Appendix D
Onsite Sewage Disposal Systems Evaluation Study: Management Strategy and Implementation Plan

Appendix D - Onsite Sewage Disposal Systems Evaluation Study: Management Strategy and Implementation Plan

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Department of Public Works

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Attachments

Executive Summary

Purpose and Overview

This technical memorandum (TM) provides a summary of the recommended alternatives for implementation on a countywide basis to provide treatment to the Anne Arundel County onsite sewage disposal systems (OSDS). This strategy is based on the organization of the onsite systems into logical management areas (MAs) and a recommended treatment technology for each area that is based on the most cost-effective approach to nitrogen removal. The MAs were assigned a treatment technology based on the cost effectiveness analysis performed in preceding tasks and the nitrogen delivery ratio, as defined by Maryland Department of the Environment (MDE) as part of its nutrient management policies. A prioritization was also developed that applied the criteria developed in TM-1 (Appendix B) and on a nitrogen load reduction basis per guidance provided by MDE.[1]

In addition to establishing the most effective nitrogen reduction approach for the onsite systems from a technical perspective, numerous policy issues were considered that would need to be addressed in order to implement the management strategy. These would require some level of federal, state, and local action, and this memorandum provides initial recommendations that outline a path forward to address them. The issues can be categorized into technical, county-level policy and regulatory issues, and state-level policy and regulatory issues, as outlined in the second half of this report.

Implementation Strategy and Tools

Given the primary goal of managing nitrogen discharges from OSDS to the Chesapeake Bay, the overall implementation strategy consists of two action item lists:

- A ranking of OSDS MAs in order of cost effectiveness. OSDS are grouped into areas of similar treatment recommendations and then prioritized in declining order of costs per pound of nitrogen removed.
- A list of regulatory, policy and research actions that are recommended to support implementation of the OSDS treatment approaches.

The approach to defining and ranking OSDS MAs is summarized below and developed later in this TM. A key outcome of this project is the development of a complete database and GIS mapping system that will allow the County to zoom into priority areas, by watershed or by sewer service area, to display and analyze OSDS MAs as implementation and policy issues are further elaborated. That database and mapping system is summarized in this TM. A complete list of the MAs is contained in Attachment A, sorted by MA ID and with an explanation of the naming convention. A list of the MAs and database information is contained in Attachment B, along with a map index of the location of MAs. The list in Attachment B is prioritized based on cost effectiveness (cost per pound of nitrogen

[1] MDE provided verbal guidance to the Anne Arundel County OSDS project team at a June 2007 meeting, at which it recommended that nitrogen delivery from OSDS leach fields to receiving waters be estimated as 80 percent in the Critical Area (within 1000 ft of tidal waters), 50 percent within 1000 ft of nontidal waters, and 30 percent everywhere else. This guidance represents a change from previous MDE policy assuming a constant 60 percent delivery, regardless of location. MDE has since incorporated this new policy into draft nutrient trading policy, not yet published.

reduction). Attachment C contains the same list, but sorted in order of priority scores from the priority criteria developed in Task 1 of this study (*Identification, Categorization and Prioritization,* see TM-1 in Appendix B of this report). Summary maps based on the database and GIS mapping system are displayed throughout this TM.

Definition and Ranking of OSDS MAs

An MA was defined as a service area that would have the same treatment approach recommended for each OSDS within the area. The MAs were separated into four treatment approach categories:

1. Sewer system extensions with treatment at existing centralized wastewater reclamation facilities upgraded for enhanced nutrient removal
2. Cluster wastewater treatment facilities
3. Upgrade each individual OSDS to an enhanced OSDS
4. No near-term action, which consists of low-density, low nitrogen delivery onsite systems. For purposes of cost and load reduction calculation, OSDS in these areas were assumed to be no-action (zero cost and nitrogen load reduction). No-action areas are broken into two categories:
    - No action in rural areas (shown on figures and tables as Bin 4)
    - No action in areas currently designated for sewer service (shown as Bin 1c, because all areas in Bin 1 were initially targeted for sewer extension because they are currently designated for existing planned or future sewer service by the County.

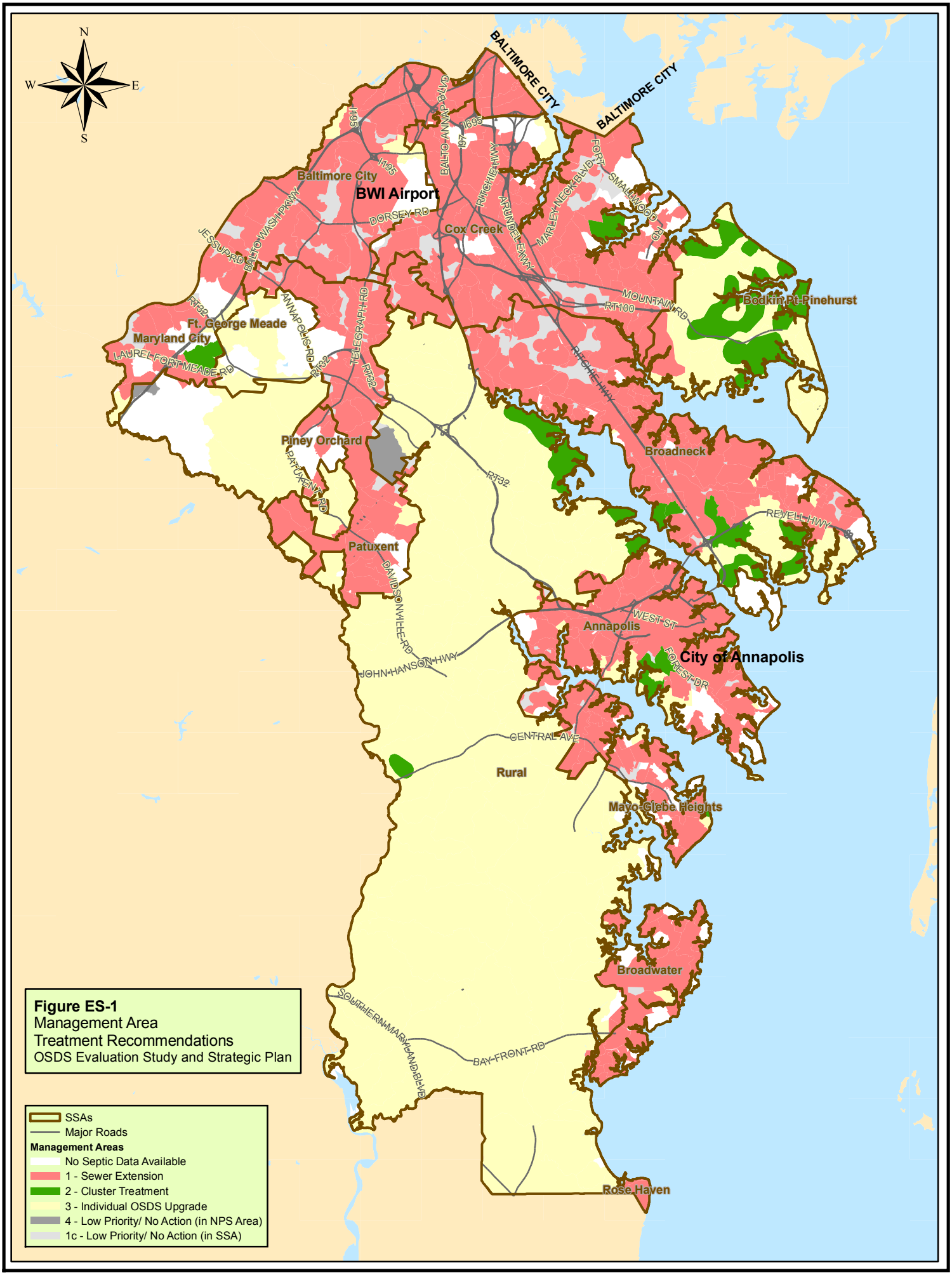
The concept of MAs provides logical groups of OSDS sites that are assigned the most cost-effective and environmentally beneficial treatment technology for each area. Each MA comprised a bin, or group, of OSDS with like characteristics that would allow the same treatment technology to be assigned to all OSDS in the bin. The following criteria were used to develop these logical groups:

- Planned sewer service (existing, planned, future, no service),
- OSDS density
- Nitrogen delivery ratio
- Subwatershed divides in rural Sewer Service Areas (SSAs) with no planned sewer service
- Proximity to sewer
- Health Department-identified problem area

County GIS data were used extensively to perform the analysis of OSDS treatment approach bins. The process was largely automated, but some manual cleanup of MA boundaries and treatment recommendation was conducted in conjunction with input from County staff. Detailed examples of these changes are described in Attachment D. Because of the numerous outstanding policy issues governing permitting and crediting the various treatment approaches, detailed editing of the MAs was limited to a quick check of recommended treatment approaches to be sure the process did not result in recommendations for sewer clustering or individual upgrades in areas where existing service is provided nearby (see Attachment D). As a result, the automated process has left

some small MAs that could be consolidated in the future when undertaking a facility plan and design for the recommended treatment alternative. The prioritization approach, however, will ensure that the most cost-effective treatment approach is applied to areas of highest nitrogen delivery and density first.

The results of the MA treatment recommendations are shown in Figure ES-1. Table ES-1 shows the distribution of OSDS by treatment approach (bin) and watershed.


N
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BALTIMORE CITY
BALTIMORE CITY
Baltimore City
BWI Airport
Cox Creek
Bodkin Pt-Pinehurst
Ft. George Meade
Maryland City
Piney Orchard
Broadneck
Patuxent
Annapolis
City of Annapolis
Rural
Mayo-Glebe Heights
Broadwater
Rose Haven
I-95
I-695
BALTIMORE-ANNAPOLIS BLVD
RITCHIE HWY
ARUNDEL EXPY
MARLEY NECK BLVD
FORT SMALLWOOD RD
DORSEY RD
JESSUP RD
BALTIMORE-WASHINGTON PKWY
MOUNTAIN RD
RT100
RT32
ANNAPOLIS RD
TELEGRAPH RD
LAUREL-FORT MEADE RD
PATUXENT RD
DAVIDSONVILLE RD
JOHN HANSON HWY
REVELL HWY
WEST ST
FOREST DR
CENTRAL AVE
SOUTHERN MARYLAND BLVD
BAY FRONT RD
Figure ES-1
Management Area
Treatment Recommendations
OSDS Evaluation Study and Strategic Plan
SSAs
Major Roads
Management Areas
No Septic Data Available
1 - Sewer Extension
2 - Cluster Treatment
3 - Individual OSDS Upgrade
4 - Low Priority/ No Action (in NPS Area)
1c - Low Priority/ No Action (in SSA)

