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City of Shamokin Public Steps Study and Analysis

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City of Shamokin Public Steps Study and Analysis



A project of Bucknell University's Geography 260: Exploring Sustainable Communities Class:
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Executive Summary

“You don’t meet other people while driving in a private car, nor often in a bus or trolley. It’s on foot that you see people’s faces and statures and that you meet and experience them. That is how public socializing and community enjoyment in daily life can most easily occur. And it’s on foot that one can be most intimately involved with the urban environment; with stores, houses, the natural environment, and with people.” (Allan B. Jacobs "Great Streets")

Introduction

Some of our most memorable experiences take place in public spaces like squares, parks, and community spaces. A lot of these spaces are accessible only on foot. So, accessing all public spaces by walking and improving the overall walkability of a town or city is crucial to connecting communities and decreasing spatial distance. A walkable community makes a town and city more livable and vital to all. Walkability is the most fundamental form of transportation and is a part of every trip that we make. By making a community walkable, public spaces become more accessible to all. Walkable neighborhoods, towns, and cities are crucial to connecting neighborhoods and creating a sense of space and place that helps create a thriving community. Walkable modes of transportation and walking for recreation helps to promote a healthy lifestyle and helps reduce carbon emissions. In order to have a successful walkable city certain criteria must be met to plan properly for the pedestrian - there must be a place for people to walk, sit, stand in public spaces, or use a wheelchair, be they children, teens, adults, elderly, people with disabilities, workers, residents, shoppers or people watchers. Pedestrian-oriented design is accessible design for all people regardless of race, gender, age or social demographics.

Project Aims and Goals

Bucknell University’s *Geography 260: Exploring Sustainable Communities* course was invited by the Anthracite Region for Progress, Northumberland County Planning Office, and the City of Shamokin to conduct a study and analysis of the public steps in Shamokin. Under the direction of Dr. Shaunna Barnhart, Director of the Place Studies Program in Bucknell’s Center for Sustainability and the Environment, the team was tasked with conducting a historical analysis and reference of the public steps, noting the current status and condition of the steps, and completing a spatial analysis to determine the importance and value of opening the steps in an effort to reconnect neighborhoods and the downtown business district. Additionally, surveys of local residents and business owners were conducted to gauge public perception on and potential future use of the steps as a mode of walkable transportation and recreation. An analysis was also conducted to identify any potential challenges in repairing, reopening and maintaining the public steps.

History of Public Steps and Current Condition

The City of Shamokin is interested in restoring nine public steps placed strategically throughout the city that connect neighborhoods that are typically at a higher elevation relative to one another. The steps were originally installed to connect neighborhoods and offer walkable transportation to and from work, typically coal mining and factory jobs, as well as places of recreation such as parks and ballfields, and also connected neighborhood schools. In their peak use, they were the most popular mode of transportation. Currently, most of the steps are in disrepair, unusable and are closed off with gates. Only four of the public steps in this study are

open and five are closed. The four that are currently in use are also in disrepair and have been maintained by community members who use the steps to access their homes.

Results

Based on the research, it is clear that the steps have historical significance and importance to the Shamokin community. Many historical references were found demonstrating that the steps were an important part of everyday life to the Shamokin community and were integral to creating and connecting various parts of the city. Results based on the spatial analysis conducted suggests that the public steps provide an important physical connection to neighborhoods by connecting sidewalks of neighborhoods with drastically different elevations. The spatial analysis suggests that repairing and restoring the public steps is a key element in a campaign to make Shamokin a more walkable and pedestrian-friendly city. The results from prior studies discussed herein also suggest that repairing the public steps should be a priority in reducing blight and aging infrastructure. This is a key element in stabilizing real estate values in Shamokin.

Recommendations

The results of the study suggest the repair and restoration of the nine public steps throughout the City of Shamokin, with the addition of Dark Sky Compliant Lighting, will provide multiple community benefits. Further infrastructure like marked permanent pedestrian crosswalks along with permanent pedestrian signage within the guidelines of PennDOT should be considered. A campaign by the City of Shamokin to educate and enforce current Pennsylvania pedestrian laws in an effort to change the culture around pedestrian rights is recommended. Establishment of a fitness loop incorporating the public steps, sidewalks, crosswalks, parks, and points of interest would add an additional benefit to this public infrastructure.

Introduction

Contemporary human progress has been tarnished by unsustainable development practices that have damaged both human and natural environments, and have rendered once sustainable city infrastructures, like public walkways, as a nuisance. It is the role of all people, from small community blocks to large metropolitan cities, to enact sustainable development practices. A sustainable community seeks to protect and enhance the environment, meet social needs, and promote economic success in the pursuit of creating and maintaining a thriving community. Such a shift can happen at the grassroots or individual level and still be effective. Local and regional sustainability initiatives can be as simple as consuming locally sourced foodstuffs to supporting local commercial business owners. This promotes local self-sufficiency and allows for smaller scale communities to be more secure and stable from vulnerabilities such as environmental and economic decline. Sustainable community development practices are effective and imperative in today's world.

There are multiple models for sustainable change that can be used at multiple scales (Cleveland Model, Transition Towns, Smart Growth, etc.). The New Urbanism approach to sustainability focuses on human scaled development with walkable blocks and streets, housing, and commercial activity in close proximity designed for people (Niesenbaum 2019). Communities should be built for people, at a human-scale, because when you give people more access to public spaces, it creates a thriving community. Walking is the most popular form of transportation in the world and also more environmentally and cost-effective than a motor vehicle. Walkable neighborhoods provide the residents easier access to public spaces, and thus improve livability and a community's sense of place. Walkable neighborhoods also lead to a healthy population because people are more active or more likely to be active.

Bucknell University's *Geography 260: Exploring Sustainable Communities* summer 2019 course was invited by the Anthracite Region for Progress, Northumberland County Planning Office, and the City of Shamokin to conduct a historical, spatial, and a present-day analysis of the public steps in Shamokin, PA. Through experiential visits to nine public steps the class was able to delve into the utility and current condition of these steps. The nine steps have been underutilized and neglected places in the community and are in need of redevelopment. This project supports the City of Shamokin's Multimodal Transportation grant application to the Pennsylvania Department of Community and Economic Development.

Shamokin Context

The City of Shamokin was founded as a borough in 1864 and then incorporated as a city in 1949 as it had grown into a manufacturing and coal mining boom town with the growth of the anthracite coal mines in the area. In addition to mining, the city boasted some of the largest textile mills in the country and saw significant growth in the late 19th and early 20th century. Shamokin's population peaked in the 1920 census at just over 21,000 residents in the .83 square mile city. During this time period, most of the city population was employed locally and utilized the public stairs to walk to and from work in the various factories and mines and to access the booming business district which included one of the early Edison electrical generating plants.

Since the 1920s, the mining and textile industries that previously occupied Shamokin have gradually closed or moved overseas. This has led to a significant decrease in the

employment opportunities in the area and a subsequent population decline to the current level of around 7,000 residents, with a poverty rate of 24%. This decline has led to a significantly smaller tax base which has hampered efforts to provide government services, including repairs and maintenance of the public steps, which have fallen into disrepair and have been closed in some places. While the majority of American households own 2 or more cars, the rates of car ownership in Shamokin are lower with 7.27% of households with no car (4.37% nationally) and 30.7% with just one car (20.9% nationally). Public transportation in Shamokin is limited. Therefore, renewing the walkability of the city by restoring and reopening the steps would be a valuable community asset to improve mobility in the city.

Literature Review

Introduction

From the multiplicity of world cultures to the intricacies of human development and the environment, engaging in sustainable development practices are a step forward in human progress. The world is inherently interdependent and it is the role of all people, from government institutions to grassroots neighborhood initiatives, to lead a path towards a healthy and more resilient sustainable community for all people. A sustainable community seeks to protect and enhance the environment, meet social needs, and promote economic success. One way to achieve this is through “new urbanism.” A New Urbanism approach to sustainable communities focuses on human-scale urban development with walkable blocks and streets, and also the redevelopment of underutilized and neglected places (housing, shopping, plazas, etc.) (Niesenbaum 2019). Walkable neighborhoods are important for public health, the local economy, and livability and sense of place for members of the community.

Members of a sustainable community should be empowered to participate in decision-making. Unpaid work, such as volunteering, should be valued. Knowing that your decisions and actions have a real social and community impact can help develop a sense of place. Sustainable communities also create and enhance places and spaces that work well, wear well, and look well to improve people’s livability and health. There should be access to various public facilities (such as walkways), services, and goods in order to create a healthy and vibrant local economy. Public walkways can increase recreation and commercial economic activity by providing members of the community access to various places. They may also encourage people to make less use of the car and minimize the impact on the environment. Enhancing public walkways is one step towards implementing a New Urbanism approach to create a sustainable community.

Walkable communities have many benefits including increased sustainability, sense of place, and livability along with a positive effect on resident health, although some of the most quantifiable are the economic benefits to the community. The positive economic impacts stemming from walkable communities include increasing property values for residential areas, fewer foreclosures, fewer reported crimes, economic benefits from improved overall health, and resilience during recessions.

