

VI. ENVIRONMENT

Because of the area's unique connection to the Chesapeake Bay and its water quality, habitat, and natural resources, land use in the Deale/Shady Side area must be focused upon minimizing impacts to the Bay. This is essential, not only from an ecological perspective, but to maintain the cultural heritage and local economy and its connection, via recreational and commercial fishing, to the Bay. Therefore the vision is that the area's natural resources will be conserved, protected, and restored, which will enhance the quality of life for people and nature alike.

- The low-lying nature of the area, traversed by creeks and inlets and inundated with wetlands, is unsuitable for intensive and haphazard development.
- Future development will be directed away from environmentally sensitive areas, as indicated by wetlands, and other indicators.
- The SAP Committee has recommended a specific area as shown on page 31 be considered as a Greenway. The County is currently developing a comprehensive Greenway Program, and have asked the consultants to consider the area recommended specifically and any other opportunities that may exist.
- Agricultural, maritime and other industries will be assisted in conducting their businesses in an environmentally sound manner through education and other incentives.

While Federal and State legislation and initiatives exist to manage wildlife and protect/restore the Chesapeake Bay and its living resources, without leadership at the local level, these programs are doomed to failure. The Small Area planning process should be recognized as an opportunity to initiate bold land use & zoning plans at the grassroots level to assist in Chesapeake Bay restoration and to maintain healthy communities.

More than two thirds (69 percent or 5,872 acres) of the total Deale/Shady Side Small Area (8,475.5 acres) is designated as a Critical Area under the State of Maryland's Critical Area Program. Of the total acreage within the Critical Area, more than half (3,081 acres) has been designated as Resource Conservation Area. The Deale Shady Side area is unique in its preponderance of land designated as environmentally sensitive. The area is characterized by many small tributaries and low-lying peninsulas woven into the landscape. The uneven ratio of shoreline to land acreage creates a situation in which land use has a disproportionate effect on water quality.

The following recommendations are made to more effectively protect wetlands and riparian buffer zones. They are viewed as practical and necessary solutions in upholding the intent of the Critical Areas legislation or in protecting the well being of local residents. At the first public forum of the Deale/Shady Side Small Area Planning Process, citizens resoundingly emphasized the importance of protecting the area's natural resources. The Small Area Plan presents an opportunity for citizens of the Deale/Shady Side Area to be pro-active in protecting the environment and quality of life that they value. At a time when Bay-wide goals for improving water quality, restoring bay grasses

and riparian buffers are not being fully met, local land use and zoning policies must step in to support Chesapeake Bay Program initiatives.

A. WETLANDS & SUBMERGED AQUATIC VEGETATION

Wetlands are an important and integral part of the landscape in the Deale/Shady Side area. Wetland plants practice “luxury consumption” of nutrients, consuming more nutrients than that required for growth, making them an invaluable buffer for nutrient runoff. They also function as a sink for toxic runoff from roadways, lawns, and farms. Wetlands stabilize shorelines, keeping turbidity down, which in turn provides the water clarity necessary for submerged aquatic vegetation. Wetlands “hold” storm waters, protecting adjacent land from flooding. Wetlands provide food and habitat for a myriad of wildlife, from the tiny zooplankton upon which fisheries resources ultimately depend, to migrating waterfowl, to mammals such as muskrats, otters, and deer. Healthy wetlands mean good water quality and productive fisheries. Commercial and recreational fisheries are an important part of the Deale/Shady Side Area’s economy and cultural history.

Wetland loss has been substantial in the Deale/Shady Side area over the last 100 years. Although relatively small losses have been documented by MDE for non-tidal wetlands approximately 4 acres since 1990 and 3 acres for tidal wetlands

The Corps of Engineers and Maryland Department of the Environment regulate Wetlands and buffers. If the Corps does not take jurisdiction (occasionally isolated wetlands are regulated by MDE) then they have determined that a wetland does not exist. The County does not regulate wetlands or grant variances for encroachments into wetlands for State or Federal mandated programs.

Sewerage treatment has exacerbated wetland loss, by opening up a myriad of platted building lots that never ~~Apercolated@~~ to development. Many of these sites are non-tidal wetlands, but do not require an environmental site inspection due to the lot size (outside of the Critical Area) or are not regulated by Corps or State jurisdiction. Unfortunately, developments of many small lots of this kind add up to substantial wetland losses that are not documented or tracked.

Normally a grading permit is required for any disturbance of 15,000 sq.ft. or more. In those cases an environmental review is required if wetlands are identified. In other cases where under 15,000 sq.ft. of disturbance occurs only a building permit is required and in some cases small pockets of wetlands may be impacted. However, it is still the responsibility of the owner in all cases to comply with State and Federal Law and regulations regarding wetlands.)

