Existing Conditions: Daniel Green Park is currently the most one-dimensional park in Lewisburg’s downtown park system with the primary use being for Little League and Tee-Ball baseball. The league has recently invested in site improvements with a concession stand and the only restrooms found in the downtown park system. The full size Little League field has lights for evening play, as well as dugouts, bleachers, batting cages and warm-up pitching areas. The site also has a tee-ball field with dugouts and bleachers, and is located with the first baseline hugging the stream. Improvements were made to the drainage of the field in the past, but drainage of the fields remains a problem with wet conditions persisting in the spring and after rainfall events. There is no indication of outfalls from an underground drainage or tile system in the face of the gabion-lined streambank to indicate a discharge to the stream. The park also has a full-size basketball court that is little known and rarely used.



The Little League field at Daniel Green Park has lighting, concession stands and restroom facilities.



Other recreational facilities at Daniel Green Park includes support facilities for baseball including batting cages and warm-up pitching areas. The Park also has a basketball court that is infrequently used.

The Bull Run stream is lined with limestone filled gabion baskets. The stream has a very flat gradient (longitudinal slope) and the bottom of the stream is thick with sediment – and represents the worst in-stream habitat within the project study area. Permanent resident ducks found in Daniel Green and Town Green Parks also negatively contribute to the poor water quality and in-stream habitat. The stream takes an abrupt, nearly 90 degree, turn as it exists the park under the historic railroad grade and new Buffalo Valley Rail Trail bridge, representing the worst stream and floodplain constriction (pinch point) in the study area – leading to high-water backup and flooding.



The Bull Run stream that flows through Daniel Green Park is lined with rock gabion cages to provide streambank stability. This reach of stream has little slope and suffers from a build-up of sediment in the stream channel.

Existing Conditions –

Town Green Park Inventory and Analysis -

Existing Conditions: Town Green Park has historically been an isolated and underutilized space owned by Lewisburg Borough. The Buffalo Valley Rail Trail extension into town has brought increased exposure and interest in the space. ‘Town Green’ is a working title for this park for the purposes of this planning study, taking influence from its adjacency to the Town Tavern. The site, while literally at the heart of the community, just north of Market Street, is little known in the community partially due to the lack of visual access into the park. Visual access is now guaranteed from the Rail Trail, but the covered bridge acts as a visual screen cutting the space off from Market Street negatively impacting the continuity and flow of the park, stream and open space system.

Many residents are intrigued with the Town Green – fascinated by the blank-slate possibilities of the open site as well as the historic railroad piers, aligning like dominoes through the site. The piers are a cultural artifact of Lewisburg’s transportation and industrial past – part of a functioning coal yard at the intersection of two railroad lines. The park area contains two parking lots that are little known and somewhat difficult to access.



Town Green Park, with its historic railroad piers, gets much more public attention with the completion of the Buffalo Valley Rail Trail extension into downtown. The Park has the potential to create strategic connections between the regional trail and adjacent neighborhoods.

The Bull Run stream has an accessible floodplain adjacent to the Rail Trail bridge, but otherwise is heavily entrenched in all other parts of the park. The stream has a slightly greater gradient, as compared to the Daniel Green Park segment, but the permanent resident ducks found here negatively contribute to the poor water quality and in-stream habitat. The stream has two pinch points at the covered bridge and immediately downstream at the Market Street bridge – leading to high-water backup and flooding.



The Bull Run stream channel in Town Green is entrenched and streambanks are eroding. Water quality of the stream is negatively impacted by the large number of ducks that inhabit the park.

Existing Conditions –

Hufnagle Park Inventory and Analysis -

Existing Conditions: Hufnagle Park and Kidsburg is the heart of Lewisburg's park system - functioning as the community's gathering place for events, activities and outdoor entertainment. The gazebo and amphitheater is the only viable outdoor venue for music, drama, and other events offering seating, lighting, covered 'stage,' and electric service. However the quality of the space for performances has significant limitations that include, poor acoustics, visual obstructions, small stage, no backstage or 'green' room, limited lighting, and seating limitations for larger gatherings.



The gazebo in Hufnagle Park is the outdoor performance venue for the greater Lewisburg Area, hosting events like 'Shakespeare in the Park' and 'Music in the Park' concert series.

The overall park design is geometric, rigid, and linear - composed of straight lines and angles. The physical and visual access to the site, from Market Street, is restricted to two narrow and angled walkways into the park, one stepped and one sloped, and neither would like meet ADA accessibility requirements. The planting beds on the park, located along Market Street and well designed and maintained by the Garden Club, limits visual access to the park and serves as a barrier, similar to the Hufnagle Memorial covered bridge in Town Green Park, to the perception of a contiguous and interconnected park open space.



Hufnagle Park provides open lawn areas used for informal recreation and pick-up games, as well as being an important display and gathering space for community events such as the Arts Festival and Wholly Worm Festival.

Bull (Limestone) Run is entrenched in rip-rap and block retaining walls for the entire length of Hufnagle Park. The stream alignment is perfectly straight, and even though the stream has slightly greater gradient in this reach, the stream has a very poor and homogenous in-stream habitat. The park has a fair number of trees - though most are undersized - not optimizing the potential of the space for shade or landscape greenery.



The streambanks of the Bull Run stream are armored with rock, limiting public access to the stream.

Most of the park benches, as well as the entire amphitheater seating area, are located not in shade, but in the open sun, limiting the time and usefulness of the existing seating. Most benches are located in isolation, not clustered, limiting their potential to define social gathering areas.

The timber retaining wall is not well designed as a seating wall and serves as a barrier for park access from the park parking area, and creates a narrow lawn area of limited use and cut off from the park's open lawn area. The lawn area is a nice open space that offers the potential of informal play or is utilized during community events with vendors and/or staging areas. The open lawn area is only somewhat useful as overflow seating for performances - offering limited visual access being on the same level as the stage.



The open lawn area of Hufnagle Park provides flexible space for a wide variety of activities and is especially important during the community's numerous concerts and festivals.

Existing Conditions –

Kidsburg Park Inventory and Analysis -

Existing Conditions: Hufnagle Park and Kidsburg Park are the heart of Lewisburg's park system. Kidsburg functions as the community's gathering place for play - attracting parents and young children to the modern, diverse and well maintained playground. The space provides benches and picnic tables for parents to gather, as well as accommodate a family picnic. There is a non-ADA compliant exercise trail connected by mulch trail - that is never used for its intended purpose.



The playground at Kidsburg Park.

Most of the Kidsburg site is open sun. There are some larger shade trees and many more trees have been planted and will take several years before they provide much shade. The stream corridor, like Hufnagle Park is a sterile rock and block wall lined channel. The vertical walls represent a safety code violation and liability concern for Lewisburg Borough and the steep, rock-lined streambank represents a safety hazard especially for younger children who are naturally drawn to the stream. The 'clean' look of the rock is maintained by the use of chemical herbicide applications. The weed-free nature of the safety surface mulch and park landscape planting beds is also maintained by the use of chemical herbicide.

Bull (Limestone) Run is entrenched in a wide range of streambank stabilization methods that include rip-rap, boulder, gabion wall, and block and retaining wall systems, for the entire length of Kidsburg Park. The stream alignment is two straight lines and with a greater longitudinal gradient than found in other reaches of the study area. The stream has a very poor and homogenous in-stream and riparian habitat, with the exception of the park's southern end that has a small riparian buffer of trees and shrubs.



The rock-lined Bull Run streambank makes access to the stream difficult and potentially dangerous.

The overall park is accessed from one curvilinear concrete walkway from St. Louis Street. That walkway dead-ends at the end of the play equipment. There is not 'through' movement in the park - which is cut off from the surrounding neighborhoods and Bucknell University by the active railroad or the stream. The site now has improved visual access due to the removal of the homes along S. 6th Street, as well as good visual access from St. Louis Street. St. Catherine Street was once a through street with the street becoming its current form following the 1972 Flood and the creation of the park system. Kidsburg is a strategic location in creating an efficient pedestrian and bicycle connection between downtown and campus. To create such a connection the barriers of the stream and railroad will need to be overcome.



An active railroad line (left), and an abandoned rail, defines the eastern boundary of the park.

The park attracts a fairly narrow range of children - from tots to pre-teens and accompanying parents or sitters for younger children. Teens quickly grow out of this park and there is little accommodation for teens anywhere in the downtown. With no trail to promote through traffic, and play equipment geared only to young children, Kidsburg Park has a limited use given its central location in the community.

Existing Conditions –

6th Streetscape Inventory and Analysis -

Existing Conditions: The 6th Streetscape corridor has suffered from a history of flooding, continuous deterioration and disinvestment, the in-migration of transient student renters and out-migration of long-time homeowners (Lewisburg Neighborhoods Report, 2004). The street is at the center of downtown student housing and also the center of loud and disruptive student parties and overflowing trash. South 6th Street, as well as the rest of the neighborhood to 7th Street is a neighborhood in transition needing innovative solutions to mitigate flooding, improvements to habitat and landscaping, and a strategy for creative reuse of the former student housing.

The Street provides one of the most direct physical links between historic downtown Lewisburg and the Bucknell campus – offering the opportunity through good urban and streetscape design to create a signature space that brings the community’s two greatest assets together. With the removal of the homes there is no longer a need for some of the on-street parking to service the primary student housing along the east side of S. 6th Street. The street could be re-configured to deemphasize the automobile and emphasize pedestrian and bicycle use of the corridor – creating an efficient, alternative transportation connection between town and campus.



The removal of stream-side homes created the opportunity for an expanded park.

With the removal of 10 homes from the street – there is an opportunity to expand the park, restore the stream and floodplain, expand the floodplain to provide better stream function and mitigate localized flooding, bring more green landscaping into downtown. The park and streetscape master plan should be seen as an investment in the public realm, as a catalyst for future public-private reinvestment for the revitalization of the entire neighborhood.

Bull Run Greenway – Site Inventory and Analysis

The study area is composed of several distinct areas that will be referred to throughout the report. Some of the individual park names are well known and understood by residents and visitors, while others such as 'The Town Green' represent working names for the various spaces. The individual park areas making up the study area include:

- **Daniel Green Park**
- **The Town Green**
- **Hufnagle Park**
- **Kidsburg Park**
- **6th Streetscape**

As per PA DCNR Master Site Planning requirements – the following information was collected for the project study area:

- Acreage
- Deed Restrictions, Easements and Right-of-Ways that limit use
- Environmental Issues
- Floodplains
- Historic Features
- Location
- Playground Safety Audit
- Riparian Buffers
- Site Access
- Soil Types
- Species of special concern
- Stormwater Drainage Features
- Surrounding Land Use
- Topographic Features
- Vegetation
- Vernal Pools
- Wetlands
- Zoning

In addition, the following analysis was also performed each of the individual parks in the study area:

- Advantage of the site for certain uses
- Disadvantages of the site for certain uses
- Areas that may not be suitable for public use
- Areas that need special environmental protection and/or mitigation
- Areas that should be protected as natural drainage courses
- Areas of high quality habitat
- Other limiting factors of the site
- Neighborhood compatibility

Bull Run Greenway – Site Inventory and Analysis –

This summary report is a 37 page document and can be found in the report appendix CD.

Park Design – Who is being Left Out?

(From: *The Neighborhood Park*, by Deborah A. Cohen and Catherine J. Nagel)

In theory, a neighborhood park serves everyone, but the mere presence of a park does not guarantee people will use it. There's a gender gap and an age gap when it comes to park use, according to a national survey conducted of more than 170 neighborhood parks in 25 U.S. cities, stretching from coast to coast.

The RAND Corporation study released in May analyzed how parks are designed, managed, and used, providing a rare snapshot of these public spaces. The primary goal was to learn how these spaces might encourage people to routinely engage in physical activity—a health behavior that extends life and prevents chronic diseases.

The study determined that park usage is highly dependent upon certain factors: the number of people who live within a mile of a park (leading to greater usage); its size (the larger the park, the more people using it); and the breadth of programming (offering more facilities and supervised programs yielding more users).

Most neighborhood parks are underutilized, especially in the mornings and on weekdays. While the average neighborhood park is less than 9 acres in size, only about 20 people on average are using the park. That works out to about two persons per acre.



Get It In Gear, Girls

Girls are less likely than boys to spend time in parks; only 40 percent of children and 35 percent of teenagers observed in neighborhood parks were girls. Few girls were seen participating in team sports or playing in pick-up games, like basketball. And they were almost completely missing in action from skate parks.

Still, neighborhood parks are typically designed more for children than for seniors. For instance, nearly 90 percent of parks contain play structures, but few have “fitness zones,” outdoor exercise equipment designed for adults. And seating areas are generally insufficient, considering that many older adults get their exercise just by walking to a park—but once there, they need a place to rest.

Park Design – Who is being Left Out? - Continued

(From: *The Neighborhood Park*, by Deborah A. Cohen and Catherine J. Nagel)

Calling All Seniors

While a disproportionate number of children, mainly boys, take advantage of parks, adults still comprise 49 percent of visitors. Seniors account for only 4 percent of park users, even though they make up nearly 20 percent of the general population.

When walking loops are present in parks, twice as many seniors participate, in contrast to parks that lack loops. In general, walking loops encourage more people to engage in health-promoting, moderate-to-vigorous physical activity. Yet less than one-third of neighborhood parks across the United States have pathways for walking.

Time to Evaluate

When parks market their programs with banners and posters, more people visit. Regardless of what a park might offer, people can't plan on taking a class or using facilities if they don't know about the programs.

With a modest amount of redesign, investment, and marketing, more neighborhood parks can lead more people to engage in routine physical activity. A nearby park equipped with the right facilities and programming likely will get people off the couch and out of the house, giving urban residents a better chance to enjoy healthier lives.

Political Feasibility

The political situation in Lewisburg is complex and is affected by many factors, some local and others large-scale beyond local control. Some of these large-scale trends include flooding and insurance rate adjustments that will have significant impact on the cost of homeownership and depreciation in the market value of homes located in the floodplain. The local economy continues to feel the effect of the loss of manufacturing jobs, and continued shifts toward a service-based economy. These larger trends, beyond local control, create an atmosphere of uncertainty and has led many to have a less optimistic about the future.

Within the Lewisburg area this political shift has scrapped a feasibility study of regional consolidation and is reevaluating existing regional and multi-municipal efforts. The current political atmosphere is one that prioritizes cutting costs. Any investment in a project like the Bull Run Greenway or any park improvements will be looked upon very critically in the current political climate. All projects must justify the investment. Limited local dollars must be maximized to ensure the municipality is being fiscally responsive to local tax payers.

While many feel that parks and recreation are not community priorities, and would instead place them in the category of ‘nice to have’ amenities, the inverse case can also be made. Many studies have shown that parks are essential to our social, physical and economic health and wellbeing. Increasingly doctors are finding that a disconnection from nature is one of the leading causes of increased rates of obesity and ADHD rates in children. The lack of physical activity and sedentary lifestyles is leading to record levels of obesity, heart disease and type 2 diabetes, and; our connections are increasingly virtual and not physical, with ramification to our mental health and the health of the community’s social fabric.



