Feasibility Study for Stormwater Retrofits Bryans Road Town Center

Bryans Road
Charles County, Maryland

DRAFT
May 2008

CHARLES COUNTY
DEPARTMENT OF
PLANNING AND
GROWTH MANAGEMENT

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SECTION 1: INTRODUCTION

In October 2001, Charles County approved the Bryans Road Indian Head Sub-Area plan which led to a comprehensive rezoning to support the establishment of a Town Center. The *Town Center Core Plan* concept shown to the right was developed as part of the previous planning efforts and provides the basis for implementation of this study for a portion of the built environment that will contribute to the overall concept of a much larger Town Center. The study framework considers the development of public spaces within one of four Town Center quadrants created by the intersection of Indian Head Highway (MD 210) and Marshall Hall Road (MD 227) (*See delineation of the subject study area relative to the core plan).* This study focuses on this area as a start point to create a Town Center atmosphere around the existing shopping center.

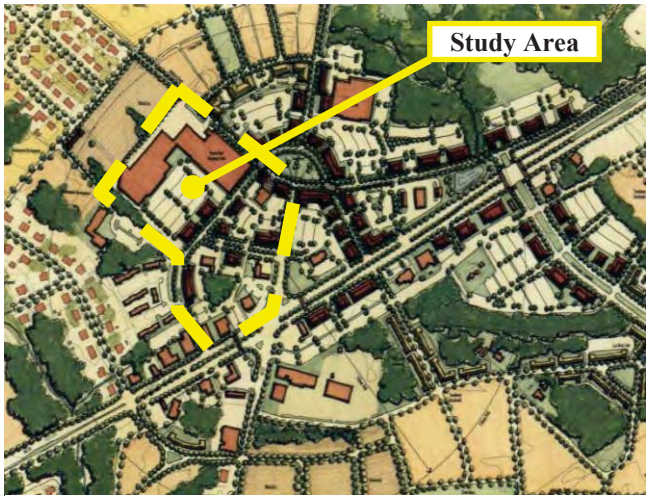

Figure 1: Bryans Road Town Center Core Plan
Source: Bryans Road Indian head Sub-Area Plan

Prioritizing this portion of the overall *Town Center Core Plan* has been taken due to the following conditions:

- the characteristics of existing land use patterns contribute to what is recognized as the current Town Center;
- the auto dependency of the area and considerations for pedestrian safety with respect to travel speeds;
- the need for stormwater improvements with the study area;
- the opportunity to identify a revitalization strategy to enhance economic vitality of the existing shopping center and surrounding commercial uses; and
- the opportunity for phased revitalization consistent with future development of the *Town Center Core Plan*.

1.1 Characteristics of a Town Center

A Town Center, in part or in whole as envisioned in the *Town Center Core Plan*, plays a key role in successful urban development as well as serves as a catalyst for creating economic opportunity. A Town Center is a place where people can live, work, shop and play. A Town Center provides a mix of uses including residential, commercial and industrial providing a variety of goods, services, entertainment and employment opportunities for the region. The following is a listing of characteristics that were considered with preparing the concept plan for Town Center enhancements within the

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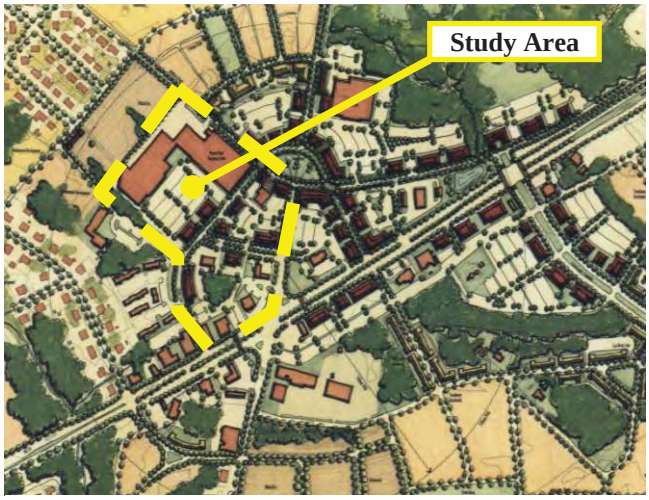

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study area including stormwater retrofits. The design for revitalization of the study area aims to contribute to the:

- Creation of a discernable center;
- Enhancement of connectivity of the existing street network;
- Creation of lively streetscapes with relation to building location and design;
- Linkages to dwellings located within a five minute or ½ mile walk from the center;
- Design of interspersed open space in and around the center; and
- Utilization of lesser roadway classifications of narrower widths to create tree-lined and pedestrian friendly streetscapes providing access to goods, services and amenities.

1.2 Overview of the Study Area

Much of what is recognized as the Town Center today consists of the Bryans Road Shopping Center which is situated within a heavily developed commercial area near the corner of Indian Head Highway and Marshall Hall Road. Primarily constructed in 1972, the shopping center is served by a single storm drain system installed prior to the adoption of stormwater regulations in 1983. The County NPDES MS4 Annual reporting program has identified the Bryans Road Shopping Center drainage area for watershed restoration by implementing BMPs to mitigate untreated impervious surfaces within the County's Development District.

In conjunction with these recommended stormwater retrofits, moving the established Bryans Road Town Center beyond the planning stages is also a priority of Charles County. Installing stormwater best management practices (BMP) to improve the management of runoff at the Bryans Road Shopping Center and concurrently defining potential Town Center improvements allows the integration and coordination of these key planning objectives.

This report focuses on the following objectives relative to the Bryans Road watershed restoration and Town Center development.

- Assessing the feasibility of providing innovative stormwater BMPs to treat runoff generated from the impervious cover at and adjacent to the Bryans Road Shopping Center. The proposed BMPs shall have the potential to store the water quality volume and provide channel protection downstream.

- Integration of a Town Center concept at the Bryans Road Shopping Center and surrounding lands to spatially identify opportunities for creating new public spaces within the existing built environment. Including open space, pedestrian linkages, improved landscaping and other amenities as previously outlined in Section 1.1.

- Creating a Town Center atmosphere in the context of a built environment while addressing stormwater management issues.

Recommended BMPs have been identified to improve water quality and provide measurable peak discharge reductions to aid in protecting the existing channel downstream of the shopping center. Stormwater BMP objectives and Town Center goals are considered complimentary. However, the implementation of stormwater retrofits is paramount and anticipated to precede the longer range plan of developing the Bryans Road Town Center. To address these needs accordingly, a four-phased plan has been developed to facilitate stormwater BMP construction in advance of more ambitious Town Center improvements that require significant alterations to the Bryans Road Shopping Center landscape and subsequent future phases to realize the larger town center core concept.

This report provides a summary of the study analysis, the options considered, estimated costs and the preferred Town Center concept design for the study area and proposed phasing plan for implementation.

SECTION 2: STUDY AREA

The study area is located in the core commercial area of Bryans Road and represents a critical location with respect to the development/redevelopment of the Bryans Road Town Center. The subject watershed consists of $20.8^{+/-}$ acres; including up to $7.3^{+/-}$ acres of forested lands and $11.8^{+/-}$ acres of untreated impervious cover (i.e. parking lots, roadways and buildings). The majority of stormwater runoff is collected and conveyed via a single storm drain. This system is discharged via a reputed 42" outfall to an existing drainage channel located near the southeasterly corner of the Bryans Road Shopping Center. The study area is graphically delineated in Figure 2 Study Area with arrows denoting the approximate location of the referenced storm drain network.

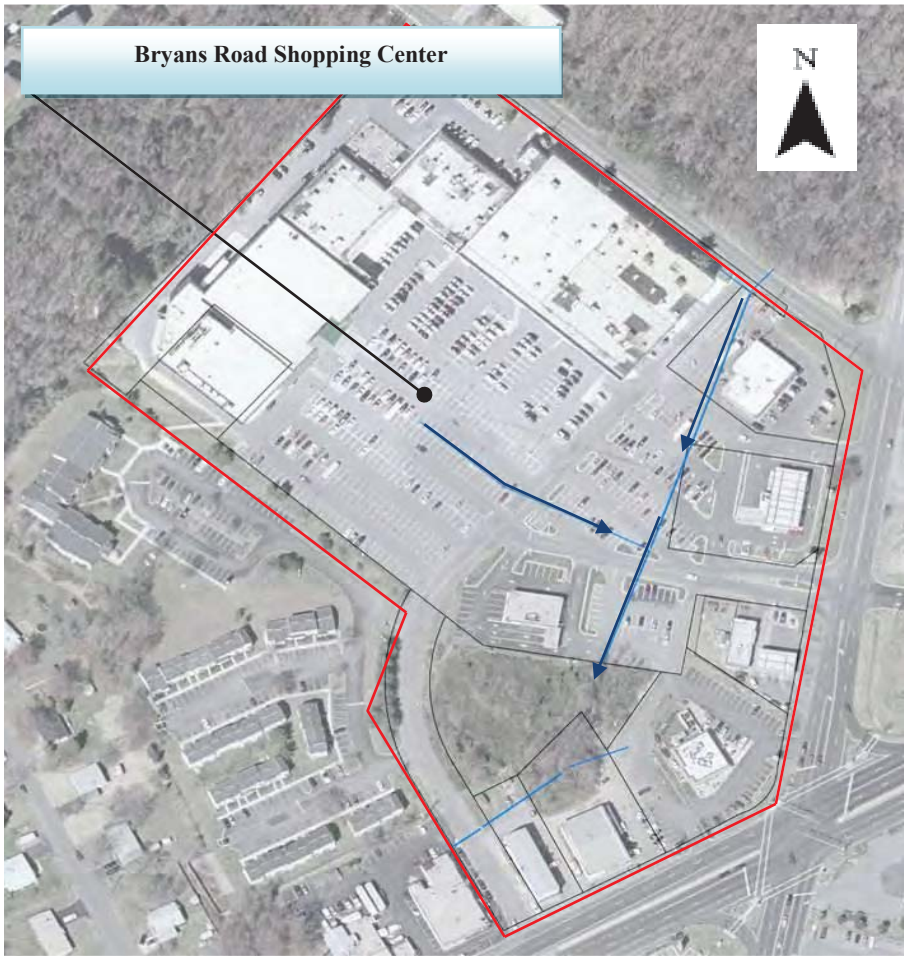


Figure 2 – Study Area

SECTION 3: KEY DESIGN ELEMENTS

Where feasible, the aesthetic design concept solutions provided in the Bryans Road Sub-Area Plan objectives were explored for use in preparing the recommended Town Center concepts and integrated stormwater retrofits. These concepts include:

Master Plan Objectives	Aesthetic Design Concept Elements
Defining circulation routes	Bioretention / landscape areas to define through roads.
Creating a successful/purposeful Town Common or public open space	Specify size criteria, location, landscape elements and vehicular/bicycle/pedestrian circulation and architectural elements necessary to support place making for the Town Common or public open space and create aesthetically pleasing public space. Consideration of underground stormwater storage options. *Reference: Town Center Core Plan and Street Cross Sections.*
Beautification	Bioretention, filterra inlet planters and other possible beautification solutions.
Architectural Features	Green roof, rain garden planters at down spouts and other features.

The recommended Town Center concepts and integrated stormwater BMPs have been developed around several key elements and features necessary to meet applicable goals of the Bryans Road Sub-Area Plan and County NPDES MS4 program. These elements include:

- Integrating stormwater BMPs with Town Center landscape;
- Providing common open space areas;
- Controlling vehicle and pedestrian access;
- Improving pedestrian safety through design of pedestrian elements;
- Providing store front parking; and
- Use of architectural facades / unique storefronts.

Developing concepts and associated phasing for the Bryans Road Town Center began with identifying opportunities and locations where key elements could be realized while respecting the built environment through incorporating the footprint of the existing shopping center. Given the success of the shopping center and its economic viability in the community, complete redevelopment of the shopping center area was deemed impractical. However, impacts to the current parking areas are unavoidable and essential to reorienting the area to create town center characteristics, providing public open space, and providing improvements to encourage pedestrian usage.

Town Center characteristic assessment resulted in consideration for blending the use of the existing shopping center buildings with improvements to convert the asphalt parking

lots and access aisles to create an integrated center with added landscaping, common open space and gathering areas, and improved pedestrian linkages between parking areas, roads and businesses.

A site feasibility assessment method was utilized to evaluate the anticipated success of blending the key elements outlined above as well providing due consideration to constructability and the ability to phase the recommended Town Center improvements. Many variables entered into the feasibility assessment of alternatives such as impacts to existing uses, ease of implementation, potential unmitigated conflicts and more importantly, a design with the ability to maximize the vision of the Town Center. In addition to providing the noted key elements, the preferred alternative must also provide or account for the following:

- Utilizing existing buildings;
- Maintaining developed parcels to facilitate the initial implementation of stormwater BMPs;
- Short term / long term planning capabilities;
- Improvement recommendations including concepts that can be planned in phases;
- Better defined circulation routes for vehicular and pedestrian modes of travel;
- Minimizing parking impacts; and
- Minimizing utility impacts.

SECTION 4: TOWN CENTER CONCEPTS

The Town Center concepts developed in this study represent a starting point toward realizing the Bryans Road Town Center concepts. The scope of this study is focused on the Bryans Road Shopping Center area and the integration of stormwater BMPs. However, it is anticipated that future development and redevelopment including associated roadway and trail improvements in and adjacent to the study area will provide opportunities to expand and enhance the character of the Town Center within and beyond the boundaries presented herein.

The Bryans Road Shopping Center represents the largest property in the study area recorded as approximately 11.4 Acres. A total of ten (10) properties are within the boundary / impacts of the study. Figure 2 provides a snapshot of Maryland Department of Planning, Charles County Tax Map 5 and identifies the location of parcels in the subject study area.