Like wetlands, submerged aquatic vegetation (SAV) is an important part of the Chesapeake Bay's ecosystem. Not only do bay grasses improve water quality, they also provide food and shelter for waterfowl, fish and shellfish. Research has shown that the

density of juvenile blue crabs is 30 times greater in grass beds than in unvegetated areas of the Bay (MD DNR 1998). The Deale/Shady Side area has seen dramatic declines in SAV over the last 30 years. Recently, however, this trend has begun to turn around in some areas of the upper Bay. Monitoring in the West River by MD DNR, however, has shown no increase in SAV abundance. Chesapeake Bay Program goals for reestablishing SAV are not being met in waters of the Deale/Shady Side Small Area.

ISSUE: Wetlands are being lost outside of the Critical Area (more than 1,000 feet inland) due to lack of environmental site review as part of the single lot building process:

§ Single Lot Building Permits that do not require grading plans: An environmental site review is not required outside of the critical area for single family building permits that disturb less than 15,000 square feet and do not require a grading plan. County environmental reviewers are often (but not always) notified by the grading inspector when a grading plan involves hydric soils or wetlands. Because there is no formal mechanism in place that requires an environmental site review, many wetlands are never recognized. Although a majority of the Deale/Shady Side area lies within the Critical Area, the predominance of the area's land outside of the Critical Area is typically low lying forested wetland, characterized by hydric soils and standing water.

RECOMMENDATION:

Make environmental site review mandatory for all projects outside of the Critical Area that do not require a grading plan, where County soil maps show hydric soils.

ISSUE: Wetlands are being lost through the variance process, both within and outside the Critical Area. County environmental inspectors make site visits for all new building permits within the critical area. If wetlands are found to exist, either within or outside the Critical Area, then a State/Federal permit is required. However a property owner can apply for variances that impact wetlands.

Wetlands are regulated by the Corps of Engineers and MDE. The County does not issue variances (except under the Critical Area Program) for infringement into wetlands. The county could issue variances for other construction considerations, including a setback to a wetland or for construction on a steep slopes, etc.)

RECOMMENDATIONS:

The County should keep a record of all variances granted that degrades or fills wetlands, in order to track cumulative wetland loss over time.

Variations that involve wetland degradation or fill should only be granted under extremely exceptional situations (e.g. property access). It is recommended that language to this effect be adopted under the County Code.

ISSUE: The SAP Committee feels there is insufficient environmental site review in the field and too much reliance by OPZ on Wetland Inventory Maps in planning and zoning processes. Similarly there is too much reliance on wetland delineation by consultants hired by developers too late in the Subdivision Review process. Jurisdictional Determination should occur early in the process and should be performed in strict compliance with regulations.

However, it is currently the practice to have consultants to delineate wetlands and provide the information at the earliest phase of development review - Sketch Phase. The Corps of Engineers reviews and field checks the delineations. After review a jurisdictional determination is then issued by the Corp of Engineers for the project.

\$ Wetland Inventory Maps - Wetland Inventory Maps are based on aerial photography and are used in conjunction with on-site review to properly identify wetlands. In the Deale/Shady Side Area, soils are predominantly hydric and are defined as inappropriate for development (SCS 1973). Hydric soils are often indicative of wetland hydrology and vegetation. Historic maps refer to the Shady Side peninsula as the Great Swamp. During prolonged wet periods, roadways in the area flood and lawns are submerged. In short, Wetland Inventory Maps delineate only a fraction of the wetlands in the Deale/Shady Side area, particularly, the forested wetlands (MDE - Judy Cole, pers. com). Wetland Inventory Maps should only be used for environmental review purposes with the appropriate groundtruthing.

\$ Delineation's by Developers Consultants – The SAP Committee feels that wetland delineation's by environmental consultants need to be verified by appropriate county, state and/or federal agency personnel to ensure accuracy of delineations.

It is the jurisdiction of the Corps of Engineers and the Maryland Department of the Environment to verify delineations. The County has no jurisdictional authority in this area and relies on state and federal agency approval.

RECOMMENDATIONS:

- a. Wetland inventories and on-site environmental review should be performed in conjunction with any major planning exercise, such as designation of Opportunity sites, to accurately assess potential impacts to adjacent wetlands, stormwater management options, and other sensitive areas and should include a written report. This process should also occur prior to approving changes in zoning (up zoning) within the Critical Area and approval of Critical Area growth allocations.

- b. The SAP Committee has recommended that wetland inventories and environmental site review should be performed by consultants hired by the county and paid for by the developer as part of the subdivision review process to ensure that wetlands and other sensitive areas within the Critical Area are delineated accurately. This recommendation is worthy of further review and study. It will be reviewed and a recommendation forwarded which considers the administrative cost and improvements that may be gained from an independent study.
- c. County “Sensitive Area” maps should be field tested to better delineate the extent of wetlands in the Deale/Shady Side Area. These maps are used for planning purposes as part of the GDP.

ISSUE: The waters of the Deale/Shady Side Area are not supporting the re-establishment of SAV beds and are not meeting Chesapeake Bay Program goals for SAV restoration.

RECOMMENDATIONS:

Note: See recommendations under Water Quality.

OTHER:

There is concern over the loss and encroachment on non-tidal wetlands. There are specific recommendations regarding this topic in the Land Use and Zoning chapter.