What is the value of public parks and open space?

The case for the Bull Run Greenway is not limited to our mental and physical health. The community and the Bull Run neighborhood in particular, is one in the midst of profound transformation. The move of Bucknell student back to campus has left many rental properties sitting vacant. The condition of the structures and their location within the floodplain make the future of homes in this neighborhood uncertain.

The Bull Run Greenway can be seen as an initial investment into the revitalization of the Bull Run Neighborhood. The investment of public funding to serve as a catalyst for private re-investment in these homes and in the neighborhood. Greenways, parks, and open spaces have a proven track record of increasing values of adjacent properties. Access to trails, greenways and parks rank at the top of amenities people are looking for when renting or buying a home, and walking and biking rank at the top of favorite recreational activities. A well designed, functional, and well-used park system will greatly compliment Lewisburg's desirability as a place to live, work and recreate, and enhance the prospects of revitalization of the 5th, 6th, and 7th Street Neighborhood.



Parks and greenways often provide an 'Open Space Divided' by increasing the value of adjacent properties.

The political feasibility of the Bull Run Greenway project is also influenced by the role that Bucknell University will play in the park project and in the greater task of revitalizing the surrounding neighborhood. The University and Borough both have a lot at stake in the park and surrounding neighborhood. The neighborhood has a direct impact on the Borough's tax base, and its location at a gateway to the university affects public perception of the school. As results have shown in recent years, the university and town are stronger when working together towards a common goal. The future of the Bull Run Greenway and Neighborhood is the best example of where Town and University are in this together and success or failure will impact both.

Political feasibility can also be defined by people voting with their feet. A park and greenway is not worth the investment if it is not used. Initial use and economic impact studies of the Buffalo Valley Rail Trail indicates that the project is a success on both fronts. This success is somewhat surprising given that the Buffalo Valley Rail Trail, in its first phase, did not connect into the population center of Lewisburg. The trailhead west of Route 15 did not make the trail easily accessible by Lewisburg residents or Bucknell students. Completing the rail trail's connection across route 15, into town, and connecting into downtown and the Bucknell University campus, will finally accomplish the desired connectivity of the trail. The trail user numbers and economic impacts of the Buffalo Valley Rail Trail will only expand once this greater connectivity is achieved.



Creating the trail connection, across Route 15, to downtown and Bucknell University will significantly increase the value of the Buffalo Valley Rail trail as both a recreational amenity and alternative transportation route.

Attracting young people, particularly students, to the park is going to get more challenging. The center of the Bucknell University's student population has shifted decidedly away from the downtown neighborhoods and towards the far, southeastern, edge of campus. While a few downtown rentals remain – other former student rental homes are now rented as 'party homes' creating a further divide and conflict between students and full-time neighborhood residents. In addition to college students – the move of the Lewisburg Area High School to Kelly Township in the Fall of 2016 will greatly reduce the number of school students with daily direct and easy access to the downtown. Recognizing these shifts in the existing resident population, the goal of the park is to create spaces and activities that will attract young people and maintain or enhance the vibrancy they bring to the community.

Design and Engineering Feasibility

Bull (Limestone) Run Stream Restoration and Floodplain Expansion -

The project study area is at the lower end of a sizeable watershed. The stream in the park, its hydrology and water quality, is a reflection of the land use and land management practices of the entire watershed. As a result there is much improvement that can be done. What can be achieved as far as stream and floodplain restoration is quite limited in the ½ mile corridor of the study area. However, the plan calls to do the best with what we've got to improve the aesthetics, habitat and stream and floodplain form and function.



The Bull (Limestone) Run Watershed has its headwaters near ARDs, and drains a diverse area consisting of forest, agricultural, suburban and urban land.

Given the narrow corridor of the park – a full restoration of the Bull Run floodplain is not possible. We can, however, open up the stream corridor and re-connect the stream with an accessible lower terrace level floodplain. This is an incremental but important modification to creating a more natural looking and ecological healthy stream and floodplain.



The image the general public would like to see for Bull Run, with meandering stream channel and naturalistic landscaping is going to be difficult to achieve given the high velocity of high-water flows. The design seeks a balance between the desired public aesthetic and the hydrologic conditions of the site. Restoration of the Bull Run Floodplain has been determined to be NOT FEASIBLE. However – restoring improved ecological function to the stream and reconnecting the stream with an accessible floodplain IS FEASIBLE, and supported by many Chesapeake Bay restoration initiatives and best management practices.

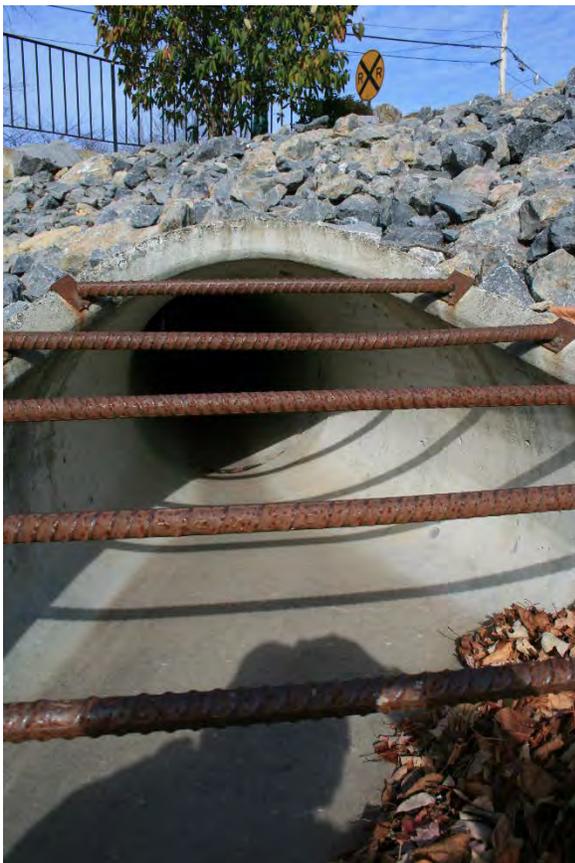
A meandering stream as envisioned at the Community Design Workshop.

Streetscape Design –

The plan calls for the re-design of the 6th Street corridor to deemphasize the automobile and create a town to campus connection that emphasizes pedestrian and bicycle use. The public right-of-way of the corridor will need to be reconfigured to accommodate sidewalk, on-street parking, one-way travel lane, and pedestrian walkway. Utilities such as drains, overhead utilities and street lights will need to be modified.



With the removal of homes along S. 6th Street – there is an excess of street parking offering an opportunity to reduce the size of the street to create a more pedestrian and bicycle friendly connection between downtown and Bucknell University.



Overhead utilities would ideally all be moved underground to improve the function and the aesthetics of the space. An optional, and lower cost alternative, would be to move all overhead utilities to the west side of the street. Utility Relocation while costly is feasible.

The streetscape design seeks to simplify and daylight the street drainage system and treat runoff in streamside wetlands before discharging into Bull Run. The design will eliminate the curb on the east side of 6th Street – allowing sheet flow drainage that will be directed into the wetlands. The one-way travel lane will be a ‘share the road’ with bikes and vehicles, permitting bicyclists to use the entire lane. The pedestrian walkway will be delineated from the travel lane with bollards and a different paving type. This type of streetscape redesign is advocated and supported by ‘Complete Street’ advocates in transportation planning.

Existing street stormwater pipe discharges directly into stream.

Building Bike and Pedestrian Friendly Environments –

One of the greatest challenges to creating the Bull Run Greenway is to overcome the fragmentation of the space created by street traffic. There is no feasible ways to create grade separation between pedestrians and bicyclists and vehicular traffic. What is needed to create safe and functional at-grade crossings involves both physical design and to change the attitudes of drivers. Pedestrian crosswalk laws are clearly on the side of the pedestrian. All vehicles must yield for pedestrians in the crosswalk – it's the law. However the reality is the law of physics overrides the current vehicular laws. In Lewisburg, generally, vehicles do not stop for pedestrians in crosswalks.



The cause of this intimidating and unlawful behavior is diverse and complex. Many pedestrians and drivers do not know the law – or are incorrect in their understanding of the law. Second, many drivers on Market Street are just passing through and as such are not vested community members, their minds are somewhere else, and the trip through town is something to complete as quickly as possible. Another cause is the vehicle culture that dominates a rural area and the common view that the motorized vehicle has the right of way. It also does not help that many drivers have no experience and cannot relate to the plight of pedestrians or bicyclists. All of these factors create a hostile and unsafe environment for pedestrians and bicyclists.

A fundamental shift needs to occur to create a safe pedestrian and bicycle friendly downtown – and it involves educating people of the existing law, physical design of the streetscape, and developing a culture that respects pedestrians and bicyclists on the roadway. Lewisburg, with resources like the Lewisburg Downtown Partnership, Lewisburg Neighborhoods Corporation, Bucknell University, Union County Planning, and the SEDA-COG Transportation Planners, has all the resources necessary to holistically address this issue. While the education and design necessary to create a ped-bike friendly environment is feasibility, it will take time.

Park Operations and Maintenance

Transforming Landscape Maintenance –

The park planning process, through the community design workshop and the park user survey, employed a visual preference tool to determine resident's opinion on the look of the stream, landscape, performance venue, etc. The clear vision put forth by participants represent a distinct shift towards a more natural, native and organic looking landscape design. A landscape focused on native, natural landscapes takes a different skill set to operate and maintain, from the current approach of mow and spray.

The Bull Run stream restoration will work to eliminate the rock-lined streambanks and expand the floodplain to create a more natural method of streambank stability. This expanded floodplain will consist of native grasses adapted to wet / riparian environments and rooting systems that will stabilize and build the soil. The lower terrace of the floodplain will also have pockets of native wetland plants that will capture, infiltrate and cleanse stormwater before it enters the stream. The lower terrace may also have adapted willow species to provide shade on the stream and additional streambank stability. The banks of the expanded floodplain will be planted with native trees and shrubs, creating a forested buffer.



The wetlands and landscaping at the new Giant and CVS property has raised awareness of how innovative stormwater management and naturalized landscaping can be integrated into the community.

The management of native and natural landscapes will create a different aesthetic for the park, and it will also require a different skill set for the operations and maintenance. These natural areas will be maintained with periodic cuttings or manual control of invasive plant species. The borough crew should be provided with educational training opportunities to successfully maintain these natural areas. Other community resources such as the Garden Club, Bucknell University faculty and staff, and community volunteers should be used to help with the maintenance transition and to help with additional labor requirements of the new maintenance schedule. The Lewisburg Garden Club has been volunteering in the design and maintenance of the park's garden for 30 years. This project offers an opportunity to build upon this club's efforts and help to grow the volunteer network. Lewisburg, again, is blessed with local knowledge and expertise to assist in the successful transition to a more natural, native and organic landscape maintenance approach, so this transition is a feasible one.

Municipal and Community Capacity –

The Bull Run Greenway project will be implemented in phases over the next decade or longer. Projects of this scale and complexity will need the support of municipal government, as well as borough staff, university and community leaders, as well as an active role by the Lewisburg Downtown Partnership and Lewisburg Neighborhoods Corporation. All of these groups, working together and sharing resources, are necessary to have the organizational capacity to fully implement the Bull Run Greenway Plan. Sustainability of the Main Street and Elm Street programs may represent the greatest challenge to maintaining and growing community capacity.

Volunteerism –

The park system currently benefits from the volunteerism of the Lewisburg Garden Club, Clean-ups sponsored by the Lewisburg Neighborhoods Corporation and the River Town Committee. While nationwide there has been a slow decline in volunteerism – Pennsylvania has seen increases in the volunteer rate over the last 4 years. Pennsylvania has a slightly higher volunteer rate (27%) than the US average (25.3), for a state average of 34 volunteer hours per capita.



The Lewisburg Garden Club has a 30 year history of volunteerism enhancing the beauty of downtown.

The organizational recipient of these volunteers hours include: Religious (33.2%), Educational (22.8%), Social Services (15.4%), Health (8.6%), and Civic (6.0%) (www.volunteeringinamerica.gov) By designing a park with something for everyone, all ages and all abilities, and creating opportunities to actively engage existing clubs and community organization, volunteerism to benefit the Bull Run Greenway can be greatly expanded. Civic volunteerism benefits both the community and the individual volunteer. We grow and heal – by giving. A quote from Simon Sinek sums up the opportunity:

“When people are financially invested, they want a return. When people are emotionally invested, they want to contribute.”

The goal for community leaders will be to find ways for residents to have an emotional investment in Bull Run Greenway and the greater Lewisburg community.

Programming and Partnerships –

Park design only achieves so much. Through good design you can create aesthetic and functional public spaces that people will want to visit. This will attract individuals and groups for daily, weekly, or occasional visits to the park. Programmed activities bring a whole other level of vibrancy to the park space. By diversifying the recreational offerings of the park it opens the potential for greater park use, but without active programming, this will remain an untapped potential.

First step in programming is to maintain the existing uses and activities that provide the park's current value. Events that attract large numbers of park users including the 'Celebration of the Arts' (Arts Festival), and Music in the Park must be accommodated. The new park master plan seeks to maintain or enlarge and enhance the spaces necessary to accommodate these events that attract the greatest number of park users.



A crowd gathers to hear 'Music in the Park.'

The extension of the Buffalo Valley Rail Trail into downtown will create tremendous opportunity for 'close to home' recreation for residents of the borough. The 10 mile trail will now be just a few blocks from all the residents of Lewisburg, enhancing their access to active recreation and promoting healthy lifestyles. There are numerous potential partners to helping program active-living activities for the park / trail, and include: Evangelical Hospital and local health care providers, Buffalo Valley Recreation Authority, Union-Snyder Agency of Aging, and the RiverWoods community. In addition, the Buffalo Valley Rail Trail extension and link to Bucknell University will provide a safe environment for students to exercise and recreate, avoiding some of the more dangerous local roads known for runner / vehicle conflicts such as Stein Lane and Smoketown Roads.

The playground is one of the more popular attractions of the existing park – attracting younger children and their parents individually or with group play dates. The playground is also popular with the local daycares who make trips to the park during good weather. An expansion of these recreational offerings into an adventure playground and nature play area will add diversity and potentially expand the interest and visits to the playground. The expanded recreational opportunities will offer the potential to get more parent and volunteer involvement, as well as educational programming associated with adventure play activities (low ropes course) and environmental education programs with the nature play area.

The stream, wetland and innovative stormwater management features offer an opportunity for outdoor classroom experiences for both the Lewisburg Area School District and Bucknell University, or bringing the students together for mentorship learning opportunities.

An improved stage and amphitheater with better acoustics, visibility, and expanded seating will encourage more use of the stage area. New and expanded programming opportunities associated with the stage space may attract groups like the Campus Theater for Movies in the Park, Bucknell University for lecture space and events, as well as expanding the visibility of groups like Gaspipe Theater Company's yearly Shakespeare in the Park program. Creating a second and smaller performance venue in the Town Green will enhance the entertainment potential of the park. Performances better suited to a more intimate venue can be held in the natural amphitheater at the Town Green.

