

MOUNT HOLLY SPRINGS: PROUD PAST, BRIGHT FUTURE THE BALTIMORE AVENUE CORRIDOR STUDY

Borough of Mount Holly Springs
Cumberland County, Pennsylvania

~ January 2016 ~
Revised April 2016

revitalize sustainability community renewable tradition history



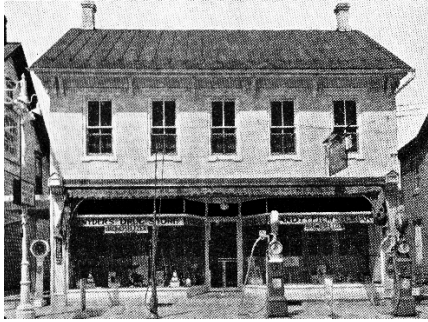
Photographic montage courtesy of: *Crystal Hunt*

TABLE OF CONTENTS (DRAFT)

SECTION 1: INTRODUCTION	3
STUDY BACKGROUND	3
Assets, Constraints, and Opportunities	4
FOCUS AREA	6
ORGANIZING THE CORRIDOR	7
Existing Land Use Conditions	8
Proposed Land Uses Planned for the Corridor	9
SECTION 2: GOALS AND OBJECTIVES	10
ESTABLISH ENGAGEMENT GOALS	10
THE ROLE AND IMPORTANCE OF BUILDING TRUST	10
The Keys to Building Trust	11
The Baltimore Ave. Project: Our Village, Our Town	12
SENSE OF PLACE	14
VISION	17
IMPLEMENT SUSTAINABLE PRACTICES	18
Storm Water Management	19
Use of Sustainable Materials	22
Lighting and Dark Skies	22
Landscaping and Urban Heat Islands	23
DEVELOP COMPLETE STREETS	24
Baltimore Avenue Roundabouts	24
Addressing PA Route 34/94 Split at Yates Street	26
USE COHESIVE DESIGN ELEMENTS	27
PROMOTE SECURITY AND SAFETY	27
COORDINATE MAINTENANCE WITH DESIGN	28
PROTECT AND ENHANCE HISTORIC CHARACTER	28
LESSONS LEARNED	31
GENERAL GUIDELINES: A COMPLETE STREETS FRAMEWORK	32
Designing a Multi-Model Environment	32
Develop a Vibrant and Inviting Streetscape	42
SECTION 3: RECOMMENDATIONS / IMPLEMENTATION	50
IMPLEMENTATION PLAN	51
The Dual Benefit of Grants	52
Results of Excess Retail along Baltimore Avenue	53
Mount Holly Springs Efforts to Reposition Baltimore Avenue	54
BALTIMORE AVENUE BICYCLE, TRAIL and AMENITY RECOMMENDATIONS	55
Policy Goal for Bicycle Use on Baltimore Avenue	55
Principles of the Bike/Trail Shared Use Path Planning and Design Process	58
Description of Project Area and Affected Population	60
Connecting the Communities	61
The “Design Cyclist”	61
The Design Approach	62

Education/Training and Law Enforcement	63
Bicycles, Motor Vehicles, and Pedestrians	63
The Bicycle Planning Process	64
Developing a Bicycle Network Plan	64
Design Selection and Specifications	67
Types of Bicycle Facilities	67
SIGNAGE / MARKING BICYCLE FACILITIES	73
Designating Bicycle Facilities	74
Preparing to Select a Facility Treatment	74
Other Possible Improvements	77
SIGNAGE and PURPOSE	79
RECOMMENDED SITE FURNISHING GUIDELINES	88
CONCEPT DESIGN FOR THE BALTIMORE AVENUE STUDY AREA	99
Concept Plans: Descriptions, Opinion of Probable Costs, and Graphic Plans	99
Summary of Area Sheet Totals	103
Area 1: Baltimore Avenue from Pine Street to Mill Street	104
Area 2: Mill Street from Baltimore Avenue East to the Borough Line	106
Area 3: South Baltimore Avenue from the 34/94 Split to Pine Street	108
Roadway Cross-Sections for the Proposed Improvements	110
DESIGN AND CONSTRUCTION PHASES	112
SECTION 4: PROMOTE ECONOMIC DEVELOPMENT	112
INFRASTRUCTURE FOR A MORE COMPACT, WALKABLE FUTURE	112
Suburban Development Types	112
Encourage a Sufficient Concentration of Corridor Housing	113
Encourage a Sufficient Concentration of Retail Users	114
Encourage a Sufficient Concentration of Employment on the Corridor	114
Identify Appropriate Uses for Vacant and/or Underutilized Properties	115
Economic Development Strategies	115
Urban Math as it Relates to Mount Holly Springs	116
The Millennial Train	117
Trends Challenging Rural America that will Impact Mount Holly Springs	121
Small Towns, BIG Ideas: Examples of Innovation	123
FUNDING CONSIDERATIONS	124
REFERENCES	127
APPENDIX	128





Mission

The Mount Holly Springs Revitalization Committee seeks to empower residents to shape the future of Mount Holly Springs to strengthen the social and economic vibrancy of the town.

Vision Statement

The Mt. Holly Springs Revitalization Committee:

- Promotes a safe and enhanced Baltimore Avenue Corridor;
- Promotes economic development;
- Promotes the areas natural resources;
- Promotes the town's history;
- Promotes well maintained housing;
- Enables community stakeholders; and
- Embraces a community that is just, safe, and vibrant.

SECTION 1: INTRODUCTION

STUDY BACKGROUND

Baltimore Avenue (PA Routes 34 and 94) through Mount Holly Springs is one of the region's most critical transportation corridors. Comprised of a network of important roadways and rail lines, the PA route 34/94 corridor links a series of distinct and historic communities with Carlisle, the County seat of Cumberland County, PA and is home to some of the region's most identifiable paper making places and historic resort places. The rich legacy of the past has been undermined by the increase of traffic volumes in the Baltimore Avenue corridor and projections for a continual increases that may result in the deterioration of properties if left unresolved.

Approximately 5 miles in length, the Baltimore Avenue Corridor Study Area extends from PA Route 34/94 split at the southern gateway to the Watts Street intersection and northern gateway. The study area spans the primary core of Mount Holly Spring's traversing the borough from south to north. The study area's boundary extends roughly one-half mile east and west of Baltimore Avenue.

The Baltimore Avenue Corridor Study was initiated by the Borough leadership of Mount Holly Springs and the Cumberland County Planning Department, with the support of private business owners, VFW, residents and PennDOT, to help coordinate transportation and land use planning in the Borough. By coordinating these efforts, the Borough of Mount Holly Spring's seeks to promote a more sustainable region and implement the goals and objectives focused on a more community focused plan for growth and prosperity for a sustainable future.

This document is the result of a ten (10) month planning process that began in February of 2015. During this time, the Borough of Mount Holly Springs facilitated multiple public participation opportunities and worked extensively with a variety of stakeholders. A Revitalization Advisory Committee, composed of professional staff from the Borough, Council members, community citizens and business owners, was created to provide local expertise and help guide the direction of the study. During the course of the study, residents and stakeholders participated in three (3) public open houses, two (2) of which were held at the Mount Holly Springs Citizen Fire Department and a final presentation at the Mount Holly Inn. These meetings allowed the public to learn about the study and offer their input on corridor issues and problems. Additionally, the Mount Holly Springs revitalization committee provided online updates and hosted public presentation information on the Borough website which allowed residents to help identify corridor needs and recommend improvement strategies. There were also numerous one-on-one meetings with private individuals, business owners and non-resident property owners in an effort to garner input into the design and problem solving process.



View looking North on Baltimore Avenue



View looking South entering Mount Holly Springs

It was determined through the analysis, design and public meeting process that Mount Holly Springs is one of the “Hidden Gem’s” of Cumberland County and all of Central Pennsylvania. The community has been able to hold onto its historic fabric, paper making legacy and some of its core infrastructure. This study will provide guidance of ways to build on the community’s strengths and define ways to help local merchants with improving their facilities with clean and safety, infrastructure/business planning, marketing the gateway location to Cumberland County and redeveloping vacant, or underutilized, properties.

Community engagement – done effectively – provides Mount Holly Springs with the opportunity to build local networks, enhance relationships, and identify underlying concerns and values, leverage assets and resources, increase participation, improve decision making, get out ahead or avoid conflict, and perhaps most importantly increase trust in your organization and governance.

Engagement is not generally driven by a ‘model’ so much as by a framework of guiding principles, strategies, and approaches. This framework is based on principles that respect the right of all community members to be informed, consulted, involved and empowered and employs and range of tools and strategies to ensure success. It also places a premium on fostering and enhancing trust as a critical element in long-term, sustainable engagement and effective governance.

Assets, Constraints, and Opportunities

An extensive inventory of existing conditions data was gathered as part of the study process. Based on this research and analysis, the study team developed the following list of assets, constraints, and opportunities for the Baltimore Avenue Corridor.

Assets

- The corridor contains a robust transportation infrastructure with increasing traffic projections.
- The corridor has a rich history and contains many valuable historical and cultural resources such as the Amelia Givin Library.

- The corridor is home to some of the region's most important paper manufacturing entities and core services.
- The corridor is in close proximity to regional places like the Holly Marsh Preserve and Mountain Creek and various outdoor activities.
- The corridor has affordable and attractive housing stock.
- The relatively wide roadway width of Baltimore Avenue provides potential for pedestrian, bicycle, and vehicular circulation improvements.

Constraints

- The corridor has large traffic volumes, including trucks, which travel the corridor at high speeds that are not compatible with pedestrian activities and retail uses.
- Lack of a defined gateways and pedestrian crossing focus.
- Many areas of the corridor lack the necessary pedestrian and bicycle facilities to make walking and biking viable transportation options.
- Despite some well-defined development at Mill and Pine Streets, much of Baltimore Avenue does not have a coherent identity or sense of place.
- Portions of the study area throughout the corridor have suffered from disinvestment and some traditionally commercial/residential areas now experience higher rates of vacancy.
- The corridor is underutilized for residential uses.
- Large areas of impervious coverage exacerbate existing storm water and flooding issues.
- Parks and open space in the Borough are not well connected to residential neighborhoods; many recreation areas are only accessible by automobile.
- Much of the corridor's population is under educated with incomes lower than the region's median.
- The Borough has a history and reputation of drug use problems.

Key Challenges

- Community Identity (Who lives here?)
- People who live in Mount Holly Springs generally work elsewhere.
- There is a fear of Change.
- There is a high number of rental units in the community (> 37%)
- Needed sidewalk improvements and people's expectations.
- The mean income level of the community.
- Lack of Community activities.
- Lack of available properties for new businesses.
- The adoption of new zoning regulations.
- The outside perception of Mount Holly Springs.
- The perception that there is a lack of parking.

Opportunities

- The corridor is well positioned to develop in a sustainable manner because it is a transportation network link from Routes 30 and 15 to the south to Carlisle and Route I-81 to the north.

- The traditional town center of Mount Holly Springs represent a unique and distinctive place to live, work, and recreate.
- The corridor contains a series of vacant and underutilized parcels which may be repurposed to better serve the needs of local residents and regional populations.
- Contemporary, more sustainable methods of storm water management can help Mount Holly Springs achieve environmental management goals.
- In many places, vehicular and pedestrian circulation can be enhanced by defining and consolidating property access points.
- Demand for healthy lifestyle choices and sustainability indicate support for initiatives such as neighborhood walkability.
- The small and defined geographic nature of Mount Holly Springs provides a great opportunity to track every improvement dollar spent and determine the success of the investment by monitoring the outcome.

FOCUS AREA

The recommendations contained in this document are focused on the Baltimore Avenue Corridor from the intersection of PA Route 34 and 94 at the southern end and the Watts Street intersection at the northern end. The traffic impact focus area was expanded beyond the original area, from Pine to Mill Street, in order to assess the existing geometric and traffic conditions and determine whether the network would be able to maintain adequate levels of service while incorporating enhanced pedestrian, vehicular and bicycle friendly features in the focus area. The focus area was studied in detail both during the day and night-time hours, on foot and on bike, in order to develop a comprehensive understanding of existing Baltimore Avenue and surrounding area conditions.



South Baltimore Avenue from 34/94 Split at Yates Street to pine Street Intersection



Baltimore Avenue from Pine Street to Watts Street Intersection



Mill Street from Baltimore Avenue East to the Borough Line

ORGANIZING THE CORRIDOR

The Baltimore Avenue Corridor, as defined in this study, is a relatively small but complex area composed of a diverse range of small town and natural environments. Much of this study deals with how Baltimore Avenue operates over its entire length, from its northern and southern gateways, to its core between Pine and Mill Streets. However, this corridor study must also address the localized issues that vary from place to place along the corridor, such as pedestrian crossing at the Givin Library, emergency service access from Fire Co. No.1, etc.

The Baltimore Avenue Corridor has been broken into a series of sub-areas. These sub-areas extend along the Avenue from Route 34/94 Split at the Southern gateway to Watts Street at the Northern gateway and include Mills Street from the intersection with Baltimore Avenue extending east to the Borough line. Together, these

sub-areas form a framework for discussing the location-specific recommendations that are found in the report.

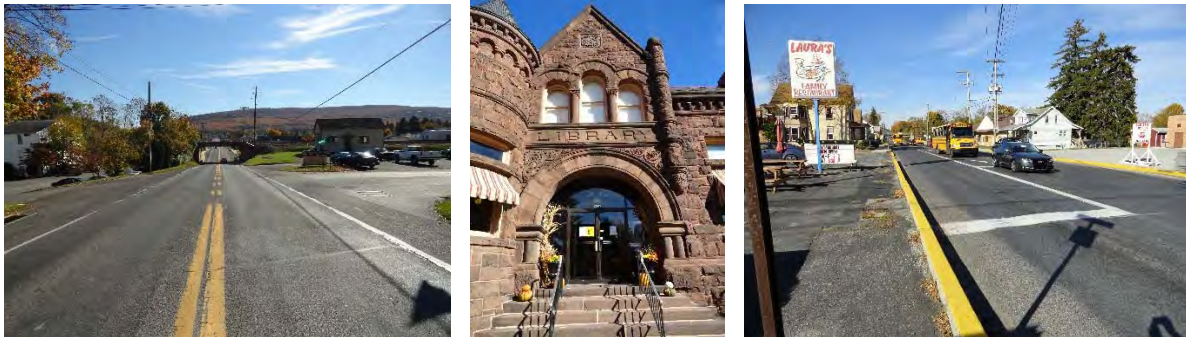
Each sub-area has also been classified according to its land use context. A context area is an area of land that contains a unique combination of built and natural characteristics, which can include land uses, architectural styles, urban or rural form, building density, roadway design, topography, and other natural features. Each sub-area has been classified according to a land use classification system developed jointly by the Pennsylvania Departments of Transportation in the Smart Transportation Guidebook. This system includes seven context areas that range from least developed to the most developed: Rural, Suburban Neighborhood, Suburban Corridor, Suburban Center, Urban Neighborhood, Urban Center, and Urban Core.

Existing Land Use Conditions

Understanding the surrounding land use context is essential to planning for the future of any improvement recommendations. Also, the planned, but not yet built projects play an important role in assessing future transportation recommendations. For example, the character of development surrounding a particular roadway can provide guidance as to who will need to use the road and how they will use it.

The Baltimore Avenue corridor has a variety of existing land uses from retail, office to industrial and residential. The purpose of the study was not to identify the exact square footage of every single building and use, but rather identify the general amount of germane and relevant items that impact the corridor study.

The existing land uses in the Baltimore Avenue Corridor total approximately 124 buildings of retail, office, light-industrial and residential type uses. There are approximately 54 business locations (32 on the west side of the Avenue and 22 on the east side) and 70+/- residential properties (36 on the west side and 34 on the east side). The uses are complemented by a total of 1,113 +/- parking spaces in the core of Mount Holly Springs. Of those, 155 +/- parking spaces are on-street spaces (93 west side and 62 east side). There are also 958 +/- off-street parking spaces (474 on the west side and 484 on the east side).



Proposed Land Uses Planned for the Corridor

The Baltimore Avenue corridor has the potential, based upon traffic volumes, to be a popular place for niche retail and residential mixed use development. As such there are a variety of plans in various stages of reviews and approvals by private development entities in the corridor. They range from a restructured Sheetz Convenience Store to the Old Anglers Lodge project. While there are a number of retail projects it is surprising to see that there are no residential project proposals anywhere in the corridor. This is counterproductive to providing a vibrant avenue. No residential uses will further define the corridor as a vehicular corridor only.

The total population of Mount Holly Springs is roughly 2,107 people. The population base is stable but cannot support alone the total retail square footage existing, or planned for the corridor. Therefore a regional approach to marketing the corridor is essential to its long-term success. The Harrisburg-Carlisle Metro Area totals 548,996+ persons. This is the target market for Mount Holly Springs. Mount Holly Springs has a mean household income of \$39,906. By comparison the Pennsylvania Mean Household Income is \$50,713.00. Clearly there is room for improvement to create stronger income potential in the borough. The general population have High School Degree or higher at 84.6% +; Bachelor Degree or higher at 8.7% + and 2.9%+ with Graduate Degrees. The majority of the population is considered a white collar workforce. The mean travel time for residents between home and work is 26 minutes, which means most people leave the borough in order to work.

The Baltimore Avenue Corridor is diverse enough to include every context zone including rural and urban core areas. In practice, land uses do not always fit neatly into a defined context area and boundaries between these context areas may be difficult to pin down. When classifying sub-areas, the project team chose the classification that most closely matches the existing and proposed land uses. This study uses the land use context of each sub-area as an organizing framework for recommended improvements and the selection of roadway design values. For example, the issues encountered in suburban and urban centers typically differ from those found in suburban neighborhoods and corridors. A brief summary of proposed improvements for each of the sub-areas is contained in Section 3: Recommendations / Implementation.

SECTION 2: GOALS AND OBJECTIVES

Establishing Community Engagement Goals

This section introduces the five primary goals that the Mount Holly Springs leadership engagement planning will want to consider: informing, consulting, involving, collaborating, and empowering. Each of these goals provides borough leadership with an opportunity to assess what's most important to the borough's engagement efforts as well as the ability to develop the strategies and tools necessary to make these efforts successful.

Inform - At its core, 'informing' is the most elementary and simplest goal of an engagement process.

Consult - The second level of engagement entails stakeholder consultation – in essence providing some mechanism to gather input on the issue, problem, or process you are concerned about.

Involve - The third potential goal of your engagement efforts is to involve stakeholders, to the degree appropriate, in decision making.

Collaborate - Collaboration refers to the engagement of stakeholders in order to create an environment conducive for solving complex issues with plausible solutions for which they take responsibility – and catalyzing the contributions and assets of stakeholders into action.

Empower - Empowerment is frequently seen as penultimate goal of an engagement effort. Ultimately empowerment refers to placing either the decision making authority or the responsibility for implementing a particular solution in the hands of stakeholders.

The leadership of Mount Holly Springs, whether through the Revitalization Committee or Borough Council, must have the ability to control and lead community engagement in order to foster real and tangible community solutions to community problems.

The Role and Importance of Building Trust

The role and importance of trust in all your engagement efforts cannot be under-estimated or under-valued. Without a purposeful and consistent effort to foster trust and build strong relationships at every step of the way, even the best-designed and thoughtful engagement processes will almost certainly either fail or fall far short of the success borough leadership may seek to achieve.

While there are a number of keys to building trust within any group, it's important to realize that this ethos *should permeate every aspect of the Mount Holly Springs engagement program.*

The challenge of course is that we have entered an era of declining trust (though to varying degrees) in government and institutions of all types and across most nations. As has been widely documented, this poses serious challenges to the borough seeking to engage its constituents in an effective discussion, decision-making and participation processes.

Several drivers contribute to this decline in trust – many of which highlight issues that an effective engagement process should be designed to anticipate and/or address. These include:

- Perceptions of bias of those convening or facilitating the process or in the information available
- Limited engagement with, or understanding of the processes and expectations of engagement
- Political polarization and the reliance on ‘proxy attributes’ guiding pre-conceived perceptions
- Persistence of wicked issues
- Increased distance between professionals and citizens as governance processes and activities become increasingly specialized and complex.

The Keys to Building Trust

Several key imperatives are found throughout the trust building process. Each of these can be enhanced – or conversely undermined – in a number of implicit and explicit ways. They include:

- **Effective communication.** This includes before, throughout, and following your formal engagement efforts. If pursued effectively, the more citizens and business/property owners understand the process, the goals and intended outcomes, the information they need to make an informed decision, the perspectives of each other, and their role(s) and stake in the process and issue, the more trust the engagement efforts will engender and be able to build from in the long-run.
- **Respect.** While this sounds obvious, it is absolutely essential that the tone, content, and facilitation of the engagement efforts genuinely respects the input of all participants or members – even if it’s sometimes difficult.
- **Transparency of processes.** The entire engagement effort should be clear and well-understood by all stakeholders, devoid of ‘hidden’ or alternative agendas (personal, political, or informational), and honest about the role and influence citizens will have in the either the decision-making or implementation of solutions. Many community engagement efforts have failed in this regard.
- **Sharing information widely.** Effective engagement and trust requires that everyone involved is working from a common understanding of the issue and each other’s perspectives as possible. If participants or residents feel that information is only shared with some members or does not do justice to all perspectives on an issue, you are very unlikely to be able to create the trust you need for effective or sustainable engagement.
- **Engaging stakeholders in meaningful ways.** Although closely related to respect, stakeholders will show greater trust in the engagement efforts that account for their perspectives, view their contributions, and employ their skills in a manner that they feel is consistent with their perspectives of these attributes.

In developing your strategies and tools to enhance trust, there are ‘five waves of trust’ that are worth considering. A brief summary highlights:

Self-trust.

The Principle of Credibility..... In its simplest form: “Do you trust yourself and are you someone that others can trust?” It is critical that you can honestly answer ‘yes’ to both these questions.

Relationship Trust.

This is all about consistent behavior in all of the borough's relationships with others. People judge us on our behavior not our intentions.

Organizational Trust.

The principle here is alignment – in essence does the Mount Holly Springs organizational structures, policies, and systems engender the trust the borough leadership wants to achieve?

Market Trust.

This refers to the borough's overall reputation – a trust that can be built or destroyed at incredible speed.

Societal Trust.

This is based on the principle of contribution – do stakeholders see Mount Holly Springs as having a past record of accomplishment and contribution to the things they care about?

The Baltimore Avenue Project: Our Village, Our Town

The Baltimore Avenue Corridor Study provides policy analysis, recommendations, and recommendations regarding transportation, land use, and environmental issues to the Borough of Mount Holly Springs. In particular, this study focuses on linking transportation investments to land use decisions in a manner that encourages smart growth and greater density alternatives to optimize existing infrastructure.

The purpose of this study was to develop solutions that will improve safety for pedestrians and vehicles, reduce travel delays, enhance economic development opportunities, create linkages, rationalize land use, and manage area storm water. With feedback from the Revitalization Advisory Committee, business and property owners and the public, the Baltimore Avenue project team has identified the following goals for the corridor:

- 1. Foster distinctive, attractive settings with a strong sense of place.** The corridor is already home to many local destinations. Strengthening the connections between these destinations will enhance the identity of the corridor and greater sense of place will make the future location become more distinctive.
- 2. Preserve and enhance cultural and historic resources.** Celebrating the corridor's rich history requires more than preservation. New development should respect the traditional character found in much of the study area. The historic resort community, the Amelia Givin Library and the "Carlisle to Hanover Turnpike", are but a few of these resources.

3. **Promote municipal cooperation.** The future of the Baltimore Avenue corridor depends on the ability of Mount Holly Springs to work together with PennDOT officials, Cumberland County agencies and adjoining municipalities to solve interrelated land use and transportation issues.
4. **Identify and prioritize critical roadway improvements.** Baltimore Avenue will remain a critical transportation corridor well into the future. Prioritizing projects that will improve circulation can mitigate congestion while enhancing safety.
5. **Create walkable and buildable communities.** Creating complete streets that accommodate vehicles, pedestrians, and cyclists will lessen auto dependence and lead to a more balanced transportation system.
6. **Enhance access to public transit.** The corridor does not currently contain access to the region's transit network (CAT). Existing investments can be maximized by improving the accessibility and effectiveness of public transit to re-link Mount Holly Springs to the connections it had in the past.
7. **Encourage smart growth land use and development patterns.** Smart growth practices such as focusing residential development in the borough, mixing land uses, and providing a range of housing options can reinforce the corridor's sense of place and improve quality of life.
8. **Enhance the sustainability of the corridor.** Many parts of the corridor have already begun to implement environmental best practices. Additional investments in the corridor's green infrastructure can help manage storm water more effectively, improve water quality to Mountain Creek and the Yellow Breeches, and beautify the corridor.



SENSE OF PLACE

It was important for the design team to study why, or if, certain places in the corridor held special meaning to particular people. Places said to have a strong "sense of place" have a strong identity and character that is deeply felt by local residents and by many visitors. Sense of place is a social phenomenon that exists independently of any one individual's perceptions or experiences, yet is dependent on human engagement for its existence. Such a feeling may be derived from the natural environment, but is more often made up of a mix of natural and cultural features in the landscape/streetscape, and generally includes the people who occupy the place. Another way of looking at sense of place is contrast: places like strip malls have little sense of place because they more or less all look very similar, often have no name and no one who wants to spend any time there or write anything about them. Whereas places that exhibit a strong sense of place have an identity and character recognized immediately by a visitor and valued deeply by residents. Understanding how sense of place will develop in the Baltimore Avenue Corridor and how it changes with time is relevant to understanding how people will interact with the environment in general and then considering ways to make the interaction more sustainable, especially as it relates to the area between Mill Street and Pine Street.

Writers and geographers have been thinking about the subject for some time. Wendell Berry famously said 'If you don't know where you are, you don't know who you are'. Wallace Stegner interprets this as "... talking about the knowledge of place that comes from working in it in all weathers, making a living from it, suffering from its catastrophes, loving its mornings or evenings or hot noon's, valuing it for the profound investment of labor and feeling that you, your parents and grandparents, your all-but-unknown ancestors have put into it." He is talking about the knowing that poets specialize in.

Of particular note is the importance of childhood experiences. Mount Holly Springs is home to young families and is considered to have high potential for growth due to the relatively low cost of real estate. The sense of place development needs to be focused on the next generation of residents. Targeting the "Generation "Y"" will be a critical path for future success in the corridor. Generation Y is comprised of individuals born from 1977 through 1995. They make up 25% of our county's population and will be dominating the workforce for the next 30 years. The potential success of branding the corridor and creating the desired "sense of place" will depend upon how well Mount Holly Springs and region recruits, retains and provides work for them and supports their families lifestyles.

Environmental psychologists have quantified links between exposure to natural environments in childhood and environmental preferences later in life. Learning about surrounding environments during childhood is strongly influenced by the direct experience of playing, as well as through the role of family, culture, and community. The special bond which develops between children and their childhood environments has been called a 'primal landscape' by human geographers. This childhood landscape forms part of people's identity and constitutes a key point of comparison for considering subsequent places later in life. As people move around as adults, they tend to consider new places in relation to this baseline landscape experienced during childhood. Creating that sense of place for the corridor, Mount Holly Springs should be a focus for a model

of community based programs and activities. Mountain Creek, the marsh and the mountain views, vistas and the gap create a canvas for life long memories and an exceptional quality of life component.

The Nature of "Sense of Place"

Specific qualities of the Baltimore Avenue landscape need to be infused with a sense of place for people. Past experience heavily influenced relationship between people and place, as places were sensed as a combination of setting, landscape, ritual, and routine and in the context of other places. Sense of place for the corridor will help to protect the region's cultural heritage and promote cultural awareness and strong kinship ties.

Access and territory are aspects of the mental image of a space. Mount Holly Springs can be evaluated by finding out how clearly its territories are marked, whether the transitions are adequate, how finely the space is divided, whether the desired range of behavior is provided for, whether all social groups have territories of their own, and how well users understand and agree on the meanings and boundaries of those territories. More importantly, the identification of places, as well as their organization into mental structures, not only allows people to function effectively but is also a source of emotional security, pleasure and understanding.

The Baltimore Avenue Corridor needs to be physically distinctive, with recognizable locales that people can attach their feelings and meanings to them. Place character is often recalled with affection; its lack is a frequent subject of popular complaint. People are pleased to "know" a great city, or to understand its history. A strong sense of place supports our sense of personal identity. For that reason, familiar features of a landscape are often fiercely defended.



Implication for Baltimore Avenue Corridor

The Baltimore Avenue experience should involve sense of place in three meanings:

- Psychological responses to designs
- Preservation of the past of a place
- Creation of a sense of place for future environments

The accomplishment of these aims requires an improved means of involving the local public in planning. Community involvement in planning and design phases of community revitalization led to the recognition

of the Mount Holly Spring "sacred structure", highly valued places essential to social processes, lifestyle, and sense of place. Identification and preservation of these places allows community development without negative quality-of-life effects.

The entrance image of the corridor contributes to sense of place. We should make every effort to maintain visual environments in harmony with the defined character during ongoing community development. For many people, the region, or a large sector of it, is their true life space. At the local scale we need to know how well persons can define, and joyfully identify themselves with, the places in their home range: the home itself, the workplace, the shops on Baltimore Avenue and the recreation ground along Mountain Creek, etc.

Thinking of the sense of place and time, the Borough needs to develop norms for the following:

- The ability of children to explore their territory, or of the elderly or the handicapped to traverse the corridor
- The perceived safety of being alone at any hour in various areas
- The physical definition of social territory, and the preferred nature of the transitions between the public domain and group territory (retail sites)
- The imageability of public spaces, as well as the limits of their spatial proportions, or the preferred degree of enclosure
- The degree to which an area should contain visual reminders of its past use and form
- The expression of current changes, future trends, and alternative futures
- Develop design guidelines to enhance the sense of place in new development
- Map areas to be conserved or changed to enhance the sense of territory
- Analyze the legibility of the corridor and the sequential form of its main traffic routes
- The degree to which residents can change the shape of their home environments to fit their needs
- Study the underused areas of the region (rooftops, parking lots, creeks, stormwater basins, back alleys) to see if they can be opened up to public use
- Propose a regional system of bikeways and footways, including their management and design
- Suggest how public access can be opened up to desirable areas such as streams, nature preserves, and fine view-points
- Develop prototype settings designed to increase environmental adaptability or openness
- Institute programs to train people in locating and using regional resources
- Encourage public celebrations of the seasons or special holidays
- Develop an information center where current changes and future possibilities are displayed
- Develop a plan for region-wide historic conservation, and set up programs of public education in regional history

VISION

The “Vision” for the overall outcome of the Baltimore Avenue Corridor Study was that it would:

- Create a vision for future growth in the core and the “Next Generation”,
- Create social, political, business/residential connections,
- Create safe passageways and crosswalks between facilities and connections to adjacent neighborhoods,
- Direct and control traffic,
- Get people back out onto the streets,
- Create safe pedestrian connections between destinations,
- Create a historic interpretive experience on the street and educate the public on rain-gardens,
- Introduce sustainable rain-gardens into the core of the Avenue,
- Create a destination; a “PLACE” that once was “The Avenue”, and
- Create priorities that are constructible and fundable from a variety of funding sources.

The goals of the Baltimore Avenue Corridor Study project were two-fold. First, to examine existing traffic circulation patterns and assess the feasibility of making specific changes that would improve the corridor for local residents, businesses, visitors and services users, and second, to develop recommendations, guidelines and a conceptual plan for improvements to the Baltimore Avenue Corridor between the Route 34/94 split at Yates Street at the southern end and the Watts Street gateway at the northern end. These goals reflect a desire to proclaim that Baltimore Avenue is a “Great Street.” Great streets have definable characteristics and incorporating these characteristics onto the avenue can be achieved by implementing the recommendations contained within this document. The American Planning Association has defined the characteristics of what a “Great Street” is, and these characteristics have been considered and integrated into the development of this plan.

A Great Street:

- Provides orientation to its users and connects to a larger development pattern in the region,
- Balances the competing needs of the street, including vehicles, pedestrians, cyclists, service vehicles, public transit, etc.,
- Capitalizes on natural features and topography and includes varied land uses/activities,
- Has urban design and/or architectural features that are exemplary in design,
- Encourages human contact and social interactions,
- Promotes use of the street 24hours a day and offers a feeling of safety and security, and
- Has a definable, memorable character.



The overall objective of the Baltimore Avenue Corridor Study is to make the street safe, functional, accessible, aesthetically pleasing, and supportive of a potentially viable business and tourism industry. When people are comfortable on a street and enjoy being there they come more often. Increased pedestrian activity will in turn lead to greater opportunities for businesses, restaurants, galleries, shops, and other specialty uses to successfully exist. Localized successes are often the catalyst for more widespread economic development, helping the community realize goals such as the preservation of corridor's unique tree lined character and charm.

Six fundamental principles will help achieve the goal of creating high quality, environmentally responsible avenue project. Those six principles are:

1. **Implementing sustainable practices,**
2. **Developing complete streets,**
3. **Use cohesive design elements,**
4. **Promoting security and safety,**
5. **Coordinating maintenance with design and implementation, and**
6. **Protecting and enhancing historic character.**

IMPLEMENT SUSTAINABLE PRACTICES

As part of the Chesapeake Bay Initiative to clean up pollution impacting the Chesapeake Bay, Pennsylvania and all contributory states are mandated to create a specific Watershed Improvement Plan (WIP) to clean-up 60% of their Bat clean-up practices by 2017 and 100% by the year 2025. As of 2016 Pennsylvania is significantly off-track of meeting those goals. The plan targets four (4) sources of pollution. They are Agriculture, Urban Runoff, Wastewater & CSO and Septic sources. Only the Wasterwater & CSO source is on tract in PA. Mount Holly Springs will be considered one of the Urban Runoff sources and needs to proactively have a plan to address this issue. The three primary pollutants that need to be addressed are nitrogen, phosphorus and sediment.

The Baltimore Avenue corridor needs to focus on infiltration practices to capture and store rainfall and surface runoff. Raingardens and micro Bio-retention facilities are recommended, as opposed to mechanical inlet filters, etc. These practices will reduce pollutants from entering Mountain Creek and the Yellow Breeches, increase groundwater recharge, and decrease the volume of stormwater runoff.

Pennsylvania is relying heavily on the practices to reduce nitrogen, phosphorus, and sediment from stormwater runoff, but is falling short. **With a mere three percent of the 2015 goal met, it will be difficult to get back on track and meet the 2017 goal.** It is our belief that heavy fines will be the next level of enforcement to make small and large towns comply with the goals.

Action needed: Pennsylvania's Department of Environmental Protection should promote regional stormwater authorities to local governments as a sustainable option to implement the Chesapeake Clean Water Blueprint.

