Lyttonsville
and the Proposed Purple Line Station
Honoring the Past and Planning for the Future

COMMUNITY PLANNING STUDIO, SUMMER 2014

Paulo Couto, Jenna Dublin, Lyneisha Jackson, Matthew Jones, Thomas Leonard, Angela Martinez, Chelsie Miller, Alexandra Nassau-Brownstone, John Salzman, Ashley Sampson, Terra Versilas, Stacy Weisfeld
Lyttonsville and the Proposed Purple Line Station
Honoring the Past and Planning for the Future

University of Maryland
Urban Studies and Planning Program
Community Planning Studio, Summer 2014

Student Authors
Paulo Couto               Chelsie Miller
Jenna Dublin             Alexandra Nassau-Brownstone
Lyneisha Jackson         John Salzman
Matthew Jones            Ashley Sampson
Thomas Leonard           Terra Sivertsen
Angela Martinez          Stacy Weisfeld

Supervising Faculty
Dr. Jim Cohen            Dr. Gerrit Knapp

Special Thanks To
Lenore Chavez            Gwendolyn E. Coffield Center
Charlotte Coffield       Maryland National Capital Park and Planning Commission, David Anspacher,
Roger Paden              Erin Banks, Matt Folden, Tina Schneider and Melissa Williams
Valerie Paden            Maryland Transit Administration, Monica Meade
Pat Tyson                Montgomery County Department of Parks
The Vaccaro's            National Center for Smart Growth
Residents of Lyttonsville
# TABLE OF CONTENTS

## CHAPTER 1: INTRODUCTION AND HISTORY OF LYTTONSVILLE
- PURPOSE OF STUDY .................................................................................................................. 1
- HISTORY OF LYTTONSVILLE .................................................................................................. 2
- CURRENT LAND USES ........................................................................................................... 2
- CONNECTIVITY ....................................................................................................................... 3
- PLACEMAKING ....................................................................................................................... 3
- ECONOMIC CHALLENGES .................................................................................................... 3
- ENVIRONMENTAL CHALLENGES .......................................................................................... 4

## CHAPTER 2: PLACEMAKING
- PLACEMAKING IN LYTTONSVILLE ........................................................................................ 6
- PUBLIC PLAZA AND CIVIC GREEN ...................................................................................... 8
- DESIGN PRINCIPLES AND RECOMMENDATIONS FOR BROOKVILLE ROAD ...................... 17
- HISTORICAL WALKING TOUR .............................................................................................. 21
- ADDITIONAL RECOMMENDATIONS ...................................................................................... 23

## CHAPTER 3: LYTTONSVILLE RESIDENTIAL SECTOR IN FOCUS: ENVIRONMENT STEWARDSHIP AND CONNECTIVITY
- ENVIRONMENTAL CONSIDERATIONS ............................................................................... 24
- PEDESTRIAN CONNECTIVITY .............................................................................................. 27
- SIDEWALK CONNECTIVITY .................................................................................................. 28
- PEDESTRIAN AMENITIES ...................................................................................................... 29
- INFORMAL PEDESTRIAN PATHWAYS ANALYSIS ................................................................ 33

## CHAPTER 4: BROOKVILLE ROAD AND COMPLETE STREETS
- OVERVIEW AND BEST PRACTICES ....................................................................................... 36
- EXISTING CONDITIONS ......................................................................................................... 38
- COMPLETE STREET PRINCIPLES AND RECOMMENDATIONS ............................................ 41
- RECOMMENDED ROAD DESIGN ........................................................................................ 48
- MAKING COMPLETE STREETS WORK ................................................................................ 53

## CHAPTER 5: ENHANCING INDUSTRIAL AREAS
- CURRENT CONDITIONS ......................................................................................................... 57
- EXPRESSED CONCERNS ...................................................................................................... 58
- TRANSIT ORIENTED DEVELOPMENT ............................................................................... 60
- PLACEMAKING ...................................................................................................................... 62
- ENVIRONMENTAL IMPROVEMENTS ................................................................................... 69

## CONCLUSION ......................................................................................................................... 73

## APPENDIX .................................................................................................................................. 75

## REFERENCES .................................................................................................................................. 97
CHAPTER 1: INTRODUCTION AND HISTORY OF LYTTONSVILLE

PURPOSE OF STUDY

During the academic year and the summer, students in the University of Maryland’s Master’s of Community Planning Program are able to fulfill their studio course requirement. In the studio, students conduct research on a key planning issue or issues in a given study area, based on input from public officials, public agency representatives, community activists and/or other stakeholders. The students then design the research strategy, collect and analyze primary and secondary data, and produce a written report with findings and recommendations.

The Summer 2014 studio course focused on Lyttonsville, Maryland (population approximately 9,100) (Briefing Book, 2010 Study Area), an unincorporated community west of Silver Spring, Maryland.

Lyttonsville faces potential changes due to the impending construction of the Purple Line -- a 16-mile light rail line that will connect the Bethesda station in Montgomery County with the new Carrollton Station in Prince George’s County. The Greater Lyttonsville Area, including Lyttonsville and surrounding neighborhoods, will contain two of the 21 Purple Line stations. These two stations are expected to bring increased traffic from transit riders, greater access to surrounding economic corridors, and better connectivity for residents of Lyttonsville. It also has the potential of affecting the community’s industrial areas by bringing additional customers to the area.

Residents of Lyttonsville have expressed concern over the transit stations’ implementation and its effect on the local community. The Purple Line could impact placemaking\(^1\), connectivity within the community, the environment and

---

\(^1\) Placemaking is defined as a multi-faceted approach to the planning, design and management of public spaces. Placemaking capitalizes on a local community’s assets, inspiration, and potential, with the intention of creating public spaces that promote people’s health, happiness, and wellbeing.
economic development. Many residents see the planning and development surrounding the Purple Line as being an opportunity to identify areas for improvements that will benefit the entire community and to preserve the community’s history. Residents are working closely with MTA to remain an active voice in the planning and implementation of the stations. Additionally, residents reached out to the University of Maryland Urban Studies and Planning program to generate additional ideas and creative solutions to the challenges facing Lyttonsville.

**HISTORY OF LYTONSVILLE**

Lyttonville’s history can be traced back to 1853, when Leonard Johnson, a white landowner, gave a parcel of land to Samuel Lytton, a freed slave (Lyttonville Sector Plan SOW, 7/2012, p.2). Lyttonville became a Black enclave within Montgomery County following the Civil War. While the precise founding date of Lyttonsville is unknown, it can be placed in the latter 19th century, indicating Lyttonsville as a possible land grant to freed slaves. Prominent Black families, such as the Washingtons, DeLoatches, Youngs, Stewarts, Tysons, Crutchfields, Gassaways, Gaithers, Burnetts, Lewises, and many more came to settle in Lyttonsville.

Until the 1960s, Lyttonville’s infrastructure was substandard, lacking paved roads, running water and indoor plumbing. Urban renewal was largely brought about due to the efforts of Lawrence Tyson and Gwendolyn Coffield (Lyttonville, Brief History Flyer). Together, Tyson and Coffield lead the Lyttonville Community to apply for an urban renewal grant through Montgomery County. This urban renewal process tore down many existing homes, replacing them with new homes. Friendly Gardens Apartments, an affordable multi-family housing unit created by the Quaker Community, accommodated residents who were displaced by the reconstruction. While Urban Renewal projects, like the ones spearheaded by Tyson and Coffield were successful, Lyttonsville remains concerned over the lack of affordable housing options for resident in the area.

In 1984, the Rosemary Hills/Lyttonsville Center opened as a community amenity. It was later rebuilt in 2000 and renamed the Gwendolyn E. Coffield Community Center to honor Coffield as a community leader. Residents currently use the Center as their only public place for social gathering and also to preserve and showcase their collected histories.

Historically, much of the land in Lyttonsville has been designated for less desirable uses such as municipal and medical dump sites. With the impending construction of Purple Line Stations, the Maryland Transit Administration (MTA) has identified Lyttonsville as an Environmental Justice Community, defined as an area that could face disproportionately high and adverse effects on the community once the Purple Line is built.

**CURRENT LAND USES**

Today, Lyttonsville’s 68 acres include residential units, light industry, and the US Army installation, Forest Glen Annex. South of Brookeville Road is primarily single family, detached homes, as well as several multi-family apartment complexes. Lyttonsville is one of two areas south of the Capital Beltway zoned for light industry. There are dozens of light industrial businesses on both sides of Brookeville Road, employing hundreds of local and regional residents.

The relationship between residential, institutional and industrial land use shapes the character of the Lyttonsville community; the interaction of these uses will only gain more importance with the completion of the Purple Line. To understand these relationships (conflicts and opportunities) the studio team organized our investigation of Lyttonsville by examining residential and industrial uses, as well as the dual use of Brookeville Road for residents, visitors and industrial use. For this analysis, there are four key themes: connectivity, placemaking, economic
development and environmental stewardship. Those themes are assessed within the residential and industrial communities, with additional focus on where the two communities meet: the Brookville Road corridor.

CONNECTIVITY

Roadways do more than move automobiles. They connect people to places and to other people. They can be incredibly convenient but also frustrating and unsafe. As our communities age and change, localities such as Lyttonsville will have to confront the challenge of retrofitting roadways to accommodate more modes and users. Even the most auto-oriented streets will have to adapt to better serve the community and the environment. In Lyttonsville, the time to rethink the use of existing roadways is now. The completion of the Lyttonsville Station and the Purple Line will have positive and negative impacts for residents and businesses, as well as transportation and the environment. It is the role of the community, planners and other stakeholders to determine how to mitigate negative impacts and how to leverage opportunities that present themselves.

A complete street is a road that is safe, convenient and accessible to all modes and all users. Pursuing a complete streets strategy along the Brookville Corridor has the potential to improve the safety and accessibility brought on by increased multi-modal traffic from the Purple Line and offers the opportunity to address some of the existing parking, congestion and environmental issues from which the area already suffers.

To understand the potential of the Brookville Corridor we examined the best practices of complete streets, as this concept provides ideas for serving a range of transportation modes on the same roadway. Sources of best practices were compiled from Smart Growth America, Transportation Research Board and case studies from the cities of Charlotte, NC, Eugene, OR and Tacoma, WA.

PLACEMAKING

The development of the Purple Line presents an opportunity for re-visioning the surrounding neighborhood; focusing on how existing and/or future public spaces can be better designed to be more welcoming to people. Residents of Lyttonsville take great pride in the history and character of the community and would like to see this better reflected in the development surrounding the Lyttonsville station. Additionally they have expressed a desire for improved street designs that promote foot and bicycle traffic and that might lead to future development of a “main street” or town center.

To address these desires, we explored options for creating outdoor civic spaces near the station that would connect and complement the existing industrial and residential land uses. We also looked at streetscape improvements that can be made along Brookeville Road to promote greater use and invite the possibility for future commercial development. Lastly, we explored ways of preserving and incorporating Lyttonsville’s history into the public realm.

ECONOMIC CHALLENGES

Greater Lyttonsville is one of the last areas within Montgomery County, Maryland that has an agglomeration of light industrial uses. A significant portion of Lyttonsville is zoned I-1, light industrial, providing a vital base for jobs and products or services and supporting a diverse and thriving economy. Mixing industrial land use into the community provides a diverse source of tax revenue and a more robust funding base to weather varying economic conditions.
At the same time, there is a strong residential community that has seen incomes rise and home values appreciate, but amenities have been slow to develop and the industrial area has not upgraded façades. The economic benefits of a centrally-located industrial area must be weighed against the perceived and actual harm associated with adjoining industrial and residential zones.

**ENVIRONMENTAL CHALLENGES**

Montgomery County has undertaken initial environmental assessments to determine existing conditions within the greater Lyttonsville sector plan area. The preliminary findings from these assessments reveal that there are several areas of concern, which can and should be addressed in light of the placement of the Purple Line station and all future development. Among these concerns, hydrology plays an interlinking theme.

The sector plan area consists of 42.9% impervious cover, and total canopy coverage of 42.4%. Unfortunately, high impervious coverage and low tree canopy coverage are typical in urban watersheds and have a direct impact on water quality within receiving streams, having implications for downstream water bodies. In rain events, water flows along impervious surfaces carrying with it all debris, chemicals, oils and sediment and is directed into stormwater drains, which convey untreated water directly into nearby streams. Increased impervious cover and shrinking tree canopy means less water is able to filter and infiltrate to recharge groundwater. The lack of onsite green infrastructure combined with the extensive stormwater drain system in Lyttonsville means there is very little opportunity for stormwater to be treated. Lyttonsville is divided into two watersheds, Lower Rock Creek and Rock Creek D.C., both of which drain into the Potomac and ultimately into the Chesapeake Bay.

Montgomery County’s Department of Environmental Protection monitors county streams to determine the health by examining the physical, biological and chemical characteristics. Fish and benthic macroinvertebrates are monitored to determine species, population counts and diversity, which are indicators of pollution levels and general ecosystem health. Chemical characteristics including pH and conductivity are measured to characterize water quality.

Physical measurements such as flow, temperature, stream bank erosion, sedimentation and overall change in stream morphology are also observed. Results from each of these assessments are combined and an overall score is assigned to indicate the overall health of the stream. Lower Rock Creek -- into which most of the industrially zoned area and Fort Detrick drain -- has received the lowest water quality rating (“poor”) while Rock Creek D.C., which is heavily residential is rated as having “fair” water quality.

In addition to the impaired water quality from stormwater runoff, the county is beginning the initial stages of overseeing site analysis of several suspected and confirmed brownfields which may contain landfilled medical and other unknown and potentially hazardous wastes that may be susceptible to leaching into nearby streams and water table.

Maryland is one of six states and the District of Columbia that are partners in the Chesapeake Bay Program. The program, which is governed by a commission of the States, the Environmental Protection Agency (EPA) and citizen-level advocates, takes a regional approach to watershed management and works to implement measures that restore and protect the Chesapeake Bay. The program has identified stormwater runoff as one area of action and states are working to implement best practices in stormwater management upstream to reduce downstream impact to the Chesapeake Bay. Additionally new EPA requirements under the National Pollution Discharge Elimination Phase II permits require states to improve non-point source water discharges.
The arrival of the Purple Line to Lyttonsville will mean new construction and development within the sector plan area. It is clear that reducing stormwater runoff and improving water quality through implementing green infrastructure and reforestation measures should be at the forefront of all major decisions.

LYTTONSVILLE STUDIO STORYMAP

In order to synthesize the information researched and analyzed for Lyttonsville, the studio created an Esri StoryMap. StoryMap is an interactive website that allows users to explore information placed on a map.

The Lyttonsville StoryMap explores the recommendations made in this report for Connectivity and Street Enhancements, the Environment, History, Industrial areas, and Placemaking, while allowing users to visualize the location of these recommendations. To view the Lyttonsville StoryMap, please visit [www.ter.ps/lyttonsville](http://www.ter.ps/lyttonsville).

![Lyttonsville StoryMap screen capture](image-url)
CHAPTER 2: PLACEMAKING

INTRODUCTION

Successful places should be accessible, feel safe, improve connectivity, and support an environment for lingering. “Great public spaces are where celebrations are held, social and economic exchanges take place, friends run into each other, and cultures mix.” (Project for Public Spaces) Placemaking practices around transit centers encourage designing attractive and functional gathering spaces that include parks, plazas, courtyards, and sidewalks that create an inviting setting and complement existing land uses (Metrolinx Report, 2011).

The process of placemaking deals with the deliberate shaping of the environment to facilitate these activities and improve a community’s quality of life. Placemaking has evolved from the 1960’s when planners began to think through designing for people rather than for economy of spaces. (MIT Places’in’the’Making Report, 2013) In more recent years, placemaking has been described as an iterative process which includes the community; emphasizing the process as much as the product. Placemaking is seen by many as an opportunity to address other challenges in society such as health issues, the environment, and civic involvement. In order to achieve these goals, it is not only essential to think through the physical development of the spaces, but also to think through how the spaces will be used or programmed to engage a community. Planners can provide guidance and ideas for placemaking, but to make a place succeed, the community needs to shape the concept and buy into the ideas.

PLACEMAKING IN LYTTONSVILLE

The development of the Purple Line station is an opportunity for re-visioning the neighborhood. The differing land uses and the existing road design and infrastructure present challenges to new development in Lyttonsville. With the expected ridership projected at 1,340 boardings per day in Lyttonsville, connectivity and the pedestrian environment are two important considerations in planning for the Purple Line light rail station.

Some residents of Lyttonsville have expressed frustration over the lack of several amenities, including a “Main Street area” and a lack of space for social gathering outside of the Coffield Community Center. Some residents also want to preserve the community’s history. This section of the report lays out a number of ideas for creating new community
spaces and improving some of the existing conditions to foster a stronger sense of place and street life for those living, working, and playing in Lyttonsville.

In addition to the lack of inviting public spaces within the Lyttonsville community, some of the residents have raised concerns that many unfavorable planning decisions have been forced upon the community, including the placement of medical and municipal dump sites, the rezoning of residential property to light industrial and the placement of the Purple Line station and storage facility. Many of these decisions have negatively altered the environment, resulting in the loss of natural habitats, soil contamination, swaths of impervious surfaces, increased surface runoff, and deteriorating water quality of receiving streams. The loss of tree canopy, especially within the industrial areas where coverage is less than 3%, signals the loss of free environmental services such as water filtration, shading, evapotranspiration and habitat for native flora and fauna. While there is no certainty regarding how the area would have developed without the change in zoning, using the development patterns of the residential area as a reference, there is a distinct difference in impervious surface and tree canopy, both of which have direct impacts on surrounding air, land and water quality. Given the environmental degradation that has taken place in Lyttonsville, and the requests from several residents during community meetings and visioning sessions for more green space, it is clear that the placemaking efforts should also feature ecological characteristics that will serve to improve the natural environment within the community.

Placemaking efforts in Lyttonsville have the potential to bring the community together in new ways. Business owners and workers who come into the neighborhood during the workweek are largely isolated from the residents of the community. Placemaking efforts have the potential to bridge these populations and create an opportunity for a diversity of interaction and socialization.

In order to get a sense of the community’s concerns, desires, and dreams, students from our studio team met with several community leaders, attended several of the Monday Matters sessions hosted by the Montgomery County Planning Department, and attended a community visioning session. Students also conducted windshield surveys of the area on foot, by bike, and by car and tapped County officials for information on planning processes.

The principles and recommendations outlined in this report are illustrative and are intended to provide the community with ideas for development, environmental restoration, and historical commemoration. Montgomery County planning officials have not endorsed any of these ideas as they are in the initial stages of conducting their own long-term assessments and will prepare a set of recommendations based on their findings. We have prepared several visualizations to help residents begin the visioning process: to think through what are the important features to include in creating a place and what opportunities exist in Lyttonsville for fostering public spaces.