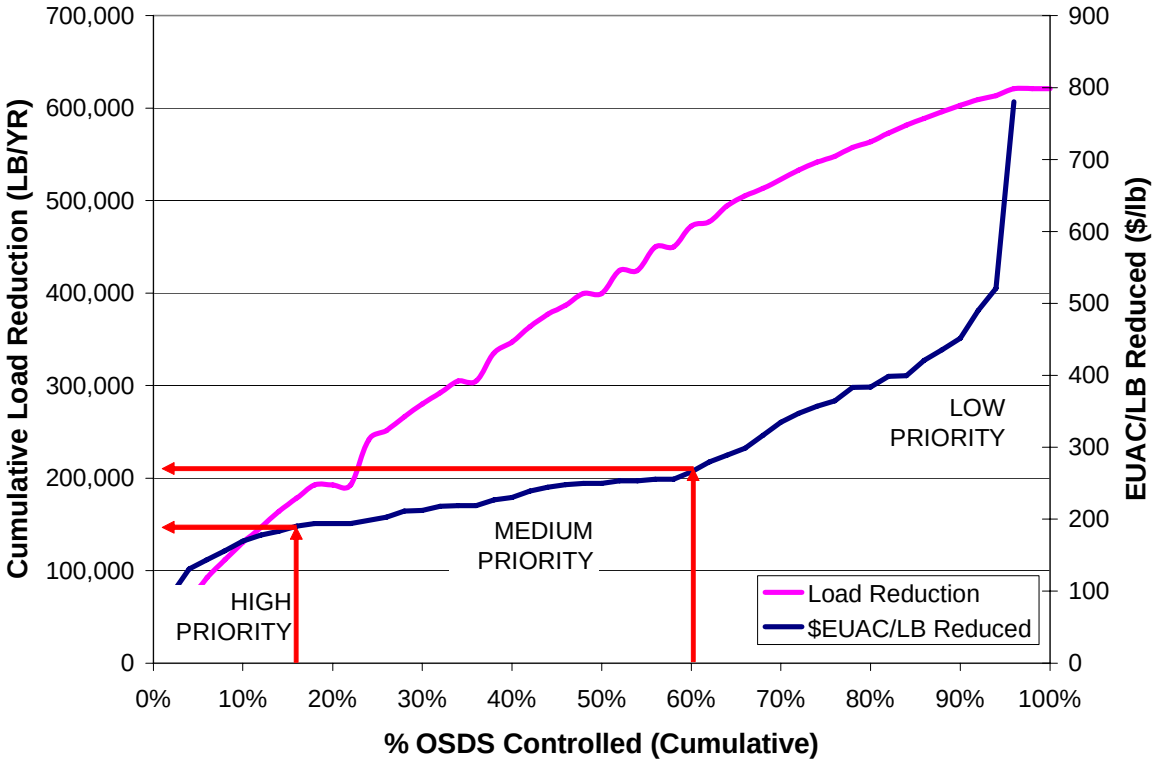
TABLE ES-1
Distribution of Treatment Recommendations by Watershed

	Bin Number and Treatment Approach						
Watershed	**1 Sewer Extension**	**2 Cluster Treatment**	**3 Individual OSDS Upgrade**	**4 Low Priority / No Action (in NPS Area)**	**1c Low Priority / No Action (in SSA)**	**# OSDS**	**% OSDS**
Bodkin Creek	10	2379	704	0	0	3093	7.6%
Herring Bay	166	0	875	0	0	1041	2.6%
Little Patuxent	496	6	141	13	137	793	1.9%
Magothy River	6335	1900	808	0	583	9626	23.7%
Middle Patuxent	0	0	2206	0	0	2206	5.4%
Patapsco Non-tidal	862	0	27	0	231	1120	2.8%
Patapsco Tidal	1310	482	122	0	249	2163	5.3%
Rhode River	15	1	399	0	15	430	1.1%
Severn River	4375	3662	3552	0	337	11926	29.3%
South River	2179	126	3727	0	52	6084	15.0%
Upper Patuxent	105	281	1321	1	7	1715	4.2%
West River	96	0	249	0	6	351	0.9%
Blank	76	41	17	0	0	134	0.3%
Total	**16025**	**8878**	**14148**	**14**	**1617**	**40682**	
%	39.4%	21.8%	34.8%	0.0%	4.0%		

NPS is No Public Service areas, not designated for sewer service, largely in the Rural area.
SSA is the Sewer Service Areas designated for existing, planned or future sewer service.

Cost factors developed in Tasks 2 and 3 were applied to the recommended treatment approach in each MA. The MAs were then ranked based on the aggregate cost effectiveness for all OSDS within each area (pounds of nitrogen reduction per OSDS). Figure ES-2 shows a comparison of the cumulative nitrogen reduced for all MAs, sorted in declining order of removal effectiveness (pounds of nitrogen removed per OSDS), compared to the cost effectiveness of removal (equivalent uniform annual cost [EUAC] per pound removed). Based on this ranking, each additional MA yields slightly less nitrogen reduction per OSDS treated, while at the same time the cost per pound removed is increasing.

FIGURE ES-2
Cumulative Total Nitrogen Reduction vs. Cumulative Number of OSDS Treated, Ranked by Management Area Cost Effectiveness (EUAC$/lb/yr)



Implementation Strategy to Address Technical, Policy, Regulatory, and Statutory Issues

This OSDS Evaluation Study identified a number of technical, policy, regulatory, and statutory issues that should be addressed to allow the recommended treatment approaches for OSDS to be implemented in Anne Arundel County. The list of recommended actions is provided below, followed by a summary of the issues that were identified:

1 Meet with MDE, the Maryland Department of Natural Resources (DNR) to articulate County OSDS Strategy

2 Work with MDE, DNR, state legislators to revise Chesapeake Bay Restoration Fund Act (CBRFA) language

3 Partner with MDE, DNR, and others to update science of OSDS load estimates (concentration, delivery ratios) and Chesapeake Bay model

4 Partner with MDE, DNR to evaluate alternatives for new OSDS cluster treatment systems (new land application/reuse options, new outfall options in shellfish areas)

5 Partner with MDE, DNR to develop OSDS load credit mechanism for water reclamation facility (WRF) load caps

6 Develop OSDS Environmental Fee Study and Ordinance

7 Develop OSDS Maintenance Ordinance

8 Make revisions to General Development Plan: identify changes in areas of planned sewer service (additions and deletions); identify priorities; identify areas designated for limited sewer service for managing areas of existing OSDS targeted either for sewer extension or cluster systems

9 Implications for HB1141 – Water Resources Element (WRE). Summarize how this study can be used to address septic system component of WRE.

Technical, Policy, Regulatory, and Statutory Issues

Technical Issues

Need to Improve the Understanding of Existing OSDS Effluent Nitrogen Loads and Delivery Ratios

Key parameters in this study include the total nitrogen concentration in OSDS effluent at the edge of the drain field, and the percentage of this nitrogen that enters the nearest surface water. This study undertook no new research on these parameters and relied on the assumptions about OSDS performance and the delivery ratios that MDE was applying as part of its OSDS management policy and the Chesapeake Bay Program office. An extensive literature review was performed, in addition to the study documented in Appendix A, and no additional sources were found that could substantiate or refute the present numbers adopted by MDE. As a result, the principle of increasing nitrogen delivery with distance to receiving water is sensible; however, these assumptions suffer from a relatively high degree of uncertainty and there are scant scientific data to support the present assumptions.

OSDS Effluent Nitrogen Concentration. MDE has indicated, based on its literature review and experience, that the effluent nitrogen concentration at the edge of the drain field of a properly functioning OSDS ranges from 40 to 50 milligrams per liter (mg/L). The low end of this range, 40 mg/L, was used in the study. However, a recent comprehensive literature review (WERF #04DEC1a) found that the median septic effluent nitrogen concentration of a large number of studies was 55.4 mg/L for single-source domestic OSDS, and 84.0 mg/L for non-medical commercial systems. Therefore, the 40 mg/L used in the study may be low.

Delivery Ratios. The Chesapeake Bay Program's watershed model assumes a nitrogen delivery ratio of 40 percent for all septic systems regardless of location. This study evaluated applying delivery ratios ranging from 40 to 100 percent, depending on distance from the nearest surface water. During the course of the study, MDE adopted a set of delivery ratio assumptions based on location and distance to surface water. These delivery ratios are 80 percent for OSDS within the Critical Area, 50 percent for systems outside of the Critical Area but within 1,000 feet of a perennial surface water body, and 30 percent everywhere else. These four sets of assumptions produce substantially different results for estimating existing nitrogen loads to surface waters, expected load reductions, and the OSDS hookup credits. Table ES-2 illustrates the wide range in estimated total annual nitrogen load produced by the four sets of assumptions.

TABLE ES-2
Impact of Delivery Ratio Assumptions on Estimated Total Annual OSDS Nitrogen Delivered to Surface Waters in Anne Arundel County

Delivery Ratio Assumption	Annual Load, lbs
40 Percent	640,000
80/50/30	880,000
60 Percent	960,000
TM1 40-100 Percent Scale	1,240,000

As noted above, there are little or no data underlying any of these assumptions. Additional research on delivery ratios would be extremely valuable in improving the accuracy of OSDS load and load reduction estimations, and would result in more reliable and efficient OSDS plans. It would also facilitate additional refinements to the OSDS hookup credits. It is strongly recommended that the Chesapeake Bay Program and Maryland initiate and support research on OSDS delivery ratios as part of the Tributary Strategy implementation.

County-Level Policy and Regulatory Issues

Coordination with the General Development Plan

The recommendations of this study have implications for land use planning, zoning, and sewer service category decisions; therefore the adoption of a septics strategic plan must be coordinated with the County's General Development Plan (GDP). Likewise, the GDP should be consistent with the adopted OSDS Strategic Plan.

In some cases, the OSDS Strategic Plan makes recommendations regarding the extension of the existing sewer system into areas currently without sewer service. Sewer service may be planned in the future for some of these areas, or none may be planned. This creates the potential for additional growth demands in these areas simply because of the proximity of sewers, growth demand that would be inconsistent with the GDP. It is recommended that the County include provisions in the GDP, such as the creation of special SSAs with restrictions on the provision of sewer service within the SSA, or designating sewer mains built for the primary purpose of OSDS retirement as limited access sewers, with connections limited to OSDS retirement and new development that is consistent with the existing GDP, zoning and sewer service category. No matter what measures are adopted, however, the only certain barrier to unintended growth is the political will to resist pressure to allow additional development simple because a sewer is present in an area with no planned growth.

Anne Arundel County is currently revising the GDP, with a target date of August, 2008 for the Final Draft. The development of the preliminary drafts should incorporate the findings and recommendations of the septics study that the County wants to implement. The schedule for development of the GDP drafts is such that these recommendations can be easily incorporated in the initial drafts. This will also provide the benefit of public review of the OSDS findings and recommendations.

The GDP must also address the requirements of House Bill (HB) 1141, the *Land Use – Local Government Planning Act* of 2006. HB 1141 requires jurisdictions to include a WRE in their comprehensive plans The purpose of the WRE is to ensure that planned land use does not exceed the "carrying capacity" of the watersheds, defined as water supplies and wastewater treatment capacity adequate to support the planned land uses, and control of stormwater related pollutant loads. A total maximum daily load (TMDL)-like analysis is required for each watershed at the 8-digit hydrologic unit code (HUC) as defined by the United States Geologic Survey (USGS). For each watershed at this scale, pollutant loads for existing and proposed land uses are calculated and the total is compared to the "assimilative capacity" of the watershed. If the analysis indicates that the planned land use would result in violations of water quality standards, then it must be revised or other ways found to reduce the pollutant loadings. Analysis of OSDS nutrient loads is required as part of this analysis.

All of Anne Arundel County's 8-digit watersheds are included on Maryland's 303(d) list of impaired waters requiring TMDLs. The analysis required by HB 1141 should be coordinated with TMDL development, but it is not clear how this could be done given the current schedules for water resources elements inclusion in the GDP, and TMDL development.

Another complicating factor in carrying out the HB 1141 analyses is that jurisdictions sharing a watershed would have to jointly assess its carry capacity, necessitating coordinating the preparation of the comprehensive plans in some manner. This raises a host of potentially difficult issues, such as *could jurisdictions be expected to easily decide how to "share" the carrying capacity of a watershed*?

Impact Fee for New Onsite Sewage Disposal Systems

The County and the State will spend significant amounts of money in the future to reduce OSDS nitrogen loads. To help offset this, one alternative is to assess a fee on new OSDS

installations, the proceeds of which would be used for OSDS conversions, cluster treatment facilities, or sewer extensions to connect OSDS. The principal justification for the fee is that new OSDS nitrogen sources should be required to offset their loads by funding OSDS nitrogen load reductions elsewhere through the imposition of the fee.

An analysis of possible fee structures is beyond the scope of this study. However, following are some initial questions to consider in assessing an OSDS impact fee.