Sense of Community & Livability

There are multiple elements of a town or neighborhood, including its physical design, and social and spatial relationships which determine some of the ways in which residents feel connected to their home and foster a sense of community. Muhammad Ahmad's study on "Sustainability: Moderating the Role of Sense of Community" reveals some of the key measures being a unified commitment to proactive involvement, feeling of belonging, and "integration and fulfillment of community needs" (Ahmad 2016). When residents can develop this connection with their community, they come to an empowered state of acting not only for themselves, but also for the good of those who they share their home with and in the interest of its lasting ability to exist and thrive. In order to reach this social cohesion, members must feel as though they have influence in the community and that the community will also be structured to help fulfill community needs. Ahmad concludes that maintaining such community participation and involvement can be best met through group social interaction, which in turn allows group empowerment, promotes social intimacy, suppresses crime rates and is influential in supporting and sustaining long term community projects.

Hassen and Kaufman's study "Examining the role of urban street design in enhancing community engagement," looks to break down the physical embodiment of a town in order to advance the understanding of elements of infrastructure and aesthetics which move community engagement. They find evidence that the "aesthetics and upkeep" of a street overall played a strong role in determining community interaction such that streets containing graffiti, litter and "overall disadvantage" reflected poor community interaction (Hassen and Kaufman 2016). Greenspaces (flower boxes, planters, parks, grass area for children) overwhelmingly holds up as a positive influence on community engagement and social interaction as the study concludes green space promotes feelings of a shared sense of place amongst community members and activates civic engagement. Walkability and walkable street design was the overarching most prevalent factor in resulting community engagement - interacting with neighbors, spending time outdoors within your town, and developing a sense of belonging. Walkability and connection to the town are also greatly beneficial to the elderly population in communities, helping them to stay involved and feel included in their community while also promoting physical benefits of walking rather than driving or public transport.

The trickle down effects of industry departure from towns and regions whose functionality and stability was dependant upon said industry, is a catalyst of decline and can make community sustainability an incredibly difficult feat. Richard C. Sadler and Natalie K Pruet's study "Mitigating blight and building community pride in a legacy city" follows the unravelling when industry leaves. There are fewer jobs to be offered, residents leave the area, and the town is left with a hole in the economy which was once supported by a lucrative industrial pillar. This shift in economic base can increase building vacancy which leads to physical decline that can be followed by increases in crime and disorder. These changes in turn make residents much more hesitant to be engaged with their community (Sadler and Pruet 2017). However, Sadler and Pruet illustrate the reversal effect which greening programs, "defined here as maintenance which improves the quality of greenspace at an abandoned house/commercial business or on a vacant lot, especially lawn mowing, shrub/tree trimming, and garbage clearance", have on community participation, strength, and rejuvenation of depressed towns (Sadler and Pruet 2017, p 594). Greening programs showed

overwhelming benefits both in combating blight in communities facing disinvestment and also providing community members with a joint purpose and inclusivity for the betterment of their neighborhood.

Quality of life and community morale can be affected by a number of spatial and psychological elements which Channel, Monk-Turner, and Payne study in their analysis of the broken windows theory and the ways in which crime, town disorder, and the safety of an environment impact community morale. Specifically, assessing the relationship between quality of life and town disorder, after accounting for a number of variables such as income and education, the data revealed there was a strong link between physical disorder within a town and a low quality of life amongst its residents. Respondents were asked a series of questions reflecting upon both physical and social disorders, which proved the “broken window” theory to be correct, to say that issues such as deteriorating infrastructures, litter, and disorganization within neighborhoods are a legitimate detriment to the resident’s quality of life. Residents feel a natural degradation of community pride and morale when they feel as though their town’s surrounding structural and aesthetic elements are neglected the necessary care and resources to uphold its physical and intangible integrity.

Place Making and Tourism

While sense of place and belonging is crucial for vibrant communities, place also plays a role in furthering efforts for tourism. “Place” is a symbiotic relationship between “space” and the “meanings” (Yi-Fu Tuan 1979). Understanding the relationship between tourists and places as well as the psychology of space, place, and tourism can help a community provide a better experience. The relationships of individuals, spaces, and their experience helps create a sense of place and creates the setting for the types of attitudes and behaviors they will have about places they visit. By understanding the relationship between tourism and places and the psychology of space and place, communities can develop a framework and comprehensive plan to improve their community. Frederico D’Orey (2019) suggests that “Sense of Place” comes from four fundamental elements of individual experience with places: the characteristics of the environment, the interactions and behaviour of the individuals in relation to their surroundings, the meanings as social construct of experience with the attributes of physical spaces, and perceptions as affection, satisfaction, or identity in relation to the surrounding space (D’Orey 2019). These four elements that contribute to a sense of place can create a desirable tourist destination in an already competitive market. These experiences that a tourist has can also strengthen their commitment to a place and the affection they have for a destination can create an identification with a place.

Walkability Framework

One way to improve sense of place, belonging, and to further place making initiatives is to focus on human-scale development, such as making towns more walker-friendly. Walkable communities can create a strong sense of belonging amongst community members who feel as though they are part of a greater network of individuals who share the same home, and this in turn may encourage them to be involved in its positive development and sustainability efforts. Analysis shows a strong positive correlation between community empowerment and sustainability, and community empowerment and sense of community (Zuniga-Teran 2017). A

research study by Zuniga-Teran explored the relationships between walkability and interactions between the built environment. A walkability framework was created that organizes design elements into nine walkability categories: Connectivity, Land-Use, Density, Traffic Safety, Surveillance, Parking, Experience, Greenspace, and Community. From these nine walkable categories a point system is given to each category in an effort to calculate an overall walkability score of a neighborhood for both transportation and recreation purposes. The findings suggest that there is a direct link between the physical environment and how that affects the walkability of a neighborhood and how that can influence the decision to walk for transportation and recreation. The results of the study also suggest that the Walkability Framework can work as a model to measure the built environment in relation to its ability to promote physical activity. Findings suggest that the use of the Walkability Framework as a model to measure the built environment in relation to promoting walking and physical activity can be beneficial in helping design a more walkable community.

Community Health

Walkable communities do more than create a sense of place; they also have an impact on community health. Lack of exercise is a critical issue in many communities in the United States, as it contributes to several chronic diseases including obesity, cardiovascular disease, depression, and diabetes (Kaczynski 2010). Lack of exercise is also one of the top 3 modifiable risk factors for premature death, which likely contributes to the significantly lower life expectancy in Shamokin compared to other towns in the region. Residents of Selinsgrove, just 17 miles from Shamokin, have a 17 year longer life expectancy than residents of Shamokin (Scicchitano 2019). The economics of this issue are staggering, in 1995 dollars inactivity accounted for \$24 billion in US health care expenditures and obesity related costs incurred an additional \$70 billion (Kaczynski 2010). While large scale projects are clearly needed to fully address this issue, small scale projects like the steps in Shamokin could easily reduce local medical expenses for residents and the state, while improving quality of life.

While sometimes underestimated and overlooked, improved walkability of communities can be impactful for residents' health. Specifically, more walkable communities have had positive impacts on body mass index versus those communities with lower walkability (Sallis et. al, 2009, Cauwenberg et. al. 2016; Frank et. al. 2006). This could be from the fact that in those communities with higher walkability versus lower, the average moderate to vigorous physical activity (MVPA) was higher (Sallis et. al 2009). This improvement in residents' BMI is just one part of health benefits from higher walkability. Very similarly, it is shown that walkable communities also have positive impacts to residents' obesity rates (Fenton 2005; Hall 2012) as well as heart health (Younger et. al. 2008). This is due to the fact that a more walkable community encourages people to be more active (Hall 2012). Other studies show that the neighborhood design "influences health by affecting physical activity, respiratory and cardiac health," and more (Younger et. al. 2008). These effects apply to people of all ages as well. More specifically, walkable communities have been shown to benefit older people with important positive impacts on their health such as improved BMI and lower obesity rates (Cawenberg et. al. 2016). These studies show a culmination of research that creates a distinct narrative of how residents' health is positively impacted by a more walkable community.

While the direct effect on people's health is extremely important, there is another factor that is often overlooked, which is the how the decrease in transportation affects the community. It has been observed that in communities that are more walkable, there is a notable decrease in the use of cars, since people are walking as an alternative. This causes the air pollution of the area to be relatively lower in these communities (Brown 2015; Frank 2006). Not only is the impact to the environment lessened, but energy consumption and emissions are reduced. These emissions often contain harmful small air particles that have been linked to cardiovascular and respiratory diseases (Frank 2006). The decrease in these emissions and increase to air quality should be considered a key benefit of walkable communities. The potential health benefits, both direct and indirect, that come with increased walkability should not be ignored.