PROPOSED PLACEMAKING CONCEPTS

1. Public Plaza (with Wetland Park) and Civic Green
2. Design Principles and Improvements for Brookville Road
3. Heritage Walking Trail
PLACEMAKING CONCEPT 1: PUBLIC PLAZA (WITH WETLAND PARK) AND CIVIC GREEN

Many members of the Lyttonsville community have called for an outdoor community space to be included as a part of the development around the Lyttonsville Purple Line station. Residents have expressed a desire for a flexible public space that incorporates local history and also open up the possibility for future economic development along Stewart Avenue/Brookville Road (such as restaurants, cafes, local grocery store etc.). To help visualize these community desires, our proposal includes two interrelated components: the Public Plaza and Civic Green. More information can be found in Appendix A.

The goal is to propose an intermodal, active public plaza and civic green where residents, commuters, and local workers can come together for a range of leisure, local market, and identity-building activities.

**Location**

![Public Plaza and Civic Green Plan](image)

Figure 3: Public Plaza and Civic Green Plan

**Public Plaza**

The land adjacent to Stewart Avenue is an ideal location for the public plaza, as it would serve as a gateway into the community -- through wayfinding and “place finding.” The location is also ideal as a second, at-grade entryway to light rail station. The development of a public plaza also has the potential to link the different land uses found in Lyttonsville.
The public plaza would help to facilitate the use of the second entrance to the light rail station, particularly for Fort Detrick Forest Glen Annex workers and bicycle commuters. The location also borders Lyttonsville’s residential area; residents can take advantage of the public plaza for leisure and entrepreneurial activities. It also could serve as a place for those who come into Lyttonsville for work, to interact with the residents of the Lyttonsville community. The proposed plaza incorporates wetland park features, serving as storm water management as well as linking the plaza to the Capital Crescent Trail.

The size of the triangular shaped public plaza will be about 50,000 square feet, which is about 1 acre or half the size of a typical city block.

**Wetland Park**

MTA has already presented designs that include a stormwater retention pond located in the land currently occupied by the Serra Stone Corporation. This presents an opportunity to develop a public plaza that incorporates a water feature and other environmental designs. Long-time community member, Charlotte Coffield, recalled a memory of wetlands in the same area. Natural wetlands serve the environment through stormwater detention and infiltration, groundwater recharge, and water purification. Building a man-made wetland park is a feasible option to create a beautiful public plaza that can serve the community and the environment. This wetland feature also provides a natural link between the Capital Crescent Trail and the Plaza.

**Civic Green**

The parking lot adjacent to Kansas Avenue, where Stewart Avenue ends, is a good location for a civic green that could feature live music, movie screenings, monthly farmers markets, pop-up events, food trucks, and other social activities. This location provides a link to the Public Plaza and sits directly adjacent to the residential access point for both the public plaza and light rail station. Residents, transit riders, and workers could access the plaza from the station by way of the Capital Crescent Trail, or by entering from Stewart Ave. The proposed Civic Green will cover about 15,500 square feet. If there were additional high-density residential development behind the current site of Friendly Gardens Apartments and/or Claridge House Apartments, the plaza and civic green could create a natural connection between the residential and industrial areas.

**KEY ASSUMPTIONS AND CONSIDERATIONS**

**Zoning**

In order to implement the public plaza and civic green, we propose rezoning the area from industrial to public use and mixed-use residential within the master plan. This will increase density surrounding the Purple Line station and support transit oriented development (TOD). TOD is further explored throughout this analysis.

**Land Acquisition**

Currently, Serra Stone Corporation operates at the proposed site for the public plaza and civic green. In order for these concepts to work, the County should recommend that these sites be adopted into the master plan for public use and zoned mixed-use residential. This will allow for easier use of public funds to purchase the land. If the property is not for sale, the County may decide to utilize their power of eminent domain to acquire the land for this
development, with the understanding that property owners will receive fair-market value. Another option is to wait until the owners become willing to sell. In this scenario, the County may decide to purchase the land, or invoke development requirements on the new buyers to require the development of a public plaza in exchange for incentives such as allowing greater residential density.

**Artful Rainwater Design (ARD)**

One of the guiding principles of the project is the idea of artful rainwater design. This idea holds that stormwater management systems should be re-imagined and designed to not only address runoff issues in situ, but also an opportunity to creatively address other design elements to become an amenity that can further enhance the community (Echols and Pennypacker, 2008).

Echols and Pennypacker (2008) recognize the following five amenity goals that have been achieved in 20 successful ARD projects within the US: (1) Education; (2) Aesthetics; (3) Recreation; (4) Safety; (5) Public Relations.

**Education**

Linking environmental processes with public awareness is an essential part of ARD. Simple practices such as daylighting streams, providing informative signage, bringing attention to and replicating natural water processes while providing places to observe the hydrologic cycle help the public to “…understand, appreciate, and replicate them. (Los Angeles Department of City Planning, 2014.

**Aesthetics and Recreation**

Providing a beautiful and comfortable public plaza that is easily accessible and which facilitates various forms of recreation for people of all ages will establish the sense of place that Lyttonsville currently lacks. These amenities can be achieved through the use of native grasses, flowers, shrubs and trees, all of which can be woven into meandering paths, artwork and seating areas that provide quiet places to enjoy the view and reflect. Ongoing maintenance and programming of the space are also essential.

**Safety**

Important considerations addressed in our proposal include the safety of pedestrians utilizing the public plaza and civic green, as its location will be adjacent to the passing light rail and overhead wires powering the trains. Designated crossing points should be ADA compliant with features such as passive “stop here” markings, tactile markings, and signal controlled crossing with sound signals. Shielded lighting should be installed to minimize any impact for neighboring residential areas, but to assure safety in the community areas.

A park should minimize the risk of falling into the water features by creating barriers such as guardrails or thick landscaped walls and ensuring that the wetland gradually deepens as opposed to a dramatic drop-off. Engineering designs that calculate storage capacity given annual rainfall averages, topology and drainage area will help to determine whether the wetland will remain frequently inundated with water and serve as the premise from which to base safety measures. In light of the various industrial activities that take place nearby, and the uncertainty of the contents of the surface runoff given the existence of buried landfills, direct contact with the water should be avoided. The wetland and all other green infrastructure will be equipped with overflow outlet drains to prevent spillover and flooding into adjacent areas.
**Public Relations**

From the agencies’ perspectives, there is an opportunity for Montgomery County and MTA to begin to rectify some of the Community’s concerns about past environmental injustices and degradation through the creation of well-designed and environmentally conscience public spaces. The agencies can provide technical assistance, financial support, and ongoing maintenance.

From the community’s perspective, this is an opportunity to have a voice in the design and impact of the Purple Line. Additionally, branding efforts can bring new visitors to utilize the heritage trail, enjoy the public plaza and civic green, and frequent the local businesses.

**CONCEPT 1 OBJECTIVES: PUBLIC PLAZA**

![Public Plaza Recommendations](image)

The Public Plaza will:

A. Provide a centralized pedestrian-friendly space for interaction between workers in the industrial area and the Forest Glen Annex as well as commuters from the residential areas. This would include a “gateway” into the community featuring Lyttonsville heritage tour signage and wayfinding signage.

B. Feature stormwater and water use management through wetlands theme.

C. Provide an additional access point from light rail station/trail to the community.
D. Utilize best practices for safety.

Objective A: Provide a centralized pedestrian-friendly space for interaction between employees in the industrial area and at the Forest Glen Annex and commuters from the residential areas. This would include a plaza to serve as a “gateway” into the community and will feature Lyttonsville heritage tour signage and general wayfinding signage throughout the community.

The plaza will function as a hub, or coming together point, between workers in the industrial area, staff from the Forest Glen Annex, and additional commuters living in the residential area. Currently MTA forecasts that there will be 1,340 boardings at the Lyttonsville station. Additionally the population in Lyttonsville is projected to increase by 24% by 2040. There are many examples where light rails are successfully integrated into pedestrian-friendly environments. While the proposed Stewart Avenue location borders the light rail tracks and passing light rail train, the public plaza, as a well-designed environment, can actually help to manage pedestrian circulation and increase public safety. It also serves as a more accessible entry point for the Forest Glen Annex workers and local residents. Given that the plaza will function as a “gateway” to the community, it makes for a natural location for wayfinding signage and signs with information about the Lyttonsville heritage walking tour.

Public Plaza Features:

- Aesthetically-pleasing public realms
- Trees and street furniture to dramatically improve the public plaza experience
- Heritage trail and wayfinding signage

Queens Plaza, Long Island City New York, Marpillero Architects, and Wallace Roberts and Todd

Completed in 2012, the Queens Plaza project transformed a commuter parking lot into a coherent eco-friendly public realm that contributes to a local sense of place. Features include 489 native trees and grasses that naturally filter pollutants from stormwater. The mini-park is integrated into pedestrian paths and bikeways. Source: Marpillero Architects and Inhabitat NYC.
Campus Maritus Park, Detroit; The Better Block Project, multi-city
Moveable furniture to support leisurely social interaction.

Scentsy Campus, Meridian, Ohio
Water carried through serpentine forms. Sustainable design features include pavers in large plaza areas to allow for ground-water recharge. Bio-swales were also introduced to assist with storm-water management.
**Objective B: Stormwater and water use management through wetlands theme**

The large amount of impermeable surface and the area’s topography lend themselves to poor stormwater management. Rainwater from sections of Brookville Road and the residential area tends to drain down Stewart Avenue towards the lower elevation of the trail way.

As a central objective, the public plaza will facilitate better stormwater management and placemaking in the area. It will feature a wetlands environment, natural elements that support stormwater management, including vegetated bioswales, amended soils, and a pleasant water feature. The natural elements will also function as a visual transition between the trail and the plaza. The exact capacity and type of wetland must be determined through a more detailed evaluation of drainage area, average rainfall and desired storm capacity (i.e. 10 year vs 100 year storm). Once these calculations and designs have been confirmed, the type of wetland and appropriate vegetation can be confirmed.

**Wetland Park Features:**

- Connecting the Capital Crescent Trail to the Public Plaza
- Stormwater management integrated into features of the Public Plaza

Example of a wetland park that successfully incorporates placemaking and stormater management
http://greenworkspc.com/works/waterfronts/zidell-green-infrastructure/
Objective C: Provide additional access points from light rail station/trail to the community.

An additional access point links the residential neighborhoods and Forest Glen Annex workers with the Capital Crescent Trail and the station. This will promote greater use of the light rail and an opportunity for greater interaction between residents and workers who come to Lyttonsville each day from outside of the area. This also provides a more pleasurable walking experience for light rail commuters.

Features:

- Wayfinding and Plaza Entrance Signage
- Signage to aid in pedestrian access at Stewart Ave and off of trail
Objective D: Utilize best practices for safety from passing light rail

The public plaza and civic green will be well protected from the passing light rail by fencing and the Capital Crescent Trail Way. The public plaza and civic green are designed to attract pedestrians, making safety a significant concern.

Safety Features:

- Light rail pedestrian at-grade crossing
- Continuous safety barrier between light rail and public plaza area
- Sound attenuation

CONCEPT 1 OBJECTIVES: CIVIC GREEN DESIGN

The Civic Green will be developed in close proximity to the plaza and will be geared towards:

A. Live music and/or movie screenings, other cultural events, and other outdoor leisure activities
B. Pop-up arts markets or farmers markets; pop up food truck events
Objective A: Live music and/or movie screenings, other cultural events, and other outdoor leisure activities

The civic green will function as a central green space used for outdoors celebrations, cultural events, and socializing. Residents envision this green as a space for arts events, seasonal festivals, and outdoor leisure activities.

Features:

- Lawn area with a small platform/stage
- Public Art Installations
- Permanent Seating
- Trees for shade
- Vegetated bioswales to capture and filter stormwater
- Pervious concrete/asphalt to allow stormwater infiltration where feasible

Objective B: Outdoor farmers markets or local art markets, pop up food truck events

The civic green sits adjacent to Stewart Ave, where Stewart ends in a small roundabout. This provides an ideal location for food trucks and other vendors to set up. The green provides a natural setting for picnics, lunch hours, and evening events. This is also an opportunity to explore the feasibility of other types of small business. For example, if food trucks can establish a presence here, perhaps smaller coffee shops, cafes, or other markets might also be successful nearby. Furthermore, providing a destination in the area after normal business hours will better utilize the land which sits vacant and/or under-used in the evenings and on weekends.

Features:

- Perimeter Space: drive up space for food trucks and vendors
- Stewart Ave is adjacent to this “perimeter space” on the green, and provides the opportunity for larger street markets or street festivals in the future
- Permeable concrete where feasible

PLACEMAKING CONCEPT 2: DESIGN PRINCIPLES AND IMPROVEMENTS FOR BROOKVILLE ROAD

The industrial businesses along Brookville Road are currently quite successful. However, some in the community would like to see Brookville Road redeveloped into a “Main Street” feel with ground floor retail topped with rental or condo units. Others feel strongly that the industrial spaces should be preserved. Substantial changes are more likely
over the long term, but a community plan should consider changes over multiple periods of time. There are a number of improvements that can and should be made in the short term to improve resident’s experience of Brookville Road. These improvements will impact the experience for pedestrians, bikers, and motorists. Additional recommendations for Brookville Road are in Chapter 3: Complete Streets and in Chapter 4: Industrial Area.

**Observations of Existing Conditions**

Brookville Road is the main business corridor in Lyttonsville. Industrial land uses along Brookville Road have prioritized trucks and automobiles at the cost of pedestrians and cyclists. Sidewalks are narrow and often blocked by overgrowth. The Brookville Road streetscape is compact relative to the industrial spaces. The noise and the proximity of the road to the narrow walkways can make it intimidating to walk along Brookville Road. Figure X depicts observed conditions. The next section focuses on some brief recommendations for improvement. The section on Complete Streets Policies addresses several of these conditions in more depth.

![Observations of Existing Conditions](image)

**Recommended Principles and Ideas**

There are a number of changes that could improve the pedestrian and cyclist experience. Many of these improvements will need to be accomplished by property owners and/or the small business owners. Improvements to the business façades and overall character can be achieved by designating Brookville Corridor a Business Improvement District, which will allow the businesses to pool resources to fund projects. Additionally, the Montgomery County Department of Economic Development and the Permitting Department offer a number of small business resources, including the Façade Improvement Program, Small Business Revolving Loan Program, and the Commercial “Fast Track” program that streamlines the permit review process for commercial buildings.

We’ve listed a number of recommendations and principles to consider in redesigning Brookville Road’s streetscape. Recommendations are consistent with those made in Chapter 4 of this report. These recommendations are intended to make the street feel more accessible, improve safety, to encourage multi-modal use of the roadway, and make the street feel welcoming to all.

- Increase the width of sidewalks to comply or exceed ADA standards (minimum of 5 feet wide)
- Install a bike lane to encourage bicycle traffic along roadway.
- Install human-scaled sidewalk/street lighting with branded banners featuring oak trees/leaves in keeping with Lyttonsville existing signage
• Design and install low maintenance plantings, bioswales, and rain gardens where possible which will also serve as a buffer between pedestrians and the roadway

• Plant additional trees to provide shade along the corridor, while providing additional environmental benefits such as filtration and reducing heat.

• Install accent plantings at corner intersections along Brookville Rd to define the spaces

• Design façade improvements to refresh the appearance of existing buildings and enhance their visibility from streets. These improvements should include (where possible): continuity in building heights, continuity of architectural style, consistent signage, and landscaped setbacks.

• Reduce the amount of parking in the fronts of buildings, where feasible, in favor of more parking behind or to the sides of buildings.

• Move visual clutter, including dumpsters to the sides or behind buildings.

• Standardize store signage that sits closer to the street (each complex of storefronts should use one large sign to list all the businesses found within the complex)

• Use pervious materials for parking and bike lane (pervious concrete/asphalt/pavers depending on highest porosity and most appropriate use)

• Design wayfinding signage that uses consistent visual cues such as color, font, and size. Signage should be designed to appeal to all types of transportation: pedestrian, cyclists, and automobiles.

• Install several signs as a part of the Lyttonsville Heritage Tour to preserve history of the place, and encourage foot traffic along Brookville Road.

• Design and install “Lyttonsville branding” on parking structure to establish identity at light rail entrance.

• Designate areas to accommodate pop up markets, food trucks etc.

**Images to Illustrate Recommendations**

Figure 6: Brookville Road Recommendations
Branding signage for Lyttonsville

MTA parking structure rendering with placemaking signage and plantings

Example of placemaking signage. Monroe Market in Brookland, Washington D.C.

Monroe Street Market in Brookland, Washington, D.C
http://greatergreaterwashington.org/
PLACEMAKING CONCEPT 3: HISTORICAL WALKING TOUR

Lyttonsville residents Charlotte Coffield and Roger Paden expressed a strong desire for, and emphasis on, preserving the unique history of Lyttonsville. Community members have kept records and created displays, shown in the Coffield Community Center, in order to safeguard their stories. Much of the community would like to see these stories and images on display within the community for future generations. A walking tour puts these histories and memories in the active and evolving community itself.

Many cities throughout the United States have historical walking trails, including Boston, MA and Washington, DC. Boston’s Freedom Trail focuses on some of the most important people and places of the American Revolution. D.C.’s various neighborhood heritage trails try to attract visitors away from the National Mall into neighborhoods that helped shape the city. With the construction of the Purple Line, and more people passing through Lyttonsville, a walking heritage tour offers a great way to showcase the community’s history. The trail also creates a link between the somewhat segregated land-uses throughout Lyttonsville. Users of the trail will walk throughout the industrial, residential, and commercial areas surrounding the new light rail development. In order to provide an idea of what this trail could look like, we developed ten locations and themes for the proposed trail markers.

Mockups for signs in two different styles (Additional Heritage Trail Marker can be found in Appendix B).

![Example of Style 1](image1.png)

![Example of Style 2](image2.png)
Figure 9: Lyttonsville Historical Walking Trail Map
OTHER RECOMMENDATIONS OR IDEAS FOR FUTURE THOUGHT

- **Housing:** There might be an opportunity for more high-density housing to be developed in close proximity to the new Purple Line light rail station. The owners of one existing development may be looking to expand in the nearer-term, having recently purchased the land directly behind their existing property. This would complement the vision of the public plaza, and might provide an opportunity to have ground floor retail open up to the plaza. Additional high-density mixed-use residential development might offer further opportunities to attract a convenience store, cafe, dry cleaner, or other business in ground floor spaces. With the ever-growing demand for affordable housing options in the region, mixed-income housing should be considered for new residential developments near the new station.