Sustainable processes or states can be maintained indefinitely at a specific level. Sustainable design for streetscapes affects the flow of storm water through the area, the materials used, and the consumption or renewal of energy and resources. Elements of sustainable streetscape design include:

- Storm water management
- Use of sustainable materials
- Lighting & dark skies
- Landscaping & urban heat island



Storm Water Management

The environmental health and integrity of an area is reflected in the quality and conditions of its water bodies, specifically Mountain Creek and the Yellow Breeches Creek. The land that drains to a particular water body, such as a river, stream, lake, or wetland, is called a watershed. Large watersheds are divided into small sub-watersheds, which drain to specific portions of streams. Mountain Creek is the primary stream that passes through the Baltimore Avenue Study Area, and precipitation falling on land enters this creek depending on the watershed in which the land is located. The bituminous cover associated with

the Avenue has an impact on the region's water resources. **The creation of a "green" bump outs and raingardens will in part work to mitigate some of that impact and filter storm water flows.**

Water Quality Assessment

The water quality of streams is monitored by the Pennsylvania Department of Environmental Protection (PADEP), as required by the Clean Water Act. Impaired water bodies have impacts on drinking water

supply, aquatic life, property values, and quality of life for people, wildlife, and the overall environment. Of the streams and drainage ways located within the Study Area, all drainage areas feed the Yellow Breeches Creek, which is classified as a High Quality-Cold Water Fishes, Migratory Fishes (HQ-CWF, MF) designation. In order to maintain water quality standards in the Yellow Breeches Creek Basin all efforts should be made to treat stormwater runoff at its source near the headwaters (Mountain Creek). The use of raingardens is also a proactive effort by Mount Holly Springs to comply with forthcoming U.S. EPA MS4 mandates related to water quality.

Storm water runoff is the result of precipitation that is not infiltrated into the groundwater, but is instead drained into a nearby water body. With increased development and more impervious surfaces, less water percolates into the ground and more is carried into the surface waters, either through direct runoff or through storm water outfalls. Increased storm water runoff may cause flooding problems, which can cause property damage and be harmful to public health. In addition, high levels of storm water runoff impair water bodies for a number of reasons, including the following:

- Pollutants on the land are carried to Mountain Creek and the Yellow Breeches Creek.
- Groundwater (aquifers) is not recharged.
- Flash flooding destabilizes aquatic life of streams.
- Stream banks are eroded, increasing siltation of water bodies.
- Eroded stream banks are less able to filter further storm water runoff.
- Stream bank erosion can expose sewer infrastructure, making it more susceptible to damage and leaks.

Although storm water runoff is affected by many environmental factors, excessive impervious coverage resulting from the urban and suburban development patterns in the Study Area is a primary culprit. Impervious coverage refers to areas like roadways, buildings, parking lots, and other paved areas where rainwater is prevented from infiltrating the soil. Impervious surfaces disrupt natural absorption, filtration, and recharge processes and allow water to flow rapidly into bodies of water.

The installation of storm sewer pipes, which efficiently collect and discharge runoff, also prevent the natural infiltration of rainwater into the soil and underlying groundwater aquifers. Although groundwater recharge is decreased by impervious coverage and storm sewers, groundwater withdrawals have increased in recent years at a higher rate than surface water withdrawals, at least in the watershed. A lower groundwater table in turn reduces the base flow of surface water, affecting the habitat integrity on land.

Storm water Management Plans and Initiatives

Well-managed storm water, through the use of properly constructed and maintained Best Management Practices (BMPs), can remove pollutants, facilitate ground water recharge through retention and infiltration, provide base flow for surface waters, and maintain the stability and the environmental integrity of waterways and wetlands. To provide long-term protection and sustainability of ground and surface water

resources, storm water should be managed at the source or origin as an environmental resource to be protected rather than as a waste to be quickly discharged and moved downstream. The Baltimore Avenue Plan recommends the creation of “green” raingarden islands that would act as an infiltration and filtration area. This rain-garden type area would add aesthetic appeal to the corridor and improve environmental integrity of the storm water flows generated by the Avenue itself.

Like many environmental planning initiatives, storm water management should be addressed by a watershed approach, which is considered the most effective framework to address water resource challenges.

Storm water runoff that is not properly managed flows rapidly over impervious surfaces (paved surfaces or other materials that do not absorb water), picking up debris and pollutants along the way and washing them into rivers and streams. Poorly managed storm water runoff also causes flooding and erosion, destroys habitat and contributes to combined sewer overflows (CSOs).

Integrating Best Storm water Management Practices (BMP’s) into building and site development can reduce the damaging effects of urbanization on rivers and streams. Disconnecting the flow from storm sewers and directing runoff to natural systems such as landscaped planters, swales and rain gardens reduces water velocity and cleans storm water runoff. Natural storm water systems also permit reduced pipe size for storm sewers. BMP’s include bioswales, pervious paving, rain gardens, and rain barrels. The following techniques should be considered in street and parking area design and integrated into the streetscape:

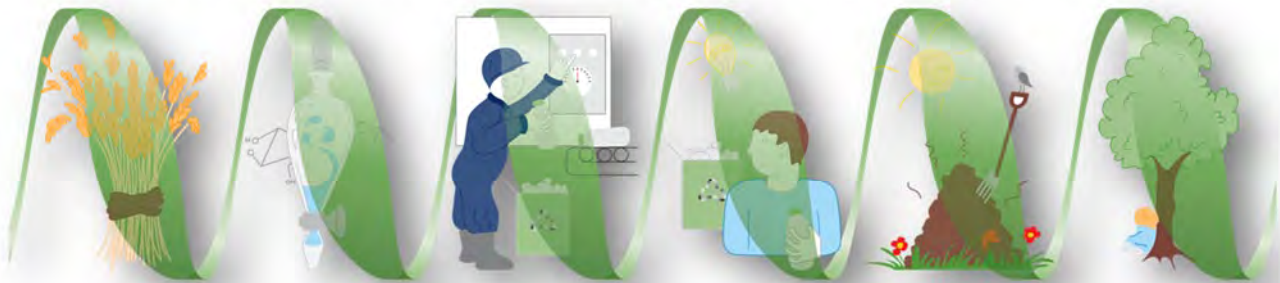
- **Bioswales**, depressions sloped on either side, contain vegetation or riprap that maximizes the amount of time water spends over permeable surfaces before entering the storm sewer system. Bioswales also clean storm water by removing pollutants.
- **Pervious paving** allows water to infiltrate the pavement surface, reducing rapid runoff into streams and storm sewer systems. Pervious paving surfaces include interlocking pavers, porous asphalt, porous concrete and grid pavers.
- **Rain gardens**, depressions that contain plants adapted to wet conditions, are designed to slow, capture and absorb rainwater.
- **Rain barrels** collect and detain rain from building gutter systems. The water in the rain barrels can be used to irrigate the surrounding landscape.



Use of Sustainable Materials

Sustainable materials are manufactured with concern for toxicity, sustainability of sources and the amount of energy required for production. Using sustainable materials reduces energy use and conserves natural resources. Future material selections that are used in the public realm of the Baltimore Avenue Corridor should consider:

- Is the material made from renewable resources or rapidly renewing materials? Rapidly renewable materials include bamboo or recycled plastics.
- What is the amount and source of energy used to produce the material? Use of renewable or alternative sources of energy conserves resources and often reduces environmental degradation.
- Is the material manufactured regionally? Regional production reduces the amount of energy to transport the material. Leadership in Energy & Environmental Design (LEED) defines materials extracted, processed, and manufactured within 500 miles as “regional.”
- Is the material made of recycled content? Without compromising other design considerations, materials and street furnishings should make greater use of recycled components.



Lighting and Dark Skies

Outdoor lighting is important in Avenue style environments. The Baltimore Avenue Corridor is largely void of streetscape style lighting of any kind, with the exception of intersections. A limited number of intersections are illuminated and there are long stretches between standard PennDOT cobra style fixtures on the corridor. Lighting levels throughout the corridor are inadequate when considering pedestrian and bicycle uses.

Appropriate lighting levels promote a feeling of comfort and security and encourage pedestrian activity. Illuminating building facades highlights interesting architectural features and strengthens the character of an area. Facade illumination also directs ambient light to the vertical plane at eye level, creating higher visual contrast and recognition of faces. Proper lighting levels in pedestrian areas also provide visual cues to motorists, reducing areas of shadow that hide pedestrians from view.

Street lighting fixtures should relate to the streetscape vocabulary during both day and night. Their scale, spacing and style of the fixtures contribute to the visual tone of the street. Use of light poles for signage, banners and other way finding devices adds color and detail and reduces visual clutter by ordering street graphics. At night, the light sources should become almost invisible. Full cut-off, or partial cut-off, fixture optics focus the observer's eye on the illuminated surface below the fixture. If the fixture does not utilize this high performance optics, the resulting glare causes the viewer's pupils to contract, making the illuminated

area seem dark. The type of light source also influences energy consumption and sustainability. Efficient light sources can achieve equivalent lighting levels with lower energy use. The spectrum of light also becomes an important part of the nighttime streetscape. For example, high pressure sodium vapor lights are very efficient, but their orange-yellow light renders colors poorly, making it difficult to distinguish true colors in the environment. Metal halide's white light, on the other hand, renders colors and surfaces more realistically. These lamps are available in different color temperatures to provide a more "incandescent" appearance. Current studies indicate that human peripheral vision and visual acuity in urban settings is substantially better under white light than orange light. Another option for consideration is the advancing technologies associated with LED lighting and fixtures. LED lighting is cost efficient to operate, provides longevity and renders colors in an acceptable range.

The concept of "dark skies" minimizes extraneous light and directs light to areas and surfaces that should be illuminated. Light pollution and obtrusive light result from both the optical characteristics and placement of the luminaires in an outdoor site or roadway. Outdoor lighting performance should be based on both optics and overall system design, including distribution and functional and aesthetic requirements. Lighting design can also create visual interest by highlighting special features. Up-lighting of trees, walls, floodlighting of architectural facades and highlighting other streetscape features provide "sparkle" when complementing good overall boulevard lighting design. The opportunity to highlight the mature trees along Mountain Creek is perhaps one of the greatest opportunities to brand the corridor and unify the nightscape of Baltimore Avenue.

Landscaping and Urban Heat Islands

An urban heat island is a densely populated area that is significantly warmer than its surroundings, such as the large expanses of pavement in the commercial businesses along the corridor. Heat islands form in areas when vegetation is replaced by hard surfaces of low reflectivity. Portions of Baltimore Avenue are considered heat islands in their current condition. These surfaces absorb the sun's heat, causing surface and ambient temperatures to rise. Planting trees reduces the heat island effect by shading sunlight from hard surfaces. Deciduous trees on the south and west sides of buildings reduce energy use by blocking sunlight in the summer while allowing it to penetrate the building in the winter.

Reflective paving and roofing materials also helps reduce urban heat islands. Of typical paving materials, concrete is somewhat more reflective than asphalt. Green roofs in buildings also absorb the solar radiation. The promotion of potential green roofs should be advanced in the borough and zoning incentives discussed and/or incorporated. The inclusion of large rain garden planting islands along Baltimore Avenue will assist in reversing the heat island effect of the hardscape through the corridor.

DEVELOP COMPLETE STREETS



Complete Streets accommodate both motorized and non-motorized transportation. They provide comfortable space for motorists, transit passengers, pedestrians and bicyclists. They also serve the special needs of such users as seniors, children and people with disabilities. Health and environmental concerns and high fuel costs make transportation alternatives more realistic and economical for more people. The design of

Baltimore Avenue will need to meet the needs of a variety of users. Those needs will change with time and flexibility and safety are both critical elements to consider.

Traffic calming devices should be a part of complete street design. Examples of calmers include roundabouts, landscaped islands, chicanes, speed bumps and tables, bump-outs, raingardens, crosswalks, changes in paving surfaces, and slower speed limits. These devices make streets safer for all users and tend to encourage compliance with speed limits. Clear and well-maintained pavement markings should be used to delineate function-specific lanes, such as bicycle or reserved transit lanes. The roundabouts considered at two intersections along the Baltimore Avenue Corridor (Pine Street and Mill Street) are both traffic calming elements and ones that increase capacity as well as vehicular, bicycle and pedestrian safety.



The Baltimore Avenue Roundabouts

The Baltimore Avenue Corridor has a number of existing intersections (3 total) that would be well suited for a roundabout installation and the removal of existing traffic signals. Those intersections with Baltimore Avenue include the following:

- Pine Street
- Mill Street, and potentially
- Watts Street

What is a roundabout?

Although roundabouts have been in widespread use in other countries for many years, they have only recently been used within the United States and PennDOT has been promoting their use as an alternative to signalized intersection. Roundabouts can offer several advantages over signalized and stop controlled alternatives, including better overall safety performance, shorter delays, and shorter queues (particularly during off-peak periods), better management of speeds, and opportunities for community enhancement features. In some cases, roundabouts can avoid or delay the need for expensive widening of an intersection approach (such as an overpass or underpass structure) that would otherwise be necessary for signalization.

Many of the guidelines in this document are based on the FHWA publication, *Roundabouts: An Informational Guide* (hereafter referred to as the *FHWA Roundabout Guide*). For more discussion and details related to roundabouts, readers are encouraged to review the *FHWA Roundabout Guide*, which provides principles of good design while building in flexibility. Designers must be aware of this flexibility and realize that each roundabout will have its own unique design based on the goals and parameters of the project. There will never be a “cookie cutter” design for a roundabout.

A *roundabout* is a generally circular intersection with the following specific geometric and traffic control characteristics:

- Yield control at all entering traffic, and
- Appropriate geometric features to promote slow and consistent speeds for all movements.
- There are Islands on all approaches.
- Roadway curvature to reduce speeds with a Counter Clockwise Circulation
- Reduces Pollution and Fuel Use – Fewer Stops and hard accelerations and less time idling
- Saves Money – No signal Equipment to install/maintain and less pavement.

Why use a roundabout?

Roundabouts offer dramatically improved safety over other at-grade intersection forms because they have fewer conflict points, slower speeds, and easier decision making. When comparing a roundabout to a signalized intersection, studies so:

- **90% reduction in Fatalities**
- **75% Reduction in Injury Crashes**
- **30 - 40% Reduction in Pedestrian Crashes**
- **10% Reduction in Bicycle Crashes**
- **Slower speeds and fewer conflict points**

Roundabouts improve pedestrian safety by offering two simple crossings of one-way traffic moving at much slower speeds than a signalized intersection. Also, with roundabouts head-on and high-speed right angle collisions are virtually eliminated.

Capacity

Roundabouts typically carry about 30% more vehicles than a similarly sized signalized intersection during peak flow conditions. During off-peak conditions, roundabouts cause almost no delay, but traffic signals can cause delay to side street and left-turning traffic from the major street (Baltimore Avenue). The increased capacity at roundabouts is due to the continuous flowing nature of yielding only until a gap is available, versus waiting turns at a signalized intersection.

The Institute of Transportation Engineer's Context Sensitive Solutions in Designing Major Thoroughfares for Walkable Communities provides more information on complete street design. The website, www.completestreets.org, provides ongoing information on the state of complete street legislation and design.

Parameter	Minimum "Mini-Roundabout"	Urban Compact Roundabout	Urban Single-Lane Roundabout	Urban Double-Lane Roundabout
Maximum Entry Speed (mph)	15	15	20	25
Design Vehicle	Bus and Single-unit truck drive over apron	Bus and Single-Unit Truck	WB-50	WB-67 with lane encroachment on truck apron
Inscribed circle diameter (feet)	45 to 80	80 to 100	100 to 130	150 to 180
Maximum number of entering lanes	1	1	1	2
Typical capacity (vehicles per day entering from all approaches)	10,000	15,000	20,000	40,000
Applicability by Thoroughfare Type:				
Boulevard	Not Applicable	Not Applicable	Not Applicable	Applicable
Arterial Avenue	Not Applicable	Not Applicable	Applicable	Applicable
Collector Avenue	Applicable	Not Applicable	Applicable	Not Applicable
Street	Applicable	Applicable	Applicable	Not Applicable

Addressing the PA Route 34/94 Split at Yates Street

The intersection on South Baltimore Avenue at the Route 34/94 split is a problematic and fatal location. There are multiple issues related to this intersection that need to be addressed. The combination of poor horizontal alignment and severe vertical grade and cross-slope all combine to create an intersection that is not acceptable by current engineering standards. At least one fatality has occurred here in recent years and multiple accidents. The plan recommends a complete horizontal and vertical realignment to solve these issues. A total of four (4) separate alternatives were prepared and considered by the community. The improvements proposed at this intersection met with total support of Mount Holly Springs residents and businesses.

USE COHESIVE DESIGN ELEMENTS

Designing a streetscape is comparable to designing a building. A well-designed building may contain a unified composition of rooms or spaces, spaces with well-defined edges, orderly rhythms of windows and structural elements, cohesive furniture, a hierarchy of spaces, attractive and functional lighting, and interior materials appropriate to their function. Similarly, a well-designed streetscape includes:

- A unified relationship between pedestrian and building spaces,
- Well-defined edges between pedestrian and vehicle domains,
- A rhythmic and logical use of trees, furniture, paving and planting,
- Attractive and functionally appropriate street lighting,
- A consistent and harmonious family of street furnishings,
- A hierarchy of spaces that helps define the use of the streetscape,
- Attractive and durable materials, varied to reflect functional and aesthetic needs, and
- Appropriate scale to how users will experience the environment.

These factors applied to an urban streetscape may include:

- Strong spatial definition of outdoor “rooms” and “hallways” generated through strong building edges, appropriate walls, fences, plantings, etc. as well as overhead tree canopies. Rooms developed in a hierarchy of sizes and intended uses provide a wide variety of pedestrian experiences in streetscape settings
- A sense of unity that emerges from consistent textures, colors and forms in trees and other plantings, furniture, paving and other elements
- Strong rhythms created by regular repetitions of features and dimensions, such as streetlights, hard and landscaped surfaces and height of elements
- Strategic use of dominant streetscape features (flowers, signage/banners, etc.) to focus pedestrian or driver attention to information, safety considerations

These and other elements create an ordered, harmonious, unified and vibrant streetscape setting. Everything must have a purpose, relate the street to its surroundings, and satisfy both functional and aesthetic needs. Without question the most advantageous potential unifying item on the Baltimore Avenue would be street trees and the generally standard wide expanse from pavement edge to pavement edge. This of course would be in addition to unifying elements such as signage, banners and street furnishing.

PROMOTE SECURITY AND SAFETY

A successful Baltimore Avenue streetscape must offer safety and security to its users. Design for a safe and comfortable streetscape should accomplish the following:

- **Minimize or manage pedestrian and vehicle conflicts.** Effective techniques include better crosswalk definition, roundabouts, and improved sightlines, higher lighting levels at points of potential conflict (especially at the Givin Library), pedestrian refuges, and corner nodes that decrease the distance that pedestrians must negotiate in crossing a street.
- **Increase observability.** Street design and building configurations should provide clear visibility for pedestrians and police. Streetscapes should avoid hiding places or blind corners.
- **Encourage pedestrian and street activity.** People with eyes and ears on the street are one of the best available deterrents to crime. People feel most secure in the company of other people.
- **Communicate caring and stewardship of the street environment.** Good streetscape design should promote good maintenance and discourage vandalism. When they occur, graffiti and other acts of vandalism should be repaired. Evidence of neglect encourages more vandalism.

COORDINATE MAINTENANCE WITH DESIGN

It will be critical for Baltimore Avenue to continue to look good over time. Long-term maintenance is a critical design determinant and is a serious matter for Mount Holly Spring's. Community stewardship can help stretch borough and PennDOT resources, and the community should be involved in both the design and maintenance processes. The entity ultimately responsible for maintenance should be PennDOT, since Baltimore Avenue is a state highway, with assistance from the borough and local volunteer organizations. In addition, initial maintenance should be part of installation contracts.

The Baltimore Avenue maintenance program should address the following:

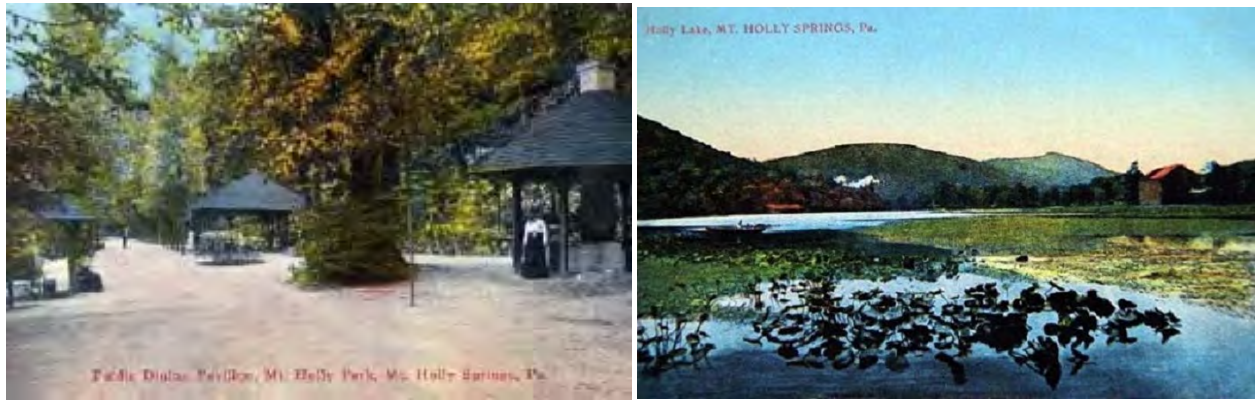
- **Graffiti Prevention** - Planting trees or other greenery near graffiti-prone areas deters vandalism.
- **Landscape** - Trees and shrubs should be pruned to remove dead or damaged wood annually. Mulch depth should be maintained at 3". All landscape beds should be weeded regularly. Perennials should be cut back in March and divided and fertilized as required.
- **Lighting** - All light outages should be repaired as soon as they are noticed/reported. Metal elements should be reviewed yearly and refinished as required.
- **Sidewalks** - Sidewalks should be regularly maintained and joints should be sealed every 5 years.
- **Street Furniture** - All damaged stone, metal and concrete elements should be replaced immediately. All graffiti should be removed. Using durable materials will ensure the longevity of the project and will help to reduce maintenance costs.
- **Trash Pick-up** - Trash should be picked up daily or weekly depending on the activities planned on the Avenue. All trash should be removed from the boulevard weekly.
- **Tree Trimming** - Trees requiring trimming should be done by a certified arborist, carefully pruning to not adversely deform the shape of the tree.

PROTECT AND ENHANCE HISTORIC CHARACTER

Historic and Cultural Resources

The history of Mount Holly Springs dates back to 1750, when the first known settler, Mrs. Elizabeth McKinney migrated from Shippensburg after the French and Indian War and built a log house in Upper

Holly. The borough of Mount Holly Springs was incorporated in 1873. The borough has become well known as a site of important paper manufacturing, brick manufacturing and glass production. In the early years the borough was called a variety of names from Holly Gap, Trent’s Gap, Upper Holly, Lower Holly, and Papertown. Holly was the original name given to the gap in the mountain through which Mountain Creek flows and because of the large holly trees that stood on the side of the mountain.



Historic resources are an important part of what make communities in Cumberland County unique and memorable. These resources can include registered historic districts, local and county parks, and a wide array of historic buildings and styles of architecture. These important resources are located along the Baltimore Avenue corridor and have changed markedly over time. Some have changed for the better, and some for the worse, while some have completely disappeared. The Amelia Givin Library remains one of the primary “signature” pieces of architecture in the Borough. This Robertsonian Romanesque masterpiece should be a focal point both during the day and at night. It is important to identify other cultural or historic resources that may be impacted by proposed changes to the area’s natural and built environments. Historic preservation can be an important tool to ensure that these valuable resources retain their character even as the transportation infrastructure and land use context around them change and modernize. The borough already has a list and map of historic structure. This document should be re-visited and a new digital version created to showcase local buildings of significance in Mount Holly Springs.



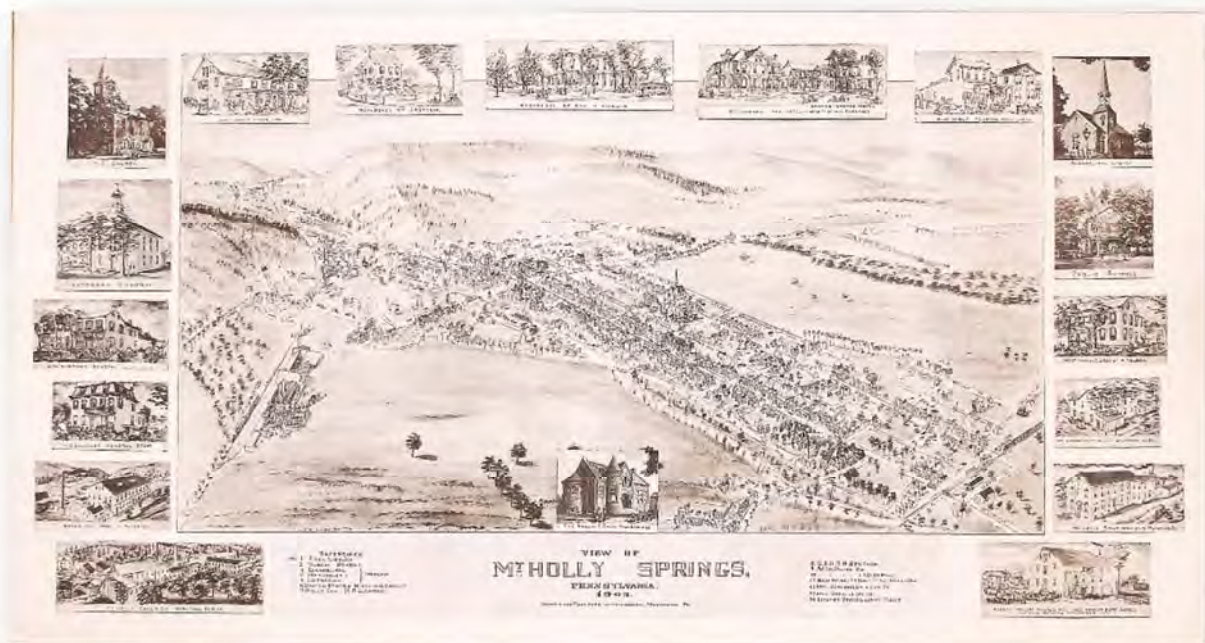
Every state is required by federal law to maintain a publicly funded state historic preservation office (SHPO). The responsibilities of the SHPO’s include identifying historic properties and preparing and updating the statewide preservation plan. SHPO’s also provide assistance to government agencies at the federal, state,

and local levels, as well as to citizens groups, nonprofit organizations, and the private sector. In Pennsylvania, the Bureau for Historic Preservation, a division of the Pennsylvania Historical and Museum Commission (PHMC), serves as the SHPO.

The Baltimore Avenue Corridor has a long and storied past. The avenue has played an important part in the development of the region from revolutionary and civil war times until present day. Accordingly, the study area is home to numerous historic and cultural resources. In addition to the PHMC, Cumberland County maintains a historical commission and advisory boards to assist with the creation and protection of historic buildings, sites, and districts. Aside from designating local historic landmarks, these bodies often review building permits that may change the appearance of any historical property.

Good avenue design understands the contribution of streetscape elements to the character of historic districts. Historic elements reinforce the district's identity and distinctiveness and contribute greatly to a "Sense of Place". Traditional streetscape elements such as paving materials, signage, lighting or other meaningful elements should be retained or re-installed where appropriate with in the Baltimore Avenue Corridor. The varying intersections seem to be one of those appropriate locations. Others include the context of the proposed roundabouts at Mill and Pine Streets. When new materials are introduced they should be consistent with the historic character and design patterns of special areas. Since there are few "special areas" existing in the corridor there should be an effort to create ones.

Interpretive signage and on-street story telling is one way to enhance the historic elements of the corridor. Others include developing internet capacity for visitor promotion and tourism elements defining the corridor context in the Cumberland Valley and the stories that are rich with local folklore.



LESSONS LEARNED

The various segments of Baltimore Avenue fill different functions and operate in a variety of contexts depending upon location. Some areas are rural, some are commercial and a few are still residential in nature. By experiencing them and considering their components and dimensions, we can derive patterns that can help guide standards to apply to new and retrofitted Baltimore Avenue.

1. Good Avenue design separates the vehicular and pedestrian domains with an “amenity zone,” a feature that adds to the simple, functional dichotomy of street channel and sidewalk. This zone may be as simple as a well-maintained strip of turf or as complex as an intricate symbolic composition of color and surface.
2. Avenue elements are scaled to their intended users. Small scale details are lost on motorists moving at 45 miles per hour, while big elements do not engage pedestrians. Streetscapes like Baltimore Avenue include features that add interest without distraction for motorists at high speeds, while providing a different scale for pedestrians and cyclists along this complete street. .
3. The use of different paving surfaces and street furniture makes functional sense. Changes in paving material and texture can signal the primary pedestrian pathway, spaces such as crosswalks that will be occupied by both vehicles and pedestrians, or the “amenity zone” that separates domains. They may also reflect streetscape themes. Good streetscapes also place street furniture in places where it is likely to meet user needs. For example, seating areas are located in places that people find comfortable – perhaps buffered from moving traffic, or set off by landscaping or low walls.
4. Streetscape elements fit together into a family and have at least some unity of design and/or color. Street features serve a program of intended uses, and are not placed either at random or to fill up space.
5. Good streetscapes minimize clutter. Wires are almost always underground, unless they serve light rail transit. Public information signage is coordinated, rather than scattered throughout the street environment. Clarity and readability takes precedence over size. If the lines cannot be placed underground they need to be structured with some sense of order as opposed to random chaos.
6. The avenue needs to provide space for all users, and should not subordinate the needs of non-motorized users to motor vehicles. Each type of user is superior within its domain, and unavoidable conflicts are carefully managed for the safety of all. Medians and refuges reduce the scale of the wide boulevard and provide ways to manage the joint domain of the crosswalk.
7. Examples of avenue features and site furnishings (banners, planters, sculptures, etc.) make frequent use of color and are attractive throughout the year.
8. Materials are durable and selected for maintainability. Successful avenue environments are also well-maintained. Plant materials are healthy and adequately watered. Paving is clean and un-littered, and surfaces are free of graffiti or other types of vandalism.
9. Hybrid lighting, combining cleanly-designed roadway lighting and more nuanced pedestrian-scaled lighting, is used to enhance the effectiveness of the streetscape experience.
10. In many cases, adjacent buildings contribute to the public environment by providing a street orientation, or a direct path from the sidewalk to building or business entrances.

GENERAL GUIDELINES: A COMPLETE STREETS FRAMEWORK

Introduction

Complete streets are planned and designed to safely accommodate and be accessible to motorists, bicyclists, pedestrians and public transit. The streets should be accessible to persons of all ages and abilities. These guidelines will help to place Mount Holly Springs in the forefront of the complete streets movement. The guidelines included in this section were developed in an effort to assist borough staff and decision makers in implementing projects that make their individual portions of the Baltimore Avenue Corridor more user friendly for pedestrians, bicyclists, transit, and motorists and that promote sustainable economic development that works to make the boulevard a desirable place to live, work, and play.

The guidelines are divided into two sections focusing on transportation network and boulevard character. The first section, *Designing a Multi-Modal Environment*, includes guidelines associated with street design, including context sensitive design solutions, parking, accessible design, considering pedestrians, bicycles, public transportation, and other motorized vehicles. The second section, *Developing a Vibrant and Exciting Streetscape*, discusses guidelines and considerations associated with creating strong connections – both visual and physical, signage, streetscape amenities, open spaces, park modifications, and public art.

Designing a Multi-Modal Environment

Moving vehicles quickly, efficiently, and as safely as possible was once viewed as the highest purpose of a street. The uninviting atmosphere generated by speedy downtown traffic, along with a population shift to the suburbs as well as other outside economic factors, have contributed to the decline of our nation's commercial districts and core communities. The Baltimore Avenue Corridor is no exception. The corridor clearly was impacted for years by the expansion and traffic volumes of Route 34 and 94 which provided access to/from the Borough of Carlisle and Hanover, but also bisected Mount Holly Springs and adversely impacted the quality of life and safety of residents. Today communities around Pennsylvania and the nation are rediscovering the value of our core community centers and are embracing a more balanced design philosophy that couples the need to move traffic with a conscious desire for an improved sense of place and accommodating pedestrians. Another major impacting factor to the avenue's transportation is the relocation of major truck volumes to the corridor.

Cycling and walking can become, with the appropriate infrastructure, significant modes of travel within the corridor. Their popularity has potential growth characteristics to those modes of transportation that requires collective thought on making solid connections between neighborhoods and retail destinations in a number of ways. The proximity of the regional and county trails adds a potential tourism component to the plan that only a few local communities can provide as an asset. The activities that take place on Baltimore Avenue influence, and are influenced by, the surrounding municipalities and traffic patterns.



In addition to serving a practical role of transporting people from one place to another, there are health, environmental, economic, and social benefits associated with non-vehicular transportation as an alternative to a personal vehicle, or even public transportation. Cycling and walking in lieu of driving encourages interaction between people as they have the opportunity to meet and gather on sidewalks, outdoor dining and pocket-park seating areas.

The following sections provide guidance to in developing preliminary and detailed plans for future Baltimore Avenue transportation improvement projects.

Consider Functional Classification

The term “functional classification” has traditionally been used by transportation planners and engineers to describe a roadway’s traffic and travel function within the overall highway network. For example, freeways move large traffic volumes at high speeds with limited local access while local streets move low volumes of traffic at low speeds and are typically lined with driveways and entrances. The arterials and collectors provide service somewhere in between. Understanding how Baltimore Avenue functions now, but more importantly how Mount Holly Springs officials *want* it to function in the future will facilitate the selection of safe, proven, and appropriate design elements. The Avenue currently is classified as a collector highway and study recommendations are based upon that classification.

Recognize Ownership and Maintenance Jurisdiction

Considering street ownership and maintenance jurisdiction at this corridor study planning stage of the project helped the project design team gather the proper decision makers around the table before improvements are carried to a higher level of detail and engineering documents are prepared. PennDOT District 8-0 maintains one system of public streets and highways throughout this part of the state and Cumberland County. Other municipal jurisdictions such as counties, townships, cities, and boroughs also own and maintain public street systems. Understanding ownership and maintenance jurisdiction are

important to know when needing approval authority for changes in cross section, access, streetscape, and design.

State highways are those owned and maintained by the PennDOT. They include Pennsylvania state routes, United States (US) routes, and interstate highways. Within the Borough of Mount Holly Springs state route numbers - S.R. # 0034 and #0094 are considered as state highways and are owned and maintained by the PennDOT. Design and traffic control decisions on this roadway and all of the Route 34/94 intersections must be coordinated with, permitted and approved by the department.

During the design process the Navarro & Wright design team, Borough Council representatives and the Borough Chief of Police, met with permitting engineers and design representatives of PennDOT District 8-0 to discuss the total project scope for the Baltimore Avenue Corridor Study and the potential for traffic calming elements such as:

- Redesigning the Route 34/94 Yates Street intersection to eliminate safety issues.
- Adding roundabout's at Pine Street and Mill Street intersections and removing traffic signals at those intersections,
- Textured crosswalks and pedestrian platforms,
- Rain gardens and storm water infiltration areas and bump-outs,
- Dedicated bicycle lanes outside of the area between Mill and Pine Streets,
- Pedestrian scale light fixtures, and
- Pedestrian crosswalks, and
- Way-finding signage and historic interpretive and environmental interpretive signage.

The department's general position on these improvements was positive and it was made clear that roundabouts would be looked at favorably and is a preferred solution to failing signalized intersections and new intersections in District 8-0. PennDOT representatives indicated that some of the proposed Baltimore Avenue Corridor improvements (such as textured crosswalks) will be conveyed to the municipality along with the long-term maintenance responsibilities. Other improvements would be maintained by PennDOT. The District 8-0 Engineer provided an outline of potential transportation funding options and felt that the Mount Holly Springs project would be competitive at securing funding.