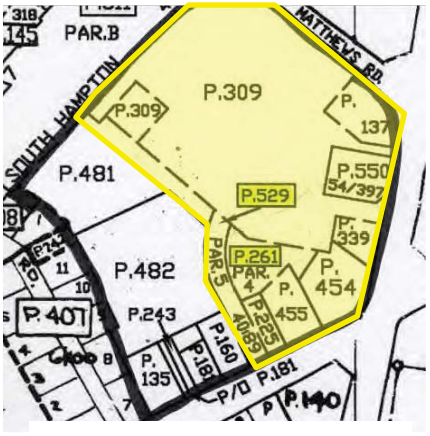


Figure 3 – Tax Map 5

Charles County Tax Map 5

Grid	Parcel	Current Land Use
23	137	Convenience Store & Auto Service
23	225	Dry Cleaner
23	261	Vacant Land
23	309	Shopping Center
23	339	Auto Service and Fuel Station
23	454	Fast Food (Burger King®)
23	455	Auto Parts Sales
23	481	High density residential
23	529	ROW parcel
23	550	Fuel Station (SAFEWAY™ GAS)

The Bryans Road Shopping Center's largest tenant is SAFEWAY™ supermarket. A CVS/Pharmacy® and DOLLAR GENERAL® retail store are also located in the shopping center. Refer to Figure 4 for store locations:

- 1 SAFEWAY™
- 2 CVS/Pharmacy®
- 3 DOLLAR GENERAL ®

Other notable tenants include a small cinema, various small restaurants and a day care center. Out parcels along Indian Head Highway and Marshall Hall Road contain retail, fast food and fuel station establishments. Town Center and parking plan concept maps attached in the appendices provide a complete aerial view of the study area.

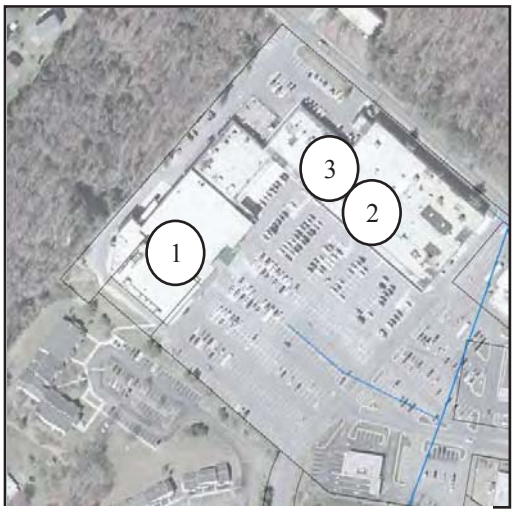


Figure 4 – Shopping Center Anchor Tenants

4.1 Concept Development

A draft Town Center concept plan, including integrated stormwater retrofit options, was initially presented to the County Department of Planning and Growth Management and representatives of two key property owners. These key properties include:

- Bryans Road Shopping Center located on Parcel 309
- Vacant Land Parcel 261

Improvements to parcels 309 and 261 are essential to ensure successful development of the Town Center concept and recommended stormwater BMPs. The level of cooperation by the owners / representatives of these properties will dictate the rate at which the proposed phased concepts are realized. Key concerns and challenges associated with improving these parcels are summarized as follows:

Bryans Road Shopping Center (Parcel 309):

- Lost commerce to the shopping center tenants resulting from construction activities.
- Creating public spaces will result in the loss and / or displacement of the existing shopping center parking.
- As per the property manager, tenant lease agreements require the current parking supply to be maintained.
- Maintaining existing building footprints continues poor visibility from major roadways.
- Developing public / private partnerships.

As part of this study, a parking plan concept was developed for the shopping center site to identify an alternative that would maintain the current parking supply. Upon preparing this plan, it was clear that maintaining the current parking supply results in inadequate creation of public open space, marginal improvements to circulation routes, limited pedestrian improvements and in general very poor opportunities for development of the Town Center concept. As a result, land acquisition to the rear of the shopping center would be necessary to offset the loss of parking in the main parking areas. The parking plan concept is included in Appendix A.

Vacant Lands - Parcel 261:

- Owners are currently in land development planning stages.
- Property acquisition is necessary to create public open space.
- Underground utilities to be avoided or relocated include water, sewer and gas.
- Need to balance improvements between stormwater retrofits and conceptualized public open space.

The proposed Town Center concepts hinge on the ability to convert the existing parking areas and access aisles of the shopping center into more defined circulation routes for both vehicles and pedestrians. The success of the Town Center and attraction for pedestrian activity require the creation of safe and accessible walkways and public open spaces. In addition, the conversion of asphalt parking surfaces to pedestrian

plazas/walkways and landscaped open spaces will aid in achieving water quality and channel protection enhancements associated with the stormwater retrofit goals of this study.

With the exception of parcel 261 and apparent right-of-way parcel 529, all remaining properties, also referred to as out parcels, are occupied and appear to have viable business establishments. Many of the challenges related to the shopping center site will be relevant to the out parcels to a lesser degree once zoning and development regulations are enhanced to support Town Center redevelopment/development activities. Developing the proposed Town Center concepts throughout the out parcels will require the complete redevelopment of these sites. Opportunities for redevelopment may only be realized if and when these properties are considered for redevelopment in the future.

4.2 Town Center Phasing

The immediate goal for the County is to install stormwater BMPs to begin mitigating the long standing stormwater degradation associated with the impervious cover at and around the shopping center. Given the anticipated impacts to the shopping center and recognizing the challenges associated with establishing the private / public partnerships needed to facilitate the development of a Town Center, a phased approach is recommended. Phasing the development of the Bryans Road Town Center provides for installing stormwater improvements and initial circulation and pedestrian linkage improvements initially with minimal impacts to shopping center operations. Subsequent phases focus on developing open space aspects of the Town Center. Concept maps depicting the four Town Center phases and the overall Town Center concept are provided in Appendix B. The recommended Bryans Road Town Center concepts and phasing is outlined and summarized below.

4.2.1 - Phase 1

The following provides a description of improvements, land acquisition/easements and considerations and challenges associated with Phase 1.

Summary of Improvements:
Phase 1 focuses on the installation of larger scale stormwater BMPs and initial circulation and pedestrian linkage improvements. The proposed Phase 1 improvements will not reduce the shopping center parking and result in minimal to no impact to the shopping center. The proposed improvements with explanation of benefits associated with Phase 1 consist of the following.

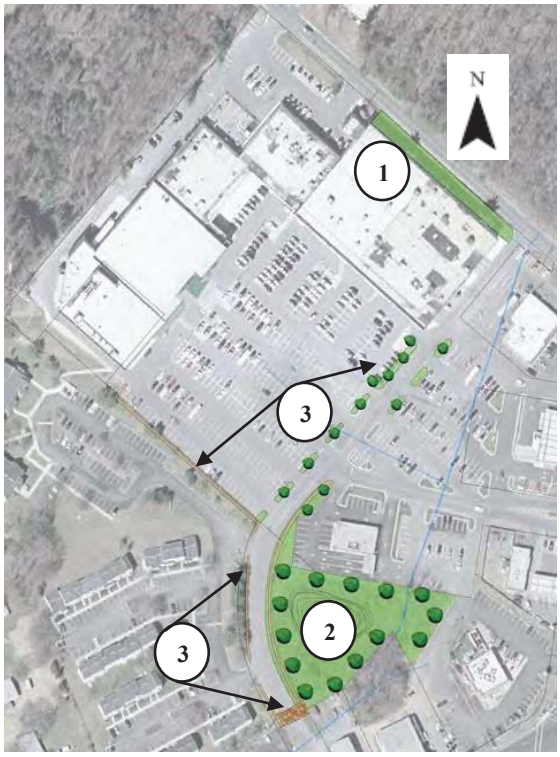


Figure 5 – Phase 1 Concept

1.) Installing a water quality dry swale to the north of the shopping center. This BMP will provide water quality treatment of runoff from Matthews Road and portions of the rear shopping center parking area (refer to location 1; Figure 5).

2.) Installing surface / subsurface water quality and extended detention system on parcel 261 including open space improvements, new turf and specimen perimeter tree plantings. This BMP will provide water quality and, to the best extent possible, channel protection peak flow reductions for stormwater runoff from approximately 80 percent of the shopping center site (refer to location 2; Figure 5).

3.) Providing better delineation of interior access and main traffic lanes including pedestrian linkage improvements along the entrance road and adjacent residential properties resulting in maintaining accessibility and increasing vehicular and pedestrian safety (refer to location 3; Figure 5).

Land Acquisitions / Easements:
Full acquisition of parcel 261 ($0.98^{+/-}$ acres) is required. Construction and maintenance easements (or similar instrument) are required on parcel 309. Maryland Department of Assessments and Taxation real property search data identifies parcel 529 as a right-of-way parcel under private ownership. Area mapping obtained for this study indicates parcel 529 as a 60 ft. wide ROW serving as an entrance road from Indian Head Highway. Subject to additional research, the County may need to acquire parcel 529 ($0.71^{+/-}$ acres) in fee.

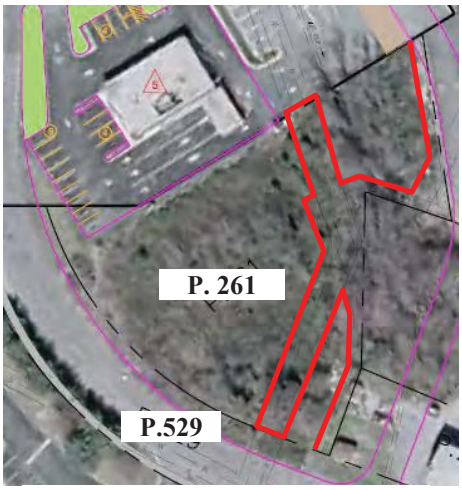


Figure 6 – Parcel 261 / 529

Considerations and Challenges:
1.) Parcel 261 is currently vacant land encumbered with water, sewer and gas easements. The acquisition of parcel 261 and perhaps 529 appear to be obtainable provided the County and owners reach agreeable terms. Figure 6 highlights the approximate limits of the utility easements (bold red lines). Stormwater surface extended detention / underground detention improvement options are recommended to be installed to the west of the noted easements to facilitate construction and avoid relocating the noted utilities.

Figure 7 – Open Space / BMP Area

2.) Figure 7 highlights the proposed concepts for parcel 261 and the adjacent roadway right-of-way. Subsequent Town Center development phases include expanding the open space improvements to

the southeast into adjacent private properties. Limiting the Phase 1 property acquisition needs will aid in expediting the installation of the proposed stormwater BMPs by avoiding the need for additional right-of-way / land acquisitions.

3.) A schematic of the existing storm drain piping is provided in Figure 8. This drainage system is to remain and continue conveying runoff captured upstream of the shopping center parking area.

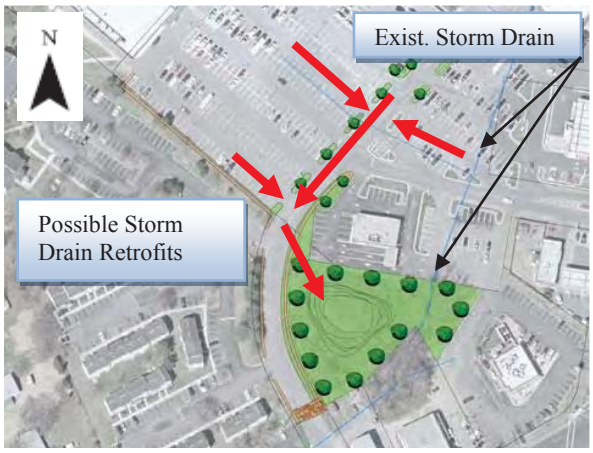


Figure 8 – Phase 1 Storm Drain Schematic

4.) Drainage system retrofits within the shopping center will be required to convey runoff from the shopping center parking areas to the proposed stormwater extended detention facility. A schematic of the proposed drainage system retrofits are highlighted in Figure 8.

5.) Further considerations and summary data for the recommended BMPs and associated storm drain retrofits are outlined on the following page.

a. Figure 9 presents the drainage boundaries for the overall study area and area contributing to runoff to the recommended stormwater BMPs.