B. GREENWAYS & RIPARIAN BUFFERS

As defined in the General Development Plan, Chapter 4, Section 3A, Open Spaces and Greenways, Greenways are defined as “natural linear areas that follow stream valleys, abandoned railroad lines and old trails. They provide natural resource protection, wildlife corridors, hiker/biker trails, and linear space for passive recreation.” The goals of a Greenway include “Give priority to protection and preservation of wildlife habitat and sensitive areas when considering acquisition and development of waterfront access, open space and wildlife corridors; encourage innovative methods, including pursuit of private and public resources, to expand existing natural areas, Greenways and wildlife corridors; and promote an open space system for active and passive recreation between existing and new communities.”

The county should set priorities for purchase of agricultural (and other easements) easements where the purchase will best promote the establishment and continuation of a Greenway, as well as preserving agricultural land and woodland.

Within the Deale/Shady Side Small Area, there is a loss of large tracts of contiguous, undeveloped, forested land, adjacent to tidal wetlands and the Bay, which serves as critical habitat for wildlife, buffers water quality, and plays a critical role in floodwater

retention. In the first public forum of the SAP process, wildlife and its bay-side habitat were among the top several high priority assets named by local residents. Chesapeake Bay Program goals for preserving and restoring riparian buffers are currently not being met. Many of the tracts of undeveloped, forested land within the Deale/Shady Side Area are predominantly forested wetland.

ISSUE: Establishing a greenway/wildlife corridor is critical to stabilizing the declining trend of forested riparian areas and wetlands, to improving water quality, and to preventing wildlife populations from becoming stressed and/or genetically isolated. Establishing a greenway in the Deale/Shady Side area is consistent with the following GDP recommendations: a) *Increase efforts to add to preservation and creation of upland forested areas*, b) *Identify preservation areas through the Small Area Planning Process*, and c) *Develop a Countywide greenways plan and integrate it into regional greenway planning efforts*. Protecting riparian buffers is mandated by the State and County Critical Area Programs and supported in the GDP. Establishing a greenway is also aligned with the Critical Area Commission's draft *Policy on Habitat for Interior Dwelling Neo-tropical Migrants* (birds that require large tracts of forest for nesting).

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Insert Draft Geenway Map

RECOMMENDATIONS:

Create a ‘Greenway’ through the Deale/Shady Side Area to preserve riparian buffers, assist in floodwater retention, and provide wildlife corridors (to enhance wildlife movement and cover, and to avoid genetically isolated populations of wildlife). The following objectives are associated with establishing a greenway:

- a. Give special consideration to applications for participation in the County Agricultural Preservation Program and other programs for lands within the designated Greenway.
- b. When a Greenway is delineated in the RCA, consider rezoning land to be consistent with existing land use (Agricultural or Open Space). This would protect the integrity/continuity of the proposed greenway.
- c. Encourage the retention of forested areas and promote reforestation and other restoration activities on publicly owned lands.
- d. Consider establishing or increasing non-tidal Stream Buffers outside the Critical Area: The non-tidal portions of streams should be protected by adoption of an ordinance creating a riparian buffer similar in purpose and nature to the 100 foot buffer in the Chesapeake Bay Critical Area. (Maintenance of a 100 foot natural buffer adjacent to non-tidal streams would be expanded to include adjacent non-tidal wetlands, floodplains, and steep slopes of 15% or greater, and their buffers). Note: the Lower Western Shore Tributary Strategy Team supports this recommendation. It is also in keeping with the GDP priority to revise development regulations to require undisturbed buffers along upland streams.

Note: Currently twenty-five foot buffers are required adjacent to all wetlands and fifty-foot buffers from all streams.)

ISSUE: Encroachment on the 100-foot Critical Area buffer. After houses have been built on lots that include the 100-foot buffer, property owners often ignore clearing/building restrictions within the 100-ft. buffer. Enforcement of buffer restrictions is typically lax or non-existent after the first two years. There is no long term monitoring program set up within P & Z for buffer monitoring. The riparian buffer and sometimes adjacent ~~Afringe@marsh~~ are often degraded, and sometimes destroyed by disturbances such as tree cutting, building of accessory structures (increasing impervious surface), wetland fill, etc.. This may contribute to poor water quality in adjacent tributaries.

RECOMMENDATIONS:

- a. Critical Area Buffer Expansion – It is recommended that the Chesapeake Bay Critical Area Work Group evaluate the need for increasing the Critical Area Buffer for new subdivisions and make specific findings and recommendations to the Office of Planning and Zoning.

Note: Other Counties (e.g. Cecil, Queen Anne) have increased Critical Area buffers in an attempt to further protect water quality.

- b. If the existing 100 foot Critical Area Buffer is expanded it is further recommended that innovative landscape alternatives be developed for use in the area. This may include such items as berms, backyard ponds, and other bioretention methods.
- c. Long Term Monitoring – Consider initiating a long term monitoring program within the Critical Area buffer to ensure its integrity. Partnership opportunities should be explored in the design and implementation of such a program.
- d. New Subdivisions – The SAP Committee recognized that wetlands are a valuable resource that need to be protected, and that lot layout which includes wetlands and encroaches on them and their buffers may have adverse impacts.