Local Economy

Walkable communities also appear to stimulate local economic growth, which can help to revitalize business districts like the one in Shamokin. Similarly, a study analyzing the benefits of walkability in Williamsburg (an outlying neighborhood of Ontario) showed that increased walkability led to increased use of local businesses. Residents interviewed, most of whom had lived in the area for less than two years, described establishing routines based on the ability to walk their children to school and then pass through the business district on their way home to run multiple errands locally instead of at big box stores, “like how I can check off a bunch of 'to-dos' in one trip ... groceries, prescription, bank, even get my nails done if I want! (laughs). Seriously though, it helps you save time” (Kaczynski 2010, p.5). Some residents have even gotten to the point where they prefer walking: “I don't want to move now. I can walk to the grocery store, I can walk to the post office. I have everything I need, which makes it easier as a parent with young kids. I prefer walking if I can as opposed to loading and unloading them from the car” (Kaczynski 2010, p.5). If replicated, these trends could significantly improve the viability of downtown businesses in Shamokin, leading to significant revitalization.

Real Estate Market

It has been shown that by creating easy to access walking paths within residential areas, there is an increase in land value, which drives the desirability of the residential real estate in that area. Stephanie Yates Rauterkus and Norman G. Miller's study on “Residential Land Values and Walkability” provides evidence for the notion of walkability's economic effect on the value of residential areas. During the study, they tested the effect of walkability by using linear regressions and creating a “Walk Score” by which to measure the differences in walkability. The Walk Score rates how well individuals could live without a car in a certain location on a 100-point scale. Population growth and lot size were both controlled in the experiment, and the result was that land values steadily increased as walkability of a neighborhood increased. These results were especially clear when neighborhoods were located near the central business district of the town. Based on their findings, they advised that the strongest walkable neighborhoods should be located close to a central business district, older communities, or a university (Yates Rauterkus and Miller 2011). That being said, this study shows that there can be a clear economic impact when neighborhoods become more walkable.

In addition to real estate and land values, creating a more walkable community has brought about more unexpected economic promotions. In John I. Gilderbloom, William W. Riggs, and Wesley L. Meares' study "Does Walkability Matter? An Examination of Walkability's Impact on Housing Values, Foreclosures and Crime," the same Walk Score metric is used to calculate walkability's effect on not just the land and housing values--as Rauterkus and Miller showed--but on walkability's economic effects on foreclosures and crime in neighborhoods. Gilderbloom, Riggs, and Meares' findings further supported Rauterkus and Miller's work, showing a statistically significant increase on land and housing values when the neighborhood's walkability increased. Gilderbloom, Riggs, and Meares used the Walk Score and found that the neighborhoods that were more walkable had significantly lower levels of foreclosures. The data was collected between the years 2004-2008, years in which the economic stability of the United States underwent major changes. Even in the years 2007-2008, when foreclosure levels in the United States were extremely high, largely contributing to the country's major economic recession, walkable neighborhoods showed much lower levels of foreclosure than the average at the time. Between the years 2007-2008, walkable neighborhoods had five fewer foreclosures than the general average, and overall between 2004-2008 they had 11 fewer foreclosures than the general average (Gilderbloom, Riggs, and Meares 2015). The clear evidence from this study shows that walkable neighborhoods promote economic success in their ability to persevere through economic downturns. Creating neighborhoods that can be better prepared for recession years allows members of the community to focus more on their occupations, families, and health as their walkable neighborhood has a higher level of housing stability and security.

The same study by Gilderbloom, Riggs, and Meares showed that in addition to a positive economic effect on land values and foreclosures, walkability also had a positive economic impact on neighborhoods by showing lower levels of crime. The study measured four types of crime: property crime, murder, violence, and quantity of crimes. The data collected showed that walkable neighborhoods dissuaded property crime, murders, and violent crime (Gilderbloom, Riggs, and Meares 2015). Neighborhoods with lower levels of these crimes promotes economic success, as it allows members of the community to do business and prosper in a safer environment. Lower crime rates allow for greater cooperation and collaboration within neighborhoods, where people do not feel the need to venture outside their communities for safe opportunities to foster economic growth.

Research has also shown that walkable communities are particularly in demand today, and that real estate prices in walkable communities tend to be higher and more resilient to economic recession. By increasing the walkability of Shamokin, the city could bolster housing values, which would improve resident's wealth and access to capital if their homes are more valuable. Additionally, this action could improve city revenue from property taxes as assessed values rise. According to a study in Dallas, walkable communities retained 2.08% more value on average during significant economic recession than non-walkable communities, which the researchers characterize as a "considerable economic benefit for homeowners" (Xu 2018, p. 1717). As the Dallas study shows, walkable communities have real bankable benefits for homeowners and the local government.

Methodology

This research project on the Shamokin public steps used a variety of methods to collect and analyze data on the steps and the potential benefits that could be gained through restoring and reopening them. A group of Bucknell students, led by Professor Shaunna Barnhart, worked with grant writer Justin Skavery of the Northumberland County Planning Office and Kathy Jeremiah, executive director of Anthracite Region for Progress, to tour the Shamokin area and gather information on each set of steps to be used in a multi-modal transportation grant to the Pennsylvania Department of Community and Economic Development. Shamokin Public Works department foreman Kevin Richardson provided extensive information regarding the state of each set of steps, including his department's involvement in maintenance, city ownership, and condition of each set. Bucknell students gathered data through written notes, photos, and GPS mapping. To accompany the site visit data, Bucknell students conducted archival research on each set of steps. Students gathered historical evidence from newspapers dating back to the early 1900s, when the various sets of steps were first constructed.

The site visit and archival data showed that the steps were once a vital element to the community, so two surveys were conducted to gauge public opinion on the possibility of a restoration project on the steps. The first was a survey distributed within the Shamokin Area Businesses for Economic Revitalization (SABER) meeting, an organization whose mission is to improve the economy of the Shamokin area, including the surrounding communities, to promote and endorse local businesses, to encourage the retention and growth of existing businesses, and to attract new, sustainable businesses. This meeting consisted of both residents of Shamokin and those in the surrounding communities, all with interests revolving around business efforts within Shamokin. A 10-question survey was distributed to 16 meeting participants, with 6 participants identifying as Shamokin residents and 10 identifying as non-residents. The second survey was a 1-question poll posted in *The News-Item*, which is the Shamokin area newspaper. The question ran for 24 hours from 6/22/19-6/23/19, and asked participants about their opinion on frequency of step use if the nine sets were reopened. The information gathered from literature reviews, site visits, archival research, surveys and polls were combined to triangulate data and produce the results for this study.

Analysis

Overview

The analysis section examines the findings about sets of public steps throughout Shamokin, including their history and current state (see Table 1). Newspaper archives of the nine sets of steps under examination show relatively similar histories, with most of the steps having been constructed in the early 20th century. Through WPA grants during the 1930s, repairs and completions were able to happen to most of the steps. Certain sets of steps, particularly the 99 Steps, the Liberty Street Steps, and the Patsy Hill Steps were found to be places of social gathering and references for direction. Site visits to the steps reveal that four of the nine sets of steps are open and in use, and the other five are closed off to the public. These visits revealed that a number of steps need repairs and replacements of elements such as handrails, step

materials, and drainage systems, while others only need minor maintenance improvements. Survey results from the newspaper poll showed that 46% of respondents would use the steps at least a few times a month. Results from the SABER meeting survey show that both residents and non-residents would use the 99 Steps if restored and reopened. Further analysis of the survey results showed that most respondents feel that the steps are significant to Shamokin’s community identity, while also believing that the restoration and reopening of the nine sets of public steps are an important measure to take to improve revitalization efforts. The following analysis presents and explains the research results in more depth.

Table 1: Current State of the Steps

Step Location	Open or closed	Are the steps well lit	Hand railing present ¹	Steps Overgrown	How many steps ²	Broken steps visible	Water runoff management	Material used for steps
99 Steps from Lincoln to Church	closed	no	yes	no	99	yes	yes	brick, slate, concrete
Lincoln to Orange Street Steps	closed	no	yes	yes	40	yes	no	concrete
Diamond Street to Seventh Street	closed	no	yes	no	60	yes	no	stone, slate, concrete
Patsy's Hill Steps from Rock Street to Gold Street	open	no	yes	no	85	yes	partial	concrete, metal
Clay Street Steps - 700 block	open	no	yes	no	80	yes	no	concrete, steel
Cameron Street to Cherry on 900 block ³	closed	no	yes	yes	Could not count	Could not see	unknown	Stone, concrete
Cherry to Lombard St (end of Packer street east)	closed	no	partial	no	70	yes	yes but clogged	slate, stone, brick
North Liberty Street Steps	open	no	yes	no	89	no	yes	concrete, brick
Orange Street steps - 1000 block	open	no	yes	yes	20	yes	yes	concrete

¹ All railings on the steps were made of painted steel piping

² The number of steps are estimates and may be inaccurate due to potential missing and broken steps

³ These steps were overgrown with vegetation, blocking the steps completely

99 Steps



The 99 Steps, connecting Lincoln and Church Street, have been an integral part of Shamokin's history since the World War I era. The step construction project was led by former miner, and chief burgess at the time, John Drumheiser, with the initial wooden steps construction being completed between 1914 to 1917. The steps provide access to the Academy Hill residences and have undergone multiple stages of repair and reconstruction. Repairs have been compromised by deteriorating elements of their foundation which raised detrimental safety issues. Shared in the Shamokin News Dispatch, the original wooden steps were reported to the borough street committee for repairs in 1934, credited to the trending women's shoe style at the time. A few years later in June 1938, The Daily Item reported that Patrick Concannon, a long time active member of Shamokin's business interests, had fallen from the top of the stairs and was found dead upon one of the landings. Less than a

month later, Sunbury Daily Item announced that the 99 Steps would be dismantled and undergo reconstruction to convert them to stone steps-more attractive and ornamental. This article also revealed that the steps had been in a state of "despair" for some time, putting residents in great danger and potentially the reasoning behind one man falling to his death.