The Lewisburg Arts Council's mission is to "encourage and advance visual and performing arts in the Lewisburg Area." This groups believes "the Arts bring life to life in Lewisburg." The importance of programming the performance spaces in the park is addressed above, but the park also needs to create opportunities for the visual arts. Opportunities abound for locations to celebrate art in the new Bull Run Greenway – along the Buffalo Valley Rail Trail, on the refurbished 6th Street corridor, in murals on the railroad piers, in sculptural displays and environmental art associated with water. The Bull Run Greenway master plan does not seek to identify all the possibilities or all the venues for the visual arts – but instead suggests the wide range of possibilities of what could be. The arts council would be an appropriate group to put together a strategy for public art in the Bull Run Greenway, as a celebration of local artists.

Financial Feasibility -

Financial feasibility is the greatest challenge to the realization of the Bull Run Greenway. The Borough of Lewisburg has limited funding to apply to projects like the Bull Run Greenway. The borough's population is relatively small and that population is flat or declining slightly. The borough's tax base is negatively impacted by loss of downtown businesses as well as residential flood buy-outs. Given these conditions, the Borough will need to be creative and adaptive to new conditions and opportunities to incrementally design, build and maintain the Bull Run Greenway.

One of the first partnerships that needs to be developed is a good relationship with state funding agencies such as Pennsylvania Department of Conservation and Natural Resources (DCNR) and Department of Community and Economic Development (DCED). These are two go-to sources for community development, community revitalization, recreation and natural resource protection funding programs. The Bull Run Greenway should rank with many funding programs because the borough services residents from throughout the region with access to quality recreation and programmed music, arts and cultural events.

The Borough of Lewisburg has the potential to be more strategic in building public-private partnerships with key local partner like Buffalo Valley Recreation Authority, Bucknell University, and Playworld / PlayPower. Local partnerships can share knowledge, skills, and resources to self-fund projects or build the local match for larger grant applications. Public-Private Partnerships will stretch limited local dollars as well as being more attractive to state, and federal grants programs.

The Lewisburg community has many diverse potential partners that could play a role in building the Bull Run Greenway. Additional partners could include: Lewisburg Neighborhoods Corporation, Lewisburg Downtown Partnership, Lewisburg Arts Council, Civic Organizations, Bucknell Student Organizations, Bucknell University Faculty and Staff, Scouting Programs, Faith-Based Organizations, and others.

Financial Feasibility – Attracting Funding

Another side of financial feasibility is the ability for the project to attract funding partners. A real positive for the Bull Run Greenway is the diverse benefits the park will provide. More benefits equals more potential funding partners. A new playground will attract some foundation and agency interest, whereas a playground that also restores the stream, creates an outdoor classroom, restores wetlands, and creates a food forest, will attract a wide range of potential funding partners and volunteers. The Bull Run Greenway project is well positioned to achieve multiple benefits and attract the widest range of potential funding sources and partnerships.

Potential benefits of the Bull Run Greenway include:

Economic

- Public investment to encourage private re-investment in the Bull Run Neighborhood
- Expanded flood holding capacity of the stream corridor will reduce nuisance flooding
- Extending Buffalo Valley Rail Trail into town will increase economic benefits to downtown businesses and increase property values
- Active residents translates into better health and reduced health care costs

Health and Wellness

- Providing quality ‘close to home’ recreation and trail access for residents.
- Create quality public space to encourage social interaction
- Encourage walking and biking in town, with safe connections to the region beyond
- Reconnect people with the natural world and the benefits derived from such a connection

Recreation

- Diversify the recreational offerings to people of all ages and all abilities
- Experiment - explore new recreational models such as ‘Nature and Adventure Play’
- Program the park so there is continual use of the space
- Extend the rail trail so there is continual activity with commuters and recreational trail users

Environmental

- Green the Bull Run stream channel to be an aesthetic element of the new Greenway
- Restore the stream to create a healthy in-stream habitat
- Expand the floodplain to increase flood holding capacity and minimize localized flooding
- Raise awareness of Watershed Connections – understanding what happens upstream affects flooding and water quality in the park
- Plant native plants and create natural habitats to improve diversity and encourage pollinators
- Make a shift away from the use of herbicides to a more organic approach to park maintenance

MASTER SITE DEVELOPMENT & GREENWAY PLAN

“Have regular hours for work and play; make each day both useful and pleasant, and prove that you understand the worth of time by employing it well. Then youth will bring few regrets, and life will become a beautiful success.”

Louisa May Alcott, *from: Little Women*



CHAPTER 5

MASTER SITE DEVELOPMENT & GREENWAY PLAN

What's the plan?

Efforts of the last Decade

Lewisburg Borough has made great strides in implementing many components of the Lewisburg Neighborhoods Plan since its completion in 2004. The Borough has forged a strong collaborative partnership with Bucknell University in creating the Lewisburg Downtown Partnership, which has spurred significant public/private investment into downtown. The community benefits from an active Main Street and Elm Street programs, with dedicated professionals directing business and neighborhood improvement initiatives.

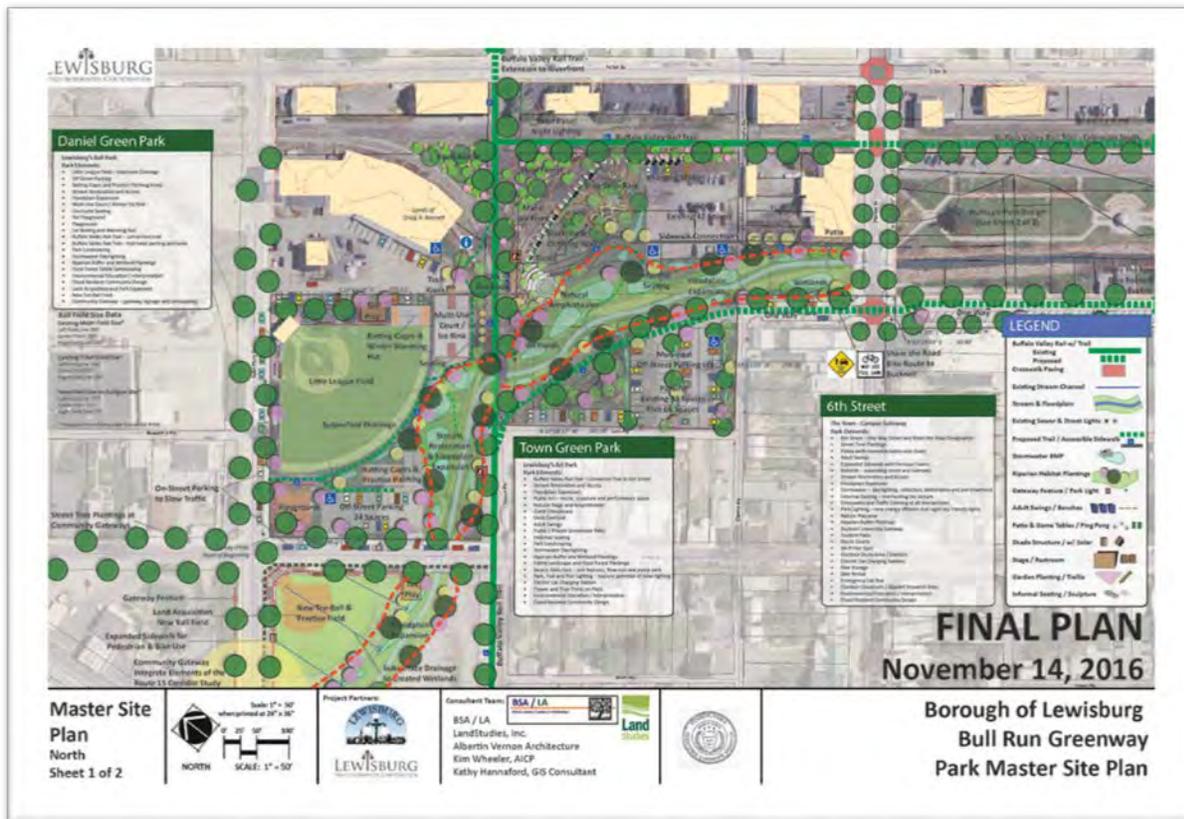
The roots of the South 6th Street / Bull Run Greenway master plan is a result of a community-led planning process more than a decade ago, where residents and town and university leaders envisioned an expanded park and enhanced connection between town and the Bucknell campus. Some regarded this vision as 'pie in the sky.' However, it was a vision that was grounded in concrete local knowledge of the structural condition of the existing housing along Bull (Limestone) Run, and the group was willing to put forward a vision that challenged the community to be bold and to dream big. That forward thinking has produced the opportunity before us today.

Today's Opportunity

The FEMA buy-outs and removal of homes along South 6th street creates a once in a generation opportunity. The elements of the master plan, the proposed enhancements, must achieve multiple objectives advancing social, economic, and environmental goals. Improving the aesthetics and ecological function of this important community space, will create a vibrant public gathering space, as well as serve as a catalyst for neighborhood and downtown reinvestment.

The master plan will require understanding, vision, innovation, and leadership to create a plan that will serve the Lewisburg and Bucknell community today and for decades to come. The planning process employed a participatory planning process to engage residents and strategic partners to build the relationships necessary for long-term success. The master plan will provide municipal, university and community leaders a prioritized step by step process that can be implemented over time as funding and other resources become available. The result will be a high-quality public park space, improved greenway and alternative transportation connections, a restored stream corridor with improved water quality – all contributing to an improved quality of life for residents and attractive destination for out-of-town visitors.

Bull Run Greenway Park Master Site Plan



Bull Run Greenway Park Master Site Plan – North.



Bull Run Greenway Park Master Site Plan – South.

Daniel Green Park



“Men do not quit playing because they grow old; they grow old because they quit playing.”

Oliver Wendell Holmes Sr.

Master Plan: The master plan seeks to continue to provide the baseball focused activity, while diversifying the recreational offerings of the park, improve drainage of the little league field, provide additional on-site parking for park users, and improve stream function, habitat and accessible floodplain. The master plan calls for the relocation of the tee-ball field, suggesting the borough acquire the adjacent private property to accommodate that use. A subsurface drainage system will be installed for both the little league and new tee-ball fields providing improved conditions for play.



The stream channel will be modified creating a more natural, meandering channel and accessible floodplain and accommodating more trees, shrubs and native grasses and wildflowers to improve the aesthetics of the site. The stream alignment will be modified to direct high water flow through the railroad (rail trail) bridge to improve its function, and consider the installation of a culvert to accommodate high water flows through the rail trail grade.

Additional trees will be planting along the street to create an improved community gateway, and provide shade for spectators watching the ball games and using the playground.

The recreational use of the site will be diversified by providing a multi-use court and seating. The court can be used for basketball and other court games. Another option for the multi-use court could be for hockey – with summer in-line skating and as an ice rink in the winter.

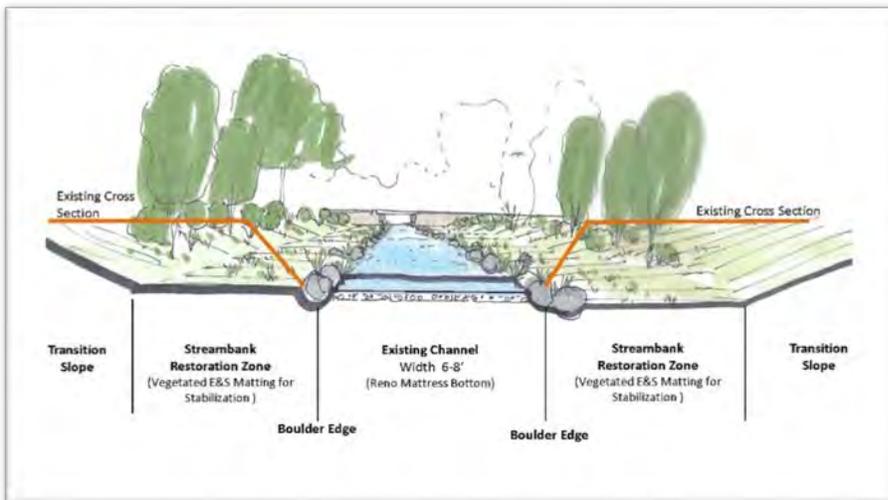
Park Elements and Description:

Little League Subsurface Field Drainage – addressing the issue of the field’s poor drainage a subsurface drainage system will increase the rate of infiltration and drainage. The drainage system will flow by gravity and daylight into bioswales where the water will be pretreated before discharge into Bull Run.

Relocated Little League Support Facilities (Batting Cages and Bull Pen Areas) – batting cages will be relocated to the east side of the park where the cage framework could serve multiple function (sun shade structures, stage, lighting, warming hut) for park activities beyond the baseball season.

Playground – The existing playground will be maintained – with a shift towards play equipment for 5-12 year olds.

Tot Playground – a playground for the youngest park users (2-4 year olds) will be installed adjacent to spectator seating so that parents can multi-task watching games and entertaining young siblings.



Stream Restoration and Floodplain Expansion – the Bull Run stream corridor will be enhanced by created a more accessible and expanded floodplain planted with adapted grasses, wetland plants and soil-holding willow species. The banks of the expanded floodplain will be planted with native trees, shrubs and

wildflowers to improve biodiversity, wildlife habitat and aesthetics, while improving waters quality.



Multi-Use Court and/or Ice Rink – with the goal of diversifying the recreational offerings and expanding the season of use of the park a multi-use court could accommodate a wide range of uses: basketball, volleyball, in-line skating and skateboarding, shuffleboard, 4 square, paddle tennis, and pickleball. The site could attract 4 season use by transforming the court to ice in winter for skating and ice hockey. The adjacent hillside could be terraced for seating / spectator seating.

Buffalo Valley Rail Trail Connections to Park – taking advantage of the park’s newfound connectivity with the Buffalo Valley Rail Trail extension, the park provides formal and informal trails and pathways to encourage people to walk and bike to the park.

Trail Head Kiosk – the parking area, shared by the park and the Roller Mill antiques could become a small scale trail head site with parking and kiosk with information on the trail, orientation map, trail rules and regulations. Ideally the trail head kiosk and parking would provide a win-win for improved trail access and greater exposure and visitation to the Roller Mill.

Stream Corridor Landscaping – the lower level of the expanded floodplain will be planted in native grasses, wildflower and adapted willow species. The banks of the expanded floodplain will be planted with native trees, shrubs and wildflowers.

Wetland and Habitat Restoration - the lower terrace of the expanded floodplain will also have pocket wetlands to improve diversity and wildlife habitat, and treat stormwater runoff from adjacent sites.

Stream Access – improved access to the stream will be achieved by expanding the floodplain and reducing the slope of the banks. Informal trails and ‘stepping stone’ stream crossings will also encourage enhanced access and interactions with the stream.

Off Street Parking – a parking lot for approximately 23 cars would help reduce parking conflicts with the Roller Mills, and improve safety by eliminating the need to cross 7th Street from parking on the adjacent Culligan property.