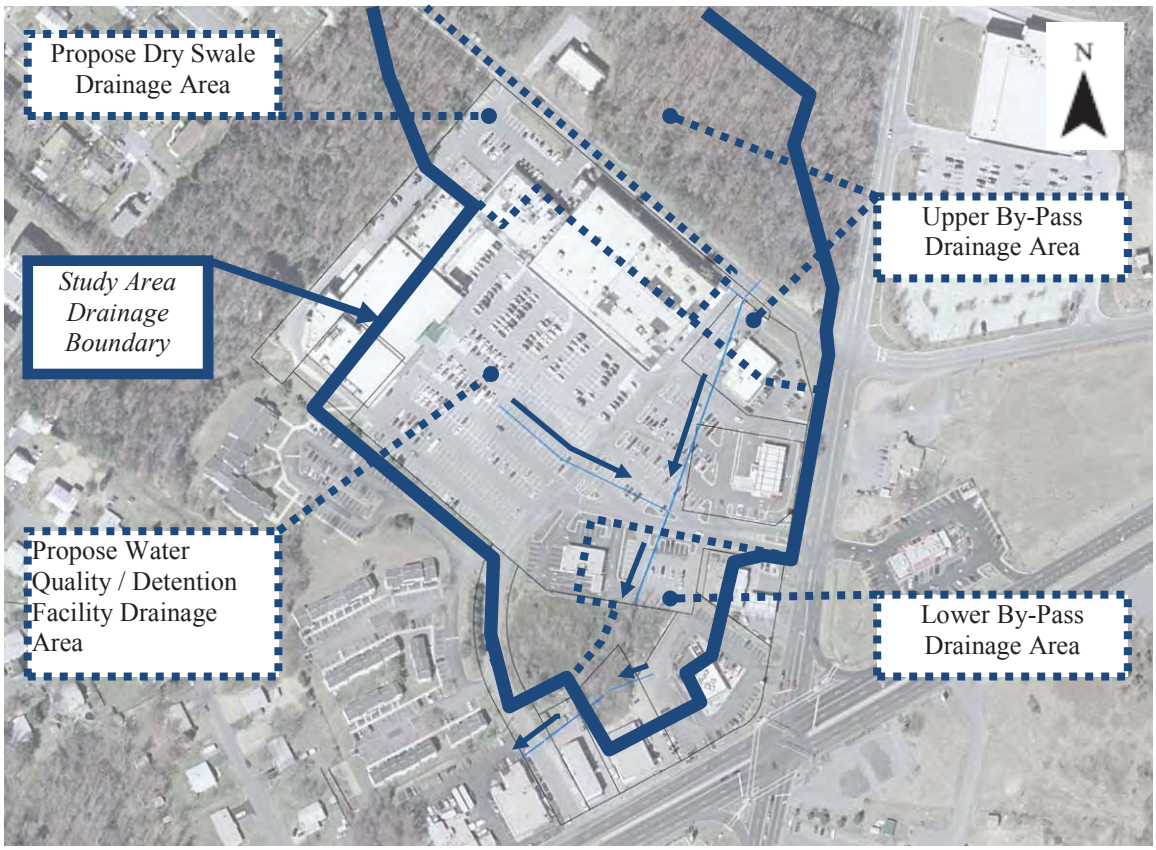


Figure 9 – Contributory Drainage Areas

b. The following drainage area table provides a summary of the study areas presented in Figure 9.

Drainage Areas (Acres$^{+/-}$)						
Cover Type	**Study Area**	**Dry Swale BMP**	**Parcel-261 WQ/ Extended Detention**	**Upper Bypass**	**Lower Bypass**	**Total**
Impervious	**11.9**	**1.5**	**8.2**	**1.0**	**1.2**	**11.9**
Woods	**7.5**	**0.8**	**0.0**	**6.2**	**0.5**	**7.5**
Lawn	**1.8**	**0.5**	**0.7**	**0.3**	**0.3**	**1.8**
Total	**21.2**	**2.8**	**8.9**	**7.5**	**2.0**	**21.2**

c. The overall study area contains approximately 11.9 acres of untreated impervious surface. The recommended BMPs at Parcel 261 and along Matthews Road are anticipated to treat 9.7 acres of impervious surface (81.5 percent of the total impervious area).

d. Soil in the study area is Leonardtown silt loam. As per the Charles County Soil Survey, the Leonardtown series consists of shallow or moderately deep, poorly drained soils that have a fragipan or hydraulically restrictive layer. This soils permeability is reported to be very slow and as such not suitable for infiltration BMPs. Detailed stormwater BMP design will require in-situ soil sampling and testing to confirm the soil permeability and determine high water table depths at the recommended BMP sites.

e. The proposed Town Center improvements will provide for considerable conversion of asphalt surface to lawn and landscaped areas. Based on Phase 2 and 3 Town Center concepts, an estimated 1.5 to 2 acres of asphalt pavement is proposed to be converted to public open space; the majority of which will be landscaped, all of which will not be used for parking or subject to oils.

f. As previously discussed, the BMP area on parcel 261 is limited by the existing utilities unless relocation is performed. Based on estimated depths of excavation for BMP construction it is anticipated that the water and sewer would be impacted if the BMP were to be sites over the utilities.

g. The total area of parcel 261 is approximately 0.98 acres. Subtracting the area within and to the west of the existing water, sewer and gas utilities, the remaining useable contiguous area is approximately 0.5 acres. Preliminary grading and estimates of water quality and channel protection volume requirements[1] indicate that the remaining area on parcel 261 will be adequate for attaining water quality and potentially adequate for attaining channel protection. Peak reductions for higher volume storms have not been reviewed as part of this study. Some level of peak reduction may be attainable. The following assumptions and considerations apply to the installation of BMPs on parcel 261.

- The final extent of treatment and overall BMP effectiveness is subject to detailed survey and stormwater modeling and design.

- The contributing drainage area is similar in size to that presented above. An additional 1.1 acres of drainage area diversion may be needed to sustain a wet extended detention (ED) pond. Otherwise a surface sand filter with extended detention is recommended as a surface BMP option.

- The recommended surface BMP option(s) will impact the majority of the parcel 261 lands west of the existing water, sewer and gas utilities.

- In lieu of a surface BMPs, an underground detention system may be considered. A benefit from this type of system is the reduction in land disturbance compared to a surface BMP and the ability to create and

[1] Maryland Department of Environment Stormwater Design Manual

preserve usable open space. An underground system on parcel 261 could effectively provide up to 0.5 acres more open space when compared to the surface BMP options. Underground detention systems generally have higher initial costs and require more maintenance attention when compared to surface BMPs. Pretreatment measures such as surface bioretention or isolator rows will be necessary to minimize maintenance and trap sediment from first flush storms.

- Adequate separation is to be provided from the bottom of the BMP to the seasonal high water table. According to MDE Stormwater Design Manual Table 4.4, a wet ED pond (not in a hot spot or aquifer), dry swale and surface sand filter require two feet of separation from the high water table. Upon review of the existing site contours, adjacent drainage channel on parcel 261 and anticipated grading requirements, two feet of separation appears attainable. During design, test pits shall be performed and a better assessment of the high water table made.

- The above recommended storm drainage retrofits are installed in the shopping center parking area to divert runoff to the northwesterly corner of parcel 261. These inlet and piping retrofits will serve to:

    - Control the amount of runoff diverted to the proposed BMP site.
    - Collect and convey stormwater runoff along the southwesterly shopping center parking area. Presently, this runoff appears to drain along the southerly side of the parcel 529 entrance road.
    - Aid in maximizing the storm drain outfall elevation to the BMP site and add flexibility for meeting high water table separation criteria.
    - Allow for by-pass of predominantly pervious cover (woods and lawn) and runoff treated by the recommended dry swale; maximizing the recommended parcel 261 BMPs effectiveness by not treating excessive volume within the limited available area.

4.2.2 - Phase 2

The following provides a description of improvements, land acquisition/easements and considerations and challenges associated with Phase 2.

Summary of Improvements:
Phase 2 focuses on the slight expansion of the Phase 1 open space with impacts limited to a 34 stall parking area on the exterior of the Bryans Road Shopping Center property. This phase results in the conversion of approximately one third (1/3) of an acre of asphalt pavement to open space. Proposed improvements consist of the following:

1.) Replacing 34 parking spaces with new lawn and specimen perimeter trees.

2.) Installation of a pedestrian plaza and walkway linkage to Phase 1.

3.) Maintaining current access and circulation of the shopping center and adjacent out parcels.

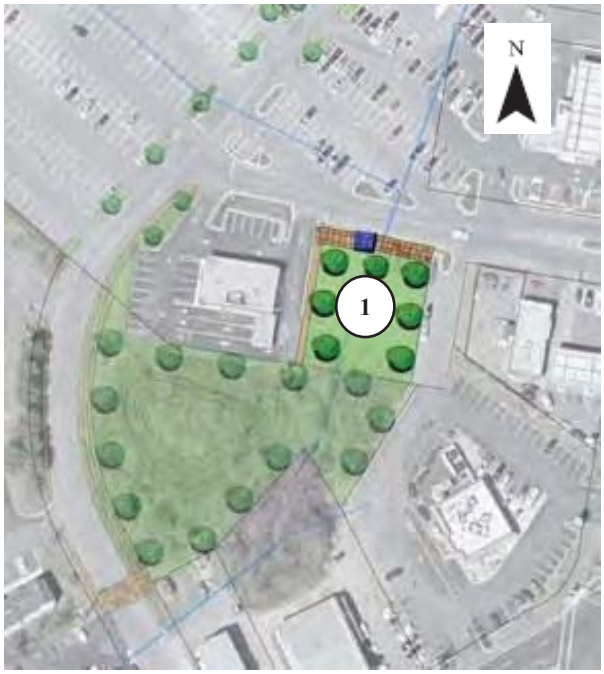


Figure 10 – Phase 2 Concepts

Land Acquisitions / Easements:
Phase 2 improvements fall completely on the shopping center property. Construction of Phase 2 will require some level of public / private partnering between the County and the owner of the shopping center property. Negotiations with the shopping center owner and the owner's property representatives will play a large role in determining how the rights and responsibilities to construct and maintain Phase 2 are decided and agreed upon.

Considerations and Challenges:
1.) The primary challenge and anticipated priority of the shopping center will likely revolve around mitigating the loss of 34 parking spaces.

2.) Consideration of a County sponsored independent parking study is recommended to quantitatively assess peak parking demands at the shopping center. This study to include the identification of both authorized and unauthorized parking and assess the parking supply needs of the entire

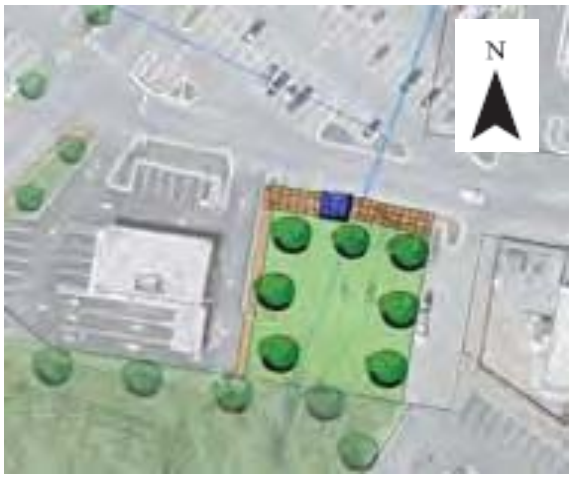


Figure 11 – Phase 2

shopping center.

3.) The recommended parking study should be performed as part of the anticipated Phase 2 design. Assessing the entire shopping center peak parking demands will provide an integral planning and design tool for refining the Phase 3 Town Center concepts and identifying impacts to the parking supply.

4.) Phase 2 construction will result in minimal impact to exisitng underground utilities and drainage, however, it is important to note that the related utility easements will limit any major subsurface work. Figure 12 highlights the approximate limits of the utility easements and drainage (see bold red lines).

Figure 12 – Utility Easements

4.2.3 - Phase 3

The following provides a description of improvements, land acquisition/easements and considerations and challenges associated with Phase 3.

Summary of Improvements:
Phase 3 contains the largest scale improvements being proposed for the Bryans Road Town Center relative to this study. Improvements for this phase build off of Phases 1 and 2 and represent the majority of the key design elements and Bryans Road Sub-Area Plan objectives outlined in Section 3. Planning, design and the eventual construction of Phase 3 will require extensive cooperation between the County and all parties with a vested interest in the Bryans Road Shopping Center. Figure 13 to the right provides the concept rendering for Phase 3. Proposed improvements consist of:

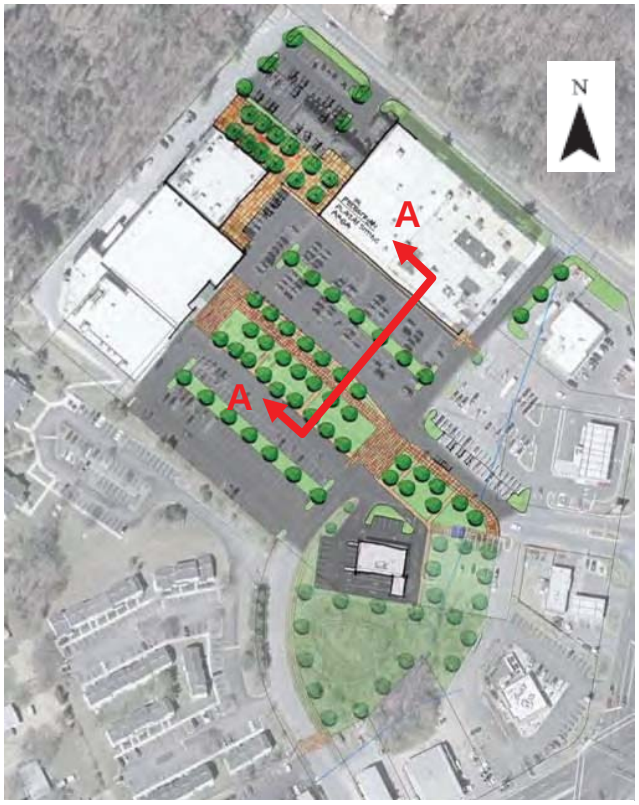


Figure 13

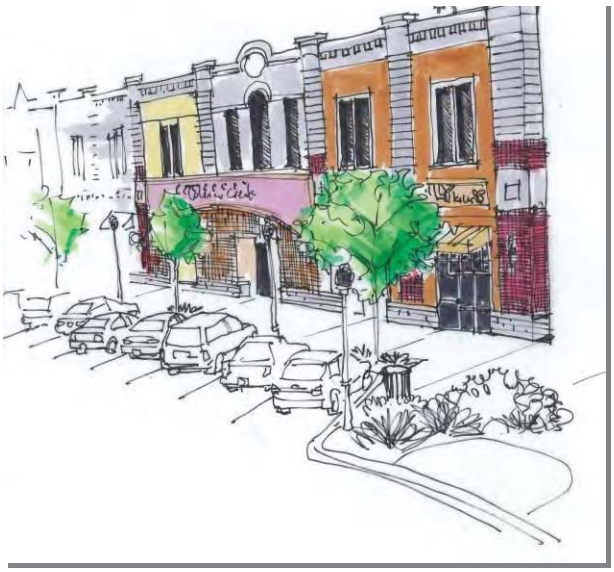
1.) Creating aesthetic public spaces with direct connectivity to the shopping center buildings and the existing parking area.