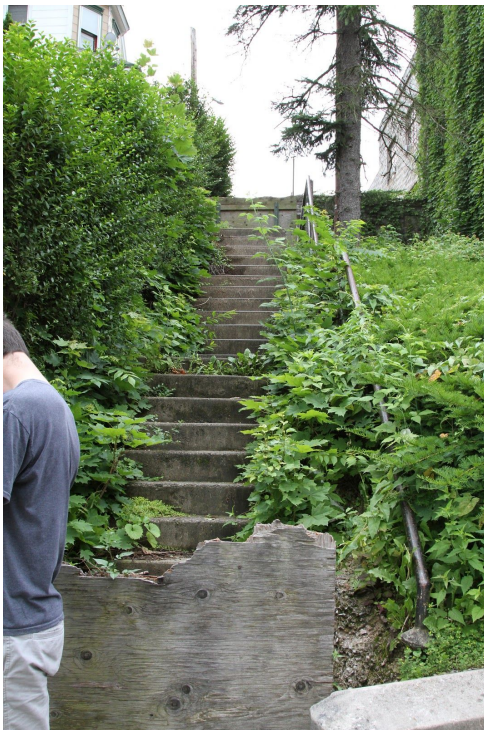
Unfortunately, the 99 Steps have been a source of vandalism and mischief for decades (rolling a boulder down the newly constructed stone steps, stealing bricks from the step risers, etc), making it very challenging to maintain acceptable safety standards and sometimes deeming them inaccessible and unusable for extended periods of time, allowing further deterioration to their structural elements. In an attempt to combat such behavior, City Hall announced in 1940 that two lights were to be installed

about halfway down the steps in addition to the existing development of two stone gutters along the side borders of the wall. Despite this long-lasting hindrance, the steps were often reported to

be a place of social gathering, with events such as the Academy Hill boy's club festival at the top of the 99 Steps in 1941.

The 99 Steps are currently closed as the result of a lack of maintenance. The steps have brush growing up through the steps, along with a number of steps that are either missing or broken. Most of the external stonework, however, is in great shape. The water runoff system is functioning despite trash being piled up at the drainage gate. There have been multiple attempts in the past to repair individual steps, such as patching individual steps with concrete, but this was eventually too much for city maintenance to keep up with. Repairing these steps to their former glory is hard, as the stairwell is difficult to access in order to pour concrete in the middle, where it is further from both streets. If the city wishes to preserve the rich history behind the steps and its original composition of cut slate, consideration should be given as to how to minimize damage of the stone. Although the restoration of these steps might be costly, it is a beacon of Shamokin that citizens can celebrate for both its functional and historical value.

Lincoln Street to Orange Street Steps ("Church Steps")



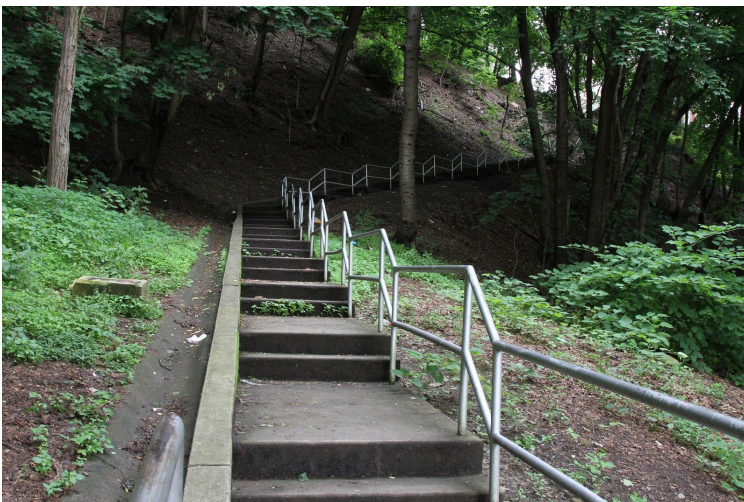
The "Church" steps, while not a historic landmark such as the 99 Steps, are still important as they provide an alternative to the famous 99 Steps. These steps run parallel to the 99, from the top extension of Spurzheim Street to Lincoln Street. There is only one mention of these steps in newspapers of the Shamokin area, which is of the proposal of when they were built. These steps were constructed in 1974 out of concrete to facilitate walkability between the Academy Hill section of the city and downtown Shamokin. In order to restore these steps, minor repairs to cut back overgrown brush and to patch the concrete will be needed.

Diamond Street to Seventh Street Steps



The Diamond Street steps are hard to track historically in the newspaper archives. There is no clear date to when the steps were built, but their construction mirrors that of the steps built by the WPA in the 1930s and thus they were likely built as part of the WPA programs during the Great Depression. These steps connect Seventh Street on Academy Hill to Diamond Street. They are the only steps that connect Academy Hill to the eastern part of downtown Shamokin. Only the lower half of the steps are opened for a resident to have access to their home and business. The resident takes care of the lower half of the steps while the city would maintain the (currently closed) top half of the steps. Minors court-ordered to do community service were observed doing maintenance work on the top part of the steps. The steps are made of stone, slate and concrete and have fallen into disrepair. There is heavy foot traffic in the area and the steps would increase the accessibility of the eastern part of town along Market Street with the top of Academy Hill.

Patsy's Hill Steps from Rock Street to Gold Street



From an initial search of archived newspapers, the Patsy's Hill Steps (also sometimes referred to as the Patsy's Bridge Steps) primarily serves the Fifth Ward and Academy Hill sections of Shamokin. In September 1955, the steps were officially erected replacing old dirt pathways with a concrete walkway and steps. Before it was only a dirt pathway, which received a lot of foot traffic despite the ruts and gullies after various rain storms making the dirt path difficult to traverse. Due to

the heavy everyday foot travel, city councilmen decided that an actual walkway and steps were needed. The Patsy's Hill steps were used by many pedestrians traveling to and from school,

church, and places of employment. In July 1991, Shamokin used a portion of a \$331,332 grant to repair Pasty's Hill Steps, amongst other community projects.



Shamokin Creek connecting the steps is in need of repair. The foundation is damaged and there is steel rebar protruding from the cement.

The Pasty's Hill Steps are currently open and in use by the public. A walking trail runs perpendicular to the steps between the end of the bridge passing over Shamokin Creek and the beginning of the steps looking uphill. The steps are in good condition, but renovation could be needed on the actual material of the steps. There are handrails running along the steps that could use revitalization or even replacement. There is also a drainage system that runs next to the steps. The bridge spanning

Clay Street Steps - 700 block



renovated). It is unknown when the current cement iteration of the steps were installed, although in 1953 a new retaining wall was built for \$300.

The Clay Street steps are open and in need of minor repair, especially to handrails. Broken steps are visible from the street. The stairway appears to lack an adequate water drainage system. The surrounding landscaping also needs work. There are approximately 80 steps, but they are not well lit. While they are city steps, nearby residents maintain them, such as

The Clay Street steps connect Pearl Street at the bottom to Clay Street at the top. They have been in use since the early 1900s. The earliest mention in the newspaper archives is 1915 when a man fell down the steps and suffered a deep laceration to the scalp. The steps made appearances in the news in 1935, first as the site of a battery and robbery, and then as a site of vandalism when tar and heavy oil were smeared on the step railings (also on the windows and sides of a nearby store that had just been

shoveling in winter. The steps are mostly made of cement, with a steel set at the bottom that comes from a repurposed steel stairway salvaged for a closed coal breaker.