Selection of the Proper Design Vehicle for Baltimore Avenue

Deliveries to businesses, private offices, retail establishments, and residential uses are critical to the areas economic vitality. As such, accommodation of truck traffic was an important consideration in the selection of appropriate traffic calming, street and roadway treatments within the corridor. The size and turning radius of the largest vehicle expected to use a roadway or street, known as the design vehicle, were considered. These factors affect both lane size and the radii of curbs at all impacted intersections. They can also impact the location of roundabouts, signal poles, light poles, pedestrian refuge areas, rain gardens, signage, etc. The size and turning radii of large dimension vehicles typically used throughout the United States can be found

in Chapter 2 of the AASHTO Green Book. There are classes of highways and streets where larger vehicles must be accommodated. The State of Pennsylvania permits the use of large tractor-and-trailer combinations (53 foot trailers) on what is known as a system of Qualifying and Access Highway.

Given the proximity of the avenue to other “connectors” such as SR 0015, I-81 and the PA Turnpike, it is probable that truck traffic will increase on the Baltimore Avenue Corridor and for this reason their turning radii have been considered in the design of the suggested improvements and enhancements to the corridor.

Use of a 30 foot single unit truck as a minimum standard is recommended to accommodate both small delivery vehicles and busses used by the CAT. According to CAT, which may operate future scheduled bus service between various regional destinations, the improvements on the Baltimore Avenue Corridor should be designed to service passengers using full size (40 foot long) transit buses and (45 foot long) intercity tourist buses. As routes are refined for future service, accommodation of large buses should be worked into future roadway reconstruction or enhancement plans. Capital Area Transit (CAT) currently does not provide service through the corridor.

Develop Basic Avenue Design Criteria

PennDOT has developed a series of documents titled the *Highway Design Manual and Publication 483, the Pennsylvania's Traffic Calming Handbook*. The purpose of these reference materials is to provide requirements and guidance on highway design methods and policies and to assure uniformity of design. Municipalities without established design guides often utilize this document when planning and designing transportation infrastructure improvements. The Baltimore Avenue Corridor project design team has used these and the Institute of Transportation Engineers (ITE) *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach*, as tools for developing solutions in the corridor study.

The reference materials generally itemize important criteria that influence the design of neighborhood streets, highways and bridges. The design criteria provided guidance to the consulting team in preparing the Baltimore Avenue corridor concept plans. The criteria were established early in the planning and design process and to a large degree this corridor study is to serve to define those criteria considered important by the Borough of Mount Holly Springs for future implementation. Elements including design speed, mid-block crosswalk criteria, vehicular/bus/fire apparatus and bike lane width, grade, and radius of curvature were all important elements considered during the conceptual design stage and are addressed where appropriate within these guidelines. Considering the community's desire to create a corridor that maintains a street system supportive of business activity yet is vibrant, walkable, and aesthetically pleasing, several basic design criteria are recommended for the Baltimore Avenue Corridor.

The criteria are as follows:

- The posted speed limit within the corridor should be 25 miles per hour from the PA Route 34/94 split to Watts Street.

- Except where greater widths are required to service delivery truck, bus and emergency services traffic on Baltimore Avenue or provide shared accommodation for bicyclists, travel lane widths of 12.0' feet are appropriate.
- On streets that service significant truck traffic (more than 2%), such as Baltimore Avenue, or those designated as part of a nationwide system of truck access routes such as Route 34/94, travel lanes should be a minimum of 12 feet wide.
- Curb offset is defined as a space provided between the edge of a travel lane and the face of a curb. Where 12 foot wide lanes are used, a 1 to 2 foot curb offset is desirable.
- In general, exclusive turn lanes should be 12 feet wide. A 10 foot width may be considered in situations where truck traffic is low. Larger widths, from 12 to 14 feet, are desirable to facilitate vehicular safety and mobility; however judgment should be used to properly balance those needs against pedestrian crossing distances, streetscape considerations, and others within the corridor.
- Bike lanes shall be a minimum of 5' in width and dedicated lanes shall be provided wherever possible.

The design team analyzed all of the intersections on Baltimore Avenue, selected roundabout enhancements for two of those intersections and developed the parameters of design around some general design principles for all of the intersections between the western and eastern gateways to the corridor.

- The corridor study should minimize conflicts between all modes of transportation and where possible separate pedestrian and bike connections with vehicular traffic.
- Pedestrian exposure should be minimized at all possible locations.
- Crosswalks should be provided at all approaches to intersections.
- Mid-block crosswalks should be developed with additional traffic calming elements such as raised platform and textured crosswalks, curb extensions, raingardens, etc.
- Curb radii should be minimized and consistent with the design/control vehicle.
- Ensure good visibility and clear sight triangles at all locations.
- Balance vehicular Levels of Service (LOS) with pedestrian convenience and safety.
- Storm water ponding should be illuminated from the streetscape and walk areas, especially at curb ramps.
- Proper illumination should be provided at all intersections and pedestrian crosswalks.

It should be noted that other alternatives to the roundabout options were designed, reviewed and considered as part of the public meeting and review and comment process.

Develop Context Sensitive Solutions

As defined by the Federal Highway Administration (FHWA), "Context Sensitive Solutions" (CSS) is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while

maintaining traffic safety, efficiency and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist."

A concerted effort was made by the design team and revitalization committee to educate the decision makers in Mount Holly Springs, engage the State PennDOT officials, meet with local property owners, have public meetings, and to provide adequate notice for those meetings in order to get as much feedback and comments as possible from those stakeholders affected. Revitalization committee members hand carried meeting notices and distributed them door to door. Projects are typically successful when community members and the project team reach consensus and take/feel ownership of the project. This usually provides a catalyst for the next project and implementation.

Flexibility needs to be an inherent element within the corridor study. The design standards and documented design exceptions (when appropriate) are tools that can help local leaders work together to balance the needs of both the borough and users while working toward an environment that effectively recognizes needs of all visitors, businesses, and residents implementing real projects that work.

Traffic Calming Elements

Traffic calming is "the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users." The Institute of Transportation Engineers (ITE) also has information and guidance on traffic calming features at <http://www.ite.org/traffic/index.html>. Traffic calming has been suggested in the Baltimore Avenue Corridor Study as an appropriate tool to help generate the character sought by project steering committee. Traffic calming features should be implemented as the result of a conscious desire on the part of community leadership and staff to improve quality of life within the project area for visitors, retail shoppers, office users, and residents. The traffic calming improvements suggested as part of this study will enhance safety along the Baltimore Avenue for pedestrians, bicyclists, drivers and other users, reduce the negative impacts of heavy vehicular use and promote alternative modes of transportation and a more walkable core to the community.

The objectives that are sought to be achieved by the implementation of traffic calming measures within the Baltimore Avenue corridor include, but are not limited to the following items:

- Achieving slow speeds for motor vehicles,
- Reducing collision frequency and severity,
- Reduce the need for police enforcement,
- Increase the safety and the perception of safety for non-motorized users of the street,
- Encouraging drivers to be more considerate of other street users,
- Encouraging use of non-motorized transportation modes such as walking and biking,
- Increasing driver respect and awareness for non-motorized street users in the core area,
- Increase safety for pedestrian for all crosswalks,

- Improving perceived and substantive safety for all street users,
- Reducing vehicle speeds where they are incompatible with increased pedestrian activity,
- Enhancing streetscape appearance,
- Encouraging water infiltration into the ground,
- Improve the community's quality of life, and
- Improve access for all modes of transportation.

The corridor study offers guidance on selecting appropriate traffic calming measures for sections of the avenue based on operating speed and function. A sampling of traffic calming measures is listed below.

- Roundabout installation at the key intersections of Pine Street and Mill Street to reduce conflicts, slow traffic and improve circulation,
- Median installation on segments of the Avenue,
- Improved bicycle facilities, delineated trail locations around the corridor and driver education signage
- High visibility crosswalks with reflectors and/or lighting
- Color contrasting pavement markings, patterns, or surface treatments
- Pavement surface textures
- Street side landscaping
- Rain garden infiltration areas
- Street furniture and banner installation
- Pedestrian scale lighting
- Roadside gateway features
- Signing improvements including way-finding enhancements

Integrate Pedestrian and Bicycle Facilities

The existing pedestrian circulation system within the Baltimore Avenue Corridor is primarily made up of sidewalks, but has the potential to be much more. Some segments of walkways are substandard to ADA criteria. Likewise, crosswalks in many locations are non-existent. Crosswalks are an extremely important determinant of the “pedestrian experience” as the literal “intersection” between the pedestrian and vehicular environments. Ensuring that sidewalks and crosswalks provide a safe and comfortable walking environment is crucial to comfort levels for all user groups. The borough should also seek to promote themselves as bicycle and pedestrian/transit friendly environment in an effort to capitalize on tourist potential and business development. In order to do so, adequate facilities should be provided to offer pedestrians and cyclists safe and reasonable travel through the borough, understanding that appropriate treatments for accommodating bicycle traffic vary based on roadway classification, widths, traffic volumes, and speeds. General guidelines for pedestrian and bicyclist infrastructure improvements are included below.

Ensure Accessibility

The Americans with Disabilities Act (ADA) includes specific guidelines, ADA Standards for Accessible Design, that should be applied when designing and improving roadways, sidewalks, multiuse paths or other public spaces to ensure they are adequately accessible to disabled persons. The ADA document can be accessed online at <http://www.usdoj.gov/crt/ada/adastd94.pdf> and should be referred to when beginning any roadway or streetscape enhancement project. The detailed design of all crosswalks needs to look carefully also at the use of truncated-domes as a tactile element and the grading associated with storm water flows to avoid trapping water in these typically low laying crosswalk areas. The existing slope to Baltimore Avenue in some isolated areas makes ADA compliance a challenge for accessible routes, but improves storm water issues by providing positive drainage.

Develop Sidewalk Continuity



The Borough of Mount Holly Springs should strive to have all sidewalks and walkways compliant with the Americans with Disabilities Act Accessibility Guidelines (ADAAG). These guidelines require a minimum clear width of 5 feet free from furniture, amenities, and landscaping, or utility poles. The guidelines do allow for limited stretches of 4 foot passage when the relocation or removal of an obstacle is infeasible. In cases where the ADAAG cannot be met, an alternate, accessible route should be considered. Where separated from Baltimore Avenue by a curb lawn, sidewalks in commercial, residential or park areas may have a minimum width of 5 feet. This treatment would be most appropriate in locations expected to experience limited pedestrian traffic. In the corridor master plan where no curb lawn can be provided, sidewalks should be a minimum of 7 feet wide to provide both a clear walking space and an area for snow storage along the curb.

The corridor study also suggests for consideration the placement of street trees street-side where shade from the sun, delineation of entrances, and ambiance for seating areas would be beneficial for businesses, park users, street-side cafes and restaurants, etc. When locating, sizing, and determining the accessible routes along sidewalks it is also important to keep in mind the required separation of light poles, signal poles, utility poles street trees, street furniture, and other large elements from the roadway. These elements are ideally accommodated within a curb lawn. In general, there should be a minimum of 1.5 feet from the face of a curb

to the face of these elements. This separation is important for roadside safety, protection of the elements from damage, and to facilitate the opening of car doors along parking lanes.

Enhance Crosswalks and Creative Options

Crosswalks should be located at Baltimore Avenue intersections wherever possible, recognizing that pedestrians will cross where it is most convenient. Mid-block crossings are not desirable. When unavoidable, special attention to marking and traffic control at mid-block locations. It should be obvious to motorists that pedestrians will be present at crossing locations. Proper illumination should be provided (i.e. provide adequate light levels, avoid backlighting at intersections when possible) so that pedestrians can see and be seen by approaching vehicles. In addition, street furniture, signs, utility poles, traffic signal poles, and other amenities should be located so as not to block intersection sight lines.

Crosswalks should be a minimum of 8 feet wide and may be wider where high volumes of pedestrian traffic are present or expected. All crosswalks should be appropriately marked. Several different patterns are available including a basic crosswalk (rails only), ladder (rungs only), and a combined version (both rails and rungs). A special pattern known as the “piano crosswalk” eliminates markings (which may become slippery under wet conditions depending on the marking material used) from the primary pedestrian path and staggers them out of the primary vehicle wheel paths to improve longevity and save on replacement cost.

At locations where special emphasis is desired to attract motorist attention to the presence of pedestrians or as part of an avenue enhancement effort, color contrasting and/or textured pavements should be utilized to highlight the crossing. Durable long-lasting options for providing colored and textured pavements in cold weather environments include colored and stamped concrete and resin-based synthetic asphalt treatments. Experience in other Pennsylvania communities has shown that while attractive, the long-term maintenance issues associated with pre-cast concrete paver crosswalks under heavy traffic in cold climates are a concern and therefore are not being recommended for Baltimore Avenue. Regardless of the materials used to create a colored and textured crosswalk, each one should include a 4 foot wide area known as a reduced vibration zone. This is a narrower route within the boundaries of the crosswalk that is smooth and free of irregular surface features. Irregular surfaces include exposed aggregate surfacing, pavers with rounded or chamfered edges greater than ¼ inch, cobblestones, stamped concrete, and other types of rough or jointed surfaces. Provision of a reduced vibration zone minimizes potentially uncomfortable or painful vibrations that can be experienced by those using wheeled mobility aids.

Curb ramps conforming to the ADAAG should be provided at all crosswalk locations. Directional ramps, two ramps per corner that facilitate movement straight into a crosswalk, are preferred. Diagonal ramps, which direct a person out into the middle of an intersection, are discouraged though sometimes their use is unavoidable. Detectable warning fields in a color that contrasts with the adjacent sidewalk material are required at all curb ramps to assist the vision impaired and blind. Dark gray, bright yellow and red are among colors typically used. There are three usual methods to provide detectable, warning fields, including

embedded pavers, stamped concrete pours, and surface applied sheets. Of these, the stamped pours are generally considered the most durable and require the least amount of regular maintenance.

Identify Bicycle Routes

In order to identify desirable routes for bicycle traffic, it is suggested that the borough work with local and regional organizations, such as the Harrisburg Bike Club, to identify current and future plans for creating a countywide bicycle movement system and identifying how the Baltimore Avenue Corridor fits into the overall vision. It was determined as part of the study that bike traffic be directed around town by the surrounding network of less traveled streets. Public education regarding the importance of bicycle usage in the region is also a valuable undertaking and can serve to identify the benefits associated with increased bicycle use from both an environmental and health perspective. The general public should be made aware of bicycle routes when they are developed are located so they can be considerate of those users. Methods to educate the public on bicycle routes included in the corridor master plan include signage, lane markings, route designations and the suggestions to develop and educational campaign of brochures, maps, and online resource links from the borough's website.

Include Bicycle Accommodations

The development of a bicycle infrastructure throughout the Borough of Mount Holly Springs and the Cumberland Valley must be balanced with other roadway features such as travel lanes, turn lanes, rain gardens, potential roundabouts, pedestrian bump-outs and on-street parking. At minimum, bicycles can be accommodated in shared use lanes through the dimensionally tight sections of Baltimore Avenue. This shared lane approach is most applicable to roadways with moderate to low traffic volumes and slower rates of speed. If shared lanes are utilized, signage should be installed to alert motorists to the possible presence of bicyclists and additional traffic calming measures should be employed to reduce vehicular travel speeds. A higher level of accommodation involves a dedicated bicycle lane. The level of dedication may involve a painted color designation and obvious lane locations in addition to the vehicular lanes.

- On low-volume local streets, such as Chestnut and Pine Streets, a 12 foot travel lane to be shared by vehicles and bicyclists adjacent curb or a parking lane should be a minimum standard. This would be the same as providing an 11' ft. travel lane with a 1' ft. curb offset and no edge line.
- On arterials and collectors where bicycle traffic will share the roadway with vehicular traffic (i.e. no dedicated bicycle lanes or off-street facilities) a 14 foot travel lane is recommended immediately adjacent to the curb or an on-street parking lane. This would be the same as providing a 12 foot travel lane with 2 foot curb offset and no edge line.
- Dedicated bicycle lanes should be a minimum of 5 feet wide, separated from the travel lane by a 4 inch wide (minimum) white stripe, and marked with a bicycle pavement marking symbol. A contrasting color treatment may be applied to the surface of the bicycle lane to enhance delineation and visually narrow the vehicular roadway.

- Bicycle friendly drainage grates should always be used along streets intended to carry bicycle traffic. These grates reduce or eliminate the chance of a bicycle tire becoming trapped as it passes over the drainage structure, potentially stopping or injuring the rider.

Designate Places for Bicycle Parking

The Baltimore Avenue Corridor Study works to incorporate enhanced bicycle parking options throughout to further encourage cycling as a convenient and desirable alternative to other modes of transportation. Bike parking and bike racks have been suggested and should be located in highly visible areas to reduce the potential for vandalism or theft. Bike parking should be made available at retail/restaurant locations, Sheetz, new Veterans Park, etc.

Develop a Vibrant and Inviting Streetscape on Baltimore Avenue

The Baltimore Avenue design elements include everything that is visible between the façade of a building’s facing the avenue to the proposed green median between the travel lanes and raingardens adjacent to curblines. These design elements include, but are not limited to, sidewalks, pedestrian crossings, street amenities, light fixtures, rain gardens, street trees, landscaping, signage, sculpture locations and are intended to encourage activity on the street and improve pedestrian safety. As these improvements are developed, it is important to keep the potential existence of historic and cultural resources in mind.

Recommendations and guidelines related to enhancing and improving the Baltimore Avenue streetscape in the borough follow:

Incorporate Identifiable Signage

Accurate orientation provides a sense of comfort and safety to those who are experiencing Baltimore Avenue for the first time. This is especially true for shoppers who come there on a regular basis, or other visitors to the various retail destinations. The corridor, and its strong lineal configuration, makes it easy to orient people to key features like the Givin Library or Borough Hall. The goal is to create classic way-finding signs that will be a complement to the borough streetscape. Mount Holly Springs is encouraged to develop a comprehensive signage program that includes detailed designs for a hierarchy of future sign needs, including gateway, directional, interpretive, historic, and parking signs.



Help People Find Their Way

Way-finding guide signing programs have been developed and instituted by municipalities across the United States for more than two decades. Critical to the Baltimore Avenue Corridor is the ability to direct traffic and people to their preferred destinations such as the various retail locations and the niche' development of boutique shops in the corridor. As the corridor continues to develop detailed designs for its own way-finding system, the following guidelines based upon current and proposed FHWA guidance should be referenced.



- The selection of places for way-finding signs may be based on the level of expected vehicular and pedestrian activity, the significance of the destination, community requests, and other factors deemed appropriate.
- Word messages should be brief and should be printed in a text that provides the same legibility as standard highway typefaces with a letter height of 1 inch per 30 feet of legibility distance on signs to be used by motorists.
- The number of destinations on a single vehicular way-finding sign should be limited to 3.
- Commercial logos (i.e. McDonalds) are not allowed on way-finding signs. Pictographs for government agencies (Post Office), businesses, or public institutions (Givin Library) may be displayed on the signs.
- Pedestrian way finding signs should be used to direct persons over short distances, usually less than ½ mile away.
- A higher but appropriate level of detail may be provided on pedestrian way finding signs when compared to their vehicular counterparts. They may serve both an informational and educational purpose where appropriate and may include text, maps, and pictures.
- Bicycle routes and multiuse pathway finding should conform to existing PennDOT standards and guidance.

In coordination with a signing plan, another possible way finding application might involve the creation of a self-guided pedestrian tour showcasing Baltimore Avenue and its historic structures, providing an interactive historic context to the region, made available to residents and visitors through the borough's official website. The tour could be downloaded to a personal iPod or other MP3 player in podcast format and taken along on foot. The content of the tour could highlight Mount Holly Springs history, landmarks, transportation (trolley) legacy, festivals, the connection to the Holly Marsh, or any other elements.

Permit Businesses Visibility on the Street



Perpendicular signage should be permitted in front of or on businesses within the corridor for restaurants and businesses for both pedestrians and vehicles. People driving in their vehicles are more likely to stop for a store or business they are interested in if they see it before they have already passed it. Perpendicular signage, when freestanding, should be limited to sections of corridor that can accommodate the additional space required. The design of perpendicular signs should have the same general design scheme but should allow for individualization by each business. Perpendicular signage attached to buildings should be proportionately sized and in a design and color scheme that is appropriate and considerate of the building. Historic detailing and design elements consistent with historic structures are recommended throughout Mount Holly Springs in an effort to reinforce brand development and a sense of place.

Interpreting the History of Mount Holly Springs

Mount Holly Springs has a rich history that has evolved with the PA Route 34/94 roadways and the Hanover-Carlisle Pike. The building of the Hanover-Carlisle Pike was begun in 1812 and there were five tollgates located on this road. One of those tollgates was located at appoint in the gap near the Holly Inn. There is a variety of cultural elements that should be promoted in a manner that educates and entertains visitors to the region that are tied to Mount Holly Springs. Promoting the heritage of Mount Holly Springs, sharing individual and collective histories with a broad audience, and educating both residents and visitors about the significance of Mount Holly Springs will foster local pride, promote awareness, and draw wider audiences to the Baltimore Avenue Corridor business district.

Classic and discrete community interpretive exhibits are recommended for areas of Baltimore Avenue and Mountain Creek. The interpretive exhibits should be installed in public areas linking strategic sites like the retail business, historic taverns/Restaurants, Amelia Givin Library, churches, the fire company location and other significant sites. Interpretive exhibits should be well designed with quality materials and conservative in appearance and scale. Community interpretation is intended to be limited in extent and in content. Community exhibits should go beyond the mere statement of facts. Interpretation is only successful when it uses information to reveal meanings and relationships. Good interpretation should stir visitors' emotions and provoke reconsideration of the facts. It should be engaging rather than didactic, dynamic rather than passive. An interpretive signage program would be an expansion of the state historical marker program. The

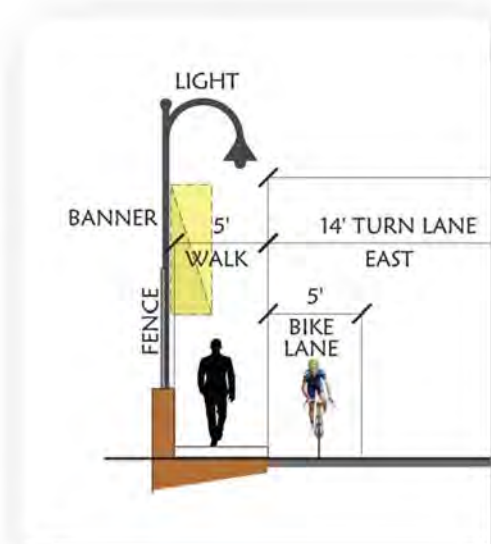
stories should be expanded upon and incorporated throughout the corridor to add interest to the streetscape, though identifying sites for storytelling should be strategic and meaningful. The “Confederate Soldier Grave Site” that recounts the trip of the soldier and the only known burial site north of the Mason-Dixon Line is a great starting point for the story telling opportunities.

Provide Amenities on the Street

The integration of pedestrian-oriented furniture and amenities is encouraged throughout Baltimore Avenue. Pedestrian furniture and amenities appropriate for the corridor include benches, trash receptacles, bike racks, pedestrian-scale lighting, and public art, way-finding and directional signage. When selected and installed in accordance with this corridor plan, the streetscape furniture and amenities will enhance the pedestrian environment, encourage walking and activity on Baltimore Avenue and promote great streets. All amenities should be selected to be durable and resistant to both local weather conditions and potential vandalism. Public amenities are not necessarily inexpensive. The staff in the borough should encourage people and businesses to “leave their mark” on the community by creating a gift program that allows them to donate money for specific amenities at specific locations. In return, the donor is remembered and thanked through the incorporation of a plaque associated with that amenity. These fundraising efforts require detailed, focused and coordinated effort and follow through.

Installation of Banners

Banners are a non-permanent streetscape enhancement that can help to market strategic sites or events on Baltimore Avenue. They can help foster a sense of community pride that highlights the positive attributes of Mount Holly Springs. Banners should be placed on light poles along the corridor at strategic locations to reinforce brand development and sense of place. The design and colors of the banners should be modified on a regular basis as events and marketing opportunities in the corridor change. The banner program should be expanded to include a greater area of exposure, promotion and interest; especially between the Pine and Mill Street portion of the corridor.



Provide Seating Opportunities

In normal instances seating should be provided throughout a street corridor as a way of inviting people to stop and enjoy the individual settings and amenities. It is normally recommended that at least two seating opportunities per block should be provided along a given corridor. The reality is that Baltimore Avenue does not yet have pedestrian traffic capacity that warrants that level of bench placement. Over time the need will increase but at the present time it is recommended that one bench for every two blocks be considered

adequate. The design should reflect the character of corridor and should be classic, simple, and comfortable. Benches should be consistent in color and once implemented, will contribute to the creation of a cohesive streetscape. Dark green and black benches are considered appropriate options. Metal benches are another alternative that is considered to be both attractive and are fairly durable. Bench selections were completed as part of the public meeting, review and comment of the project.

Illumination of Pedestrian Walkways

As discussed earlier in this document lighting is an important element in small town urban environments. Integration of pedestrian scale lighting encourages pedestrian activity and helps foster an atmosphere of comfort and safety for all users, particularly during evening hours. Pedestrian scale lighting should be incorporated along all segments of the Baltimore Avenue Corridor with differing degrees of intensity, considering a greater concentration of lights on areas with higher existing/projected pedestrian volumes and at crosswalk locations such as Pine, Harman, Church, Butler and Mill Streets.

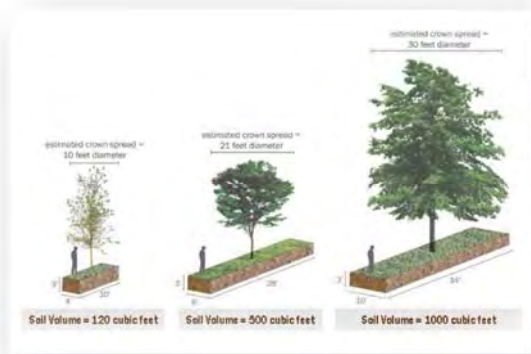
Pedestrian scale lighting should not exceed twelve to fourteen feet in height and should be located generally not to exceed 50' to 75' apart on Baltimore Avenue. If illumination becomes problematic, the focus should be stressed at the primary pedestrian intersections and crossings. The exact spacing of pedestrian lights should be determined as part of the detailed design phase and will vary based on the height of the fixtures, intensity of light, arrangement, fixture style, design, and adjacent foliage, structures, etc. Baltimore Avenue and sidewalk lighting levels should be maintained at a minimum of 1.0 foot candle and the average to minimum uniformity ratio should not exceed 4:1 according to the Illuminating Engineering Society of North America. Minimizing light "spill" into adjacent properties, residences, businesses and second floor apartments is another important consideration. Sidewalk and street lighting levels must be balanced against the potential for undesired light pollution in certain areas of the corridor. Proper cutoffs, or baffles, should be provided and consideration of adjusted lighting levels given in areas where residents are present.

It is also recommended that the key historic structures like the former PNC Bank, The Church and the Givin Library should up-lighted, or even down-washed, to create a unique and distinctive element in the nightscape of the corridor and to provide an illuminated wash along the noticeably dark surrounding pedestrian area. The illumination of these structures will greatly enhance the nighttime security and ambiance of corridor and further create a sense of "place".

Greening the Public Realm

Street trees and landscaping enhance the street edge and create an attractive streetscape for both drivers and pedestrians. The legacy of the tree lined street is an invaluable asset to this corridor project that cannot be understated when "greening the public realm." The maintenance of street trees and the utility lines that co-exist with the trees is critical over time and should be coordinated with Met-Ed's urban foresters. Appropriate pruning would allow the trees to have branch structure "over" the utility lines, thus retaining the tree canopy. This standard is applied in many other Pennsylvania community's and is appropriate for

this location. The standards for landscape materials, specifications, and maintenance should be developed and implemented in order to fully achieve continuity in the streetscape. The street trees help to reduce heat and air pollution and increase pavement lifecycle. Street trees should be planted to provide maximum shading of sidewalk and pavement areas. Due to the weather conditions on the corridor landscaping materials should be tolerant to road salt, strong winds, and other weather related conditions. **Through the plan review and comment process the revitalization committee and public selected the American Hornbeam as the street tree of preference for the corridor.**



Specific tree species, beyond the hornbeams, that are tolerant to existing conditions are identified in the plan. Final street tree species should be selected that have an appropriate canopy and leaf mass to effectively shade roadways and sidewalks without interfering with vehicular or pedestrian travel. A minimum of seven feet should be maintained between the lowest branches of a tree and the sidewalk or pedestrian walkway and a minimum of twelve to fifteen feet should be maintained between the lowest branches of a tree and the roadway. Tree planting areas incorporated into the sidewalk should be used to maintain the health of street trees. These tree planting areas should be over excavated and, given the content of the existing soil, replaced with a composition of structural soil and approved topsoil with hydro-gel. The tree wells should be, at a minimum, 6' by 12' when possible.

Where street trees are not appropriate, shrubs, tall grasses, or other native vegetation may be substituted. Planting boxes should be incorporated to continue the character that vegetation brings to the streetscape. Annual inspections of all vegetation should be conducted to check for pests, damage, or disease. Mount Holly Springs Borough should take responsibility for pruning trees and ensuring new vegetation is planted during the optimum season based on species.

The principles behind these guidelines are the promotion of a sustainable small town urban ecology, the enhancement of public, health, safety, and quality of life, and the optimization of lifecycle costs and performance. Vegetated filter strips or bio-swales, rain gardens, and the reduced use of turf grass in curb lawns are environmentally friendly practices that should be used to green the public realm on the avenue.

Showcase Public Art and Spaces

Within the Baltimore Avenue Corridor there are a number of green and open spaces for pedestrians and visitors to stop, relax, and enjoy the streetscape environment. Most of those locations however are on private property. Streetscape activity should be promoted around these spaces in order to maximize their use. Public spaces will help to foster social activity and interactions and as a result have the potential to stimulate property values, the sense of safety and wellbeing, and the overall maintenance of the avenue. One of those potential spaces is at the corner of the intersections of Baltimore Avenue and Pine Street in the southeast quadrant. This location in the master plan suggests the acquisition of lands, demolition of blighted structures and the creation of a gateway park for the borough. A second potential park side is located at the intersection of Baltimore Avenue and Harman Street. This location for a small pocket park would have access to the fire company parking area and would be a select site for small events.

Encourage Public Art

Public art should be incorporated into various streetscape elements to the greatest extent possible. Public art can be integrated into streetscape design elements such as paving, planters, interpretive signage, overhead pergola's and water fountains. Public art should be used to highlight gateways and public spaces on the Baltimore Avenue Corridor. Standalone public art is appropriate in focal point areas as it creates interest along the streetscape and serves as a "destination" when part of a larger regionalize program. Significant pieces of public art, or architecture should also be lit so they remain a viable part of the streetscape in the evening hours. These nighttime 'beacons' also become community landmarks and assist in the "creation-of-place". The Givin Library and community church steeples can also act as an element of public art and structure.



*Plein Air Art Festival
Camp Hill, PA*

Develop a Series of Special Events that Appeal to Local Residents and Regional Visitors and Tourists

Special events are a great way to bring a significant influx of people into a community and to showcase what the Avenue and Mount Holly Springs has to offer. When special events are done right, they showcase the community as a great destination and spur repeat trips at other times for people to further explore the businesses, restaurants, and attractions within the area. There are multiple locations along the corridor where special events would be successful. A renovated and envisioned Deer Lodge into the Olde Anglers Lodge and the Holly Inn should be considered as



Outdoor Farmer's Market, Johnstown, PA

probable locations for events in an effort to establish the sense of place associated with the borough.

In order to better market Mount Holly Springs as a great place to visit, the leadership in the borough should work with local stakeholders (the county, churches, fire company, business owners, local non-profits, potential gallery operators, etc.) to develop and identify a series of special events that could showcase the assets of the community and draw visitors in from a regional level. This could be accomplished by establishing new events, enhancing longstanding events that are already in place, such as Holly Day's, and building on existing programming already offered by various organizations. The new Veteran's Park is another key probable destination for such activities. Another option to consider is developing a mountain bike and/or outdoor series of event to capitalize on Mount Holly's location next to Mountain Creek and the Marsh Preserve.

When establishing a special events program the focus should be on implementing a limited number of high-quality events, as opposed to a greater number of smaller events that do not have recognizable positive impacts. A special events program should focus on quality, not quantity.

SECTION 3: RECOMMENDATIONS / IMPLEMENTATION

The recommendations presented in the Baltimore Avenue Corridor Study aim to alleviate congestion, slow traffic speeds, improve safety for pedestrians and motorists, support economic development opportunities, protect environmental resources, and enhance the quality of life within the Borough. The process of implementing these recommendations will involve multiple phases over the next several years and will likely require coordination across municipal boundaries. Realizing these objectives will require the participation of numerous public and private partners.

The study suggests that it is time to start looking at Baltimore Avenue as a potential linear village so that what forms over time is a better balance of uses with the right transportation options to enable people to move about the corridor.

After the single-family detached house, nothing typifies the American suburb more than its arterial commercial corridors. Baltimore Avenue is in many ways, shapes and locations a “typical corridor”, with the notable exception of the grand gap in the mountain and Mountain Creek. These “in between” spaces that connect activity centers (Sheetz, Mt. Holly Pharmacy, the Library, and Holly Inn) are typically overlooked as places of new market opportunities. As a result, long-neglected corridors like the Baltimore Avenue are plagued with haphazard development patterns. Over the last two decades in Mount Holly Springs, community leaders and developers alike have focused on improving/creating neighborhoods outside of the Borough limits, creating new retail centers closer to Carlisle and I-81, and adding lifestyle additions to the strip malls. More often than not, the low-intensity, general commercial zoning along corridors has been untouched for years.

The Baltimore Avenue Corridor Study, in part, turns attention to the most challenging elements of the built community, the main artery to and from I-81 and Carlisle, and preparing the way for a strategic response from the development community. It is our observation that increasingly, underused commercial corridors in suburban and semi-rural areas are seen as an opportunity for investment that creates multiuse, mixed-income communities while limiting change in the often politically sensitive established neighborhoods. Change in Mount Holly Springs may be difficult for existing long-time residents to embrace, but without positive change and strategies to address traffic issues, the borough faces a continued decline in property values and livable quality of life issues. Projects such as this one will illustrate how Mount Holly Springs can lay the groundwork for this kind of corridor revitalization.

The evolution of the modern corridor dates to the Land Ordinance of 1785, which established the borough and range basis for land surveys and provided for conveying title to land through deeds of one-square-mile lots. The resulting one-mile rectangular grid defines the built environment and the public right-of-way network of arterial highways and corridors for most of the country west of the Appalachian Mountains. Over time, corridors have evolved into stand-alone, automobile-dominated linear environments that are challenging to retrofit as productive, multimodal places that integrate well with the community. Baltimore

Avenue is one such corridor and its retrofit needs to be based on human scales and pedestrian needs as the priority and level of service and vehicular needs as subservient to human qualities of life.

IMPLEMENTATION PLAN

The implementation of the Baltimore Avenue Corridor improvements can be phased to reduce annual borough cost burden and secure funding from outside sources, PennDOT, Cumberland County, private developers and State/Federal agencies. Phasing improvements could either occur based on geography, such as phasing by section, or by specific improvements, such as adding banners or creating a cohesive way finding program, sidewalks, bike lanes, etc. When approaching implementation over significant area some improvements will dictate the order in which other improvements can be made. For instance, road reconstruction projects (such as suggested roundabouts) that have the potential to impact the adjacent sidewalk areas should be undertaken before enhancing the streetscape.