2.) Utilizing the existing shopping center buildings and maintaining the majority of existing uses.

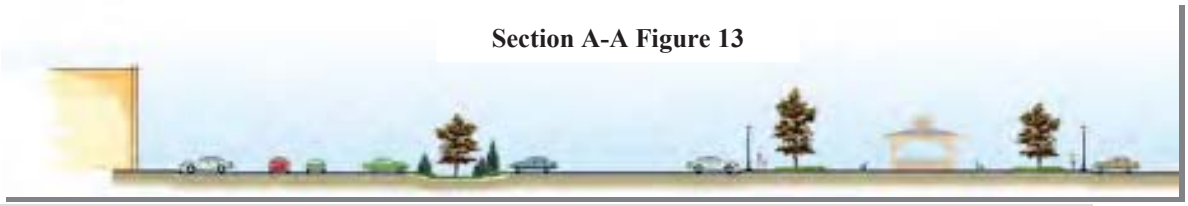
3.) Building façade improvements to enhance the existing built environment and improve aesthetics to support a Town Center atmosphere.

4.) Opportunities for storefront parking.

5.) Pedestrian linkage improvements and added landscape features to break-up the expansive paved parking area and provide refuge to users.



Section A-A Figure 13

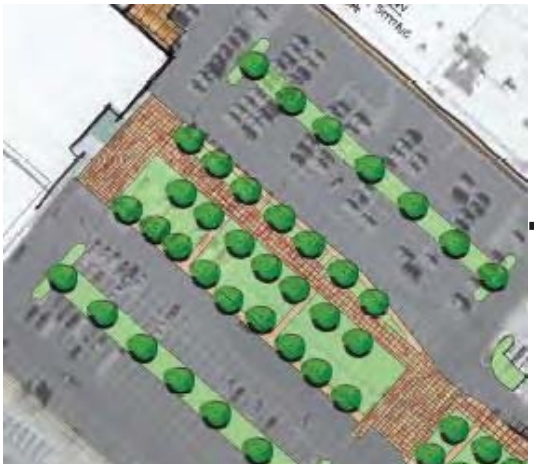


6.) Enhancement of vehicular/pedestrian circulation necessary to support place making for the Town Center.

7.) Opportunities for creating aesthetic plazas with pedestrian scale amenities including gathering areas, sitting areas, landscaping and lighting. *See concepts and design examples below.*

Proposed Pedestrian Plaza / Sitting Area (Building Alteration / Removal)

Design Example



Proposed Common Open Space (Redevelop Existing Parking Lot)

Design Example

Land Acquisitions / Easements:
Phase 3 improvements fall completely on the shopping center property. Construction of Phase 3 will require an extensive commitment to developing a successful public / private partnership between the County and the owner of the shopping center property. Negotiations with the shopping center owner and the owner's property representatives will be vital in determining how the rights and responsibilities to construct and maintain Phase 3 are decided and agreed upon.

Considerations and Challenges:

1.) Cost estimates provided in Appendix C consider the cost of Phase 3 site improvements only. At this time the level of commitment by the property owner is unknown, however, it is anticipated that partnering opportunities may allow for some degree of cost sharing between the County and owner relative to building improvements.

2.) An on-site count of the Current Bryans Road shopping center parking supply, by County staff in December 2007, revealed a total of 588 parking spaces which includes 22 handicap stalls. The Phase 3 Town Center concepts provides for approximately 410 total parking spaces on the shopping center property.

3.) An alternative parking plan for maintaining the existing shopping center parking supply was prepared. A copy of this plan is attached in Appendix A. This plan identified the reductions in the Town Center development concepts necessary to maintain the existing 588 parking spaces. In the end, this plan revealed several realties.

- The intent and purpose of the proposed Town Center will be severely compromised should the existing shopping center parking supply need to be maintained.
- If the existing shopping center parking supply is to be maintained and the development of the Town Center realized, at a minimum, the acquisition of adjacent lands to the rear of the shopping center will be necessary.
- Provided the current shopping center parking supply is necessary for peak demand periods; avoiding additional land requirements, developing the Town Center and maintaining the existing shopping center parking supply may only be accomplished with a parking structure.

4.) As stated above for Phase 2 considerations, a parking study should be performed as part of future planning and design. Assessing the entire shopping center peak parking demands will provide integral planning and design data essential to clearly identify the Town Center's impacts to the shopping center parking supply.

5.) The Phase 3 design and planning will be a multi-disciplined effort. Key planning and design issues include:

- Consensus building and partnering.

- Right of way surveys, mapping, descriptions and negotiations.
- Commercial real estate planning economics.
- Lost commerce.
- Building demolition, alteration and façade improvements.
- Storm drainage interconnection.
- Subsurface utility designation, location and potential relocation.
- Landscape architecture and open space planning and design.
- Site amenities.
- Maintenance of traffic and access control.

4.2.4 - Phase 4

The following provides a description of improvements, land acquisition/easements and considerations and challenges associated with Phase 4.

Summary of Improvements:
Phase 4 represents long range redevelopment concepts for the out parcels fronting on Indian Head Highway (MD 210) and Marshall Hall Road (MD 227). Streetscape and pedestrian safety elements within State right-of-way are more attainable in the sense that private property redevelopment is not essential. Improvements for this phase are presented for the southerly study area parcels, however the out parcel redevelopment concept is encouraged to be extended along the entire frontage of Marshall Hall Road.

Implementing the Phases 4 concepts will require the redevelopment of five (5) private land parcels (See Figure 2, page 5). As with Phase 3, extensive cooperation between the County and private landowners is critical. Figure 14 to the right provides the concept rendering for Phase 4. Proposed improvements consist of:

Figure 14 – Phase 4 Concepts

1.) Expansion of public open space created in Phases 1 and 2.

2.) Continue to create aesthetic spaces with direct connectivity to public open space and new commerical / retail establishments.

3.) Create double frontage buildings with pedestrian access along interior commons areas and separated perimeter parking areas.

4.) Applying the Bryans Road Sub-Area Plan objectives for creating successful and purposeful Town commons areas to new construction in-lieu of retrofit construction being applied to the Bryans Road shopping center.

5.) Create and tie-in safe pedestrian linkages and streetscape enhancements along major highways to encourage walking throughout the Bryans Road Town Center

.

Land Acquisitions / Easements:

The bulk of Phase 4 improvements fall completely on private property. Key elements include the expansion of Phase 1 and 2 public open to develop additional pedestrian linkages and plaza areas. Implementing and planning Phase 4 will most likely be accomplished in sub phases as redevelopment opportunities present themselves. Redevelopment of Parcels 225, 455, 454 and 339 as well as parcels 550 and 137 is at the root of the Phase 4 concepts. Current land uses for these parcels were previous identified in the *"Charles County Tax Map 5"* summary on page 5 of this report.

The creation of public open space / pedestrian plazas adjacent to Phase 1 and 2 may be programmed in advance of more ambitious redevelopment. However, land acquisitions would be necessary to program these improvements separately. Under the redevelopment scenario it is likely that pedestrian right-of-ways or land dedications could be pursued. As with Phase 3, a commitment to developing public / private partnership between the

Figure 15 – Phase 4 Parcel

County and the property owners will be vital.

Considerations and Challenges:

1.) Redevlopement of the subject parcels will be subject to MDE and NPDES requirements to further aid in mitigating sotrmwater in the Town Center area.

2.) Streetscape / pedestrian linkages along the State highways may be developed separately in-lieu of redeveloping the out parcels.

3.) Fostering public / private partnerships and redevelopment incentives.

4.2.5 – Overall Town Center Concept

Figure 16 presents the integration of all four Towns Center development phases. Complete mapping is attached in Appendix B.

Figure 16 – Overall Town Center Concepts

SECTION 5: STORMWATER RETROFITS /BMP ALTERNATIVES

Recommended BMPs have been identified for their anticipated ability to store the water quality volume and, where practical, provide channel protection downstream. The following discussion provides additional insight into the BMP alternatives reviewed as part of this study. Detailed discussion regarding the BMPs recommended for design can be found in Section 4.2.1 – Phase 1.

Stormwater BMP assessment for this study was aimed at identifying suitable BMPs for progression to design. Recommendations are based on an assessment of:

- Preliminary BMP sizing requirements
- Anticipated compatibility with site constraints.
- Integration with Town Center goals.
- Aesthetics
- Right-of-way and easement needs (ease of acquisition).

In addition to site constraints, right-of-way concerns and impacts to the existing land improvements, the anticipated underlying soils effect the BMP installations at and adjacent to the Bryans Road Shopping Center. Soil survey mapping indicates soils in the area to consist of Leonardtown silt loam. As per the Charles County Soil Survey, the Leonardtown series consists of shallow or moderately deep, poorly drained, nearly level soils that have a fragipan or hydraulically restrictive layer. The Leonardtown silt loam mapped across the entire study areas is reported to be better drained when compared to the overall Leonardtown series, however, permeability is reported to be very slow and as such not suitable for infiltration BMPs. Soil survey estimated properties and interpretations also indicate a potential for a perched high water table. Detailed stormwater BMP design will require in-situ soil sampling and testing to confirm the soil permeability and determine high water table depths at the recommended BMP sites.

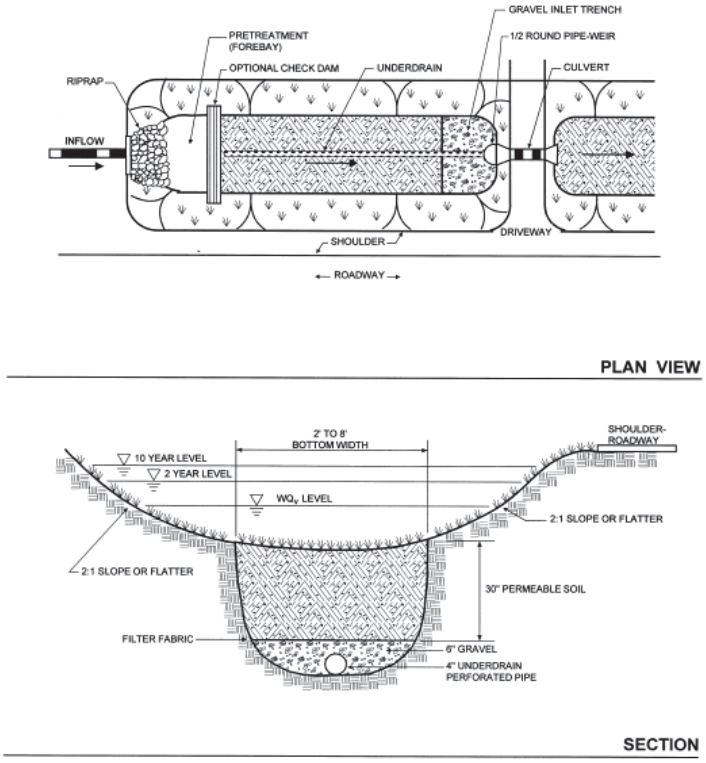
Initial study assessments considered the application of various water quality BMPs at multiple locations in the study area. Final recommendations for progression to design have been narrowed to those presented in the Phase 1 concepts. A complete summary of water quality / extended detention BMPs review is provided below,

5.1 Stormwater BMP Alternatives

5.1.1 – Dry Swale

The use of a dry swale BMP was reviewed for retrofitting the existing drainage ditch located on the south side of Matthews Road. This area is recommended for retrofit design as a dry swale to treat runoff originating from Matthews Road as well as connected drainage from a portion of the rear shopping center parking area. The drainage area to the proposed dry swale location is estimated to be 2.8 acres, including 1.5 acres of impervious cover. MDE design guidance recommends the use of dry swales for drainage areas less than 5 acres.

In-situ soil testing / test holes shall be conducted as part of design to confirm the anticipated soil properties and high water table depths. Installation constraints include a minimum two foot from the bottom of the BMP to the high water table. Adjustments may be required in total swale section depths as required. Given the anticipated lack of infiltration, a 6" underdrain is to be installed and tied to the downstream drainage system.