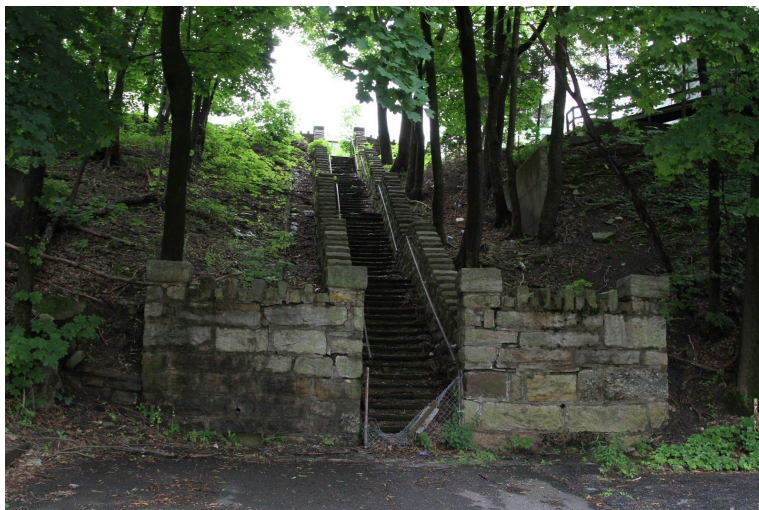
Cameron Street to Cherry Street Steps on 900 block



The earliest mention of the Cameron Street Steps in the newspaper archives is June 1942, when the city announced that the Cameron Street Steps were equipped with “no trespass” signs, although no reason is given. The steps appear occasionally as a point of reference, but not much was found on the Cameron Streets steps. It is the only set of steps on which we noticed a cornerstone with a date, 1935, indicating the date of construction. These steps were once used by the nearby

residents to travel to work at Schroyer’s Dress Company before it closed. As seen today, the Cameron Steps are a narrow set of steps with high walls on either side, similar to the 99 Steps. These steps are currently closed to the public. The physical state of the steps cannot be observed due to it being completely overgrown. Plants now cover all of the steps.

Cherry to Lombard St (end of Packer street east)



The construction of the Packer Street steps began in December, 1934. The steps were one of the many relief projects in the area to try and keep people in Shamokin working during the Great Depression. It employed forty eight workers to complete, comprised of masons and helpers. The project was scheduled for completion within two months and was completed in 1935. The funds from the project came from a distribution of federal relief money and were completed just before the

formation of the WPA (Works Progress Administration). The steps connect two residential neighborhoods together and shortened the walking distance between the residential communities and the Schroyer’s Dress Company Factory.

The steps in modern Shamokin are closed due to being in disrepair. The steps are constructed of brick and slate steps with stone walls on either side. The drainage system looks intact but there is visible debris blocking the drains. The slate steps are broken and need to be replaced, as well as the hand rails.

Liberty Street Steps



The Liberty Street Steps, located at the other end of North Liberty Street from the 99 Steps, with Cameron Street running perpendicular, has a deep history in Shamokin. Between 1931-1939, the Liberty Street Steps were frequently cited in the Shamokin News Dispatch newspaper. On December 9, 1931, the paper reported that the Liberty Street Steps were completed and open for use for the surrounding residents, which noted that the neighborhood had not previously been easily accessible by walking. However, it was not until 1939 that the Shamokin News Dispatch reported the approval of federal grants to finish the entirety of the Liberty Street Steps, which included elements such as a gutter system, handrails, and cement repairs.

Today, the Liberty Street Steps remain open and in use. With the main foot traffic consisting of nearby residents, it should be noted that the steps are used daily by mail carriers and those wishing to traverse from the residential area towards downtown. The 89 cement steps are currently in good condition, and contain a brick gutter system on its left side. Though the City of Shamokin owns the land on either side of the steps, the residents whose homes are along the side of the steps contribute to maintenance and landscaping work. Since the Liberty Street Steps are a necessity for the surrounding homes, they appear to be one of the most cared for and used steps in the city. Looking ahead, the steps will need funding for minor repairs such as patching holes and landscaping, and will remain a wonderful asset to the community.

Orange Street/Bunker Hill Steps - 1000 block



The Orange Street steps are made of approximately 20 concrete steps that are open and in use to connect houses along the left side of the steps to Orange Street. The steps do not continue to a road on the upper side and are thus only for the use of residents to access their homes on the hill. The residents maintain the steps because they are the only way to access their homes. The steps are visibly broken, overgrown both along the right side and with plants growing through cracks in the concrete, and appear to lack adequate lighting.

Previous residents did work on landscaping next to the steps, with the permission of the city, adding garden terraces which can still be seen under the overgrown brush. The area has since been neglected and needs some landscaping to control overgrowth. A storm drain can be observed, but it needs to be cleaned and repaired.

Spatial Analysis

In assessing the impacts of the steps on the Shamokin community our team utilized ArcGIS to create several maps of the City of Shamokin which help to visually convey the locations of each set and their impact on the community. The mapping team took coordinates with a handheld GPS to confirm the step locations and paths that appeared on the Shamokin area base maps.

The overview map (Figure 1) shows the entire City of Shamokin to help orient those who are unfamiliar with the area. On this map the locations of the 9 sets of steps are indicated along with an approximation of the Shamokin business district and the Lower Anthracite Transportation System bus route and stops in Shamokin. The bus route and business district data were provided by Northumberland County Planning Commission for our use in this project.

The City of Shamokin is built upon Academy Hill, Bunker Hill and the Shamokin creek valley that runs between them which means that there are significant elevation changes despite the small land area, as shown on the topographic map (Figure 2). From the business district to the top of either hill is over 200 feet of elevation and some areas are too steep for streets so the steps were installed to provide access to homes and businesses.

The final map is a detailed map of the area primarily serviced by the steps (Figure 3). This map shows the step paths to clearly illustrate their routes and the streets that they connect. It also has the bus routes and business district layers visible to orient viewers and highlight the different areas of the city. The purpose of each set of steps is evident with 1-4 providing access

from the low lying business and residential districts up Academy Hill and steps 6-9 providing access to and within the Bunker Hill neighborhood to the north and east of the business district.