- **Programming for Plaza and Civic Green:** In order for the proposed places to be a success, there must be ongoing programming in the spaces. One approach might be to for the Montgomery County Recreation/Gwendolyn Coffield Community Center staff to oversee how the plaza and green are programmed and managed. If the Center does not have the capacity to do this, perhaps a small nonprofit could be created to manage the programming of the public spaces. This could be modelled after Silver Spring Town Center Inc. A third option, and perhaps the most likely, would be a public-private partnership involving the community, a nonprofit, and several government or state agencies.

CONCLUSIONS

In this chapter we looked at several ways to increase the sense of place in the areas surrounding the proposed Lyttonsville light rail station. The development of the Purple Line creates an incredible opportunity for the re-visioning of this area, but it will require a great deal of planning and collaboration between all of the stakeholders.

**Our key recommendations include:**

- A new Public Plaza with wetlands theme that links the new station with the surrounding community and the Capital Crescent Trail.
- A Civic Green to be used for recreational activities, and which has the potential to increase commercial development (i.e. food trucks, street fairs etc.).
- Design recommendations for streetscape improvements along Brookville Road to improve the experience of the street for pedestrians and bicyclists and to increase access to the station.
- A walking Heritage Trail designed to encourage greater foot traffic and to preserve the community history in a way that is accessible to all.

The recommendations in this chapter are meant to be illustrative – to help inform the discussion and imaginings among planners, government agencies, and the community. We encourage the community to think of these placemaking efforts as iterative – an effort that will require ongoing engagement and support from all stakeholders.

The next chapter of the report further explores the concepts of environmental stewardship and connectivity between residential and industrial areas in Lyttonsville.

---

2 Visualizations of the Town Center are available here: http://www.silverspringtowncenter.com/.
CHAPTER 3: LYTTONSVILLE RESIDENTIAL SECTOR IN FOCUS: ENVIRONMENT STEWARDSHIP AND CONNECTIVITY

The last chapter discusses the importance of environmental stewardship and placemaking in and around the Purple Line Station. This framework also helps to link longstanding issues related to stormwater management and cohesion in the residential area. This chapter extends the conversation as to how the area can address the need for stormwater management as well as connectivity within the community and to the Purple Line station. This chapter identifies priority areas for stormwater management and proposes an innovative demonstration project that integrates education, placemaking, and environmental stewardship. Furthermore, an analysis of the residential street network provides data-driven recommendations for prioritizing sidewalk and crosswalk construction, upgrading pedestrian amenities in key locations, and formalizing foot paths to optimize the pedestrian network.

ENVIRONMENTAL CONSIDERATIONS

The mandatory referral for the Purple Line has been a repository for comments and responses regarding a number of topics, including environmental concerns. M-NCPPC’s response to a comment addressing the need for stormwater management has helped our team frame how we are to apply this recommendation to the residential community.

While MTA is only required to meet minimum MDE standards for stormwater management (‘SWM’) on this project, there appear to be significant opportunities to retrofit existing untreated impervious areas that drain through the project area to help mitigate some of the existing water quality issues along this urban corridor. M-NCPPC requests that MTA view this as an opportunity to provide additional SWM treatment to these areas and continue to work with DEP and the Department of Parks to determine stormwater management opportunities within the impacted watershed. MTA will meet MDE standards for stormwater management and will continue to work with M-NCPPC and DEP to determine stormwater treatment opportunities throughout the corridor and maximize on-site treatment. (Purple Line Light Rail, Mandatory Referral No. MR2014033)

In light of this opportunity, it is imperative to consider extending this momentum of environmental stewardship into the residential realm. It is important to link how the surrounding community can do its part to help reduce stormwater runoff within a shared watershed that is in poor state of water quality.

How can environmental impacts be reduced in the neighborhood through stormwater management practices, and where are the priority areas? Lyttonsville Road/Michigan Avenue is an exemplary location to reduce environmental impacts through stormwater management practices. This road is a main collector of stormwater runoff due to its changing topology, and the existing conditions do not promote proper stormwater treatment. In Figure 10 below, it is easy to see the amount of rainwater flooding the bus stop and rapidly moving down the impervious roadway into an untreated inlet. This was an evening where there was less than two inches of rainfall and, while the rain had stopped, the runoff was still moving rapidly. Further, there are a number of apartment buildings and associated parking lots that do not seem to mitigate their stormwater runoff impact along Lyttonsville Road/Michigan Avenue.
The resulting recommendations were to retrofit the existing right of way with a linear stormwater management treatment that runs the whole stretch of Lyttonsville Road/Michigan Avenue. Strategies include bioswale retention areas along the sidewalks, as well as rain garden medians to contribute to stormwater management, but also used as a traffic calming measure. This will become a high visibility road for pedestrians, bicycles and vehicles alike to connect to the Purple Line station. Size and scale should be considered as a way to reduce the cost of making such improvements to the built environment. Stakeholders should work with the apartment buildings and the Coffield Community Center to help reduce their stormwater runoff impact employing ESD designs on those properties as well.

How feasible would it be to demonstrate stormwater management practices in a designated residential street or area? As part of a strategy to make Lyttonsville residents more aware of their environmental impacts and stormwater treatment strategies, the Demonstration House Concept can help to shed light on these issues. Private homeowners and the county can collaborate on this concept, almost like a public/private partnership. Though there is a current rebate program for private residences in Montgomery County to implement stormwater treatments like rain gardens and rain barrels (Rainscapes), this concept could bring stormwater treatment to a new level by including more permeable paved surfaces and bioretention swales.

As a demonstration of how feasible it is to incorporate environmental stewardship in residential communities, the team chose an example home on Pennsylvania Avenue. The home exhibits sustainable practices, including solar panels and indigenous landscaping, and it is close to the elementary school, which would be a great educational tool for children. Pennsylvania Avenue does not have sidewalks and would be a perfect place to increase connectivity and demonstrate stewardship opportunities.

Figure 10 shows a before and after rendering of the Demonstration Home Concept. The proposal includes using a hybrid of the Rainscapes program to incentivize strategies such as rain barrels and possible permeable driveway pavers, with new design elements for right of way construction to include permeable sidewalk pavers, street trees, and bioretention swales. An interpretive sign would be installed in the right of way to highlight the Demonstration Home Concept as a way to educate and foster environmental stewardship for the rest of the community to see its benefits and hopefully be replicated.

The Maryland Chapter of the Safe Routes to School Program and The Chesapeake Bay Foundation (CBF) could assist the community in lobbying to construct sidewalks and/or incorporate stormwater management treatments in the residential space. CBF has recently expanded their traditional stormwater management focus from farms to urban centers, particularly in Harrisburg, PA (Patriot News). CBF worked with the Department of Natural Resources (DNR) and secured a grant to assist in planting trees to help reduce stormwater runoff. Residents could reach out to the county’s DNR to help fund to request planting of trees and creating a bioswale environment for more efficient stormwater detention. Safe Routes has mini-grants to help communities promote the program and educate residents about the need for better pedestrian connectivity to local schools and other destinations in the community. Casey
Trees, another local firm, provides fee for service planning and design of landscape and stormwater management designs, as well as complimentary presentations of best practices.

Figure 10: Before and after rendering of the Demonstration Home Concept
PEDESTRIAN CONNECTIVITY

A pedestrian network that offers safe, direct, and visually appealing routes to neighborhood destinations is a critical component of successful placemaking and activation of the pedestrian realm. Additionally, upgrading the pedestrian network provides ample opportunity to employ environmentally sensitive design and stormwater management best practices. This section will explore opportunities for improving Lyttonsville’s pedestrian network in support of these outcomes.

The curvilinear streets and cul-de-sacs of the Lyttonsville community are characteristic of the suburban development pattern that dominated neighborhood design in the middle of the 20th Century. At the time, streets were optimized for vehicular travel, instead of pedestrians and cyclists connecting to public transit. Today, as these alternative modes of travel have become an integral component of urban life and sustainable communities, residents and planners are faced with the challenge of re-envisioning suburban neighborhoods—like Lyttonsville—as walkable and transit-oriented urban places.

Access to the Purple Line will go a long way toward making Lyttonsville a more transit-accessible community, but the existing street pattern and lack of pedestrian amenities hamper current and future residents’ ability to capitalize on this significant progress. Improvements to the pedestrian realm such as sidewalks, crosswalks, and traffic-calming medians will not only encourage people to walk to the new station, but will also make it safer and easier to walk to the Coffield Community Center and Rosemary Hills Elementary School and other destinations in the community. A second critical issue is minimizing walking distances and creating a more grid-like network of pedestrian pathways to reduce walk times and thereby encourage people to leave their car at home. This can be done by formalizing existing pedestrian shortcuts throughout the neighborhood and creating new pathways where there is a demand but access is currently restricted.

Lyttonsville is poised to become a multi-modal, transit-oriented community. It is currently served by Montgomery County Ride On and Washington Metropolitan Transit Authority Metro Buses to Silver Spring, Friendship Heights, and Bethesda; however, the Purple Line will greatly expand the geographic area accessible within a 30 minute, 45 minute, and, to a lesser extent, 60 minute commute time. The National Center for Smart Growth Research and Education modeled this expansion by mapping the area accessible within each of the three commute times currently, and then mapping the projected area accessible in the future once the Purple Line begins operation (Figure 11) (National Center for Smart Growth Research and Education, 2013).

Data from the 2010 United States Census indicates that Lyttonsville has a large percentage of residents who typically make use of public transit and favor walkable communities: 71 percent of householders rent instead of own, 21 percent of householders are between the ages of 25 and 35 years, 13 percent of householders are over the age of 65, and 19 percent of households are families with children between the age of 6 and 17 years. (U.S. Census Bureau, 2010) The Purple Line will only increase the attractiveness of the neighborhood to residents who value the ability to walk, bike, or take a quick bus trip to a light rail station.

For Lyttonsville to truly benefit from the opportunity that the Purple Line will provide, while also addressing the needs of residents who prefer to walk to existing neighborhood destinations, we propose three areas for improvement: sidewalks, pedestrian amenities/traffic calming, and informal pedestrian pathways.
SIDEWALK CONNECTIVITY

Walking through the residential portion of Lyttonsville, it quickly becomes apparent that there is a need for sidewalks on many streets. A lack of sidewalks, combined with street parking in many areas, forces pedestrians to walk in the street in close proximity to passing cars. The map in Figure 1 indicates where there are existing sidewalks and pedestrian paths. It also indicates key destinations for pedestrians, including the Purple Line Station, the Coffield Community Center, Rosemary Hills Elementary School, and bus stops.

Figure 12 shows a map of the Lyttonsville Residential Sector, as defined in this study, with proposed locations for new sidewalks, crosswalks, and an intersection.

Ideally, a residential neighborhood in a dense suburban environment such as this should have sidewalks throughout the neighborhood on both sides of the street to ensure pedestrian safety. This is a long-term vision, however. In the short term, we have identified the high and medium priority locations for new sidewalks. Streets leading to the Stewart Avenue/Georgetown Branch Trail entrance of the Purple Line station (Kansas Avenue, Maine Avenue, Michigan Avenue, and Pennsylvania Avenue) are considered a high priority because of the expected increase in pedestrians traveling through this area to access the station and the near complete lack of pedestrian infrastructure. These streets also provide the connection from the community and Rosemary Hills Elementary School to the proposed Civic Green and Pedestrian Plaza. Milford Avenue, Maywood Avenue, Ross Road, and Spencer Road
are identified as medium priority streets in need of a sidewalk on at least one side of the street—as they currently have none—to provide a safer route to the elementary school and the many bus stops in the area.

Figure 12: Existing Pedestrian Connections and Recommended Improvements

**PEDESTRIAN AMENITIES**

Also shown in Figure 12 are locations where Montgomery County should evaluate the need for new crosswalks and an intersection. We recommend a crosswalk at the entrance to the Georgetown Branch Trail from Kansas Avenue for the same reasons that we are recommending sidewalks on this street. Lyttonsville Road is also in critical need of a crosswalk at two bus stops near the Coffield Center and Claridge House Apartments. Figure 13 is an image of the street as it is now, and Figure 14 is a rendering of what the street could look like with our recommended changes. In addition to a crosswalk at this location, the County should evaluate the bus stop on the northwest side of the street to determine if it meets requirements for the addition of a trash can, bench, and preferably, a shelter.
Proposed traffic-calming measures include a planted median strip with curb cuts to allow stormwater infiltration, high-visibility crosswalk signs, edge lines to delineate the parking lane, and linear rain gardens between the street and the sidewalk. These suggestions are also in line with our ESD recommendations for this corridor. Sharrows, indicating to drivers and cyclists that bicycles are allowed to use the full lane, have been added to the driving lanes because of the proximity to the Georgetown Branch Trail, a destination for cyclists.

We have identified the intersection of Lyttonsville Road and Lyttonsville Place as a deterrent for pedestrians that should be addressed prior to the opening of the Purple Line Station. It does not have a marked crosswalk, the curb radius is very large (which promotes high speeds), and there is no stop sign for cars traveling along Lyttonsville Road. Our recommendation is to create a signalized intersection with highly visible crosswalks and curb extensions that also function as rain gardens to tighten the turning radius and shorten the distance for pedestrians to cross the street. The curb extension will take the place of the turn lane from Lyttonsville Road southbound onto Lyttonsville Place. A wayfinding sign for the Purple Line is located at the intersection. Given the station’s location below grade, additional wayfinding signs should be placed throughout the community. Figure 15 and 16 show the intersection today, and what it could look like with the recommended changes. These changes should occur in conjunction with the rebuilding of the Lyttonsville Place Bridge to ensure consistency between the two projects and to take full advantage of the opportunity to reconfigure this corridor with the pedestrian in mind.

For Your Information

Residents have the ability to request that the County installs or repairs sidewalks. To view existing requests for a sidewalk installation or repair or to make a new request, residents should visit http://www.montgomerycountymd.gov/dot-dte/sidewalk/SWapp.html.

Sidewalk requests are evaluated against several different criteria, including benefit to the wider community, proximity to schools and transit, cost, ease of installation, and availability of a right of way. A public hearing is conducted before final authorization can be given for the installation of a new sidewalk and construction is coordinated with affected homeowners.
Figure 13 (near below): Lyttonsville Road looking east from the entrance to Claridge House Apartments.

Figure 14 (far below): Lyttonsville from the same perspective after implementation of our recommended changes.
Figure 15 (near below): Intersection between Lyttonsville Road and Lyttonsville Place with recommended improvements. Figure 16 (far below): Lyttonsville Road southbound looking towards the intersection with Lyttonsville Place.
INFORMAL PEDESTRIAN PATHWAY ANALYSIS

The third category of recommendations to increase pedestrian access in Lyttonsville involves improving—and adding where necessary—non-vehicular pedestrian pathways that will reduce walk times to the previously identified key pedestrian destinations. Pedestrian paths can also create a more direct route to a destination that follows pedestrian desire lines, further encouraging walking (Park, 2003). Figure 18 shows the current .25-mile, .5-mile, and .75-mile “walkshed” to the future Purple Line Station, which is indicated with a red star. A walkshed is the area around a destination from which you can walk along streets and pathways for less than the distance indicated to reach that destination.

Much of the residential portion of our study area is within a .75-mile walk of the station, as indicated by the three shades of purple. Notably, however, we can see that Paddington Square, the large apartment complex to the northeast of the Coffield Community Center, is not considered to be within a .75-mile walk of the station. However, at the site, there is evidence that residents use a gate on the south side of the complex to access the Rosemary Hills-Lyttonsville Local Park by way of a worn path. There are additional shortcut paths like this throughout the community, including a path through the woods from the Rollingwood Apartments on the southwest side of the study area to the intersection of Lyttonsville Road and Lyttonsville Place. The need for this path is indicated by the fact that the complex is close to the station, but parts of the complex are more than a half of a mile from the station if using only formally recognized streets and pedestrian paths.

The walksheds in Figure 18 do not take into account most of the informal and unpaved pedestrian pathways that are evident in the neighborhood. In Figure 19, we have included these informal pathways in the calculations for the walksheds and noted the locations of existing paths for formalization. There is a noticeable difference in the walking distance to the station from both Paddington Square Apartments and Rollingwood Apartments. This is significant because of the large number of people who live in these apartment complexes who use or potentially would use these paths to walk to the Lyttonsville Station.

Figure 17: Pedestrian pathway before and after
Figure 18 (near below): Purple Line Station Walkshed Map not accounting for informal pedestrian paths. Figure 19 (far below): Purple Line Station Walkshed Map accounting for informal pedestrian paths.
The improvements necessary to formalize a pedestrian path depend on its existing condition, but the end result should be a paved surface with directional signs indicating where the path leads. Figure 17 is an example of what the informal wooded path from Rollingwood Apartments could look like. Because it traverses the woods, low to the ground bollard lighting is recommended for safety. Paving, lighting, and signs not only give the pathway credibility with pedestrians, but by defining these paths as legitimate routes for pedestrian circulation, they will be included on online maps. Young apartment and house hunters use websites like Google Maps to research the transit accessibility of real estate. If maps reflected the true accessibility of apartments such as Rollingwood, people who prefer to walk and use public transit will move in, benefitting both the building owners and new tenants.

Figure 19 also shows three locations where we are suggesting the creation of new, formalized pedestrian paths. We recommend a new path through Rosemary Hills-Lyttonsville Local Park that would align with Richland Place and provide a more direct route across the eastern side of the park. We also recommend a pedestrian walkway from the north side of the park that would head west to Lyttonsville Road. This connection would serve users of the identified informal path leading from Paddington Square to the park, and help create a more direct path to the Purple Line Station. Lastly, we recommend the removal of a fence barrier where Kansas Avenue meets the rear of Friendly Gardens Apartments. This would give the residents of Friendly Gardens a direct route to the Georgetown Branch Trail entrance to the station and our proposed Civic Green and Pedestrian Plaza.

Olympia, Washington undertook an extensive project to document and develop their pedestrian paths, and offers the following recommendations for municipalities who wish to carry out a similar process of inventorying, prioritizing, and developing pedestrian paths:

1. Develop a common term for the pedestrian pathway concept (the City of Olympia uses “Neighborhood Connection”);

3. Develop standards for signage, planning, construction, liability, and maintenance and standard language for dedicating rights of ways and easements to the public realm;

4. Formalize existing pathways first with signage;

5. Create and prioritize a list of needed pathways in the public right of way and dedicate funding for their development;

6. Create and prioritize a list of needed pathways in the private domain and seek option to purchase agreements with the landowners;

7. Include the concept in all future land use, transportation, and parks plans; and

8. Adopt guidelines for new development to provide adequate pedestrian pathways.

More information on design standards, ADA compliance, and tools for acquiring land for pedestrian connections is available at http://olympiawa.gov/~/media/Files/PublicWorks/Transportation/NeighborhoodConnectionsStudy.ashx.