Dry Swale Schematic
Source: MDE Stormwater Design Manual

View of Existing Drainage Ditch between Matthews Road and Shopping Center

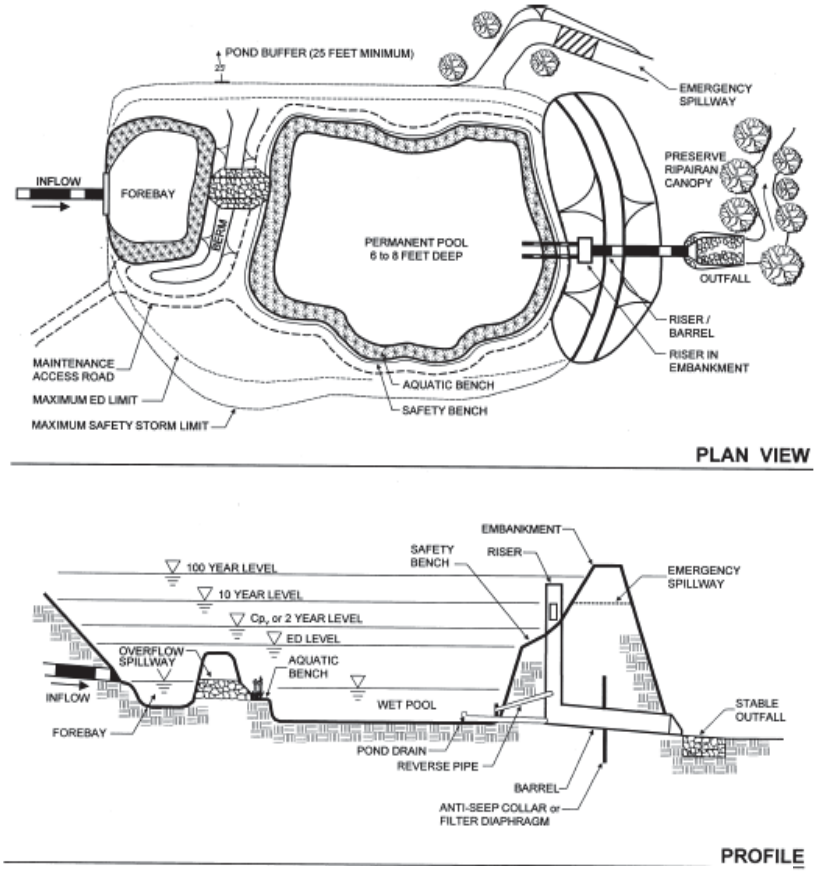
5.1.2 – Extended Detention Wet / Dry Pond

The shopping center topography and existing drainage network contain a single outfall at the common property line of the shopping center and parcel 261. Construction of a wet ED pond below the existing outfall was initially reviewed and considered feasible; provided the existing drainage ditch is not classified as a stream and pending a check of the existing water, sewer and gas utility locations.

Assuming a non stream classification, favorable high water table depths and minimal utility relocation, this location was identified as a potential ED pond site. However, to construct a facility below the existing outfall and around the downstream drainage channel would require encroachments onto to the rear of parcels 255 and 455 in addition to a total take of parcel 261.

The final recommended Town Center Phasing specifically aims to aid in expediting stormwater BMP installations. One key measure applied toward doing this is to minimize the number of right-of-way takes. Therefore, the ED pond BMP alternative was limited to the area of vacant parcel 261.

The total area of parcel 261 is approximately 0.98 acres. Subtracting the area within and to the west of the existing water, sewer and gas utilities, the remaining useable contiguous area is approximately 0.5 acres. Preliminary grading and estimates of water quality and channel protection volume requirements[2] indicate that the remaining area on parcel 261 will be adequate for attaining water quality and potentially adequate for attaining channel protection volumes. Peak reductions for higher volume



Extended Detention Wet Pond Schematic
Source: MDE Stormwater Design Manual

[2] Maryland Department of Environment Stormwater Design Manual

storms have not been reviewed as part of this study however some level of peak reduction can be achieved.

In-situ soil testing / test holes shall be conducted as part of design to confirm the anticipated soil properties and high water table depths. Installation constraints include a minimum four foot from the bottom of the BMP to the high water table.

View of Parcel 261 (left) and Proposed Open Space / Detention Area

Current Town Center Phasing recommendations include upstream drainage retrofits to direct approximately 8.9 acres of runoff to the proposed detention site. An additional 1.1 acres of drainage area diversion may be needed to sustain a wet (ED) pond otherwise a surface sand filter with extended detention is recommended as an alternative BMP option.

In lieu of a surface BMP, an underground detention system may also be considered. This type of system will require less land disturbance than the surface BMP option and create more opportunity for public open space. Underground detention systems generally have higher initial costs and require more maintenance attention when compared to surface BMPs. Pretreatment measures such as upstream surface bioretention or isolator rows will be necessary to minimize maintenance and trap sediment from first flush storms.

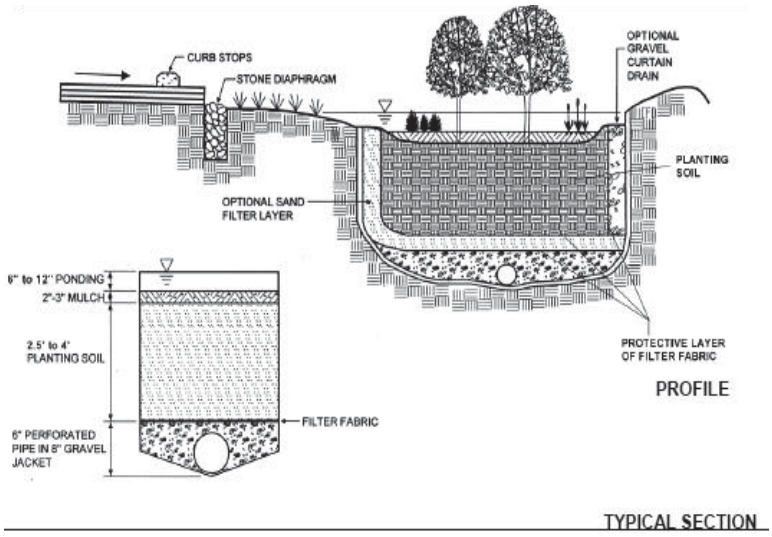
Example - Underground Detention Alternative

As outlined in Section 4 above, stormwater BMPs are recommended for the two sites identified above. This work is proposed to take place as part of the recommendations for Town Center Phase 1. The overall study area contains approximately 11.9 acres of untreated impervious surface. The recommended BMPs at Parcel 261 and along Matthews Road are anticipated to treat 9.7 acres of impervious surface (81.5 percent of the total impervious area). The drainage area summary provided in Section 4.2.1 – Phase 1 is repeated below for reference.

Drainage Areas (Acres$^{+/-}$)						
Cover Type	Study Area	Dry Swale BMP	Parcel-261 WQ/ Extended Detention	Upper Bypass	Lower Bypass	Total
Impervious	**11.9**	**1.5**	**8.2**	**1.0**	**1.2**	**11.9**
Woods	**7.5**	**0.8**	**0.0**	**6.2**	**0.5**	**7.5**
Lawn	**1.8**	**0.5**	**0.7**	**0.3**	**0.3**	**1.8**
Total	**21.2**	**2.8**	**8.9**	**7.5**	**2.0**	**21.2**

5.1.3 – Bioretention

Bioretention, also referred to as rain gardens, was initially reviewed and considered a viable BMP alternative for providing water quality. Bioretention systems are a great fit for treating stromwater runoff from parking lots. Given the recommended phasing for the shopping center, bioretention system are more appropriate during the latter phases where new landscape islands and extended open space is proposed to be constructed. Bioretention systems should be considered as part of these future phases. Particularly if the detailed design of the Phase 1 stormwater BMPs ends up short of the anticipated water quality treatment.

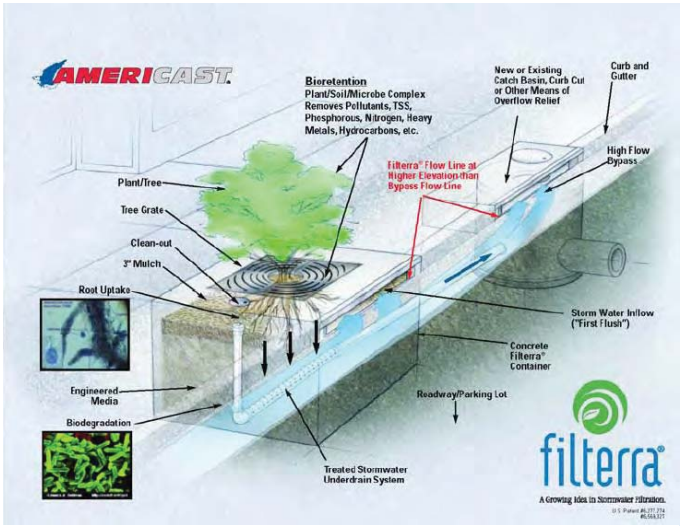


Bioretention Schematic
Source: MDE Stormwater Design Manual

Bryans Road Shopping Center

Bioretention Examples

Retrofits at inlets utilizing proprietary systems such as filterra® provide additional means for water quality treatment. These small scale BMPs are limited in the area that can be treated, work well as a secondary BMP and typically contain a bypass system for larger rainfall events. At a per volume treatment cost this option is more costly when compared to surface bioretention and especially an ED pond. The use of filterra® inlets or similar systems may be considered for the latter concept phases, when the shopping center and out parcels are redeveloped. However, their use as a secondary BMP in conjunction with the outlined storm drain retrofits should be considered as a pretreatment alternative for an underground detention system.



Inlet filterra Schematic
Source: AMERICAST®

Bryans Road Shopping Center

Example Applications

5.1.4 – Green Roof

The application of a green roof was reviewed as an innovative alternative for the SAFEWAY® building. This would effectively disconnect 0.4 acres of impervious surface. The property management representative for the Bryans Road Shopping Center indicated during a concepts presentation that the SAFEWAY® roof was recently rebuilt and therefore not a likely candidate for a green roof.

Implementing a green roof is a costly proposition and not recommended given the opportunities to provide stormwater BMPs at alternate locations in the study area. The following summary of green roof options and typical section schematic are provided for information.

Intensive and Extensive Green Roofs

Characteristic	Intensive Green Roof	Extensive Green Roof
Soil	Requires minimum of one foot of soil depth	Requires only 1 to 5 inches of soil depth
Vegetation	Accommodates large trees, shrubs, and well-maintained gardens	Capable of including many kinds of vegetative ground cover and grasses
Load	Adds 80-150 pounds per square foot of load to building structure	Adds only 12-50 pounds per square foot depending on soil characteristics and the type of substrate
Access	Regular access accomodated and encouraged	Usually not designed for public accessibility
Maintenance	Significant maintenance required	Annual maintenance walks should be performed until plants fill in
Drainage	Includes complex irrigation and drainage systems	Irrigation and drainage systems are simple

Source: Schloz-Barth, Katrin. 2001. "Green Roofs: Stormwater Management From the Top Down." Environmental Design & Construction. January 15.

Typical Green Roof Section

SECTION 6: SUMMARY

Identifying feasible stormwater BMPs for advancement to design and concurrently outlining the concepts for developing the Bryans Road Town Center, results in an integrated concept plan to facilitate both objectives.

To adequately address stormwater and Town Center goals, a four-phased plan has been developed to facilitate stormwater BMP construction in advance of more ambitious Town Center improvements. This feasibility study outlines the four phased approach to assist the County in meeting NPDES water quality goals and developing Town Center concepts at and adjacent to the Bryans Road Shopping Center. The Bryans Road Sub-Area Master Plan objectives to define circulation routes, create successful, purposeful and aesthetically pleasing public spaces and to beautify the surroundings can be further guided with the recommendations and concepts presented herein.

Recommended BMPs have been identified to improve water quality and provide measurable peak discharge reductions to aid in protecting the existing channel downstream of the subject study area.

The recommended development phases are summarized below. Associated costs are provided in Appendix C.

PHASE 1

Recommended Site Improvements:

- Establishment of 1 acre of accessible and / or natural public open space.
- Enhancement of vacant lands; new large caliper tree plantings and landscaping.
- Installation of pedestrian linkages.
- Added landscape islands in shopping center with better delineated parking access.

Recommended Stormwater Improvements:

- Installation of water quality dry swale.
- Installations of water quality / extended detention facility at existing parcel 261 to treat the majority of shopping center stormwater runoff.
- Retrofit shopping center storm drain network to improve water quality BMP efficiency by by-passing runoff form upstream pervious land cover.

PHASE 2

Recommended Site Improvements:

- Elimination of impervious cover with the expansions of Phase 1 open space by an additional 1/3 acre.
- Tree plantings and related landscaping.
- Installation of pedestrian linkages and small plaza area.

PHASE 3

Recommended Site Improvements:

- Expansion of Phase 1 & 2 open space with the establishment of an additional $1.5^{+/-}$ acres of common open space, including pedestrian plazas, landscaped areas and related site amenities such as benches, tables, pedestrian scale lighting, gazebos and more.
- Building façade improvements.
- Partial building demolition and pedestrian plaza development.
- Enhanced pedestrian linkages to proposed common areas, parking and storefronts.
- More defined pedestrian and vehicular circulation routes.
- Store front parking.
- Streetscape enhancements.
- Tree plantings and related landscaping.
- Added landscaped islands in shopping center with better delineated parking access.

Stormwater Improvements (as required):

- Bioretention parking lot islands to further enhance water quality and channel protection.