Bio-Swales – these shallow swales, planted with native grasses and wildflowers will treat runoff from the parking lot to encourage infiltration and pretreat runoff before discharge into Bull Run.

Tree Planting – the park will be planted with a diverse mix of tree species to provide shade, habitat and improve the aesthetic of the site.

Street Tree Planting – size appropriate street trees will be planted along St. Louis and 7th Streets to provide a shaded an aesthetic streetscape and community gateway.

Additional:

Private Property Acquisition – explore the potential to acquire the Culligan property to create contiguous municipal ownership of the stream corridor with the intention of restoring the stream, expanding the floodplain, offering additional recreational opportunities and to create an aesthetic community gateway at Route 15 and St. Mary Street.

Relocated Tee-Ball Field – to improve drainage and function of the Little League field, relocated the tee-ball field to the adjacent property. Employ an historic ballfield design with brick walls and piers to serve dual function as ball field fencing and community gateway.

Community Gateway – Create a community gateway at the corner of St. Mary Street and Route 15, consisting of brick walls and piers, signage, landscaping and street trees.

Event Parking – seek to design the tee ball outfield with stabilized surface to accommodate arts festival and other event parking.

Municipal Snow Stockpile – find new location for municipal snow stockpile that better complies with PA Department of Environmental Protection guidelines, has less negative impact on aesthetics, and better protects the water quality of Bull Run.

Town Green Park



"People who cannot find time for recreation are obliged sooner or later to find time for illness."

John Wanamaker

Master Plan: The master plan seeks to work with the site's unique character and create park that is quiet and contemplative, a green oasis in the downtown. The plan proposes a small, natural amphitheater to serve as a secondary performance / entertainment venue for the downtown, to simultaneously accommodate events and/or host events that attract a smaller audience or who would be better performed in a smaller or more natural venue. The restoration of the stream channel and reconnection with the floodplain will produce excess soil during excavation that will be used to sculpt the other upland areas of the park, helping to create the natural amphitheater as well as make the site itself feel more sculptural.

The historic railroad piers will serve as a physical backdrop to the natural amphitheater – with the northern abutment serving as an overlook to the stage and alternative ADA access to performances. There is a strong interest in having public art play a major role in the new park system and the Town Green is the best place to begin and experiment. The piers lend themselves to murals or art displays. The spaces between piers are appropriately sized for vendor space for art festivals, markets and fairs.

The plan seeks to make the existing parking more accessible and functional with directional signage from the main streets to find the parking as well as one-way systems to make vehicle flow more efficient. The site will also accommodate a pedestrian and bicycle connection to 6th Street which will provide enhanced walkways and prioritized bike lane with street trees, bollards, , specialty paving and landscaping to make a aesthetic and memorable town – campus gateway.



Park Elements and Description:



Natural Amphitheater – to compliment the park’s quiet and green character, yet satisfying the need to create a defining people place in Town Green, the natural amphitheater seeks to satisfy both objectives. The amphitheater will be relatively small, when compared with the size and capacity of the Hufnagle performance space, providing seating for about 50 in the amphitheater with additional seating in the adjacent lawn and deck overlook. The natural amphitheater is

intended to be a compliment to the Hufnagle Performance space – serving as a secondary venue for large community events and to better satisfy performances seeking a more modest, intimate atmosphere. The stage could be designed for multi-use with a paver / grass grid pattern for a large chess board.

Park Overlook (Deck) with Adult Swings – the railroad piers and bridge abutments create a unique opportunity to celebrate and interpret the history of the site, and provide an elevated overlook into the park and down on to the natural amphitheater. The overlook location is strategically located to see the full extent of the Bull Run Greenway south – with views of the stream corridor flowing through Town Green, Hufnagle and Kidsburg parks. The Deck Overlook would create a signature space on the rail trail extension, serving as a meeting place and a fun social gathering space. The overlook would be an excellent space to experiment with adult swings for adults or small group of people to be installed at key social gathering spaces in Kidsburg.



The Buffalo Valley Rail Trail will improve visibility and access to Town Green Park. An overlook is proposed at a strategic location to view the interconnected park space created by the Bull Run Greenway.



'Fun' seating, like the swings show here, could be a unifying element found throughout the Bull Run Greenway.

Informal Seating Areas – Town Green has many opportunities to create informal seating areas created out of natural materials such as rocks – creating spaces for people to gather and socialize throughout the park and overlooking Bull Run stream.

Town Green and Art – Town Green offers many opportunities to integrate art into the downtown parks. The historic railroad piers could serve as places to display sculptural pieces or mural art. The open lawn areas and along the rail-trail and 6th Street extension also offer opportunity for sculptural art displays.



Artistic Night Lighting – since the space has not been historically used as park space – there is little or no lighting of Town Green. Building on the natural, organic and artistic themes for the space, night lighting for the space can be accomplished with solar-powered, artistic up-lighting of the railroad piers. The addition of murals, sculptures, and vines would only make the up-lighting more interesting.

Buffalo Valley Rail Trail Connections to Park – The Buffalo Valley Rail trail has finally made it to Market Street. This project assumes that a safe and viable crossing will be constructed on US Route 15. taking advantage of the park’s newfound connectivity with the Buffalo Valley Rail Trail extension, the Town Green offers a rest stop (Deck Overlook), natural shade, and food to be plucked from tree, shrub or vine.

6th Street Connector Trail – the Buffalo Valley Rail Trail, with its extension into town, must now transform from a recreational greenway to a fully functional alternative transportation route. The trail and routes must offer safe, enjoyable and efficient connections to and from their destinations. The 6th Street Connector seeks to create the most efficient bicycle and pedestrian connection to Bucknell University, by linking directly from the rail trail to 6th Street. The one-way street will be a share the road Bike Route with wide pedestrian promenade, that deemphasizes the automobile and prioritizes the pedestrian and bicyclists.



Stream Restoration and Floodplain Expansion – the Bull Run stream corridor will be enhanced by created a more accessible and expanded floodplain planted with adapted grasses, wetland plants and soil-holding willow species. The banks of the expanded floodplain will be planted with native trees, shrubs and wildflowers to improve biodiversity, wildlife habitat and aesthetics, while improving waters quality.

Stream Corridor Landscaping - lower level terrace next to stream in native grasses, wildflower and adapted willow species, with wetland pockets. Edge to be planted in native trees and shrubs.



Wetland and Habitat Restoration - the lower terrace of the expanded floodplain will also have pocket wetlands to improve diversity and wildlife habitat, and treat stormwater runoff from adjacent sites.

Stream Access – improved access to the stream will be achieved by expanding the floodplain and reducing the slope of the banks. Informal trails and ‘stepping stone’ stream crossings will also encourage enhanced access and interactions with the stream.

Replace Covered Bridge with Alternative Stream Crossings (stepping stones)

Trees and Open Lawn – the central part of the park will be composed of clusters and trees and open lawn to provide for event space and informal recreation.

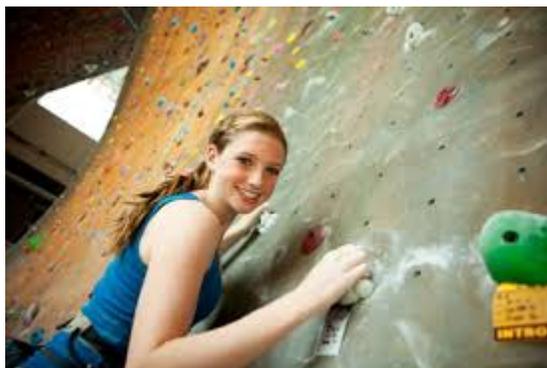
Edible Landscapes & Food Forests – The east and north edge of Town Green would be an excellent space to experiment with an edible landscape & food forest demonstration. This narrow and sloping part of the park has many limitations for recreational use, yet is now, thanks to the rail trail extension, is an accessible and highly visible part of the downtown parks. The space would plant trees, shrubs, and vines that provide edible foods. There is growing interest in food forests across the country – and the production of food is one more ‘ecological service’ that can be derived for greenways and parks.

Improved Parking – seek to improve accessibility and function of the municipal lot. Adding another bay of parking and parking along Linn Alley will add an additional 36 parking spaces to the current configuration.

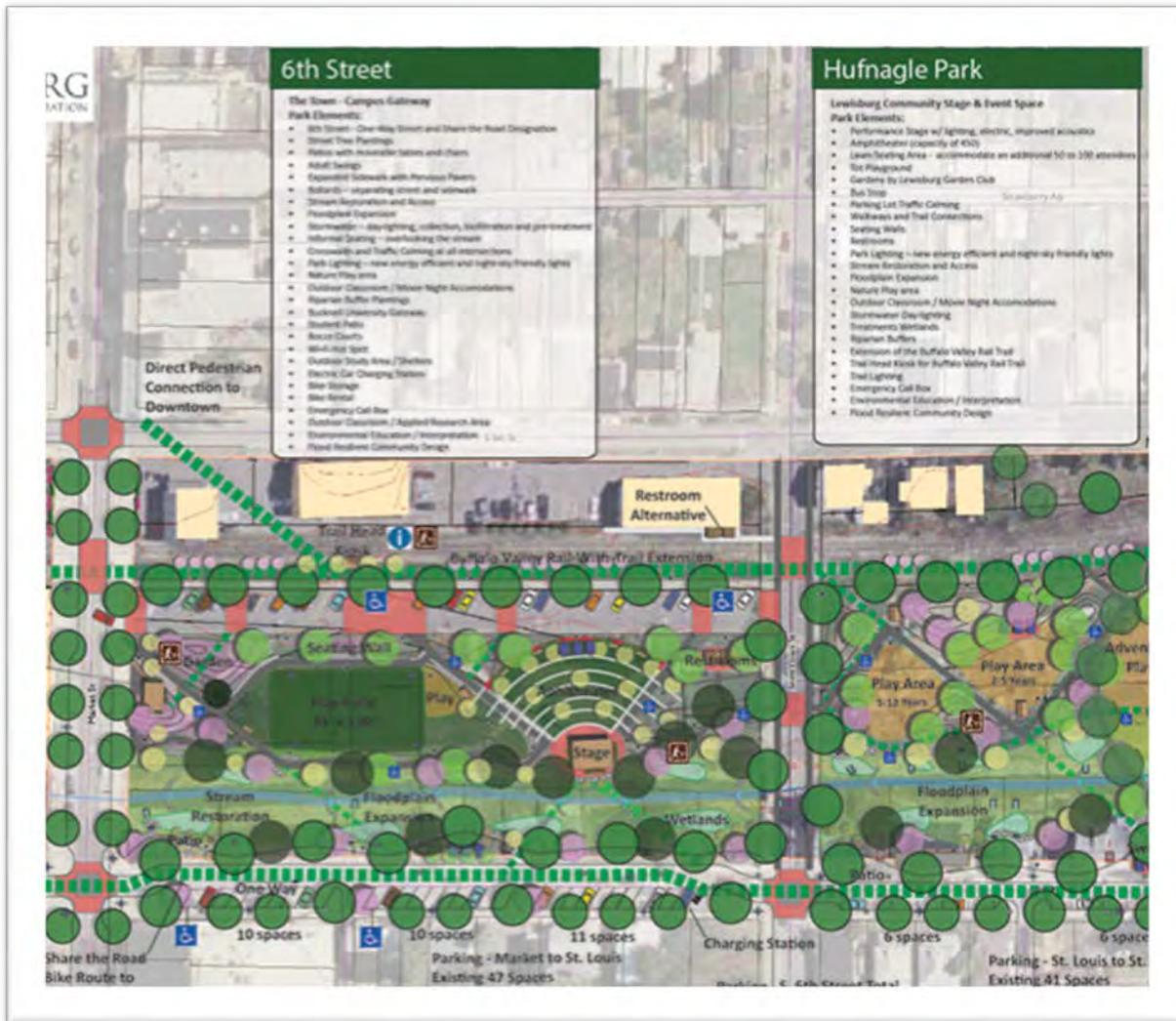
Alternative Design Option for Active Recreation: As with any park design, the question comes down to whose vision will prevail in the design and construction of the site. As reflected in the master plan and in the descriptions above, the quite, green, organic, natural and artistic theme was developed for the Town Green. However – many community members feel another viable use for the park would emphasize more active recreation. The industrial look and feel of the railroad piers and abutments could lend themselves to:

- climbing walls
- low ropes course
- slackline
- bike skills park / pump track
- adventure playground

As with any plan – the future keepers of the plan will have to practice ‘adaptive management.’ As community attitudes and needs change over time, or new opportunities present themselves – these recreational uses may become the best use for this park space.



Hufnagle Park



“You can discover more about a person in an hour of play than in a year of conversation.”

Richard Lingard

Master Plan: The overall park design will be more natural and organic in form - starting with a more naturally meandering stream and lower level floodplain corridor and continuing consistently through the park in the design of the walkways, land forms, lawn areas, stage and amphitheater and landscape planting areas.

The master plan seeks to mitigate the numerous limiting factor of the current site conditions - to create a community gathering place worthy of the Lewisburg community. The plan proposes improving the visual and physical access to the park from Market Street - drawing people into the space with an aesthetic appeal of landscaped greenery and mix of shade and open lawn areas.

Bull (Limestone) Run creates a natural and green spine for the space - serving as a backdrop to the performance in informal activity areas of the park. Bull Run will be made physically accessible by reconnecting the stream to its floodplain and making the lower-level stream terrace accessible throughout the park - encouraging people to access and interact with the stream. The excavated material will be both removed from the site and used to create more functional upper terrace levels for landscaping and informal play. The gazebo structure will be re-purposed, either within the park or somewhere in the community, potentially as a bus stop shelter or shaded rest stop for the rail trail.

The new stage and amphitheater will be designed to accommodate small, medium and larger performances with a form that improves acoustics and visibility. There will be a hardscape amphitheater to seat small and medium size audiences and a sloping lawn area to successfully accommodate larger audiences.

The park space will take advantage of lack of paving, and overhead / underground utilities to plant larger and more impactful tree species for shade and greenery, as well as maintaining open lawn areas for event staging and informal play areas. Overall - there will be a significant increase in naturalistic and lower maintenance landscaping - with less mowing and chemical herbicide use, but necessitating a different type of operations and maintenance requirements and a need for more specialized staff and volunteer labor.

The existing parking lot will be modified and reconfigured, reversing the layout of the travel lane and parking so visitors do not have to cross the travel lane to enter the park, and traffic calming methods such as crosswalks and planting bulb-outs - all to decrease speed and improve safety. The parking will also be modified to accommodate diagonal 'desire lines' from 5th Street into the park.

Park benches will be clustered to encourage social gatherings and the stage and amphitheater will be designed to function well as a passive recreation (reading, resting, eating) and social gathering space when not being used for performances. Hufnagle Park will maintain approximately the same number of park lights - but the design of the lights will direct light to the ground surfaces, increasing energy efficiency and reducing night-sky pollution.