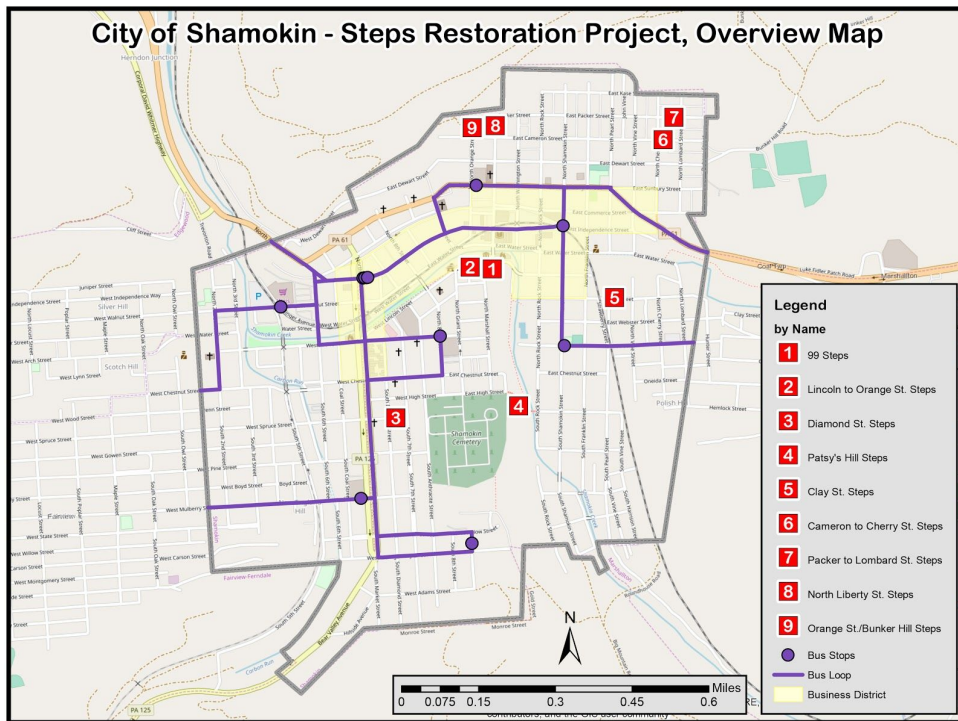


Figure 1: Overview Map

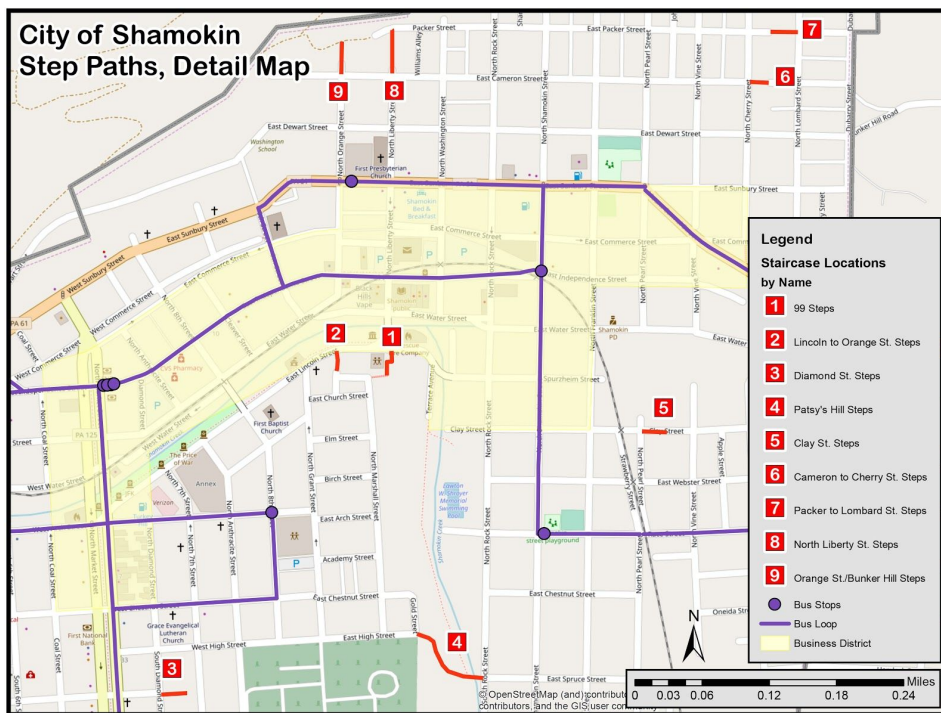


Figure 2: Detail Map

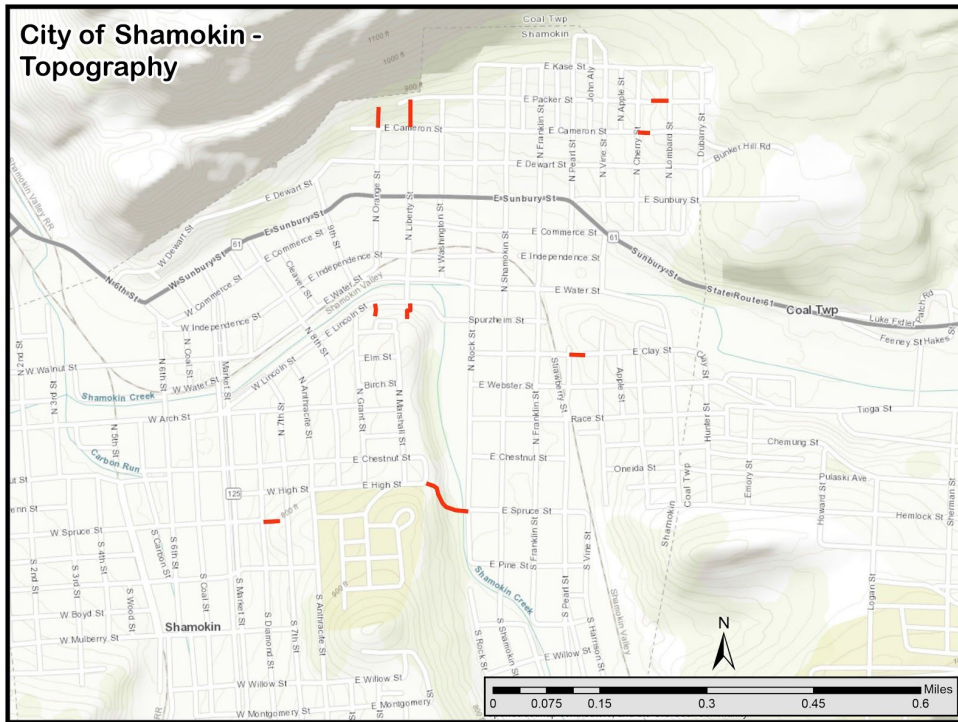


Figure 3: Topography

Survey Results

A poll was conducted in the Shamokin News Item regarding the public steps, and how likely it is that people would use them if they were restored (see Figure 4). There were a total of 195 respondents. Out of the 195 respondents 15% would use the steps a few times a month, 20% would use them a few times a week, and 11% would use them daily. A total of 46% of respondents, therefore, would use the public steps at least a few times a month which is significant considering many of the steps are currently closed to the public. While 38% responded that they would never use the steps and 16% would rarely (once a month) use the steps, it is of note that the readership for this newspaper extends beyond the town of Shamokin. There was no way of determining whether or not the respondents were residents of Shamokin or not as we were only allowed one poll question.

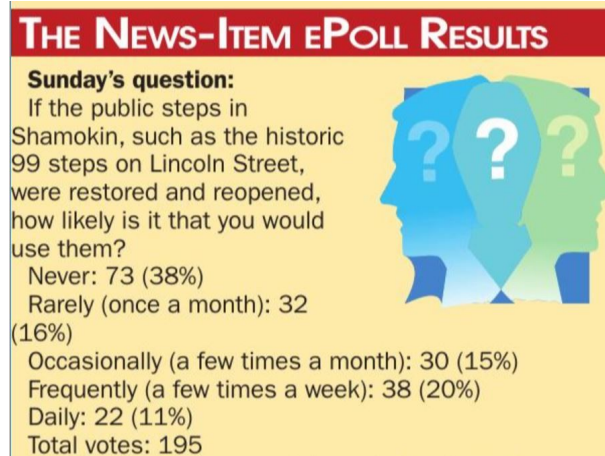


Figure 4: Results of “Latest Poll” question posted in the Shamokin-area newspaper, the News-Item.

A survey was conducted with the members of SABER (Shamokin Area Business for Economic Revitalization) during one of their monthly meetings to gain some insight in to both residents’ and business owners’ perceptions of the steps (See Appendix 1 for survey). Out of the 16 members surveyed, 10 were non-residents and 6 were residents. Out of the 6 residents, the public steps provide access to and from their neighborhoods for only 5 residents. All 6 residents walk when they normally travel to downtown Shamokin; 5 of them also drive. Out of the 10 non-residents, the public steps provide access to and from their neighborhoods for only 1 non-resident. Out of the 10 non-residents, 9 of them drive when they normally travel to downtown Shamokin, while 4 of them may also walk as well. Only 1 non-resident normally only walks when traveling to downtown Shamokin. If the public steps in Shamokin were restored and reopened, the survey indicates that residents will be more likely to use them than non-residents; however, 69% of all respondents said that they would use the 99 steps if restored and reopened (see Table 2 and Table 3). Most respondents believe that the restoration and reopening of the public steps is important to revitalization efforts in Shamokin. Most respondents also believe that the public steps are significant to Shamokin’s community identity (See Table 2).

Table 2: Averages of Likert Scale Survey Responses on Familiarity, Use, and Potential Impact of Shamokin Steps.

Note: Likert Scale ranges from 1 (least agreement) to 5 (most agreement).

Question	Non-Resident Average	Resident Average	Total Average
What is your familiarity with the 9 sets of public steps in Shamokin?	3.3	4	3.6
How much does the lack of access to the currently closed steps hinder your ability to travel to and from downtown Shamokin?	1.6	2.7	2.0*
If the public steps in Shamokin were restored and reopened, how likely is it that you would use them?	2.2	3.2	2.6+
How much of an effect do you think there would be on foot traffic to downtown businesses if the steps were restored and reopened?	4.0	3.8	3.9
How significant do you feel the public steps are to Shamokin’s community identity?	4.3	4.3	4.3
How important do you feel the restoration and reopening of the public steps is to revitalization efforts in Shamokin?	3.9	4.5	4.1

* p value = 0.009

.+ p value = 0.038

Table 3: Tallies of Which Steps Respondents Would Use if Open

Steps	Non-Resident	Resident	Total	% of total respondents
99 Steps from Lincoln to Church	5	6	11	69%
Lincoln Street to Orange Street Steps	2	3	5	31%
Diamond Street to Seventh Street	0	0	0	0%
Patsy Steps from Rock Street to Gold Street	0	4	4	25%
Clay Street Steps - 700 block	0	2	2	13%
Cameron Street to Cherry on 900 block 3	0	0	0	0%
Cherry to Lombard St (end of Packer street east)	0	1	1	6%
North Liberty Street Steps	1	2	3	19%
Orange Street steps - 1000 block	0	1	1	6%

There is a weak positive correlation between the respondents' familiarity with the steps and how likely they are to use them once restored and reopened. There is a weak positive correlation between how likely respondents are to use the steps and how likely they believe other people will use the steps (effect on foot traffic downtown), meaning that respondents who state they are likely to use the steps also believe that steps will increase downtown foot traffic. There is a weak positive correlation between how likely respondents are to use the steps and how important these steps are to revitalization efforts in Shamokin. There is a weak positive correlation between how respondents believe the steps will increase foot traffic downtown and how important these steps are to revitalization efforts in Shamokin. There is a strong positive correlation between respondents believing the public steps are significant to Shamokin's community identity and how important they feel the public steps are to revitalization efforts. This indicates that step restoration is seen as both a valuable revitalization effort and that it will positively impact community identity (See Table 4).

Table 4: Correlations Between Familiarity, Use, and Impact of Shamokin Steps.

Note: Results showing a weak to strong correlation are in bold.