1. What loads should new OSDS development be required to offset?

    - OSDS effluent nitrogen loads
    - OSDS effluent nitrogen loads and stormwater loads
    - OSDS effluent nitrogen loads, stormwater loads, and all other indirectly generated loads (e.g. transportation-related)

2. What mechanisms should be considered for making the offsets available?

    - Developer/builder acquires offsets directly through the Maryland trading and offsets program

    - Developer/builder acquires offsets by purchasing them from the County, with the revenue being dedicated to implementation of the OSDS strategic plan

3. What are the possible bases for the fee?

    - Cost to treat the same flow volume at a WRF

    - Cost to achieve equivalent reduction through OSDS conversion or hookup to sewer

    - Cost to acquire the offsets from lowest cost sources under Maryland's trading and offsets policy (e.g. credit/offset generators, payment to State funds)

4. How much cost should be recovered?

    - Full
    - Actual cost to achieve required load reduction elsewhere
    - A portion of the full or actual cost
    - Maximize revenue

Properly structuring and setting the fee would also require financial modeling of the expected revenue and expense, as well as assessment of financial impact on the community. It is recommended that the County initiate a separate study to assess the OSDS impact fee.

OSDS Reliability and Sustainability of Individual Upgrades

This study assessed OSDS nitrogen loadings and determined present worth and equivalent uniform annual costs to reduce loadings as discussed in detail in Appendix C. The cost estimating framework used a 100-year life cycle so the complete service life of all major treatment system components could be represented. Adequate operation and maintenance (O&M) costs to ensure proper operation of the facilities over the full planning period were included in the analysis. However, the three technologies considered in the study—upgrading conventional OSD systems to achieve nitrogen removal, local cluster treatment facilities, and connection to public sewer—differ significantly in the assurance they provide

that proper O&M would be carried out and the projected load reduction actually achieved over the full planning period. Connection to an existing water reclamation or new cluster facility would mean County ownership and operation of the facilities, while OSDS upgrades would involve contracts between the State and/or County and individual homeowners.

Currently, there is nothing in the State-homeowner contract that would provide assurances that proper O&M would be provided beyond the initial 5-year period covered by the contract. In addition, beyond the initial 5 years, there would be nothing to prevent homeowners from shutting off the power to the OSDS to avoid the significantly higher electricity costs they would incur as a result of the upgrade, as County Health Department staff has reportedly observed in some instances.

Given the need for long-term reliability, the adequacy of the State contract with homeowners should be evaluated. It is possible that additional contractual requirements are needed. It is also possible that this issue should be addressed through additional State or County regulation.

State-Level Policy and Regulatory Issues

Translating and Applying Tributary Strategy Goals

This OSDS Evaluation Study addressed the question "What are the Tributary Strategy requirements for septic load reductions?" The Tributary Strategy, however, takes a programmatic approach calling for conversion of all septic systems to denitrifying ones. There are no nitrogen load reduction requirements per se. Even though not required for the preparation of the basin implementation plans, this study evaluated whether the septic load goals for the Lower Western Shore, Patapsco/Back River and Patuxent basins could be divided into jurisdictional or watershed allocations. It was found that it would take major land-use database enhancements to incorporate political boundaries in the Chesapeake Bay watershed model. Hence, at this time, any political sub-allocation of the Tributary Strategy load goals would be mathematically arbitrary and its use should be restricted to generalized planning purposes.

Given this, the study made no attempt to translate the Tributary Strategy septic load goals to numeric County goals. There is little doubt however, that the County's strategy, if implemented, would be more cost-effective and result in greater nitrogen load reductions than the approach taken in the Tributary Strategy.

Chesapeake Bay Restoration Fund Act Eligibility

The CBRFA currently allows the use of septic fund monies only for upgrading OSDS. Given the increased cost-effectiveness on a per pound of nitrogen basis of the sewer connection and cluster treatment options, as shown by this study and the recommended plan, strong consideration should be given to amending the statute to allow Bay Restoration Funds to be used for sewer extensions and hookups, as well as community collections systems and cluster treatment facilities, as long as the primary purpose is to reduce nitrogen loads to surface waters and the Chesapeake Bay.

Permitting Issues

Three NPDES permitting issues must be addressed—nitrogen wasteload allocations for new cluster treatment facilities, the handling of OSDS hookup credits under the County's bubble permit, and management options for cluster facility effluent given the restriction on discharge to shellfish waters.

1. Wasteload Allocation for New Cluster Treatment Facilities. New cluster treatment facilities built for the primary purpose of retiring OSDS and reducing nitrogen loads to surface waters should be exempt from MDE's current point source policy that grants no nitrogen or phosphorus load allocation to new wastewater treatment facilities built to accommodate growth.

2. Management of Cluster System Effluent. The discharge of wastewater effluent into surface waters designated as shellfish waters is prohibited. In some cases, this restricts the available OSDS options in some areas; cluster treatment facilities may not be selected where such restrictions exist. In these cases, alternate management options for the effluent may provide the answer. Such technologies could include spray irrigation or natural wetland flow augmentation. Both the State and local jurisdictions would benefit from the development of additional management options for cluster system effluent. The County should encourage MDE to support efforts to develop additional management options for high quality cluster treatment effluent. A detailed description of the types of the effluent treatment, disposal, and reuse options that were considered for cluster systems was described in Technical Memorandum for Tasks 2-3.

3. OSDS Hookup Credits and the Bubble Permit. When the County obtains OSDS hookup nitrogen credits, they presumably will be added to the aggregate point source nitrogen allocation established by the bubble permit, regardless of where in the County the hookup occurred. The County should obtain MDE concurrence in this interpretation and ensure that the bubble permit, when issued, is consistent with this interpretation. A potential framework for establishing hookup credits is provided below.

Establishing the OSDS Hookup Credit

The idea of an OSDS nitrogen allocation hookup credit has been under discussion in Maryland for several years. MDE's draft nutrient trading policy, not yet released, proposes credits based on loads calculated using the 80/50/30 percent delivery ratios, depending on location. The policy also states that the proposed credits of 12.2, 7.5, and 4.6 pounds per year are for hookup to a treatment facility discharging at 4 mg/L total nitrogen and that non-residential systems should be treated on a case-by-case basis.

Refinement to the OSDS hookup credit is needed, and discussions with MDE should continue. The credit is directly dependent on the assumed delivery ratios which are, as noted above, themselves in need of additional research. In addition, the reasons for basing the credits on the assumption that WRFs would be discharging nitrogen at 4 mg/L are not clear. The CBRFA requires that facilities "optimize" their performance, meaning discharging as close to 3 mg/L as possible. There are other questions as to exactly how the credits would be applied as well.

Whatever the ultimate magnitude of the OSDS hookup credit, it could be a smart growth tool for the County. Table ES-3 illustrates this by using MA SV 421 as an example. If all 398 OSD systems in MA SV421 were retired and connected to a WRF or cluster treatment facility discharging at 3.0 mg/L nitrogen, up to 1,823 new domestic hookups could be accommodated under the County's point source bubble permit. The credits could also be used to offset urban stormwater or other nonpoint source loads. Under a nutrient trading program, such credits could become valuable commodities as Maryland experiences continuing growth pressure. MDE should continue to work with local jurisdictions and the wastewater community to refine the development and implementation of the OSDS hookup credits.

TABLE ES-3
OSDS Hookup Credit Calculation for Management Area SV421

Delivery Ratio	No. OSDS	Credit/OSDS Pounds/Yr	Total Credit Pounds/Yr
.80	216	12.2	2,635
.50	179	7.5	1,343
.30	3	4.6	14
Total	**398**		**3,992**

Supports 1,823 New Hookups to ENR Facility, at 2.19 lbs per hookup.

Purpose and Background

Anne Arundel County, Maryland, is conducting a countywide evaluation of service options for properties with onsite sewage disposal systems (OSDS, commonly referred to as septic systems). The overall goal of this effort is to assist the County in preparing a treatment strategy to reduce nitrogen loads from onsite systems that are delivered to the Chesapeake Bay. Secondary goals of this effort are to identify policy issues, outline implementation steps, and examine funding options, including the Chesapeake Bay Watershed Restoration Fund (the "Flush Fee") to support implementation of the strategy. The project was conducted in four tasks, as follows:

- **Task 1 –** Literature Search and Identifying, Categorizing and Prioritizing Septic Systems
- **Task 2 –** Preliminary Cost Analysis of Onsite Septic System Upgrades and Cluster Community Wastewater Systems
- **Task 3 –** Preliminary Cost Analysis of Sewer System Extensions
- **Task 4 –** Management Strategy and Implementation Plan

Task 1 was completed on January 26, 2007, and the results were compiled in a TM that provided an assessment and sensitivity analysis of the various factors that govern the environmental impact of the onsite systems. Tasks 2 and 3 were consolidated into one TM, completed on August 31, 2007. The purpose of the second TM was to develop planning-level cost estimates (adjusted to 2007 dollars) for potential cluster community wastewater systems and enhanced onsite septic systems.

This document provides the results of Task 4 of this study, which summarizes the recommended alternatives for implementation on a countywide basis to provide treatment to the County OSDS sites; it is based on the following major components:

- Organization of the County onsite systems into logical MAs, with a recommended treatment technology based on the most cost-effective approach to nitrogen removal
- Assigning a relative priority to each MA based on the criteria developed in TM-1 and nitrogen loading per guidance provided by Maryland Department of the Environment (MDE)[2]
- Evaluation and strategy development for the following policy issues:
    1. Technical
        - Translating and Applying Tributary Strategy Goals
        - The Need to improve the Understanding of Existing OSDS Effluent Nitrogen Loads and Delivery Ratios
        - Establishing the OSDS Hookup Credit

[2] MDE provided verbal guidance to the Anne Arundel County OSDS project team at a June 2007 meeting, at which it recommended that nitrogen delivery from OSDS leach fields to receiving waters be estimated as 80 percent in the Critical Area (within 1000 ft of tidal waters), 50 percent within 1000 ft of nontidal waters, and 30 percent everywhere else. This guidance represents a change from previous MDE policy assuming a constant 60 percent delivery, regardless of location. MDE has since incorporated this new policy into draft nutrient trading policy, not yet published.

2. County-Level Policy and Regulatory
   - Coordination with the General Development Plan
   - Impact Fee for New Onsite Sewage Disposal Systems
   - Reliability and Sustainability of Individual OSDS Upgrades
3. State-Level Policy and Regulatory
   - Tributary Strategy and Chesapeake Bay Fund Restoration Act Cost Effectiveness
   - Permitting Issues

Methodology for Defining and Ranking OSDS MAs

In Task 4, the treatment alternatives and costs developed in Tasks 2 and 3 were evaluated geospatially to develop recommendations for groups of OSDS referred to here as OSDS MAs. An MA was defined as a service area that would have the same treatment approach recommended for each OSDS within the area. The MAs were separated into four treatment approach categories:

1. Sewer system extensions with treatment at existing centralized wastewater reclamation facilities upgraded for enhanced nutrient removal
2. Cluster wastewater treatment facilities
3. Upgrade each individual OSDS to an enhanced onsite sewage disposal system
4. No near-term action, which consists of either:

   low-density, low nitrogen delivery onsite systems in rural areas, or
   low-density, low nitrogen delivery onsite systems in areas designated for existing, planned, or future service

Purpose and Overview of MA Delineation Procedure

The purpose of using MAs was to provide logical groups of OSDS sites that are assigned the most cost-effective and environmentally beneficial treatment technology for each area. The overall procedure was a three-step process:

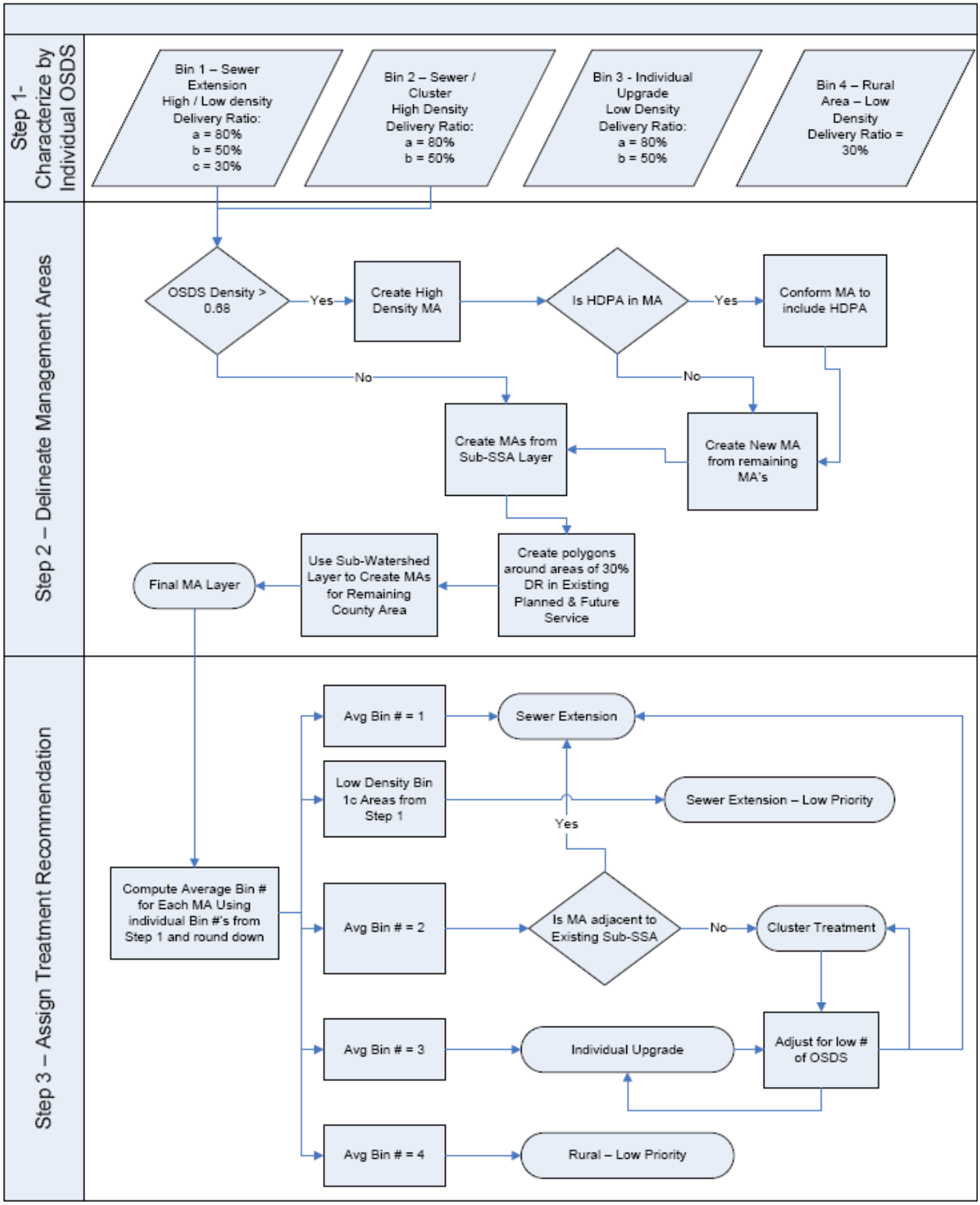
1. Characterize OSDS by density and delivery ratio and place into Bins representing a preliminary treatment approach for each individual OSDS
2. Group OSDS into MAs
3. Assign a treatment approach to each MA

In other words, each MA comprised a group of OSDS with like characteristics that would allow the same treatment technology to be assigned to all OSDS in the bin. This process is illustrated in Figure 1A, and detailed in Attachment D. The following criteria are used to group the OSDS into MAs:

- Planned sewer service (existing, planned, future, no service)
- OSDS density
- Nitrogen delivery ratio
- Subwatershed divides in rural SSAs with no planned sewer service
- Proximity to sewer
- Health Department-identified problem area

The three-step procedure for MA delineation and treatment approach definition is presented below, with additional details in Attachment D.

FIGURE 1A
Procedure for Delineating OSDS Management Areas and Treatment Recommendations



Step 1- Initial Bin Characterization of Individual OSDS

Initially, the onsite systems were sorted into bins characterized by SSA, density, and nitrogen delivery. As illustrated in the example in Figure 1B, each OSDS was placed into one of four bins, as follows:

- **Bin 1 – Sewer Extension -** Assign OSDS in county areas designated for Existing / Planned / Future Sewer Service
  - Bin 1, High Density ($\rho > 0.68$ OSDS/acre)
    - a: delivery ratio = 80 percent
    - b: delivery ratio = 50 percent
    - c: delivery ratio = 30 percent
  - Bin 1, Low Density ($\rho < 0.68$ OSDS/acre)
    - a: delivery ratio = 80 percent
    - b: delivery ratio = 50 percent
    - c: delivery ratio = 30 percent
- **Bin 2 – Cluster or Sewer Area**
  - 2a: $\rho > 0.68$ OSDS/acre; delivery ratio = 80 percent
  - 2b: $\rho > 0.68$ OSDS/acre; delivery ratio = 50 percent
- **Bin 3 – OSDS Upgrade**
  - 3a: $\rho < 0.68$ OSDS/acre; delivery ratio = 80 percent
  - 3b: $\rho < 0.68$ OSDS/acre; DR = 50 percent
- **Bin 4 – Near-Term No Action – Low Priority Rural** (Rural OSDS w/ 30 percent delivery)

The first step in the Bin characterization was to apply the cost-density threshold reported in the TM, "Evaluation of Treatment Alternatives and Costs" (presented in Appendix C). This threshold was calculated as 0.68 OSDS per acre as part of the cost analysis. This value represented the point at which the EUAC for sewer extension and cluster treatment became less costly than upgrading the onsite systems individually (i.e., OSDS that were more cost-effective to provide a local collection system for).

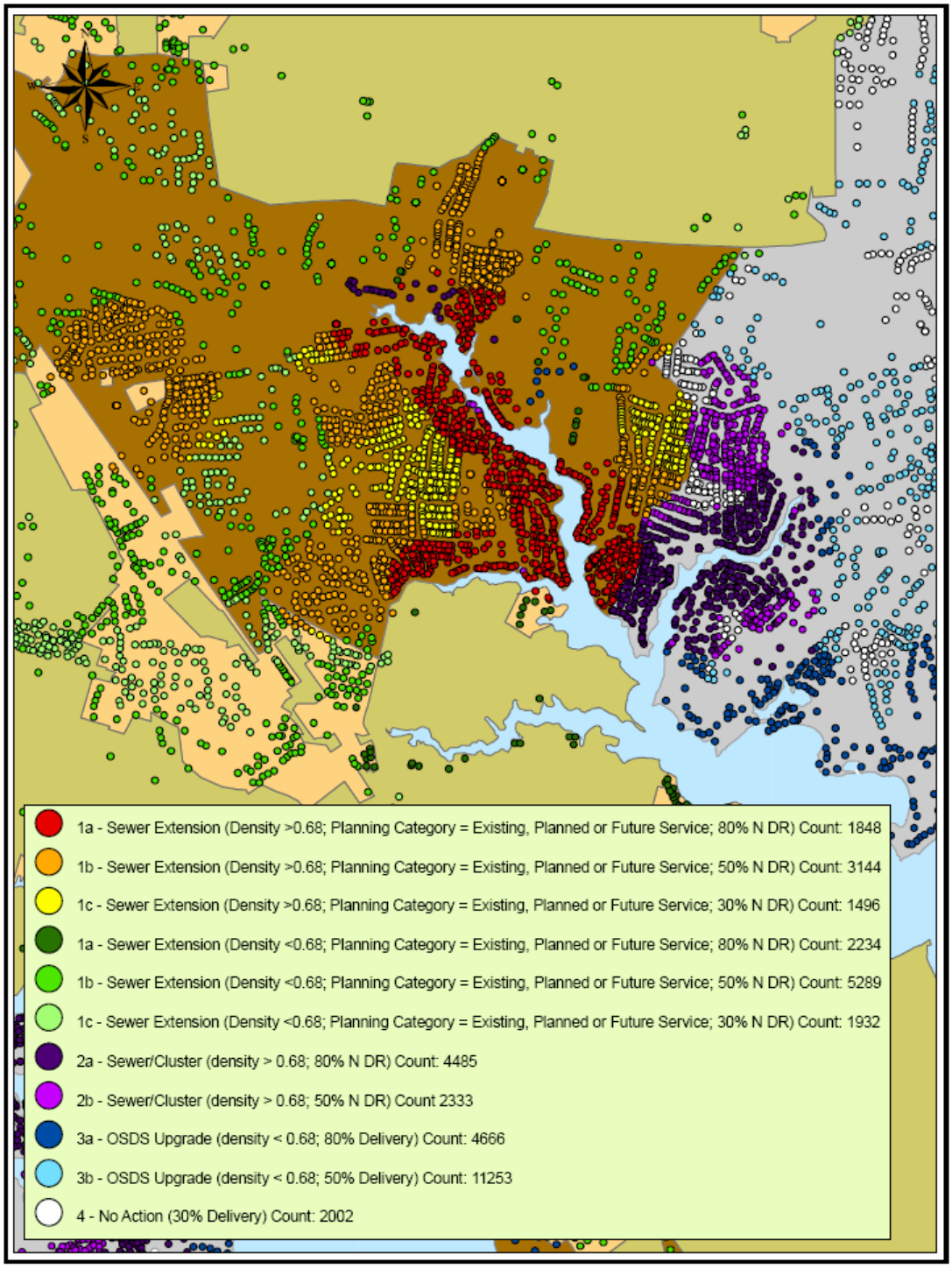
In addition, all OSDS within existing, planned, or future service areas were initially assigned to Bin 1 for sewer extension. Bin 1 was further subdivided by nitrogen delivery ratio as follows.

- 80 percent in Chesapeake Bay Critical Areas (i.e. within 1,000 feet of tidal surface waters)
- 50 percent for areas outside of Critical Areas, but within 1,000 feet of surface waters (i.e. non-tidal surface waters)
- 30 percent all others

For OSDS outside the Existing, Planned, and Future Service Areas, each OSDS was classified as Bin 2 - Sewer or Cluster Treatment if the OSDS density was above 0.68 and therefore cost-

effective to provide a local sewer system. Bin 2 required further evaluation of the proximity to existing county sewers in order to assign the final treatment approach; this is discussed further as part of the formation of the OSDS MAs.

FIGURE 1B
Example of Initial Treatment Bin Characterization



OSDS outside this area and below the density threshold were classified as Bin 3 – Individual Upgrade. All OSDS that were below the density threshold and 30% delivery ratio were placed into Bin 4 for low priority.

Step 2 - MA Delineations

The initial bin characterization provided an initial snapshot of the spatial distribution of the individual OSDS for which a cost-effective sewer service extension could be provided. The purpose of Step 2 was to provide logical groups of OSDS sites that are assigned the most cost-effective and environmentally beneficial treatment in terms of nitrogen reduction. Each grouping is called an MA. In addition, the MAs were intended to inform the countywide planning process and possible restructuring of growth boundaries as the comprehensive plan and water resource provisions of HB 1141 are addressed. The process to derive management areas from the individual system characterization was applied as follows:

1. The density-cost threshold was used to selecting all OSDS that would be practical to include in a local collection system for connection to the County sewer system or a cluster treatment facility.

2. The OSDS density polygons were also merged with the Health Department's septic problem areas (HDPA) so that existing HDPAs would fall entirely with a management area.

3. The areas within the existing SSA boundary that did not fall into a high density polygon were formed into management areas using the existing sub-SSA boundaries from the Comprehensive Sewer Strategic Plan.

4. MAs outside of the existing service area and outside of the density polygons were formed using the sub-watershed layer provided by the County.

5. Areas of low density, and low-delivery ratio within the existing, planned and future service area were isolated by using outside of the critical area and a 1000' buffer on the streams layer. This step isolated areas within the Existing, Planned, Future service area that would not be cost effective to provide sewer to for future consideration as the County updates its comprehensive plan.

6. The final step was to delete all management area polygons that did not contain any onsite systems.

7. A moderate level of manual adjustment to the MAs was applied during the assignment of treatment technologies as discussed in step 3 below.