Within the residential sector of Lyttonsville, our proposals to improve connectivity with new crosswalks and sidewalks, traffic calming measures, and pedestrian paths have focused almost exclusively on addressing the needs of the pedestrian. In the next section, we expand the focus to also include bicycles and automobiles as part of a “complete streets” approach for Brookville Road.
CHAPTER 4: BROOKVILLE ROAD AND COMPLETE STREETS

INTRODUCTION

The industrial area of Lyttonsville is the site of vital economic activity for the immediate community and for greater Montgomery County. The strategic location inside the beltway creates many convenient, well-paid jobs and allows the businesses within to provide a range of services to the community at competitive rates. Brookville Road corridor acts as the main thoroughfare for the industrial area, bringing goods and services, workers, and customers into and out of the area, mostly by motorized vehicles. With the arrival of the Purple Line Station at Brookeville Rd., pedestrian activity is expected to spike as local residents, employees of the Fort Detrick Annex and businesses up and down Brookville Road become riders of the new light rail system.

In its current state, Brookville Rd. is an inhospitable road for pedestrians and bicyclists due to the perceived and real dangers associated with the frequency and type of traffic that travels along the road. Bicyclists must share the road with large, fast-moving trucks and pedestrians must make their way across narrow, cracked sidewalks while dodging the occasional dumpster. Furthermore, the lack of vegetation, the large areas of parking spaces in front of buildings and the absence of cohesion between building facades diminish the aesthetics of the area, making for an unpleasant walking/biking experience.

There is great opportunity to re-envision the Brookville Rd. Corridor while still cultivating the existing and future light industrial economy. At the very least, attention should focus on making the road safer for current and projected users who will access the road by foot, bike, or motorized vehicle. Additionally, reduction of stormwater runoff, and increased vegetation through better environmental site design should be prioritized as a way to improve water quality and improve aesthetics. We believe that both of these solutions can be implemented under the current conditions without compromising the existing businesses or surrounding community.

The following section describes complete streets policy and green infrastructure good practices as possible approaches to re-establish the Brookville Rd. corridor as a destination for economic activity, an integrated and safe roadway that accommodates a variety of users, and a site for improved placemaking and improved environmental protection. The appendix provides greater detail of how to implement these recommendations.

OVERVIEW AND BEST PRACTICES

Complete Streets is a policy approach to the design and operation of roads and their rights-of-way (ROW) that takes multiple issues into consideration. A “Complete Street” is one in which it is easy for people to cross the road, walk to shops or school, bike to work, or drive to a destination. It is designed to enable safe access for users of all ages and abilities, regardless of their mode of transportation. A “Complete Street Policy” is guided by a community vision and considers all users and all modes in a transportation project. This approach breaks down the traditional separation of highway, transit, pedestrian, and cycling planning and instead focuses on the desired outcome of the complete transportation system (Smart Growth America 2013).
The focus on Brookville Road is a reflection of our studio team’s assessment that the completion of the Lyttonsville Purple Line Station and the continued vitality of the industrial area present an opportunity to imagine what the area could become. In other words, how we can integrate urban thoroughfares into our communities by making them more pedestrian and bicycle-friendly, all while decreasing environmental impact and increasing green technology use; maintaining the economic vitality of the area, and all without compromising the function of Brookville road as a necessary thoroughfare.

Our recommendations for the corridor address these and other issues using a complete street approach. Our team believes this is the best way to address concerns and leverage strengths in the area for its improvement. Informally, Montgomery County officials have indicated that it could be beneficial to redesign Brookville Road as a complete street. These benefits are leveraged on the resiliency of the local industrial areas, the Forest Glen Annex and of course the development of the Lyttonsville Station. A complete street approach on Brookville Road could improve safety and accessibility in light of the increase in pedestrian and cyclist traffic that the station is anticipated to attract. This approach would also have the potential to address some of the existing congestion and environmental concerns along Brookville Road. Appendix C shares Great Streets best practices.

**Roadway Layout**

Complete Streets is a policy approach to the design and operation of roads and their rights-of-way (ROW) that takes multiple issues into consideration. A “Complete Street” is one in which it is easy for people to cross the road, walk to shops or school, bike to work, or drive to a destination. It is designed to enable safe access for users of all ages and abilities, regardless of their mode of transportation. A “Complete Street Policy” is guided by a community vision and considers all users and all modes in a transportation project.

Complete streets policies force policy makers and designers to reimagine the use of our roadways for all users and all modes. *Error! Reference source not found.* shows a few examples of the numerous complete street practices that can be pursued to accommodate the different types of anticipated users:

<table>
<thead>
<tr>
<th>Pedestrians</th>
<th>Cyclists</th>
<th>Motor Vehicle Users</th>
<th>Transit Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sidewalks: 5 foot minimum to meet ADA standards</td>
<td>• Sharrows: shared lane markings, raise awareness of cyclist on the road and direct cycle traffic</td>
<td>• Through or turn lanes: decrease delay</td>
<td>• Stop location: locating transit stops within 300-600 feet of an intersection to deter jaywalking</td>
</tr>
<tr>
<td>• Raised medians: provide refuge and allow “half-crossings”</td>
<td>• Painted bike lanes: allow cyclist to ride at preferred speed, increase visibility to motorist.</td>
<td>• Reduce dead-ends and could de sacs: improves connections for all modes</td>
<td>• Bus lanes or pull offs: allow for safe boarding and exiting</td>
</tr>
<tr>
<td>• Bulb outs: narrower lanes reduce the distance and time that it takes to cross the street</td>
<td>• Buffered bike lanes: visual or actual barrier between cyclist and traffic</td>
<td>• Operational changes: longer green-signal times at peak hours</td>
<td>• Continuous, related facilities: sidewalks to facilities journey to and from stop</td>
</tr>
<tr>
<td>• Countdown clocks: provide predictably and improve safety</td>
<td>• Off-road cycle track: A designated bike path 4ft minimum for one directional</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 20: Complete Streets Best Practices by User Type
Sustainability

Provisions requiring the addressing of stormwater runoff quantity and close to the source of the water are more frequently becoming mandatory through Federal requirements like the National Pollution Discharge Elimination System (NPDES) Phase II. Incorporating well designed and effective green infrastructure into rights-of-ways and roadways can meet both the federal requirements while also improving aesthetics, providing shade to pedestrians, increasing property value, enhancing safety and creating wildlife habitat. Examples of green infrastructure include:

- Vegetated bioswales: A vegetated channel designed to capture and detain stormwater
- Curb cuts: Breaks in a traditional curb that allow stormwater to enter grassy areas or other pervious surfaces to reduce overflow
- Permeable surfaces: Surfaces including permeable concrete, pavers, and green roofs that stormwater can filter into to prevent overflow
- Amended soil: Soil incorporated into green infrastructure to better facilitate stormwater infiltration, detention, and filtration

Existing Conditions

Study Area

The Brookville Road corridor presents a unique and exciting yet somewhat challenging opportunity to implement a well-designed complete street. Situated in a light-industrial-zoned area of Montgomery County, the area shares a boundary with residential and Federal government-owned property. These sometimes conflicting land uses alone underscore the distinctive character of the community.

The residents and businesses of Lyttonsville are what make the community special. Several generations of families and proprietors have called Lyttonsville home. Some have spent their entire lives or careers in Lyttonsville and are indispensable for their knowledge of the community’s rich history, especially in the wake of changes made with little notice or acknowledgement of the impacts of the Purple Line.

A few statistics about the population of Lyttonsville suggest that there is a real opportunity to improve the community by investing in multi-modal transportation.

Transportation

The roads within the study area carry everything from single to multiple axle vehicles and serve the businesses as places of employment, for commercial/service-related activities, and as a throughway after stopping to pick up items for deliveries in the area.
Traffic volume is compounded by the County-operated bus storage facility located where Brookville road terminates. The post office also houses mail delivery vehicles within the industrial area. Within the area business types range from impound lots to a commercial cannoli bakery and a gymnastics training center.

The segment of Brookville Road referenced is between Stewart Avenue and Lyttonsville Place (Figure 1) and is just less than .25 miles long. The on-road ROW has two traffic lanes, one bi-directional turn lane and two lanes for parking for a total width of 52 feet (Table One). In the off-road right of way, sidewalks, separated from the street by grass and young trees, straddle both sides of the road. The total ROW is listed in the Montgomery County Master Plan as 80 feet wide. The existing ROW varies between 70 and 80 feet based on location along the length of the roadway.

Despite the contingencies for pedestrians, the corridor is inhospitable to walking and cycling. The corridor has been designed to effectively accommodate vehicular traffic while pedestrian and bicycle activities have not been fully addressed. Students had difficulty navigating the sidewalks with pedestrians and bicyclists trying to share the limited space alongside the busy road corridor. Upon several site visits, they observed the following:

- Narrow, incomplete and cracked sidewalks
- Heavy, fast traffic
- Lack of designated crosswalks or pedestrian crossing signals
- Garbage receptacles adjacent to the sidewalk
- Multiple large parking lots
- Unwelcoming building façades
- Minimal shade and low tree coverage
- Noise

---

**Existing Right of Way (ROW)**

<table>
<thead>
<tr>
<th></th>
<th>Lanes</th>
<th>Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Travel</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Turn</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>On-Road ROW</td>
<td></td>
<td>52</td>
</tr>
<tr>
<td>Total ROW</td>
<td></td>
<td>70-80</td>
</tr>
</tbody>
</table>

Figure 21: Existing Right of Way

Streetscape on the weekend void of activity
The completion of the Purple Line and the Lyttonsville Station is likely to increase pedestrian and cyclist activity beyond the level that the corridor is currently designed to handle. Ensuring that local employees, including those from the industrial businesses, have a safe and pleasant walk to work is a major goal of the street policy.

Of the estimated 1,300 boardings at Lyttonsville station, approximately 45 percent of passengers will access the station via bus and 56 percent will walk (Table Two). The Environmental Impact Study from which this data was drawn did not include bicycles as an access mode. Since there will be an entrance to the Purple Line from the Capital Crescent Trail, a certain percentage of riders will use the Capital Crescent Trail to get to the station, however other cyclists will also bike along Brookville Road to access the station, particularly if the trail becomes congested.

Other than the currently unpaved Capital Crescent Trail, there is no bicycle infrastructure in Lyttonsville. There is also little existing or future bike ridership data available. As part of the Purple Line construction MTA will pave the Capital Crescent Trail and extend it to connect to the Georgetown Branch Trail. Aside from the trail, however, the County or city of Silver Spring do not have specific plans for adding bicycle infrastructure in Lyttonsville, and instead will address bicycle accommodations in the Lyttonsville sector plan in some other capacity.

**Parking**

As an arterial roadway with adjacent businesses, parking in the Brookville Corridor is an essential aspect of accessibility and economic sustainability. Currently, on-street parking is available on the east and west sides of Brookville Road and on the north and south side of Stewart Avenue. Off street parking is available within the industrial complex. Despite the presence of free parking, business owners and patrons alike express concern about the availability of parking, especially during the workweek. However, during the weekend there is a large area of impermeable paved surface used for parking which contributes to stormwater runoff, requires maintenance and creates a desolate-street landscape. Ensuring that an adequate level of parking is available may require imposing parking restrictions, especially when the Lyttonsville Station is complete, as to discourage the use of on-street parking by Purple Line patrons.

**Sidewalks**

Currently, there are sidewalks on both sides of Brookville Road and on one side of Stewart Avenue and Lyttonsville Place. These sidewalks vary in state of repair and width, with width falling below the 5ft county standard in several areas. There is currently one bus stop in the corridor, at the corner of Lyttonsville Place and Brookville Road. According to the Purple Line Environmental Impact Statement (EIS), it is projected that on average, 434 passengers will access the station via bus and 541 will walk to the Lyttonsville station each day. This represents a significant increase in the potential for pedestrian access along the corridor. The county does not have existing traffic, pedestrian, or cycling data, so all suggestions in the report must be approached using observation and best practices until such exact data is acquired or more precisely estimated.

**Environmental Site Design**

Montgomery County uses the term environmental site design to denote techniques that attempt to improve site design through the implementation of stormwater management/green infrastructure best practices. Currently, it appears that no methods of stormwater management along Brookville Rd. ascribe to the basic goals of newer ESD that seek to replicate natural processes of stormwater detention, infiltration, filtration, groundwater recharge, evaporation, transpiration and cooling.
COMPLETE STREET PRINCIPLES AND RECOMMENDATIONS

The following section of this report represents a vision for what complete street principles and best practices could look like along Brookville Road. For lack of available data (traffic counts, future traffic projections) this report does not investigate the impacts or feasibility of these practices. Instead, what we present is a glimpse of how these practices may be implemented in terms of the strengths, opportunities, and limitations of an industrial, arterial road.

Auto Users

Automobile use in the corridor varies from the private automobile to heavy vehicle traffic. Congestion along the corridor is usually restricted to peak travel times early in the morning, when trucks are making deliveries to and from the industrial area as well as in the afternoon. Without further study it is difficult to distinguish between traffic generated by the industrial area and the Annex and cut-through traffic.

Principles:

1. Maintain and preserve vehicle flow
2. Take steps to reduce the potential for vehicle, pedestrian and cyclist incidents

Recommendations:

1. Conduct a study to determine existing flow and project future traffic levels
2. Create dedicated, separated, clearly marked road space for vehicles, pedestrians, and cyclists

(Left) Wide lanes, un-marked street parking and far sight lines accommodate vehicle traffic but disadvantages other modes.

(Right) Narrower lanes create space for bike lanes, painted parking spots ensures efficient use of space and landscape acts as speed deterrent and SWM control.
Parking

As mentioned previously, businesses in the industrial area rely on on-street and off-street parking for their employees and patrons. Additionally, on-street parking can serve as a buffer from the roadway for both cyclists and pedestrians. While the corridor benefits from street parking the disparity in supply and use for parking and offers an opportunity for creative solutions.

Principles:

1. Protect and preserve adequate levels of parking for industrial area employees and patrons
2. Correct for disparity of weekend and weekday on-street parking use
3. Parking can be used to buffer cyclist and pedestrians from road traffic

Recommendations:

1. Limiting street parking to the east side of Brookville Road and reallocating lost parking spaces to a metered level of the parking deck (loss of approximately 54 on-street parking spots)
2. Retrofitting space within the industrial area to accommodate more parking (may involve grading and clearing of land)
3. Working with businesses to implement transportation demand programs to promote carpooling and public transit commuting for employees
4. Mark on-street parking spaces and consider permit-only areas to deter use from Purple Line transit users.

(Left) Existing on street parking and large lawns provide an opportunity to enhance the cyclist and pedestrian experience on Brookville without compromising its function.

(Right) Keeping cyclist on the road but buffering them with landscape and street parking allows cyclist and pedestrians to traverse comfortably, safely and at their own speed.
**Pedestrians**

Without further study, it is difficult to know what portion of the anticipated increase in pedestrian traffic from the Lyttonsville Station will take place along the Brookville Corridor. However, employees and patrons of nearby businesses may use the Purple Line station, resulting in an increase of foot traffic.

**Principles:**

1. Build a network of continuous pedestrian facilities connecting residents to transit, attractions, and home.

2. Improve the pedestrian experience by buffering cyclist from road traffic and reducing distance which they must cross the road.

**Recommendations:**

1. Meet or exceed ADA standards for sidewalks, ramps, crosswalks and bus stops.

2. Buffer pedestrians from roadway traffic with landscape and street parking.

3. Reduce crossing distance with paved medians and bulb outs (being careful not to overly restrict traffic flow to and from the industrial areas)

4. Study pedestrian flow after the completion of the station.

The intersection of Brookville and Stephen Sitter Ave will see an increase in pedestrian and possibly cycle traffic. Current road configuration is not pedestrian friendly. Narrow lanes and a landscaped median provide a pedestrian island, reducing distance which they must cross. Paved crosswalks alert drivers to expect foot traffic ahead.
There is currently no bicycle infrastructure in the study area, new infrastructure is needed to accommodate these cyclists, and to attract new cyclists. Traffic on Brooksville Road will likely increase after the Purple Line station opens, so it is important to reduce the amount of additional vehicles on the road by increasing alternative transportation options like cycling. The more high-quality bicycle infrastructure there is, the more people will be willing to bike to the station.

**Principles:**

1. Build a network of continuous cycling facilities connecting residents to transit, attractions, and home
2. Buffer cyclists from roadway traffic and reduce crash risk
3. Increase bicycle ridership

**Recommendations:**

1. Dedicate road space to separated bike lanes. In areas where this is not an option, add sharrows to shared lanes
2. Provide bike parking in front of destinations along Brookville Road, bus stops, and at the Purple Line station
3. Post roadway signs alerting drivers and pedestrians that cyclists are allowed on the road
4. Reduce impervious surface
Environmental Site Design

The Brookville Rd. corridor is currently fitted with outdated forms of stormwater management infrastructure that rely on storm drains and sewer systems to carry large quantities of untreated stormwater. The contents of these systems are deposited into nearby Rock Creek, resulting in disturbances to the delicate ecosystems and alterations to the streams morphology.

Principles:

1. Minimize impervious surface
2. Allow stormwater to penetrate the ground as close to where it falls as feasible
3. Establish green corridors and urban forests

Recommendations:

1. Revert impervious surfaces to more natural environments (forests, green roofs and vegetated bioswales) wherever feasible

   i. When reduction in area is not possible, use pervious materials such as pavers, concrete or asphalt for parking, sidewalks, and bike lanes to allow infiltration and to make available for uptake by neighboring trees and vegetation

   a) Studies suggest that pervious concrete has the fastest infiltration rate of up to 1800 in/hr porosity, asphalt up to 400 in/hr porosity pavers Up to 800 in/hr porosity (PCA-Northeast Cement Shippers Association, N.D).
b) Pervious Concrete Pavement Thickness: Minimums 5” Sidewalks / Paths, 6” Parking lots, 6” Residential Driveways, 8” Streets 8” Commercial Driveway (PCA-Northeast Cement Shippers Association, N.D)

c) However, studies regarding the long-term durability of pervious surfaces for areas that convey heavy traffic are conflicting. Therefore, test areas should be built (at the bus depot, for example) to enable further study.

2. Implement continuous linear ESD in the ROW along Brookville Rd. Pittman Ave. and Garfield Ave.

3. Encourage property owners to plant and maintain rain gardens in front of businesses and direct gutters to empty into planted areas by utilizing the existing county-led Rainscapes program which provides monetary incentives of up to $10,000.