The Office of Planning and Zoning recommends that this issue be studied in greater detail, and that consideration be given to regulatory changes that will further protect all wetlands. The issues to be consider are: should wetlands be included within lots, or to the extent possible platted as community open space; and whether or not to allow new developments to include the acreage of wetlands toward density.

- e. The Sap Committee has recommended that the county restore the language in the critical Area regulations regarding maintaining a 300-ft. buffer in conjunction with growth allocations. The proposed change of the word shall to should maintain a 300 foot buffer represents a step backwards in efforts to uphold the intent of the Critical Area Legislation. This item will be forwarded to the Critical Area Work Group for study and further recommendations.

C. WATER QUALITY

Surface Water Quality

Water quality is an indicator of long-term sustainability of the natural resources in the surrounding watershed. The Chesapeake Bay Water and Habitat Quality Monitoring Program (MD DNR) has collected water quality samples in the Maryland tributaries since 1985. One of the sampling sites lies within the Deale/Shady Side Area along the West River. Samples are analyzed for nutrients, such as total nitrogen and total phosphorus, and for physio-chemical parameters, such as dissolved oxygen. Fifteen years of data currently show no improvements and Apoor@water quality conditions with respect to total nitrogen, abundance of algae, secchi depth, and total suspended solids for the West River. Water quality in Herring Bay is not monitored by DNR.

With the entire Small Area within the Coastal Plain Province and adjacent to tidal waters, surface waters either flow directly into tributaries or into the Bay proper, or flow short distances through stormwater drains, ditches, or wetlands before reaching the Chesapeake

Bay. Sixty-nine percent of the small area lies within the Critical Area (1000 feet from the water's edge). Land based activities within this zone have a very direct and often negative impact on poorly flushed tributaries, such as the West River, and ultimately upon Bay water quality. Water quality effects all living resources within the Chesapeake Bay ecosystem and impacts the local economy through its effect on fisheries productivity and water based recreation.

ISSUE: Poor water quality. Water quality in the Deale/Shady Side Area has consistently been rated *poor* since 1989 by MD DNR. In an effort to reverse this trend, riparian buffers must be protected and restored. Resource Conservation Areas within the Critical Area should be protected and enhanced. Outside of the Critical Area, buffer zones adjacent to Bay tributaries should be expanded to more effectively protect water quality. One of the GDP goals (p.33, GDP) is to *improve viability of fish & wildlife habitats*. Water quality and SAV trends on the West River have shown no signs of improvement over the last 10 years (MD DNR). The following recommendations are deemed necessary to improve water quality and the viability of fish & wildlife habitats.

RECOMMENDATIONS:

- a. Support and encourage protection and restoration of riparian buffers (see recommendations under Riparian Buffers and Greenways).
- b. Identify and encourage the removal of abandoned and unused impervious surfaces, which exacerbate stormwater runoff.
- c. Make the completion of watershed management plans a priority for all watersheds, (to be completed as soon as possible before the projected ten years). Utilize resources of the Federal, State, university, or consultants to complete the plans. The watershed management plans should identify land uses, watershed resources such as wetlands, establish impacts to water quality from land uses, and develop goals for sustaining and improving the natural functional components of the watershed. Identify opportunities to increase the wetlands in each watershed to meet State and Federal water quality and wetlands goals.

The first watershed management plans are currently being completed. Future plans are being refined and improved to obtain better products. It is in the County's best interest to expedite the process.

- d. The County should consider a Stormwater Management Utility Program similar in scope to the wastewater treatment system. The Utility should be independent and generate revenue from property owners based upon impervious area, impact to water quality, with credits for implementing BMPs for quality and quantity. The fees would be dedicated for the use of improving stormwater infrastructure and reducing impervious areas in existing and planned developments. By implementing the Utility, developers can be brought into the process before the county is built out (currently at 50%) to assist with the long-term costs and management of stormwater structures, for new building only.
- e. The County should discourage the use of lawn services, herbicide, and fertilizer application within the critical area, with emphasis on properties within the 100 (150)

- foot buffer, through public education and should encourage Bay Scapes® plantings.
- f. The County's Soil Conservation program should work with State and/or Federal agencies to initiate periodic water quality monitoring as part of the soil conservation plans for farms that cultivate land, apply fertilizer/herbicides, or graze livestock within the critical area. Note: Bio-gro® applications that coincide with rain events currently run off into headwaters of the West River, causing odors with unknown associated nutrient levels.
 - g. The County should work with the State and EPA to ensure that Marina facilities are meeting standards for toxic discharges (from power-washing, scraping, painting, fuel, etc.). The County should also help to educate boaters regarding the above.