Of particular note from this process is that the MA delineation approach highlighted many instances where the current County planning categories for existing, planned, and future sewer service may not provide the most cost-effective treatment because of the relative low density of the onsite systems in these areas. This is indicative of the fact that the provision of cost-effective treatment is inherently governed by buildout density and nitrogen reduction requirements. In this light, a one-size-fits-all approach to providing treatment for onsite systems is not the most cost-effective and as a result will demand innovation at the policy level in order to develop a publicly acceptable, affordable, and effective strategy for the onsite systems.

Step 3 – Assign Recommended Treatment Approach

After management areas were delineated using the procedure defined above, a treatment bin# was assigned for all OSDS within each management area using the following designations which generally follow the original individual OSDS Bin classifications:

1 – Sewer Extension
2 – Cluster Treatment
3 – Individual Upgrade
4 – Rural – Low density / Low Priority
1c – Sewer Extension (Low Density / Low Priority)

The methodology for assigning the recommended treatment approach is discussed in detail in Attachment D and was generally applied as follows:

1. The bin number from the individual OSDS characterization was averaged for each management area and rounded down to establish the initial treatment recommendation for each MA. The averaging process effectively allocated a 1 or a 2 to MAs in which it would be cost-effective to provide a local collection system.
2. MAs defined from the 30 percent delivery ratio areas within the areas of existing, planned or future service were assigned Bin 1c for low-priority.
3. All management areas with an average Bin number 2 would become sewer or cluster-based on further review. In each case, these management areas were assigned sewer extension where the area was adjacent to a location with existing sewer service, thereby making it practical to connect to the County sewer system. These areas were moved into Bin 1 and a sewer extension was assigned.
4. Areas with a Bin 2 average that were not immediately adjacent to an SSA were assumed to be managed with a cluster treatment facility. This also allowed for further consideration of policy issues associated with the extension of sewers to areas that may prompt significant unintended growth.
5. Areas with an average bin of 3 were allocated for individual upgrades.
6. Areas with an average bin of 4 were assigned a no-action or low priority
7. Lastly, MAs with a low number of OSDS resulted in an average bin number that was not consistent with this approach and these were evaluated individually as discussed in Attachment D. In these cases, some level of splitting and adjustment of the MA boundaries was performed. Case examples are provided in Attachment D.

Because of the numerous outstanding policy issues governing permitting and crediting the various treatment approaches, a high level of detailed editing of the management areas was not performed. As a result, the automated process has left some small management areas that could be consolidated in the future when undertaking a facility plan and design for the recommended treatment alternative. In addition, there are many small MAs that contain a non-residential OSDS and these cases should be further evaluated on a case by case basis in the future. In some cases, these systems will have a high flow that may change the most cost effective approach when actual flows are considered. The prioritization approach discussed later ensures that the most cost-effective treatment approach is applied to areas of highest nitrogen delivery and density first.

Management Area Delineation and Treatment Recommendation Results

The results of the management area treatment recommendations are shown in Figure 2.

Table 1 shows the distribution of OSDS by treatment approach (bin) and watershed. It should be noted that the 30 percent delivery ratio category defined by MDE represents only 4 percent of the OSDS within the county. This reinforces the need to further clarify the technical basis of the delivery ratio assumption as a means of guiding the appropriate level of control.

Tables 2 and 3 show the distribution of OSDS numbers and flows by treatment approach (bin) and sewer planning category. The total number of OSDS proposed for sewer extension and cluster is 12,205 and 169, respectively, in areas currently planned or designated by the County for future sewer service, and 1,529 and 8,234 in areas designated as No Public Service. Corresponding flows in these areas is 4.16 and 0.07 mgd for sewer extension and cluster in planned or future sewer service areas, and 0.49 and 2.26 mgd for sewer extension and cluster in designated no public service areas, respectively

Figure 3 shows OSDS management areas in County-designated existing, planned, or future SSAs with density below the 0.68 OSDS /acre cost-effectiveness threshold and with a low delivery ratio of 30 percent. These areas are called out as areas of low priority for OSDS upgrades or no action, or possible re-designation as areas of no public sewer service.

At the other end of the spectrum, Figure 3 also shows areas recommended for sewer extension (bin 1) that extend into areas that are not currently recommended for sewer service. These areas are recommended for service as a result of high density of OSDS systems in areas of high nitrogen delivery ratio that are adjacent to areas of current sewer service.

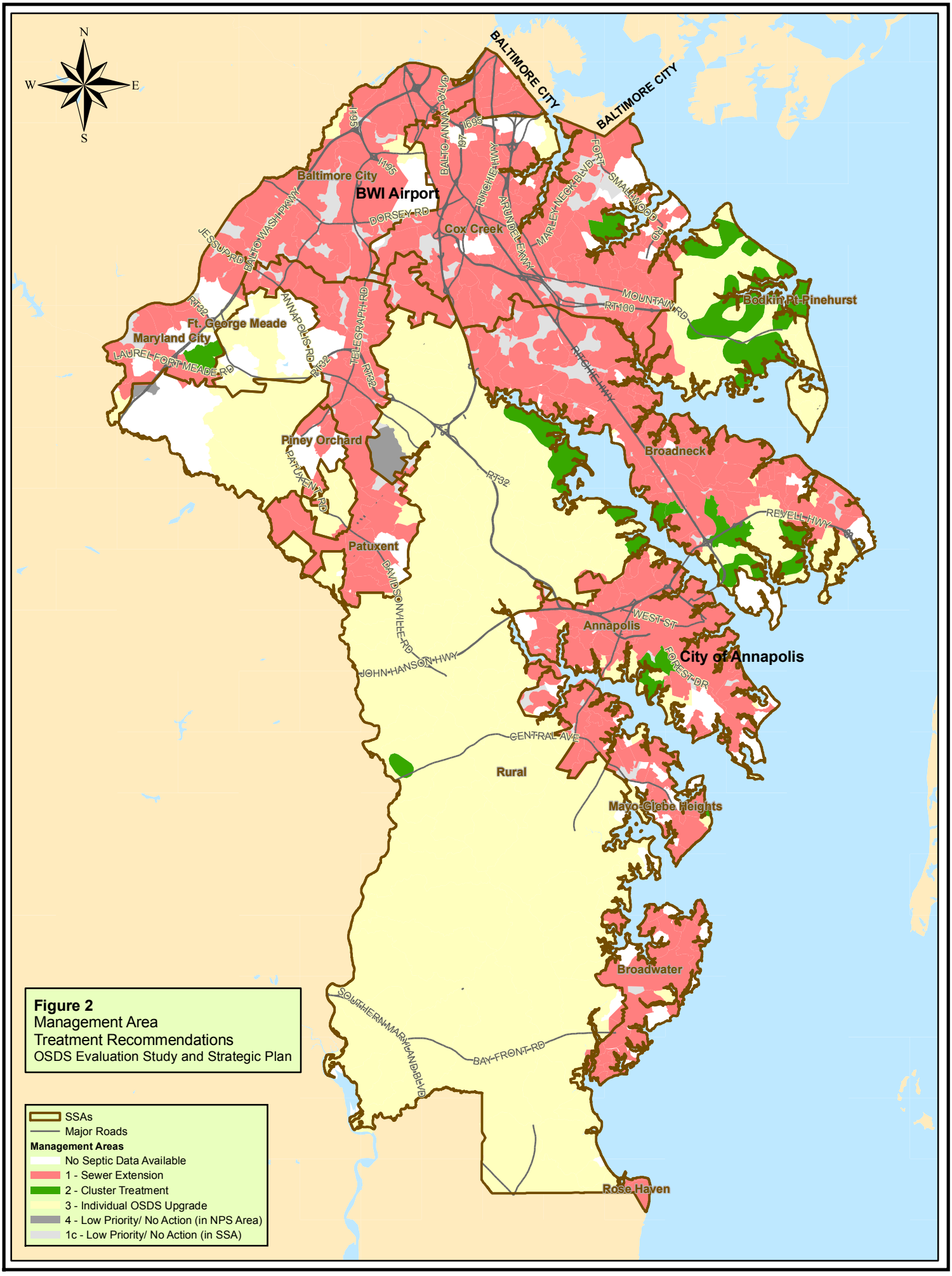


Figure 2
Management Area
Treatment Recommendations
OSDS Evaluation Study and Strategic Plan

SSAs
Major Roads

Management Areas

- No Septic Data Available
- 1 - Sewer Extension
- 2 - Cluster Treatment
- 3 - Individual OSDS Upgrade
- 4 - Low Priority/ No Action (in NPS Area)
- 1c - Low Priority/ No Action (in SSA)

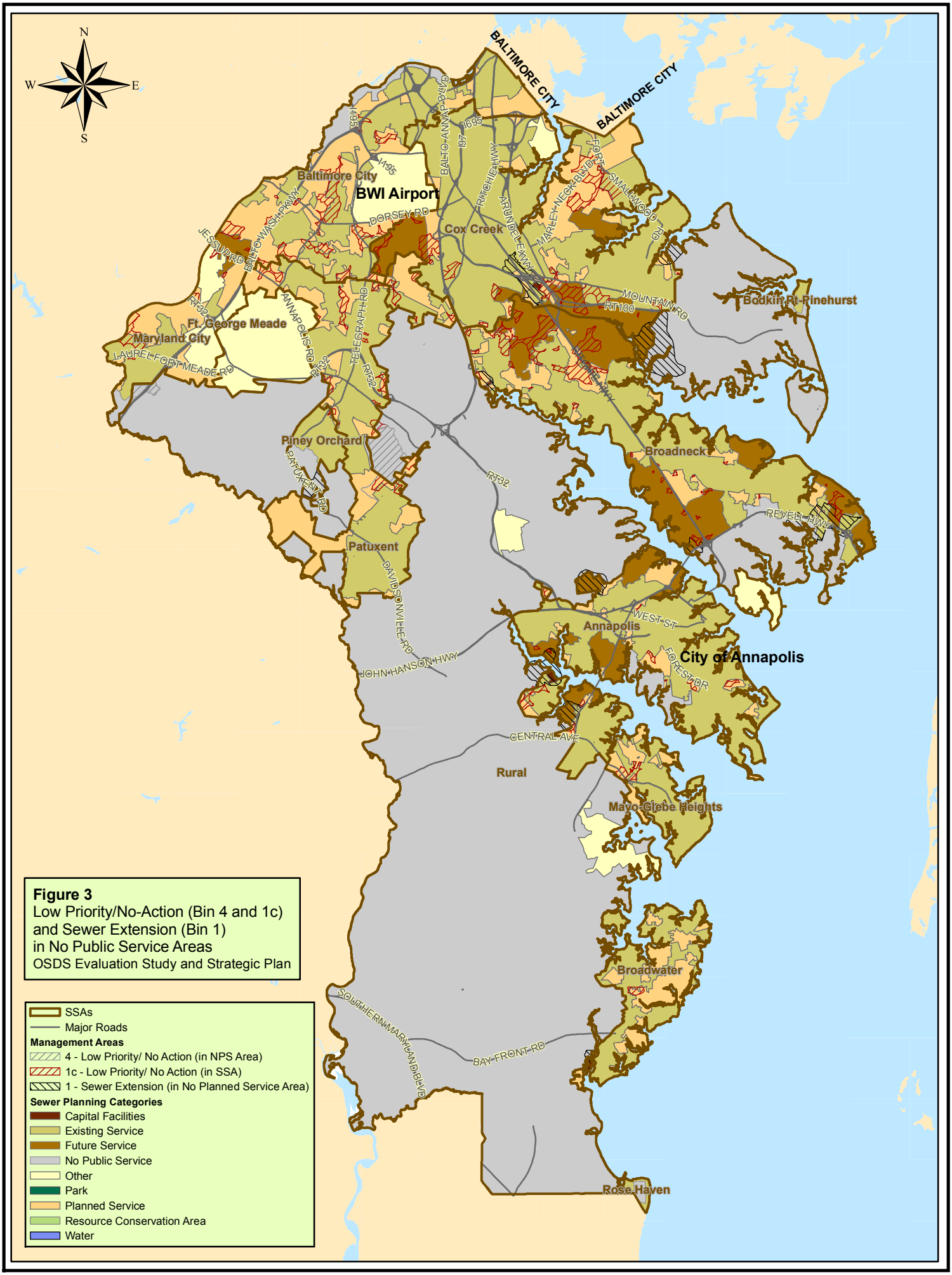


Figure 3
Low Priority/No-Action (Bin 4 and 1c)
and Sewer Extension (Bin 1)
in No Public Service Areas
OSDS Evaluation Study and Strategic Plan