4. Improve/repurpose existing grassy parking lot medians for better stormwater management

5. Remove curbs, create infiltration basins and plant with native plants and trees

6. Increase tree canopy wherever possible, especially in industrial area where there is currently less than 3% tree cover, and along pedestrian areas

7. Review regional topology to determine best placement for most effective and efficient ESD

Massive, sloped, paved areas that direct runoff into sewers can be retrofitted with more porous surfaces.

**Long-Term Environmental Site Design (ESD) and Placemaking**

The future development of private property along the corridor is unclear. When and if property owners decide to redevelop, certain principles regarding ESD and placemaking should guide the process.

Comprehensive environmental site design should be integrated into the DNA of all future development along the corridor to return the nearby streams to a healthier state.
Principles:

1. Mandatory roof treatment for all new development (solar, green roof, reflective)
2. Designate impervious surface limits to encourage thoughtful and creative use of space
3. Designate minimum tree canopy coverage
4. Daylight piped streams to restore natural hydrologic cycles
5. Designate onsite stormwater treatment minimums
6. Encourage and incentivize creative ESD that establishes placemaking and public appreciation

**Placemaking**

The Brookville corridor is a mixing area, where industrial, commercial, and bus transit uses meet residential areas; therefore it should be designed for all users. Cities such as Seattle, WA and Peoria, IL have incorporated the concept of street walls into land use codes which establish a continuous wall of buildings with similar façades, heights and distance from the property line, on both sides of the street, in areas designated for pedestrian activity (Change Lab Solutions, 2014). This design provides a consistent and pedestrian friendly environment that facilitates placemaking.

Principles:

1. Develop a cohesive and contextually appropriate architectural style for the corridor, perhaps one that incorporates industrial characteristics, to guide building design through community visioning exercises
2. Design at a human scale to promote pedestrian activity and interaction
3. Incorporate public spaces into right of ways along corridor, such as with parklets
4. Use installed artwork, signage and branding to create a unique identity
5. Encourage mixed-use along corridor that will attract business at various times throughout the day and throughout the week
6. Establish mobile commercial areas to accommodate pop-up businesses, markets and food trucks
RECOMMENDED ROAD DESIGN

Since passengers are not expected to drive (or be driven) to the station, but instead access it via bus, on foot, and potentially biking, the surrounding roads should be designed accordingly. There needs to be more accommodation for modes that are well-utilized, safe, and reduce automobile congestion.

The following are three design options utilizing complete street practices for Brookville Road. The options distribute existing on-road ROW (53 feet) and off road (18-28 feet) of space between car, bike, landscape and pedestrian facilities (Table 2). The first two options preserve the on-road ROW width, while the third option actually reduces the amount of pavement and reallocates 12 feet of road space to off-road (non-vehicle) uses.

![Figure 22: Road Design Options*](image)

<table>
<thead>
<tr>
<th>Description</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing road width and parking is maintained.</td>
<td>Bikes must share travel lanes with automobiles (with painted sharrows).</td>
<td>Travel lanes are reduced in width by one foot.</td>
<td>Travel lanes are reduced in width by one foot. Parking is restricted to one side of the road.</td>
</tr>
<tr>
<td>Bikes must share travel lanes with automobiles (with painted sharrows).</td>
<td>Parking is restricted to one side of the road (reduction of up to 56 spaces). A parking study is recommended.</td>
<td>A 12 ft. pervious, multi-use path would be constructed on the south side of Brookville Rd.</td>
<td>One additional foot of lawn space will be available on each side</td>
</tr>
<tr>
<td>Sidewalks and lawn meet minimum recommendations</td>
<td>Bike lanes will be provided on both sides of the road and will be buffered from traffic (or parking) by landscape.</td>
<td>Sidewalks and lawn meet minimum recommendations.</td>
<td></td>
</tr>
</tbody>
</table>

* The county does not have future traffic, bicycle, or pedestrian projections, so as more studies are done these recommendations may need to change.

** Option 2 is the preferred alternative because it is the safest and most accommodating design for all modes of transportation.

---

3 Transportation officials from the Montgomery County verified that 11 foot automobile lanes, 4 foot bike lanes, 5 foot sidewalks, and 6-7 feet for lawn between the curb and sidewalk are reasonable minimum standards. These specifications are consistent with other standards including AASHTO, ADA, MDOT and MCDOT.
### Option 1—Car Oriented

<table>
<thead>
<tr>
<th></th>
<th>lanes</th>
<th>feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Travel</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Turn</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td><strong>Vehicular Total</strong></td>
<td></td>
<td><strong>52</strong></td>
</tr>
<tr>
<td>Bike Total</td>
<td></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>feet per side</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sidewalk</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Grass</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td><strong>Off-Road Total</strong></td>
<td></td>
<td><strong>22</strong></td>
</tr>
</tbody>
</table>

**Option 1**

*Car Oriented*
### Option 2—Bike Friendly

<table>
<thead>
<tr>
<th></th>
<th>lanes</th>
<th>feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Travel</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Turn</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td><strong>Vehicular Total</strong></td>
<td></td>
<td><strong>41</strong></td>
</tr>
<tr>
<td>Bike lane</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Buffer</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>Bike Total</strong></td>
<td></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>feet per side</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sidewalk</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Grass</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td><strong>Off-Road Total</strong></td>
<td></td>
<td><strong>22</strong></td>
</tr>
</tbody>
</table>

**Option 2**

_Bike Friendly_

![Diagram of Option 2—Bike Friendly]

---

50 | UNIVERSITY OF MARYLAND URBAN PLANNING
### Option 3—Sustainability Oriented

<table>
<thead>
<tr>
<th></th>
<th>lanes</th>
<th>feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Travel</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Turn</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td><strong>Vehicular Total</strong></td>
<td></td>
<td>41</td>
</tr>
<tr>
<td>Multi-use path</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Bike Total</strong></td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>feet per side</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sidewalk</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Grass</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td><strong>Off- Road Total</strong></td>
<td></td>
<td>34</td>
</tr>
</tbody>
</table>

**Option 3**

**Sustainability Oriented**

<table>
<thead>
<tr>
<th></th>
<th>12 ft</th>
<th>8 ft</th>
<th>11 ft</th>
<th>11 ft</th>
<th>11 ft</th>
<th>7 ft</th>
<th>5 ft</th>
</tr>
</thead>
</table>
ADDITIONAL CONSIDERATIONS

Housing

To encourage increased use of public transit, specifically on the new Purple Line, Montgomery County should consider acquiring and rezoning land in and around the Lyttonsville Station. This would make room for higher density residential that might support some mixed-use retail and address the aforementioned placemaking vision. Increasing density in close proximity to transit hubs can increase equity by providing lower-cost alternative modes of transportation to residents that do not have access to a personal vehicle for commuting. The close proximity of the Capital Crescent Trail and the Ride On Bus creates an integrated transport system that can further encourage mass transit and other non-motorized transportation options. These changes would support the County’s effort to encourage residents to be more sustainable in their transportation habits (My Green Montgomery, 2012-2014).

As data presented in the Lyttonsville Briefing Book explains, Lyttonsville has a higher rate of poverty than the County average, and has a lower rate of car ownership than the County average (MNCPPC, 2014). Furthermore, there is an unequal distribution of age groups within the greater Lyttonsville area with young adults between the ages of 25 and 34 consisting of 26% of the total population, well above the county average. In consideration of these realities and the opportunity that is presented to re-envision the community with the coming Purple Line, Montgomery County can encourage the development of affordable housing near the station to target lower income residents who may not have access to their own private vehicle. Additionally, housing provisions should be made to attract people at different stages in their life and who necessitate different housing requirements i.e. smaller units for young adults and the elderly, and larger affordable units for young and/or lower-income families.

Ecodistrict

Ecodistricts are initiatives that attempt to create community-scale change that is sustainable socially, economically and environmentally. Ecodistrict plans include provisions for green building design, infrastructure projects that create safe streets that encourage mass transit and non-motorized transit use while improving the environment. The District of Columbia and Montgomery County are both experimenting with the implementation of Ecodistricts. Building off the success and momentum of Bethesda’s Ecodistrict, Montgomery County should consider establishing Lyttonsville as its next priority as a way to mitigate any environmental damage caused by decades of industrial land use. Best practices in green building, environmental site design and urban forestry should form the basis of the methodology. The approach to Lyttonsville can and should build on the light industrial zoning and encourage green business/industry to locate in the area through tax incentives. Establishing a green jobs training center in the area that provides entry-level training and career development can provide the workforce needed in the neighboring green industry firms. It can also provide a convenient opportunity for low-income local and county residents given the accessibility provided by the light rail station. Designating the industrial area as an
Ecodistrict and an incubator for new green innovation can provide an exciting economic, social and environmental opportunity for the County to promote far-reaching sustainability.

**Preserving Brookville’s Light Industry**

Businesses along Brookville road provide multiple services to the surrounding community and to the DC Metro area at large. The County and members of the community have expressed the importance of maintaining the industrial area as it provides jobs and boosts the local economy. Therefore ensuring that the light industry surrounding Brookville Road continues to thrive and operate effectively will remain an important goal of this policy.

Additionally, it is our hope that businesses along Brookville Road and Stewart Avenue may position themselves to attract additional customers from the increased foot and bicycle traffic resulting from the Purple Line station.

**MAKING COMPLETE STREETS WORK**

Although Montgomery County has yet to adopt a Complete Street Policy, the county maintains that many complete street principles are carried out to a “greater or lesser degree” (DHS 2012). Montgomery County Division of Highway Services (DHS) is responsible for planning, design, construction, and maintenance of all county roads and operates under the guidelines set forth in the Montgomery County Context Sensitive Road Design Standards, also known as the “Road Code”. These standards emphasize that roads fit the character and physical setting of the community and establish a standard for roadway operations, lane width, bike and pedestrian facilities, landscaping, and more. However, these standards are for new roads and do nothing to improve existing infrastructure. Enacting a Complete Streets Policy in Montgomery County would direct planners and engineers to routinely design and operate new and existing ROW for all users and modes. This means that every transportation project makes the network safer and better for drivers, pedestrians, transit users and cyclist. While complete streets is itself “simple and inspiring” policy must do more than simply affirm support for the complete street ideal. Policy must be transparent, context sensitive and allow for exceptions when the

All streets have an “expiration date” and must be repaired, resurfaced or replaced. Complete street principles can be implemented as a component of regular maintenance or scheduled renovation. Complete streets are implemented as part of roadway projects funded through the Capital Improvement Plan, which is the short term (five to ten year) budget for all capital improvements and maintenance projects. In general, desired complete streets features must be included in a communities’ master plan before they can be funded by being included in the CIP (MCDOT 2013). When the time came to repair Decatur Street in the City of Edmonston, Maryland, the city decided to transform the two lane road into what has been called “the greenest street in Maryland”. The $1.3 million project utilizes the latest environmental design features for roadways including pervious pavement, wind-powered streetlamps and an underground stormwater system, was completed with help outside funds from the American Recovery and Reinvest Act. This meant that improvements were achieved without any changes to the city’s regular capital budget (Farr Thornton 2013). In Montgomery County, before complete street features such as large scale bicycle facilities can be included in the CIP, they must undergo a facility planning process including an assessment of costs and benefits.
Smaller items, like bike lanes can be added as a part of scheduled resurfacing maintenance or as a part of the County bicycle plan.

While cost is a concern, improving access and safety for all modes should be an agreeable goal. There may also be economic benefit in the upfront planning for complete streets: they can be more cost effective in the long run than streets made only for cars for many reasons, including reducing congestion and pollution, and improving public health. Hard cost savings can be realized in terms of lower maintenance costs as the square footage of pavement subject to automobile traffic is reduced. By investing in cycling and pedestrian infrastructure, the County can move 5-10 times more people than in a personal vehicle alone. Certain low cost improvements, such as changing traffic/pedestrian signal timers (free) and adding pedestrian bulb outs (relatively minor cost), can add great safety benefits by lessening exposure of pedestrians to drivers or by reducing the time it takes pedestrians to cross the street. Additionally, storm-water management infrastructure costs can be reduced when rainwater is treated on site using low-impact techniques over large-scale pipes and channel systems.

Property owners can take advantage of county incentives through the Rainscapes program and municipalities can apply for grants such as the Green Streets, Green Jobs, Green Towns administered through the U.S. Environmental Protection Agency (EPA) and the Chesapeake Bay Trust (CBT).

**CONCLUSION**

As stated previously, the Complete Green Street Policies should be driven by community vision, and there is no uniform method of implementation. As the ideal elements suggest, it is important that standards differentiate between different types of roads and allow for exceptions when appropriate. While a downtown area will have a strong focus on pedestrian mobility and on-street parking, an industrial area will have a greater need for automobile use and off-street parking. The uncertainty of what the Purple Line will bring in terms of pedestrian and cyclist flow leaves many recommendations made in this report subject to revisiting once use figures for the new station are established. However, we believe that with a well-constructed short and long term visions for what the area currently is and what it can be can prepare the residents of Lyttonsville, county officials, business owners, renters and other stakeholders for a future which is proposes, sustainable and reflective of the community character.

**Short Term**

- Gather data for existing vehicle, pedestrian and cyclist flow
- Parking study of industrial area
- Improvements to sidewalks
- Incorporation of linear ESD along Right-of ways on Pittman Ave. Garfield Ave and Brookville Rd.
- Encourage property and business owners to voluntarily adopt ESD measures through county programs
Long Term

- Altering the width of Brookville Road
- Evaluation of vehicle access to industrial area and internal connectivity
- Integration of multi-modal transportation
- Community approved design guidelines for future development along the corridor
- Incorporation of public space
- Mandates on future development
  - Minimum canopy coverage
  - Maximum impervious surface coverage
  - Minimum onsite ESD
- Increase housing density in close proximity to station
  - Ensure affordable housing is available
  - Vary unit sizes to attract people of varying family size, age and income

With the anticipated Lyttonsville Purple Line station, and the expected increase in pedestrian traffic to the industrial Brookville corridor as a result of riders coming to and leaving Lyttonsville, there exists an exciting opportunity to integrate the different land uses to better accommodate all, through the creation of a well-designed complete and green street. Beyond Brookville Rd., in the heart of the light industrial area, there also exists many opportunities to preserve the thriving businesses while re-conceptualizing the physical, environmental and economic characteristics to better harmonize with the mixed land-uses. The following section explores some ideas of how current and future development can work to create a more inviting atmosphere for businesses and customers and how to achieve greater sustainability in the long-term.
CHAPTER 5: ENHANCING INDUSTRIAL AREAS

INTRODUCTION

Lyttonsville has one of the last light industrial areas within Montgomery County. The location of an industrial area inside the Capital Beltway makes it much more accessible than other industrial areas in the region. The Lyttonsville industrial area provides a diverse range of services, including car repair, plumbing supply centers, custom construction trades and catering services. (M-NCPPC, Greater Lyttonsville Briefing Book, 2014).

This chapter focuses on how to continue to promote Lyttonsville’s economic diversity while creating a more inviting and cohesive industrial and residential community. With the anticipation of the Purple Line Light Rail Project, which is set to bring a maintenance yard, an adjacent small maintenance facility and station to this community along Brookville Road, the area is to undergo analysis for a sector plan by Maryland-National Capital Park and Planning Commission (M-NCPPC) to guide the development process as the Purple Line brings physical, as well as economic, changes to the community.

The industrial area is surrounded by residential (R) and industrial (I) land use zones, as shown in Figure 23 below. The Forest Glen Annex, at Brookville Road and Stewart Avenue, is adjacent to both industrial and residential zones.

Figure 23: Land Use along Brookville Road
Industrial land use is vital for a diverse and thriving economy. A diverse source of tax revenues creates a more robust funding base for urban areas to weather varying economic conditions. It also spreads out the costs of providing basic services to residents (police, fire, ambulance, etc.) among a wider variety of taxpayers. Thriving distribution networks and focused (as opposed to dispersed) industry can reduce transportation costs. Warehouses and points of distribution that are located nearer to their customers may further reduce these costs by shortening distances and increasing responsiveness. A robust industrial sector can support agglomeration and advancement in process technologies, both of which can reduce the cost of production and potentially deliver savings to customers.

**CURRENT CONDITIONS**

Traffic, parking, aesthetics, and the environment are key issues in the Lyttonsville industrial areas. The adjacent residential and industrial areas can sometimes seem disjointed or non-cohesive. However, the Lyttonsville industrial area employs many local residents and is economically vital.

Currently, there is a total of about 617,000 square feet of industrial, retail, office, and other space along and just off Brookville Road, according to CoStar; more than 80 percent is zoned industrial. The density of industrial uses plays an important role in the Montgomery County and regional economies, and many businesses along and just off Brookville Road have been in the community for a decade or longer. These jobs are concentrated in the areas around Brookville Road and the Forest Glen Annex, with cross streets at Lyttonsville Place, Pittman Drive, Garfield Avenue, Stewart Avenue, Talbot Avenue and Warren Street.

The North American Industry Classification System (NAICS) industry segments contributing the most jobs in the Lyttonsville area are: Construction (24.3%); Waste Management and Remediation (11.8%); Wholesale Trade (6.7%); Mining Quarrying and Oil and Gas Extraction (6.1%); and Retail Trade (5.1%). Lyttonsville is clearly an industrial employment center.

Industrial business vacancies in Lyttonsville are low; there is little turnover and many businesses have held leases for lengthy periods of time. According to CoStar, The Trek Bicycle Dealer signed a 10 year lease in 2012 and Aireco Supply, Inc. has been in the same location for more than 25 years. Further, the building façades appear to be in decent physical condition, but many of the buildings themselves were constructed in the 1950s, 60s, and 70s and do not appear ‘modern’ per se – they are standard multi-use buildings.

According to the Longitudinal Employment Household Dynamics (LEHD) data, the ZIP code (20910) designated for Lyttonsville (and other parts of Silver Spring) is home to 30,855 jobs. This number is a count of all primary jobs within the ZIP code, including all of Lyttonsville and the industrial areas under discussion. Focusing more closely, Census tract 7027, which covers the Lyttonsville area and its industrial zones, has more than 2,400 jobs.

The LEHD data also point to where employees live. In the case of Lyttonsville, employees are more likely to live as well as work in the 20910 ZIP code than live in another ZIP code. About 4 percent of employees live and work within the same area, ZIP code (20910) or Census tract 7027. Further, a majority of employees who work in Lyttonsville (by ZIP code and Census tract) live in Maryland.