Park Elements and Description:



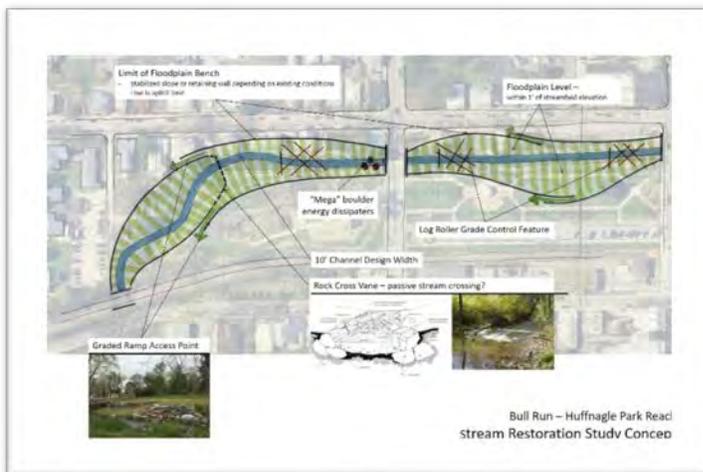
Buffalo Valley Rail Trail Connections to Park – the Buffalo Valley Rail Trail will be extended through Hufnagle and Kidsburg, laying the foundation for extension of the trail to Bucknell, the Bucknell Riverfront and on towards Winfield and the town of Northumberland in the future. The trail through the park will be asphalt – to be consistent with the trail surface in other parts of the Borough. The trail corridor will be planted with trees to provide shade, and offers opportunity for community art displays. The trail will have a trail head kiosk in Hufnagle Park as well as bike racks to accommodate visitors. Unlike other areas of the Buffalo Valley Rail Trail, this segment in town will also have

to accommodate night use with lighting and emergency call boxes to make the connection between town and campus inviting and safe.

Rail-with-Trail Coordination – The trail extension into Hufnagle and Kidsburg parks must coordinate with the Lewisburg & Buffalo Creek Railroad Corporation, the owner of the operating railroad line from Lewisburg – south to Winfield. Railroad owners have shown a willingness to collaborate on the project as long as ownership, liability, safety, and public use issues are adequately addressed. The rail-with-trail extension will also need to integrate a separation between the trail and the active rail line with either an adequate setback distance and/or a physical barrier such as a fence, landscaping, or grade separation.



Trail Head Kiosk – the kiosk would be accessible from both Buffalo Valley Rail Trail extension and the Hufnagle parking area. The kiosk design will fit with the industrial and railroad context of the site, as well as the design character proposed here in the master plan. The kiosk will contain information on the trail, orientation map, trail and park rules and regulations.



Stream Restoration and Floodplain Expansion – the Bull Run stream corridor will be enhanced by created a more accessible and expanded floodplain planted with adapted grasses, wetland plants and soil-holding willow species. The banks of the expanded floodplain will be planted with native trees, shrubs and wildflowers to improve biodiversity, wildlife habitat and aesthetics, while improving waters quality.

Stream Corridor Landscaping - lower level terrace next to stream in native grasses, wildflower and adapted willow species. Wetlands to treat water from stormwater pipes before discharge to stream. Edge to be planted in native trees and shrubs.



Stream Access – improved access to the stream will be achieved by expanding the floodplain and reducing the slope of the banks. Informal trails and ‘stepping stone’ stream crossings will also encourage enhanced access and interactions with the stream.

Informal Seating Areas – Hufnagle park will provide informal seating areas created out of natural materials such as rocks and retaining / seating walls – creating spaces for people to gather and socialize throughout the park and overlooking Bull Run stream.

Landscaping and Gardens – more large trees and increased use of native and naturalized landscaping using native trees, shrubs and herbaceous perennial plants. Hufnagle will also maintain areas of open lawn to accommodate events, fairs and informal play. The gardens historically maintained by the Lewisburg Garden club will be integrated into the new park design – giving the club a highly visible demonstration area visible and accessible from Market Street. The knowledge base of the Lewisburg Garden Club will help the borough crew and volunteer network to transition into a more organic and natural park maintenance program.



Stage and Amphitheater – the park will have an enhanced performance area with a stage that provides excellent acoustics and visibility, improved electric / utility hook-ups and lighting, as well as a backstage and 'green room' functionality. The adjacent amphitheater will provide expanded seating for larger audiences, grass as well as hardscape seating options, and functional overflow lawn seating areas.



Amphitheater Capacity - The amphitheater has a capacity of 450 with overflow lawn areas able to accommodate an additional 50 to 100 attendees. The stage structure will be lit at night to provide visual interest and enhance safety for the park. The design of the stage will build upon the industrial and railroad theme that will unify the various elements of the Bull Run Greenway.



Park Lighting- new park lighting will be installed that both respects the historic character of Lewisburg's traditional character, but are also energy efficient and dark-sky friendly.

Adult Swings – to provide a unique park element, a swing for adults or a small group of people to be installed at key social gathering spaces in Hufnagle, including the back of the amphitheater area.

Tot Play Area – A small tot play area will be added to Hufnagle Park to help entertain small children of families attending events.

Open Lawn Areas - for informal play, passive recreation seating and event space will be maintained.



Restrooms – traditional or composting restrooms will be installed into the park with a design that fits with the context and new park design aesthetic.

Kidsburg Park



“Play is often talked about as if it were a relief from serious learning. But for children, play is serious learning. Play is really the work of childhood.”

- Fred Rogers

Master Plan: The overall park design will seek to increase park use and vibrancy by making it a node on the regional gateway. The park will provide a strategic connection between campus and downtown and seek to diversify its recreational offerings to people of all ages and all abilities as well as diversifying the types of play offered in the space.

Kidsburg Park will feature a more naturally meandering stream and lower level floodplain corridor that will be safe and easy to access to accommodate a nature park / nature play element to the park. In addition to the restored stream - visitors can experience the natural vegetation of a restored floodplain including native trees, shrubs, wildflowers and grasses, as well as pockets of wetlands. The stream alignment will be modified to create a more efficient passage of high waters through the railroad bridge – as well as considering the addition of a high water culvert to accommodate flood flows.

The stream corridor will continue the landscaping from Town Green and Hufnagle greatly greening and naturalizing all the downtown parks. The southern end of Kidsburg, over time, will be lost in tree canopy creating the 'Downtown Grove' to compliment 'The Grove' on the Bucknell campus. The park space will take advantage of lack of paving, overhead and underground utilities to plant larger and more impactful tree species for shade and greenery, as well as maintaining open lawn areas for event staging and informal play areas. Overall - there will be a significant increase in naturalistic and lower maintenance landscaping - with less mowing and chemical herbicide use, but necessitating a different type of operations and maintenance requirements and a need for more specialized staff and volunteer labor.



Illustration of Kidsburg with a restored and accessible Bull Run. Stormwater from adjacent streets will be captured and treated in created wetlands in the restored floodplain. The future playground will include both Nature and Adventure play areas.

The park's recreational offerings will diversify - expanding on the modern playground that exists now, and incorporating nature playground and adventure playground concepts to provide the most diverse play experience for children. These concepts can be implemented incrementally over time and serve as testing ground for innovative design. Park benches will be clustered to encourage social gatherings, and passive recreation (reading, resting, and eating).

The park will also be connected to the Buffalo Valley Rail Trail - adding a new element to the activities of the park - and Kidsburg should take advantage of this by providing rest stops and social gathering places to meet the needs of the trail - as well as seizing on the opportunity to have the park space used by people of all ages. The park will also create an efficient ped-bike connection between campus and downtown, passing diagonally through the park. This trail will cross Bull Run and be at the level that encourages an intimate interaction with the stream, floodplain and riparian native plantings. The trail will also accommodate bikes and pedestrians coming from the east on 5th and St. Catherine Street - providing a safe crossing of the railroad tracks and connections to the rail trail. Given the parks new role in community connectivity - there will need to be additional lights and safety call boxes. The lights should provide increased area lighting of the park, and direct light on the trail / walkway surfaces, increasing energy efficiency and reducing night-sky pollution.

Park Elements and Description:



Buffalo Valley Rail Trail Connections to Park – the Buffalo Valley Rail Trail will be extended through Hufnagle and Kidsburg, laying the foundation for extension of the trail to Bucknell, the Bucknell Riverfront and on towards Winfield and the town of Northumberland in the future. The trail through the park will be asphalt – to be consistent with the trail surface in other parts of the Borough. The trail corridor will be planted with trees to provide shade, and offers opportunity for community art displays. The trail will have a trail head kiosk in Hufnagle Park as well as bike racks to accommodate visitors. Unlike other areas of the Buffalo Valley Rail Trail, this segment in town will also have to accommodate night use with lighting and emergency call boxes to make the connection between town and campus inviting and safe.

Rail-with-Trail Coordination – The trail extension into Hufnagle and Kidsburg parks must coordinate with the Lewisburg & Buffalo Creek Railroad Corporation, the owner of the operating railroad line from Lewisburg – south to Winfield. Railroad owners have shown a willingness to collaborate on the project as long as ownership, liability, safety, and public use issues are adequately addressed. The rail-with-trail extension will also need to integrate a separation between the trail and the active rail line with either an adequate setback distance and/or a physical barrier such as a fence, landscaping, or grade separation.

Stream Restoration and Floodplain Expansion – the Bull Run stream corridor will be enhanced by created a more accessible and expanded floodplain planted with adapted grasses, wetland plants and soil-holding willow species. The banks of the expanded floodplain will be planted with native trees, shrubs and wildflowers to improve biodiversity, wildlife habitat and aesthetics, while improving waters quality.

Stream Corridor Landscaping - lower level terrace next to stream in native grasses, wildflower and adapted willow species. Edge to be planted in native trees and shrubs

Wetlands & Stormwater Day-lighting - wetlands to treat water from stormwater pipes before discharge to stream. These native plants of the stream edge, floodplain and wetlands will be an essential element of the Nature Play area and site educational programming.



Informal Seating Areas – Kidsburg will provide informal seating areas created out of natural materials such as rocks and retaining / seating walls – creating spaces for people to gather and socialize throughout the park and overlooking Bull Run stream, and better connect children to the stream and habitat wetlands of the outdoor classroom.



Formal seating areas – Kidsburg will have clusters of benches for parents to gather and socialize on visits to the park. These bench clusters will be located strategically to provide easy observation of the various play areas.

Covered Picnic Tables – will be located throughout Kidsburg to provide a sheltered seating area and to accommodate eating lunch or family picnics in the park. Additional maintenance of the picnic tables will be necessary by borough crew or park volunteers.



Playground / Play Areas – Kidsburg will provide recreational opportunity for all age groups – on a wide range of playground types, including more traditional modern play equipment of castles and ship themes, as well as elements of Adventure Play and Nature Play areas. A clear preference for bringing swings back to the Kidsburg has been expressed in various forums, including the community design workshop. Recreational offerings are diversifying and expanding and the Borough must continue its on-going relationship with PlayWorld Systems to maintain Kidsburg as one of the area’s premier play venues.



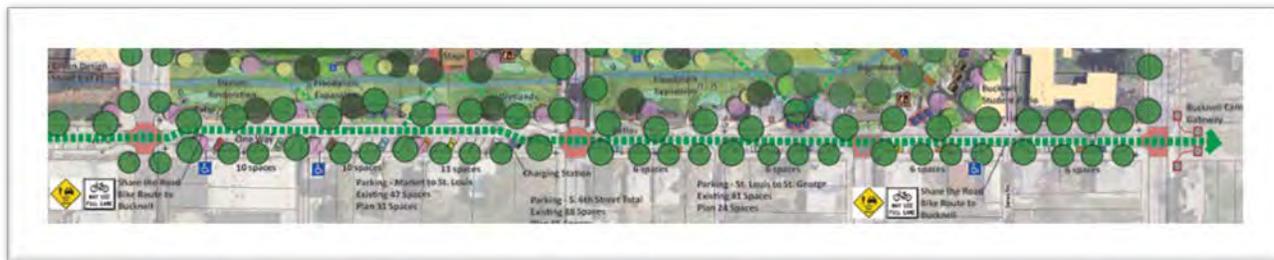
Adventure and Nature Play – start small and slowly develop the potential of these two play areas through a trial and error and experimentation process. The success of both depends on active and community and parental involvement for design, upkeep and programming. A project should not be begun without committed volunteers. The adventure and nature play areas can include building materials such as logs, rock and masonry blocks that can be modified and manipulated by children. Elements may include tree house, rope swings and climbing structures, wetlands, stream access, day-lighted stormwater outlets and wetlands, stream access, edible landscaping and food forest.



Bridge – for direct pedestrian and bicycle connections between campus and downtown. The bridge should seek to blend with the more natural character of the southern part of Kidsburg, connecting people to the stream and to the natural landscape plantings. The bridge’s design should consider being more of a boardwalk, designed to accommodate flooding with high water flowing under, through and over the decking. The lack of handrails would also minimize the potential for damage and debris jams during high water events.

Adult Swings – to provide a unique park element, a swing for adults or small group of people to be installed at key social gathering spaces in Kidsburg.

6th Streetscape



“The street is the river of life of the city, the place where we come together, the pathway to the center.”

William H. Whyte



Master Plan: The master plan seeks to create a signature space for the community – a beautiful tree lined streetscape and park connection between town and campus. The one way street will be reconfigured to deemphasize the automobile and prioritizing the pedestrian and bicycle use of the site. The street will be narrowed and the sidewalk expanded and planted with large street trees to provide a tree lined shaded walking and biking experience.

Parallel parking will be replaced with back-in angle parking. The ‘share the road’ street will allow bikes to use the full lane – prioritizing bike use, slowing vehicular traffic, while encouraging vehicles to use other streets.

The street will overlook an expanded park space with a restored stream and floodplain. The traditional stormwater draining from 6th Street with catch basins and underground pipes will be day lighted, or brought to the surface, to serve as an aesthetic landscape amenity and to pre-treat stormwater before its discharge into Bull Run, educating the public about water quality and innovative stormwater management options.

Overhead utility lines will be placed underground to improve the aesthetics of the space and eliminate redundant utility poles previously needed for now removed residential housing. The streetscape will contain architectural elements that call to mind a ‘gateway’ for town and campus. The south end of the 6th Street will transition to Bucknell property creating outdoor spaces designed for student use and feature Wi-Fi hotspots, outdoor classroom space, study areas, shelters, seating patio and potential site for a relocated 7th Street Café.



Other potential amenities for 6th Street include streamside patio seating / dining space for use by adjacent 6th Street businesses such as the Town Tavern, Bull Run Inn, Puirseil’s Irish Pub, Zelda’s Café and other future business along the street. The expanded sidewalk, separated from the street by bollards instead of curbs, create a more ADA friendly environment for the corridor, and provide improved access to benches

and other park amenities such as bocce and game tables that give the space a fun atmosphere feeling less like a street and more like a park. The intent is to create a vibrant promenade, a space to see and be seen, drawing increased activity to the downtown as an alternative transportation corridor and to attract younger people – particularly students.