Wastewater Treatment

Wastewater treatment has both human health and water quality implications for the Deale/Shady Side Area. Although leaking septic systems can theoretically pose a threat to human health, no cases of this have been documented in our Small Area. Leaking septic systems should be addressed through the use of an alternative system, such as shale filtration. For the portions of the Small Area that are currently not on public sewer, many residents already have costly sand filter systems that function very well. The potential environmental damage associated with bringing public sewer to areas that currently do not percolate can not be understated. This would potentially open up sensitive areas to infill development and new subdivisions.

ISSUE: Currently there are some potential conflicts between County GDP Land Use Maps and the GDP position on public sewer and the County's maps showing planned service areas. Sewer service is currently planned for areas that are inappropriate for new development.

RECOMMENDATION:

The County will identify the areas where there are conflicts and amend the Sewer Service maps to be consistent with proposed land use.

ISSUE: The extent of failing septic systems and residents using outhouses is unknown for the Deale/Shady Side Area.

RECOMMENDATIONS:

- a. Develop a program in concert with the Health Department to register and inspect septic systems and outhouses particularly for property in the Critical Area or within 100 feet of shallow wells. Test those wells for contamination to protect groundwater. Develop alternative systems such as sand filters or aerobic systems to replace failing septic systems.

- b. Develop programs to provide financial assistance to poverty level residents, who are not on public sewer, and who do not have indoor plumbing, to install plumbing and septic systems or alternative systems (sand filters, biofilters, aerobic systems) where the land does not percolate.

ISSUE: The name Broadwater Water Reclamation Facility is not geographically accurate.

RECOMMENDATION:

Rename the plant the Shady Side Water Reclamation Facility (SSWRF).

ISSUE: The Broadwater WRF was not designed and built to promote growth in the area. This plant and collection system was constructed to address existing health issues and water quality problems in the West River and Rockhold Creek watersheds.

The plant was designed to handle waste from existing development, and sized to accommodate future growth from infill as per existing zoning. There is a concern that the plant not be expanded further to open up additional area to growth beyond that allowed by current zoning.

RECOMMENDATIONS:

- a. The existing GDP recommendation to direct new development towards areas with existing public sewage treatment facilities could have a negative impact in the Deale/Shady Side area. An alternative to the traditional use of adequate sewer capacity would be to develop and use a matrix approach of basic development criteria. The criteria would consider adequate facilities, soil types, sensitive areas, etc. to determine where development should take place. Wetlands, Resource Conservation Areas, Floodplains, and Steep slopes should be avoided. The matrix approach could be used to indicate when the granting of waivers, special exceptions, and variances is inappropriate.
- b. Require the following Improvements to the Broadwater WRF:
 - Cap plant capacity to be more in line with flow growth measures recommended in the Deale/Shady Side Small Area Plan.
 - Publish Broadwater WRF's National Pollution Discharge Elimination System (NPDES) compliance records in newspapers monthly.
 - Initiate water saving practices such as piping treated effluent for use on local sod farms.
- c. Maintain the plant capacity at its current level to allow for the programmed infill and subdivision activity that may occur under current zoning. No expansion of the plant is recommended to allow for increased development through rezonings to higher

densities.

ISSUE: There is a need for innovative water conservation/education. Currently, innovative home systems that channel graywater for landscape irrigation can only be used in repair situations and cannot be a part of new home design.

RECOMMENDATIONS:

- a. Promote Conservation of water through education. Include water saving tips with every Wastewater or Tax bill.
- b. Expand the building code to allow the use of approved graywater filtration systems and roof drainage for passive irrigation in new home design.

ISSUE: Installation of underground utilities provides drainage pathway for groundwater. Natural shallow groundwater level is about two to four feet above sea level. When trenches are cut and backfilled with gravel the groundwater will drain along the gravel fill.

RECOMMENDATION:

Require bentonite clay stops around horizontal and vertical pipes if not currently required.

Ground Water

The Deale/Shady Side Small Area is dependant upon water wells for residential, commercial, and agricultural usage. Well water in the area is drawn from the Aquia and Magothy Aquifer. According to a report by the Maryland Geological Survey, the Aquia Aquifer is dropping at a rate of one foot per year. This drop does not appear to be sustainable over twenty or more years. While the actual responsibility for water management lies with the State, the County has an obligation to ensure that development in upland areas where recharge is greatest is minimized and to restrict development to a sustainable level.

ISSUE: The Aquia Aquifer is dropping an average of one foot per year. Will the Aquia aquifer sustain existing residents and businesses and projected growth? Similarly, salt-water intrusion has been documented in the Annapolis Neck area. It is uncertain as to what this means for the Deale/Shady Side area (i.e. could it happen here if production exceeds capacity of the aquifer)?

RECOMMENDATIONS:

- a. In order to more closely determine if the drop in the aquifer level will impact the many residents with wells in the Aquia Aquifer, and to prevent a long-term failure of wells, the County should adopt a policy that will ensure the long-term viability of existing wells. This policy should be incorporated into the Adequate Facilities Law.