The industrial area in Lyttonsville is economically important. Further, vacancy rates are low. Those points may make it difficult to make substantial changes to the built environment, especially in the short-term. To be clear, there is room to improve connectivity, parking and the environment, as the next section outlines.
EXPRESSED CONCERNS/ PERCEIVED AREAS IN NEED OF IMPROVEMENT

Residents of Greater Lyttonsville have expressed desire to create a more aesthetically pleasing, walkable community (inclusive of all land uses), with sustainably designed streets and buildings to create storefronts and a public plaza. Some residents want to re-make Lyttonsville into a ‘destination’ (recreation and entertainment) as a way to boost Lyttonsville’s economy and residential quality of life. This was documented from some of the informal interviews that we conducted with Lyttonsville residents. However, M-NCPPC would like to maintain the industrial area as the Lyttonsville industrial area holds many jobs as noted - with 475 businesses and its convenient location near to the I-495 beltway for wholesale deliveries to retailers in the area (e.g., the commercial bakeries, or parts wholesalers or repair dispatchers). (Greater Lyttonsville Sector Plan Workshop) This places a particular focus on the dual-use road connectivity used for this commercial traffic.

Figure 24: Proximity of Brookville Road Industrial area to 495 Beltway (via Google Earth)

In the Lyttonsville Industrial area, traffic flow and parking availability may already have reached a peak, given the comments of current land users. Some community members and business owners indicated during informal interviews that truck traffic peaks at the same time as morning commuters are arriving at the Forest Glen Annex, causing congestion on Brookville Road. In addition, customer parking for the businesses is often limited, parking spaces on a nearby, but outlying industrial area on the other side of the Annex were removed due to the reconstruction of the bridge over the CSX railroad lines and overflow parking on Brookville Road is hindered by parking regulations.
Pittman Drive, Garfield Avenue and Stewart Avenue are in much the same condition as we described of the adjacent Brookville Road in Chapter 4. Walkability and the environment could also be improved in the adjacent industrial areas. Sidewalks are narrow or non-existent and storm/waste-water infrastructure is insufficient.

**Community desirable outcomes affecting Lyttonsville industrial areas:**

1. Increased residential character of neighborhood south of Brookville road bordering the Stewart Avenue industrial area
2. Increased attractiveness of the Industrial Area along Brookville Road
3. Increased environmental sensitivity with attention to sustainable practices.

**Challenges to obtaining these improvements from the Lyttonsville light industrial areas:**

1. These areas are successful commercially, with lower than average vacancy rates; and feel no pressure to alter their existing environment other than parking; and
2. Long-term residents convey that these areas already appear to attract sufficient business on their own, without benefit of the Purple Line and independent of the local community; and
3. Therefore industrial businesses/land owners are not overwhelmingly motivated to provide additional community-oriented actions, customizations, or services – having sufficient business, etc., in their own right; therefore
   a. Parking incentives, if expensive or disruptive, are likely to be less effective; and
   b. Business tax incentives and grants less effective due to industrial businesses already having sufficient customers without the encumbrances these incentives would require (e.g., green infrastructure installation and maintenance and associated permits); and
   c. Generally being satisfied with the current arrangements.

**Practical Question:**

How can Lyttonsville maximize development potential, maintain economic vitality, and enhance relations between the residential and industrial communities in anticipation of/in conjunction with the Purple Line?
Possible Answer:

Proposed Actions for Consideration to benefit Lyttonsville Light Industrial Areas:

1. Expansion of density within the Industrial areas by permitting the conditional addition of a second story on certain existing multi-use buildings within the light industrial areas; and

TRANSIT-ORIENTED DEVELOPMENT (TOD)

One of the tenets of Transit-Oriented Development (TOD) is to maximize density around transit. As densities are increased, ridership increases. Researchers have found that in a downtown area, a minimum density of 50 employees per acre is necessary to support regular transit service, and people do not switch from driving to transit until employment densities reach a level of 50 to 75 employees per acre. (Capitol Region Council of Governments, 2002)

With the Purple Line, and expected economic change, owners of buildings in the industrial areas should add second floors to at least some of the one-story multi-use industrial buildings. This would allow the industrial area to increase density and maximize square footage usage around the area of the proposed Purple Line station. Importantly, this would also allow new and existing business owners to take advantage of the space and potential increase in customers as a result of the Purple Line station.

One industrial area that might do particularly well to be redeveloped is along Stewart Avenue. There are just a few industrial properties along Stewart, the Georgetown Branch/Capital Crescent Trail bisects the road and passes alongside this area, and some in the community propose one parcel of land in this area as a plaza/station entrance as a kind of “front door” to the community. As mentioned in Chapter 2, the public plaza and green space would serve to unite the residential and industrial spaces within the community.

Currently, the bike/pedestrian trail comes to a head at Stewart Avenue, but there isn’t anything immediately available to trail users – not to mention local residents – before entering or upon exiting the train (personal observations have indicated to us that the CSX railway right-of-way directly across the street from the end of the trail is used as an informal parking lot, further identifying business parking as a need for the area). The closest convenience/grocery store is either at Georgia Avenue and Linden Lane (about 1.2 miles, or 24 minutes walking, from the Coffield Center, see Figure 25 below) or on 16th Street at the shopping plaza where the next Purple Line station along the Purple Line
is planned. There are a few dry cleaning establishments located near these grocery/convenience stores, but nothing within walking distance of the Coffield Center.

So we believe that the additional density allowance in this particular area may give space for some additional services, perhaps accessed from upper levels of the industrial buildings. Additional or continuing industrial uses requiring trucks and loading docks or high floor weight loads would remain on the lower levels and accessed through the existing driveways. This would also add a buffer to differentiate the industrial and residential areas. (RER Economic Consultants, 1998).

Figure 25: The nearest grocer is more than a mile from the Coffield Center (via Google Maps).

All of this is to say that the community (residents, commuters, and businesses alike) might be well served by several commercial spaces in the industrial areas located within walking distance to the Lyttonsville station, especially, but not solely, in the area along Stewart Avenue. Demographics might further support inclusion of staple commercial spaces: median income rose from 2000 to 2011 and ranges from $70,000 to more than $200,000, according to the Census via City Data (Property Valuation of Lyttonsville Road). Household unemployment is very low (just 2-3% as of 2011). And residential property values rose significantly from 2000 to 2011.

Recommendations

The scarcity of an industrial type or use and requisite space might create elevated pricing conditions and make it difficult to create and sustain jobs as well as provide essential goods and services. The Council of Community Housing Organizations in San Francisco argues that any preserved/maintained industrial space should be kept affordable, much like programs to maintain affordability of housing units. The same economic principles also apply to industrial, commercial, and residential spaces.4

Montgomery County planners and community residents must assess the quality and quantity of each industrial use along and just off Brookville Road. The County and State should also assess road quality and capacity (e.g., width) to facilitate efficient movement of industrial and other types of traffic on roads accessing industrial zoned areas. There are different economic benefits for each type of industrial use. Manufacturing creates more jobs than warehousing, for example, and is therefore considered more valuable. So, encouraging/maintaining industrial land must continue to abide by the "highest and best use" principle. A Georgia Tech article also describes specific industrial uses/types that are best suited for mixed-use development. These types can be well integrated into commercial and residential zones/neighborhoods. Green/sustainable businesses are naturally attracted to the urban core as well. This provides an excellent opportunity for Montgomery County to promote its sustainability programs and lower the Lyttonsville industrial area vacancy rate. In fact, with some of the incentive programs, the industrial area could be an example of

---

4 However, the preservation of industrial land use should not be at the cost of affordable housing—if the community and county decide that housing affordability is a more pressing issue then the county should consider changing industrial land use to residential.
the use of green technologies in industry while also being a location with those technologies installed and/or serviced for others.

One way to encourage desired development is to create a "toolkit" which can be easily understood, and well used, by the planning/regulatory and industrial communities alike. This could include a streamlined permitting process and design and performance standards (architectural design and safety performance). Palm Beach, Florida recently updated their master plan to include a toolkit.

Another way is to encourage live-work situations. In Atlanta, according to the 1977 municipal code, industrial mixed-use was created to encourage more live-work combined environments. According to this view, most uses should not be outright prohibited because of the traditional form in which they have been built – such as living in a building originally designed to be a warehouse. Rather, planners and politicians should focus on design standards to permit uses while maintaining a structured and cohesive zone that accommodates both a working and a residential community, hopefully with at least some overlap between the two. As of 2012, Atlanta did not have any examples of live-work developments, but the city is in planning stages for a mixed-use industrial district to encourage use of the long-time zoning allowance. An important lesson from those mixed-use districts is that in order to preserve the industrial space, specific FAR requirements are set (creating a minimum amount of space devoted to industrial uses while being less specific for other uses) to ensure that the industrial use remains.

Questions:

What is the potential to create a sense of place from the light industrial area along Brookville Road (WWDC Industrial Park, for example) without losing functionality? How can the stakeholders address concerns about the environment within these industrial zones? The following section describes placemaking and aesthetic recommendations.

PLACEMAKING

The WWDC Industrial Park is bounded by Garfield Avenue to the north, Monard Drive to the west, an access road to the bus depot to the south and Brookville Road to the east. Currently, the WWDC Industrial Park does not really support walkability. Garfield Avenue is presently a two lane road, one lane in each direction, each approximately 14’ wide with no sidewalk for pedestrians. Pittman Drive is also two lanes, each lane approximately 22’ wide. As is, there is no room for a bike lane or sidewalk on this road as trucks that make daily pickups use the streets to make deliveries to the businesses while the road also must accommodates street parking. In addition, Maryland

Questions:

What is the potential to create a sense of place from the light industrial area along Brookville Road (WWDC Industrial Park, for example) without losing functionality? How can the stakeholders address concerns about the environment within these industrial zones? The following section describes placemaking and aesthetic recommendations.

PLACEMAKING

The WWDC Industrial Park is bounded by Garfield Avenue to the north, Monard Drive to the west, an access road to the bus depot to the south and Brookville Road to the east. Currently, the WWDC Industrial Park does not really support walkability. Garfield Avenue is presently a two lane road, one lane in each direction, each approximately 14’ wide with no sidewalk for pedestrians. Pittman Drive is also two lanes, each lane approximately 22’ wide. As is, there is no room for a bike lane or sidewalk on this road as trucks that make daily pickups use the streets to make deliveries to the businesses while the road also must accommodates street parking. In addition, Maryland

The following section describes placemaking and aesthetic recommendations.

PLACEMAKING

The WWDC Industrial Park is bounded by Garfield Avenue to the north, Monard Drive to the west, an access road to the bus depot to the south and Brookville Road to the east. Currently, the WWDC Industrial Park does not really support walkability. Garfield Avenue is presently a two lane road, one lane in each direction, each approximately 14’ wide with no sidewalk for pedestrians. Pittman Drive is also two lanes, each lane approximately 22’ wide. As is, there is no room for a bike lane or sidewalk on this road as trucks that make daily pickups use the streets to make deliveries to the businesses while the road also must accommodates street parking. In addition, Maryland

The following section describes placemaking and aesthetic recommendations.

PLACEMAKING

The WWDC Industrial Park is bounded by Garfield Avenue to the north, Monard Drive to the west, an access road to the bus depot to the south and Brookville Road to the east. Currently, the WWDC Industrial Park does not really support walkability. Garfield Avenue is presently a two lane road, one lane in each direction, each approximately 14’ wide with no sidewalk for pedestrians. Pittman Drive is also two lanes, each lane approximately 22’ wide. As is, there is no room for a bike lane or sidewalk on this road as trucks that make daily pickups use the streets to make deliveries to the businesses while the road also must accommodates street parking. In addition, Maryland

Figure 26: Brookville Road WWDC Industrial Park

According to the same Georgia Tech study, there are at least twelve other industrial mixed-use districts in the US: Battle Ground, WA; Berkeley, CA; Boulder, CO; Corvallis, OR; Denver, CO; Glendale, CA; Madera County, CA; Miami, FL; New York, NY; North San Jose, CA; Pittsburgh, PA; and San Francisco, CA.
Law requires a 20-foot street width to accommodate fire trucks for emergencies. (See Figure 27.)

Figure 27: Streets within WWDC Industrial Park-Garfield Avenue

Figure 28: Adding a small median, as shown above, will create more porous surface area along Pitman Drive.
Aesthetics

Improving image as well as improved functionality, is key to maintaining the competitive viability of the area in attracting tenants that wish to routinely serve retail customers. Even though this area does not presently exist to primarily serve retail customers, it has some potential to accommodate them better than present without significant impact on its current successful light industrial use. It is also needed to bring the area into conformance with the high standards for quality expected by the surrounding community and throughout Montgomery County. (RER Economic Consultants 1998). This is particularly true for the area bordering Brookville Road.

Figures 29 and 30: Party Warehouse along Brookville Road before and after simple improvements
Garage Doors

Improving the sight of garage doors that front Brookville Road as well as, as appropriate, throughout the rest of the WWDC Industrial Park can create a better sense of place as well as a quality experience, by creating a friendlier character for the area when passing through. Such storefronts can also lend to the history of a place. Even simple, solely cosmetic improvements can make a significant impact.

An example is the Party Warehouse located along and facing Brookville Road. The tenants painted the garage door and added an advertising banner to attract drive-by customers who would not have thought to drive into an industrial park, expecting, likely correctly, that they would only be open weekdays, require appointments, and sell only in wholesale or large quantities. See Figures 29 and 30 above.

Stores have implemented creative designs to make storefronts more attractive while maintaining functionality. See Figure 31 below.

This music store located in South Hampton, England, United Kingdom, has embedded their garage gate into the design of the storefront to resemble an amplifier to advertise the store and distinguish itself in the aesthetic quality of the street. (We thought this was an exceptional example to have located it from abroad.)

There is a lot of opportunity for the stores facing Brookville Road to implement such designs to improve the aesthetic quality of their streets in the areas that may benefit from it. An example of such potential is Creative Cakes, which was previously mentioned in the Brookville Corridor section.

Figure 31: The Guitar Store, South Hampton
Parking Improvements

Parking is currently an issue for the businesses in the industrial areas. At peak times, the parking lots are filled to capacity and there is no available parking for customers. This can cause overflow parking along the street curb and even exacerbate issues along Brookville Road itself.

Making circulation one-way throughout the WWDC Industrial Park can provide room for more on-street parking and streetscape improvements, including a bike-lane, a median as well as Environmental Site Design (ESD) improvements.

Figure 33 shows a possible circulation pattern (a traffic/parking evaluation plan and study would of course be needed for validation) throughout the WWDC Industrial park where patrons would enter the park via Pittman Drive, and exit at Garfield Avenue.

Pervious pavers and ESD could help with storm water runoff. If circulation is made one-way throughout the WWDC Industrial Park, similar design can be implemented along the streetscape to help beautify and reduce stormwater runoff.

Figure 33: WWWDC Industrial park Circulation Pattern
Commercial Branding

Commercial branding for the WWDC Industrial Park would improve the identity and marketability of the industrial area within Montgomery County creating a positive first impression. (Georgia Tech Enterprise Innovation Institute, 2012). Targeting businesses such as industrial artists to occupy any potential vacancies (especially in any new upper-level locations built that do not require constant deliveries via direct loading dock access) for studio space can give WWDC a new identity and attract new customers.

Case Studies

Fulton County Atlanta has targeted industries to integrate into mixed-use developments. (Integrating Light Industry into Mixed-Use Urban Development). The development concept consists of industry clusters anchored by light manufacturing with wholesale and retail components. Niche industries were selected in clusters that present significant opportunities for mixed-use industrial development in Atlanta. There was growth in the number of establishments and annual payroll figures for those targeted industries.

The first cluster revolved around food production and contained industries such as chocolate and pasta manufacturing, breweries and confectionary wholesalers. The second cluster is based in arts and crafts manufacturing, and contained industries like pottery manufacturing and small-scale ornamental metalworking.

These two clusters are applicable to the WWDC Industrial Park as they already have these two clusters present among their present business occupants. Attracting similar businesses to fill the vacancies will allow the WWDC to brand and market itself as niche for these industries, thereby helping to achieve the community’s goal of making the Industrial area attractive and a destination, as well as a source of employment.

The Knowsley Industrial Park in the United Kingdom has essentially redeveloped an aging infrastructure to remain successful. One of their redevelopment strategies was to create prominent gateways to present a good “first impression” and a strong brand.

By using signage, branding and landscaping they recommend creating a statement of entry. (DTZ, 2010). The criteria for selecting suitable gateway sites are:

1. Location on major arterial route (Brookville Road)
2. Potential for linkage
3. Being located adjacent to potential redevelopment sites (additional upper level density possibilities as earlier mentioned).
Gateways

Gateways provide the potential for marketing the available services within the WWDC. A more visible sign that advertises the WWDC Industrial Park and the services it provides would do well to improve advertising for the businesses as well as help to create a sense of place. The existing sign is discreet and not visible to passers-by. See figures below.

View of WWDC Industrial Park Signage from Brookville Road

These images show the WWDC sign as seen from Brookville Road. This is a missed opportunity to advertise these businesses, as the sign is not visible from Brookville road and does nothing to draw new customers into the industrial park. It is also unattractive and partially hidden by overgrown vegetation. Below are some examples of creative signs that create a gateway into the industrial park.

Examples of well-designed Industrial Park Signage in City of Jeanette, Westmoreland County, PA and Grant County, Oregon
ENVIRONMENTAL IMPROVEMENTS

Greater Lyttonsville was once part of a large intact ecosystem that provided water filtration, carbon sequestration, wildlife habitat and a plethora of other environmental services associated with Rock Creek, a regional resource. (M-NCPCC, Greater Lyttonsville Briefing Book, 2014). Environmental Site Design are strategies that seek to, as much as possible, predevelopment runoff characteristics of an area.

The benefits of implementing ESD include:

• Reducing stormwater runoff
• Reducing local air pollution
• Reducing greenhouse gas emissions
• Reducing the industrial area’s carbon footprint by sequestering carbon from the atmosphere

Cisterns

Cisterns collect and store rainwater in manufactured tanks or underground storage areas. This water can then be reused for non-potable water applications such as toilet flushing. Cisterns are low-cost water conservation devices that reduce runoff volume and, for very small storm events, delay and reduce the peak runoff flow rates (Agency, 2012). Cisterns can be attractive and add aesthetic value.

Currently, there are no SWM initiatives being implemented throughout the WWDC Industrial Park. Most buildings have a PVC pipe attached to the gutter, which releases water onto the impervious surface. See figures below.

Rainwater cistern in industrial developments; Agency, 2012
Green Roofs

Green roofs add value to structures and offer a variety of benefits including lowered energy costs, insulation, green space, an extended roof-life, stormwater retention, sustainability and improved air quality.