PHASE 4

Recommended Improvements:

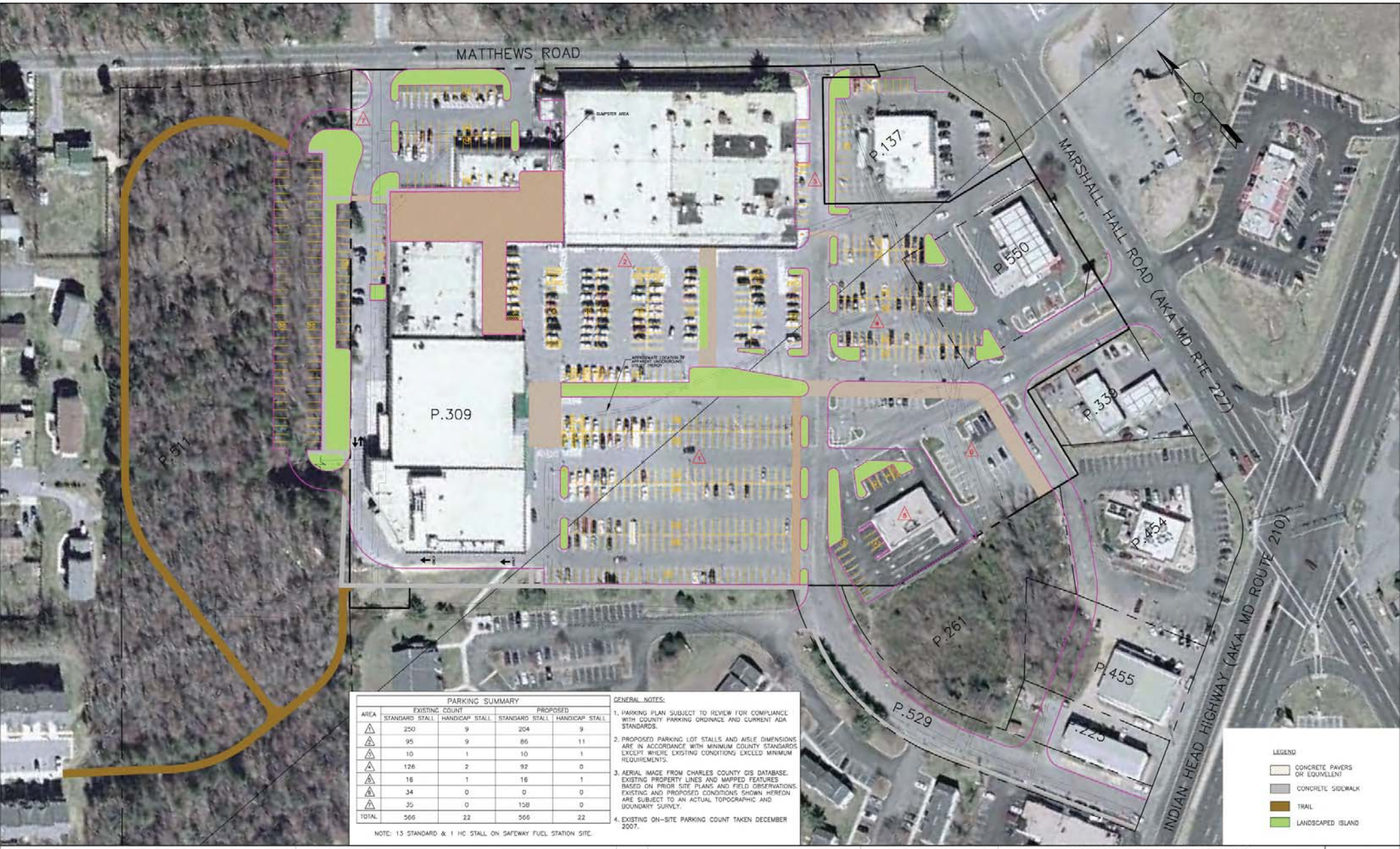
- Redevelopment of out parcels along Indian Head Highway, Marshall Hall Road and Matthews Road.
- Streetscape improvements and expanded pedestrian linkages along adjacent highway frontage.
- Expansion of Phase 1 and 3 open space with adjacent pedestrian plazas providing direct access to open space and redeveloped storefronts.
- Establishment of an additional 1/3 acre of common open space, including pedestrian plazas, landscaped areas and related site amenities such as benches, tables, pedestrian scale lighting and more.
- Dual sided buildings with access from both exterior parking areas and interior pedestrian plazas.
- Pedestrian linkages to proposed common areas, parking and storefronts.
- Tree plantings and related landscaping.

Stormwater Improvements (as required):

- Promote innovative BMPs

APPENDIX A

BRYANS ROAD SHOPPING CENTER PARKING PLAN CONCEPT



PARKING SUMMARY				
AREA	EXISTING COUNT		PROPOSED	
	STANDARD STALL	HANDICAP STALL	STANDARD STALL	HANDICAP STALL
1	250	9	204	9
2	95	9	86	11
3	10	1	10	1
4	126	2	92	0
5	16	1	16	1
6	34	0	0	0
7	35	0	158	0
TOTAL	566	22	566	22

NOTE: 13 STANDARD & 1 HC STALL ON SAFEWAY FUEL STATION SITE.

GENERAL NOTES:

1. PARKING PLAN SUBJECT TO REVIEW FOR COMPLIANCE WITH COUNTY PARKING ORDINACE AND CURRENT ADA STANDARDS.
2. PROPOSED PARKING LOT STALLS AND AISLE DIMENSIONS ARE IN ACCORDANCE WITH MINIMUM COUNTY STANDARDS EXCEPT WHERE EXISTING CONDITIONS EXCEED MINIMUM REQUIREMENTS.
3. AERIAL IMAGE FROM CHARLES COUNTY GIS DATABASE. EXISTING PROPERTY LINES AND MAPPED FEATURES BASED ON PRIOR SITE PLANS AND FIELD OBSERVATIONS. EXISTING AND PROPOSED CONDITIONS SHOWN HEREON ARE SUBJECT TO AN ACTUAL TOPOGRAPHIC AND BOUNDARY SURVEY.
4. EXISTING ON-SITE PARKING COUNT TAKEN DECEMBER 2007.

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future
220 S. Charles Way, Suite 200, York, Pennsylvania 17402
www.jmt.com 1-800-266-5488

GRAPHIC SCALE

0 50' 100' 150'

SCALE: 1"=0" = 50'-0"

DATE	REVISIONS

PLAN PREPARATION

DRAWN BY: JKC	DATE: FEB. 2008
DESIGNED BY:	SCALE: AS NOTED
CHECKED BY: MLM	

BRYANS ROAD TOWN CENTER

PARKING PLAN CONCEPT
BRYANS ROAD SHOPPING CENTER
7TH ELECTION DISTRICT
CHARLES COUNTY MARYLAND

JOB NO. 07-0486

SHEET NO. 1 OF 1

APPENDIX B

BRYANS ROAD TOWN CENTER CONCEPTS

- Phase 1 Concept
- Phase 2 Concept
- Phase 3 Concept
- Phase 4 Concept
- Overall Concepts

BRYANS ROAD FEASIBILITY STUDY

CHARLES COUNTY MARYLAND

STORMWATER RETROFIT
TOWN CENTER CONCEPTS

PHASE 1
STORMWATER RETROFITS AND LINKAGE IMPROVEMENTS

PARCELS:
261
309
529

Source: Charles County GIS Datasets.

N
W E
S

February 2008

100 50 0 100 200 300 Feet

BRYANS ROAD FEASIBILITY STUDY

CHARLES COUNTY MARYLAND

STORMWATER RETROFIT
TOWN CENTER CONCEPTS

PHASE 2
BRYANS ROAD SHOPPING CENTER INITIAL IMPROVEMENTS

PARCELS:
309

Source: Charles County GIS Datasets.

N
W E
S

February 2008

100 50 0 100 200 300 Feet

BRYANS ROAD FEASIBILITY STUDY

CHARLES COUNTY MARYLAND

STORMWATER RETROFIT
TOWN CENTER CONCEPTS

PHASE 3
BRYANS ROAD SHOPPING CENTER IMPROVEMENTS

PARCELS:
137
309

Source: Charles County GIS Datasets.

N
W E
S

February 2008

100 50 0 100 200 300 Feet

BRYANS ROAD FEASIBILITY STUDY

CHARLES COUNTY MARYLAND

STORMWATER RETROFIT
TOWN CENTER CONCEPTS

PHASE 4
POTENTIAL FUTURE IMPROVEMENTS TO OUT PARCELS

PARCELS:
225
339
454
455

Source: Charles County GIS Datasets.

N
W E
S

February 2008

100 50 0 100 200 300 Feet

BRYANS ROAD FEASIBILITY STUDY

CHARLES COUNTY MARYLAND

STORMWATER RETROFIT
TOWN CENTER CONCEPTS

OVERALL IMPROVEMENTS
PHASES 1, 2, 3 & 4

Source: Charles County GIS Datasets.

N
W E
S

February 2008

100 50 0 100 200 300 Feet

APPENDIX C

ESTIMATED COSTS

PHASE 1 TOWN CENTER CONCEPTS Estimated Probable Costs		
Items	**Estimated Costs**	**Remarks**
Site Concepts		
Clearing Site	$15,000	
Streetscape	$190,000	Includes curb, sidewalk, landscaping, pavement treatments and lighting
Tree Plantings	$30,000	Large caliper
Open Space Landscaping	$25,000	
Sight Amenities	$30,000	Fencing, benches, tables, gazebo, trash etc.
Stormwater Improvements		Assume no utility relocation on parcel 261
Dry Swale	$30,000	
ED-Wet Pond	$150,000	Includes earthwork & landscaping
Underground Detention	$350,000	Includes earthwork, material and pre-treatment measures (Not Included in Totals))
Storm Drainage Improvements	$50,000	Includes inlets, pipe and trench repair
Incidentals	$50,000	
Contingencies	$75,000	Estimate approx. 15%
Sub Total	$645,000	
Right-of-Way Needs		Subject to appraisal by licensed real estate appraiser
Parcel 261 Total Take	$140,000	
Easements (Parcel 309)	$5,000	Drainage, temporary construction
Design Fees	$100,000	Estimate approx. 15% of Sub Total
Total	**$890,000**	

Notes:

1.) *Estimated costs are subject to change pending a detailed design.*
2.) *Estimated costs are in today's dollars.*
3.) *Property acquisitions and easements subject to appraisal by a licensed real estate appraiser.*

PHASE 2 TOWN CENTER CONCEPTS Estimated Probable Costs		
Items	**Estimated Costs**	**Remarks**
Site Concepts		
Clearing Site	$10,000	Includes pavement removal
Streetscape	$40,000	Includes curb, sidewalk, landscaping, pavement treatments and lighting
Landscaping & Gardens	$20,000	Trees, shrubs, lawn
Sight Amenities	$15,000	Fencing, benches, tables, kiosk, trash etc.
Incidentals	$8,000	
Contingencies	$15,000	Estimate approx. 15%
Sub Total	$108,000	
Right-of-Way Needs		Subject to appraisal by licensed real estate appraiser
Partial Take (Parcel 309)	$50,000	
Design Fees	$17,000	Estimate approx. 15% of Sub Total
Total	**$175,000**	

Notes:

1.) *Estimated costs are subject to change pending a detailed design.*
2.) *Estimated costs are in today's dollars.*
3.) *Property acquisitions and easements subject to appraisal by a licensed real estate appraiser.*

PHASE 3 TOWN CENTER CONCEPTS Estimated Probable Costs		
Items	**Estimated Costs**	**Remarks**
Site Concepts		
Clearing Site	$50,000	
Parking Lot Milling / Leveling & Resurfacing (2" Avg.)	$225,000	
Utility Relocation	$30,000	Relocate fire hydrants, valve resets etc.; no major relocation
Pedestrian Plazas	$525,000	Includes curb, pavers, sidewalk and pedestrian scale lighting
Landscaping & Gardens	$200,000	Trees, shrubs, lawn
Sight Amenities	$235,000	Fencing, benches, tables, gazebo, trash etc.
Building Improvements	N/A	Assumed by owner(s)
Stormwater Improvements		Assume no utility relocation on parcel 261
Storm Drain Connections	$65,000	Relocation, upgrades and ties to existing storm drains
Bioretention in Parking Islands (As required)	$50,000	Includes earthwork & landscaping
Incidentals	$140,000	
Contingencies	$230,000	Estimate approx. 15%
Sub Total	$1,750,000	
Right-of-Way Needs		Subject to appraisal by licensed real estate appraiser
Parcel 309 Partial Take / ROW Dedication / Easement	$225,000	Town common areas ($1.5^{+/-}$ Acres)
Design Fees	$260,000	Estimate approx. 15% of Sub Total
Total	**2,235,000**	

Notes:

1.) *Estimated costs are subject to change pending a detailed design.*
2.) *Estimated costs are in today's dollars.*
3.) *Improvements to buildings and adjacent walkways assumed to be by owners.*
4.) *Property acquisitions and easements subject to appraisal by a licensed real estate appraiser.*

PHASE 4 TOWN CENTER CONCEPTS Estimated Probable Costs		
Items	**Estimated Costs**	**Remarks**
Site Concepts		
Clearing Site	$15,000	
Streetscape	$250,000	Includes curb, sidewalk, landscaping, pavement treatments and lighting
Pedestrian Plaza	$150,000	Incl. pavers and pedestrian scale lighting
Landscaping & Gardens	$40,000	Trees, shrubs, lawn
Sight Amenities	$30,000	Fencing, benches, tables, kiosk, trash etc.
Out Parcel Buildings, Parking and Interior Sidewalk Improvements, Lighting and related site amenities	N/A	Assumed by Owners
Stormwater Improvements		Assume no utility relocation on parcel 261
As Per Redevelopment Needs	N/A	Assumed by Owners
Incidentals	$50,000	
Contingencies	$75,000	Estimate approx. 15%
Sub Total	$610,000	
Right-of-Way Needs		Subject to appraisal by licensed real estate appraiser
Parcel 225 Partial Take / ROW Dedication	$35,000	
Parcel 455 Partial Take / ROW Dedication	$15,000	
Design Fees	$90,000	Estimate approx. 15% of Sub Total
Total	**$750,000**	

Notes:

1.) *Estimated costs are subject to change pending a detailed design.*
2.) *Estimated costs are in today's dollars.*
3.) *Improvements to buildings and adjacent walkways assumed to be by owners.*
4.) *Property acquisitions and easements subject to appraisal by a licensed real estate appraiser.*

OVERALL TOWN CENTER CONCEPTS Estimated Probable Costs		
Phase:	**Estimated Costs**	**Remarks**
Phase 1	$890,000	
Phase 2	$175,000	
Phase 3	$2,235,000	
Phase 3	$750,000	
Total	**$4,050,000**	

Notes:

1.) *Estimated costs are subject to change pending a detailed design.*
2.) *Estimated costs are in today's dollars.*

study area including stormwater retrofits. The design for revitalization of the study area aims to contribute to the:

- Creation of a discernable center;
- Enhancement of connectivity of the existing street network;
- Creation of lively streetscapes with relation to building location and design;
- Linkages to dwellings located within a five minute or ½ mile walk from the center;
- Design of interspersed open space in and around the center; and
- Utilization of lesser roadway classifications of narrower widths to create tree-lined and pedestrian friendly streetscapes providing access to goods, services and amenities.