- b. A long-term groundwater management plan should be developed that identifies the upland recharge zones for the Aquia Aquifer, opportunities for assisting with the recharge of reclaimed water, and closer monitoring of water use. The plan's time horizon should be fifty to 100 years. The sustainable capacity of the aquifer should be determined as stated in the GDP.
- c. Educate the public about the limits of the aquifer to provide water for the long-term. The recent drought could be used as an example of the fact that water is a finite resource and should be utilized sparingly.

D. SOILS and EROSION

Soils

County soil maps provide a tool that allows us to evaluate the appropriateness of land for development at various locations within our Small Area. We can easily see, in a very objective way, if given areas should most appropriately be used for farmland, development, or preservation.

The U.S. Soil Conservation Service classifies the majority of soils in the Deale/Shady Side area as sensitive. The 1973 Soil Survey of Anne Arundel County shows four soils out of about thirty-five that occur in our planning area are unbuildable. These four soils occur in over ninety percent of our area. They are (Tm) tidal marsh, (Ot) Othello silt loam, (En) Elkton silt loam, and (Bm) Bibb silt loam. The Elton, Othello, and Bibb silt loam soils all have very serious drainage problems. An updated soil survey is projected to be completed in early 2000. This map, partly due to being surveyed at a finer scale (2 acres instead of 4 acres per data point), is expected to create two new soils categories and show a greater portion of buildable land within our Small Area.

ISSUE: The SAP Committee feels that the County underutilizes soils as indicators of sensitive environmental areas that should be protected.

RECOMMENDATION:

The Soil Conservation District indicates that soils may have limitations for certain types of construction, but that none are totally unbuildable. Therefore, the use of soil maps for the purpose of determining construction limitations is only one tool currently used by the Office of Planning and Zoning. Soils maps are used extensively in the review process as an indicator of problem areas.

The Soil Conservation Service is in the final stage of updating the maps which will provide greater detail and better accuracy.

Erosion

Erosion can result from a number of separate or combined factors, including tidal movement, waves (including boat wake), shoreline character and orientation, soil composition, lack of buffer management, stormwater runoff, and incompatible shoreline treatments, sea level rise, and land subsidence (DNR, Shoreline Erosion Task Force).

Failing stormwater retention/management systems are pervasive, even in new developments in the Deale/Shady Side Small Area, and result in flooded roadways in some areas, and accelerated runoff rates in other areas. Pollutants conveyed by runoff have been demonstrated to have a negative effect on water quality in river systems of the Chesapeake Bay. Water quality in the West River is currently rated **poor** for 4 out of 6 parameters, including total suspended solids and secchi depth (turbidity). Turbidity is high in many small headwater tributaries following rain events. Portions of some creeks and rivers are becoming increasingly **silted in** as a result. Erosion control was cited as a major concern of citizens within the Small Area.

Shorelines with vegetated buffers and fringe marshes have been shown to absorb wave energy and slow stormwater runoff, both of which assist in preventing or slowing erosion. Shorelines along the more populated tributaries within the Small Area have relatively little vegetated buffer and natural shoreline to absorb wave energy, increasing potential for erosion of vulnerable portions of the shoreline.

ISSUE: Soil erosion and poor stormwater management is a problem throughout the Small Area. Of the 527 miles of shoreline in Anne Arundel County, 107 miles (21%) currently have erosion problems according to MD DNR's Shore Erosion Task Force.

RECOMMENDATIONS:

- a. Address erosion control and stormwater management as a high priority for the West River and Herring Bay Watershed Management Plans. Identify State and Federal funding opportunities that may assist in this effort.
- b. Consider developing in conjunction with the state a program of property tax or other incentives for businesses or homeowners that plant shoreline buffers and/or stabilize their shorelines with wetland grasses, providing a better buffer for stormwater runoff and a greater capacity to absorb wave action, thereby slowing erosion and creating habitat at the same time.
- c. Expand ongoing efforts by the County to identify stormwater management problems in the Deale/Shady Side Small Area and take corrective actions as appropriate.

E. FISH AND WILDLIFE RESOURCES

Fisheries & Aquatic Resources

The rivers, creeks, and streams that wind through the Deale/Shady Side Small Area into the Chesapeake Bay provide spawning and nursery areas for freshwater, estuarine, and anadromous fishes. The waters of the area support more than 70 species of fish during various seasons and salinity conditions between its freshwater streams, brackish water rivers, and Bay Shore habitats. Many of these fishes are of direct recreational and commercial value, such as the white perch, striped bass, spot, and croaker. Other species of fish, which are largely planktivores and detritivores, comprise the forage base for these species and thus are equally important.

Recreational and commercial fishing are an important component of the local economy. Fisheries productivity is dependent upon both a well-managed harvest and the availability of adequate food, spawning and nursery habitat. Spawning areas for many species are shallow and especially vulnerable to adjacent land use practices in the critical area. The Small Area Planning Process provides the opportunity to ensure that the best possible land use practices are enacted for the protection of fishery resources. The connection between healthy wetlands and shallow water habitat and productive estuarine fisheries has been well established. Wetlands form the basis of the detritus food chain, a system which characterizes most estuaries and makes them the productive bodies of water that they are. Wetlands also buffer fisheries habitat, including forage, spawning, and nursery areas from run-off and the associated sediments, nutrients, and toxics that degrade aquatic environments. Protection of wetlands is, therefore, synonymous with the protection of fisheries resources.