Estimated costs of installing a green roof start at $10 per square foot for simple extensive roofing and annual maintenance costs range from $0.75-$1.50 per square foot. While the initial costs of green roofs are higher than those of conventional materials, building owners can help offset the difference through reduced energy and stormwater management costs, and potentially by the longer lifespan of green roofs compared with conventional roofing materials. (EPA). There are also tax incentives and grants available to help with the investment expenses.

In fact, Portland Oregon has already implemented a green roof program. The Ecoroof Program focuses on green roofs that have shallow soils and use drought tolerant plants that require minimal irrigation. Ecoroofs are light weight, low maintenance and as self-sustaining as possible.
Implementation

The following presents a list of recommendations in order to help implement these Environmental Site Design initiatives:

1. **Stormwater Management Education**

Providing education to the industrial park property and business owners of the importance of stormwater management and how it would improve the overall quality of the industrial area would be a good starting point to getting the ideas implemented. Sending information to a listserv or holding an informatory meeting are good outreach methods to inform the public.

2. **Providing Incentives for ESD**

In 2012, the state legislature signed into law HB 987 or the Stormwater Management-Watershed and Restoration Program, the “rain tax” in response to the Environmental Protection Agency’s mandate aimed towards reducing the pollution levels in the Chesapeake Bay. The rain tax is an annual fee on impervious surfaces such as roofs, driveways, sidewalks, garages and any other surface that could create drainage problems and water contamination situated on property owned by an individual or a business. (Brown, 2014).

An industrial, commercial or institutional property’s fee may be reduced upon installation of County-approved stormwater best management practices (BMPs) to reduce the property’s pollutant load. This credit is based on the amount of impervious surface that drains to the BMP and its efficiency at removing pollutants. More information on Montgomery County’s WQPC can be found at: http://www.montgomerycountymd.gov/dep/water/wqpc.html.

Montgomery County, MD Environmental Protection offers a RainScapes Rewards Rebate Program which offers rebates to property owners who install RainScape techniques such as rain gardens, rain barrels, conservation landscaping and other approved projects that help control stormwater. The maximum rebate per parcel is $10,000 for non-residential properties.

**Sources for Implementation:**

**Montgomery County Green Business Certification Program**

This program is a partnership between the Montgomery County Department of Environmental Protection, Montgomery College and the Montgomery County Chamber Community Foundation, which recognizes businesses that voluntarily make efforts to protect, preserve and improve the environment. More information on this program can be found here at: http://www.montgomerycountychamber.com/foundation/green-business-certification-program.

Once businesses are designated as green businesses, they will have their own County bus PSA on which they may display their name and logo.

Businesses can also look at ESD initiatives collectively since they share space and can collaborate on which initiatives to implement. Three businesses can share a cistern for example. This can also be used to brand the WWDC Industrial Park as a Preserver and Protector of Light Industry by making it an advocate for ESD. This can also be part of the Commercial Branding strategy described below.
SUMMARY OF INDUSTRIAL AREA RECOMMENDATIONS

1. Review existing zoning and land use regulations
   a. Enhance regulations with new industrial mixed-use zone
   b. Alter FAR requirements to allow expansion of existing buildings

2. Study auto, pedestrian, and bicycle activity and interactions
   a. Implement a plan to increase walkability without disrupting industrial traffic

3. Study environmental concerns
   a. Incentivize modernization of existing buildings

4. Support community cohesion
   a. Create and implement design guidelines
   b. Encourage development of a BID or similar organization
CONCLUSION

In this report, we have attempted to analyze and provide options for several areas of Greater Lyttonsville. We have explored both specific approaches to particular sections, such as the Brookville Road corridor and tried to address overall issues affected most by the proposed Lyttonsville Purple Line station. We have also made an effort to pay homage to the origin and history of Lyttonsville, so that its own history is not lost as a consequence of at least some inevitable redevelopment brought about by these transportation infrastructure improvements, while improving placemaking for Lyttonsville.

Looking forward, Lyttonsville’s population is expected to increase as will traffic (auto, cycle and pedestrian) to access the station. New construction, infrastructure projects and other forms of development will become inevitable as buildings age and the road surfaces begin to deteriorate over time. Now is the moment to begin to develop a vision for Lyttonsville’s future, while recognizing the historical, economic and social significance that makes it so unique.

Stakeholders have expressed some concern that the ensuing development, if it impinges on the industrial areas, will replace some of the county’s only valuable industrial land that is located within the beltway. Similarly, others identify the Brookville Road as being presently unattractive and inhospitable to other than commercial truck traffic, and especially unsuited to bicyclists and pedestrians who are anticipated to use the new purple line station. Placemaking activities, to varying degrees, may be used to alleviate these concerns of the local residents – from complete streets, to concentrating more on aesthetic improvements.

Situating a light rail station in between the residential neighborhood of Lyttonsville and the light industrial-zoned area can present a new opportunity for Montgomery County to reimagine how the two zoning types can be better integrated, and provide a potential model for other such industrial areas, such as parts of Burtonsville, MD. Using Lyttonsville as a case study, the County can experiment with creating a mixed-use community (including light industry) that incorporates complete green street policies, assigns space for public use for residents, while also improving connectivity and ensuring that the historical uniqueness of the area is preserved.

The specific direction of future development along Brookville Rd. and the adjacent areas, is dependent on the vision of Lyttonsville Residents, county officials, the market and the impacts that result from the completion of the Purple Line. During the visioning stage the fundamental question may be the extent to which the community wants to see Brookville Road used as a commercial vehicle thoroughfare. We believe that the function of the roadway to move vehicles and serve the industrial area is important. Thus we have provided complete street policies and best practices with the intention that the roadway be more accommodating of users by reducing speed, providing designated road space for cyclists and crosswalks to alert drivers to other road users but caution that improvements must not negatively impact the function of the roadway. We have also made recommendations for improved storm water management on the roadway and throughout the community to reduce environmental impact of use.

Several communities throughout the United States have successfully married light industry into traditional mixed-use to create truly mixed-use zoning (one that does not exclude industrial uses). San Francisco’s Mission District serves as one example where this has been successfully attempted. Building on this, San Francisco has also developed an Eco-District framework which highlights 4 neighborhood types including industrial. Striking the right balance will take some creativity and perhaps some trial and error, but achieving success will mean that the County will not always have to choose between light industry and commercial/residential zoning. If successful, this approach may be usable to lessen opposition from other neighborhoods to the expansion of new industrial areas within the Beltway, showing
it can work well with other types of zoning, provide jobs, and reduce commuting needs by having closer-in industrial-type employment.

Integrating environmental improvements into Lyttonsville is also anticipated. In addition to clear environmental benefits, any assistance they can give to increasing employment – industrial areas that are productive while as ‘green’ as they can be – may be a showcase for a successful and efficient industrial area with reduced pollution levels from its activities, making it a better neighbor. Additional businesses related to ‘green infrastructure’ may get a boost from being resident in an industrial area that has already implanted them.

Additional features to improve the Lyttonsville quality of life – better stormwater runoff management, improved pedestrian connectivity, and the historical markers walking tour of the neighborhood can assist in emphasizing the sense of place – that when you have arrived in Lyttonsville, you are in a defined area, not only a generic suburb with no character of its own.

Finally, we also propose consideration of an expansion of the Industrial Area capacity for Lyttonsville, to aid in employment gains, and also as a means to attempt to persuade the property owners to provide some funds for aesthetic improvements for Lyttonsville, as well as the industrial areas, in exchange for some increased capacity.

It clearly is a pivotal moment for Lyttonville – it isn’t every day that a major public transportation infrastructure comes to a community. Ultimately, however, though we have proposed a number of differing ideas, they must be combined with the priorities of the local community in order to determine the desired degree of the possibilities that we have attempted to outline. We have attempted to provide a foundation for the residents of Lyttonville to determine where and what they wish to do, depending on their desires for their community. We hope we have been of some assistance in this effort for the residents of Lyttonsville.
APPENDIX A: PLACEMAKING FEATURES AND TARGET AREAS

PUBLIC PLAZA FEATURES

Aesthetically-pleasing public realms

- Overall wetlands theme, creating oasis of native plant life and seating areas as well as habitat for wildlife
- The ground surface will be covered with an even permeable material that will help to reduce surface heat, facilitate water infiltration and ensure ease of movement for people with disabilities
- Sculptures and/or other art will help add to liveliness and sense of place

Trees and street furniture to dramatically improve the public plaza experience

- Planted trees with expanded rooting zones under pervious surface areas to increase life of tree and size of canopy for shade
- Tables with umbrellas and seats to encourage leisure activities
- Seating built into green infrastructure designs
- Garbage and recycling bins near seating area
- Bike racks on perimeter of plaza
- Shaded lighting
- Security Cameras

Heritage Trail and Wayfinding Signage

- Large free-standing map that includes overview of neighborhood history and locations of heritage trail markers
- The map also orients viewer to locations throughout Lyttonsville including industrial area, Brookville Corridor storefronts, Coffield Center, Civic Green, and Forest Glen Annex
WETLAND PARK FEATURES

Connecting the Capital Crescent Trail to the Public Plaza

- Simulated wetlands park area will act as a transitional zone between the trail and the public plaza
- Tree plantings around perimeter will create a green privacy wall from residential, define the space, provide shade for pedestrians and habitat for wildlife

Stormwater management integrated into features of the Public Plaza

- Bioswales, wetlands and other green infrastructure elements contribute to stormwater management and sense of place
- Pervious walkways facilitate in situ stormwater management
- Native plants and trees purify runoff through chemical and nutrient uptake, slow and detain large quantities of surface runoff allowing for sedimentation and cooling

SAFETY FEATURES

Light rail pedestrian at-grade crossing

- ADA compliant pedestrian crossing with passive “stop here” markings, tactile markings, signal controlled crossing, and perhaps a “z-crossing” entry

Continuous safety barrier between light rail and public plaza area

- Multi-layer barrier between light rail and public plaza, including fence and vegetation

Sound attenuation

- Use of old tire rubber or other materials from local industrial businesses to create sound barriers
- Barriers to keep observers at a safe distance from wetland
- Lighting to enhance safety, discourage crime, and improve visibility

CIVIC GREEN FEATURES

Space for live music and/or movie screenings, other cultural events, and other outdoor leisure activities

- Lawn area with a small platform/stage
- Public Art Installations
- Permanent Seating
● Trees for shade

● Vegetated bioswales to capture and filter stormwater

● Pervious concrete/asphalt to allow stormwater infiltration where feasible

Space for pop-up arts markets or farmers markets; pop up food truck events

● Perimeter Space: drive up space for food trucks and vendors

● Stewart Ave is adjacent to this “perimeter space” on the green, and provides the opportunity for larger street markets or street festivals in the future

● Permeable concrete where feasible
TARGET IMPROVEMENT AREAS

The pedestrian experience is hindered by lack of protection from street traffic, long crossing distance and narrow sidewalks.

Bulbouts and landscape buffers improve the pedestrian experience by reducing the amount of time it takes to cross the road. It can also be used for SWM.

The intersection of Stewart Ave and Brookville Rd will have to accommodate all users.

Signage and clear land marking ensure everyone knows their place on the road.

Stewart Ave and the Capital Crescent Trail will see more pedestrian and cyclist traffic with the completion of the Purple Line.

Wide sidewalks, on road bike facilities and buffers will protect all users and ensure a safe and efficient passage to and from the Lyttonsville Purple Line Stop.
Wide lanes, un-marked street parking and far sight lines accommodate vehicle traffic but disadvantages other modes.

Narrow lanes create space for bike lanes; painted parking spots ensures efficient use of space and landscape acts as speed deterrent and SWM control.

The intersection of Brookville and Stephen Sitter Ave will see an increase in pedestrian and possibly cycle traffic. Current road configuration is not pedestrian friendly.

Narrow lanes and a landscaped median provide a pedestrian island, reducing distance which they must cross. Paved crosswalks alert drivers to expect foot traffic.

Existing on street parking and large lawns provide an opportunity to enhance the cyclist and pedestrian experience on Brookville without compromising its function.

Keeping cyclist on the road but buffering them with landscape and street parking allows cyclist and pedestrians to traverse comfortably, safely and at their own speed.
TARGET IMPROVEMENT AREAS (CONTINUED)

Curbed grass medians are a wasted opportunity for ESD
Vegetated bioswales collecting stormwater runoff

Massive, sloped, paved area directs runoff into sewers
Pervious concrete in foreground absorbs heavy rain fall

Missed opportunity to alter right of way for public space
People make use of shade and bench in sea of asphalt
APPENDIX B: EXAMPLES OF HERITAGE TOUR SIGNS

Purple Line

Lyttonsville Historical Walking Tour

The Purple Line can be traced back to 1986 and then Governor of the State of Maryland William Donald Schaefer. He proposed a light rail line that would run on the Georgetown Branch, a 3-mile abandoned freight railroad corridor. The line was called the "Georgetown Branch Trolley" and would have connected the suburban downtowns of Bethesda and Silver Spring. Due to a comprehensive planning process, when Montgomery County and the state of Maryland agreed to build the light rail line, the funds were not available.

In 1997, the State Highway Administration was examining adding more lanes to the Capital Beltway. Federal law mandates that when considering adding lanes you have to also consider rail alternatives. However, in an effort to keep transit projects in the public eye, the election of Governor Martin O'Malley a light rail line was the focus. In 2011, the federal Department of Transportation approved the project to move into the engineering phase. In March 2013, the Maryland legislature passed a transportation-funding bill with one of its main goals of funding the purple line.

In 2002, Maryland Governor Bob Ehrlich commenced a study on low cost bus alternative that would replace the light rail alternative. However, the State Highway Administration was examining adding more lanes to the Capital Beltway. Federal law mandates that when considering adding lanes you have to also consider rail alternatives. However, in an effort to keep transit projects in the public eye, the election of Governor Martin O'Malley a light rail line was the focus. In 2011, the federal Department of Transportation approved the project to move into the engineering phase. In March 2013, the Maryland legislature passed a transportation-funding bill with one of its main goals of funding the purple line.

In 2002, Maryland Governor Bob Ehrlich commenced a study on low cost bus alternative that would replace the light rail alternative. However, in an effort to keep transit projects in the public eye, the election of Governor Martin O'Malley a light rail line was the focus. In 2011, the federal Department of Transportation approved the project to move into the engineering phase. In March 2013, the Maryland legislature passed a transportation-funding bill with one of its main goals of funding the purple line.
Named for E. Brooke Lee often called the "Father of Silver Spring" was a member of the prominent Blair and Lee family. Brookeville Road is the main street that runs through Lyttonsville which dead-ends at Rock Creek Park. Before being home to Tide-On buses, Washington Suburban Sanitation Commission and many local businesses, Brookeville Road was a community filled with homes on both sides of the street, down Garfield Avenue and into the woods. Most of the housing along Brookeville was substandard according to County code.

As late as the mid-sixties there was no water or indoor plumbing in any of the homes. The residents who did not have wells depended on nearby springs to get water for their use. Before water was brought into the homes the Washington Suburban Sanitary Commission (WSSC) installed a pump on Brookeville Road. Residents recall that it cost each family who used it $50 per year. Other residents recall that many families had difficulty paying their water fee and all kinds of problems arose. Often neighbors would have to pay extra in order to keep the pump operating.

Around 1942, there was a popular establishment called Ike's Blue Moon. It served as a beer garden of sorts and hosted juke joints - an establishment featuring music, dancing, gambling and drinking primarily operated by African-Americans. The soldiers of Walter Reed frequented the establishment.
Georgetown Branch of the Baltimore & Ohio Railroad

The Georgetown Branch line was originally operated by the Baltimore and Ohio (B&O) Railroad Company. The line was operated from 1889 until 1985 when it was proposed for abandonment; it served basically as a minor freight spur carrying coal and building materials to businesses in Chevy Chase, Bethesda, and Georgetown.

The last train to Georgetown ran in 1985, as trucks replaced rail service for hauling coal to power the GSA heating plant.

In 1988, the Montgomery County Council purchased the railbank of the Maryland portion of the corridor. The following year, Congress and the National Park Service worked out an arrangement with philanthropist Kingdon Gould, Jr. to secure title to the portion of the corridor in the District of Columbia. The seven-mile section of the Capital Crescent Trail from Georgetown to Bethesda was built and formally dedicated in December of 1996.

In 2014, The Georgetown Branch Corridor ends at its junction with the former B&O Metropolitan Branch rail line in Lyttonsville, about one mile west of downtown Silver Spring.
Lyttonsville is a small community in west Silver Spring, Maryland. Made-up of 68 acres, Lyttonsville origins go back to January 3, 1853, when Leonard Johnson, a white landowner, conveyed a parcel of land to Samuel Litton, a black man and possibly an ex-slave. By 1925 there was a fairly large community of houses, a church, stores, a school, and places of amusement. Today the community is a blossoming suburb in the DC Metro Area.

The Lyttonsville community has a rich heritage in which part of it is preserved in the Lyttonsville Historical Walking Tour. Take a walk through time as you learn about the origins of Lyttonsville, National Park Seminary, the B&O railroad, families that made an impact and much more. Information about the walking tour can also be found at www.lyttonsville.org.
Fort Detrick Annex & National Park Seminary

The land that is occupied by the Fort Detrick Annex has an interesting past. In 1857 a resort hotel, Ye Forest Inne, designed by renowned local architect T.F. Schneider. The hotel was not very successful so John and Vesta Cassedy bought the property to create a finishing school for young women called National Park Seminary in 1859. In 1916, the seminary was purchased by Dr. James E. Ament. He enlarged the campus by adding buildings and creating walkways to connect the various parts of the campus.

In 1927 Dr. Ament built Ament Hall which was known for its iconic grand ballroom. The school changed hands again in 1937 to Dr. Roy Taso who changed the curriculum and renamed the school to National Park College. Many residents of Lyttonsville relied on the school for employment as many residents, were chefs, groundskeepers, housekeepers and the grounds were attractive place for residents to gather for picnics, family reunions.

During World War II, the War Powers Act required Dr. Davis sell the Seminary to the US Army. The seminary became an annex to the Walter Reed Army Hospital serving as a rehabilitation center for soldiers wounded in WW II, Korean Conflict and the Vietnam War. After patient care was discontinued at the Seminary, the property continued to be used for medical research, military housing, and administrative purposes.