	1	2	3	4	5
1. What is your familiarity with the 9 sets of public steps in Shamokin?	1				
2. If the public steps in Shamokin were restored and reopened, how likely is it that you would use them?	0.384	1.000			
3. How much of an effect do you think there would be on foot traffic to downtown businesses if the steps were restored and reopened?	0.039	0.347	1.000		
4. How significant do you feel the public steps are to Shamokin's community identity?	0.031	0.093	-0.041	1.000	
5. How important do you feel the restoration and reopening of the public steps is to revitalization efforts in Shamokin?	-0.063	0.323	0.383	0.766	1

Conclusion

Restoring and reopening the public steps in Shamokin will have multiple benefits. First, there are significant benefits to the livability of the town, as the stairs will help foster a stronger sense of community, foster social interactions, and improve the quality of life. The nine sets of stairs are a part of Shamokin's rich history, and restoring them will restore the walkability that the city was designed for. Additionally, the stairs would help promote social interactions as people meet other walkers, making the streets safer with more people around. Restoring the steps will also improve residents' quality of life that comes with the city's walkways being upkept, beautiful, and recognized as a key infrastructure asset. Next, there are benefits to the economy of Shamokin. Towns with better walkability have better land value, more resilient real estate markets, and more stability in times of economic downturn. Specifically for Shamokin, the steps provide more mobility to all of the downtown businesses, which can attract more customers. Finally, there are the various health benefits that would be present with a reconstruction of the steps. It is well documented that communities with higher walkability have lower rates of diabetes, lower cholesterol, and lower BMIs. Additionally, the air quality in these communities is better as well, which helps mitigate respiratory diseases. All of these can be achieved by increasing the walkability of a community.

This improved walkability can be achieved through the restoration of the steps. This public infrastructure is vital to the mobility of citizens throughout Shamokin, especially due to the shortage of public transportation in the city. One prime example of how walkability would be increased is how the reopening of the 99 steps and the "Church" steps would affect those living in the Academy Hill section of the city. Currently, residents of the Academy Hill section of the city need to travel a further distance on foot to descend Academy Hill in order to reach the downtown area. The reopening of the stairs would no doubt increase the walkability of the community, and this bodes well for the overall health of the citizens and economy of the city (Hall, 2012).

Despite such benefits, there are problems and challenges that the steps present. First and foremost, the stairs need to be maintained. This becomes challenging in the winter with a limited Public Works staff. When the city was more populated, the steps in use, and a large public works staff available, maintaining the steps throughout all seasons was feasible. However, the winter maintenance practices, such as chipping ice away on the steps, actually damaged the underlying stone. With a limited Public Works staff, one solution could be to have the stairs, or some sets of them, be seasonable and closed in the winter both to reduce costs of winter maintenance and to preserve historic stone materials that may be able to be preserved as part of the renovation process. Additionally, there is the problem of making sure the stairs are safe, from both injury and potential crime. The newspaper archives are rife with stories of crime and vandalism on the steps that span decades, from being used as the way that robbers escape capture to being the site of robbery to simple vandalism mischief such as greasing the handrails or rolling a boulder down the steps, damaging them in the process. There are several recorded instances of injury as well. Thus, lighting and other strategies to improve public safety in these spaces is crucial. If these challenges are addressed, the stairs have the potential to last for many years, all while increasing the walkability of Shamokin and providing the known benefits that walkable communities create.

The research done in this study does not cover all of the variables needed to fully predict the success of repairing the steps. The survey conducted was a limited sample, but does indicate that there is support amongst the business community for restoring the steps as a revitalization effort. Given the limited timeframe in which to conduct this study, we were unable to do a large community resident survey similar to the one conducted with business owners. However, while conducting the visual inspections and mapping of each set of steps, the team did encounter local residents, all of whom were supportive of restoring and reopening the steps when asked and indicated that they would use them. Restoring and reopening the public steps in Shamokin is a vital component of the city's revitalization efforts that will restore a sustainable community feature, benefit the local economy, improve community health, and enhance a sense of place.

Acknowledgments

This project could not have been done without the support, organization, and leadership of our professor, Dr. Shaunna Barnhart, Director of the Place Studies Program in the Center for Sustainability and the Environment. Her knowledge and dedication to the revitalization and sustainability of communities is unmatched. The research was supported by and done in partnership with the Anthracite Region for Progress, Northumberland County Planning Office, the City of Shamokin, and the Shamokin community.

We would like to especially thank Kathy Jeremiah, executive director of Anthracite Region for Progress, and Justin Skavery, grant writer for the Northumberland County Planning Office, for assistance with research and planning. Together they have provided our class with information, aid, and support throughout the project and site visits. We would like to additionally thank Kevin Richardson and the rest of the Shamokin Public Works Department for assistance and details during site visits. Additional gratitude is expressed to the Shamokin Area Businesses for Economic Revitalization (SABER), the News-Item staff, and the Bucknell Library staff. A special thank you to Shamokin Mayor John Brown for his time and consideration of our project.

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Appendix 1: Survey Distributed to SABER

Shamokin, PA - Steps Repair Project

The objective of this study is to gauge interest and information regarding the 9 sets of public steps throughout Shamokin, PA. The data gathered will help inform the potential impact of repairing and reopening the steps. The aggregated data will be anonymous but will be distributed within the 6/20/2019 SABER meeting. There will be no risk to you, and the survey should take less than 10 minutes to complete. We ask that you provide your honest opinions in regard to each question, and you may stop the survey at any point. For questions or concerns, please contact Shaunna Barnhart, Director of Place Studies Program in Bucknell University's Center for Sustainability and Environment, at sb060@bucknell.edu. We greatly appreciate your time and cooperation with this survey; and thank you for your support.

1. Are you a resident of Shamokin?
 1. Yes
 2. No

2. If yes, do any of the public steps provide access to and from your neighborhood (either currently or would in the future if restored and reopened)?
 1. Yes
 2. No
 3. Unsure

3. What is your familiarity with the 9 sets of public steps in Shamokin?
 1. Not at all familiar
 2. Slightly familiar
 3. Somewhat familiar
 4. Moderately familiar
 5. Extremely familiar

4. How do you normally travel to downtown Shamokin? Check all that apply:
 1. Walk
 2. Bike
 3. Drive
 4. Public transportation
 5. Other: _____

5. How much does the lack of access to the currently closed steps hinder your ability to travel to and from downtown Shamokin?
 1. Never
 2. Rarely
 3. Occasionally
 4. A moderate amount
 5. A great deal

6. Which set(s) of steps do you, or would you, use if restored and reopened? Check all that apply:
 1. The 99 Steps from Lincoln to Church – currently closed
 2. Lincoln Street to Orange Street – currently closed
 3. Diamond Street to Seventh Street – currently closed
 4. Patsy’s Hill Steps from Rock Street to Gold Street
 5. North Liberty Street Steps (Connects Cameron and Packer Streets)
 6. Orange Street Steps at Bunker Hill (1000 Block)
 7. Cameron Street to Cherry on 900 Block – currently closed
 8. Cherry to Lombard Street (end of Packer Street east) – currently closed
 9. Clay Street Steps (500 Block – Connects Pearl to Clay Streets)
 10. None of the above

7. If the public steps in Shamokin were restored and reopened, how likely is it that you would use them?
 1. Never
 2. Rarely (once a month or less)
 3. Occasionally (a few times a month)
 4. Frequently (a few times a week)
 5. Daily

8. How much of an effect do you think there would be on foot traffic to downtown businesses if the steps were restored and reopened?
 1. No effect
 2. Minor effect
 3. Neutral
 4. Moderate effect
 5. Major effect

9. How significant do you feel the public steps are to Shamokin’s community identity?
 1. Not at all significant
 2. Slightly significant
 3. Somewhat significant
 4. Moderately significant
 5. Extremely significant

10. How important do you feel the restoration and reopening of the public steps is to revitalization efforts in Shamokin?
 1. Not at all important
 2. Somewhat important
 3. Neutral
 4. Moderately important
 5. Extremely important