Excitement and interest in improving Baltimore Avenue and attracting more on-street walkers, bikers, visitors and residents to the corridor is generated by people seeing progress. Therefore, it is recommended that Mount Holly Springs begin the implementation of this plan by concentrating on enhancement projects within the identified focus area from Pine to Mill Street, as well as making small changes that require minimal investment (such as bike lanes and signage) and can be accomplished in a short period of time. A critical first project might be the enhancement of the Church Street intersection since it serves as a connection to the Library.

General enhancements within the core area including bike lanes, sidewalks, signage, banners, lighting, benches, trash cans, and the installation of similar amenities can be started immediately and do not require a significant additional level of detailed design. A general outline of recommendations and costs associated with the corridor concept plan is provided below. The general costs (2016 dollars) provided in the Appendix are presented for planning purposes and can be used as a baseline to establish budgets and to apply for funding assistance for implementation. Specific costs will be established in follow-up studies and during detailed design.

The project team evaluated the corridor plan to determine short, intermediate and long term projects for each section of the Baltimore Avenue project area. The timeframes established for short, intermediate, and long-term projects are 1-3 years (short term), 3-5 years (intermediate), and 5 to 10 years (long term), respectively. See Appendix for a complete listing of the results of the evaluation.

One of the more successful pre-design activities associated with the project included painting “white dots” on Baltimore Avenue and at various key intersections in order to illustrate the impacts for bump outs and locations of potential raingardens. The revitalization committee then walked the entire Baltimore Avenue corridor and reviewed and commented on each location. Concept plans were developed and modified based upon this input. The general public also had an opportunity to review those dots and better understand their meaning by attending the community meetings.



Images of “White Dots” painted on Baltimore Avenue 2015

The benefits of the “White Dot Exercise” was to create a better level of understanding of the horizontal and dimensional relationships of proposed improvements while the project is at the very early conceptual stage. This will reduce revisions at the more detailed engineering and implementation stage that will follow as the project move forward.

The Dual Benefits of Grants

Grants are important to the future of Mount Holly Springs, not only for the Borough who will receive them but also those who will be awarding them. Successful Grants are given on the premise of creating successful partnerships.



Building Partnerships

Writing grant applications is a task that Mount Holly Springs staff and leadership must undertake. The reasons are varied, some of which include continuing or starting a specific project like Veterans Park,

purchasing needed equipment, staff support and public outreach and marketing. Grants are critical to the implementation process.

There are of course many items that need to be considered when looking for grant sources as well as the actual writing of the grant. One important item is that grant seekers may overlook is how their application can help fulfill the mission of the organization providing the funds.

The giving and receiving of grant funds should be viewed as a process that will provide benefits to both grantor and grantee. When seeking funding sources and applying for a grant, the borough should make sure that the goals and tasks associated with the proposal are consistent with the purpose for which the funds exist in the first place. The Borough should consider the potential funding of their proposal as not only a benefit to them since it would provide funds for a desired use, but also as beneficial to the funder. This is due to the fact that the borough's project(s) and related actions will be the means by which the funder's goals can be achieved.

It is important to get to know the potential funder in order to know what is important to them. What does their mission statement say? What are their organizational values? What types of projects have they funded in the past?

Also, bear in mind that grants are about more than money, they are about needs and problems and how they will be addressed. Being able to convey the importance of the identified need and the effectiveness of the proposed methods to meet that need is an important component of any application.

Results of Excess Retail along Baltimore Avenue

Excess retail is usually one of two types: short term or structural. Short-term vacancies occur as individual businesses relocate, close branches, or fail. As long as there is sufficient consumer spending to support the retail building space in the trade area, then it is usually only a matter of time before vacancies are filled. Long-term structural vacancies, however, afflict portions of most corridors that developers and communities eye for redevelopment and revitalization. These vacancies exist where household spending is insufficient in the trade area to support the retail building space. Unfortunately that is the current situation here in Mount Holly Springs. When some owners begin asking lower rents, other owners may be forced to lower rents just to maintain their current tenants, leading to a downward spiral in the Mount Holly Springs trade area. The area wide lowering of lease rates leads to lower operating income, which leads to deferred maintenance and a lack of reinvestment over time. Low rents also attract marginal business—adult businesses, seasonal stores, a proliferation of check-cashing operations.

When the Baltimore Avenue corridor has high vacancies, high turnover, and marginal businesses, it has structural vacancy problems, which can deter developers interested in potential commercial or retail infill projects in Mount Holly Springs. New commercial space is less attractive to neighborhood-serving retail and service businesses when there is cheaper space available a block away. It is also more difficult to finance new commercial building space in an over-retailed corridor segment and the most recent economic recession has only exacerbated corridor conditions.

Why is this so challenging? Unfortunately, local leaders are often resistant to any conversion of retail space to nonretail uses. Historically it has been perceived that, the more retail, the more local tax revenue, leading many elected officials to keep corridors zoned for commercial regardless of the retail environment. An alternative model that is recommended for the Baltimore Avenue Corridor is much more strategic and involves a more purposeful arrangement and grouping of uses along the corridor, which can result in greater economic vitality. The Baltimore Avenue Corridor must play multiple roles in the community: a gateway; a thruway from Carlisle to Hanover; a place to eat or shop; a place to live or work. Many municipal leaders fail to appreciate the influence that corridors have on the image of a community. In one study on city branding, surveys demonstrated that the built environment, which is largely viewed from the main corridors of a city, played a key role in people's perceptions of that city, despite efforts to create brand or image based on something else, like a special place or certain attributes. The corridor is an important visual indicator of the attention paid to neighborhoods and businesses outside the borough, and of overall civic pride. Baltimore Avenue may never be the most culturally or economically elite area of Cumberland County, but a deteriorating corridor can undermine any brand credibility if neglected.

Life on Baltimore Avenue: A Multijurisdictional Effort

Life on "The Avenue" can be unique in that it is the first time that the borough has tried to connect regional transportation planning in the area with market-based land use recommendations. The study seeks to identify the right types of infill options in the right locations to take better advantage of the services in the area (employment centers, retail uses, recreational amenities (pocket parks) and entertainment uses). The study looks at market demand for smaller, attached housing types along the corridor that would appeal to downsizing boomers and young adults without children.

It is time for Mount Holly Springs to start looking at the strip centers, at the ends of the corridor, as potential linear villages so that what forms over time (the next 10 years) is a better balance of uses with the right transportation options (not just cars) to enable people to move about the corridor, from the Givin Library on the East side to the School and businesses on the West side. The *Life on The Avenue* project sets the stage for ongoing work by Mount Holly Springs to retool their zoning codes and to develop economic development strategies.

Mount Holly Springs Efforts to Reposition Baltimore Avenue

New housing options need to be part of the solution to realize the potential of the corridor. Not all corridor segments are suitable for housing. Housing needs to fit as part of an overall market-based plan for better organizing origins and destinations along the corridor. Where it is appropriate, from Pine Street to Mill Street, there needs to be a favorable range of new and/or redesigned multifamily housing products that work on a variety of lots sizes and configurations. Additionally, there needs to be a strategy to preserve and enhance historic and existing structures.

The vacant sites along Baltimore Avenue are large enough to appeal to the medium-scale rental developers, while smaller, narrower lot configurations are appealing to the niche builders/developers. In most Cumberland suburbs, vertical mixed use is not viable, but horizontal mixed use is just as effective. It does not matter to a retail business if the customer lives upstairs or next door. What matters is having feet on the street from both nearby jobs and housing. Feet on the street are currently missing throughout Baltimore Avenue.

Context-sensitive design improvements along the right-of-way of Baltimore Avenue are also a critical part of this strategy. For multifamily developers facing price-constrained consumers, the shopping, entertainment, and nearby recreational uses along the corridor replace typical project amenities (clubhouse, pool, etc.). It will be important to develop a business and housing marketing strategy to complement these efforts. The quality of this newly proposed "ped shed" in turn relies on the commercial developers and/or small business owners who create the space, the businesses that operate there, and Borough to provide parks, policing, maintenance, and parking. The ped shed should factor more heavily into where developers locate their next housing project and how they market it. A collective approach to the marketing effort is suggested and the branding efforts of *Life on Baltimore Avenue* or "*Life on The Avenue*", is maximized to begin to create and reinforce the sense of place.

This concept is part of an overall corridor strategy being recommended for the borough to evaluate new housing prototypes for several of its more significant vacant or under-utilized parcels, before making zoning changes. The project would involve site plan alternatives and pro forma evaluations for housing types that currently do not exist anywhere in the borough. In other words something new and different! The housing types should be selected according to architectural design criteria important to the corridor, strong street orientation, and expected market demand. The preferred alternatives for each of the sites, based on economic performance, will be part of the public outreach campaign to generate support for new multifamily housing along the Baltimore Avenue Corridor.

During this economic downturn smart architecture firms have been developing new housing and mixed-use prototypes that respond to the new economic realities. One such product, pioneered by Thomas Cox Architects in Irvine, California, is designed for urbanizing corridors. Called High DEF, this product is a three-to four-story building with a flexible ground floor that can be designed with residential, retail, office space, and live/work configurations. Designed to create an urban edge along the street, the building provides on-grade parking (1:1 ratio) under the building footprint, with surface parking for guest and retail uses. An aging, or under-utilized strip center, like the southeast corner of Pine Street and Baltimore Avenue, along the corridor would be an ideal first application of this new product. The goal would be to transform the Baltimore Avenue Corridor from a typical strip commercial development pattern to a higher-intensity mixed-use corridor that takes advantage of the grandeur of the Avenue and the regional accessibility associated with its location. The secondary goal would be to create both an attractive and vertical street edge as well as an internal sense of place through the design of a centralized plaza that will be programmed for regular events, including a farmers' market, community festivals, etc.

Corridor revitalization has broad advantages, including environmental benefits. The Baltimore Avenue Corridor is an appropriate area with capacity to absorb future growth, while having the added benefits of reducing truck/car travel and carbon emissions, improving air quality, recharging groundwater resource through infiltration and rain gardens, and preserving valuable open space. The repositioning of the corridor over time will require a proactive local government with planners, redevelopment specialists, private developers, and PennDOT/Cumberland County transportation officials working together to achieve common goals. Developers can also play an important role as both advisers and champions of innovation and high-quality pedestrian-oriented design and the use of roundabouts to solve traffic issues. In the end, corridor revitalization is about reconnecting to surrounding neighborhood physically, socially, safely, and economically—making them relevant and desirable places for the community.

BALTIMORE AVENUE BOULEVARD BICYCLE, TRAIL and AMENITY RECOMMENDATIONS

Policy Goal for Bicycle Use on Baltimore Avenue

This study, in part, is intended to establish a precedent for user groups and to create a series of policies that are flexible into the future. To do this there are two basic policy alternatives to consider. The two basic policy alternatives are:

- (1) To accommodate current shared bicycle and pedestrian use and/or,
- (2) To increase the level of use.

A review of recent policy statements by congress, the U.S. Department of Transportation, and the Federal Highway Administration makes it clear that the federal policy goal for bicycling is to accommodate current use and to encourage increased use, while enhancing safety. Therefore, the recommendations in this study are oriented toward meeting the needs of current and potential bicyclists using the trail system.

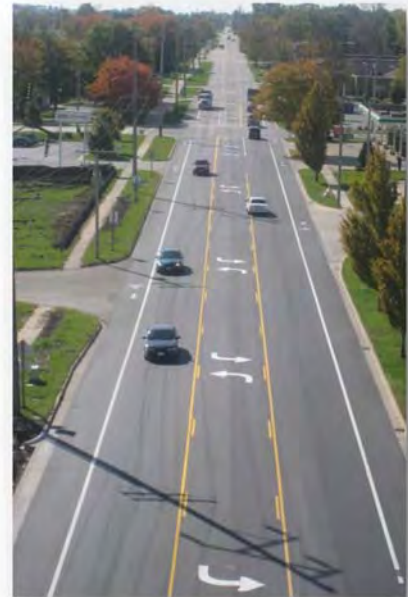


Areas of focus in this study include traffic calming measures, the introduction of bike-lanes and ideas on creating a “share the road” public awareness program in an effort to make Mount Holly Springs bicycle and pedestrian friendly. The combination of traffic calming and shared use elements are intended to complement a strategy to reduce congestion and improve quality of life transportation alternatives. Such proposed improvements are necessary to safely connect people from Borough neighborhoods to parks, the Givin Library, elementary school and other important destinations where creating typical off-road trails is not possible. Examples of these improvements include adding high-visibility crosswalks and crossing signals at intersections, painting

and signing select streets to better accommodate bicyclists. Programs will also be identified in this study that can be used to increase safety while encouraging higher amounts of walking, bicycling, and trail use.

The Borough has indicated a willingness to collaboratively invest in the core of the community and focus on amenity driven infrastructure to encourage development of Baltimore Avenue. The belief is to encourage new investment and redevelopment by “leading-by-example”. This means creatively partnering to get things done with local business, banks and residents in order to entice private development investment.

The idea of a connected system of trails, with Baltimore Avenue being a core element, is clearly supported in these plans because of the benefits that trails have for communities and improvement to the quality of life for their users. Scores of studies from experts in the fields of public health, urban planning, urban ecology, real estate, transportation, sociology, and economics have acknowledged the substantial value of supporting walking and bicycling as they relate to active living, alternative transportation, and economic growth.



The creation of an inter-municipal/inter-connected trail network is a regional asset to be developed, leveraged and expanded upon in a variety of ways related to historical contexts, environmental stewardship education and health and wellness opportunities. Connecting these valuable community resources, like Trine Park, Mountain Creek and the Givin Library, will allow their full potential benefits for Mount Holly Springs to be realized. Communities across the United States are building similar trail networks. They do so because of their obligations to promote health, safety and welfare, and also because of the growing awareness of the many benefits associated with increasing community livability through bicycle, pedestrian, and trail resources. This area of focus is also a niche revenue generator for an outdoor living business model for Mount Holly Springs.

The Baltimore Avenue Corridor Study initiatives have been designed in concert with the six (6) Livability Principles of Sustainability. Those six principles of sustainability are as follows:

1. Providing more transportation choices for the borough’s citizens and connect to the region
2. Providing for more equitable and affordable housing diversity and greater density
3. Enhance the region’s economic competitiveness
4. Support existing communities/neighborhoods in the borough and the region
5. Coordinate the governance of regional policies that leverage public/private partnerships and investments
6. Create and value the borough and its neighborhoods

In order to achieve the overall goals of those principles, borough needs to create both a Community Development Strategy and a Business Development Strategy. These two components are designed to be

implemented concurrently. Connectivity, creating new direct transportation connections within the borough, establishing community identity, creating new affordable housing stock, streetscapes and amenities, and updating the boroughs transportation infrastructure to include more choices are anticipated outcomes of this study. The borough does not want to be reliant upon state and federal assistance to maintain its quality of life amenities or to establish state-of-the-art services and is developing ways to improve its community and to provide amenities for a regionally growing population. One of the areas of focus is bicycle trail amenities and alternative means of transportation that are consistent with the Pennsylvania Community Transportation Initiative Smart Transportation Project.

The borough sees this study as a project that exemplifies the principles of Smart Transportation. The proposed trail alignment will provide connections to and from the residential neighborhoods to the recreational and commercial destinations without the construction of new road networks or other more expensive alternatives. The potential to expand the trail network to include the existing park sites and surrounding neighborhoods is a critical part of the study. Since the portion of the trail that traverses the Baltimore Avenue will be intertwined with the urban and rural fabrics of the borough, there will be enhanced opportunities to create connections with the pedestrian walking system, the athletic running/jogging connections and the cycling community. The planned user groups include, but are not limited to, the following: Hikers, walkers, joggers, roller-blade enthusiasts and bicyclists. The long-range vision of the trail is to expand connections to other developing and existing regional trail networks.

The bicycle trail along Baltimore Avenue emphasizes “context sensitive design elements” by respecting the transitional path from the nature of the boroughs connection to Carlisle and Hanover. Contextual elements that have been considered include such things as the natural elements associated with Mountain Creek, wildlife and aquatic habitats/corridors, pedestrian and vehicular transportation connections, the influence of the Ahlstrom, Vectron and Mount Holly Specialty Paper holdings, retail activities and their past and potential impacts.

Principles of the Bicycle Lanes, Trails and the Shared Use Path Planning and Design Process – The Trail Network

- The trail network should be an addition, and complimentary, to the roadway network.
- The trail network will function best when it is in its own right-of-way.
- The trail network should be used by a wide variety of users traveling in both directions.
- The trial network needs to be connected to the regional transportation system.
- Intersections between the trail network and roadways are the greatest challenge.
- The trail network should be designed based on the same engineering principles that are applied to highways.

The trail network has been designed to consider whether users will be able to enjoy the trail and benefit from ALL aspects of the trail experience if they were:

- Unable to hear;
- Using crutches;
- Unable to see;
- Using a wheelchair for mobility;
- Using a power scooter for mobility;
- 90+ years old;
- Lacking in energy;
- Not physically fit;
- 8 years old;
- Unable to concentrate; or
- Unable to read or not able to read English.



The implementation strategies need to be cost effective and professional. All implementation measures will be done via contract competitive vendors, municipal forces, or volunteer efforts. Key areas of focus have been and will continue to be residential and business environments, vehicular circulation, parking and safety, and promotion of pedestrian and bicycle mobility and safety. These priority projects are the catalytic elements needed to reassure the private development community that, “change is real”, and forthcoming in the Borough of Mount Holly Springs.

Create a comprehensive and interconnected network of trails that serves all user groups

The goal should be that once a trail user enters the Baltimore Avenue Corridor they are able to navigate, travel and link to popular destinations (parks, shopping, restaurants, public buildings, etc.). Baltimore Avenue and the adjoining sidewalks will need to be retrofitted to support shared pedestrian and bicycle use. Off-road trails will need to be built strategically as opportunities and property availability arise.

Foster a culture of active living

The Borough of Mount Holly Springs must make trail use part of its culture (i.e. part of the community). The key steps involved in this cultural inclusion process are as recommended below.

Step 1 – The borough should encourage and help businesses cater to the needs of trail users and provide accommodations for mode of travel and navigation needs of these users. For example, hotel accommodations, bicycle rentals, racks and bicycle parking should be conveniently located for ease of safe access and use. Maps of the community trail system should be readily available. A world class trails community welcomes trail users with a willingness to make their travel and stay as enjoyable as possible.

Step 2 - Residents of the community could not only welcome and embrace trail users, but more of them could become active trail users themselves. Walking or bicycling to work, school, and for social occasions could be

the norm along Baltimore Avenue rather than the exception. Ultimately, local residents need to be able to see themselves as pedestrians and bicyclists in order to create a truly bicycle and pedestrian friendly community.

Step 3 – The borough and its police, fire and public works departments should continue working together to help make the community safe for all trail users. Trails, roadways, and intersections should be designed and constructed with pedestrian and bicycle safety in mind. Landscapes and trail facilities should be maintained to a high standard, through all four seasons. Harassment or intimidation by motorists or others should never be tolerated.

Description of Project Area and Affected Population

The total study area includes, but is not limited to, a 4+ mile lineal system of interactive experiences and amenities beginning at the intersection of the southern Gateway of Routes 34/94 and Baltimore Avenue and progressing North to Carlisle and East to Boiling Springs.

Affected Population – The positive outcomes of this study will impact Mount Holly Springs by providing evidence of change and opportunities for direct involvement in the design and implementation process of the suggested priority projects. The local business and residential community needs to see real evidence of change that is visible and not just plans. Community leaders understand that reaching out to the school districts, businesses and residents to create partnerships for change is critical to long-term success of the Baltimore Avenue Corridor. Hands-on involvement will create core ownership for the project.

Demographic – The population density of the municipalities is diverse and both are targeted areas for growth over the next 20 years. The current statistics suggest that Mount Holly Springs will be stable in population growth, but not necessarily competitive and/or sustainable. The median household income level for residents in Mouth Holly Springs is approximately \$39,906.00, this is below the Pennsylvania mean household income of \$50,713.00. Supporting demographic information is included in the appendix of this report.

Economic and Physical Conditions – The economic and physical conditions of the community is in some ways considered below other Pennsylvania communities. The focus of positive change is critical for improving physical and economic conditions. The relatively low cost for the trail implementation, the potential positive outcomes and physical improvements yield a significant benefit for relatively minimal investment.

Trends – The Trail works to implement improvements based upon existing and emerging redevelopment trends. The redevelopment of the borough and the development of the trail, banner, historic and way-finding interpretive signage have been designed in concert with the six (6) Livability Principles of Sustainability as noted previously.

Connecting the Communities

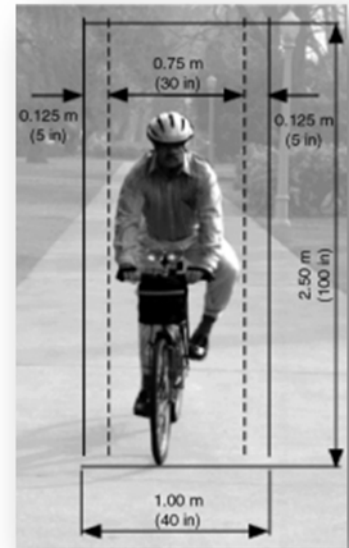
A plan for connecting the Mount Holly Springs through the Baltimore Avenue Corridor and then expanding to parks and people through a network of bicycle and pedestrian trails will involve development to a set of design standards and consistent elements. There are a variety of user groups that include walkers, joggers, in-line skaters and cyclists. While there are overlapping criteria for designing the trail, the primary design focus has been on the cyclists.

The following is intended to provide guidelines for the trail and an understanding of the cyclist user groups that will critical to the safety component of implementation. The bicycle component of the trail is based on the answers to two key questions:

1. What is the federal/state policy goal for bicycle use? and;
2. Who is the "design bicyclist?"

The "Design Cyclist"

It is estimated that nearly 110 million people in the United States own bicycles and those numbers are increasing annually. The Bicycle Federation of America estimates that fewer than 5 percent would qualify as experienced or highly skilled bicyclists. Since the policy goal is to accommodate existing bicyclists and encourage increased bicycle use, there will be more novice riders than advanced bicyclists using the trail system. Therefore, any roadway treatments on Baltimore Avenue are intended to accommodate bicycle use must address the needs of both experienced and less experienced riders. One solution to this design challenge is to develop the concept of a "design cyclist" and adopt a classification system for bicycle users such as the following:



Group A - Advanced Bicyclists: These are experienced riders who can operate under most traffic conditions. They comprise the majority of the current users of collector and arterial streets, such as Baltimore Avenue, and are best served by the following:

- Direct access to destinations usually via the existing street and trail system
- The opportunity to operate at maximum speed with minimum delays
- Sufficient operating space on the roadway or shoulder to reduce the need for either the bicyclist or the motor vehicle operator to change position when passing

Group B - Basic Bicyclists: These are casual or new adult and teenage riders who are less confident of their ability to operate in traffic without special provisions for bicycles. Some will develop greater skills and progress to the advanced level, but there will always be many millions of basic bicyclists. They prefer:

- Comfortable access to destinations, preferably by a direct route, using either low-speed, low traffic-volume streets, like Chestnut Street, or designated bicycle facilities
- Well-defined separation of bicycles and motor vehicles on arterial and collector streets (bike lanes or shoulders) or separate bike paths

Group C - Children: These are pre-teen riders whose roadway use is initially monitored by parents. Eventually they are accorded independent access to the system. They and their parents prefer the following:

- Access to key destinations surrounding residential areas, including schools, recreation facilities, shopping, or other residential areas
- Residential streets with low motor vehicle speed limits and volumes
- Well-defined separation of bicycles and motor vehicles on arterial and collector streets or separate bike paths

While other distinctions can be added, these lists support combining Groups B and C bicyclists in most situations. Therefore, a "design cyclist" concept is proposed that recognizes two broad classes of bicyclists: Group A riders and Group B/C riders. Generally, Group A bicyclists will be best served by designing all roadways to accommodate shared use by bicycles and motor vehicles.

This can be accomplished by:

- Establishing and enforcing speed limits to minimize speed differentials between bicycles and motor vehicles on Mount Holly streets and/or by implementing "traffic-calming" strategies
- Providing wide outside lanes on Baltimore Avenue, Mills Street and Pine Street an "urban section" (i.e., with curb and gutter)
- Providing usable shoulders on highways, such as Mill and Yates Streets, built with a "rural section" (i.e., no curb and gutter)

Generally, Group B/C bicyclists will be best served by a network of neighborhood streets and designated bicycle facilities, which can be provided by:

- Ensuring neighborhood streets have low speed limits through effective speed enforcement or controls and/or by implementing "traffic calming" strategies
- Providing a network of designated bicycle facilities (e.g., bike lanes, separate bike paths, or side-street bicycle routes) through the key travel corridors typically served by arterial and collector streets
- Providing usable roadway shoulders on rural streets

The Design Approach

Given these two types of design bicyclists, a two-tiered approach to meeting their needs is proposed for the Baltimore Avenue Corridor.

Group A riders will be best served by making every street "bicycle-friendly." This may be accomplished by adopting roadway design standards that include wide curb lanes and paved shoulders to accommodate shared use by bicycles and motor vehicles. This approach will provide adequate space for bicycles and motor vehicles to share the roadway with minimum need for changing lanes or lane position. The desired outcome is to have sufficient space to accommodate shared use by bicycles and motor vehicles with minimum delays and maximum safety for all users.

Group B/C riders will be best served by identifying key travel corridors like Baltimore Avenue, Chestnut Street, Mill Street and Pine Streets, which are the collector streets and by providing designated bicycle facilities on selected routes through these corridors. These key travel corridors can be identified through the type of planning process described further in this section. Full implementation of this approach will result in a condition where every street on which bicycles are permitted to operate will incorporate at least the design treatments recommended for Group A bicyclists. In addition, a network of routes will be enhanced by incorporating the designated bicycle facilities recommended for Group B/C bicyclists. Baltimore Avenue shall be designed to accommodate the Group B/C bicyclists in all regards and capacities.

Education/Training and Law Enforcement

As with motor vehicle use, bicycle program specialists have long advocated including education/training and law enforcement activities as an integral part of encouraging and managing bicycle use. The borough must develop regular programs to educate and train adults and children on the proper use of bicycles in traffic and make bicycle-related law enforcement activities—for motorists as well as bicyclists—a routine, ongoing element of the local police department's duties.

Bicycles, Motor Vehicles, and Pedestrians

The transportation system is characterized by the interaction of three basic modes of transportation: motor vehicles (including potential transit services), bicycles, and walking. All decisions related to the planning, design, and implementation of transportation facilities should address the potential impact on each of these modes. Regardless of the source of funding for transportation improvements, all members of the public are entitled to use public thoroughfares by their choice of mode. Therefore, it is incumbent on the borough and county agencies to plan and design facilities accordingly.

Four principles define the basic approach used for this plan:

1. Two types of design bicyclists are recognized: Group A (advanced) and Group B/C (basic adult and child).
2. To paraphrase the *AASHTO Guide*, every street and highway on which bicycles are permitted to operate is a "bicycle street" and should be designed and maintained to accommodate shared use by bicycles and motor vehicles. Thus, at a minimum, all streets should include the design treatments recommended for Group A bicyclists.

3. Given the stated policy goal, a supply-driven approach of providing designated bicycle facilities to encourage increased use by Group B/C riders (i.e., "if you build them they will come") is warranted.
4. Selecting design treatments to meet the needs of Group B/C bicyclists involves two steps:

The Bicycle Planning Process

Transportation and community planning is a process for making decisions about the development of transportation facilities and the surrounding uses that are impacted by transportation option. This includes providing accurate information about the effects proposed transportation projects will have on the community and projected users. Bicycle planning in Mount Holly Springs is no exception.

There are, however, some important design features to be taken into account to best accommodate Group A bicyclists, and for this reason, we have referenced *AASHTO Guide* during the planning process for the project. Group A riders should be anticipated and provided for on all roadways where bicycles are not excluded by statute or regulation, regardless of functional classification.

The situation is very different for group B/C bicyclists (bicyclists of average skill and experience, and children). While these bicyclists value many of the same roadway features as group A bicyclists (i.e., accessibility and directness), they also value other characteristics such as designated bicycle facilities and lower traffic volumes. Group B/C bicyclists typically prefer to ride on neighborhood streets and/or designated bicycle facilities.

Developing a Bicycle Network Plan

The following discussion details a planning process used to identify a network of routes where special bicycle facility treatments should be employed to meet the needs of group B/C bicyclists. Many model planning processes could be used to select routes and design facility treatments to accommodate group B/C bicyclists. Chapter 1 of the *AASHTO Guide* contains several suggestions for establishing a bicycle planning program.

The following process was followed by Navarro & Wright and consisted of six steps that were used for the Baltimore Avenue Corridor Study as follows:

1. Establish performance criteria for the bicycle network.
2. Inventory the existing bicycle facility and roadway system.
3. Identify bicycle travel desire lines and corridors.
4. Evaluate and select specific route alternatives.
5. Select appropriate design treatments.
6. Evaluate the finished plan against the established performance criteria.

1. Establish Performance Criteria for the Bicycle Network

Performance criteria define the important qualitative and quantitative variables to be considered in determining the desirability and effectiveness of a bicycle facility network. These can include:

Accessibility: This is measured by the distance a bicycle facility is from a specified trip origin or destination, the ease by which this distance can be traveled by bicycle, and the extent to which all likely origins and destinations are served. Some communities (e.g., Arlington, VA) have adopted a criterion of having a bicycle facility within 1 mile of every residence. More importantly, no residential area or high priority destination (school, shopping center, business center, or park) should be denied reasonable access by bicycle.

Directness: Studies have shown that most bicyclists will not use even the best bicycle facility if it greatly increases the travel distance or trip time over that provided by less desirable alternatives. Therefore, even for group B/C bicyclists, routes should still be reasonably direct. The ratio of directness to comfort/ perceived safety involved in this tradeoff will vary depending on the characteristics of the bicycle facility (how desirable is it?), its more direct alternatives (how unpleasant are they?), and the typical user's needs (in a hurry? business or pleasure trip?). The Baltimore Avenue corridor provides lineal opportunities for expansion in all directions and for connections to the mountain bike trail network.

Continuity: The proposed trail network should have as few missing links as possible. If gaps exist as the project is being implemented, they should not include traffic environments that are unpleasant or threatening to group B/C riders, such as high-volume or high-speed motor vehicle traffic with narrow outside lanes.

Route Attractiveness: This can encompass such factors as separation from motor traffic, visual aesthetics, and the real or perceived threat to personal safety along the facility. The Baltimore Avenue Trail is a variety of urban and rural experiences, including interpretive opportunities associated with the Holly Preserve and the core of the Borough.

Low Conflict: The route should present few conflicts between bicyclists and motor vehicle operators. The trail actually has very few conflicting intersections, blind corners, or other conflict areas. The creation of roundabouts will further improve potential conflicts.

Cost: This would include the cost to both establish and maintain the system.

Ease of Implementation: The ease or difficulty in implementing proposed changes depends on available space and existing traffic operations and patterns. The on-road nature of the core travel route should make the trail relatively easy to implement.

2. Inventory of the Existing System

Both the existing roadway system and any existing bicycle facilities have been inventoried and evaluated. The condition, location, and level of use of existing bicycle facilities have been recorded to determine if they

warrant incorporation into the proposed new network or if they should be removed. The newly recommended Baltimore Avenue bicycle facilities are to be used as the nucleus of a new or expanded network, the inventory notes which improvements to the existing portions of the street network may be required to bring the entire new network up to uniform design and operations standards.

A simple inventory of the roadway system has been based on a map of the annual average daily traffic (AADT) counts on each road segment within the borough. A more complex inventory has also been provided to include factors such as the number of traffic lanes, the width of the outside lane, the posted speed limit or actual average operating speed, the pavement condition, and certain geometric and other factors (e.g., the frequency of commercial driveways, grades, and railroad crossings).

3. Identifying the Bicycle Travel Corridors

Predicting bicycle travel corridors for a community is not the same as identifying the routes that bicyclists currently use. Instead, travel corridors can be thought of as "desire lines" connecting neighborhoods that generate bicycling trips with other zones that attract a significant number of bicycling trips. For motor vehicle traffic, most peak morning trips are made between residential neighborhoods and employment centers. Most traffic is directed from the southern gateway through the corridor to Carlisle to the north. In the evening peak, the opposite is true. In the evening or on weekends, the pattern of trip generation is much more dispersed as people travel to shopping centers, parks, and the homes of friends or relatives.

Estimating these trip flows for an entire region can be a complex, time-consuming effort requiring significant amounts of raw data and sophisticated computer models and that has not been included in this report. Fortunately, transportation planning for bicycles is much simpler. Unlike traditional transportation planning that attempts to predict travel demands between future zones on as-yet-unbuilt streets and highways, bicycle planning attempts to provide for bicycle use based on existing land uses assuming that the present impediments to bicycle use are removed. These desired lines are, in fact, well represented by the traffic flow on the existing system of streets and recreational destinations in the study area.

The underlying assumption is that people on bikes want to go to the same places as do people in cars (within the constraints imposed by distance), and the existing system of streets and highways (Baltimore Avenue) reflects the existing travel demands of the community. Furthermore, most adults have a mental map of their community based on their experience as motor vehicle operators. Thus, they tend to orient themselves by the location of major streets and highways. Therefore, a good way to estimate desire lines for bicyclists and to project bicycle trips is based on the existing pattern of motor vehicle flows. The simplest way to do this is to multiply the AADT of each segment of the road system by the bicycle mode split (the percentage of all trips that are made by (bicycle) for the community or region. The 2010 census provides bicycle mode splits for census tracts and entire communities. Mode split estimates of total trips by bicycle in American cities have ranged between 3 and 11 percent. It is important to note that the Baltimore Avenue may not be a representation of where cyclists are now, but is instead a reflection of where bicyclists wish to go. The actual travel patterns of group B/C cyclists are heavily influenced by their perception of the bicycling environment

they face. Uncomfortable or threatening bicycling conditions will cause these bicyclists to alter route choice from their most preferred alignment, choose a different travel mode, or not make the trip at all. Thus, the task of the transportation planner for bicycling is to ask, "Where are the bicyclists now?" and "Where would they be if they could go where they preferred?" Although this use of existing traffic flows is a useful overall predictor of bicyclists' desire lines, a few special situations may require adjustments to the corridor map.

- Schools—especially colleges and universities—and military bases can generate a disproportionately large share of bicycle trips. This is especially true for campuses where motor vehicle parking is limited.
- Parks, beaches, libraries, greenways, streams and lakesides, scenic roads, and other recreational facilities attract a proportionately higher percentage of bicycle trips.

4. Evaluate and Select Specific Route Alternatives

The corridor identification procedure identifies desire lines for bicycle travel between various locations. The next step is to select specific routes within these corridors that can be designed or adapted to accommodate group B/C bicyclists and provide access to and from these locations. The aim is to identify the routes that best meet the performance criteria established in the first step of this planning process.

Typically, this step and the selection of appropriate design treatments are highly interactive processes. The practicality of adapting a particular route to accommodate group B/C bicyclists may vary widely depending upon the type of design treatment selected. For example, a less direct route may become the best option if comparatively few, inexpensive, and easily implemented design improvements are required. Also the B/C user group may choose to use the sidewalk network along Baltimore Avenue, or even Chestnut Street verses using the on-street travel lanes on Baltimore Avenue. The route selection and design treatment are considered together to achieve a network that is highly advantageous to the user, is affordable, has few negative impacts on neighbors and other nonusers, and can be readily implemented.