Aquatic grasses are also important for healthy fisheries. In recent years, submerged aquatic vegetation (SAV) has slowly begun to make a comeback in many portions of the upper Bay. SAV trends in the West River and Herring Bay have not been as promising. SAV is important because it stabilizes the bottom and provides the basis for the benthic macro-invertebrate community upon which juvenile fish depend.

The ultimate goal of the multi-State and Federal Chesapeake Bay program is the protection, restoration, and maintenance of the Bay's living resources. The reasons for the decline of many aquatic species include degraded water quality, lost habitat, disease, competition with non-native species, and over harvest. Water quality and habitat conditions present the most significant threats to aquatic resources and are inextricably linked to local land use practices. The success of the Chesapeake Bay program in restoring living resources is ultimately dependent upon wise leadership and bold actions by local governments in managing land use within the Chesapeake Bay drainage basin.

Protection of fisheries habitat is mandated by the Federal Magnuson Fisheries Protection Act. It is also one of the top three priorities of the Maryland DNR's Fisheries Program, which has recently developed an Essential Fish Habitat policy. Currently, all fisheries management plans for Chesapeake Bay species are being revised to include provisions for the protection of fish habitat.

ISSUE: With increasing population in the area and increased recreational water use, there is a need to protect fish habitat in upper tributaries. The noise level and

turbidity associated with jet skis and the greater access of personal watercraft to shallow water spawning areas creates a particular disturbance to spawning fish. As development and the demand for waterfront housing in the area increases, waterfront housing is moving into the once less desirable (unnavigable) shallow water headwater areas of our creeks. Residents then construct piers and demand dredging, which destroys spawning habitat. Fisheries refuges, which limit human use and activities, have been successfully established adjacent to Federal Wildlife Refuges and other areas. They are not a new idea and the State Fisheries Program is interested in cooperatively pursuing this concept.

RECOMMENDATIONS:

- a. Protect and restore tidal and non-tidal wetlands and SAV. See recommendations under Wetlands.
- b. Initiate cooperative effort's with the Maryland DNR to establish Fisheries Habitat Protection Zones. Designate upper tributary areas, which provide spawning areas for anadromous and freshwater fishes as *Fisheries Habitat Protection Zones*. These zones would be managed cooperatively with the Maryland DNR and would consider the cumulative impact of pier, bulkhead, dredging, and other projects on fish habitat. Upzoning and Critical Area Growth Allocation allowances would be discouraged for land use adjacent to these areas. These areas would also provide seasonal protection from Jet Ski traffic (during spawning times) and speed limits for other boating as set by DNR.
- c. Discourage dredging in upper tributary spawning areas. Dredging disrupts the benthic community, wiping out SAV and the potential for SAV colonization for many years.

Wildlife

The Deale/Shady Side Area is home to a myriad of wildlife. It provides winter habitat for migrating waterfowl, such as the tundra swan, Canada goose, and numerous species of ducks (canvasbacks, buffleheads, mergansers, etc.). Small furbearing mammals, such as river otter, muskrat, fox, and racoon depend on the area's rivers, wetlands, and forests along with an assortment of reptiles, amphibians, passerine birds, and invertebrates. Lesser known species include flying squirrels, which are dependant upon old growth canopy. The area is also home to several protected species, such as the bald eagle, the black rail, and provides rookery habitat to several species of heron and egrets.

ISSUE: Many species of interior forest dwelling birds have been in decline for the last 30-40 years. In Maryland, there was a 63% decline in these birds between 1980 and 1989. Large forested tracts of land that are necessary to support neotropical migrants and other wildlife that depend upon mature trees, dense forest litter, and distance from forest edges are dwindling.

Forest interior dwelling birds require large forest areas to successfully breed and maintain viable populations. This diverse group includes colorful songbirds - tanagers, warblers,

vireos - that breed in North America and winter in the Caribbean, Central and South America, as well as some residents and short-distance migrants - woodpeckers, hawks, and owls. Migratory passerine birds are an integral part of Maryland's landscape and natural heritage. They have depended on large forested tracts, including stream-side and Bay-side forests, for thousands of years. While some birds such as cardinals and robins thrive in and around fragmented forests, many birds such as the warblers and vireos require relatively large unbroken forests.

Residents depend upon these birds for insect control. During the time it takes a Red-eyed Vireo to raise a nest of young, the adults remove insects from over a half million leaves and twigs. If a given forest sustains a healthy population of forest interior bird species, it is an excellent indication that other animal species associated with that habitat type are going to be present, including invertebrates, amphibians, reptiles and mammals. Guidelines to help protect interior forest habitat have been developed by the Critical Area Commission in the draft *Guide to the Conservation of Forest Interior Dwelling Birds in the Chesapeake Bay Critical Area*.