Park Elements and Description:



Transform 6th Street – North and South 6th Street will be redesigned to deemphasize the automobile, while prioritizing pedestrian and bicycle connections to Bucknell. The street will maintain its one way (south) design, but integrate back-in angle parking to increase the efficiency and safety of the parking. The street will be a ‘share the road’ route with cars and bicycles, but bicyclists will be allowed to use the entire lane – reducing speed and discouraging car use of the corridor. Other traffic calming methods include narrowing the vehicular cartway, planting of street trees, installation of crosswalks consisting of a different paving material, and the installation of human-scaled elements such as bollards, sidewalks, patio tables, benches and seating.

Town – Campus Gateway – finally achieve the physical space that brings town and campus together. Create a bicycle and pedestrian friendly corridor linking Market Street and Vedder Hall on the Bucknell Campus. The corridor will have a formal street tree plantings, narrowed vehicle lane, expanded sidewalk and town-campus gateway elements such as masonry piers and lighting. The streetscape will eliminate the curb on the east side of the street and separate the roadway from the sidewalk with bollards allowing easy flow of pedestrians and bicyclists between the street and park.



‘Artful’ Stormwater Management – a different approach will be taken handling stormwater runoff from the street and sidewalk. Lack of curbing on the east side of street will allow water to sheet flow and be captured in runnels, rock splash feature, and wetlands, treating the water before it is discharged into Bull Run.

Stream Restoration and Floodplain Expansion – the Bull Run stream corridor will be enhanced by created a more accessible and expanded floodplain planted with adapted grasses, wetland plants and soil-holding willow species. The banks of the expanded floodplain will be planted with native trees,

shrubs and wildflowers to improve biodiversity, wildlife habitat and aesthetics, while improving waters quality.

Gateway Features – building off the legacy of architectural gateway features on the Bucknell University campus – an architectural gateway feature will be designed into the S. 6th Streetscape to signal movement towards and entry into Bucknell University.



Seating Areas – in addition to making a visual and physical connection between town and campus – the 6th Street corridor will offer many seating options to encourage people to stop awhile. The streetscape will have a combination of park benches, adult swings and patio tables and seating, clustered to encourage social gatherings.



Plaza w/ Patio Tables and Chairs – public / private venture to provide flexible outdoor seating for current and future commercial business along 6th Street. Explore partnerships with Town Tavern, Bull Run Inn, Zelda’s Café and others.

Informal Seating Areas – the streetscape will also offer informal seating areas of natural materials such as rocks and seating walls, for park visitors to sit and watch either the street or overlook the stream corridor.

Stream Access – the expanded floodplain, regarded streambanks and landscaping will make the stream more aesthetic and accessible. Specific areas will be designed to create stream access points and ‘stepping stones’ stream crossings.



Bucknell Student Patio – the student patio concept is intended to accommodate student offerings unique to the campus that will attract students and the vibrancy they bring to the community. The patio will include the following features:



Wi-Fi Hot Spot, Solar Powered Study Area Shelters, Adult Swings, Bocce Courts, Café / Patio, Outdoor Classroom, Public Art, Bucknell University Gateway, Game Tables, Patio Tables and Seating, Night Lighting (string lights). The space could also redesign a section of the existing parking lot to accommodate Bison Bikes and bike storage / rental kiosk - with direct access to the Buffalo Valley Rail Trail.



Electric Car Charging Station – another way the park and the Bull Run Greenway can move towards 21st Century green and clean technology is to provide car charging stations. This can be done as an integrated part of electric utility line reconfiguration for the corridor. This will make the park and greenway a model for a modern transportation system for pedestrian, bike and alternative fuel vehicle accommodations.

Evolution of the Park – Creating Connections and Additional Benefits of the Bull Run Greenway

The Bull Run Greenway will create a unified and connected park corridor. The individual park spaces (Daniel Green Park, Town Green, Hufnagle Park and Kidsburg Park) will each be designed to function well as a stand-alone public space, while together creating a synergistic community greenway. Greenways are often defined as linear open spaces that preserve and restore nature in towns and cities. Greenways are features that tie a bigger system of park components together, emphasizing harmony with the natural environment, and helping to create an interconnected park system. Greenways allow us to treat land and water as a system, as interlocking pieces in a puzzle, not as isolated entities.

Greenways can be viewed as the next phase in the evolution of public parks – where a group of individual parks are connected to become a linear park, and linear parks grow to become a network of parks, trails and natural areas. Greenways provide a wide range of benefits for people, wildlife and the economy, and a system of greenways and larger connected landscapes offers many benefits, such as:

- Biodiversity, Wildlife Habitat and Corridors
- Improved Water Quality
- Help Define Targeted Areas for Growth and Development
- Preserve Character of the Town and Country Landscape
- Retain a Sense of Place
- Create Outdoor Classrooms
- Enhance Outdoor Recreation
- Encourage Active Living to improve Quality of Life
- Raise Property Values
- Stimulate Tourism
- Enhance Vibrancy of Surrounding Neighborhoods and Downtown Businesses
- Create Community / Social Gathering Places
- Alternative Transportation Accommodations (pedestrian, bicycle and alternative fuel vehicles)
- Floodplain Restoration and Flood Mitigation

Greenways provide more bang for the recreational buck by utilizing otherwise unbuildable landscapes like floodplains and steep slopes, and by linking lands already in public ownership. No other conservation strategy offers so many advantages, nor serves so many purposes. The Bull Run Greenway can be viewed as a part of the larger Susquehanna Greenway and represents a model for how these larger greenways will be realized. River Towns like Lewisburg will design and build local greenways to meet their individual needs for parks, recreation, and environmental protection, and these local greenway will help to build the landscape-scale system of greenways envisioned by the Susquehanna Greenway Partnership. (www.susquehannagreenway.org) A nationwide network could ultimately grow from local action in thousands of communities across America as envisioned by the President's Commission on Americans Outdoors back in 1986.

Synergy of the Parts – the Emergent Properties of the Bull Run Greenway

The Bull Run Greenway is the next step in the evolution of the community’s public park system. No longer existing as isolated and fragmented ‘postage stamp’ size parks, they are tied and connected through streams, pathways, trails, sidewalks and landscape. These interconnected spaces become something greater than their individual parts, becoming functioning ecosystems for plants, animals as well as humans. The spaces transform and grow outward. Internal sidewalks become trails. Streams become watersheds. Isolated Parks become expansive and interconnected greenways. Over time, this network of interconnected parks and open spaces can expand to be easily accessible by every resident from every home. The interconnected open space should accommodate the widest range of functions – economic, social and environmental. These will be spaces to work, play, socialize, grow food, heal, rest and restore. Growing the greenway represents the next evolution in community planning and urban design, connecting us all to nature and to community. The emergent properties that will grow out of the greenway include:

Economic

- Alternative Transportation
- Reduced Health Care Costs
- Increased Property Values
- Flood Mitigation

Social

- Improved Human Health
- Enhanced Recreation and Active Living
- Improved Quality of Life
- Growing Community and Social Networks
- Local Food Systems

Environment

- Watershed Restoration
- Improved Water Quality
- Enhanced Wildlife Habitat
- Improved Biodiversity

Park Elements and their Benefits

Recreational Trails and Alternative Transportation – The extension of the Buffalo Valley Rail Trail into downtown and south to Bucknell University will transform it from a recreational greenway, to one that provides a viable option for people to bike and walk to town and campus.

Landscaping and Habitat Plantings – while individual plantings or small gardens would have little impact – the transition to native and diverse plant materials and a shift towards organic methods of park maintenance for the entire Bull Run Greenway will enhance aesthetics, improve wildlife habitat and improve water quality.

Education and Awareness – stream restoration and expansion of the floodplain, artful stormwater management, native plantings and wetlands will transform the way we think about and handle stormwater runoff. The educational process will begin in the park but will expand to other areas in the watershed to take a holistic approach to improving water quality and mitigating nuisance flooding.

Recreation for the 21st Century – the park will be designed for how residents and visitors socialize and recreate now and into the future. It recognizes the importance of public parks as our community gathering space. It recognizes the need humans have to un-plug and reconnect with nature and makes interacting with the natural world a part of our day to day lives. The park seeks to create recreation for all ages and all abilities – encouraging walking and biking by creating connection to downtown, campus and into the surrounding neighborhoods. The park will serve as the hub for a future greenway trail network linking the river towns of our region.

Becoming an Art Town – the Bull Run Greenway will create the opportunity and the venue for the widest range of public art – including murals and sculpture. The park will provide new and improved venues for music in the park, plays and performance art, movies in the park, outdoor classrooms and educational programming.

Edible Landscapes and Food Forests - The Bull Run Greenway will allow the community to explore these two exciting concepts and trends in landscaping and park design. The park plan calls for the planting of adapted, native trees, shrubs, vines and herbaceous plant material throughout the park to improve water quality and wildlife habitat. Edible landscaping and Food Forests challenge us to also consider landscaping with plants that provide food for humans. Oaks' acorns produce flour, fruiting trees, shrubs and vines, and herbs and medicinal plants can be part of the park's landscaping. Areas best suited for introducing the idea of edible landscapes for food forests would be the Town Green and Kidsburg 'nature plan' area.

Need for a Watershed Perspective

The Bull Run Greenway project envisions a future where the community is better connected and physically engaged with the stream. But what about the quality of the water found there? Is it safe? By all accounts Bull (Limestone) Run is a degraded stream and the degradation is a reflection of the watershed with sources of impacts coming from agriculture, low-density residential development, and urban impacts. However, there are a lot of positive things happening in the watershed to give hope to those seeking a restored and healthy stream.



Creating physical connections to Bull Run, and raising awareness of its water-quality challenges, will encourage a more holistic approach to stream and watershed restoration.

The Bull (Limestone) Run Watershed is ideally sized and uniquely positioned to be a case study for watershed restoration. The relative small scale of the watershed, at 8 square miles, allows for demonstrable improvements to water quality, as well as water quantity to eliminate nuisance flooding in the suburban and urban areas of the lower watershed. The watershed's location in the progressive community of Lewisburg and with the resources of Bucknell University creates a unique opportunity for a long-term commitment to watershed restoration, monitoring, innovation, education and training.

Lewisburg, like dozens of river towns on the Susquehanna River and hundreds of towns in the Chesapeake Bay watershed, is grappling with the issue of flooding and the future prospects of the economic and social impacts to be felt by the Homeowner Flood Insurance Affordability Act. 40% of the homes in Lewisburg are located in the 100 year floodplain. As a result of flooding in the fall of 2011 several property owners voluntarily participated in the FEMA buyout program, with 10 homes being removed from the Bull Run floodplain. The Lewisburg community, however, does not see the removal of the homes as an end but just the beginning of redefining a new relationship with Bull Run, taking a proactive approach to address stormwater and flooding in the watershed.

Lewisburg's Bull Run Watershed Restoration Initiative

Lewisburg Borough has procured a National Fish and Wildlife Foundation (NFWF) technical assistance funding to kick start the Bull Run Watershed Restoration Initiative – so that the stream restoration plan can be an integrated component of the Lewisburg's Bull Run Greenway. Together, the stream restoration and linear park will demonstrate how the community's green infrastructure can achieve multiple benefits including: recreation, alternative transportation, habitat enhancement, water quality improvement and flood mitigation.

The Bull Run watershed is the population center and a designated growth area for Union County. The stream, officially Limestone Run but more commonly referred to by locals as Bull Run, drains a rural agricultural area before flowing through suburban neighborhoods and finally passing through the heart of downtown Lewisburg and the edge of Bucknell University. The widest range of stormwater Best Management Practices (BMPs), from agriculture to urban, can be demonstrated within the relatively small watershed.

At the center of the region's designated growth area the watershed is expected to see increased growth and development. Bull Run's history of flooding, primarily in downtown Lewisburg, necessitates a prioritized and proactive approach to watershed restoration and stormwater management. Creating a restored Bull Run and expanded public park is the necessary first step in the revitalization of the Bull Run Neighborhood, a neighborhood dominated by poor condition housing. The public investment in the stream restoration and park space need to spark private reinvestment in the neighborhood. The target for marketing the neighborhood is young families, visiting professors, 'return to college' retirees and expanded office and programming space for Bucknell University.



The Bull Run Greenway will seek to restore the stream and reconnect the floodplain, improving the stream as a park amenity while increasing flood holding capacity. The dashed red line in the plan above delineates the extents of the expanded floodplain. Areas such as the play field lawn and nature play area will be designed to flood while providing better access to the stream.

Lewisburg, with its history of flooding, is similar to hundreds of small towns throughout the Chesapeake Bay watershed. However, the community's access to the technical expertise of Bucknell University, one of the nation's best undergraduate colleges, make it an ideal candidate as an educational classroom for watershed planning and restoration. Implementation of projects can have a tangible impact on overall water chemistry and stream biology. The resources of the university ensures a long-term commitment to the project evaluation and monitoring and provides an ideal venue for educational programming, tours and research publications.

The Bull Run Watershed Restoration Initiative is fully supported by the “Cultivating Community – a plan for Union County’s future,” the Union County Comprehensive Plan, the Bull Run Phase II Act 167 Stormwater Management Plan, the Lewisburg Neighborhood Project strategic action plan, and the concurrent Union County Greenway and Open Space Plan.



A hydrologic study, 2D model, was performed for Bull (Limestone) Run simulating flows of a 100 year flood event. The colored area shows the extent of the floodplain and colors orange and red depicting areas with the greatest shear forces. Note highest shear forces occur at the bridge locations where a large volume of water is forced through a relatively narrow opening. The image on the right shows shear forces reduced in most of the corridor ‘after’ the floodplain has been reconnected throughout the parks of the Bull Run Greenway.

IMPLEMENTATION STRATEGY

“This is the real secret of life -- to be completely engaged with what you are doing in the here and now. And instead of calling it work, realize it is play.”

Alan W. Watts



“What good is an idea if it remains an idea? Try. Experiment. Iterate. Fail. Try again. Change the world.”

Simon Sinek

“Dream big. Start small. But most of all, start.”

Simon Sinek

CHAPTER 6 IMPLEMENTATION STRATEGY

BUILDING THE BULL RUN GREENWAY

PRIORITY PROJECTS:

- **Kidsburg Recreation Initiative**
- **Lewisburg Community Stage and Event Space**

- **6th Street Gateway**
- **Town Green Arts Park**
- **Daniel Green Park and Community Gateway**

Bull Run Greenway

Priority Project: Kidsburg Recreation Initiative

Description:

The Kidsburg Recreation Initiative will transform the southern end of Lewisburg's downtown park system by updating the current play equipment, while diversifying recreational offers to people of all ages and abilities. The project will allow for the extension of the Buffalo Valley Rail Trail as it seeks to create connections to Bucknell University, and offering trail connections into the neighborhoods south of Market Street. The project will restore the Bull Run stream and expand the floodplain to provide a more natural method of streambank stability – replacing rock with plantings of native grasses, wildflowers, shrubs and trees. The restored stream channel and day-lighted stormwater outlets create the perfect opportunity for a 'Nature Play' area with improved access to stream, wetlands and naturalized plantings. The project will raise awareness of urban hydrology, stream health and watershed connectivity – and serve as a model for re-defining the community's relationship with Bull Run and the Susquehanna River.