1.2 Overview of the Study Area

Much of what is recognized as the Town Center today consists of the Bryans Road Shopping Center which is situated within a heavily developed commercial area near the corner of Indian Head Highway and Marshall Hall Road. Primarily constructed in 1972, the shopping center is served by a single storm drain system installed prior to the adoption of stormwater regulations in 1983. The County NPDES MS4 Annual reporting program has identified the Bryans Road Shopping Center drainage area for watershed restoration by implementing BMPs to mitigate untreated impervious surfaces within the County's Development District.

In conjunction with these recommended stormwater retrofits, moving the established Bryans Road Town Center beyond the planning stages is also a priority of Charles County. Installing stormwater best management practices (BMP) to improve the management of runoff at the Bryans Road Shopping Center and concurrently defining potential Town Center improvements allows the integration and coordination of these key planning objectives.

This report focuses on the following objectives relative to the Bryans Road watershed restoration and Town Center development.

- Assessing the feasibility of providing innovative stormwater BMPs to treat runoff generated from the impervious cover at and adjacent to the Bryans Road Shopping Center. The proposed BMPs shall have the potential to store the water quality volume and provide channel protection downstream.

- Integration of a Town Center concept at the Bryans Road Shopping Center and surrounding lands to spatially identify opportunities for creating new public spaces within the existing built environment. Including open space, pedestrian linkages, improved landscaping and other amenities as previously outlined in Section 1.1.

- Creating a Town Center atmosphere in the context of a built environment while addressing stormwater management issues.

Recommended BMPs have been identified to improve water quality and provide measurable peak discharge reductions to aid in protecting the existing channel downstream of the shopping center. Stormwater BMP objectives and Town Center goals are considered complimentary. However, the implementation of stormwater retrofits is paramount and anticipated to precede the longer range plan of developing the Bryans Road Town Center. To address these needs accordingly, a four-phased plan has been developed to facilitate stormwater BMP construction in advance of more ambitious Town Center improvements that require significant alterations to the Bryans Road Shopping Center landscape and subsequent future phases to realize the larger town center core concept.

This report provides a summary of the study analysis, the options considered, estimated costs and the preferred Town Center concept design for the study area and proposed phasing plan for implementation.

SECTION 2 STUDY AREA

The study area is located in the core commercial area of Bryans Road and represents a critical location with respect to the development/redevelopment of the Bryans Road Town Center. The subject watershed consists of $20.8^{+/-}$ acres; including up to $7.3^{+/-}$ acres of forested lands and $11.8^{+/-}$ acres of untreated impervious cover (i.e. parking lots, roadways and buildings). The majority of stormwater runoff is collected and conveyed via a single storm drain. This system is discharged via a reputed 42" outfall to an existing drainage channel located near the southeasterly corner of the Bryans Road Shopping Center. The study area is graphically delineated in Figure 2 Study Area with arrows denoting the approximate location of the referenced storm drain network.

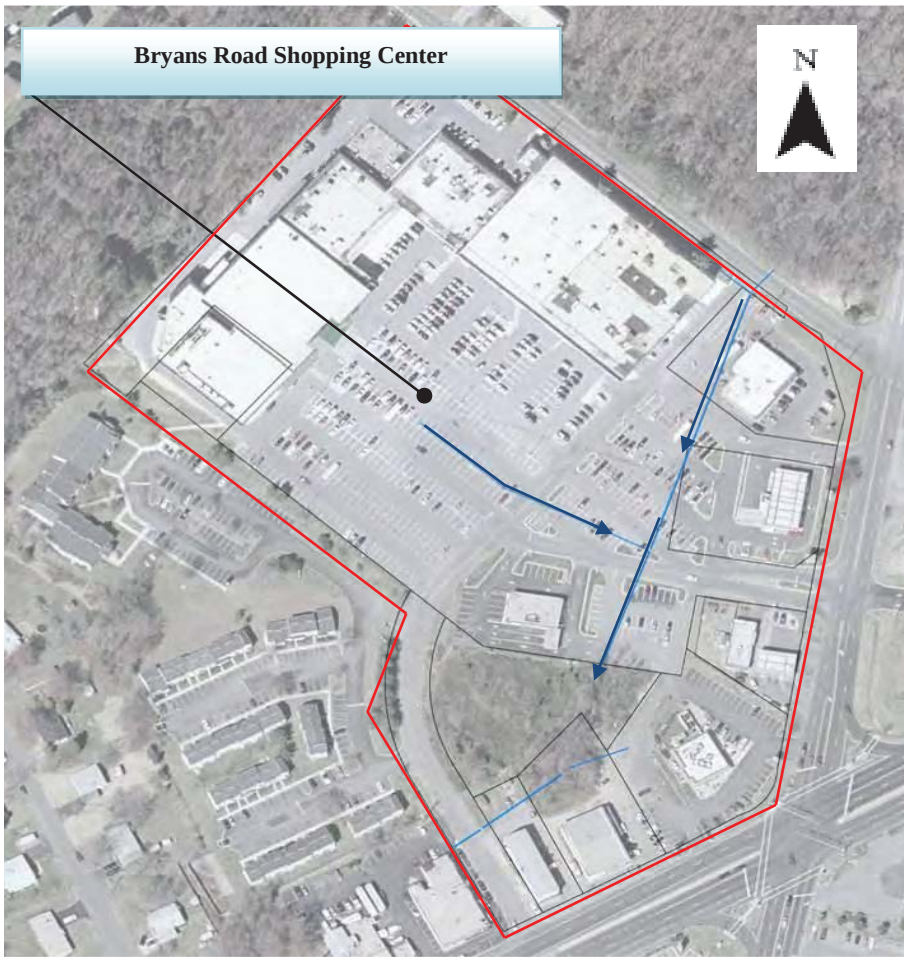


Figure 2 – Study Area

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Where feasible, the aesthetic design concept solutions provided in the Bryans Road Sub-Area Plan objectives were explored for use in preparing the recommended Town Center concepts and integrated stormwater retrofits. These concepts include:

Master Plan Objectives	Aesthetic Design Concept Elements
Defining circulation routes	Bioretention / landscape areas to define through roads.
Creating a successful/purposeful Town Common or public open space	Specify size criteria, location, landscape elements and vehicular/bicycle/pedestrian circulation and architectural elements necessary to support place making for the Town Common or public open space and create aesthetically pleasing public space. Consideration of underground stormwater storage options. *Reference: Town Center Core Plan and Street Cross Sections.*
Beautification	Bioretention, filterra inlet planters and other possible beautification solutions.
Architectural Features	Green roof, rain garden planters at down spouts and other features.

The recommended Town Center concepts and integrated stormwater BMPs have been developed around several key elements and features necessary to meet applicable goals of the Bryans Road Sub-Area Plan and County NPDES MS4 program. These elements include:

- Integrating stormwater BMPs with Town Center landscape;
- Providing common open space areas;
- Controlling vehicle and pedestrian access;
- Improving pedestrian safety through design of pedestrian elements;
- Providing store front parking; and
- Use of architectural facades / unique storefronts.

Developing concepts and associated phasing for the Bryans Road Town Center began with identifying opportunities and locations where key elements could be realized while respecting the built environment through incorporating the footprint of the existing shopping center. Given the success of the shopping center and its economic viability in the community, complete redevelopment of the shopping center area was deemed impractical. However, impacts to the current parking areas are unavoidable and essential to reorienting the area to create town center characteristics, providing public open space, and providing improvements to encourage pedestrian usage.

Town Center characteristic assessment resulted in consideration for blending the use of the existing shopping center buildings with improvements to convert the asphalt parking

lots and access aisles to create an integrated center with added landscaping, common open space and gathering areas, and improved pedestrian linkages between parking areas, roads and businesses.

A site feasibility assessment method was utilized to evaluate the anticipated success of blending the key elements outlined above as well providing due consideration to constructability and the ability to phase the recommended Town Center improvements. Many variables entered into the feasibility assessment of alternatives such as impacts to existing uses, ease of implementation, potential unmitigated conflicts and more importantly, a design with the ability to maximize the vision of the Town Center. In addition to providing the noted key elements, the preferred alternative must also provide or account for the following:

- Utilizing existing buildings;
- Maintaining developed parcels to facilitate the initial implementation of stormwater BMPs;
- Short term / long term planning capabilities;
- Improvement recommendations including concepts that can be planned in phases;
- Better defined circulation routes for vehicular and pedestrian modes of travel;
- Minimizing parking impacts; and
- Minimizing utility impacts.

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The Town Center concepts developed in this study represent a starting point toward realizing the Bryans Road Town Center concepts. The scope of this study is focused on the Bryans Road Shopping Center area and the integration of stormwater BMPs. However, it is anticipated that future development and redevelopment including associated roadway and trail improvements in and adjacent to the study area will provide opportunities to expand and enhance the character of the Town Center within and beyond the boundaries presented herein.

The Bryans Road Shopping Center represents the largest property in the study area recorded as approximately 11.4 Acres. A total of ten (10) properties are within the boundary / impacts of the study. Figure 2 provides a snapshot of Maryland Department of Planning, Charles County Tax Map 5 and identifies the location of parcels in the subject study area.

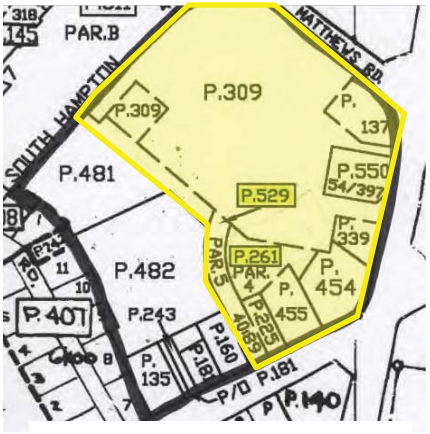

Figure 3 – Tax Map 5

Charles County Tax Map 5

Grid	Parcel	Current Land Use
23	137	Convenience Store & Auto Service
23	225	Dry Cleaner
23	261	Vacant Land
23	309	Shopping Center
23	339	Auto Service and Fuel Station
23	454	Fast Food (Burger King®)
23	455	Auto Parts Sales
23	481	High density residential
23	529	ROW parcel
23	550	Fuel Station (SAFEWAY™ GAS)

The Bryans Road Shopping Center's largest tenant is SAFEWAY™ supermarket. A CVS/Pharmacy® and DOLLAR GENERAL® retail store are also located in the shopping center. Refer to Figure 4 for store locations:

- 1 SAFEWAY™
- 2 CVS/Pharmacy®
- 3 DOLLAR GENERAL ®

Other notable tenants include a small cinema, various small restaurants and a day care center. Out parcels along Indian Head Highway and Marshall Hall Road contain retail, fast food and fuel station establishments. Town Center and parking plan concept maps attached in the appendices provide a complete aerial view of the study area.

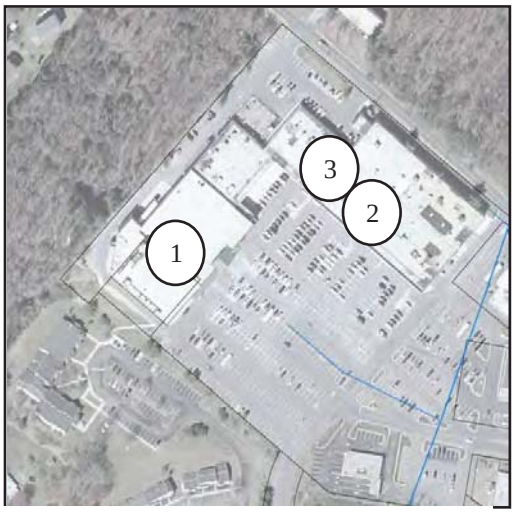

Figure 4 – Shopping Center Anchor Tenants

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A draft Town Center concept plan, including integrated stormwater retrofit options, was initially presented to the County Department of Planning and Growth Management and representatives of two key property owners. These key properties include:

- Bryans Road Shopping Center located on Parcel 309
- Vacant Land Parcel 261

Improvements to parcels 309 and 261 are essential to ensure successful development of the Town Center concept and recommended stormwater BMPs. The level of cooperation by the owners / representatives of these properties will dictate the rate at which the proposed phased concepts are realized. Key concerns and challenges associated with improving these parcels are summarized as follows:

Bryans Road Shopping Center (Parcel 309):

- Lost commerce to the shopping center tenants resulting from construction activities.
- Creating public spaces will result in the loss and / or displacement of the existing shopping center parking.
- As per the property manager, tenant lease agreements require the current parking supply to be maintained.
- Maintaining existing building footprints continues poor visibility from major roadways.
- Developing public / private partnerships.

As part of this study, a parking plan concept was developed for the shopping center site to identify an alternative that would maintain the current parking supply. Upon preparing this plan, it was clear that maintaining the current parking supply results in inadequate creation of public open space, marginal improvements to circulation routes, limited pedestrian improvements and in general very poor opportunities for development of the Town Center concept. As a result, land acquisition to the rear of the shopping center would be necessary to offset the loss of parking in the main parking areas. The parking plan concept is included in Appendix A.

Vacant Lands - Parcel 261:

- Owners are currently in land development planning stages.
- Property acquisition is necessary to create public open space.
- Underground utilities to be avoided or relocated include water, sewer and gas.
- Need to balance improvements between stormwater retrofits and conceptualized public open space.