RECOMMENDATION:

Support and implement Critical Area Commission FID Guidelines within the Critical Area, and incorporate the intent of the FID Guidelines to habitat outside of the critical area.

ISSUE: According to MD DNR (Pedito, pers. com) the density of the deer population in southern Anne Arundel County has grown beyond the land's ability to sustain it, resulting in a stressed population with poor fitness.

No population assessments or surveys exist specifically for the Deale/Shady Side Area. With increased development in recent years, many of the large tracts of land available for deer habitat have been lost (e.g. subdivisions of Cederlea, South Creek View, Chalk Point Woods, West River Estates, etc.). As the deer population becomes increasingly concentrated on smaller tracts of land, several problems arise. Deer begin to forage in yards and gardens, damaging trees, shrubs, and garden crops. Crowding also stresses deer populations, thereby increasing the incidence of parasites, such as deer ticks, creating a potential human health hazard. Deer populations are also becoming increasingly isolated, as development interrupts traditional corridors of movement. Isolated populations suffer from limited gene pools.

RECOMMENDATIONS:

- a. The County should work with MD DNR to develop a deer management plan for the Deale/Shady Side Small Area. The 1999 MD Deer Management Plan encourages

working at the community level to develop management plans as part of local community planning efforts.

- b. Designate and preserve wildlife corridors or ~~A~~greenways through which wildlife can freely move into less densely populated areas.

ISSUE: The Deale/Shady Side Area has not been adequately surveyed for protected species. A site review by the DNR Natural Heritage Program for the Deale/Shady Side Small Area shows a bald eagle nest and the existence of the black rail. The existing rookery sites were not recorded. It is possible that other protected species exist.

RECOMMENDATION:

Explore cooperative strategies to update existing inventories of protected species (MD DNR Natural Heritage Database, in particular).

F. ZONING RECOMMENDATIONS

The following additional recommendations support the Deale/Shady Side Area's vision for the environment:

- a. AA County Critical Area Program: It is recommend that the allowed uses in the RCA, as currently proposed, not include golf courses or sand & gravel pits.

Consider a County program to purchase development rights for old platted lots that do not meet current development standards. Any lot that is platted but in the Critical Area and contains wetlands or hydric soils should not be permitted for development just because it was platted in the early part of the last century.

- b. Provide public education to encourage the reduction of bright outdoor lighting. Light pollution disrupts wildlife behavior, wastes electricity, and is generally annoying. Bright lights on waterfront homes and docks present a navigational hazard for boaters, as bright lights interfere with the ability to discern navigational buoys.
- c. Strengthen enforcement of existing laws and codes. Increase staff in the code enforcement branch as necessary to address existing laws and codes.

G. STORMWATER MANAGEMENT

Goal: Improve stormwater management to reduce and, where possible, eliminate the negative environmental impacts of stormwater runoff.

Recommendations:

- A. Implement a watershed approach to stormwater management, land use planning, development, permitting, and capital improvement program planning and execution to ensure that potential cumulative impacts of land use changes are fully addressed prior to implementation of those land use changes.
- B. Adopt and implement stormwater management regulations into County laws, regulations, standards and guidelines resulting in County regulations and requirements that are at least as stringent, if not more stringent, than State regulations and requirements.
- C. Ensure all engineering design for stormwater management facilities is site appropriate and strictly adheres to the Maryland Stormwater Design Manual or County Stormwater Design Manual, whichever is more stringent.
- D. Encourage the use of innovative approaches to stormwater management and low impact site design in the land development process (e.g., “Better Site Design: A Handbook for Changing Development Rules in Your Community”, 1998, prepared by the Center for Watershed Protection, Ellicott City, MD).
- E. Continue and, if possible, accelerate the County’s ongoing effort to comprehensively identify, analyze and, where needed, retrofit stormwater management problem areas.
- F. Account for and minimize impacts to the 100-year floodplain with respect to stormwater runoff increases and the need for stormwater management design to accommodate increases in runoff resulting from comprehensive and site-specific rezoning.
- G. Establish a comprehensive stormwater infrastructure preventative maintenance and management program that reduces environmental degradation and extends infrastructure useful life.
- H. Aggressively pursue incentive-based approaches (e.g., state grant funds) to achieve retrofitting of areas in need of improved stormwater management.
- I. Ensure that all governmental sponsored land use projects adhere to the highest environmental regulations and standards with regard to site design and stormwater management facilities, thus setting the environmental standard to be followed.
- J. Implement, where possible, a minimum 50-150 foot riparian buffer to all tributary streams in the County to minimize impacts of stormwater runoff on these sensitive tidal and non-tidal aquatic systems.
- K. Foster community education about stormwater issues through cooperation with local citizen groups, public and private schools, park and recreation programs, and use of the Internet.
- L. Develop and implement, on a continuing basis, a program to stencil storm drains to enhance community awareness that these storm drains direct runoff to tributaries of the Chesapeake Bay.