TABLE 1
Distribution of Treatment Recommendations by Watershed

	Bin						
Watershed	**1 Sewer Extension**	**2 Cluster Treatment**	**3 Individual OSDS Upgrade**	**4 Low Priority / No Action (in NPS Area)**	**1c Low Priority / No Action (in SSA)**	**# OSDS**	**% OSDS**
Bodkin Creek	10	2379	704	0	0	3093	7.6%
Herring Bay	166	0	875	0	0	1041	2.6%
Little Patuxent	496	6	141	13	137	793	1.9%
Magothy River	6335	1900	808	0	583	9626	23.7%
Middle Patuxent	0	0	2206	0	0	2206	5.4%
Patapsco Non-tidal	862	0	27	0	231	1120	2.8%
Patapsco Tidal	1310	482	122	0	249	2163	5.3%
Rhode River	15	1	399	0	15	430	1.1%
Severn River	4375	3662	3552	0	337	11926	29.3%
South River	2179	126	3727	0	52	6084	15.0%
Upper Patuxent	105	281	1321	1	7	1715	4.2%
West River	96	0	249	0	6	351	0.9%
Blank	76	41	17	0	0	134	0.3%
Total	**16025**	**8878**	**14148**	**14**	**1617**	**40682**	
%	39.4%	21.8%	34.8%	0.0%	4.0%		

NPS is No Public Service areas, not designated for sewer service, largely in the Rural area.
SSA is the Sewer Service Areas designated for existing, planned or future sewer service.

TABLE 2
Distribution of OSDS Numbers Treatment Recommendations by Sewer Planning Category

	Number of OSDS by Treatment Recommendation					
Sewer Planning Category	**1 Sewer Extension**	**2 Cluster Treatment**	**3 Individual OSDS Upgrade**	**4 Low Priority / No Action (in NPS Area)**	**1c Low Priority / No Action (in SSA)**	**Total**
Existing Service	1,874	6	1	-	-	1,881
Planned Service	4,540	45	25	-	1,066	5,676
Future Service	7,665	124	1	-	532	8,322
No Public Service	1,529	8,234	13,246	13	19	23,041
Other	7	4	7	-	-	18
Park	5	-	16	1	-	22
Resource Conservation Area	325	424	835	-	-	1,584
Blank	80	41	17	-	-	138
Total	**16,025**	**8,878**	**14,148**	**14**	**1,617**	**40,682**

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TABLE 3
Distribution of OSDS Wastewater Flow by Treatment Recommendations by Sewer Planning Category

	Flow (GPD) by Treatment Recommendation (Bin)*					
Sewer Planning Category	**1 Sewer Extension**	**2 Cluster Treatment**	**3 Individual OSDS Upgrade**	**4 Low Priority / No Action (in NPS Area)**	**1c Low Priority / No Action (in SSA)**	**Total**
Existing Service	857,000	2,550	250	-	-	859,800
Planned Service	1,692,550	18,600	8,350	-	417,700	2,137,200
Future Service	2,469,600	48,850	250	-	227,500	2,746,200
No Public Service	485,150	2,260,100	5,459,800	11,650	20,500	8,237,200
Other	4,900	5,200	8,050	-	-	18,150
Park	2,300	-	10,300	1,300	-	13,900
Resource Conservation Area	144,250	208,900	417,700	-	-	770,850
Blank	101,900	53,300	22,100	-	-	177,300
Total	**5,757,650**	**2,597,500**	**5,926,800**	**12,950**	**665,700**	**14,960,600**

Flows are based on 250 gpd per residential dwelling and 1,300 gpd per non-residential customer.

Nitrogen Loading Analysis

Table 4 compares the total annual nitrogen load from all current Anne Arundel County WRFs and future WRF loads after upgrade for enhanced nutrient removal (ENR) and at design capacity. These WRF loads were compared to three estimates of total nitrogen (TN) from OSDS, varying based on the assumed delivery ratio. Regardless of the delivery ratio assumption, current OSDS loads exceeded current WRF loads countywide. Table 4 also presents the load of OSDS, assuming they are all upgraded individually using denitrifying systems, with the resulting load being of the same order of magnitude as future WRF loads with ENR.

TABLE 4
Comparison of WRF and OSDS Loads

WRF Loads	**TN (lbs/yr)**	**TN (lbs/yr) after ENR upgrades***
2005 WRF Load	747,865	631,854
WRF Flow, mgd	34.3	50.0
Estimated OSDS Load	TN (lbs/yr)	**TN (lbs/yr) after OSDS upgrades**
Base Case Task 1 TM (Figure E-4)	1,241,400	624,330
60% Uniform Delivery	959,000	482,328
Revised MDE Delivery (80/50/30)	881,000	443,221
Current OSDS flow is 15.0 mgd		

*Notes:
1. WRF loads (Broadneck, Patuxent, Cox Creek, Annapolis, Broadwater, Piney Orchard, Mayo, Maryland City, Dorsey Run) are based on 2005 actual plant flows and concentrations. After ENR upgrade loads are based on design flow and 4 mg/L, which reflects future growth and NPDES concentration requirement.

2. OSDS loads are based on three delivery ratio scenarios presented in TM-1 (CH2M HILL, 2007): 1. Sliding scale from 100% to 40% based on distance to water; 2. Fixed delivery ratio based on MDE guidance prior to 2007; and 3. 80/50/30 percent delivery ratio based on location in Critical Area, 1000 ft non-tidal buffer, and elsewhere. OSDS delivered load is to the nearest surface water and does not reflect potential reductions in load to ultimate receiving waters such as tidal bays or the Chesapeake Bay due to instream fate and transport processes.
3. OSDS upgrades were assumed based on denitrifying systems that reduce concentration at the drainfield from 40 mg/L to 20 mg/L per MDE Guidance. Higher reductions are possible, both in terms of higher current OSDS effluent concentration and lower OSDS effluent concentration after upgrade.

For the recommended OSDS treatment approaches, Tables 5, 6 and 7 present the existing load, load after treatment, and load reduction due to treatment, broken down by treatment approach and watershed. The TN Load is based upon the MDE recommended delivery ratio of 80/50/30 unless otherwise noted. Figure 4a presents the countywide nitrogen reductions on a per-area basis for the management areas. Figure 4b presents the countywide nitrogen reductions on a per-OSDS basis for the management areas. Attachment B provides a detailed ranking of the management areas by nitrogen removal per OSDS and includes the following descriptive characteristics for each area. Attachment C contains a detailed ranking by priority scores. Attachment E contains more detailed summaries of load breakdowns by watershed and sewer service planning category.

- Area (Acres)
- Number of OSDS in MA
- Assigned Bin # (Treatment Tech)
- SSA for Sewer Extension (Bin 1)
- Existing Load (LB/YR)
- Load After Treatment (LB/YR)
- Load Reduction (LB/YR)
- Total EUAC ($/YR)
- Total Initial Capital Cost ($)
- $EUAC/LB Reduced
- $IC/LB Reduced
- Priority Rank
- N reduction per OSDS (lb/OSDS/yr)

TABLE 5
Existing TN Load (lb/yr) by Treatment Approach (Bin) and Watershed

	Treatment Bin						
Watershed	**1 Sewer Extension**	**2 Cluster Treatment**	**3 Individual OSDS Upgrade**	**4 Low Priority / No Action (in NPS Area)**	**1c Low Priority / No Action (in SSA)**	**Total**	**%**
Bodkin Creek	79	45337	22399	0	0	67815	7.7%
Herring Bay	6503	0	26903	0	0	33406	3.8%
Little Patuxent	16296	475	4851	417	2860	24899	2.8%
Magothy River	117796	34064	20012	0	6646	178517	20.3%
Middle Patuxent	0	0	63439	0	0	63439	7.2%
Patapsco Non-tidal	21438	0	457	0	2875	24770	2.8%
Patapsco Tidal	28505	12859	4504	0	4091	49959	5.7%
Rhode River	630	127	11348	0	352	12457	1.4%
Severn River	87220	74618	73328	0	4181	239348	27.2%
South River	50562	3176	73356	0	746	127840	14.5%
Upper Patuxent	6510	3716	31621	48	172	42067	4.8%
West River	3396	0	10189	0	44	13630	1.5%
Blank	1659	843	351	0	0	2853	0.3%
Total	**340,594**	**175,215**	**342,760**	**465**	**21,967**	**881,000**	
%	38.7%	19.9%	38.9%	0.1%	2.5%		

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TABLE 6
TN Load (lb/yr) After Treatment by Treatment Approach (Bin) and Watershed

	Treatment Bin						
Watershed	**1 Sewer Extension**	**2 Cluster Treatment**	**3 Individual OSDS Upgrade**	**4 Low Priority / No Action (in NPS Area)**	**1c Low Priority / No Action (in SSA)**	**Total**	**%**
Bodkin Creek	18	4943	11240	0	0	16202	6.2%
Herring Bay	617	0	13508	0	0	14125	5.4%
Little Patuxent	2471	71	2431	417	2860	8250	3.2%
Magothy River	15356	4190	10070	0	6646	36262	14.0%
Middle Patuxent	0	0	31830	0	0	31830	12.2%
Patapsco Non-tidal	3176	0	230	0	2875	6281	2.4%
Patapsco Tidal	3993	1532	2260	0	4091	11876	4.6%
Rhode River	68	12	5695	0	352	6126	2.4%
Severn River	12280	7894	36880	0	4181	61234	23.6%
South River	6069	303	36909	0	746	44027	16.9%
Upper Patuxent	976	579	15879	48	172	17654	6.8%
West River	358	0	5108	0	44	5511	2.1%
Blank	241	116	177	0	0	533	0.2%
Total	**45,623**	**19,639**	**172,218**	**465**	**21,967**	**259,911**	
%	17.6%	7.6%	66.3%	0.2%	8.5%		

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SSA is the Sewer Service Areas designated for existing, planned or future sewer service.

TABLE 7
TN Load (lb/yr) Reduction by Treatment Approach (Bin) and Watershed

	Treatment Bin						
Bin	**1 Sewer Extension**	**2 Cluster Treatment**	**3 Individual OSDS Upgrade**	**4 Low Priority / No Action (in NPS Area)**	**1c Low Priority / No Action (in SSA)**	**Total**	**%**
Bodkin Creek	61	40393	11159	0	0	51613	19.9%
Herring Bay	5886	0	13394	0	0	19280	7.4%
Little Patuxent	13826	404	2420	0	0	16650	6.4%
Magothy River	102440	29874	9942	0	0	142256	54.7%
Middle Patuxent	0	0	31609	0	0	31609	12.2%
Patapsco Non-tidal	18262	0	227	0	0	18489	7.1%
Patapsco Tidal	24512	11328	2244	0	0	38083	14.7%
Rhode River	562	115	5654	0	0	6330	2.4%
Severn River	74941	66725	36449	0	0	178114	68.5%
South River	44494	2873	36446	0	0	83813	32.2%
Upper Patuxent	5534	3137	15742	0	0	24413	9.4%
West River	3038	0	5081	0	0	8119	3.1%
Blank	1418	728	175	0	0	2320	0.9%
Total	**294,971**	**155,576**	**170,542**	**0**	**0**	**621,089**	
%	113.5%	59.9%	65.6%	0.0%	0.0%		