Elements:

- New and Enhanced Playground Equipment
- Stream Restoration and Access
- Floodplain Expansion
- Nature Play area
- Outdoor Classroom
- Stormwater Day-lighting
- Treehouse
- Benches
- Adult Swings
- Picnic Tables and Shelters
- Treatments Wetlands
- Riparian Buffers
- Planting the Downtown Grove
- Extension of the Buffalo Valley Rail Trail
- Direct Connections Between Town and Campus – Pedestrian Bridge
- Trail Lighting
- Emergency Call Box
- Environmental Education / Interpretation
- Flood Resilient Community Design

Partners:

- Lewisburg Borough
- PlayWorld / PlayPower
- Bucknell University
- Lewisburg Downtown Partnership
- Lewisburg Neighborhoods Corporation
- Buffalo Valley Recreation Authority
- Union County
- Susquehanna Greenway Partnership
- PA Department of Conservation and Natural Resources
- PA Department of Community and Economic Development
- PA Department of Environmental Protection
- PA DCNR – Tree Vitalize Program
- National Fish and Wildlife Foundation

Cost Estimates:

Demolition and Site Preparation	\$ 350,000
Playground	\$ 250,000
Stream Restoration &Floodplain Expansion	\$ 600,000
Stormwater Daylighting	\$ 50,000
Nature Play Area	\$ 75,000
Wetland Habitat Plantings	\$ 25,000
Treehouse	\$ 40,000
Trees and Landscaping	\$ 50,000
Buffalo Valley Rail Trail - 600LF	\$ 50,000
Pedestrian Boardwalk Bridge – 150LF	\$ 150,000
Park Walkways ADA - 600LF	\$ 125,000
Park Trails with ADA accommodations	\$ 25,000
Park Lighting (8)	\$ 65,000
Stream Access Trails (3)	\$ 15,000
Covered Shelter w/ Picnic Tables (2)	\$ 30,000
Benches (6)	\$ 8,000
Informal Seating Stones	\$ 5,000
Swing Seats (6)	\$ 15,000

Construction Cost Estimate	\$ 1,900,000
Topographic Survey	\$ 35,000
Engineering and Design	\$ 285,000
Permitting and Testing (Soils / Geo-Technical)	\$ 95,000
10% Contingency	\$ 190,000

Kidsburg Recreation Initiative
General Cost Estimate \$ 2,500,000

Funding Strategy:

- Local Match \$500,000
 - Private Donations of Playground Design, Equipment, and Installation
 - Municipal – Cash and In-Kind Donations - Engineering, Design, and Permitting Costs
- State Funding \$1,000,000
 - PA DCNR – C2P2 Funding for Nature Plan, Stream Access & Wetlands
 - PA DCNR – TreeVitalize Program – Riparian Buffer, Park & Downtown Grove Plantings
 - PA DCED – The Agency Single Application will get access to DCED’s numerous programs including: Community Revitalization, Alternative and Clean Energy Program, Community Development Block Grants and Disaster Recovery Grants, Flood Mitigation Program, Greenways, Trails and Recreation Program, Growing Greener II, H2OPA – Flood Control Projects, Keystone Communities Program, Marketing to Attract Tourists, Multimodal Transportation Fund, Municipal Assistance Program, Neighborhood Assistance / Enterprise Zone Tax Credit, Pennsylvania Infrastructure Investment Authority (PennVEST), Watershed Restoration and Protection Program,
 - PA DEP – Environmental Education Grants for interpretive signage, Growing Greener Watershed Protection Grants, Nonpoint Source Implementation Program Grants, Nonpoint Source Pollution Educational Mini-Grants for environmental education materials.
 - Act 13 – Marcellus Legacy Funds for treatment wetland plantings and pedestrian bridge
- Federal Funding \$1,000,000
 - USDA – Community Facilities Direct Loan & Grant Program
 - National Fish and Wildlife Foundation – Chesapeake Bay Stewardship Fund, Chesapeake Implementation Grant, for Watershed Assessment, Design, Permitting and Stream Restoration
 - US EPA 319 Grants

Bull Run Greenway

Priority Project: Lewisburg Community Stage & Event Space

Description:

The Lewisburg Performance Stage and Amphitheater will create a new and improved venue for outdoor entertainment in the community. The stage will improve acoustics and visibility for the performers and the industrial character of the stage will fit with the historic context of the site. The pavilion will have interesting night lighting to provide 24 hour visual interest. The Amphitheater area is enlarged to accommodate larger audiences and the adjacent lawn areas can handle additional informal seating. The Amphitheater includes grass and trees to soften the space, creating a people place suitable for sitting, reading and eating lunch, as well as for formal performances. The new stage and amphitheater will be graded into the slope to improve visibility, while better connecting the stage area to the restored Bull Run stream. Hufnagle Park will be transformed with a restored stream and expanded floodplain, terraced lawn area for events and informal play, as well as gardens along Market Street, creating a beautiful entry to the park. The stage and amphitheater area will have convenient access to restroom facilities as well as direct access to a tot play area – so parents can attend concerts while also providing entertainment for their young children.



Hufnagle Performance Stage - Design

Inspired by the Visual Preference Survey's recommendation for a structure that conveys an image of "natural," with a nod to Lewisburg's origins as Ludwig Derr's sawmill and gristmill and Hufnagle Park's railroad/industrial heritage, the shed roof timber frame structure is constructed of lumber harvested from diseased trees culled by the borough's shade tree commission. The main stage and green room are meant to convey the image of an open air theatre covered by a "vegetated canopy" supported by timber frame "trunks" with brackets fashioned to like the branches of a tree and a pair of dry laid walls at the back fabricated from locally harvested limestone or reclaimed barnstone. Like the shed roof above them, the gently curving stone walls are designed to project sound out toward the audience, and to provide a backdrop for hanging event banners, stage sets, and a projection screen to accommodate movies in the park. The two stone walls splay out at their ends approximately 4 feet to provide storage closets for electronics and stage lighting, and include two openings between the closets to allow acts to enter and exit the stage between performances, and to frame glimpses to the view beyond when the stage is not being used. The green roofs will be planted with low maintenance native grasses that complement the natural plantings near the stream to reduce runoff. Uplighting of the underside of the "green" shed roofs can be programmed to support a variety of effects for performances, as well as to simulate the underside of a tree canopy, gradually changing with the passing of the seasons from dappled green in spring, dark green in summer and a mix of reds, yellows and browns in the fall. The main stage is about twice the size of the existing gazebo (which will be relocated near market street and

function as bus/bike stop) and faces the amphitheater, while the open air green room functions as a staging area for acts and performers as well as a place for visitors to sit along the boulder strewn edge of a naturalized Bull Run corridor with a view toward 6th Street.

Elements:

- Performance Stage w/ lighting, electric, improved acoustics, green roof, green room, storage
- Amphitheater (capacity of 450)
- Lawn Seating Area - accommodate an additional 100 attendees
- Tot Playground (adjacent to amphitheater)
- Gardens by Lewisburg Garden Club
- Bus Stop / Garden Shelter
- Parking Lot Traffic Calming
- Walkways and Trail Connections
- Seating Walls
- Restrooms
- Park Lighting – new energy efficient and night-sky friendly lights
- Stream Restoration and Access
- Floodplain Expansion
- Naturalized and Upgraded Park Landscaping
- Outdoor Classroom
- Movie Night Accommodations (screen)
- Stormwater Day-lighting
- Treatments Wetlands
- Riparian Buffers
- Extension of the Buffalo Valley Rail Trail
- Trail Head Kiosk for Buffalo Valley Rail Trail
- Trail Lighting
- Emergency Call Box
- Environmental Education / Interpretation
- Flood Resilient Community Design

Partners:

- Lewisburg Borough
- Bucknell University
- Lewisburg Downtown Partnership
- Lewisburg Neighborhoods Corporation
- Lewisburg Arts Council
- Regional Foundations (Degenstein)
- PlayWorld / PlayPower
- Union County
- PA Department of Conservation and Natural Resources
- PA Department of Community and Economic Development
- PA Department of Environmental Protection
- PA DCNR – Tree Vitalize Program
- PA Council on the Arts
- National Fish and Wildlife Foundation
- US EPA
- Buffalo Valley Recreation Authority
- Susquehanna Greenway Partnership

Cost Estimates:

Demolition and Site Preparation	\$ 250,000
Performance Stage	\$ 450,000
Amphitheater Seating	\$ 350,000
Restroom	\$ 225,000
Stream Restoration & Floodplain Expansion	\$ 600,000
Stormwater Daylighting	\$ 50,000
Lower Lawn Stabilization & Drainage	\$ 35,000
Tot Playground	\$ 100,000
Trees and Landscaping	\$ 50,000
Buffalo Valley Rail Trail - 600LF	\$ 50,000
Buffalo Valley Rail Trail – Trail Head	\$ 35,000
Park Walkways ADA - 950LF	\$ 300,000
Park Trails with ADA accommodations	\$ 30,000
Park Lighting (15)	\$ 130,000
Stream Access Trails (2)	\$ 10,000
Garden Shelter / Bus Stop	\$ 45,000
Benches (12)	\$ 16,000
Seating Wall / Informal Seating	\$ 65,000
<u>Swing Seats (3)</u>	<u>\$ 8,000</u>
<hr/>	
Construction Cost Estimate	\$ 2,800,000
Topographic Survey	\$ 50,000
Engineering and Design	\$ 420,000
Permitting and Testing (Soils / Geo-Technical)	\$ 140,000

Hufnagle Park Performance Venue
& Stream Restoration

General Cost Estimate \$ 3,700,000

Funding Strategy:

- Local Match \$ 800,000
 - Private Donor for Stage Amphitheater
 - Private Donors for Playground
 - Municipal – Cash and In-Kind Donation
- State Funding \$ 1,900,000
 - PA DCNR – C2P2 Funding for Nature Plan, Stream Access & Wetlands
 - PA DCNR – TreeVitalize Program – Riparian Buffer, Park & Downtown Grove Plantings
 - PA DCED – The Agency Single Application will get access to DCED’s numerous programs including: Community Revitalization, Alternative and Clean Energy Program, Community Development Block Grants and Disaster Recovery Grants, Flood Mitigation Program, Greenways, Trails and Recreation Program, Growing Greener II, H2OPA – Flood Control Projects, Keystone Communities Program, Marketing to Attract Tourists, Multimodal Transportation Fund, Municipal Assistance Program, Neighborhood Assistance / Enterprise Zone Tax Credit, Pennsylvania Infrastructure Investment Authority (PennVEST), Watershed Restoration and Protection Program,
 - PA DEP – Environmental Education Grants for interpretive signage, Growing Greener Watershed Protection Grants, Nonpoint Source Implementation Program Grants, Nonpoint Source Pollution Educational Mini-Grants for environmental education materials.
 - Act 13 – Marcellus Legacy Funds for treatment wetland plantings and pedestrian bridge
 - PA Council on the Arts -
 - Act 13 – Marcellus Legacy Funds
- Federal Funding \$ 1,000,000
 - USDA – Community Facilities Direct Loan & Grant Program
 - National Fish and Wildlife Foundation – Chesapeake Bay Stewardship Fund, Chesapeake Implementation Grant, for Watershed Assessment, Design, Permitting and Stream Restoration
 - US EPA 319 Grants

Bull Run Greenway

Town Green Park

Description:

Town Green is a found space at the heart of the community that offers a unique space for both active recreation and quiet contemplation. The space offers parking less than a block from Market Street and an expanded parking area, using pervious grid pavers, will add an additional 36 spaces. The stream channel will be restored and floodplain expanded to help reduce the risk of nuisance flooding to surrounding properties. A natural amphitheater will offer an additional venue for the downtown – offering an intimate space for small, acoustic performances. The stage, created with pavers and lawn will also serve as a giant chess board. Situated above the natural amphitheater, build on the railroad piers and abutment, is the Deck Overlook. The overlook is accessed by the Buffalo Valley Rail Trail, and is designed as a rest area for the trail, a place to watch performances, and as a strategic site to view and perceive the extent of the Bull Run Greenway open space offering views towards the central performance stage, Kidsburg, and Bucknell. The Town Green, with its railroad piers as artifact from its transportation past, offers a space for creative exploration. The space is one that can accommodate the unique and different while fitting into context. As such the space is ideal for art – from sculptural displays to murals on the piers. The site is also one of greenery and solitude that can be enhanced with planting of trees and shrubs, and would offer an ideal place to experiment with edible landscaping and food forest plantings. The piers could serve both as canvas and display for art and sculpture, support for grapes and other edible fruits, and be art itself with creative up-lighting to create a unique visual display. The piers could also offer an opportunity for unique active recreation as climbing wall or features of a bike park featuring both skill features, flow trails and pump track. Additional acquisition of flood prone properties could create an improved and direct connection between the park and Market Street – offering the adjacent business an opportunity to offer outdoor, streamside seating.