A more inclusive list of factors to be considered in the selection of a specific route is presented in the *AASHTO Guide*.

5. Select Appropriate Design Treatments

The principal variables affecting the applicability of a design treatment are:

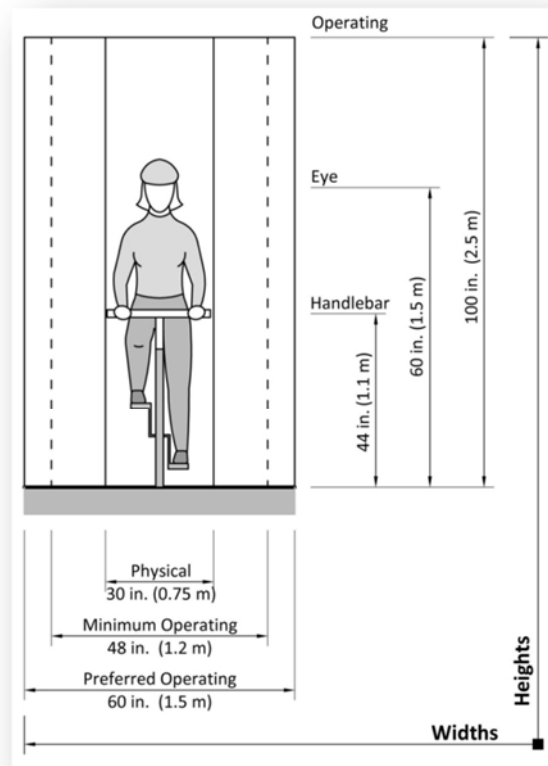
- The design bicyclist. Is the proposed route projected to be used primarily by group A bicyclists, or is it intended to also serve as part of a network of routes for group B/C bicyclists?
- The type of roadway project involved on the selected route. Is the roadway scheduled for construction or reconstruction, or will the incorporation of design improvements be retrofitted into existing geometrics or right-of-way widths?

- Traffic operations factors. The most significant traffic operations factors for determining the appropriateness of various design treatments are:
 - Traffic volume
 - Average motor vehicle operating speeds
 - Traffic mix
 - On-street parking
 - Sight distance
 - Number of intersections and entrances

6. Evaluate the Finished Plan against the Established Performance Criteria

Design Selection and Specifications

The study has provided recommendations for the Baltimore Avenue design to accommodate bicycles. Specific dimensions are suggested for the width of the recommended facility type. These recommendations reflect the current state of the practice in the design of bicycle-friendly roadways. The purpose is to provide "guidelines" rather than absolute standards.



Types of Bicycle Facilities

There are many ways in which bicycles can be accommodated on roadways and other rights of way. This section provides an overview of shared lanes, special design treatments, and other possible improvements, including PennDOT recognized traffic-calming techniques. Five basic types of facilities are used to accommodate bicyclists:

- **Shared lane:** shared motor vehicle/bicycle use of a "standard"- width travel lane.
- **Wide outside lane:** an outside travel lane with a width of at least 14 ft (4.2 m).
- **Bike lane:** a portion of the roadway designated by striping, signing, and/or pavement markings for preferential or exclusive use of bicycles.
- **Shoulder:** a paved portion of the roadway to the right of the edge stripe designed to serve bicyclists.
- **Separate bike path:** a facility physically separated from the roadway and intended for bicycle use.

Shared Lanes

Shared lanes along Baltimore Avenue are recommended in Mount Holly Springs where there are no special provisions for bicyclists due to dimensional limitations. Shared lanes typically feature 12-ft (3.6-m) lane

widths or less with no shoulders, allowing cars to safely pass bicyclists only by crossing the center line or moving into another traffic lane. In these sections special “Share the Road” signage shall be installed along Baltimore Avenue to educate both vehicular drivers and cyclists.

In residential areas with low motor vehicle traffic volumes and average motor vehicle speeds of less than 30 mi/h (48.3 km/h), this should present no problem for group A riders, and will normally be adequate for group B/C bicyclists to use as well if the lane width is at least 12 ft (3.6 m). Where existing lane width is less than 12 ft (3.6 m), additional lane width or lower operating speed is called for. With higher speeds and traffic volumes, shared lanes become less attractive routes, especially to group B/C riders.

As the *AASHTO Guide* notes, however:

To varying extents bicycles will be ridden on all highways where they are permitted. All new highways, except those where bicyclists will be legally prohibited, should be designed and constructed under the assumption that they will be used by bicyclists. Bicycle safe design practices should be followed to avoid the necessity for costly subsequent improvements.

The *AASHTO Guide* goes on to note other actions by which bicycle use of shared roadways—regardless of lane widths or type of user—can be improved. Bicycle-safe drainage grates, smooth pavement, bicycle-safe railroad crossings, and traffic signals that respond to bicycles are all listed as examples.

Shared lanes do not usually require any special signing for bicyclists. Exceptions to this include situations when:

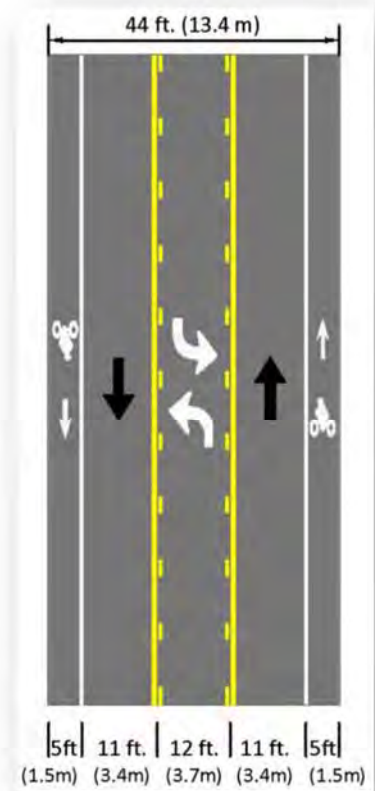
- Specific destinations or potential alternate routes for bicyclists need to be shown.
- A short gap exists between special bicycle facilities, such as between two trails, and bicyclists require signing to lead them to the next facility.

Wide curb lanes, bike lanes, shoulders and separate bike paths are four general types of bicycle facilities that can improve upon shared roadways where traffic volumes or speeds make it prudent to do so. In three of these four cases, the facility allows bicyclists and motorists to operate parallel to each other in the same lane without coming too close and without motorists having to change lanes to pass the bicyclists.

Wide Curb Lanes

Wide curb lanes, or wide outside lanes, can be defined as right-most through traffic lanes that are substantially wider than 12' feet. Most practitioners agree that 14' feet - usually measured from the lane stripe to the edge of the gutter pan, rather than the curb face - is the minimum width necessary to allow a bicyclist and motorist to share the same lane without coming into conflict, changing lanes, or potentially reducing the motor vehicle capacity of the lane. Where traffic speeds exceed 40 miles/hour, and when annual average daily traffic exceeds 10,000, 15'- or 16'-foot lanes are considered desirable. Wide curb lanes have three widely accepted advantages. They can:

- Accommodate shared bicycle/motor vehicle use without reducing the roadway capacity for motor vehicle traffic
- Minimize both the real and perceived operating conflicts between bicycles and motor vehicles
- Increase the roadway capacity by the number of bicyclists capable of being accommodated



Many other benefits are claimed for wide outside lanes ranging from assisting turning vehicles in entering the roadway without encroaching into another lane to better accommodating buses and other wider vehicles. Wide outside lanes require the least amount of additional maintenance of the different facilities. The sweeping effect of passing motor vehicles and routine highway maintenance is usually enough to keep the lane free of debris and in good condition for bicycling. Wide outside lanes are especially valuable for, and often favored by, group A riders who are not easily intimidated by high traffic volumes and speeds. These riders do not require a designated space in which to ride or designation of the street as a bike route. The same is not true for group B/C riders. Except on residential or low-volume streets, wide outside lanes are not generally sufficient to provide the degree of comfort and safety required by less skilled bicyclists or children and will do little to encourage them to ride. Wide curb lanes will be most applicable, therefore, in urban areas on major streets where group A riders will likely be operating. If no alternative route exists for group B/C riders, a bike lane or shoulder should typically be used.

Bike Lanes

The *AASHTO Guide* defines a bicycle lane as: *A portion of the roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.*

Bike lanes are sometimes referred to as Class II Bikeways, according to the classification system still used by the PennDOT. Both PennDOT and the *AASHTO Guide* agree that bike lanes should always be one-way facilities carrying traffic in the same direction as adjacent motor vehicle traffic, and that they should not be

placed between parking spaces and the curb. The recommended width for a bike lane is 5' feet, at least 4' feet of which should lay to the left of the gutter pan seam.

The PennDOT *Highway Design Manual* describes this effect very clearly: *“Bike lane stripes are intended to promote the orderly flow of traffic, by establishing specific lines of demarcation between areas reserved for bicycles and lanes to be occupied by motor vehicles. This effect is supported by bike lane signs and pavement markings. Bike lane stripes can increase bicyclists’ confidence that motorists will not stray into their path of travel if they remain in the bike lane. Likewise, with more certainty as to where bicyclists will be, passing motorists are less apt to swerve towards opposing traffic in making certain they will not hit bicyclists”.*

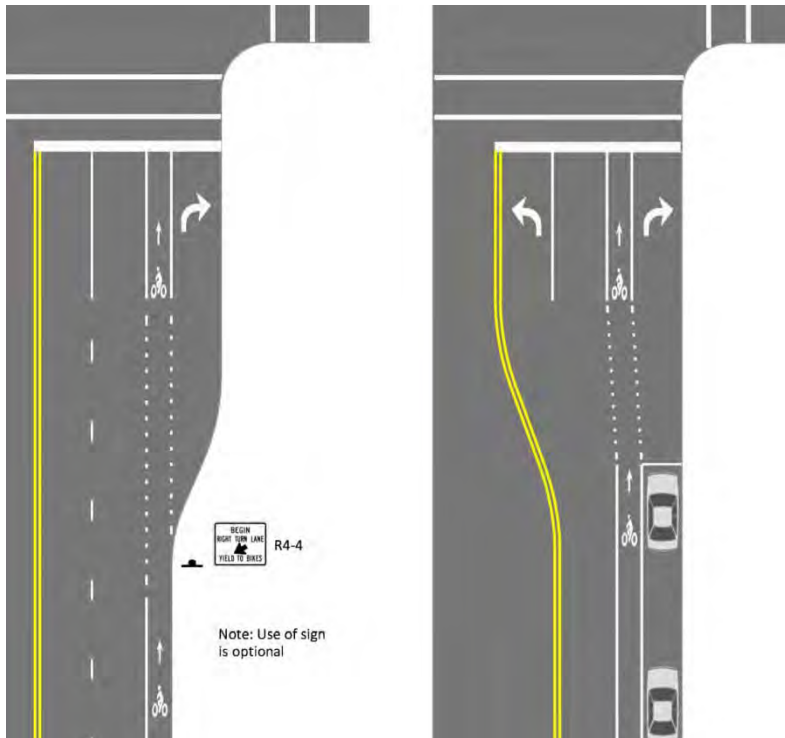
The impact of marked bike lanes is particularly important for group B/C riders. The lanes offer a designated and visible space for bicyclists and can be a significant factor in route choice. Motorists also benefit from the channelizing effect of bike lanes. Use of bike lanes does require an additional commitment to maintenance. Bike lanes must be kept free of debris and loose gravel to remain useful and safe, which may require routine sweeping beyond that necessary for streets with no bike lanes. As motor vehicles are not allowed in the lanes, they cannot sweep the debris aside as they do in ordinary (12'feet) traffic lanes. The bike lane stripes themselves must be maintained on a regular basis.

Other important issues include the presence of on-street parking and the number and complexity of intersections. Parking movements and car doors opening have the potential to cause crashes, so bike lanes should be designed to minimize these conflicts.

For example, on streets with parking lanes:

- Bike lanes should be at least 5' feet wide.
- Bike lanes should be placed between the outer vehicle lane and the parking lane.
- Both sides of the bike lane should be marked. The right-hand marking will demarcate where vehicles should park and will allow sufficient clearance for a bicyclist to avoid car doors that are opening.
- Bike lanes are not advisable where angled parking is present.

Bicycle lanes can complicate turning movements at intersections if they encourage bicyclists to keep right and motorists to keep left, regardless of their turning intentions. Some jurisdictions have addressed this issue by ending bike lanes in advance of intersections, or by striping the lane with a broken, rather than a solid, white line in advance of the intersection to encourage merging. It is the conclusion of the current study that bike lanes do have wide applicability, especially for group B/C riders in urban areas. When average daily traffic flows exceed 10,000 or average motor vehicle speeds exceed 30 miles/hour, 5'feet bike lanes will attract and serve group B/C riders better than wide outside lanes or other design treatments.



Shoulders

AASHTO's "Policy on the Geometric Design of Highways and Streets" defines a shoulder as: "... the portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use and for lateral support of the sub-base, base and surface courses".

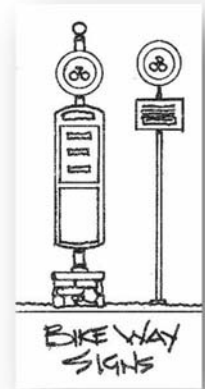
Shoulders are also useful as places for bicyclists to ride along the more rural sections of Baltimore Avenue. AASHTO and many States explicitly recognize that adding or improving shoulders is often the best way to accommodate bicyclists—especially in

rural areas. Shoulders should be a minimum of 4 ft (1.2 m) wide when designed to accommodate bicycle travel. While group A (and even some group B/C cyclists) will benefit from shoulder widths as narrow as 1' or 2' feet, these facilities should not be signed for bicyclists if they fail to meet prevailing State and/or AASHTO guidelines. Where traffic speeds increase, the traffic mix typically includes heavier vehicles and trucks resulting in rising traffic volumes, then added lane width is desirable. For example, once vehicle speeds exceed 40 mi/h (64.4 km/h) and AADT is 2,000 or more, shoulder widths should usually be increased to 6 ft (1.8 m). In urban areas, wide curb lanes are usually preferable to shoulders for group A riders and bike lanes are usually preferable for group B/C riders. One exception will be on high-speed urban arterials (more than 50 mi/h [80 km/h]) where 6-ft (1.8-m) shoulders will serve group A riders better than wide curb lanes. Bike lanes, if used along these routes, should also be at least 6 ft (1.8 m) wide.

Bicyclists will use shoulders where they are paved and maintained to the same surface standard as regular travel lanes. Where shoulders are designated as bike facilities, it is essential to keep them in good repair and free of debris, which often means a regular inspection and maintenance program. Other surface irregularities, such as rumble strips, textured paving, and raised lane markers and reflectors, should be avoided on routes explicitly intended for bicyclists as they can cause falls or force bicyclists to ride in the traffic lane. Where the use of rumble strips is necessary, they should be located so as to leave a portion of the shoulder free for bicyclists. Some state vehicle codes may, under a strict interpretation, prohibit or restrict the use of shoulders by all vehicles, including bicycles.

SIGNAGE / MARKING BICYCLE FACILITIES

Signs and pavement markings for bicycle facilities will encourage increased use. In addition to obvious traffic operations benefits, signs and pavement markings have the effect of "advertising" bicycle use. This helps legitimize the presence of bicycles in the eyes of motorists and potential bicyclists. Also, while not discussed specifically in this study, use of bike route signs in combination with destination information or a map can contribute to development of a network of designated bicycle routes to provide community access for group B/C bicyclists.



Separate Bike Paths

The *AASHTO Guide* defines a bicycle path or bike path as “A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way”.

Separate bike paths are also known as Class I Bikeways, according to the classification used by the PennDOT. They also may be referred to as "multi-use trails" or "green-ways," even though they are slightly different facilities. A trail typically runs along an independent right of way such as an abandoned railroad corridor, and a greenway is a park-type corridor of land that may or may not incorporate a trail within its boundaries. Two-way bike paths should be at least 10 ft (3 m) wide. Where possible, especially if bicycle or pedestrian traffic is expected to be high, paths should be a minimum of 12 ft (3.6 m) wide. Given the variety of users of most bike paths, 8-ft (2.4 m) widths will generally not be adequate. One-way bike paths have a limited application as without strict enforcement, they will be used as two-way facilities. If they are provided, however, they should be at least 5 ft (1.5 m) wide.

Bike paths are a valuable addition to the highway system and to the range of facilities available to planners and engineers seeking to improve conditions for all categories of bicyclist. They can serve both a transportation and recreation function and have proven to be significant generators of bicycle use. Both Groups A and B/C riders (as well as other non-motorized users) can benefit from the absence of motor vehicle traffic on these paths. Bike paths are not inherently more dangerous than other bicycle facilities if they are well designed, thoughtfully applied, and adequately maintained. For example, paths should not have their continuity destroyed by frequent motor vehicle cross flows and intersections with highways. These increase potential conflicts and are likely to make the route less popular with riders seeking to maintain momentum, particularly Group A. Where adequate, uninterrupted right of way is available, separate bike paths can be used to good effect in providing long, continuous routes for commuting or recreation trips, access to destinations not otherwise available to bicyclists, and as a cut-through between buildings and other breaks in the street network.

Designating Bicycle Facilities

An important consideration regarding the five types of facilities designs is whether or not they should be designated, by pavement markings and/or signs, as bicycle facilities. As discussed above, Group B/C bicyclists prefer designated facilities for bicycle use. Therefore, when bike lanes or shoulders are provided to serve Group B/C riders, some designation should be included when retrofitting the Baltimore Avenue corridor.

When design treatments are provided primarily to serve Group A riders, designation is optional. In some cases, it may be more desirable not to designate the facility for bicycle use and that has been the choice of the Mount Holly community as it relates to Baltimore Avenue between Pine and Mill Streets. Another consideration involves minor or marginal roadway improvements for bicyclists, such as providing a narrow (less than 4-ft [1.2-m]) shoulder. This can significantly improve riding conditions for group A bicyclists and should be considered if no better treatment is possible. However, this width is less than the minimum called for in virtually all design specifications and therefore should not be designated as a bicycle facility. Where a facility is intended to be designated as a "bicycle facility" it is essential the design conform to the PennDOT standard or AASHTO guidelines.

Preparing to Select a Facility Treatment

To determine the appropriate highway design treatment to accommodate bicyclists, several factors associated with the specific route or project must be assessed:

- What types of bicyclists is the route most likely to serve?
- What type of roadway project is involved (new construction, reconstruction, or retrofit)?
- What are the current and anticipated traffic operations and design characteristics of the route that will affect the choice of a bicycle design treatment?

What Types of Bicyclists is the Route Most Likely to Serve?

This plan takes its lead from the *AASHTO Guide*, which states *“To varying extents, bicycles will be ridden on all highways where they are permitted. All new highways, except those where bicyclists will be legally prohibited, should be designed and constructed under the assumption that they will be used as a bicycle street. Using the concept of two broad types of design bicyclists—group A and group B/C— the recommendations included are keyed to the most likely type of user”*.

All streets and highways where bicycles are permitted to operate should, *at a minimum*, incorporate the design treatments recommended in the tables for group A bicyclists. Where it is determined that use by group B/C bicyclists is likely, the recommending design treatments for group B/C should be used. The group B/C design treatments will also accommodate group A bicyclists. At a minimum, all streets and highways open to bicycle use should have roadways incorporating the design treatments recommended for group A

bicyclists. Where a planning process has determined a given route is the best choice to form part of a network of routes to provide access to the community for group B/C bicyclists, the recommended design treatment appropriate to B/C riders should be implemented.

Which Traffic Operations and Design Factors Help Determine the Appropriate Design Treatment?

A general consensus has emerged among transportation planners and engineers working with bicycle facilities on the traffic operations and design factors having the greatest effect on bicycle use. Six factors are most often cited; five are used to define the recommendations for the Borough of Mount Holly Springs. Each of these factors is discussed below along with the ranges of values used to differentiate levels of needs. Determining these ranges was difficult; there is little in the state of the practice to go by, and there is tremendous regional variation in prevailing conditions. Therefore, it is again suggested that the recommendations be used as a guide and that adjustments be considered to reflect, for instance, different values for the ranges for annual average daily traffic (AADT) volume.

The six major factors are as follows:

1. Traffic volume. Higher motor vehicle traffic volumes represent greater potential risk for bicyclists and the more frequent overtaking situations are less comfortable for Group B/C bicyclists unless special design treatments are provided.

The recommendations contained in the tables are based on three ranges of AADT:

- Under 2,000 AADT (Chestnut Street)
- 2,000 to 10,000 AADT
- Over 10,000 AADT (Baltimore Avenue)

2. Average motor vehicle operating speed. The average operating speed is more important than the posted speed limit, and better reflects local conditions. The vehicle speed can have a negative impact on risk and comfort unless mitigated by special design treatments. Four ranges of average speeds are used:

- Less than 30 mi/h.
- 30 to 40 mi/h.
- 41 to 50 mi/h.
- Over 50 mi/h.

3. Traffic mix. The regular presence of trucks, buses, and/or recreation vehicles (i.e., approximately 30 per hour or more) can increase risk and have a negative impact on comfort for bicyclists. Baltimore Avenues truck traffic volume exceed this 30 per hour threshold. At high speeds, the wind blast from such vehicles can create a serious risk of falls. Even at lower operating speeds, shared lane use is less compatible. All types of bicyclists prefer extra roadway width to accommodate greater separation from such vehicles. Many bicyclists will choose a different route or not ride at all where there is a regular presence of such traffic unless they are

able to remove themselves several feet from these motor vehicles. The recommendations contained in the plan suggest different design treatments and widths depending on whether or not the volume of truck, bus, and/or recreational vehicles is likely to have a negative impact on bicycle use.

4. On-street parking. The presence of on-street parking increases the width needed in the adjacent travel lane or bike lane to accommodate bicycles. This is primarily a concern associated with streets and highways built with an urban section. It is addressed in the recommendations by including a separate set of tables for urban sections with on-street parking.

5. Sight distance. "Inadequate sight distance" relates to situations where bicycles are being overtaken by motor vehicles and where the sight distance is likely less than that needed for a motor vehicle operator to either change lane positions or slow to the bicyclist's speed. This problem is primarily associated with rural highways and is a concern for the segment on Baltimore Avenue south of Pine Street to the Route 34/94 split due to poor design and/or sight obstructions. The most effective response to the problem is to correct it. Providing for bicycle operation to the right of the designated motor vehicle lane (i.e., on a bike lane or shoulder) or, at speeds less than 41 mi/h, by adding extra width to a wide outside lane, are viable options.

6. Number of intersections. Intersections pose special challenges to bicycle and motor vehicle operators, especially when bike lanes or separate bike paths are introduced. The *AASHTO Guide* and various State design manuals include general guidelines for intersection treatments. While not included as a selection factor in the tables, the number and/or frequency of intersections should be considered when assessing the use of bike lanes. There is some evidence to suggest that the disruption in traffic operations associated with bike lanes is temporary. Over time, both bicyclists and motorists adapt to the new traffic patterns, learning to look for each other and effect merges prior to intersections.

How to Determine the Recommended Treatment

Recommended roadway design treatments and widths to accommodate bicycles are presented for group A and group B/C bicyclists. The design treatments for groups A and B/C bicyclists should be used as a guide to the minimum design for Baltimore Avenue. There are separate recommendations for the two basic types of roadway sections: urban (with curb and gutter) and rural (without curb and gutter). Separate recommendations are provided for highways with urban sections with on-street parking and with no on-street parking.

Recommendations are provided for the width of the various recommended design treatments. These recommended dimensions are considered to be "desirable widths." They should be treated as "minimum widths" unless special circumstances preclude such development. Any treatment specifically designated for bicycle use must meet the minimum design standards called for in the *AASHTO Guide* or the appropriate State standard.

Finally, the recommendations depicted on the plans and cross-sections of this report are preliminary and should be tested and refined over time. It is anticipated that the plans and cross-sections associated with this report will be revised to reflect the continuing evolution of the state of the practice in selecting design treatments for Baltimore Avenue, adjoining roadways and development site to accommodate shared use by bicycles, pedestrians and vehicles. The plans and cross-sections are attached as appendices to this report.

Other Possible Improvements

Sidewalks

The AASHTO Guide states quite simply that "Sidewalks are generally not acceptable for bicycling." This statement is qualified by a recognition that in a few, specific instances, such as on long, narrow bridges, the designation of a sidewalk as a bicycle facility may be beneficial. Many states share this view.

Sidewalks are generally inappropriate for use by adults because they put the adult bicyclist in conflict with motorists using driveways, and with pedestrians, utility poles and signposts. Also, the cyclist is generally not visible or noticed by the motorist so that the cyclist suddenly emerges at intersections, surprising the motorist and creating a hazardous condition.

The connectivity of sidewalks in the Baltimore Avenue corridor and the project study area is critical for linking neighborhoods and encouraging pedestrian activities. The Plan and Cross-sections contained in this report illustrate the relationship of sidewalks to Baltimore Avenue and are typically located at the "outside" of the right-of-way for the Avenue. In all instances the sidewalk "gaps" through the corridor should be closed and new sidewalk connections constructed to create a complete network along Baltimore Avenue that is safe, separated from bicycle and vehicular traffic and dedicated to pedestrian activities.



Crosswalk with epoxy resin

Traffic Calming

Still relatively new to Pennsylvania communities, widespread neighborhood traffic calming aims to reduce the dominance and speed of motor vehicles. Measures employed to achieve this include physical alterations to the horizontal and vertical alignment of the road and changes in priority. For example, roundabouts, bump-outs, speed humps, diverters, traffic throttles, traffic islands, sidewalk extensions, textured paving, and mini-traffic circles

have all been utilized to calm or tame traffic. Low

speed zones—for example, 25 mi/h (32.2 km/h) or lower—are often introduced along with a package of these

physical changes. Mount Holly Springs needs to consider the use of gateway roundabouts in combination with bump-outs and other textured paving enchantments to slow truck traffic through the corridor.

Traffic calming was started as a means to reduce the impact of traffic in residential neighborhoods and around schools. During the 1980's, the principles of traffic calming were extended and are now being applied to major roads in urban and downtown areas.

Four key benefits have been attributed to traffic calming:

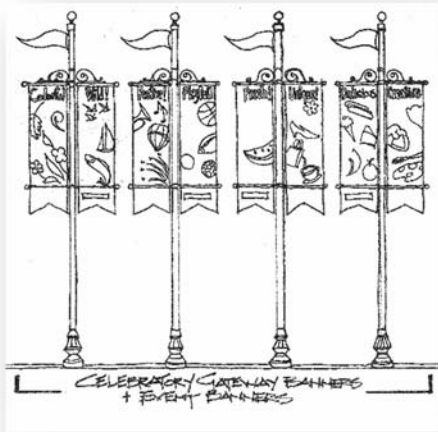
- An average one-third reduction in road accidents.
- A greater feeling of security, particularly among vulnerable road users such as pedestrians and bicyclists.
- Reclamation of roadway space for non-traffic activities such as play and social interaction.
- Environmental improvements through landscaping and a reduction in the intrusive presence of motor vehicles.



Much of the pioneering work in this field has been in Europe, particularly Germany and the Netherlands. In areas of traffic calming in both countries it is rare to see special facilities for bicyclists since many of the benefits of traffic calming—slower vehicle speeds, better driver discipline, less traffic, environmental improvement—directly benefit bicyclists, especially group B/C riders.

Nevertheless, poorly designed traffic-calming concepts can inconvenience or even endanger cyclists. Balanced on two wheels and without the benefit of suspension, cyclists are particularly susceptible to changes in surface height and texture or may be put at risk by poorly-considered road

narrowing. Careful design of traffic-calming schemes can overcome these potential pitfalls and ensure that the benefits of such work encourage bicycling and make the activity safer. Some U.S. cities, such as Seattle, have developed traffic-calming techniques similar to those found in European countries, but not to the same geographic extent.



SIGNAGE and PURPOSE

The study seeks to create the planning tools needed to improve the visual quality of the Baltimore Avenue Corridor with streetscape banners that are derived from the youth and arts of the community, securing the support of the borough and local business partners as well as other faith based organizations in the implementation of this effort.

Identify each Sign's Purpose

First and foremost, signs need to be viewed as functional objects that convey information to trail and roadway users. Every sign project should, therefore, be built around an identified need for specific information that needs to be conveyed in a specific location or to a specific audience. The purpose of a sign can vary widely. The signs can tell visitors that they are within the Baltimore Avenue Corridor, help visitors follow a trail or locate points of interest or educate visitors through interpretive signage. At the end of the day identifying the functional purpose of each sign is critical.

Knowing what a sign/s purpose is will help answer other important questions - where to locate a sign, how big it should be and what information should be included on the sign. Finally, the question of purpose is the ultimate justification for creating the sign at all - the goal is not to erect signs for the sign/s sake, but to build the identity and function of the trail. If a sign will not serve a clearly identified purpose to meet an identified need, the sign should not be made or installed at all.

Keep it Small

The Baltimore Avenue Corridor is, among other things, a scenic view-shed of varying landscapes from commercial to natural that connects the borough with the rest of the Cumberland Valley region. Signs can enrich the visitor experience by facilitating way-finding and learning and, when appropriately sized and placed, they can do so subtly, so that they fit into the landscape. Oversized signs contribute to visual clutter within the landscape and are contrary to the mission of the trail experience.

The size of a sign needs to relate to the speed and distance from which it will be read and to the amount of information that the sign needs to convey; but when there is a choice for sizing signs, the preference should be to install signs that are as small as possible while still maintaining their function.

Keep it Simple

Effective signs have a clear message and they convey that message in a concise manner with little to no extraneous information. Keeping signs as simple as possible, with minimal text and an appropriate amount

of information to make them clear and functional, goes hand in hand with keeping signs as small as is reasonable, which in turn reduces the overall cost and complexity of sign projects.

Be Consistent (Use graphic standards)

More often than not, sign projects will propose to fabricate and install multiple signs, such as several signs needed to mark a trail or a set of interpretive signs within a community. Even stand-alone signs, however, are part of a larger sign system when considered within the context of the Trail. For this reason, the more consistent signs are, from their size and layout to where and how they're installed, the simpler the design, fabrication and installation process will be.

Interpretive Signs

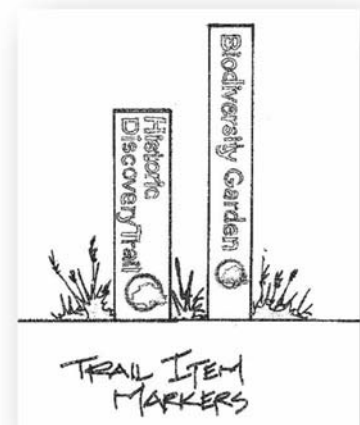
Interpretive sign projects require special attention to simplicity and clear messaging because there is always more information that can be shared than can or should be made to fit onto a sign, no matter what the subject. A group's desire to share all the stories of a place or topic with visitors can also lead to overly crowded signs without a clear hierarchy of messages.



The best interpretive signs contain just enough information to grab and hold a reader's attention using a limited amount of text and compelling visuals. Ideally, one interpretive sign will contain just enough information that a visitor will feel satisfied that they have learned something new, while also wanting to seek out additional information about the topic from other sources, such as educational programs, books or other media.

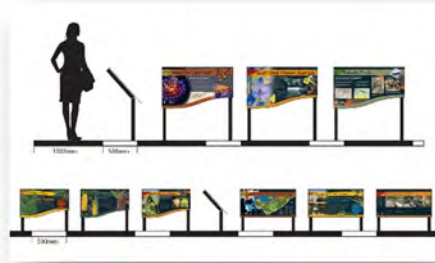
Identification Signs

Baltimore Avenue Corridor Identification Signs celebrate and promote the many important places and resources that constitute the Mount Holly Springs and are worth exploring. For visitors, they also visually remind and confirm that they are traveling within a specially defined region – Baltimore Avenue. For some, these signs may provide their first introduction to the Avenue and will entice them to learn more about the corridor and all that it has to offer.



These simple identification signs, consisting of the name, logo and sometimes an associated program name, are the most basic, most easily replicated and most immediately recognizable of all the sign types. They can be scaled to fit any situation and can be installed alone or attached

to existing signs at any point of interest, be it an historic site, stream access point, partner community, trail or any number of other asset types.



Standard Sizes: The Identification Sign is fully scale-able for various applications; however, typical dimensions include:

- 6" x 8" signs
- 9" x 12" signs
- 18" x 24" signs

Materials:

- 0.80" thick Aluminum
- Reflective Fluoride Resin Laminate
(U.V. Resistant)
- Alternate materials (plastic/polymer)

Gateway Entrance Signs

Purpose: Gateway entrance signs achieve two objectives. As with any entrance sign, they announce the Baltimore Avenue Corridor and welcome the public into the community. What sets these signs apart is that they identify the community as part of the larger network.

Standard Sizes: Sizes will vary by type and location (standards to be determined).

Materials:

- Aluminum (such as 0.80" thickness) - for signs up to 36" in any dimension
- Aluminum composite - typically for signs 36" or larger in any dimension
- Wooden, aluminum, or steel posts

Use and Location: Entrance signs are typically located alongside arterial roadways at or near municipal boundaries, facing in-bound traffic.



Land Trail – Trail Head Orientation Panel

Purpose: Self-guiding interpretive trails use two different types of signs: one large trail orientation sign, called a trail head sign, and several smaller trail stop/station signs located at various stops along the trail. Both types of signage are appropriate along Mountain Creek orienting visitors from the new Veterans Park, the Amelia Givin Library.

The role of the trail orientation sign at the beginning of the interpretive trail is to give the visitor a general overview of what the trail is about and what kinds of experiences to expect. Based on this information, the visitors can decide whether or not to walk, or ride, the trail.

Basic Design: Every trail orientation sign should include:

The name of the trail.

A brief introduction to the theme of the trail.

Walking/Biking distance and time.

Note: for most visitors the walking/biking time is the most important element to present. A trail map so visitors can see where the trail ends. Any necessary safety information (i.e. sturdy hiking shoes recommended, steep hills, etc.).

Standard Sizes: The typical sizes for the trail head orientation sign are the same as for Interpretive Panels: Low Profile, Horizontal Format: 18" x 24"; 24" x 24"; 24" x 30"; custom Upright, Vertical Format: 24" x 36"; custom.

Materials:

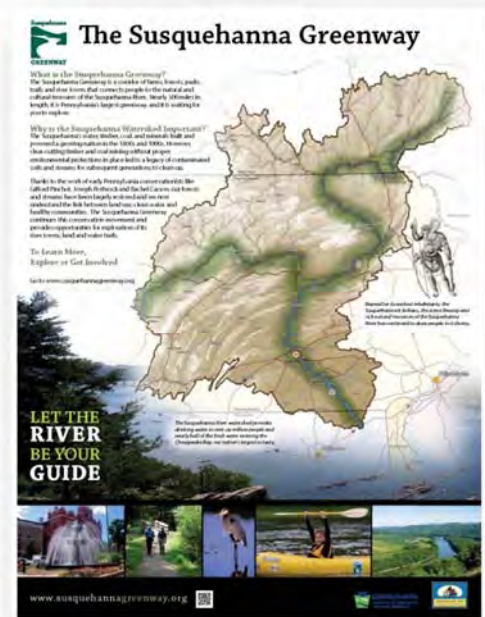
High Pressure Laminate

Fiberglass Embedment

Frame: Painted aluminum or steel frame.