Over time, the buildings and grounds declined from inadequate maintenance, the army tore down or altered several Seminary buildings, and painted or covered over much of the decorative woodwork that graced the original interiors. the Maryland Historic Trust sought to protect the most historic part of the site by securing its listing in 1972 on the National Register of Historic Places as the National Park Seminary Historic District.
Woodside Subdivision & Talbot Avenue Bridge

Founded by Benjamin Leighton, Woodside was one of the first commuter suburbs in the DC Metro Area. The initial boundaries of the community were the Baltimore & Ohio Railroad tracks on the west, Georgia Avenue on the East, Fenwick Lane on the South and Grace Church Road on the north. Leighton subdivided Woodside in September 1889. Leighton also constructed a train station on Fenwick Lane for the residents to commute on the B&O Railroad. Unfortunately it burned in 1928 and later removed in 1935. Undeveloped lots were $225 to $600 and the new owners built homes. Some styles resembled prefabricated Sears Honor-Bilt Modern from the 1927 catalog.

The Talbot Avenue Bridge was built in 1918. The center section was a railroad turntable bridge hauled to the site from Martinsburg and turned upside down to serve as a road bridge. It is a single lane bridge with a wood deck, and carries 1000-2000 vehicles every day.

Lyttonsville Historical Walking Tour
Urban Redevelopment

Friendly Gardens and Claridge House Apartments

Lyttonsville homes lacked running water, indoor plumbing and unpaved streets until the late 1960s.

In 1967, Lawrence Tyson and Gwendolyn Coffield, key civic association leaders, applied to the Montgomery County Council for urban renewal to bring essential infrastructure to the community. This brought a $6 million urban renewal project, bringing water service, sewage, and 250 new homes.

Unfortunately, the creation of these new homes made it unaffordable for current residents to stay in the community. As a result of this, the Quakers built Friendly Gardens Apartments, an affordable housing complex that allowed residents who did not own property in the area to remain in the community.

Claridge House Apartments, built in 1966, also spurred the redevelopment of Lyttonsville. Most notably, Sam Litton, of whom Lyttonsville is speculated to be named after, resided in the vicinity of where Claridge Apartments stand today.

Today, Lyttonsville faces significant changes as a result of the implementation of the Purple Line. As outline by the Maryland Transit Authority's Purple Line Executive Summary, Lyttonsville is classified as an Environmental Justice Community. This classification defines a community as an area that could face disproportionately high and adverse effects on the community once the Purple Line is built.

For more information about Lyttonsville Historical Trail, please visit: (WEBSITE LINK)
Religion and Education in Lyttonsville
Pilgrim Baptist Church and Mt. Zion Methodist Church

Pilgrim Baptist Church was the first church of Lyttonsville. Built in 1892 on Brookville Road, the Church was moved to Pennsylvania Avenue in 1914.

When the new Church was built in 1914, Linden school remained in the church, yet became a segregated black school. In 1917 a new, two-room school was built. In 1932 a portable classroom was added to accommodate the increased enrollment. There were no high schools in any of the nearby communities. Residents recall being bused into Washington DC to attend high school. The school closed in 1955 due to the integration of schools. In 1956, students who originally went to Linden school were transferred to Rosemary Hills Elementary school.

Pilgrim Baptist Church’s first building was a yellow building with two windows and two doors. The steeple of the church housed a bell to signal the start of church to the congregation, as well as to signal to students the start of school.

In 1898, Pilgrim Baptist Church housed the first community school, Linden School. Linden School was originally a one room public school. The school lacked running water, as did all schools at the time. Students were sent to nearby homes to fill a bucket with drinking water. The bucket of drinking water remained in the one room classroom with a dipper for each student to drink with.

Mt. Zion Methodist Church (above) was originally on Brookeville and Georgia Ave. It has since moved to Washington DC. Mt. Zion Church was an instrumental Sunday School to the Lyttonsville community in the early 1900s.

For more information about Lyttonsville Historical Trail, please visit: (WEBSITE LINK)
Education and Community in Lyttonsville

Rosemary Hills Elementary School was built in the mid-1950s as a response to the county’s school desegregation plan. Prior to 1956, Black students had been segregated to Linden Elementary School. The Rosemary Hills neighborhood was a leader in integrated housing in the 1960s as it attracted young, white families as well as black families. The housing units in Rosemary Hills were low and moderately priced homes and rental units, which aided in the integration between whites and blacks.

By 1972, minority enrollment had significantly increased. School officials proposed bussing children out of the neighborhood in order to balance the racial statistics of students; however, the community strongly fought back to keep their children within the neighborhood, terminating the proposition.

Rosemary Hills Elementary was home to the community baseball field and team “Linden Black Socks”, an all-black baseball league.

The school also served as a center for social gathering, community building and racial integration. Community dinners held in the school, spearheaded by Ms. Gwendolyn Coffield, encouraged each family to bring dishes from their own culture to shape with the community. These “international dinners” at Rosemary Hills School allowed neighbors to learn about the various cultures represented in the Lyttonsville community.

For more information about Lyttonsville Historical Trail, please visit: [WEBSITE LINK]
Notable Residents of Lyttonsville
From David and Mollie Young to Gwendolyn Coffield

Lyttonsville is a small community in west Silver Spring, Maryland. Its 68 acres are bordered by Lanier Drive on the east, Brookeville Road on the west, Talbot Avenue on the north, and Lyttonsville Place on the south.

The history of Lyttonsville goes back to January 3, 1853, when Leonard Johnson, a White landowner, conveyed a parcel of land to Samuel Litton, a Black man and possible ex-slave. Lyttonsville became a Black enclave within Montgomery County following the civil war.

While the precise founding date of Lyttonsville is unknown, it can be placed in the latter 19th century, indicating Lyttonsville as a possible land grant to freed slaves. This lead prominent Black families to settle in Lyttonsville.

Mr. and Mrs. David Young (right) were one of the most well-known, loved, and respected families of Lyttonsville. Mr. Ike Young, David Young’s twin brother, ran the local beer garden, Ike’s Blue Moon. “Ike’s Blue Moon - Three Miles the Other Side of God’s Heaven” referring to a church, God’s Heaven, located on Georgia Avenue.

Gwendolyn E. Coffield was an integral resident to the community of Lyttonsville. Born in 1931, Gwendolyn Coffield experienced and initiated many community changes in Lyttonsville. Ms. Coffield lead the initiative to bring infrastructure to Lyttonsville while also creating a strong sense of community and identity to the neighborhood.

In 2000, the Gwendolyn E. Coffield community center opened for the resident of Lyttonsville and the surrounding neighborhoods. The community center and Rosemary Hills Park were built upon an original Army base.

For more information about Lyttonsville Historical Trail, please visit: (WEBSITE LINK)
ADDITIONAL RESOURCES

In gathering information we spoke with community leaders to learn which sites throughout the community were most important to showcase. These leaders included:

- Charlotte Coffield - Lifelong Lyttonsville Resident
- Pat Tyson - Lifelong Lyttonsville Resident
- Roger Paden - Lyttonsville Resident
- Jane Freundel Levey - Former Director of Heritage Trails at Cultural Tourism DC

We also used a number of secondary sources to gather additional contextual information and history:

- Images of America: Forest Glen by Rich Schaffer and Ric Nelson
- Images of America: Historic Silver Spring by Jerry A. McCoy and the Silver Spring Historical Society
- Silver Spring Success: The 300 Year History of Silver Spring, Maryland
APPENDIX C: COMPLETE STREETS BEST PRACTICES

Complete Streets is a policy approach to the design and operation of roads and their rights-of-way (ROW) that takes multiple issues into consideration. A “Complete Street” is one in which it is easy for people to cross the road, walk to shops or school, bike to work, or drive to a destination. It is designed to enable safe access for users of all ages and abilities, regardless of their mode of transportation. A “Complete Street Policy” is guided by a community vision and considers all users and all modes in a transportation project. This approach breaks down the traditional separation of highway, transit, pedestrian, and cycling planning and instead focuses on the desired outcome of the complete transportation system (Smart Growth America 2013).

The first Complete Street Policy was enacted in 1971 in the state of Oregon. Since then, over 600 regional and local jurisdictions in 27 states have adopted Complete Streets Policies either through law, resolution, ordinance, design manual, or policy directive, including the Maryland State Highway Administration (SHA) in 2012.

A Complete Street Policy is a community-guided vision to provide attention to all users and modes in transportation projects while still offering exceptions and attention to community context and the function of the roadway. The result is that a complete street in Portland, OR is different from one in Washington, D.C., which would most likely be different from one in Silver Spring, MD. Within an area such as Lyttonsville, a complete street on Sundale Drive would be different from a complete street on Brookville Road.

The purpose of this report is to offer an overview of Complete Streets Policy and features and to explore the potential of the related benefits in Lyttonsville, MD given the plans for the establishment of the Lyttonsville Purple Line Station. While a Complete Streets Policy is intended to address all roads in a jurisdiction, the intention of this report is to imagine what a complete street approach would look like in the target study area with special attention on the opportunity around the Lyttonsville Purple Line Station.

Informally, Montgomery County officials have indicated that it could be beneficial to redesign Brookville Road as a complete street. These benefits are leveraged on the resiliency of the local industrial areas, the Forest Glen Annex and of course the development of the Lyttonsville Station. A complete street approach on Brookville Road could improve safety and accessibility in light of the increase in pedestrian and cyclist traffic that the station is anticipated to attract. This approach would also have the potential to address some of the existing congestion and environmental concerns along Brookville Road.

This section of the report offers an overview of complete street best practices. Section one provides an assessment of existing conditions on Brookville Road, section two provides some recommendations for the Brookville Road Corridor and considerations for implementation. Recommendations are based on best management practices and implementation.

COMPLETE STREETS BEST PRACTICES

While complete street design seems to make sense on residential streets, main streets and along commercial boulevards, imagining a traditional urban arterial roadway (which by definition is intended to provide for transit vehicle mobility and have traditionally emphasized high operating speed and carrying capacity) as something other than auto dominated presents a new challenge and resistance from users of the road. To accommodate high traffic flow which is not anticipated to diminish, high speed vehicle traffic design requirements such as wide lane widths and turning radii emphasize minimum interference with traffic movement (such as sparse crosswalks and intersections).
In practice, these requirements largely ignore impacts on the potential to walk or bike in the area and the community at large. Arterial roadways are essential to communities but at least some of their negative impacts are unavoidable. The auto-dominance of the design of our roadways has played a large part in creating the design of many of our suburbs that lack pedestrian and cyclist connections as well as community character (LaPlante 2007).

As our communities’ infrastructures age and change, more localities will have to confront the challenge of a shift away from this auto-dominated culture and instead imagine even our most auto-oriented streets as more accommodating of multi-modal use and become more environmentally friendly. To understand the potential of the Brookville Corridor we examined the best practices of complete streets as they deal with the operational facets of road users, context, speed and design components for environmental management. Sources of best practices were compiled from Smart Growth America, Transportation Research Board and case studies from the cities of Charlotte, NC, Eugene, OR and Tacoma, WA.

**Allocation of Street Space**

Complete streets policies force policy makers and designers to reimagine the use of our roadways for all users and all modes. This paradigm is reflected in a street space that accommodates all users, with an emphasis on allocating road space to achieve safe passage by all modes while maintaining efficiency.

Below are examples of complete street practices which can be pursued in order to accommodate the different types of anticipated users:

**Pedestrians**

Off-road facilities and ease of crossing the street can make for a more comfortable and safe pedestrian experience –

- Sidewalks: 5 foot minimum to meet ADA standards
- Raised medians: provide refuge and allow “half-crossings”
- Bulb outs: narrower lanes effectively reduce the distance (and time) that it takes pedestrians to cross the street.
- Countdown clocks: provide predictably and improve safety
- Short blocks
- Marked intersections
- Continuous facilities: connecting to transit, areas of interest and home
- Landscaped buffer: between curb and sidewalk
- Pedestrian scale lighting: safety and visibility
- Managing driveways: control the location of vehicles and minimize exposure to pedestrians

**Cyclists**

Cyclists will use on and off road facilities based on comfort level but the physical design elements can make streets more conducive for individuals who depend on cycling or desire to cycle more.

- Sharrows: shared lane markings, raise awareness of cyclist on the road and direct cycle traffic
- Painted bike lanes: allow cyclist to ride at preferred speed, increase visibility to motorist. Should be a 4 foot minimum width.
• Buffered bike lanes: visual or actual barrier between cyclist and traffic. Buffered bike lanes should be at a 5ft. minimum width (NACTO)
• Two way cycle tracks: A segregated on-road cycle facility which allows cycle traffic to move in two directions. 8 foot minimum (NACTO)
• Off - road cycle track: A designated bike path 4ft minimum for one directional. (AASHTO).
• Shared use trail: off road facility shared by cycle, pedestrian and other traffic. 10 ft minimum (AASHTO).
• On-street parking: can be used as a buffer for on-street cycle facility

**Motor Vehicle Users**

Vehicle access is an essential aspect of our communities and economy. Improving connectivity and predictably on roadways makes our streets safer for all modes.

• Visual cues: signage, change in pavement type or color are used as visual cues to capture the operators attention to expect pedestrian or bike traffic
• On-street parking: provides access to points of interest
• Reduce dead-ends and could de sacs: improves connections for all modes
• Operational changes: longer green-signal times at peak hours
• Bus pullouts: reduce delay and improve safety
• Through or turn lanes: decrease delay

**Transit Users**

Accommodating transit users can increase the attractiveness of taking transit for others and has the opportunity of advancing mobility for those who may not have other transportation options. Accommodating transit can reduce the cost of vehicle accommodations and para-transit (SGA).

• Stop location: locating transit stops within 300-600 feet of an intersection to deter jaywalking
• Bus lanes or pull offs: allow for safe boarding and alightments
• Continuous, related facilities: sidewalks to facilities journey to and from stop

**Green Infrastructure**

Provisions requiring the addressing of stormwater runoff quantity and close to the source of the water are more frequently becoming mandatory through Federal requirements like the National Pollution Discharge Elimination System (NPDES) Phase II. Incorporating well designed and effective green infrastructure into rights-of-ways and roadways can meet both the federal requirements while also improving aesthetics, providing shade to pedestrians, increasing property value, enhancing safety and creating wildlife habitat.

• Vegetated bioswales: a vegetated channel, consisting of sand, rock and amended soil, native plants, shrubs and/or trees, usually found along roadways or in parking lots, that is designed to capture and detain stormwater, allowing for infiltration, sedimentation and groundwater recharge.
• Curb cuts: Breaks in a traditional curb that allow stormwater to enter grassy areas or other pervious surfaces that allows the water to penetrate into the ground
• Permeable surfaces: Surfaces including permeable concrete, pavers, and green roofs that allow stormwater to filter into the substrate, allowing for replication of the hydrologic cycle through filtration, evaporation and transpiration.
• Amended soil: Formulated soil incorporated into green infrastructure to better facilitate stormwater infiltration, detention and filtration, provide necessary nutrients for trees and prevent soil compaction around root systems.

**CONTEXT**

Complete Street Policies should create different visions, goals, prioritization and implementation mechanisms based on the functions of the road. For example, maintaining the traffic throughput capacity should be a higher priority on a mixed-use arterial than on a mixed-use collector road or a local street. Similarly, a residential collector street and an industrial collector street have differing characteristics. A mixed-use collector emphasizes accommodating several transportation modes while an industrial collector emphasizes accommodating heavy trucks and automobiles over other modes (APA).

The city of Charlotte, North Carolina, which has been recognized for its complete street approach to arterial and local industrial roads, recognizes six approaches for complete streets based on land use and location including: transit station access, centers, corridors, non-residential uses, industrial, residential (low density), and residential (high density).

In areas of industrial use the City of Charlotte recommends the following:

• Separate pedestrian traffic from vehicle traffic
• Design road for a speed limit of 25 mph to discourage speeding
• Where possible, front buildings to street
• Make accommodations for larger vehicles
• Continuous sidewalks
• Incorporate planting strips and trees to create shade and enhance aesthetics (8 ft. minimum)
• Coordination with transit agencies for bus access (including mid- block stops)

Tacoma, WA and Eugene, OR also have complete street policies which deliberately distinguish between the contexts of roads in order to better identity solutions which preserve the highest priority functions, including emphasizing pedestrians on a main street or neighborhood shopping district and vehicle flow on an arterial road.

**COMPLETE GREEN STREETS**

The principles of complete green streets underscore the point that there are multiple approaches to reaching the same goals. This is also true for the implementation of these types of streets – which strive to facilitate hydrological processes, improve environmental conditions and enhance aesthetics. Each project is unique and should be evaluated on a case-by-case basis, collecting and using the most appropriate tools and data available.

The green street **process** is important and required to have a good final product. Designing a complete green street must be done as a collective effort with the appropriate stakeholders. Involving the community and incorporating
their insight into the project will establish buy-in and raise support (Sustainable Business Network, 2007) for the project. Providing public education regarding stormwater management will increase capacity to make informed decisions and elicit volunteers to implement projects on private property. The public can also provide distinct perspectives based on local circumstances and historical knowledge that an outsider may not know of and therefore would not consider. This serves as a mechanism to help establish a clear, shared vision of the project and may help later on in defining the specific techniques that will be implemented.

In addition, applying a watershed approach to the complete green streets policy is fundamental in developing it as a holistic plan. The impact that activities along the corridor have on downstream ecosystems should be considered and the type of green infrastructure recommended should serve to minimize watershed disturbances.

Any green infrastructure component should serve multiple purposes. For example, if it is determined that a vegetated swale is appropriate in certain circumstances, the placement of the swale can be more useful by also serving as a bulb out to reduce the distance a pedestrian must walk to cross the street. Similarly, vegetated medians can serve as a stormwater management system (SWM), a pedestrian refuge and a beautification project. Ensuring that a multidimensional approach is taken will undoubtedly increase the overarching impact of the street design.

It is essential that all implemented green infrastructure projects include provisions for a maintenance plan and schedule to keep the SWMs operating properly. In addition, public works staff must be trained in management practices ranging from vacuum cleaning of pervious concrete/asphalt, to using the proper snow removal techniques, so as to avoid unnecessarily damaging the pavement. Providing public training on establishing and maintaining SWMs can break down barriers and encourage residents and businesses to voluntarily implement and maintain their own SWM systems, providing a base of usage that can be scaled-up for broader adoption by the public.

**Sustainability**

Several environmental concerns in the area have been noted in the Briefing Book by M-NCPPC including minimal tree canopy in the industrial area (less than 3% percent) and along rights of ways (8.16%). Also noted are a high percentage of impervious surface cover, multiple buried dumps and of which some are potentially hazardous waste sites, piped streams and filled in seepage areas (MNCPPC, 2014). Over the years, these alterations to the natural environment have led to deteriorating conditions in the receiving streams to the point where conditions are rated as only fair and poor (MNCPPC, 2014). Given the poor state of the natural environment in and around Lyttonsville (industrial areas?), it is clear that the complete streets policy should incorporate green infrastructure to attempt to restore some of the ecosystems and services that have been lost.
REFERENCES