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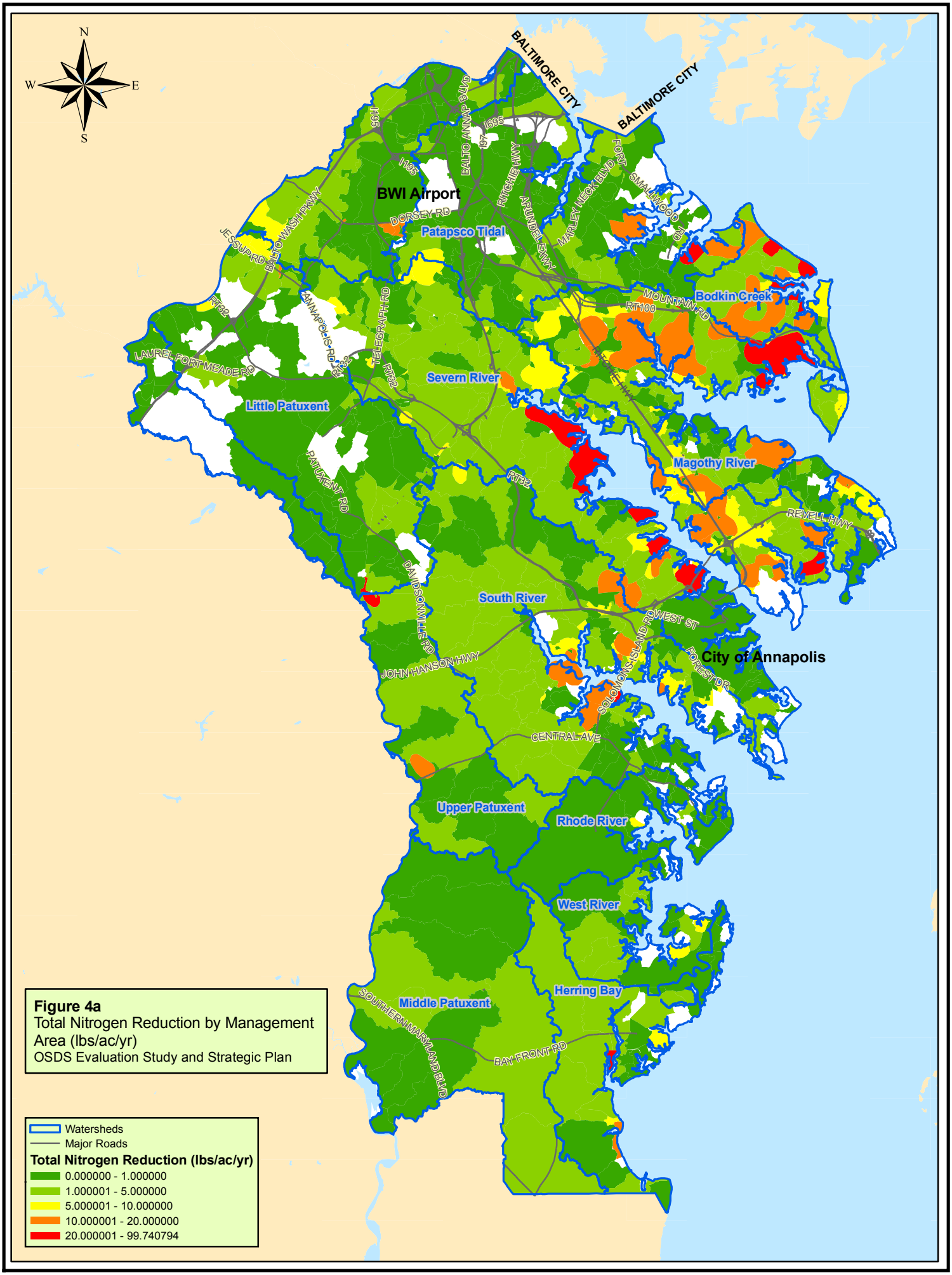
SSA is the Sewer Service Areas designated for existing, planned or future sewer service.

Cost Effectiveness of Each Treatment Approach

The overall cost-effectiveness of each treatment approach in reducing nitrogen loads delivered to area receiving waters was analyzed on a unit cost per pound removal basis in TM-2. The MDE 80/50/30 delivery ratio approach was applied to the effluent concentration for each treatment approach and applied to each OSDS in the county. The effluent concentrations were assumed to be 3 mg/L for the sewer extension alternative to reflect upgrading the WRFs to ENR. The membrane bioreactor (MBR)-based cluster treatment facilities used in the cost analysis was designed to provide an effluent with 3 mg/L TN. The sequencing batch reactor (SBR) cluster systems would provide 8 mg/L, to be consistent with MDE requirements for all treatment facilities above 5,000 gallons per day (gpd). The OSDS denitrification upgrades were estimated to have an effluent concentration of 20 mg/L TN at the drainfield per MDE policy. The total cumulative delivered load and the total load reduction achievable are summarized in Table 8. The achievable reductions taken from this table were used to translate the average treatment cost for each alternative to a cost per pound removed, as shown in Table 8.


N
W
E
S
BALTIMORE CITY
BALTIMORE CITY
BWI Airport
Patapsco Tidal
Bodkin Creek
Severn River
Little Patuxent
Magothy River
South River
City of Annapolis
Upper Patuxent
Rhode River
West River
Herring Bay
Middle Patuxent
I-195
I-695
I-95
DORSEY RD
BALTIMORE WASH PKWY
JESSUP RD
LAUREL FORT MEADE RD
ANNAPOLIS RD
TELEGRAPH RD
RT32
RT100
MOUNTAIN RD
REVELL HWY
PATUXENT RD
DAVIDSONVILLE RD
JOHN HANSON HWY
WEST ST
FOREST DR
SOLOMONS ISLAND RD
CENTRAL AVE
SOUTHERN MARYLAND BLVD
BAY FRONT RD
Figure 4a
Total Nitrogen Reduction by Management Area (lbs/ac/yr)
OSDS Evaluation Study and Strategic Plan
Watersheds
Major Roads
Total Nitrogen Reduction (lbs/ac/yr)
0.000000 - 1.000000
1.000001 - 5.000000
5.000001 - 10.000000
10.000001 - 20.000000
20.000001 - 99.740794

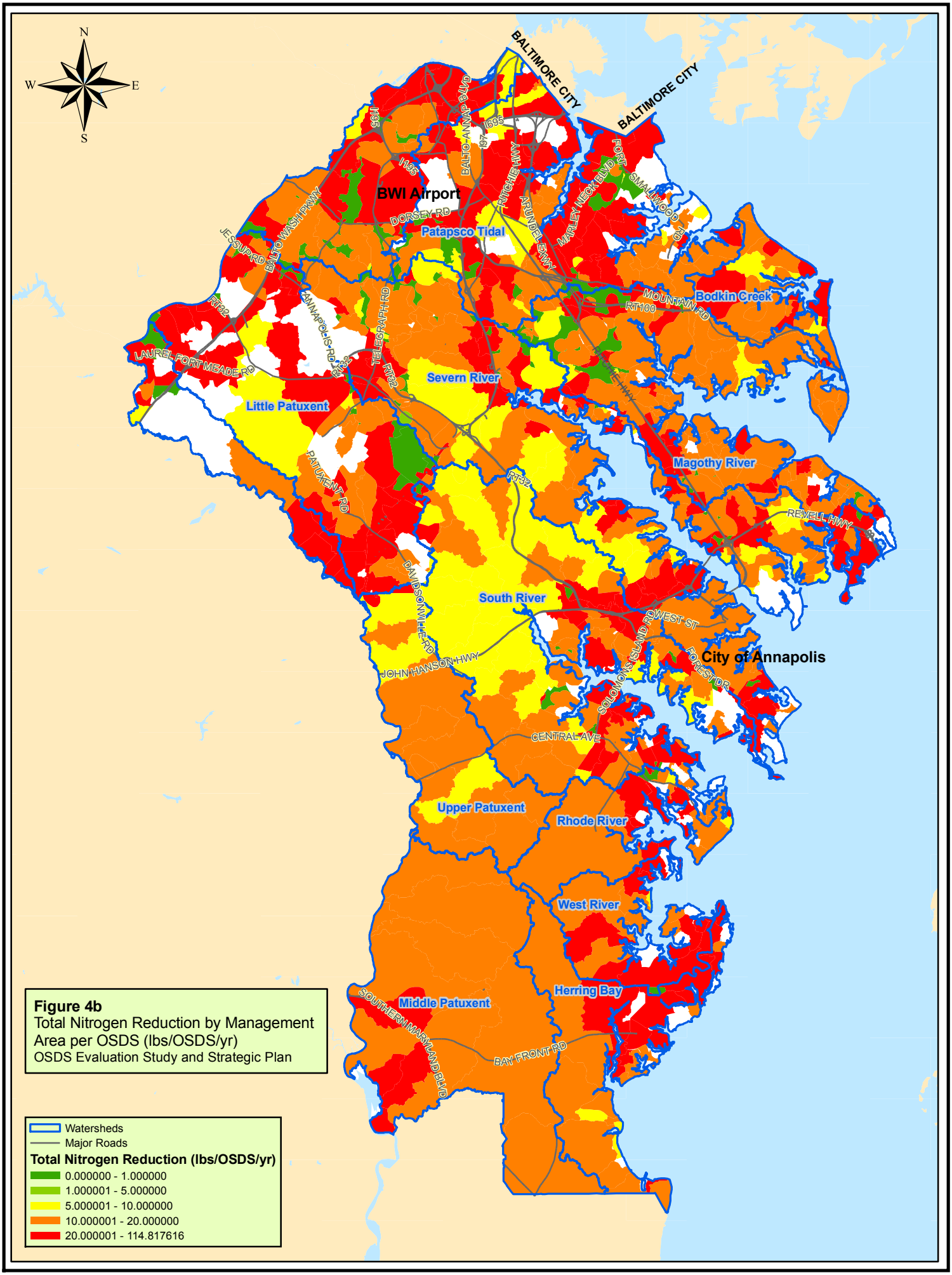


Figure 4b
Total Nitrogen Reduction by Management Area per OSDS (lbs/OSDS/yr)
OSDS Evaluation Study and Strategic Plan

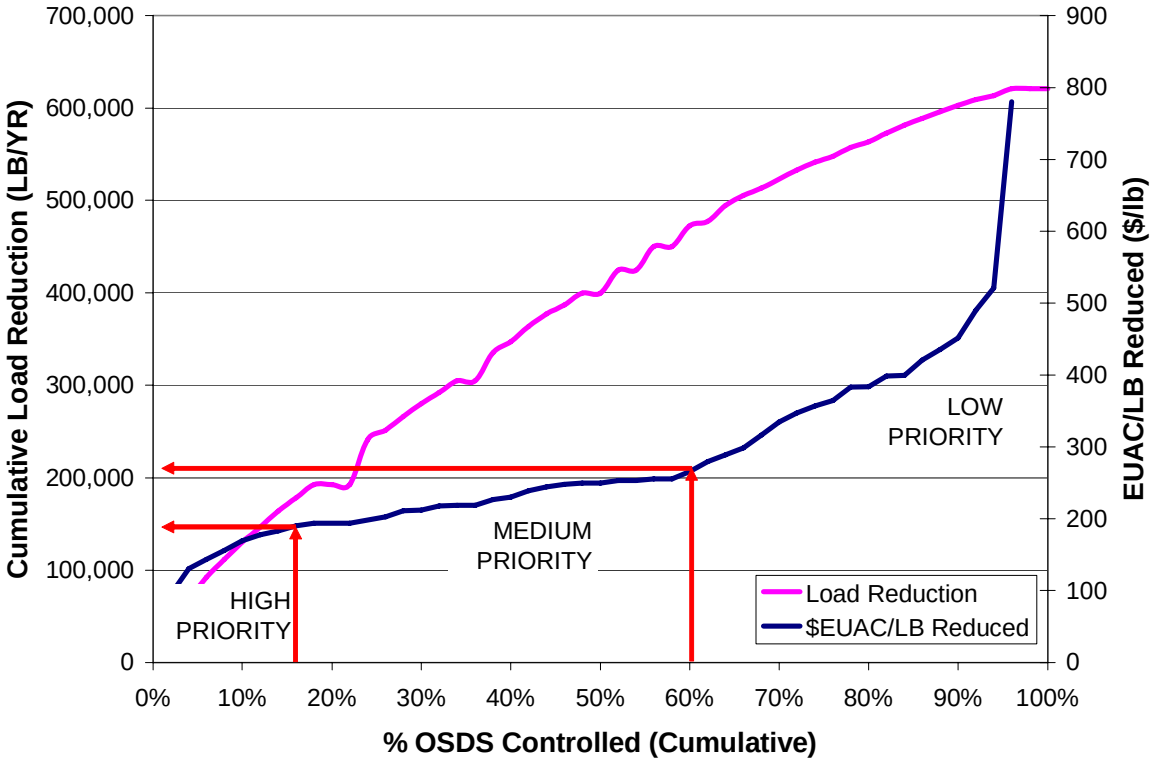
The cost factors shown in Table 8 were applied to the recommended treatment approach in each management area. The management areas were then ranked based on the aggregate cost effectiveness for all OSDS within each area (pounds of nitrogen reduction per OSDS). Figure 5 shows a comparison of the cumulative nitrogen reduced, for all management areas sorted in declining order of removal effectiveness (pounds nitrogen removed per OSDS), compared to the cost effectiveness of removal (EUAC per pound removed). Based on this ranking, each additional management area yields slightly less nitrogen reduction per OSDS treated, while at the same time the cost per pound removed is increasing. For example, while the first 10 percent of OSDS treated yields about 15 percent of nitrogen removed, costs per pound removed at that level are about $183 per pound. However, when 50 percent of OSDS treated is reached, only 45 percent of nitrogen is removed, and unit costs are up to $250 per pound removed.