Use and Location: Trail Orientation Signs are to follow the general design guidelines established for Interpretive Panels, utilizing a landscape layout and mounted at an angle. Alternately, upright, vertical panels may also be developed.

These signs should be placed at major trailheads, such as the Givin Library and the new Veteran's Park, where a full trail map and description will be necessary to orient trail users.



Sample of a Trail Head Panel for the Susquehanna Greenway

Trails Blade Markers



Purpose: Trail Blades Markers offer a space-efficient alternative to Trail Orientation Panels for locations where detailed trail information is not needed. Each blade is double-sided and provides basic trail information including:

- Baltimore Avenue Corridor or Mount Holly Springs Logo
- Name
- Current Location
- Directions and Mileage to Next Point of Interest
- Directions to Amenities
- Ratings
- Managers and Partner Organizations

Basic Design: Blades are typically double-sided, using the same format on both sides, changing way-finding information as necessary. Some blades, such as those found mid-trail, may not need to include some information, such as the trail rating elements or location name. The complexity of an intersection and number of destination points accessible from the blade location will also affect the quantity of way-finding information and directional arrows provided.

Standard Sizes: 4'-6" tall; 6" to 8" wide; double-sided.

Materials:

Aluminum (such as 0.80" thickness) - for signs up to 36" in any dimension

Aluminum composite - typically for signs 36" or larger in any dimension

Powder coated or painted

Alternate materials may be available for vertical blades

Use and Location: Trailheads, trail crossings/junctions, points of interest.

Baltimore Avenue Orientation Panels

Purpose: Orientation Panels encourage exploration and stewardship of the trail. The panels help residents and visitors alike understand why the Baltimore Avenue Corridor is important and the map graphically depicts how large of an area the trail constitutes. The panels are designed to catch the attention of a passerby and direct them to the trail site to learn more and connect with others.

Standard Sizes: Frame Size: 36.5" wide x 48.5" high / Panel Size: 36" wide x 48.5" high

Materials:

Fiberglass Embedment Graphic Panel

High Strength Aluminum Exhibit Base (Standard Color: Black)



Use and Location: Baltimore Avenue Orientation Panels should be located on public land, at highly visible locations within the community, in the area of future roundabouts at Pine and Mill Streets, or at a park. Orientation Panels may be installed as a stand-alone sign or in association with other sign types. The final number and configuration of signs will depend on what the borough feels it needs and the nature of the site selected. Final design shall comply with all applicable local and state ordinances. Double-sided panels and multi-sided kiosks work best in areas with ample space for walking around the signs; one-sided and side-by-side panels are ideally backing against a structure or plantings.

Interpretive Panels

Purpose: Interpretive panels share the many stories and significant events in history related to the people and places of Mount Holly Springs. The actual content will vary widely; some signs may encourage environmental stewardship along Mountain Creek and teach about storm water management and its relationship to water quality. Others may share the stories of the Mount Holly Specialty Paper Company, the Holly Preserve or about daily life during the early era of the regions past. Because content will be so varied and will include a mixture of images and text, the guidelines for interpretive panels are relatively flexible. It is recommended that the background of interpretive panels typically be composed of one or more interesting photos. The guidelines for these types of panels accommodate much creativity, but there are still some design constants.

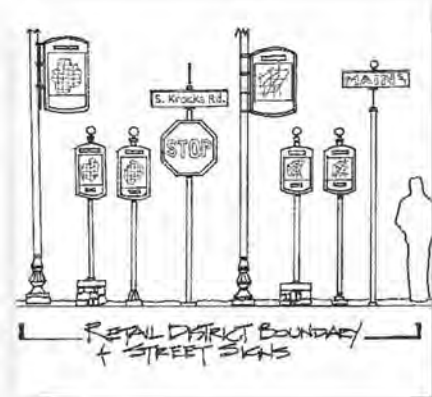


Samples of Interpretive Panels

Basic Design:

- 18" x 24" Upright, Cantilevered, or Wall Mounted Panel
- 24" x 36" Upright, Cantilevered, or Wall Mounted Panel
- Single or Double Post Exhibit Base
- Custom

Background Image: Ensure used background image is visually interesting and a resolution of at least 200 pixels per square inch



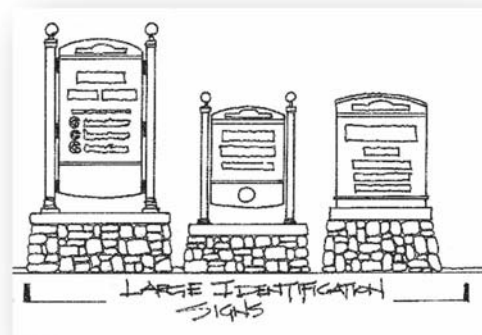
Materials:

- Fiberglass Embedment Graphic Panel
- High Strength Aluminum Exhibit Base (Standard Color: Black)

Use and Location: Interpretive panels are designed to be read by pedestrians/bikers, typically at points of interest along walkways, trails, and overlooks. These panels may be located in rural or urban conditions and placement should be cognizant of the surrounding context. Signs should be visible and accessible for all users, but should be thoughtfully placed within the landscape. Signs should not block paths or important views. Final design shall comply with all applicable local and state ordinances.

Selecting Sign Locations – Right Sign, Right Place

The importance of finding the right place and the right way to locate a sign should not be overlooked. Proper site selection enhances the effectiveness of a sign without being obtrusive; conversely, improperly placed signs can be problematic in many ways, from causing confusion and frustration for users to becoming an eyesore. The locations of signs will vary with type, but there are several guidelines that should be followed when selecting a location for signs:



Always consult the Mount Holly Springs ordinances for restrictions and rules on setbacks, height, size or lighting of signs. Signs should be clearly visible for the intended user; selected locations should allow for reading at the intended distance (e.g. pedestrians should be able to walk up to interpretive panels).

Signs should be sensitively placed within the landscape. Visibility is important, but signs should not intrude on scenic views, block major features or other signs. Consider the size of the sign to be placed. In general, smaller, less obtrusive signs work better in tight, urban areas. Larger signs are best in more open areas and along roadways with higher driving speeds.

Signs facilitate use of the Baltimore Avenue Corridor and should enhance trail experiences, but they don't need to be the primary focus for visitors. A good principle is to use the smallest sign size available to achieve the intended purpose. Consider the impacts of the chosen location on future maintenance. When possible, try to select a location that minimizes the potential for premature weathering and damage to a sign. Considerations might include: Not placing signs under trees that drop large amounts of fruit, sap or other litter; avoiding areas that regularly flood or wash out; Finding a spot alongside or nearby an existing path. Visitors won't walk across muddy or rough ground to read a sign; Avoiding locations where signs are likely to be hit by cars (e.g. at the edge of a parking lot where cars might be backing up)

Select a location and orientation that relates to a sign's content and purpose. For example, a double-sided sign at a neighborhood trail access point should have the side directing trail users to local amenities.

Sign Installation

In order to ensure the maximum life and longevity of signs, it is important to follow proper installation procedures. Follow the manufacturer's instructions and procedures for sign assembly and installation.

Typical Installation: There are three types of sign installations that will be most common: signs attached to existing posts, signs on posts or in frames with the post / legs buried directly in concrete and signs on posts or in frames that are bracket-mounted to a poured concrete footing. Sign manufacturers are able to provide specific instructions for the installation of various sign types and heights. A general guideline for either direct-burial posts or bracket-mounted frames - the base of the concrete block to or within which the frame is secured, needs to be poured to a minimum of one foot below the frost line.

Mounting Height and Legibility: Signs should be mounted at heights that allow for easy legibility. Mounting height will vary by sign type; but for upright panels being read by pedestrians, a general rule of thumb is to locate the top 1/3 line at typical eye-level (roughly 5' - 6"). Signs read by motorists on Baltimore Avenue can be designed for installation at a range of heights.

Clear Access: A clear area needs to be provided around most sign types for access, including interpretive Panels and kiosks. In most urban situations, signs should be installed in an existing sidewalk or in an extension to that sidewalk. Some panels may be installed just off the edge of a sidewalk (not on the street side), but only if they still meet ADA accessibility standards.

In a less formal area (such as at a soft boat launch) a clear, accessible area needs to be provided around a newly-installed sign; but may be finished with other materials, such as bark chips or compacted crushed stone.

Permits and Ordinances: It is anticipated that signs will be governed by Mount Holly Springs ordinances. Partners and/or their contractors are responsible for obtaining any and all permits required by law regarding

the installation of signs and shall comply with all legal and safety requirements governing the work shown in the details.

Sign Maintenance

Making Signs Last: Maintaining and replacing signs when necessary is a critical element of the signage program. Active maintenance helps maximize the functional life of signs. It also sends a message of caring and stewardship within the borough which reinforces core values and also provides for a better visitor experience by ensuring that all signs remain visible, legible and in good condition.

Inspect Signs Every Year: Signs should be inspected at least once annually, noting any defects or damage to the sign structure, supports, graphics and foundation. Problems that can be repaired on site should be taken care of as soon as possible to limit further damage to the signs. Damaged, illegible or obsolete signs that may require removal and/or replacement should be fixed as soon as possible following inspection. The borough may also want to provide a means for site users to notify them of any problems with the signs. The borough might provide a contact number or website on trail maps and brochures for reporting problems with signs and other amenities.

Keeping Signs Clean: In general, all signs should be cleaned at time of inspection. Although some sign types, such as Vertical Trail Blades, may not require much cleaning, the regular process of doing so can be useful for noticing any defects and weathering of graphics, supports and panels, connection points and the foundation. Signs that are difficult to access only need to be visually inspected annually and repaired or replaced as necessary. Signs with frames, especially those mounted at an angle (such as Interpretive Panels) will be particularly prone to collecting leaf litter and other debris. Panel faces can be washed clean with water and a mild detergent at least once a year and more frequently if necessary. Fiberglass embedment signs should be treated with an annual application of protective wax (such as car wax or equivalent) after cleaning, according to the manufacturer's recommendations.

Cleaning Around Signs: The area surrounding signs must also be maintained. Vegetation in the vicinity of signs should be pruned so that it does not obscure the sign face or any writing or graphics. For signs that are to be approached and read by pedestrians and cyclists, an accessible, clear path or approach needs to be maintained leading to the sign. The ground surrounding the sign should also be kept clear and accessible. Signs should be located in areas where water will drain away from their bases, and water should not be allowed to puddle at the bases of signs. If puddling does begin to occur (visitors may eventually create depressions in the earth from standing and walking around signs), it is recommended that a bed of gravel or bark chips be laid down to create a comfortable, dry walking surface.

Long Term Costs and Stewardship Funds

Although typically viewed as "permanent" installations, all signs have a limited functional lifespan. Even with regular upkeep, years of natural weathering will eventually cause signs to need replacement. Unfortunately, a certain percentage of all signs installed will also be damaged in natural disasters such as floods or windstorms or by accidents or vandalism. Others, especially Orientation Panels or way-finding signs may need to be updated if a destination identified on a sign closes or moves. There are long-term costs associated with repairing, updating and replacing signs that communities and organizations should be aware of and prepared to incur when the budget is prepared at the outset of a sign project. Whenever possible, establishing a stewardship fund to cover the ongoing maintenance and replacement costs of signs is recommended. Setting aside moderate amounts each year will allow for repair or replacement of signs when needed.

RECOMMENDED SITE FURNISHING GUIDELINES

Benches

Description

- Benches in the streetscape provide outdoor seating for more than one person, with or without backs and/or arm rests.

Performance Standard:

- Benches should provide comfortable, low maintenance seating. They should be built of durable, non-abrasive materials that withstand cracking, rotting, or sagging. Wood, nails or wire should be avoided in construction or repair of benches in the streetscape.
- Seating surfaces should be 16 to 18 inches high (maximum 24 inches) and should have a minimum depth of 16 inches for seats without backs, 14 inches for seats with backs (maximum 30 inches). Benches may vary in length from 4 to 8 feet, depending on design and intended users. Seating walls, ledges, steps, or terraces should be between 12 and 20 inches high and at least 16 inches deep when possible. Two-sided seating walls should be at least 30 inches wide. Benches should avoid sharp edges and be well-crafted.
- Place benches in functional and accessible locations. Users should be able to reach benches directly from public sidewalks or pathways in all weather conditions. Benches should be placed at useful locations, away from spray or other road impact.
- Benches should be convenient to and accessible from, but not obstructing the pedestrian pathway.
- Use materials that complement other streetscape elements such as streetlights, trash and recycle receptacles, bicycle racks, railings, and surrounding buildings.
- Anchor benches to hard surface materials such as concrete, granite cobbles or unit pavers.
- Advertising on benches should be prohibited.
- Existing benches removed by development or construction projects should be replaced consistent with these standards.

Design Considerations:

- Locate benches logically. Potential locations include places intended for gathering, logical resting places along sidewalks and pathways, in ornamental gardens or landscaped areas and at places with views or interpretive information. Available sunlight, prevailing winds and the organization of surrounding open space influence bench placement. Seating in a variety of environments and settings allows individual choice.
- When possible, locate benches near lighting and plantings, making them more useful at night and improving observability. Trees provide shade during the day and some shelter from rain.
- Benches with backs and armrests are generally more comfortable for people with physical disabilities. Benches without backs allow people to face different directions. Armrests or dividers discourage sleeping but can restrict seating and reduce flexibility and comfort.
- Shorter benches can sometimes create more comfortable social situations, such as providing seating sized for a parent and child. Bench length depends on the nature of the design and the context of the streetscape.
- Construction material should be easily repairable if damaged. Products should be “green”, made of: recycled materials, materials recyclable for other uses, very durable materials such as stone, steel, or other durable metals
- Small donor plaques or logos may be used to commemorate individuals, groups or organizations.
- Bench design should emphasize comfort, straightforward form and detail, maintenance, durability and resistance to vandalism.

Resources:

Landscape Forms	Columbia Cascade Company
DuMor Inc.	Keystone Ridge Designs, Inc.
Columbia Cascade Company	Sitecraft
Forms + Surfaces	Smith & Hawken
Canterbury International	Wausau Tile, Inc.; Metal-Form Division

Bicycle Racks

Description

- Bicycle racks provide secure parking facilities for bicycles. The term “rack” should not be taken to imply the use of long, multiple installations that do not support the bicycle frame.

Performance Standard:

- Permanently anchor bicycle racks to a paved surface. Use vandal-resistant bolts or other attachments that prevent removal by common tools.
- All bicycle racks shall use single inverted-U or post and loop designs, both of which provide primary support for the bike frame. Do not use racks that secure the wheel. All rack placements should provide independent access to each bicycle. Single racks are both flexible and unobtrusive.
- The exterior surface of the rack shall be nonabrasive, non-marring, and durable to minimize refinishing or repair.
- The rack should have a typical height of 36” minimum from base to top of inverted “U”, while the width should be 18” minimum between outside walls of parallel tube sections. A 2” minimum diameter is recommended and the tube should have a minimum thickness of schedule 40.

Design Considerations:

- Convenience and security are the two major concerns for locations. Lighting and adjacency to high traffic areas reduces vandalism and theft.
- Shelter from weather conditions is desirable.
- Well-placed racks encourage bicycle transportation and do not block pedestrian routes. Lack of adequate facilities forces cyclists to lock bikes to signs, railings, parking meters and trees. Racks should be placed at logical locations, such as business districts, at stopping points along trails and at other major destinations and activity centers.
- Locate bicycle racks near major building or center entrances. Do not obstruct entrances or pedestrian paths.
- Place racks to keep secured bicycles at least 3 feet from the curb when the street has on-street parking or 2 feet when next to a travel lane. Racks should be at least 3 feet from street trees or street furniture.
- Exterior surfaces on bike racks include galvanized, vinylized, coated or painted steel. Vinylized or other coated installations are preferable because they do not damage or scratch frames.

Bollards

Description

- Bollards prevent vehicle encroachment into pedestrian areas or buildings.

Performance Standard:

- Bollards should coordinate with other street furnishings.
- Bollards should be finished in a durable finish consistent with the other street furniture.
- Placement of bollards shall be a minimum of 2 feet from the curb zone. Spacing of bollards should be 5 feet minimum (6 feet preferred) from each other.

Design Considerations:

- Bollards are very useful for protecting pedestrians and buildings from motor vehicle encroachment. Other uses include providing security for sensitive buildings and sites and calling attention to traffic calming devices.
- Use bollards as part of a designed environment to avoid cluttering the streetscape.
- Bollards should not create hazardous and unexpected obstacles to pedestrians, cyclists, and other non-motorized users.
- Incorporate contrasting detail at base or waist level to aid people with sight impairments.
- Permanent bollards should be easily repairable if damaged. Products should be “green”, made of: recycled materials; materials recyclable for other uses; very durable materials such as stone, steel, concrete or other durable metals
- Visible grouting around the base should be minimized.
- Lighted bollards provide useful light for pedestrians and motorists and emphasize travel pathways.

Mail Collection Boxes

Description

- Free-standing containers for deposit and collection of mail and packages.

Performance Standard

- Place all collection boxes in compliance with United States Postal Service regulations.
- Collection boxes shall not obstruct sight lines for pedestrians and drivers.
- Post boxes should not be encased in brick or other hard enclosure.
- Group and construct collection boxes of similar material.
- Applications for new collection boxes should be directed to the US Postal Service.

Design Considerations

- Standard walk-up collection boxes should be located at least 2.5 feet behind the curb. Boxes must not block crosswalks or pedestrian pathways. Boxes should not obstruct motorist or pedestrian sight lines.
- When possible, collection boxes should be located near entrances to major activity centers.
- Box locations should be readily accessible to both mail carriers and customers.
- US Postal Service will continue to evaluate the need for existing official boxes, and should remove unnecessary installations.
- Collection boxes for private mail or package carriers should be located on private property.

Newspaper Dispensers

Description

- Newspaper dispensers are machines that display and dispense newspapers to the public, and often include vending equipment. These are slowly becoming a thing of the past, but the Carlisle Sentinel still publishes daily.

Performance Standard

- The design and color of newspaper dispensers should be appropriate to their context. Darker colors such as black or dark green are preferred for cabinets.
- Place newspaper dispensers outside of the pedestrian paths, with a minimum two-foot clearance from curbs.
- Place multiple dispensers into orderly arrangements or within common enclosures.
- Obtain required permission and licensing consent for new installations.

Design Considerations

- Newspaper dispensers can contribute to an active streetscape.
- Dispensers should be clustered and be coherent in appearance. Machines with conflicting appearance and placed randomly or in crowded locations contribute to visual clutter and may be difficult to use.
- Single dispensers with multiple cabinets are preferable to individual racks. A unified installation produces a cleaner and more cohesive streetscape.
- Newspaper dispensers may be incorporated into corrals or enclosed by short screen walls.

Public Art

Description

- Public art includes sculpture, mosaics, wall art such as murals, and other two- and three-dimensional installations designed for and placed in outdoor public environments.

Performance Standard

- Placement should maintain good sight lines for pedestrians and motorists.
- Locations should not compromise the intended use of specific public spaces.
- Identify maintenance needs, safety considerations, and replacement costs in the design process and before installations.
- Public art proposals should be reviewed and approved by a Baltimore Avenue, or the Mount Holly Springs corridor design committee.

Design Considerations

- Art may interpret the history, character, or people of Mount Holly Springs.
- Art forms may include landscaping, fencing, brickwork, glasswork, gates, fences, lighting, painting (murals), sculpture, seating, lettering, signage, computer generated, water, use of color, and crafts and artifacts.
- Placement should be site-sensitive and encourage public view.
- Permanent public art should use durable materials that will maintain their appearance and integrity over time.
- Major new street projects in areas of civic importance should provide settings for public art.
- Art selections should recognize diverse types of art and individual preferences, and create a varied environment. The corridor’s “outdoor gallery” should include both representational and nonrepresentational forms, and should not avoid conversation and debate.
- Functional features in the street environment, such as sound abatement and retaining walls, can provide opportunities for public art.

Railings & Fences

Description

- Railings help pedestrians negotiate stairs and grades and protect them from potential hazards. They also define special areas like dining areas and landscape beds.

Performance Standard

- Railings must conform to building code and meet ADA requirements when used as a pedestrian aid.
- Galvanized chain link fences should be prohibited along the Baltimore Avenue corridor.
- Railing design should be coordinated with other street furnishings.
- Railings should be made of durable, rust resistant metals.
- Railings and their finishes should provide long-term durability, and shall be maintained on a regular basis.
- Railings used for protective purposes must follow OSHA requirements.

Design Considerations

- Railing design should be consistent with local character and complement street furnishings, buildings and other features.
- Avoid unnecessary use of railings.
- Railings may separate outdoor seating or dining areas from pedestrian paths.
- Vertical elements of railings on ramps should usually be perpendicular to the flat plane.

Signage for Traffic, Directional & Way-finding

Description

- Signage provides information that vehicle drivers and pedestrian need to operate in the corridor.

Performance Standard

- Traffic signs on Baltimore Avenue should be attached to round black poles rather than the slotted galvanized poles.
- Signs mounted to poles in the Avenue should be mounted using painted black or bronze stainless steel strapping, matching the finish of the street pole.
- Way-finding for pedestrians and motorists should use color in ways that are clearly comprehensible to users and meet minimum reflectivity standards.
- Pole installations should be strong enough to support banners and other graphics.

Design Considerations

- Way-finding signage throughout the corridor may identify significant destinations, such as the Borough Hall, Trine Park, churches, retail uses, major business centers, cultural sites and public facilities. The proposed bike/pedestrian way-finding program uses photographs of destinations as icons.
- Interpretative signage should be installed in permanent displays.
- Traffic information and regulatory signs should be used as efficiently as possible, maximizing readability and minimizing the number of poles or sign faces.
- Way-finding and information signs should be scaled to the speed and nature of users. Way-finding signs designed for motorists should present no more than three or four items of information per sign.

Signage for Advertising & Banners

Description

- Street advertising signs advertise businesses to pedestrians and vehicle drivers.
- *Banners* attached to light poles typically provide information about an area of the corridor; or recognize organizations and events. Medallions and metal banners may be used in place of conventional canvas banners.
- Banners provide color to the street and communicate activities or cultural values to the public.

Performance Standard

- Installation of banners and signs on poles should be coordinated with and approved by appropriate organizations, including the Borough and MetED/PPL.
- Use of 'A' boards or sandwich boards should be prohibited under local code.
- Signage on benches should be prohibited.(See standards for BENCHES)
- Digital signage shall be permitted only with limited use and after careful review.

Design Considerations

- Temporary signs such as vinyl banners, cardboard, a plastic placards should not be allowed in the corridor.
- Banners in neighborhood areas should be reviewed by their respective neighborhood residents and approved by the municipal staff.

- Canvas banners require maintenance and replacement programs. Installations such as metal banners or medallions may substitute as a permanent element of streetscapes.
- ‘A’ Boards are temporary signs used in business districts to advertise businesses, products, and special offers. ‘A’ boards used very sparingly can contribute to the vitality of the street, but can also become obstructions.

Tables and Chairs

Description

- Tables and chairs include seating areas in the public right-of-way. In a streetscape, they accommodate activities such as outdoor dining.

Performance Standard

- Outdoor seating areas should conform to the Mount Holly Springs regulations. Permission, license, and area rights leases may be required for outdoor seating spaces.
- Plastic tables and chairs are not permitted.

Design Considerations

- Use tables and chairs in the public realm. They create social space and add activity to an area.
- Private areas with tables and chairs may be surrounded by a railing. Railings or other boundaries are required when alcoholic beverages are served. Railings required by code should be consistent with the corridor’s standards.
- Outdoor seating areas with tables and chairs do not necessarily need to be surrounded by a railing.

Waste & Recycle Receptacles

Description

- A waste receptacle is a container for disposing of trash. A recycle receptacle is a container for collecting material that can be reused or reprocessed for another use.
- Receptacles reduce litter and provide for convenient disposal of waste products.

Performance Standard

- Receptacles should be built of durable material and anchored to the ground. Receptacles should be fixed to a hard surface material such as concrete, granite cobbles or unit pavers.
- Receptacles should have interior polyethylene liners to contain waste. Bins should allow users to drop material in it without requiring physical force (pulling, lifting or pushing).
- Bins should have a decorative shell enclosure with high performance finish that resists vandalism and graffiti.
- Detachable lid should be cabled securely to the unit.
- Bins should not clutter the sidewalk or block the pedestrian travel-way.
- External materials should be consistent with other boulevard elements such as benches, streetlights, railings and surrounding buildings.
- Receptacles with advertising may locate within the public right-of-way if they meet Mount Holly Springs Codes.

- All receptacles removed by adjacent development projects should be replaced by installations consistent with these requirements.

Design Considerations

- When possible, waste receptacles should be located near lighting.
- Receptacles should be provided where there is a demonstrated need: at transit stops and in or near concentrated business uses and other areas of pedestrian activity.
- Waste and recyclable containers may be located together or housed in one unit with compartments for both waste and recyclables.
- Capacity of bins should be a minimum of 30 gallons.
- Ongoing maintenance and emptying of containers may be the responsibility of the organization that installed the unit.

Bicycle Lanes

Description

- Designated area within the Baltimore Avenue lane channels reserved for cyclists outside the area between Pine and Mill Streets.

Performance Standard

- Lanes should be clearly and simply marked. Lanes should be a minimum of five feet (5') wide. Lanes should be clear of hazard such as sewer grates with long openings in the direction of bicycle travel.
- Share-the-Road or other system signage should be posted along the avenue with bicycle lanes or other routes identified for bicycling.
- Design should follow Chapter 9C of the Manual on Uniform Traffic Control Devices (MUTCD).
- Using materials such as traffic tape or maintenance through painting, assure that bicycle lane designations are always visible to both motorists and cyclists.

Design Considerations

- Colored surfaces may be used to define a bicycle lane. Coloring is typically used in areas of potential conflict between bicycles and motor vehicles, such as traffic that crosses a bicycle lane to reach a right-turn only lane.
- Bicycle lanes should provide adequate clearance to permit cyclists to ride in the lane on a line clear of opening car doors. Buffered bicycle lanes should be considered where right-of-way is adequate.
- Narrow four-lane facilities should be considered for conversion to three motor vehicle lanes with bicycle lanes.
- Where bicycle lanes are not possible, an alternative may be narrower inner lanes and wider outer lanes to provide more comfortable accommodations for cyclists and motorists. Ideally, such a wide curb lane should be 14 feet wide.
- Install or tune traffic signal sensor loops to detect bicycles at principal bicycle route intersections. Mark locations in the bicycle lane or in the boulevard channel where the loop will detect bicycles.
- Explore the concept of a bicycle track, where a cycle track is located between parked cars and the pedestrian track. In other cases, trails and side-paths have separate tracks for pedestrians and cyclists. These are delineated by changes in pavement color or surface.

Pedestrian Crossings

Description

- Crossings provide safer domains for pedestrians crossing intersections, and mid-block crossings, by defining and delineating pedestrian paths across streets.

Performance Standard

- Designated crossings should meet Manual on Uniform Traffic Control Devices (MUTCD) standards.
- The leading edge of the crosswalk should have tactile dome pavers.

Design Considerations

- Crossing signals, where traffic signals remain, with a dedicated phase for pedestrians can increase safety in busy pedestrian areas. Crossing signals may be fitted with timers that indicate the time left on the green pedestrian phase.
- Pedestrian actuated signals could be installed at crossings at Church Street and the Givin Library.
- Full or partial medians can act as mid-crossing refuges for pedestrians when crossing streets. The avenue at the roundabout intersections is intended to provide such refuge.
- Yield to pedestrian signs may be posted along roadways to notify motorists of pedestrians crossing the street. These signs should be posted 20 to 50 feet (depending on speed limit) before the designated crossing.
- Crosswalk markings alert motorists of pedestrian crossings not otherwise controlled by traffic signals or signs.
- Crosswalks may be defined by contrasting pavement colors or patterns, such as a gridded scoring pattern. Brick pavers in crosswalks are not recommended. N&W's experience indicates that brick pavers are easily damaged during routine maintenance of the street. However, contrasting treatments using more conventional materials can improve visibility and create texture in the streetscape.
- Speed tables slow traffic and slightly elevate the pedestrian above the travel-way. The designated area for crossing should have a stained concrete bordered by white lines. The current convention, striping the slopes, encourages pedestrians to walk on the slope of the crossing.

Lighting - The Basics / Bases, Poles & Fixtures

General Description

- Street lights provide ambient light levels for visibility and safety of streets, sidewalks and sites. Lighting types include decorative, vehicular use, general site, pedestrian use or feature lighting.

Base & Foundation

Description

- Base is commonly the support structure for a pole.

Performance Standard

- Bases must match PennDOT and Mount Holly Springs standards.

Design Considerations

- Clam shell base, non-structural, constructed of either cast iron or cast aluminum.
- Poles that taper are preferred.
- Electrical receptacle could be installed.
- "Screw base or anchored"

Pole

Description

- Pole support light fixtures.
- Direct embed poles are supported by embedding long lengths of the pole itself into the ground.

Performance Standard:

- Poles must match PennDOT and Mount Holly Springs standards.
- Sufficient strength to support signs, banners or flower baskets.

Design Considerations:

- Poles may be smooth or fluted.
- Tapered poles are preferred.
- Steel, galvanized with painted or powder coat finish.

Fixture

Description

- Globe, acorn or lens made of glass, acrylic or poly acrylic.

Performance Standard:

- Fixtures must match OPPD standards.
- Metal halide is preferred.
- Fixtures should have shielding, limiting light trespass and directing light to surfaces needing illumination.
- Fixture should be dark sky friendly, with top side and house side shields.

Design Considerations:

- Minimum assembly required to relamp.
- Captive hardware or tool less entry to access body.
- Use NEMA twist-lock photo-control for easy accessibility.
- Plug-in starter may be installed.
- Post top style to have 3 or 4 inch tenon mount.
- Manufacturer may be able to sell directly to utility.
- Globe, acorn or lens may be glass, acrylic or poly acrylic.

Specialty Lighting

Description

- Specialty lighting uses light as an environmental, rather than functional element. It may be used to illuminate specific objects, such as public art; create an atmosphere; or provide subtle directional information. Seasonal lighting is included in the specialty category. The grand homes, churches and steeples and bridges and railroad underpasses in the study area should be considered for specialty lighting.

Performance Standard

- Lighting should be installed no closer than 2½ feet to a curb to provide adequate clearance for vehicles and snow plows.
- Fixtures should be aimed away from pedestrians or the line of sight of motorists, and should limit light trespass.

Design Considerations

- Low mount fixtures provide for better uniformity and vertical surface illumination.
- Fixture location and mounting height, fixture type, and lamp intensity should optimize light distribution and minimize glare. Up-lighting can be provided from above-ground fixtures or from well lights with louvers. Well lights reduce street clutter.
- Light source should not be visible. Use wells or low lying vegetation to hide fixtures.
- Provide flood lighting and up-lighting on landmark buildings and gateway entrances.
- Over-lighting may cause glare and should be avoided.
- Two single-point sources effectively illuminate standing objects. One source emphasizes shape and form with contrasting shadows while the other emphasizes details.
- This corridor study/plan does not address building lighting. However, effective building illumination can strengthen the nighttime streetscape. Lighting design should complement light provided in the public environment.

Medians

Description

- Medians separate oncoming lanes of traffic and provide pedestrian refuge for crossings..

Performance Standard

- Medians must meet PennDOT and Mount Holly Springs standards and plates.

Design Considerations

- Medians provide mid-crossing refuges for pedestrians when crossing Baltimore Avenue. They are particularly useful for this purpose in areas where many people have mobility limitations, such as the boroughs senior populations.
- Landscaped medians should include plant materials that do well in challenging settings, and should be properly maintained.
- Best Management Practices may be considered for handling stormwater runoff in medians.
- Medians too small for sustaining plant life should be textured and colored. When possible, medians should use materials that do not require irrigation.
- “Virtual” medians are an alternative to a raised median. In this technique, the median is at the same grade as the surrounding pavement, but uses a contrasting material. This concept separates traffic directions, calms traffic, and may provide a pedestrian refuge.

CONCEPT DESIGN FOR THE BALTIMORE AVENUE CORRIDOR STUDY AREA

The Concept Plans

The Baltimore Avenue Corridor Study and concept plans are the product of approximately one (1) year process of analyzing the corridor during the day and night time hours, reviewing existing and proposed traffic data and future development plans, meeting with private developers, property owners and residents, PENNDOT officials and 9 months of revitalization committee meetings. Presentations were given to kick-off the project and to corridor stakeholders, business and property owners. The purpose of these meetings was to review historic context of the community, analysis information and discuss the initial options for concept plans and receive public comments. Those comments received at the planning meetings were then incorporated into the plan sheets and text of this document. The project has brought together some of the key stakeholders in the Baltimore Avenue Corridor to forge a partnership to develop a policy-based approach for managing transportation and land use decisions. On-going dialog and communications among the stakeholders, Mount Holly Springs Borough, the general public and others in the private sectors will be necessary to continue the process of implementing the recommendations consistent with this study.

The character of this Avenue has long been recognized as a gateway to both Mount Holly Springs and Cumberland County. The Carlisle to Hanover turnpike, the Holly “Gap” and its large stand of mature holly trees are not only unique to the area, but interpret a period in time when Mount Holly was considered a natural refuge and it’s parks hosted regional and national visitors. The preservation of the historic elements in Mount Holly Springs should be paramount while still accommodating future development needs. The Borough should consider having a number of eligible structures placed on the National Register of Historic Places in order to preserve the local character for future generations.

The following are a sheet-by-sheet summary of proposed improvements:

PLAN SHEET 1 – The Core Area of Baltimore Avenue from Pine Street to Mill Street

Plan Sheet No.1 depicts the core areas northern and southern project gateways and the two primary intersections of interest, Pine Street and Mill Street. These are the primary contact points for new visitors and long term regional travelers; as such it is these locations that make the first impression on many who will continue north bound to Carlisle, south to Route 15 or stay to visit Mount Holly Springs. The northern most segment of the sheet depicts the first of a series of two (2) roundabouts intended to create a gateway element and to calm traffic as it enters the Baltimore Avenue Corridor. A central sculptural element is proposed for the middle island of each roundabout and tree lined streets and storm water bio-retention areas are recommended on all approaches and at various intersections between Pine and Mill Streets. Pedestrian bump-outs combined with bio-retention raingarden are proposed for all street and alley intersections

between Pine and Mill Streets and the intersections include textured crosswalks and embossed logos at the center of the intersections. The plan suggests the following series of enhancements to this portion of Baltimore Avenue.