Appendix 2: Maintenance and History Questions for Public Works Department

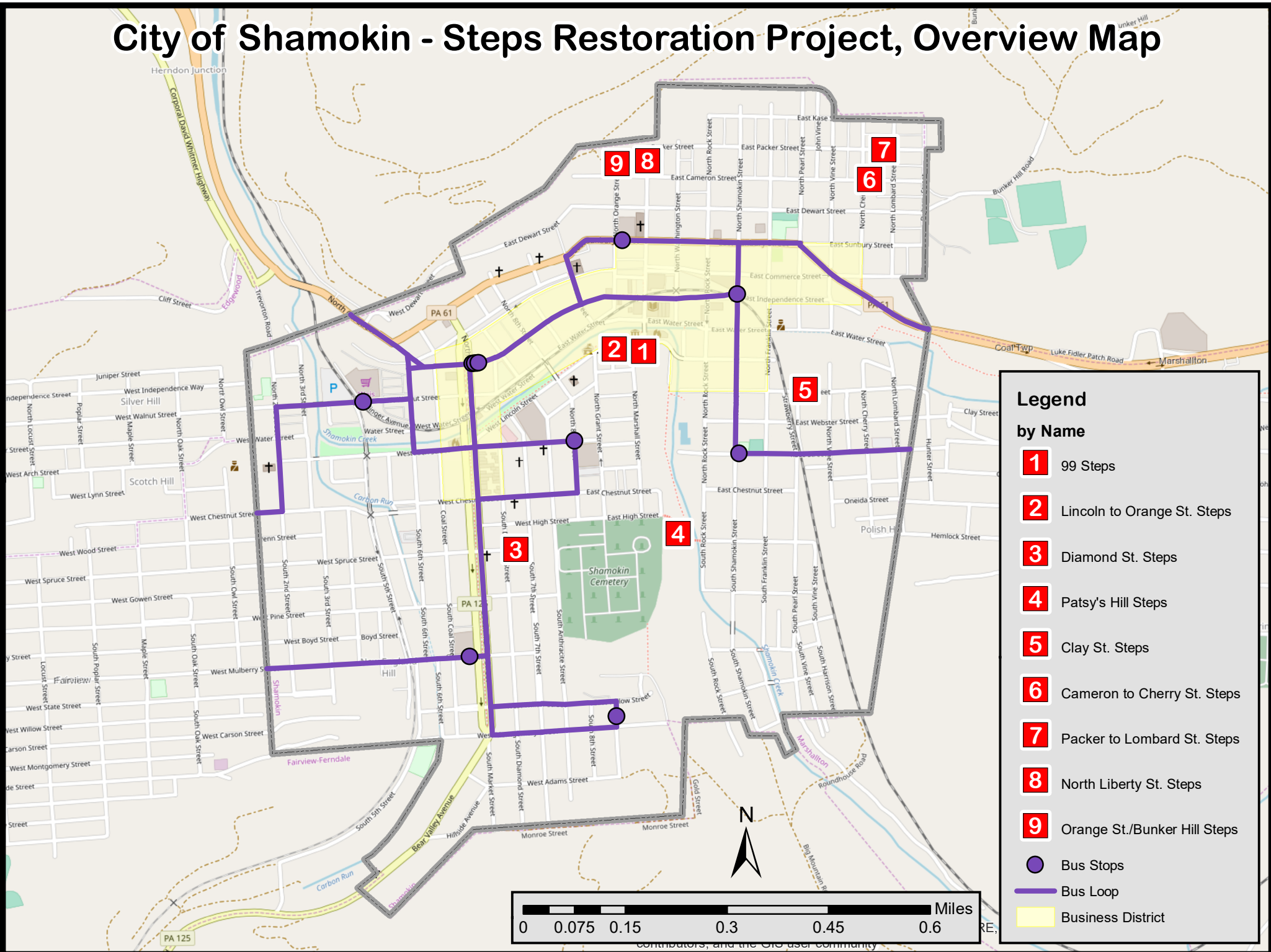
Questions for Kevin Richardson

June 19, 2019

1. How many city workers work in your department?
2. How do you decide which public spaces to maintain?
3. Do you ever work with volunteers to maintain public spaces?
4. When the steps were open, how were repair jobs reported?
5. How were the steps maintained when they were open? How many workers did it take to maintain them?
6. How often were the steps used when they were open?
7. What needs to be done to renovate the steps?
8. If all the steps were reopened, could they be maintained with the current staff?
9. What will be involved in maintaining the steps after renovation?




Appendix 3: Full Page Maps of the Step Locations in Shamokin

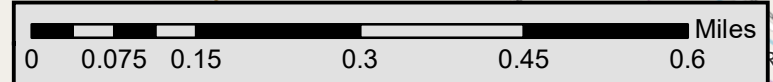
City of Shamokin - Steps Restoration Project, Overview Map



Legend

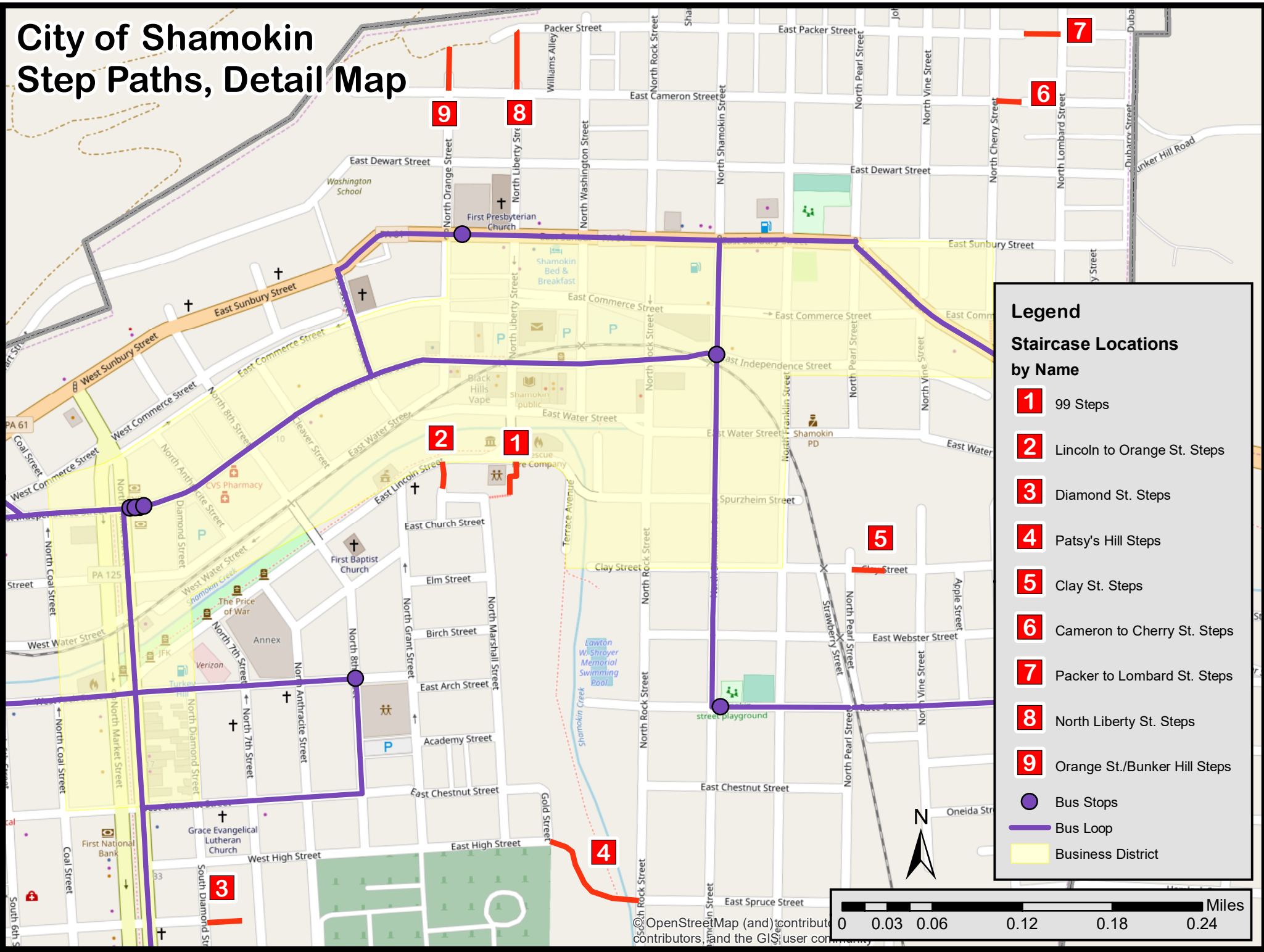
by Name

- 1** 99 Steps
- 2** Lincoln to Orange St. Steps
- 3** Diamond St. Steps
- 4** Patsy's Hill Steps
- 5** Clay St. Steps
- 6** Cameron to Cherry St. Steps
- 7** Packer to Lombard St. Steps
- 8** North Liberty St. Steps
- 9** Orange St./Bunker Hill Steps
-  Bus Stops
-  Bus Loop
-  Business District



contributors, and the GIS user community

City of Shamokin Step Paths, Detail Map

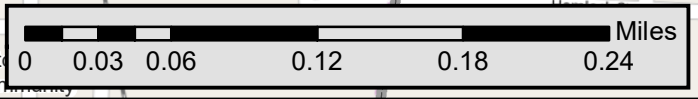


Legend

Staircase Locations by Name

- 1** 99 Steps
- 2** Lincoln to Orange St. Steps
- 3** Diamond St. Steps
- 4** Patsy's Hill Steps
- 5** Clay St. Steps
- 6** Cameron to Cherry St. Steps
- 7** Packer to Lombard St. Steps
- 8** North Liberty St. Steps
- 9** Orange St./Bunker Hill Steps

- Bus Stops
- Bus Loop
- Business District



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City of Shamokin - Topography