The proposed Town Center concepts hinge on the ability to convert the existing parking areas and access aisles of the shopping center into more defined circulation routes for both vehicles and pedestrians. The success of the Town Center and attraction for pedestrian activity require the creation of safe and accessible walkways and public open spaces. In addition, the conversion of asphalt parking surfaces to pedestrian

the southeast into adjacent private properties. Limiting the Phase 1 property acquisition needs will aid in expediting the installation of the proposed stormwater BMPs by avoiding the need for additional right-of-way / land acquisitions.

3.) A schematic of the existing storm drain piping is provided in Figure 8. This drainage system is to remain and continue conveying runoff captured upstream of the shopping center parking area.

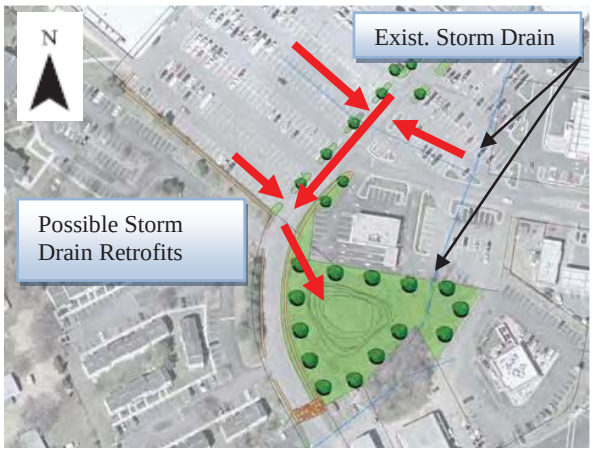

Figure 8 – Phase 1 Storm Drain Schematic

4.) Drainage system retrofits within the shopping center will be required to convey runoff from the shopping center parking areas to the proposed stormwater extended detention facility. A schematic of the proposed drainage system retrofits are highlighted in Figure 8.

5.) Further considerations and summary data for the recommended BMPs and associated storm drain retrofits are outlined on the following page.

d. Soil in the study area is Leonardtown silt loam. As per the Charles County Soil Survey, the Leonardtown series consists of shallow or moderately deep, poorly drained soils that have a fragipan or hydraulically restrictive layer. This soils permeability is reported to be very slow and as such not suitable for infiltration BMPs. Detailed stormwater BMP design will require in-situ soil sampling and testing to confirm the soil permeability and determine high water table depths at the recommended BMP sites.

e. The proposed Town Center improvements will provide for considerable conversion of asphalt surface to lawn and landscaped areas. Based on Phase 2 and 3 Town Center concepts, an estimated 1.5 to 2 acres of asphalt pavement is proposed to be converted to public open space; the majority of which will be landscaped, all of which will not be used for parking or subject to oils.

f. As previously discussed, the BMP area on parcel 261 is limited by the existing utilities unless relocation is performed. Based on estimated depths of excavation for BMP construction it is anticipated that the water and sewer would be impacted if the BMP were to be sites over the utilities.

g. The total area of parcel 261 is approximately 0.98 acres. Subtracting the area within and to the west of the existing water, sewer and gas utilities, the remaining useable contiguous area is approximately 0.5 acres. Preliminary grading and estimates of water quality and channel protection volume requirements[1] indicate that the remaining area on parcel 261 will be adequate for attaining water quality and potentially adequate for attaining channel protection. Peak reductions for higher volume storms have not been reviewed as part of this study. Some level of peak reduction may be attainable. The following assumptions and considerations apply to the installation of BMPs on parcel 261.

- The final extent of treatment and overall BMP effectiveness is subject to detailed survey and stormwater modeling and design.

- The contributing drainage area is similar in size to that presented above. An additional 1.1 acres of drainage area diversion may be needed to sustain a wet extended detention (ED) pond. Otherwise a surface sand filter with extended detention is recommended as a surface BMP option.

- The recommended surface BMP option(s) will impact the majority of the parcel 261 lands west of the existing water, sewer and gas utilities.

- In lieu of a surface BMPs, an underground detention system may be considered. A benefit from this type of system is the reduction in land disturbance compared to a surface BMP and the ability to create and

[1] Maryland Department of Environment Stormwater Design Manual

preserve usable open space. An underground system on parcel 261 could effectively provide up to 0.5 acres more open space when compared to the surface BMP options. Underground detention systems generally have higher initial costs and require more maintenance attention when compared to surface BMPs. Pretreatment measures such as surface bioretention or isolator rows will be necessary to minimize maintenance and trap sediment from first flush storms.

- Adequate separation is to be provided from the bottom of the BMP to the seasonal high water table. According to MDE Stormwater Design Manual Table 4.4, a wet ED pond (not in a hot spot or aquifer), dry swale and surface sand filter require two feet of separation from the high water table. Upon review of the existing site contours, adjacent drainage channel on parcel 261 and anticipated grading requirements, two feet of separation appears attainable. During design, test pits shall be performed and a better assessment of the high water table made.

- The above recommended storm drainage retrofits are installed in the shopping center parking area to divert runoff to the northwesterly corner of parcel 261. These inlet and piping retrofits will serve to:

    - Control the amount of runoff diverted to the proposed BMP site.
    - Collect and convey stormwater runoff along the southwesterly shopping center parking area. Presently, this runoff appears to drain along the southerly side of the parcel 529 entrance road.
    - Aid in maximizing the storm drain outfall elevation to the BMP site and add flexibility for meeting high water table separation criteria.
    - Allow for by-pass of predominantly pervious cover (woods and lawn) and runoff treated by the recommended dry swale; maximizing the recommended parcel 261 BMPs effectiveness by not treating excessive volume within the limited available area.

Land Acquisitions / Easements:
Phase 3 improvements fall completely on the shopping center property. Construction of Phase 3 will require an extensive commitment to developing a successful public / private partnership between the County and the owner of the shopping center property. Negotiations with the shopping center owner and the owner's property representatives will be vital in determining how the rights and responsibilities to construct and maintain Phase 3 are decided and agreed upon.

Considerations and Challenges:

1.) Cost estimates provided in Appendix C consider the cost of Phase 3 site improvements only. At this time the level of commitment by the property owner is unknown, however, it is anticipated that partnering opportunities may allow for some degree of cost sharing between the County and owner relative to building improvements.

2.) An on-site count of the Current Bryans Road shopping center parking supply, by County staff in December 2007, revealed a total of 588 parking spaces which includes 22 handicap stalls. The Phase 3 Town Center concepts provides for approximately 410 total parking spaces on the shopping center property.

3.) An alternative parking plan for maintaining the existing shopping center parking supply was prepared. A copy of this plan is attached in Appendix A. This plan identified the reductions in the Town Center development concepts necessary to maintain the existing 588 parking spaces. In the end, this plan revealed several realties.

- The intent and purpose of the proposed Town Center will be severely compromised should the existing shopping center parking supply need to be maintained.
- If the existing shopping center parking supply is to be maintained and the development of the Town Center realized, at a minimum, the acquisition of adjacent lands to the rear of the shopping center will be necessary.
- Provided the current shopping center parking supply is necessary for peak demand periods; avoiding additional land requirements, developing the Town Center and maintaining the existing shopping center parking supply may only be accomplished with a parking structure.

4.) As stated above for Phase 2 considerations, a parking study should be performed as part of future planning and design. Assessing the entire shopping center peak parking demands will provide integral planning and design data essential to clearly identify the Town Center's impacts to the shopping center parking supply.

5.) The Phase 3 design and planning will be a multi-disciplined effort. Key planning and design issues include:

- Consensus building and partnering.

- Right of way surveys, mapping, descriptions and negotiations.
- Commercial real estate planning economics.
- Lost commerce.
- Building demolition, alteration and façade improvements.
- Storm drainage interconnection.
- Subsurface utility designation, location and potential relocation.
- Landscape architecture and open space planning and design.
- Site amenities.
- Maintenance of traffic and access control.

7.2.2 Phase 4

The following provides a description of improvements, land acquisition/easements and considerations and challenges associated with Phase 4.

Summary of Improvements:
Phase 4 represents long range redevelopment concepts for the out parcels fronting on Indian Head Highway (MD 210) and Marshall Hall Road (MD 227). Streetscape and pedestrian safety elements within State right-of-way are more attainable in the sense that private property redevelopment is not essential. Improvements for this phase are presented for the southerly study area parcels, however the out parcel redevelopment concept is encouraged to be extended along the entire frontage of Marshall Hall Road.

Implementing the Phases 4 concepts will require the redevelopment of five (5) private land parcels (See Figure 2, page 5). As with Phase 3, extensive cooperation between the County and private landowners is critical. Figure 14 to the right provides the concept rendering for Phase 4. Proposed improvements consist of:

Figure 14 – Phase 4 Concepts

STORMWATER MANAGEMENT ALTERNATIVES

Recommended BMPs have been identified for their anticipated ability to store the water quality volume and, where practical, provide channel protection downstream. The following discussion provides additional insight into the BMP alternatives reviewed as part of this study. Detailed discussion regarding the BMPs recommended for design can be found in Section 4.2.1 – Phase 1.

Stormwater BMP assessment for this study was aimed at identifying suitable BMPs for progression to design. Recommendations are based on an assessment of:

- Preliminary BMP sizing requirements
- Anticipated compatibility with site constraints.
- Integration with Town Center goals.
- Aesthetics
- Right-of-way and easement needs (ease of acquisition).

In addition to site constraints, right-of-way concerns and impacts to the existing land improvements, the anticipated underlying soils effect the BMP installations at and adjacent to the Bryans Road Shopping Center. Soil survey mapping indicates soils in the area to consist of Leonardtown silt loam. As per the Charles County Soil Survey, the Leonardtown series consists of shallow or moderately deep, poorly drained, nearly level soils that have a fragipan or hydraulically restrictive layer. The Leonardtown silt loam mapped across the entire study areas is reported to be better drained when compared to the overall Leonardtown series, however, permeability is reported to be very slow and as such not suitable for infiltration BMPs. Soil survey estimated properties and interpretations also indicate a potential for a perched high water table. Detailed stormwater BMP design will require in-situ soil sampling and testing to confirm the soil permeability and determine high water table depths at the recommended BMP sites.

Initial study assessments considered the application of various water quality BMPs at multiple locations in the study area. Final recommendations for progression to design have been narrowed to those presented in the Phase 1 concepts. A complete summary of water quality / extended detention BMPs review is provided below,

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Identifying feasible stormwater BMPs for advancement to design and concurrently outlining the concepts for developing the Bryans Road Town Center, results in an integrated concept plan to facilitate both objectives.

To adequately address stormwater and Town Center goals, a four-phased plan has been developed to facilitate stormwater BMP construction in advance of more ambitious Town Center improvements. This feasibility study outlines the four phased approach to assist the County in meeting NPDES water quality goals and developing Town Center concepts at and adjacent to the Bryans Road Shopping Center. The Bryans Road Sub-Area Master Plan objectives to define circulation routes, create successful, purposeful and aesthetically pleasing public spaces and to beautify the surroundings can be further guided with the recommendations and concepts presented herein.

Recommended BMPs have been identified to improve water quality and provide measurable peak discharge reductions to aid in protecting the existing channel downstream of the subject study area.

The recommended development phases are summarized below. Associated costs are provided in Appendix C.

PHASE 1

Recommended Site Improvements:

- Establishment of 1 acre of accessible and / or natural public open space.
- Enhancement of vacant lands; new large caliper tree plantings and landscaping.
- Installation of pedestrian linkages.
- Added landscape islands in shopping center with better delineated parking access.

Recommended Stormwater Improvements:

- Installation of water quality dry swale.
- Installations of water quality / extended detention facility at existing parcel 261 to treat the majority of shopping center stormwater runoff.
- Retrofit shopping center storm drain network to improve water quality BMP efficiency by by-passing runoff form upstream pervious land cover.

PHASE 2

Recommended Site Improvements:

- Elimination of impervious cover with the expansions of Phase 1 open space by an additional 1/3 acre.
- Tree plantings and related landscaping.
- Installation of pedestrian linkages and small plaza area.

PHASE 3

Recommended Site Improvements:

- Expansion of Phase 1 & 2 open space with the establishment of an additional $1.5^{+/-}$ acres of common open space, including pedestrian plazas, landscaped areas and related site amenities such as benches, tables, pedestrian scale lighting, gazebos and more.
- Building façade improvements.
- Partial building demolition and pedestrian plaza development.
- Enhanced pedestrian linkages to proposed common areas, parking and storefronts.
- More defined pedestrian and vehicular circulation routes.
- Store front parking.
- Streetscape enhancements.
- Tree plantings and related landscaping.
- Added landscaped islands in shopping center with better delineated parking access.

Stormwater Improvements (as required):

- Bioretention parking lot islands to further enhance water quality and channel protection.

PHASE 4

Recommended Improvements:

- Redevelopment of out parcels along Indian Head Highway, Marshall Hall Road and Matthews Road.
- Streetscape improvements and expanded pedestrian linkages along adjacent highway frontage.
- Expansion of Phase 1 and 3 open space with adjacent pedestrian plazas providing direct access to open space and redeveloped storefronts.
- Establishment of an additional 1/3 acre of common open space, including pedestrian plazas, landscaped areas and related site amenities such as benches, tables, pedestrian scale lighting and more.
- Dual sided buildings with access from both exterior parking areas and interior pedestrian plazas.
- Pedestrian linkages to proposed common areas, parking and storefronts.
- Tree plantings and related landscaping.

Stormwater Improvements (as required):

- Promote innovative BMPs

APPENDIX B

BRYANS ROAD TOWN CENTER CONCEPTS

- Phase 1 Concept
- Phase 2 Concept
- Phase 3 Concept
- Phase 4 Concept
- Overall Concepts