- The creation of a “embossed” textured logo at the north end of the Avenue at Watts, Butler, Church and Harman Streets;
- Expanded street installation on Watts Street to connect sidewalks/trail to the Cemetery and the “Unknown Confederate” grave site;
- Create an interpretive/informative historical marker at the Confederate grave site;
- Enhanced lighting, new ADA compliant sidewalks and plantings at the railroad underpass between Watts and Mill Street;
- A series of green bump out islands to act as rain gardens, traffic calming elements and a green buffer to the core of the borough from Watts to The Holly Inn location;
- Creation of new roundabout at Mill Street intersection;
- New street trees on both sides of Baltimore Avenue;
- A new gateway signage and lighting;
- Textured crosswalks on all approaches to all intersections designated for pedestrian crossings;
- Share the road signage for bike traffic;
- Interpretive signage to tell the story of Mount Holly Springs, “on the street”;
- Way-finding signage, banners and hanging baskets;
- Create banners and village niche’ shopping for streetscape enhancements;
- Create long term strategy to relocate overhead utility lines off of Baltimore Avenue and to the rear alleys through the corridor;
- Creation of new roundabout at Pine Street intersection;
- Acquire properties and create a pocket park and new retail destination at the southeast corner of the Pine Street roundabout complete with lighting, banners, swings, benches, plantings and a simple spray fountain;
- Enhance and restructure properties around the new Pine Street roundabout;
- North and South bound bicycle lanes adjacent to the drive lanes as “share the road”;
- Create a village core mixed use area north and adjacent to Baltimore Avenue to provide new homes in the corridor;
- Create a pedestrian ADA access ramps throughout the corridor;
- Create banners and streetscape enhancements in retail areas

PLAN SHEET 2 – Mill Street from the Baltimore Avenue Intersection East to the Railroad Underpass

When traveling from Boiling Springs to Mount Holly Springs, the existing railroad bridge, at the borough line, provides a unique entry/exit gateway for the Borough and should be enhanced with signage and plantings to create a positive entry experience for travelers. The experience should be one of “arrival” or “departure” once travelers pass through the underpass portal. The plan recommends gateway enhancements, including murals on the walls of the underpass with downlights. A defined and visually

strong “colonnade” of street trees is proposed for both sides of Mill Street from the railroad underpass to Baltimore Avenue. The existing Mill Street Bridge over Mountain Creek was constructed with a sidewalk only on the northern side, the wrong side, and should be modified to add a cantilevered sidewalk on the southern (upstream) side of the bridge to connect pedestrians to the new Veteran’s Park and the core area of the Borough. The newly proposed Veterans Park is a collaborative effort with the existing property owner, the Borough, the American Legion and others to create a memorial park as an environmental education, trailhead and interpretive area. A self-guided nature trail is recommended and the potential exists for the conversion of the large warehouse there into a regional heritage, arts, and learning center or potential retail and/or restaurant mixed use facility. Additional recommendations in this area include supplemental evergreen screening of the waste water treatment plant on the north side of Mill Street and improved sidewalks and textured crosswalks to connect the neighborhood on the north side of Mill Street with the Stoll Park baseball field. The plan suggests the following series of enhancements to this portion of Baltimore Avenue.

- Wall murals with up/down accent lighting at the railroad underpass and on the warehouse building at the new Veteran’s Park;
- Enhanced gateway signage, banners and plantings at railroad underpass;
- Painted logo on railroad bridge entering Mount Holly Springs with “Welcome” on the east side (arrival) and “Come Again to Visit!” on the west side (departure);
- Double colonnade of street trees from railroad underpass to Baltimore Avenue;
- Cantilevered sidewalk in the south side of the Mill Street Bridge;
- Creation of new Veteran’s Park, parking, interpretive panels, raingardens, plaza, sculpture and plantings;
- Nature trail and interpretive signage at Veteran’s Park along Mountain Creek;
- Way-finding signage on the approach to Baltimore Avenue intersection;
- East and West bound bicycle lanes adjacent to the drive lanes on Mill Street;
- Decorative street lighting at pedestrian crossings;

PLAN SHEET 3 – Baltimore Avenue South from Pine Street to the Route 34/94 Split

Plan Sheet 3 focuses change to the southern portion of the Baltimore Avenue corridor from the proposed Pine Street roundabout to the PA Route 34/94 intersection at Yates Street. The creation of a new intersection is recommended at the Route 34 and 94 split at Yates Street. The plan suggest reconfiguring the obscure angle and vertical gradient of this intersection to create a safe three way, 90 degree intersection design. This will require property acquisition, partnering with Ahlstrom and adjoining property owners, and is without question, the single most important life/safety issue to be addressed by the plan. The plan recommends dedicated bike lanes through this segment of the corridor, from Pine Street south, for the Class “A” bikers who will be traveling to and from Laurel Lake, Fuller Lake and the Michaux State Forest. The speed limit through this segment of the corridor needs to be reduced to 25 mph, and enforced, in an effort to control speeds as vehicles approach Mount Holly Springs from the south and to complement new crosswalk and pedestrian activities anticipated by the development of the Olde Anglers Lodge. The design incorporates those improvements proposed as part of the Olde Anglers Lodge project. In a light-hearted approach to

introducing the corridor and creating a memorable experience the design team has suggested an engineered approach to rumble strips for north bound traffic that would be mathematically cut to create musical rumbles in the form of a tune; in essence, a welcoming song for visitors to Mount Holly Springs and the Cumberland Valley. This unique engineering element would one of the first in the United States and would part of a branding process for Baltimore Avenue.

The plan suggests the following series of enhancements to this portion of Baltimore Avenue.

- Creation of new intersection design and location to create a 90 degree intersection of PA Routes 34 and 94;
- Traffic calming warning radar indicators between the Mountain Creek Bridge and the railroad crossing;
- New railroad crossing with improved approaches with color pavement and enhanced warning devices;
- Mass wildflower plantings from the 34/94 split along Mountain Creek portion of Baltimore Avenue to provide a stronger gateway experience and aesthetic appeal to the stream banks for Mountain Creek;
- Musical rumble strips as an invitation for welcoming visitors to Mount Holly Springs;
- Separate walking trail/sidewalks to connect to adjacent natural areas the future Anglers Lodge, the Holly Preserve, and the core area of Baltimore Avenue between Pine and Mill Streets;
- Replanting and reforestation with native holly trees on the gaps hillsides and stream valley;
- Add new pedestrian scale light fixtures with banners at crossings;
- Add textured crosswalks to connect Olde Anglers Lodge to parking area;
- Create interpretive Gate House Sculpture, images and story at the former location of the Toll House for the Carlisle to Hanover Turnpike;
- Create walkway/trail connection from Upper Holly to Pine Street to enable walking to and from town and to improve tourist connections to and from the Preserve, Olde Anglers Lodge, etc.;
- Create a new natural interpretive park at Mountain Creek near the bridge and new Lodge;
- Add new light fixtures and banners to the Mountain Creek Bridge to reinforce a Gateway experience;
- Create two (2) new footbridges at historic bridge locations to connect parking facilities for events on both sides of Mountain Creek and work with Mount Holly Specialty Paper;
- Nature trail and interpretive signage
- Way-finding signage at 34/94, Old Anglers Lodge and Pine Street;
- New sycamore trees along Baltimore Avenue from the 34/94 split to the Olde Anglers Lodge;
- North and South bound bicycle lanes (5') adjacent to the drive lanes.
- Consider working with State, County and private development interests to reconstruct the dam that existed near the bridge location to enhance recreation and fishing opportunities;
- Improve the Holly Inn frontage to reduce the “free-for-all” access approach and improve the aesthetics with pedestrian scale lighting and banners to address safety issues at this historic landmark.

Summary of Area Sheet Totals

Listed herein is a summary of the Opinion of Probable Costs for the 3 sub-areas of the Baltimore Avenue Corridor concept plans. Following this summary is a detailed itemization of each of the areas and the corresponding concept plan.

Please note that these dollar figures are budget opinions only and are not the result of quantity take-offs from construction drawings. Prices will vary based upon actual construction documents, scope of work and economic environment at the time of bidding.

Plan Sheet 1 – The Core Area of Baltimore Avenue from Watts Street to Pine Street (SR # 0034, Segment 0160, Offset 0237' to SR # 0034, Segment 0130, Offset 1024)	\$6,510,550.00
Plan Sheet 2 – Mill Street from Baltimore Avenue Intersection East to Railroad Underpass (SR#0034, Segment 0140, Offset 2640' to SR # 2003, Segment 0010, Offset 1595')	\$925,825.00
Plan Sheet 3 – Baltimore Avenue South from Pine Street to PA Route 34/94 Split at Yates Street (SR #0034, Segment 0130, Offset 1024' to SR #0094, Segment 0080, Offset 1557')	\$2,804,475.00

Total Improvement Budget:	\$10,240,850.00
20% Contingency:	\$2,048,170.00
Total with Contingency:	\$12,289,020.00

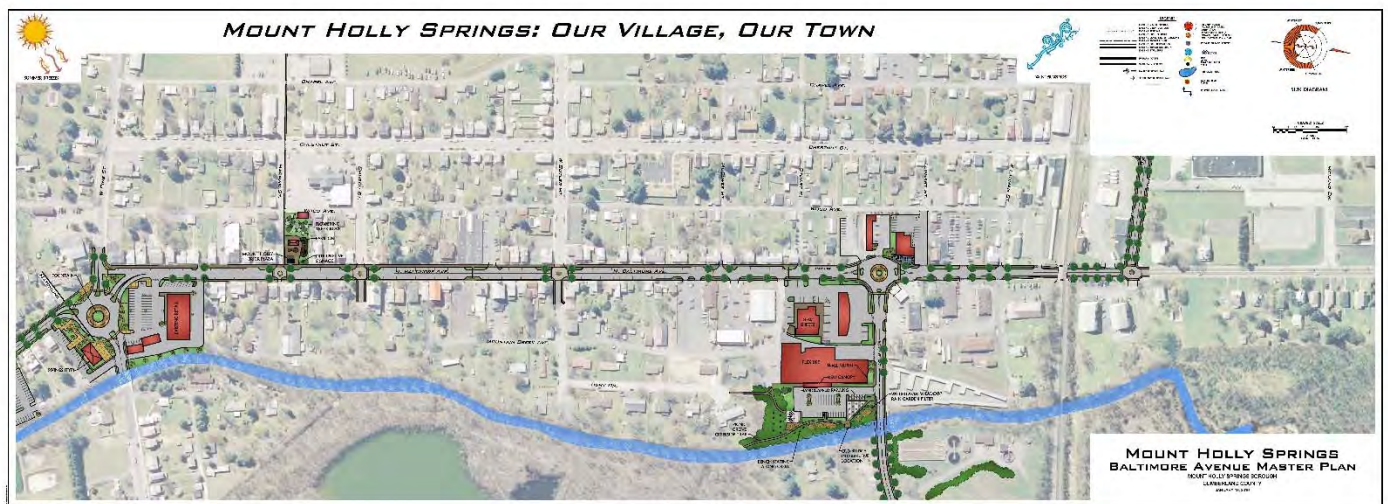
Plan Sheet 1 – The Core Area of Baltimore Avenue from Watts Street to Pine Street

(SR # 0034, Segment 0160, Offset 0237' to SR # 0034, Segment 0130, Offset 1024)

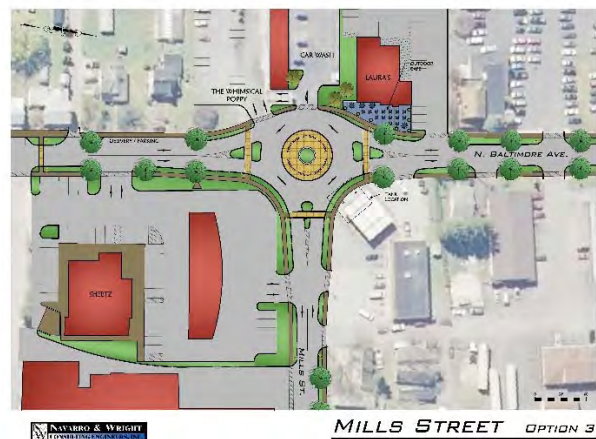
- Mobilization and Traffic Control - \$115,000.00
- Property, Land and Right-of-Way acquisition - \$500,000.00
- Erosion and Sedimentation Control Items – LS @ \$60,000
 - a. Install Silt Saks at New Inlets – 20 Inlets at \$500/Each – \$10,000.00
 - b. Miscellaneous Check Filters, Pumping and Street Sweeping – Lump Sum @ \$50,000.00
- Demolition and Removal Items
 - a. Bituminous Removal – 4,500 SY @ \$18.50/SY = \$83,250.00
 - b. Milling Bituminous Pavement – 2500 SY @ \$5.00/SY = \$12,500.00
 - c. Earthwork/Excavation – 2000 CY @ \$40.00/CY - \$80,000.00
 - d. Electrical and utility relocation - \$90,000.00
 - e. Miscellaneous items – Lump Sum - \$125,000.00
- New Concrete Sidewalks 5' 1,500 LF @ \$50.00/LF = \$75,000.00
- New Concrete curb bump outs 1,500 LF @ \$32.00/LF = \$48,000.00
- New Roundabout Intersection with Baltimore Avenue and Mill Street – Lump Sum @ \$1,725,000.00
- New ADA Compliant Crosswalk, Curb Ramps and Reflector Enhanced Low Profile Borders at Mid-Block Crossing - \$54,000.00
- New Ornamental Bollards – 20 @ \$750/Each = \$15,000.00
- New Permeable Concrete/Brick Pavers in Sidewalk Areas with an Average Width of 2' on Both Sides of the Street in Limited Areas. – 1,800 SF @ \$25.00/SF = \$45,000.00
- New Pedestrian Scaled Light Fixtures and Conduit at Intersections and Regularly Spaced Intervals on Both Sides of Baltimore Avenue - 40 Fixtures @ \$5,000.00/each = \$200,000.00
- New Miscellaneous Electrical Items - Lump Sum @ \$50,000.00
- New Interpretive Panels reviewing Transportation History of Baltimore Avenue Corridor, The Givin Library, the Confederate Grave site, etc. – 8 @ \$2,000.00/each = \$16,000.00
- New Rain Gardens 12' x 3,300' with 3' Depth and Structural Infiltration Soil Mixture - \$396,000.00
- New Storm Sewer Inlets and Bottom Boxes – 12 @ \$3,500/Each = \$42,000.00
- New Storm Sewer Piping – 24" HCPPC – 200 LF @ \$75.00/LF = \$15,000.00
- New Ornamental Benches (6' length) – 8 @ \$2,000.00/Each = \$16,000.00
- New Trash Receptacles – 4 @ \$750.00/Each = \$3,000.00
- New "Baltimore Avenue" Bicycle Racks – 8 @ \$500.00/Each = \$4,000.00
- New Bicycle Lane Line Painting – 1.20 Miles @ \$7,500.00/Mile = \$9,000.00
- New Bicycle Corridor Signage - 12 @ \$250.00 Each = \$3,000.00
- New Bicycle Lane Stencil - 14 @ \$75.00 Each = \$1,050.00
- Miscellaneous Line Striping – Lump Sum @ \$5,000.00
- Miscellaneous Native Planting and Mulch – Lump Sum @ \$45,000.00
- New Street Trees - 70 @ \$350.00 Each = \$24,500.00
- New Freestanding Planters – 10 @ \$500.00 Each - \$5,000.00
- New Roundabout Intersection with Baltimore Avenue and Pine Street – Lump Sum @ \$2,225,000.00
- New Sculpture for Center Island at both roundabouts – L.S. 2 @ \$15,000 /each = \$30,000.00
- New Embossed Colored Concrete Paving Textured Pine Street Plaza Areas – 1,250 SY @ \$85.00/SY = \$106,250.00

- New Gateway Sign – L.S. @ \$25,000.00
- Way-Finding Signage – 4 Signs @ \$2,500 Each = \$10,000.00
- New embossed MHS Logo at intersections of Watts, Butler, Church and Harman Streets - @ \$15,000/intersection x 4 intersections = \$60,000.00
- Veteran’s Park w/ Trails, Signage, Plantings, Tables, Pergola/Plaza, native Plantings, Raingarden, Interpretive Signage and Parking – Lump Sum - \$80,000.00
- New Permeable Concrete/Brick Pavers in Sidewalk Areas with an Average Width of 2’ on Both Sides of the Street in Limited Areas. – 2,600 SF @ \$20.00/SF = \$52,000.00

The total of **Sheet 1 Baltimore Avenue Items** equals **\$6,510,550.00**



Baltimore Avenue from Pine Street to Watts Street



The Preferred Roundabout Options for Pine Street (Left) and Mill Street (Right)

Plan Sheet 2 – Mill Street from Baltimore Avenue Intersection East to Railroad Underpass
(SR#0034, Segment 0140, Offset 2640' to SR # 2003, Segment 0010, Offset 1595')

- Mobilization and Traffic Control - \$40,000.00
- Erosion and Sedimentation Control Items
 - a. Miscellaneous Check Filters, Pumping and Street Sweeping – Lump Sum @ \$25,000.00
- Demolition and Removal Items
 - a. Bituminous Removal – 2,000 SY @ \$18.50/SY = \$37,000.00
 - b. Milling Bituminous Pavement – 1,500 SY @ \$5.00/SY = \$7,500.00
 - c. Earthwork/Excavation – 900 CY @ \$40.00/CY - \$36,000.00
- New Concrete Curb – 2,700 LF @ \$32.00/LF = \$86,400.00
- New Embossed Colored Concrete Paving Textured for Crosswalks Areas – 425 SY \$85.00/SY = \$36,125.00
- New ADA Compliant Sidewalk 5' Wide 2,400 LF @ \$50/LF = \$120,000.00
- New ADA Compliant Crosswalks at four (4) locations on Mill Street @ \$7,500/each - \$30,000.00
- New Painted Mural and lighting at the Railroad Underpass - \$20,000.00
- New Painted Logo on both sides of Railroad Bridge w/ “Welcome” and “Please Come Again!” - \$30,000.00
- New Painted Mural and lighting at the Warehouse on Veteran’s Park - \$15,000.00
- New Pedestrian Scaled Light Fixtures and Conduit at Intersections on Both Sides of Mill Street -10 Fixtures @ \$5,000.00/Each = \$50,000.00
- New Miscellaneous Electrical Items - Lump Sum @ \$25,000.00
- New Rain Gardens 12' x 200' with 3' Depth and Structural Infiltration Soil Mixture - \$24,000.00
- New Cantilevered pedestrian bridge on south side of Mill Street Bridge 8'x100' @ \$200/SF = \$160,000.00
- New Storm Sewer Inlets and Bottom Boxes – 2 @ \$3,500/Each = \$7,000.00
- New Storm Sewer Piping – 24” HCPPC – 40 LF @ \$75.00/LF = \$3,000.00
- New Freestanding Planters – 6 @ \$500.00 Each - \$3,000.00
- New Ornamental Benches (6' length) – 4 @ \$2,000.00/Each = \$8,000.00
- New Swings along Mountain Creek – 6 @ \$1,500.00/Each - \$9,000.00
- New Trash Receptacles – 4 @ \$750.00/Each = \$3,000.00
- New “Baltimore Avenue” Bicycle Racks – 2 @ \$500.00/Each = \$1,000.00
- New Bicycle Lane Line Painting – 0.3 Miles @ \$7,500.00/Mile = \$2,250.00
- New Bicycle Corridor Signage - 6 @ \$250.00 Each = \$1,500.00
- New Bicycle Lane Stencil - 6 @ \$75.00 Each = \$450.00
- Miscellaneous Line Striping – Lump Sum @ \$2,500.00
- Miscellaneous Native Planting and Mulch – Lump Sum @ \$7,500.00
- New Street Trees - 36 @ \$350.00 Each = \$12,600.00
- New Off-Road Trail - 500 LF @ \$150.00/LF = \$75,000.00
- New Sculpture Veteran’s Park – L.S. @ \$20,000.00
- New Way-Finding Signage – 2 Signs @ \$1,500 = \$3,000.00
- New Mixed Evergreen Screening at Wastewater Treatment Plant – 100 trees @ \$250/each = \$25,000.00

The total of Sheet 2 Baltimore Avenue Items equals \$925,825.00



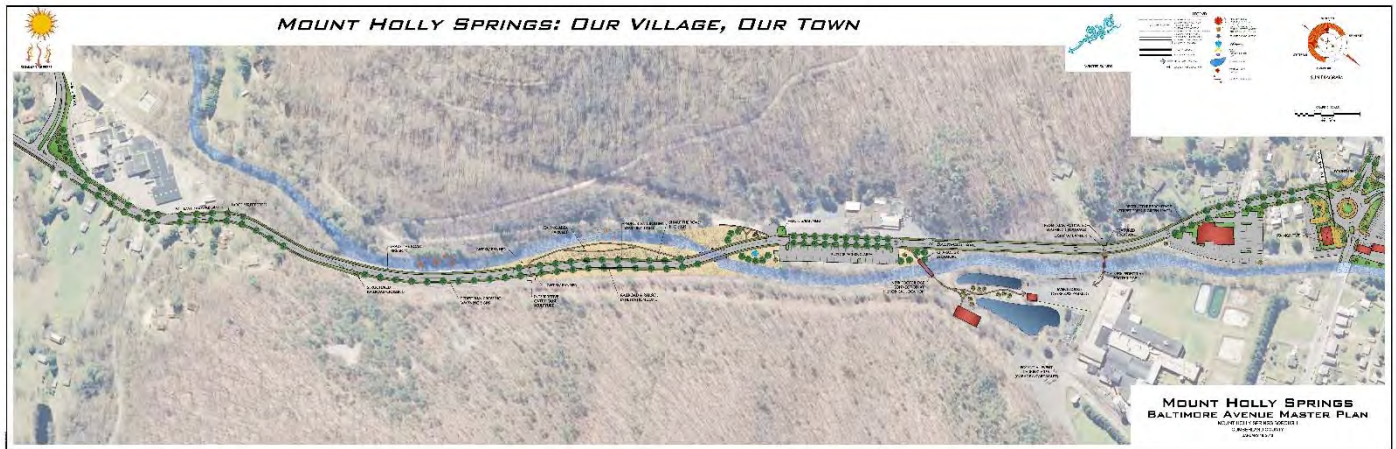
Mill Street from Baltimore Avenue East to the Railroad Underpass

Plan Sheet 3 – Baltimore Avenue South from Pine Street to PA Route 34/94 Split at Yates Street
(SR #0034, Segment 0130, Offset 1024' to SR #0094, Segment 0080, Offset 1557')

- Mobilization and Traffic Control - \$85,000.00
- Property, Land and Right-of-Way Acquisition - \$425,000
- Erosion and Sedimentation Control Items
 - a. Install Silt Saks at New Inlets – 10 Inlets at \$500/Each – \$5,000.00
 - b. Miscellaneous Check Filters, Pumping and Street Sweeping – Lump Sum @ \$65,000.00
- Demolition and Removal Items
 - a. Demolish existing structures - \$75,000.00
 - b. Concrete Sidewalk – 250 SY @ \$20.00/SY = \$5,000.00
 - c. Eight Inch (8”) Concrete Curb – 600 LF @ \$6.00/LF = \$3,600.00
 - d. Bituminous Removal – 3,000 SY @ \$18.50/SY = \$55,500.00
 - e. Milling Bituminous Pavement – 4,000 SY @ \$5.00/SY = \$20,000.00
 - f. Earthwork/Excavation – 3,500 CY @ \$40.00/CY - \$140,000.00
 - g. Remove exiting Guiderrails – L.S. - \$4,000.00
- New Concrete Curb/Bump Outs – 2,600 LF @ \$32.00/LF = \$83,200.00
- New Musical Rumble Strips for Gateway from 34/94 Split to Mountain Creek Bridge - \$90,000.00
- New Embossed Colored Concrete Paving Textured for Crosswalks – 400 SY @ \$85.00/SY = \$34,000.00
- New ADA Compliant Sidewalk 5' Wide – 11,600 LF @ \$50/LF = \$580,000.00
- New ADA Compliant Ramps at Intersections - \$20,000.00
- New Bituminous Pavement for 34/94 New Intersection – 2,500 SY @ \$57.00/SY = \$142,500.00
- New Permeable Concrete/Brick Pavers in Sidewalk Areas with an Average Width of 2' on Both Sides of the Baltimore Avenue in Limited Areas. – 1,200 SF @ \$20.00/SF = \$24,000.00
- New Pedestrian Scaled Light Fixtures and Conduit at Intersections and Regularly Spaced Intervals on Both Sides of Baltimore Avenue. - 24 fixtures @ \$6,000.00/Each = \$144,000.00
- New Miscellaneous Electrical Items - Lump Sum @ \$75,000.00
- New Interpretive Panels reviewing Transportation, Environmental and History of the Baltimore Avenue Corridor and Mount Holly Springs Paper, etc. – 6 @ \$2,000.00/Each = \$12,000.00
- New Rain Gardens 12' x 600' with 3' Depth and Structural Infiltration Soil Mixture - \$48,000.00
- New Storm Sewer Inlets and Bottom Boxes – 12 @ \$3,500/Each = \$42,000.00
- New Storm Sewer Piping – 24” HCPPC – 600 LF @ \$75.00/LF = \$45,000.00
- New Freestanding Planters – 6 @ \$500.00 Each - \$3,000.00
- New Banners and Poles at Mountain Creek Bridge – 6 @ \$1,200/each = \$7,200.00
- New Ornamental Benches (6' Length) – 4 @ \$2,000.00/Each = \$8,000.00
- New Trash Receptacles – 4 @ \$750.00/Each = \$3,000.00
- New “Avenue” Bicycle Racks – 2 @ \$500.00/Each = \$1,000.00
- New Bicycle Lane Line Painting – 1.25 Miles @ \$7,500.00/Mile = \$9,375.00
- New Bicycle Corridor Signage - 10 @ \$250.00 Each = \$2,500.00
- New Bicycle Lane Stencil - 20 @ \$75.00 Each = \$1,500.00
- Miscellaneous Line Striping – Lump Sum @ \$7,500.00
- Miscellaneous Native Groundcover and Stream Edge Planting w/ Mulch – Lump Sum @ \$45,000.00
- New Street Trees - 96 @ \$350.00 Each = \$33,600.00
- New Reforestation efforts of Holly Trees for Slopes of Gap w/ Seedlings – Lump Sum @ \$15,000.00

- Reconstructed Topsoil – 200 CY @ \$55.00/CY = \$11,000.00
- New Railroad Crossing and traffic calming approaches – Lump Sum @ \$275,000.00
- New Off-Road Trail – 1,000 LF @ \$150.00/LF = \$150,000.00
- New Way-Finding Signage – 6 Signs @ \$1,500 Each = \$9,000.00

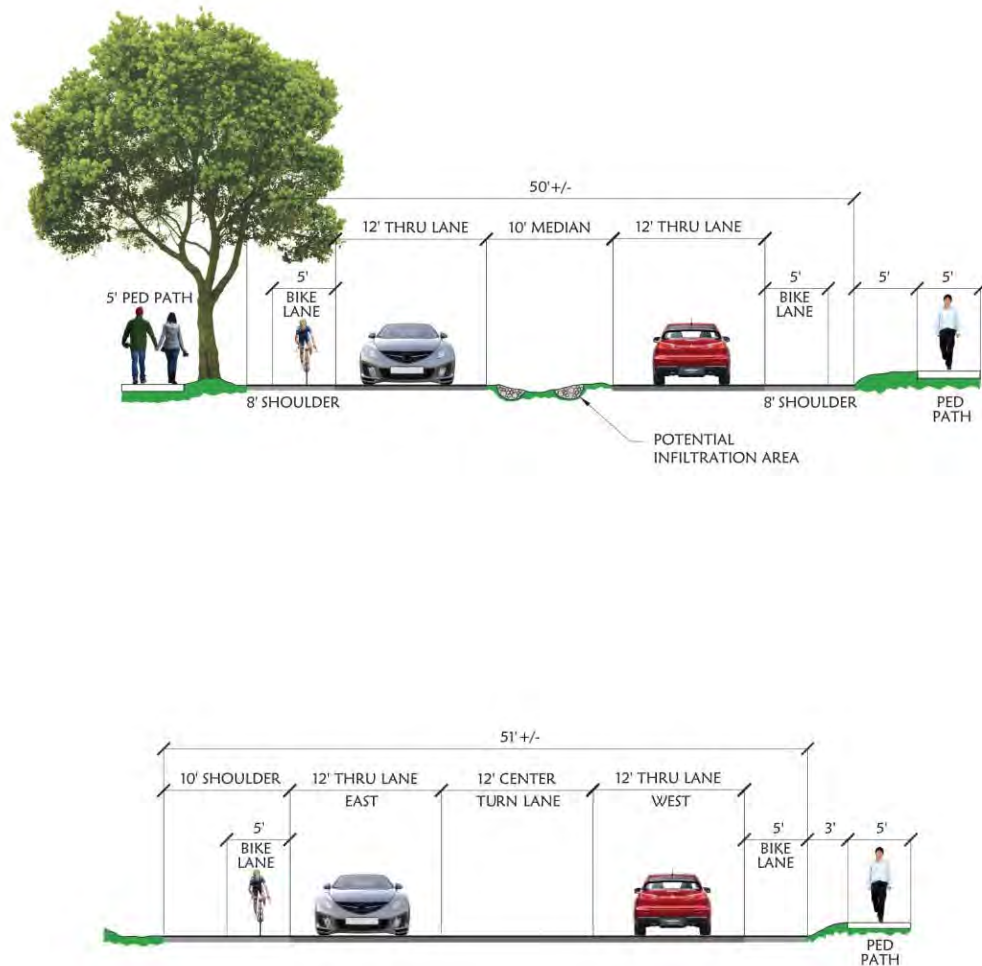
The total of Sheet 3 Baltimore Avenue Items equals \$2,804,475.00



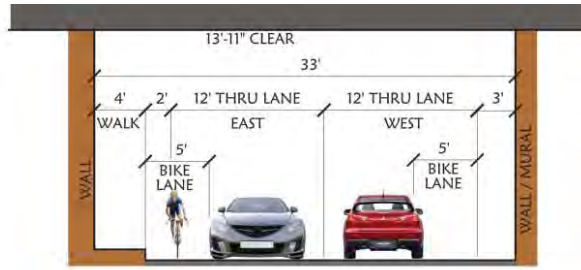
Baltimore Avenue from PA Routes 34/94 Split to Pine Street Intersection

Baltimore Avenue Cross-Sections

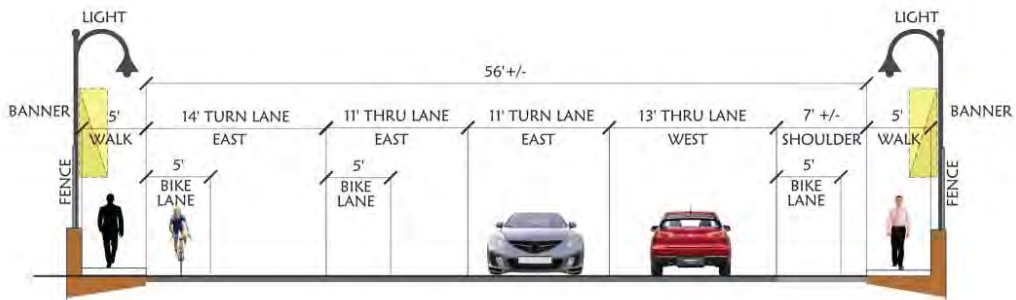
The Baltimore Avenue Corridor has a variety of unique dimensional elements related to the road surface as it bi-sects the Borough of Mount Holly Springs. Those dimensional relationships were filed verified at numerous stations along the corridor with particular attention to the constrained areas of the core area between Pine and Mill Streets and the railroad underpasses. The following cross-sections illustrate the intent of the planned corridor and the proposed improvements recommended as part of the plan sheets. The section numbers relate to specific sections on each of the plans and illustrate the dimensional relationship of sidewalks, bike lanes and center island improvements, etc. They are intended to be a guide for future projects and include the following:



Typical Cross-Section South of Pine Street Intersection



The Railroad Underpass



The Mill Street and Mountain Creek Bridge

DESIGN AND CONSTRUCTION PHASES

The conceptual alternatives, options and Baltimore Avenue enhancements described in the study were developed to a sufficient level of detail to determine feasibility. That level of detail is also appropriate to further public discussion and support informed decision making efforts by local officials. The next step is for the Mount Holly Springs community and its leaders to prioritize the list of suggested improvements and begin the implementation process. It will be important to create a series of small wins and build upon those wins on successive implementation.

The Baltimore Avenue Corridor Study has laid the groundwork for a vision. It is time to commit to making that vision a reality, develop a scope for intended improvements, secure the necessary funding, and move on to the design and construction phases. The design process should continue to involve public input, though more focused on specific areas, concerns, and improvements. Once the Borough commits to one or more of the projects outlined in this plan, specific alternatives can be drawn from its text. New alternatives may also be developed. The plan is intended to be a starting point and a “living document” to be used as a resource for developing partnerships and community support.

SECTION 4: PROMOTE ECONOMIC DEVELOPMENT

INFRASTRUCTURE FOR A MORE COMPACT, WALKABLE FUTURE

As American suburbs build in more compact ways with higher-density development clustered in nodes or along corridors and with increasing options for getting around without a car, reworking or rethinking infrastructure can be essential. For compact development to occur, developers and the borough must determine how to plan, fund, and finance the often costly and complicated infrastructure required for compact growth. That infrastructure can include transit investments, shared parking, intricate street grids, sidewalks, street lighting, and water, sewer, and other utility upgrades. To a large degree that infrastructure is already in place in Mount Holly Springs, but certain components of it need to be retrofitted to contemporary standards. Additionally a greater focus on people and traffic calming is required to make Baltimore Avenue a safe and profitable place to live, work and play.

Suburban Development Types

There are five overlapping compact and walkable suburban development/redevelopment types:

- **Suburban Mall Retrofits.** Built on the site of dying or obsolete shopping malls, these projects transform sprawling parking lots and mall complexes into compact, mixed-use places. These projects take advantage of consolidated landownership patterns and sophisticated set of financing and regulatory tools.

- **Suburban Transit-oriented Development.** Many transit-oriented development (TOD) opportunities are located in the suburbs. These projects seek to leverage their location near fixed-rail transit stations or bus transit corridors to build in higher density ways, connecting the development with transit using sidewalks, bikeways, and other kinds of transportation infrastructure.
- **Suburban Arterials or Commercial Corridors.** These efforts seek to transform aging or dysfunctional land uses and transportation infrastructure along highly traveled stretches of road. Such endeavors often focus on the densification of identified nodes and involve investments in transit service, especially bus transit.
- **Wholesale or Large-scale Suburban Transformation.** By their very nature, such transformations are rare. These efforts require strong leadership and support from regional and local planning bodies, including metropolitan planning organizations.
- **Suburban Town Centers.** Suburban town centers are being developed or enhanced in many communities across the country. These mixed-use hubs offer many of the options that a larger city might provide to include entertainment, residential buildings, or offices, but in a suburban or small town setting. Many suburban town centers are being retrofitted on existing sites.

These typologies are not mutually exclusive; a suburban TOD might be built on the site of an obsolete suburban mall, for example. And additional typologies likely exist. These descriptions are offered as a helpful way of thinking about the compact suburban development projects that are happening across the country and are probable for the Baltimore Avenue Corridor. Clearly, Mount Holly Springs fits nicely into the category of a Suburban, even more rural, Town Center.

A lively Baltimore Avenue Corridor is directly related to the economic viability of retailers, restaurants, cultural establishments, and places of employment. In order to create a vibrant destination, more people need to take to the streets and visit destinations on Baltimore Avenue. The following guidelines are intended to assist borough leaders, business owners, landowners, and economic development officials in creating an environment that entices and brings more people onto Baltimore Avenue and into area businesses. If local leadership desires retail activity the concept of locations and uses needs to be developed further and traffic calming solutions implemented to improve the quality of life for residents and visitors.