Elements:

- Buffalo Valley Rail Trail – Connector Trail to 6th Street
- Stream Restoration and Access
- Floodplain Expansion
- Public Art – mural, sculpture and performance space
- Natural Stage and Amphitheater
- Giant Chessboard
- Deck Overlook
- Adult Swings
- Public / Private Streamside Patio
- Informal Seating
- Park Landscaping
- Stormwater Day-lighting
- Riparian Buffer and Wetland Plantings
- Edible Landscape and Food Forest Plantings

- Bicycle Skills Park – skill features, flow trail and pump park
- Park, Trail and Pier Lighting – explore potential of solar lighting
- Flower and Fruit Trellis on Piers
- Environmental Education / Interpretation
- Flood Resilient Community Design

Partners:

- Lewisburg Borough
- Bucknell University
- Private Businesses
- Lewisburg Downtown Partnership
- Lewisburg Neighborhoods Corporation
- Buffalo Valley Recreation Authority
- Union County
- Susquehanna Greenway Partnership
- PA Department of Conservation and Natural Resources
- PA Department of Community and Economic Development
- PA Department of Environmental Protection
- PA DCNR – Tree Vitalize Program
- National Fish and Wildlife Foundation

Cost Estimates:

Demolition and Site Preparation	\$ 350,000
Stream Restoration & Floodplain Expansion	\$ 500,000
Natural Amphitheater	\$ 125,000
Stormwater Daylighting	\$ 50,000
Lower Level Stabilization & Drainage	\$ 35,000
Bike Skill Park	\$ 35,000
Climbing Wall	\$15,000
Pier Trellis and Flowering Vines	\$ 35,000
Overlook Deck	\$ 65,000
Trees and Landscaping	\$ 50,000
Edible Landscape & Food Forest	\$ 25,000
Park Walkways ADA - 500LF	\$ 60,000
ADA Parking Accommodations	\$ 10,000

6 th Street Connector Trail - 500LF 10' Asphalt	\$ 40,000
Park Lighting – Solar Pier Uplighting	\$ 35,000
Streamside Patio	\$ 45,000
Stream Access Trails (1)	\$ 5,000
Benches (6)	\$ 7,000
Informal Seating Stones	\$ 5,000
Art / Sculpture	NOT INCLUDED
Solar Car Charging Station	NOT INCLUDED
Swing Seats (3)	\$ 8,000
<hr/>	
Construction Cost Estimate	\$ 1,500,000
Topographic Survey	\$ 30,000
Engineering and Design	\$ 225,000
Permitting and Testing (Soils / Geo-Technical)	\$ 75,000
10% Contingency	\$ 150,000
<hr/>	
Town Green Park & Stream Restoration General Cost Estimate	\$ 2,000,000

Funding Strategy:

- Local Match \$ 300,000 (15%)
 - Private Businesses –
 - Private Foundations -
 - Bucknell University -
 - Municipal –
- State Funding \$ 850,000 (42.5%)
 - PA DCED – Community Development Block Grants
 - PA DCED – Greenways, Trails and Recreation Program
 - PA DCED – Growing Greener II and Keystone Communities Program
 - PA DCNR – C2P2 Funding
 - PA DCNR – TreeVitalize Program – Riparian Buffer, Park Plantings
 - PA DEP – Environmental Education Grants
 - PA DEP – Watershed Protection Grants
 - Act 13 – Marcellus Legacy Funds
- Federal Funding \$ 850,000 (42.5%)
 - USDA – Community Facilities Direct Loan & Grant Program

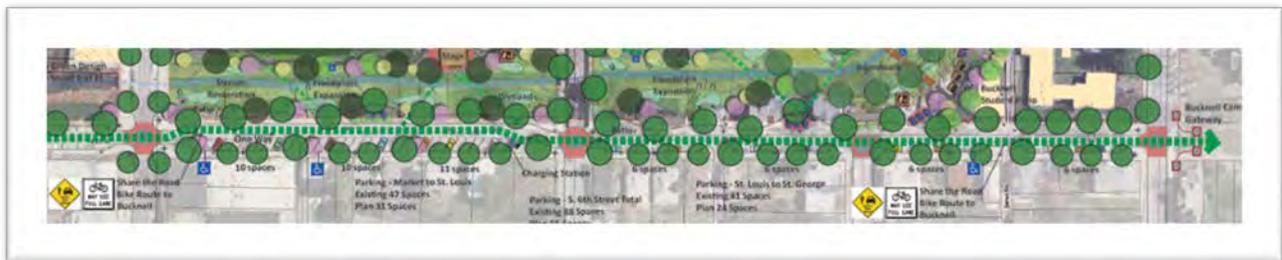
- National Fish and Wildlife Foundation - Stream Restoration
- EPA 319 Grant Program
- US Fish & Wildlife Service

Bull Run Greenway

The 6th Street Town – Campus Gateway

Description:

The transformation of 6th Street will create a physical connection between the community's two greatest assets – Historic Downtown Lewisburg and Bucknell University. The redesign will deemphasize the automobile in favor of a more pedestrian and bicycle friendly streetscape. The tree-lined street will become a one way (south towards Bucknell), share the road route that will allow bikes to take the entire lane. The curb on the east side of the street will be eliminated to enhance ADA accessibility. Vehicle and pedestrians separation will be created with bollards, and the expanded sidewalk will consist of pervious pavers with a curved, flowing edge to transition from street to stream. Run off from the street will be captured and pre-treated before discharge in the stream by day-lighting the drainage system and filtering water through a series of biofiltration swales and wetlands. The street will create efficient and safe bicycle route to Bucknell University, exiting the Buffalo Valley Rail Trail and merging with 6th Street in Town Green Park. The streetscape will also seek to be a 21st century alternative transportation route by providing electric car recharging stations. The streetscape will be lit with energy efficient and night-sky friendly lighting. In addition to providing efficient movement of pedestrians and bikes – the street will also encourage people to stop and relax with amenities like patios with tables and moveable seating, adult swings, benches and informal seating overlooking a green, restored stream.



The Bucknell University end of 6th Street will create a 'gateway' to the campus. The space will also offer students some unique features and communal spaces not found elsewhere on campus including: streamside student patio, night lighting, solar powered study shelters, bike shelters and bike rentals, bocce, slack line, swings, and applied research and outdoor classroom opportunities.



Elements:

- 6th Street - One-Way Street and Share the Road Designation
- Street Tree Plantings
- Patios with moveable tables and chairs
- Adult Swings
- Expanded Sidewalk with Pervious Pavers
- Bollards – separating street and sidewalk
- Stream Restoration and Access
- Floodplain Expansion
- Stormwater – day-lighting, collection, biofiltration and pre-treatment in wetlands
- Informal Seating – overlooking the stream
- Crosswalks and Traffic Calming at all intersections
- Park Lighting – new energy efficient and night-sky friendly lights
- Nature Play area
- Outdoor Classroom / Movie Night Accommodations
- Riparian Buffer Plantings
- Bucknell University Gateway
- Student Patio
- Bocce Courts
- Wi-Fi Hot Spot
- Outdoor Study Area / Shelters
- Bike Storage
- Bike Rental
- Emergency Call Box
- Outdoor Classroom / Applied Research Area
- Environmental Education / Interpretation
- Flood Resilient Community Design

Partners:

- Lewisburg Borough
- Bucknell University
- Lewisburg Downtown Partnership
- Lewisburg Neighborhoods Corporation
- Union County
- SEDA-COG MPO
- Buffalo Valley Recreation Authority
- Susquehanna Greenway Partnership
- PA Department of Conservation and Natural Resources
- PA Department of Community and Economic Development
- PA Department of Environmental Protection
- PA DCNR – Tree Vitalize Program
- National Fish and Wildlife Foundation

Cost Estimates:

Demolition and Site Preparation	\$ 150,000
Stream Restoration & Floodplain Expansion	SEE- KIDSBURG AND HUFNAGLE PARK COSTS
Street Reconstruction	\$ 750,000
Walkway and Patios	\$ 550,000
Utility Relocation Underground Utilities	\$ TBD
Electric Car Charging Station	\$ TBD
Street Lighting (13)	\$ 130,000
Park Lighting (15)	\$ 130,000
Bollards (20)	\$ 40,000
Innovative Stormwater Treatment	\$ 125,000
Benches (12)	\$ 16,000
Swing Seats (12)	\$ 32,000
Seating Wall / Informal Seating	\$ 65,000
Swing Seats (3)	\$ 8,000
Crosswalks and Traffic Calming (4) Intersections	\$ 125,000
Bucknell Gateway	\$ 250,000
Bucknell Student Patio & Recreation Area	\$ 450,000
<u>Land Acquisition (0.33 Acres)</u>	<u>\$ 40,000</u>
Construction Cost Estimate	\$ 2,850,000
Topographic Survey	\$ 40,000
Engineering and Design	\$ 420,000
Permitting and Testing (Soils / Geo-Technical)	\$ 130,000
<u>10% Contingency</u>	<u>\$ 280,000</u>

6th Street – Town – Campus Gateway
General Cost Estimate \$ 3,720,000

Funding Strategy:

- Local Match \$ 558,000
 - Bucknell University –
 - Private Donors –
 - Municipal –
 - Private Foundations -
- State Funding \$ 1,581,000
 - PA DCED – Community Development Block Grants
 - PA DCED – Greenways, Trails and Recreation Program
 - PA DCED – Growing Greener II and Keystone Communities Program
 - PA DCNR – C2P2 Funding
 - PA DCNR – TreeVitalize Program – Riparian Buffer, Park & Downtown Grove Plantings
 - PA DEP – Environmental Education Grants for interpretive signage, environmental education materials
 - PA DEP – Alternative Fuels Incentive Grants
 - PA DEP – Watershed Protection Grants
 - Act 13 – Marcellus Legacy Funds for treatment wetland plantings and pedestrian bridge
- Federal Funding \$ \$ 1,581,000
 - National Fish and Wildlife Foundation - Stream Restoration
 - EPA 319 Grant Program
 - US Fish & Wildlife Service
 - USDA

Bull Run Greenway

Daniel Green Park and Community Gateway

Description:

Daniel Green Park will provide more diversity and an opportunity for 4-season use of the park space. The Little League field drainage issue will be greatly improved with the installation of a subsurface drainage system and lowering of the adjacent land to create positive drainage from the field. Off street parking will provide park users with direct access to the park without having to cross N. 7th Street. Playground options will be expanded to offer age-appropriate space for tot and younger children, with the tot play area conveniently located for parents adjacent to the ball field bleachers. The field will also feature batting cages and practice pitching areas – but now in a different location. In addition to baseball and its support facilities, and playgrounds, the park will create a multi-use court suitable for 3-season court games and skating, as well as one that can be flooded in winter for ice skating and hockey. The overhead frame of the batting cages can be transformed in winter to create a warming hut in winter or stage for concerts during the rest of the year. The park will now be accessible by the Buffalo Valley Rail Trail with trails linking into the park, as well as a small trail head with parking and kiosk at the back of the Antique Stores existing parking area. The stream will be restored and bring more landscaping and greenery into the park. The Borough will consider acquisition of the Culligan property to relocated the existing tee-ball field away from the stream and to create an aesthetic community gateway at St. Louis Street on the east side of Route 15.

Elements:

- Little League Field – Improved Drainage
- Off Street Parking
- Batting Cages and Practice Pitching Areas
- Stream Restoration and Access
- Floodplain Expansion
- Multi-Use Court
- Courtside Seating
- Tot Playground
- Playground
- Ice Skating and Warming Hut
- Buffalo Valley Rail Trail – connection trail
- Buffalo Valley Rail Trail – trail head parking and kiosk
- Park Landscaping
- Stormwater Day-lighting
- Riparian Buffer and Wetland Plantings
- Food Forest Edible Landscaping
- Environmental Education / Interpretation
- Flood Resilient Community Design
- Land Acquisition and Park Expansion
- New Tee-Ball and Practice Field
- Community Gateway – gateway, signage and landscaping



Partners:

- Lewisburg Borough
- Lewisburg Little League and Little League International
- Private / Business Sponsors
- Lewisburg Downtown Partnership
- Lewisburg Neighborhoods Corporation
- Buffalo Valley Recreation Authority
- Union County
- Susquehanna Greenway Partnership
- PA Department of Conservation and Natural Resources
- PA Department of Community and Economic Development
- PA Department of Environmental Protection
- PA DCNR – Tree Vitalize Program
- National Fish and Wildlife Foundation

Cost Estimates:

Demolition and Site Preparation	\$ 250,000
Stream Restoration & Floodplain Expansion	\$ 500,000
Bioswales and Wetlands	\$ 75,000
Lower Level Stabilization & Drainage	\$ 35,000
Parking Area	\$ 150,000
Little League Field Drainage System	\$ 100,000
Trees and Landscaping	\$ 50,000
Park Walkways ADA - 500LF	\$ 35,000
ADA Parking Accommodations	\$ 10,000
Park and Field Lighting (10)	\$ 130,000
Stream Access Trails (1)	\$ 5,000
Benches (6)	\$ 7,000
Move / Replace Batting Cages & Pitching Areas	\$ 50,000
Multi-Purpose Court / Ice Rink	\$ 110,000
Tot Lot Playground	\$ 50,000
Community Gateway	\$ 250,000

Buffalo Valley Rail Trail Head & Kiosk	\$ 35,000
Informal Seating Stones	\$ 5,000
Land Acquisition – 1.3 Acre Site	\$ 200,000
Replacement T-Ball Field w/ Bleachers, fencing, walls	\$ 450,000
<hr/>	
Construction Cost Estimate	\$ 2,500,000
Topographic Survey	\$ 40,000
Engineering and Design	\$ 375,000
Permitting and Testing (Soils / Geo-Technical)	\$ 125,000
10% Contingency	\$ 250,000
<hr/>	
Daniel Green Park & Stream Restoration General Cost Estimate	\$ 3,300,000

Funding Strategy:

- Local Match \$ 500,000
 - Municipal – Engineering, Design, and Permitting Costs
 - Private / Business Sponsors
 - Little League
- State Funding \$ 1,400,000
 - PA DCED – Community Development Block Grants
 - PA DCED – Greenways, Trails and Recreation Program
 - PA DCED – Growing Greener II and Keystone Communities Program
 - PA DCNR – C2P2 Funding
 - PA DCNR – TreeVitalize Program – Riparian Buffer, Park Plantings
 - PA DEP – Environmental Education Grants
 - PA DEP – Watershed Protection Grants
 - Act 13 – Marcellus Legacy Funds
- Federal / Other Funding \$ 1,400,000
 - Little League International
 - National Fish and Wildlife Foundation - Stream Restoration
 - EPA 319 Grant Program
 - US Fish & Wildlife Service

**EXAMPLE:
PROJECT CONSTRUCTION SCHEDULE**

<i>PROJECT</i>	<i>TASKS</i>	<i>TIMING</i>
Kidsburg Recreation Initiative	Watershed Assessment	6 Months
	Engineering Design	1 Year
	Permitting	1.5 Years
	Funding Procurement	2 Years
	Construction	3 Years

PREPARATION OF FUNDING REQUESTS

**PREPARATION OF GRANT APPLICATION –
NATIONAL FISH AND WILDLIFE FOUNDATION**

BSA / LA and LandStudies assisted Lewisburg Borough to procure a National Fish and Wildlife Foundation – Technical Assistance Program Grant – to assess Bull (Limestone) Run stream channel and develop a watershed restoration strategy for the watershed.
September 2015

**PREPARATION OF GRANT APPLICATION –
PA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES**

BSA/LA assisted Lewisburg Borough prepare a PA Department of Conservation and Natural Resources, or PA Department of Community and Economic Development (or equivalent) grant application for the implementation of the identified priority project – the Kidsburg Recreation Initiative.
April 2016

APPENDIX

Master Site Development & Greenway Plans

The Bull Run Greenway -

“A master plan to interconnect Lewisburg’s downtown parks”

Bull Run Greenway – Master Site Plan – North - sheet 1 of 2

Bull Run Greenway – Master Site Plan – South - sheet 2 of 2

Master Site Development & Greenway Plans



PROJECT CD

FINAL REPORT

Bull Run Greenway – Site Inventory and Analysis REPORT (pdf)

BULL RUN GREENWAY MASTER PLANS

Bull Run Greenway – Master Site Plan – North - sheet 1 of 2 (jpg)

Bull Run Greenway – Master Site Plan – South - sheet 2 of 2 (jpg)

IMAGES

Assortment of photos, maps, historic surveys, illustrations and ‘idea images’

SURVEY AND DEED

Survey Boundary Plan and Description

Certificate of Title and Deed Restrictions

SITE INVENTORY AND ANALYSIS

Bull Run Greenway – Site Inventory and Analysis REPORT (pdf)

PNDI (PA Natural Diversity Index) Report

PA Natural Diversity Index Report for Study Area

Elktoe Description – Species of Concern

Green Floater Description – Species of Concern

PARK USER SURVEY

Park User Summary (pdf)

PROJECT CD