Encourage a Sufficient Concentration of Corridor Housing

Local Baltimore Avenue residents are critical to the revitalization effort and residents have the greatest interest in seeing the corridor become vibrant. Residential housing developers should be urged to pursue the rehabilitation and construction of buildings that offer a variety of uses, particularly retail on the first level

and office space and residential units above on the eastern and western sides of Baltimore Avenue. Residents that live, or will live, on the corridor, visitors and commuters, require services and can help to secure the economic sustainability of retailers by frequenting their shops for both every day and specialty goods. The proximity to Carlisle and I-81 traffic volumes will further assist in retail sustainability if a suitable strategy is developed to encourage and invite people into the Avenue.

Encourage a Sufficient Concentration of Retail Users

The influx of approved and built retail and commercial projects in the corridor near to I-81 and Carlisle (approximately 5+ miles to the north) is significant. The totality of the big box options in Carlisle creates a challenge for the much smaller retailers in the corridor. For businesses that are small, independently owned, and do not offer a full range of goods and services such as those provided by today's big box retailers, it is difficult to sustain a business that stands alone. With very limited shopping options available to consumers along this segment of Baltimore Avenue, and so many constraints on peoples' time, it is important for consumers to have the ability to visit a number of retail shops and services on a single shopping trip. In order for retail business in Mount Holly Springs on the Baltimore Avenue corridor to be successful and sustainable, there needs to be a sufficient concentration of retail uses that, together, create a "destination" shopping experience, especially if the destination is to be a boutique niche experience. A focused marketing effort is recommended around the creation of a Mount Holly Springs Business Association. New boutique type businesses should be targeted and invited to locate in Mount Holly Springs

Local officials should identify potential incentive programs for attracting the types of small scale businesses that have a reasonable potential for success. These retail uses should include a mix of service-oriented shops for the boroughs visitors, local workers and residents, as well as specialty shops that have the potential to appeal to regional visitors and tourists. If Mount Holly is to re-invent itself as the tourist destination that it once was, then there needs to be a collaborative effort to define the types of boutique shops and galleries that might "fit" into the community. Examples of such shops might include vintage car dealers, car collectables and car art to capitalize on the Car Show activities and attendees that travel through Mount Holly Springs to get to Carlisle for the events. Other options include bike shops focused on mountain biking and the rural parks land adjacent to Mount Holly Springs.

Encourage a Sufficient Concentration of Jobs on the Baltimore Avenue Corridor

Employees and jobs are some of the key elements to a successful corridor style of retail, as they will shop, visit attractions, and eat in the corridor during lunch breaks and after the work day. Guests to these places of employment will also have the opportunity to visit retailers and will be more inclined to return for a visit on their own time if they have a positive experience. Mount Holly Springs Specialty Paper, Ahlstrom's and Vectron all bring people here from other places in the country and in some instances, from around the world, yet the community has no marketing strategy to invite these visitors, or employees, into the downtown to shop.

Defining the appropriate mixture of land uses and development sites was not part of this study, but should be considered further to create a comprehensive planning approach for the boroughs future. While the corridor study suggests concepts for infill and development, they have not been suggested based upon a market feasibility study. The creation of an Art's and Entertainment District along Baltimore Avenue could be a key to positive after-hour activities in the corridor.

Identify Appropriate Uses for Vacant and/or Underutilized Properties

Vacant and underutilized buildings in disrepair detract from the overall streetscape aesthetic. Mount Holly Springs should undertake a building inventory to identify existing vacant or underutilized buildings and to determine what the highest and best use for each building or site may be in order to further overall goals for the corridor as a place people can live, work, and recreate.

There are few vacancies on the Baltimore Avenue Corridor, but there are numerous examples of underutilized properties and buildings.

One of the other issues that is being addressed concurrent with this planning study is the reworking of the Boroughs Zoning Ordinance. There is a need to upgrade, overhaul and enforce local codes for all properties in the borough. Of specific concern is the 37% rental rate of properties and the impact of landlords who do not live in the borough and conversely do not appreciate the need to improve their properties and keep them code compliant. This is more than an aesthetic issue, it is also a life, health and safety issue that must be addressed for the borough to move forward.

Economic Development Strategies

It is our belief that Mount Holly Springs must prepare for and move into the New Economy and innovation in order to facilitate faster and broader income growth. The New Economy puts a premium on what the Nobel laureate in economics Douglas North calls "adaptive efficiency," which refers to the ability of institutions to innovate, continuously learn, and productively change. As business markets fragment, technology accelerates, and competition comes from unexpected places, learning, creativity, and adaptation have become the principal sources of competitive advantage in many industries. Enabling constant innovation needs to become the goal of the borough and all organizations in the region that are committed to prospering. Similarly, the goal for Mount Holly Springs must be to foster innovation and adaptation in infrastructure, in institutions both public and private, and on the part of individuals.

These efforts need to be proactive and designed for the long term. Local leaders and regional Government, civic, and business leaders need to challenge all economic sectors and institutions, including their own institution of government, to become cultures of innovation. The consequences for Mount Holly Springs and the region if there is no positive response to this challenge are low productivity, stagnant living standards,

and reduced opportunity for its citizens. In other words, Mount Holly Springs and the Baltimore Avenue Corridor will never realize their potential and possible continue to decline.

Innovation and change mean uncertainty and disruption. But it is becoming increasingly clear that dynamism is critical to growth. (You can't have upward mobility if no one is on the move.) The more churning in the borough in terms of new business start-ups and existing business failures, the faster the borough's rate of economic growth. In fact, of all of the elements in this report, churn and change are the most strongly correlated with employment and income growth. This means that the Mount Holly Springs leadership need to promote change and innovation not retard it.

Urban Math as it relates to Mount Holly Springs

This study focuses on the concept of “urban math” in an effort to illustrate how changes in our small towns and communities that need to happen, can be done in a way that adds up to future benefits and reduces sprawl in our rural landscapes.

One simple example of that new mathematics: Consider that a 9-foot travel lane on a thoroughfare will cost less than a 12-foot travel lane to build and/or maintain — and it may provide more prosperity, safety, and freedom, all of which adds up to a better life for ourselves and our children. This is so because when traffic slows, more people walk. When more people walk, the stores do better, and builders provide housing. More stores and houses mean there's more places to go nearby. More places to go means you are freer without being a slave to your vehicle and you deposit fewer carbon emissions into the atmosphere. Fewer carbon emissions means a better future for all of us.

All that from 9-foot lanes? Yes, narrower lanes can help. But that is only one element. Other elements, such as street trees, raingardens, a new plaza, on-street parking, a form-based code, a transit line, or a new town center, could also be catalysts for this kind of progress. A better-connected street network or an avenue that replaces an urban freeway may simultaneously encourage economic development, enlarge tax revenues, and improve social and financial health on the community. This is urbanism, and it adds up—more than most people yet realize.

To fully achieve their goals, bicycling, walkability, and transit activists, city boosters, developers, businesses, sustainable development proponents, and people who just want to live in urban places are called to do more than push their own agendas. They could, at least occasionally, gather under a big tent — one that recognizes that cities and towns are more than the sum of their parts.

These disparate groups don't have to agree on everything, or buy into every smart growth theory. They don't have to love every aspect of city living. But once they agree that the pieces of communities can be put together in surprisingly synergistic ways—which generate economic and social value—the decisions become easier. Complete streets are the baseline. Sprawl is not good enough. Investments in transit are no longer just about transportation.

Conventional suburban thoroughfares, such as the Carlisle Pike in Hampden Township, and sprawl represent a mechanistic view of place: A house is just a house, a store just a store. It doesn't matter where you put them; just keep them apart. Connect them with a road that accommodates fast traffic, because that's the only practical way to get from A to B.

The battle between urbanism and sprawl is often portrayed as city (or town) versus suburb. That's a false dichotomy. It implies that "suburbs" and "sprawl" are synonymous and that cities are necessarily in competition with suburbs. Neither is true. The battle has been cast as one between drivable and walkable places. That's part of the story and it is easy to explain. It's shorthand, a code phrase for a different approach to planning entirely.

Alternative terms are "drive-only" and "drive-optional" places, terms that hint at something beyond walkability: freedom and lower costs, both of which are always strong selling points in America. But it doesn't stop there. What this plan would like to suggest is more emphasis on the magic of Mount Holly Springs and the appeal of meaningful *places*. The idea of placemaking gets closer to how Mount Holly Springs can actually inspire people, attract new residents, new businesses and tourists.

Much work has been devoted to defining the exact advantages of walkability: A higher Walk Score increases housing values (an average of \$1,850 per point); walkability boosts social mobility, according to a University of Arizona study; deaths by trauma are lower in cities because of fewer car fatalities; per-acre property tax revenues are 10 times higher with smart growth; cities reduce household carbon emissions by 30 percent or more; cities boost productivity (2 to 4 percent higher with a doubling of density); mixed-use environments hold their values better—the list goes on. The walkability score for Mount Holly Springs is 44 – Car Dependent. That translates to a potential mean housing value increase of \$81,400. The dependence on cars needs to change. The increase in the walking score to an 88, with more commodities available for Mount Holly Springs residents would increase the mean housing value to \$162,800, which is more in line with where the mean value should be.

Walkability is a key indicator of the new urban math. Making a place walkable achieves much more than merely helping people to get around on foot, and the numbers from a broad range of studies prove it. At the same time, the possibilities for improving communities go beyond mere numbers.

Climate change, energy, the economy, inequality — all of these issues could be addressed to a degree simply by planning Mount Holly Springs to be more than the sum of its parts. Even people who don't care about most of these issues would benefit from synergistic growth. They would get more open space and less congestion, for example, if other people are able to choose urban living.

This also hints at a way to negotiate differences and find common interests among factions that favor places in which cars are optional instead of mandatory. Such factions are numerous. They include traditional and modernist architects, both of whom, despite their contrasting sensibilities, tend to love cities. They include advocates of bike lanes, and urban retailers that want on-street parking. They include real estate developers and environmentalists. They include cities and their suburbs, both of whom want to attract the "creative class" that is associated with prosperity. The goal is to find solutions that go beyond zero-sum, that provide a win for more than one side.

Those who are inclined to believe in the synergistic potential of communities possess more power than they know. They have more in common than they're aware of. They may not even know that they believe in this idea, but on some level they do. They don't even need to be convinced. They only have to be reminded what's in it for them, asked to join, and shown what to do.

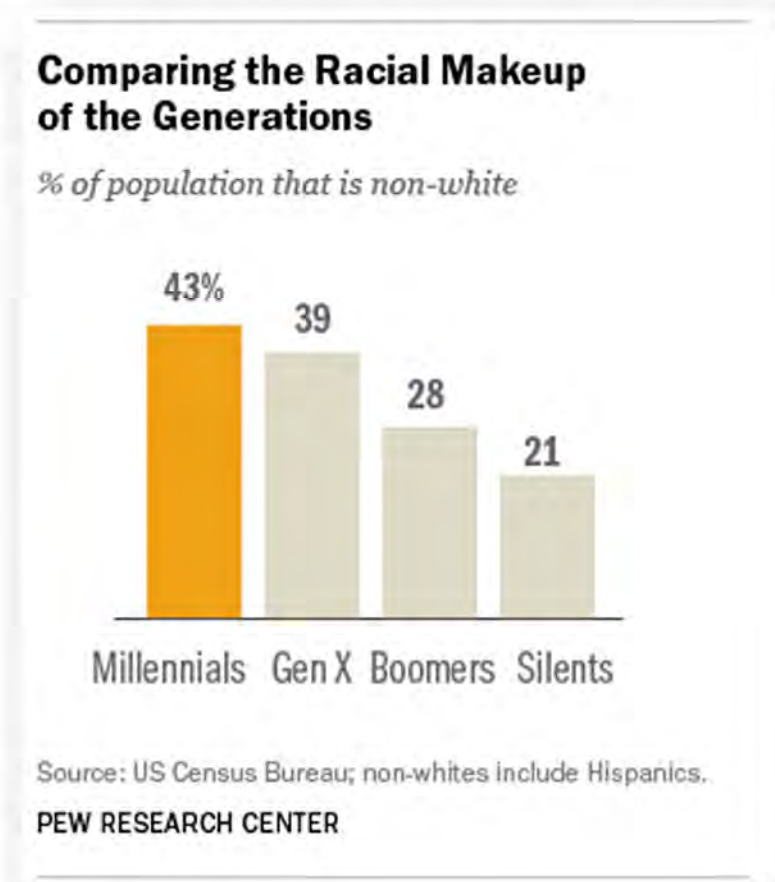
The Millennial Train

Multiple analysis by economists and planners focused on "**Millennials in Adulthood**" suggests that there's a train a-coming. And its steady progress is likely to force changes in community development over the next couple decades. Mount Holly Springs needs to be planning for that train and for future residents and tax payers who are already on the train.

Here's what the various analysis reports suggest and how they line up with some other projections of demographic impacts:

First of all, there are a lot of folks in the Millennial age group, who in 2016 are between 20 to 35 years old. They currently comprise about 27 percent of the U.S. population and are destined to increase that share as the other giant generational bulge, Boomers currently 52 to 70 years old, ages out of the picture.

Unlike the Boomer cohort, with its 28 percent non-white population, the Millennials are the most racially and ethnically diverse generation yet, with 43 percent non-whites.

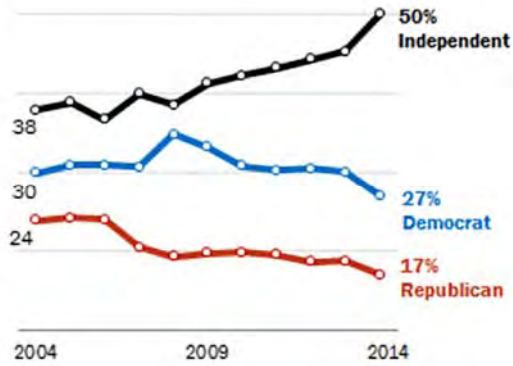


Unlike the Boomers, the Millennials are aging into an unpredictable economic environment, complicated by student loan debt for many and by low-paying, long-hour entrance-level jobs. That's especially true in places many Millennials want to be — like culture and network-rich urban environments with rising prices for acceptable housing.

Democrats and Republicans hoping to sell this generation on politics as usual face a near-impossible task. Experience growing up with people from a variety of racial and ethnic backgrounds has made Millennials more socially liberal than other generations. And their coming of age in an era of declining trust in institutions has made them more likely to embrace the “independent” political label than their elders.

Millennials Increasingly Identify as Political Independents

% of Millennials who identify as ...



Source: Data points represent totals based on all Pew Research surveys of the general public conducted in that calendar year

PEW RESEARCH CENTER

Here's another distinction between generations. Whether it's for financial or lifestyle reasons or some combination of both, Millennials are delaying marriage and families later than older generations at this point in their lives.

The Decline in Marriage Among the Young

% married at age 18 to 32, by generation



Source: Data from 1980, 1997 and 2013 are from the March Current Population Survey; 1960 data are from the 1960 Census

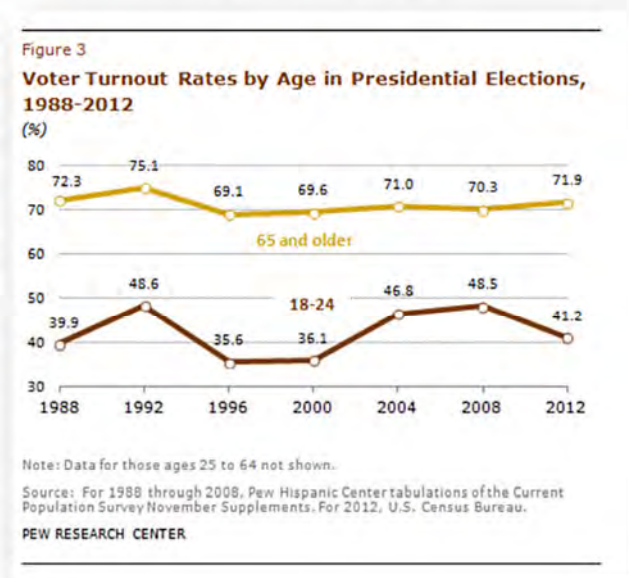
PEW RESEARCH CENTER

So what does all this suggest for housing demand and community planning, specifically as it relates to Mount Holly Springs?..... With a growing population of risk-averse, cash-strapped singles, what will the impacts be on settlement patterns and housing choices built around easy credit for young families in a booming economy?

Here’s a PlaceShakers post from a year ago outlining the likely prospects for neighborhood locations, housing scales and for sale/for rent choices given the double whammy of aging Boomers and coming-of-age Millennials. And it’s worth repeating this warning from an article in the Washington Monthly by Patrick C. Doherty and Christopher Leinberger: **“Both of these huge demographic groups want something that the U.S. housing market is not currently providing: small, one-to-three-bedroom homes in walkable, transit-oriented, economically dynamic, and job-rich neighborhoods.”**

Because Boomers have so far dominated the housing trends discussion, they have tended to see the future challenge as one primarily about an undersupply of choices for aging in dignity in community. The impact of Millennials’ needs and preferences has been treated as a shadow, multiplier effect. If the Millennials share the same preferences and comprise a similarly huge segment of the population, why haven’t their voices made a bigger impact on the people who decide community investment and planning priorities?

One reason is that, despite their numbers, Millennials — and especially the large minority sub-group within the cohort — “punch below their weight”. Their disdain for the political squabbling in the two main political parties underlies their embrace of the “independent” label. And some of that indifference is reflected in their underrepresentation among likely voters. Which gives political leaders the opportunity to delay the inevitable reckoning with demography.



The inevitability of demography, however, imposes a time limit on reality avoidance. With Boomers panicking about their limited choices for aging comfortably and the younger, more diverse generations aging into periods in their lives when they’re likely to vote in numbers more reflective of their demographic clout, change is coming.

So get ready.....It is time for Mount Holly Springs to get on board!!!!!!

Trends Challenging Rural America Today that will impact Mount Holly Springs

The land-based economy and its accompanying way of life in rural communities in Pennsylvania and across the U.S.A. have been affected by a number of outside forces. While many of these changes have been gradual, others have been more immediate. As these communities continue to change, rural identities may be altered and communities may lose the opportunity to set their own agendas. By understanding the challenges that Mount Holly Springs faces, such as traffic growth on Baltimore Avenue, and thinking strategically about future growth and development, borough decision-makers can direct traffic growth in a way that benefits the community while preserving its rural heritage and traditions.

Leaders in struggling rural communities and small towns, like Mount Holly Springs, often pin their hopes for economic prosperity on the recruitment of a large manufacturing plant to “save” their town. In Alabama, the success in attracting large automotive plants like Mercedes-Benz, Honda, and Hyundai has fueled such a lust for industrial recruitment. Many small towns are sure that their big break is just around the corner, if only they can come up with the right financial incentives and recruitment strategy.

An unfortunate consequence of relying on strategies that focus exclusively on industrial recruitment is that many communities undervalue, or don’t understand, the importance of other determinants of a strong local economy. This is not to take away from the benefits that Mount Holly Specialty Paper, Ahlstrom’s and Vectron have brought to the community. Business retention and expansion, small business and entrepreneurial development, tourism and retiree attraction, for example, receive short shrift compared to industrial recruitment. More significantly, local leaders pay too little attention to building community and civic infrastructure. Put another way, many small towns overemphasize marketing and sales (industrial recruiting) without adequate attention to product development (improving the quality of life in the community). But prosperous small town economies are built upon the foundation of strong communities.

Strategies for Mount Holly Springs

Successful development strategies in Mount Holly Springs should include the following elements:

- 1) Developing strong and diverse community leadership that is inclusive, collaborative, and connected;
- 2) Identifying local assets and creating and carrying out a strategic plan based upon these assets; and
- 3) Joining with other jurisdictions to maximize economic resources.

1. Community Leadership: Create leadership that is inclusive, collaborative, and connected.

“Leaderful” Communities.

Successful communities all over the United States understand the importance of an expansive view of community leadership. The traditional notion of the community leader – often a mayor or other powerful “position-holder” – as chief community problem-solver has given way to a new, more dynamic model of the community leader as catalyst, connector, and consensus-builder.

Dr. David Mathews, President of the Kettering Foundation, in summarizing the findings of the Foundation’s research on community politics, writes:

“What stands out in the high-achieving community is not so much the characteristics of the leaders as their number ... The high-achieving community had ten times more people providing leadership than communities of comparable size.

This “high-achieving” community is “leaderful”; that is, nearly everyone provides some measure of initiative. And its leaders function not as gatekeepers but as door openers, bent on widening participation.”

This new leadership model recognizes that leadership is not confined to a few elected officials and business leaders. Rather, successful leadership requires mobilizing the knowledge, talents, and perspectives of every segment of the community. Successful communities tend to be full of leaders.

2. Community Assessment and Planning: *Identify all community assets and create a plan to take strategic advantage.*

Strategic Planning.

There is an old saying that goes, “If you don’t know where you’re going, any road will take you there.” Citizen leaders and stakeholders in high-achieving communities know where they are going. They understand that an era of rapid social, cultural, and technological change requires a proactive approach to addressing current and future problems. They engage in a strategic planning process to identify what makes their place special and to decide how to cultivate and promote their unique assets – e.g., Mountain Creek, Givin Library, the Gap, or Mount Holly’s unique history. The result of this process is a strategic plan that identifies community priorities and outlines specific strategies to make best use of available assets and to address local challenges. It becomes a road map for the future and a benchmark for community progress.

The benefits of strategic planning are not limited to the final product. In fact, one of the most beneficial aspects of strategic planning is the process itself. A successful strategic planning process brings together a diverse group of stakeholders, who address basic questions for the community: “Where are we now?” “Where do we want to go?” and “How do we get there?” There are few other occasions when representatives from throughout the community come together for an extended period of time to discuss shared hopes, dreams, knowledge, perspectives, ideas, and concerns. Broad-based strategic planning is a ‘mega-crossroad’ and one of the best tools available for building and strengthening community connections.

3. Local and Regional Partnerships: *Connect Local Stakeholders and Join Forces with Neighbors.*

From Planning to Action: Connecting Community Stakeholders.

The process must not end with the creation of a strategic plan. If so, it would resemble most other community planning efforts. The result would be a plan that looks good on paper, but ends up collecting dust on a shelf. To prevent this, the community should create an entity responsible for seeing that the major objectives in the plan are actually implemented. This group, which should include representatives from government, business, education, and faith-based institutions, should meet regularly to monitor the community’s progress on the plan and make needed modifications to ensure that the plan remains relevant to community priorities and needs.

The value of the group is not just that it checks items off of the list of community objectives. It can serve as an important community “crossroad” where key community stakeholders have the opportunity to think, work, and act together. Most communities have many excellent people, programs, and projects. All communities have at least some institutional assets – city government, churches, schools, civic clubs, and Business Associations. But far too often, individuals and organizations work independently, rather than in concert with one another. The truly high-achieving communities are those that create crossroads where leaders from all of these community organizations and institutions can come together to accomplish shared community objectives.

Joining with other jurisdictions to maximize limited resources.

Because small towns and rural areas are sparsely populated, they lack a critical mass – of taxpayers, leadership, financial capacity, infrastructure, and skilled labor. So if a small town, like Mount Holly Springs is to survive, it must join forces and work together. Small towns must learn to see their neighboring community (townships) as a competitor only for the Friday night football game.

While a holistic strategy for economic development is needed, attracting new businesses clearly should be one part of the overall approach. However, small towns rarely possess adequate resources to be effective in the increasingly competitive arena of economic development. Hiring a professional economic developer is an impossible dream for most small communities. That is, unless they decide to partner with their neighbors.

Conclusion

Mount Holly Springs will be best served by a holistic approach to economic development. Industrial development may be an appropriate strategy, especially if done in partnership with regional neighbors. However, it should not be the *only* strategy. To be successful, Mount Holly Springs needs to cultivate strong and diverse community leadership that is inclusive, collaborative, and connected. The borough leaders need to identify their unique assets, create and implement a strategic plan, and establish strategic partnerships among community stakeholders and with other jurisdictions. And they need to be proactive in creating community and regional crossroads — organizations, or structures, where leaders can connect on a regular basis to assess, plan, and work together.

If Mount Holly Springs aggressively pursues these strategies, they have excellent potential for success. Many city-dwellers long for what people in small towns already have, and often take for granted: a slower pace of life, friendly people who know their neighbors, attractive open spaces and beautiful scenery, quaint shops, historic homes and buildings, parades, festivals, and streets that are safe and free of traffic congestion. Mount Holly Springs still possess a sense of authenticity and charm that cannot be replicated in bigger cities, and contains assets that cannot be found anywhere else.

These inherent quality-of-life advantages, enhanced by community leadership, planning, and partnerships, ultimately make the community more attractive to both existing and potential residents and employers. In other words, investments in product development make the community much easier to market and sell. The irony is that strategies emphasizing community development ultimately make small towns much more attractive in the competition for those large manufacturing plants they covet.

Small Towns, Big Ideas: Examples of Innovation

According to multiple studies and real stories from real places, seven themes emerged that offer take-away lessons for other communities hoping to learn from small towns with big ideas. Those include:

1. In small towns, community development is economic development. Communities that incorporate economic and broader, longer-term, community development goals stand to gain more than small towns that take a piecemeal approach.
2. Small towns with the most dramatic outcomes tend to be proactive and future-oriented; they embrace change and assume risk. Being proactive (as opposed to reactive) can be measured by a small town's willingness and ability to act on a particular challenge before it becomes a problem.
3. Successful community economic development strategies are guided by a broadly held local vision. Case after case has demonstrated that people (as opposed to money or other resources) are the one absolutely necessary ingredient to successful development. A committed group of local residents who are willing to work hard for their community's interests can change the fate of an otherwise hopeless community.

4. Defining assets and opportunities broadly can yield innovative strategies that capitalize on a community's competitive advantage. Assets for small town development might include individual people, nonprofit organizations, businesses, open space, farms, parks, landfills (biomass), museums, schools, historic architecture, local attitudes or any number of other things.
5. Innovative local governance, partnerships and organizations significantly enhance the capacity for community economic development. The key to innovative local governance is to think creatively, but always keep the community's overall net benefits in mind. Regionalism and partnerships beyond municipal boundaries can help small towns to pool resources toward shared objectives.
6. Effective communities identify, measure and celebrate short-term successes to sustain support for long-term community economic development. Leaders in small towns must repeatedly make the case for the importance of their efforts to maintain momentum, invigorate volunteers and donors, convince skeptics and, most importantly, keep the focus on the vision or the goals established in a community's strategic plan.
7. Viable community economic development involves the use of a comprehensive package of strategies and tools, rather than a piecemeal approach. Successful development in small towns is always multifaceted. Successful communities tend to have evolved to the point where they have a comprehensive package of strategies and tools that are aligned with the core assets, challenges and opportunities with their regional context.

Funding Considerations

PennDOT's Multi-Modal Fund Grant Program

The most recent federal transportation funding authorization has placed a higher priority on improving major highways, leaving many local roads and alternative modes of transportation (like biking or transit) under-funded. To remedy this, Pennsylvania used its Act 89 funds to create the Multi-Modal Grant Program. Under this program, money is specifically earmarked for improving transportation and access via alternative modes such as:

- Biking and pedestrian facilities
- Ports
- Rail
- Aviation
- Transit

Multi-Modal funds may also be used for a wide variety of local roadway and intersection improvements, including paving, traffic signalization, and realignments, etc.

As PennDOT Secretary Leslie S. Richards, a lifelong resident of PA and committed to improving small communities, has stated regarding the Multi-Modal Fund “allows PennDOT to assist communities with needed transportation improvements that otherwise may not move forward.” When the project design team met with Mr. Michael Kiser, P.E. PennDOT District 8-0 Executive, and his engineering staff to review the project; Mr. Kiser reinforced this funding source as a very viable option for consideration when looking to fund the roundabouts portions of the project.

PennDOT lists numerous project types that are eligible for Multi-Modal grants. Typically grant applications are “cleared” and ranked through the local MPO. Mount Holly Springs will need to work with the Cumberland County Planning office to create an application and focus on matching funds for the project.

Grant amounts vary based on the size of the project, but, according to PennDOT, they would not normally exceed \$3 million for any one project.

The project typically requires a commitment of 30% matching funds from the applicant, and those providing 30% or more receive preferential consideration. It is common practice to develop a series of funding sources that combine together to create the 30% match for the project.

Typical project types include:

- Streetscapes
- Lighting
- Pedestrian safety enhancements
- Signage
- Sidewalks and crosswalks
- Bus stops
- Park and ride facilities
- Bicycle lanes
- Local roads and bridges

An analysis of prior grant recipients in the previous two application cycles, it is apparent that there is a variety of projects that were selected for grant funding, including:

- Intersection reconfiguration
- Construction of additional lanes
- Equipment purchases for a pavement marking program
- New roadway construction
- Biking and pedestrian trail construction and improvement
- Noise mitigation along railroad tracks
- Parking structure improvements
- New school zone signage and pedestrian tunnel construction near a public high school

The emphasis on alternative transportation modes such as pedestrian walking and biking, Multi-Modal Funds have been a great fit for communities implementing improvements geared toward traffic calming and enhanced pedestrian safety. Mount Holly Springs is one such community.

PennDOT lists the following as its selection criteria for awarding Multi-Modal Grants:

- The project area's economic conditions.
- Consistency with planning on a local, regional, and statewide level.
- "Benefits to safety, mobility, economic competitiveness, and transportation system integration."
(Being able to specifically cite the number and quality of jobs the project would create or preserve gives a project greater consideration.)
- The "technical and financial feasibility of the project."
- The regional benefits of a project.
- "Project readiness."
- "Energy efficiency."
- "Operational sustainability over the long term."
- "Multi-modal nature of the project."

The Mount Holly Springs project will require a team to prepare an application to show that the project broad reaching (regional or statewide benefits versus local), the more it will improve the economy, and the more

prepared a municipality is to complete it – technically and financially – the better chance a project has of receiving funds. Focusing on solving the truck traffic issues as they relate to the Borough’s historic value, stormwater pre-treatment, gateway and quality of life components will make the application competitive.

PENNDOTS PUBLIC-PRIVATE PARTNERSHIPS PROGRAM

Act 88 of 2012

Signed by Governor Tom Corbett on July 5, 2012

Act 88 of 2012 authorizes public private transportation projects in the Commonwealth. This tool will allow PennDOT and other transportation authorities and commissions in the Commonwealth to enter into agreements with the private sector to participate in delivery, maintenance and financing of transportation related projects.

PUBLIC-PRIVATE PARTNERSHIP (P3) PROJECT

A P3 project is a contractual agreement between a public entity and private entity that:

- Transfers the responsibility of a facility’s engineering, construction, operation and/or maintenance to the private sector for a defined period of time;
- Allows the private sector to perform by contract a service previously provided by the public sector; and
- Ensures the private firm receives payments either from existing revenue sources or through the collection of new tolls or user fees.

The two basic P3 project types are:

- New Build Facilities – Adding capacity to the system by building something new.
- Existing Facilities – Improving capacity or performance of the current system through a P3 arrangement.

Public Private Transportation Partnership Board:

Purpose: To approve potential Public-Private Transportation Projects.

7 Members include:

- The Secretary of Transportation (Chair)
- The Secretary of Budget
- Governor’s Appointee
- Four Legislative Appointees (one from each caucus)
- Must meet and report its actions to the General Assembly at least annually; and
- Must adopt guidelines for receiving and reviewing solicited and unsolicited proposals

References

1. *Guide for the Development of Bicycle Facilities*, American Association of State Highway and Transportation Officials (AASHTO), Washington, DC.
2. "The Intermodal Surface Transportation Efficiency Act of 1991." PL 102-240.
3. *Moving America: New Directions, New Opportunities*, U.S. Department of Transportation, Washington, DC.
4. "Policy on Bicycle and Pedestrian Projects," Federal Highway Administration Memorandum, Washington, DC.
5. *Bicycling Reference Book, 1992-93*, Bicycle Institute of America, Washington, DC.
6. *Manual of Uniform Traffic Control Devices*, U.S. Department of Transportation, Federal Highway Administration, Washington, DC.
7. Graber and Hoel, *Traffic and Highway Engineering*, West Publishing, St. Paul, MN.
8. Kroll and Sommer, "Bicyclists' Response to Urban Bikeways," *Journal of the American Institute of Planners*, Vol. 43, No. 1.
9. *Evaluation by Experienced Riders of a New Bicycle Lane in an Established Bikeway System*, Transportation Research Record 683, Transportation Research Board, Washington, DC.
10. Newman and Kenworthy, *Cities and Automobile Dependence: An International Sourcebook*, Gower Publishing, Aldershot, United Kingdom.
11. *Alternatives to the Automobile: Transport for Livable Cities*, Worldwatch Paper No. 98, Worldwatch Institute, Washington, DC.
12. *Bicycle Use in Medium-Sized Cities*, Lane Council of Governments, based on 1980 census data, Eugene, OR.
13. Wm. C. Wilkinson, *Highway Route Designation Criteria for Bicycle Routes*, Federal Highway Administration, Washington, DC.
14. PEW Research Center.
15. *Bicycle Master Plan*, Oregon Department of Transportation, Salem, OR.
16. Wm. C. Wilkinson et al., *The Effect of Bicycle Accommodations on Bicycle/Motor Vehicle Safety and Traffic Operations*, Final Report, FHWA-RD-92-069, Federal Highway Administration, Wash., DC.
17. *Highway Capacity Manual*, Transportation Research Board, Washington, DC.
18. "Policy for Incorporation of Bicycle Facilities in Design," Florida Department of Transportation Memorandum, Tallahassee, FL.
19. Personal communication with Dan Burden, Florida State Bicycle and Pedestrian Coordinator.
20. *California Highway Design Manual*, California Department of Transportation, Sacramento, CA.
21. *A Policy on Geometric Design of Highways and Streets*, AASHTO, Washington, DC.
22. "Paved Shoulders," Virginia Department of Transportation Memorandum, Richmond, VA.
23. *Cyclists and Traffic Calming*, Cyclists Touring Club (UK), Godalming, United Kingdom.
24. Rodney Tolley, *Traffic Calming in Residential Areas*, Brief Press, Dyfed, United Kingdom.
25. *Susquehanna Greenway Sign Design Guidelines*, PA.
26. PennDOT's Smart Transportation Initiative, PA.
27. AASHTO, *Guide for the Development of Bicycle Facilities*.
28. NACTO, *Urban Bikeway Design Guide*.

APPENDIX

For all items listed in the Appendix please refer to the attached CD. Items contained therein are as follows:

Analysis Base Map	Miscellaneous Business and Funding Information
Concept Plan Sheet1	Natural Resources Plan
Concept Plan Sheet2	Parks Recreation and Open Space Map
Concept Plan Sheet3	PennDOT Roundabouts PUB 578
Options for PA Route 34/94 Split	PennDOT Roundabouts PUB 579
Options for Pine Street /Baltimore Ave.	Population History Estimates Forecasts
Options for Mill Street/Baltimore Ave.	Prime Agricultural Soils Map
PowerPoint Presentation – Public Meeting No.1	Surface Terrain
PowerPoint Presentation – Public Meeting No.2	Traffic Trends 2015
PowerPoint Presentation – Public Meeting No.3	Transportation Facilities
Project Story Boards and Graphics	Transportation Plan
Veteran’s Park Concept Plans and Images	PennDOT Traffic Data
Historic Images/Photos	Water Resources Map
Historic Video of Images and Music	Water Service Areas Map
Estimated AADT for Cumberland Co.	Woodlands & Major Streams
Existing Land Use	
Floodplains & Wetlands	
Base Map	
Classification of Municipalities	
Comp Plan	