TABLE 8
Treatment Alternatives By Effluent Concentration, Delivered Load, and Achievable Countywide Reduction

	Sewer Extension and WRF	Cluster Treatment with SBR and Land Application	Cluster Treatment with MBR and Direct Discharge	OSDS Upgrade
Effluent N Concentration (mg/L)	3	8	3	20
Delivered TN	119,640	323,581	119,640	443,221
Achievable TN Reduction	761,360	557,419	761,360	437,779
Initial Capital Cost $/LB TN Removed	$1,489	$2,765	$1,928	$1,204
EUAC $/LB TN Removed	$139	$274	$189	$347

Note - Load estimates based on current MDE delivery ratio assumption - 80% for OSDS in Critical Area, 50% for OSDS within 1000’ of a non-tidal receiving water, 30% for all other OSDS

FIGURE 5
Cumulative Total Nitrogen Reduction vs. Cumulative Number of OSDS Treated, Ranked by Management Area Unit Load Reduction (lbs/OSDS/yr), Compared to Cost Efficiency (EUAC $ Per Pound Nitrogen Reduced)



Cost Summary by Watershed and Sewer Planning Category

Tables 9 and 10 summarize the number of OSDS, load reductions, treatment costs and costs per pound for the recommended treatment approaches, by watershed and by sewer planning category, respectively. Attachment E contains a more detailed breakdown of costs by watershed and by treatment approach.

TABLE 9
Summary of Treatment Costs and Nutrient Removal Efficiency by Watershed

Watershed	Number of OSDS*	Total Initial Capital Cost ($M)	EUAC ($M)	TN Load Reduction (LB/yr)	Avg Initial Capital $/LB Removal	Avg EUAC $/LB Removal	Avg OSDS Priority
Bodkin Creek	3093	$95.66	$11.12	51,613	$3,075	$357	1.94
Herring Bay	1041	$17.68	$3.91	19,280	$960	$176	2.94
Little Patuxent	793	$20.90	$2.42	16,650	$886	$136	1.58
Magothy River	9626	$320.02	$33.72	142,256	$1,903	$255	2.07
Middle Patuxent	2206	$28.68	$8.27	31,609	$907	$262	2.08
Patapsco Non-tidal	1120	$33.11	$3.36	18,489	$1,670	$312	1.53
Patapsco Tidal	2163	$68.82	$7.12	38,083	$1,426	$186	2.12
Rhode River	430	$5.79	$1.56	6,330	$749	$132	2.35
Severn River	11926	$345.00	$42.86	178,114	$1,824	$260	2.06
South River	6084	$135.81	$22.66	83,813	$1,593	$241	2.24
Upper Patuxent	1715	$31.34	$6.35	24,413	$1,685	$235	1.53
West River	351	$6.89	$1.30	8,119	$919	$152	2.14
Blank	134	$4.59	$0.50	2,320	$1,781	$256	2.84
Total	**40682.00**	**$1,114.28**	**$145.15**	**621,089**			

TABLE 10
Summary of Treatment Costs and Nutrient Removal Efficiency by Sewer Planning Category

Sewer Planning Category	Number of OSDS*	Total Initial Capital Cost ($M)	EUAC ($M)	TN Load Reduction (LB/yr)	Avg Initial Capital $/LB Removal	Avg EUAC $/LB Removal	Average OSDS Priority
Existing Service	1881	$71.44	$7.11	43,771	$1,342	$217	3.10
Planned Service	5676	$174.47	$17.41	81,812	$1,474	$212	2.24
Future Service	8322	$295.77	$29.42	134,081	$1,737	$256	2.39
No Public Service	23041	$528.40	$84.68	313,227	$1,840	$254	1.83
Other	18	$0.50	$0.07	725	$722	$95	2.11
Park	22	$0.40	$0.08	408	$1,217	$187	1.97
Resource Conservation Area	1584	$38.56	$5.86	44,706	$903	$126	3.43
Blank	138	$4.75	$0.51	2,358	$1,788	$258	2.75
Total	**40682**	**$1,114**	**$145**	**621,089**			

Treatment Costs by Bin

Tables 11 and 12 summarize the initial capital cost and EUAC, respectively, by sewer planning category and by treatment approach bin.

TABLE 11
Initial Capital Cost by Treatment Bin and Sewer Planning Category

		Initial Capital Cost ($M)									
Bin	**Initial Capital/ EDU**	**Existing Service**	**Future Service**	**No Public Service**	**Other**	**Park**	**Planned Service**	**Resource Conservation Area**	**Blank**	**Total**	**%**
1	$38,000	$71.21	$291.27	$58.10	$0.27	$0.19	$172.52	$12.35	$3.04	$608.95	54.6%
2	$36,203	$0.22	$4.49	$298.10	$0.14	$0.00	$1.63	$15.35	$1.48	$321.41	28.8%
3	$13,000	$0.01	$0.01	$172.20	$0.09	$0.21	$0.33	$10.86	$0.22	$183.92	16.5%
4	$0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0.0%
1c	$0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0.0%
Total		$71.44	$295.77	$528.40	$0.50	$0.40	$174.47	$38.56	$4.75	$1,114.28	
%		6.4%	26.5%	47.4%	0.0%	0.0%	15.7%	3.5%	0.4%		

Bins 1 = Sewer Extension, 2 = Cluster Treatment, 3 = Individual OSDS Upgrade, 4 = Low Priority / No Action (in Rural No Public Service Area); 5 = Low Priority / No Action (Existing/Planned/Future Sewer Service Area)

TABLE 12
EUAC by Treatment Bin and Sewer Planning Category

		EUAC ($M)									
Bin	**EUAC/EDU**	**Existing Service**	**Future Service**	**No Public Service**	**Other**	**Park**	**Planned Service**	**Resource Conservation Area**	**Blank**	**Total**	**%**
1	$3,780	$7.08	$28.97	$5.78	$0.03	$0.02	$17.16	$1.23	$0.30	$60.57	41.3%
2	$3,550	$0.02	$0.44	$29.23	$0.01	$0.00	$0.16	$1.51	$0.15	$31.52	24.1%
3	$3,750	$0.00	$0.00	$49.67	$0.03	$0.06	$0.09	$3.13	$0.06	$53.06	34.6%
4	$0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0.0%
1c	$0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	0.0%
Total		$7.11	$29.42	$84.68	$0.07	$0.08	$17.41	$5.86	$0.51	$145.15	
%		4.9%	20.3%	58.3%	0.0%	0.1%	12.0%	4.0%	0.4%		

Bins 1 = Sewer Extension, 2 = Cluster Treatment, 3 = Individual OSDS Upgrade, 4 = Low Priority / No Action (in Rural No Public Service Area); 5 = Low Priority / No Action (Existing/Planned/Future Sewer Service Area)

Cost Effectiveness by Treatment Approach Bin and Sewer Service Category

Tables 13 and 14 summarize the initial capital cost and EUAC per pound of nitrogen removed, respectively, by sewer planning category and by treatment approach bin. This cost per pound is a measure of the cost effectiveness of each treatment approach.

TABLE 13
Capital Cost Effectiveness by Treatment Approach Bin and by Planning Category

	Initial Capital Cost of Treatment ($/LB)									
Bin	**Existing Service**	**Future Service**	**No Public Service**	**Other**	**Park**	**Planned Service**	**Resource Conservation Area**	**Blank**	**Total**	**Average**
1	$1,635	$2,217	$2,183	$1,253	$1,738	$2,152	$1,072	$2,147	$14,398	$1,800
2	$1,063	$1,664	$2,196	$538	-	$1,221	$1,053	$1,924	$9,659	$1,380
3	$1,330	$1,330	$1,141	$373	$696	$1,050	$583	$1,294	$7,798	$975
4	-	-	-	-	-	-	-	-	-	-
1c	-	-	-	-	-	-	-	-	-	-
Average	$1,342	$1,737	$1,840	$722	$1,217	$1,474	$903	$1,788		

Bins 1 = Sewer Extension, 2 = Cluster Treatment, 3 = Individual OSDS Upgrade, 4 = Low Priority / No Action (in Rural No Public Service Area); 5 = Low Priority / No Action (Existing/Planned/Future Sewer Service Area)

TABLE 14
EUAC Effectiveness by Treatment Approach Bin and by Planning Category

	EUAC of Treatment ($/LB)									
Bin	**Existing Service**	**Future Service**	**No Public Service**	**Other**	**Park**	**Planned Service**	**Resource Conservation Area**	**Blank**	**Total**	**Average**
1	$163	$221	$217	$125	$173	$214	$107	$214	$1,432	$179
2	$104	$163	$215	$53	-	$120	$103	$189	$947	$135
3	$384	$384	$329	$108	$201	$303	$168	$373	$2,249	$281
4	-	-	-	-	-	-	-	-	-	-
1c	-	-	-	-	-	-	-	-	-	-
Average	$217	$256	$254	$95	$187	$212	$126	$258		

Bins 1 = Sewer Extension, 2 = Cluster Treatment, 3 = Individual OSDS Upgrade, 4 = Low Priority / No Action (in Rural No Public Service Area); 5 = Low Priority / No Action (Existing/Planned/Future Sewer Service Area)

Prioritization

The OSDS priority scores reported in TM –1 consisted of an aggregate score based on the following criteria: proximity to surface water, location in Chesapeake Critical Areas, location in HDPAs, and slope. The ranking scores for each OSDS in the database were averaged within each management area to arrive at an aggregate priority rank for each management area. The scores for the management areas are shown in Figures 6 and 7 relative to watershed boundaries and sewer service boundaries, respectively. Priority scores are also summarized by treatment bin and sewer planning category in Table 15. The priority scores were also averaged for each individual management area and plotted in Figures 6 and 7 to illustrate which management areas would provide the highest environmental benefit through application of the priority ranking system developed in TM-1. Attachment C provides a detailed ranking of each management area by priority rank.

TABLE 15
Average OSDS Priority by Treatment Bin and Sewer Planning Category

	Average OSDS Priority								
Bin	Existing Service	Future Service	No Public Service	Other	Park	Planned Service	Resource Conservation Area	Blank	Average
1	2.08	2.32	2.40	1.86	2.57	1.81	3.48	2.74	2.41
2	3.89	2.84	2.62	2.29	N/A	3.51	3.22	2.75	3.02
3	3.33	3.33	2.14	2.18	2.33	2.61	3.60	2.77	2.79
4	N/A	N/A	1.00	N/A	1.00	N/A	N/A	N/A	1.00
1c	N/A	1.05	1.00	N/A	N/A	1.05	N/A	N/A	1.03
Average	3.10	2.39	1.83	2.11	1.97	2.24	3.43	2.75	

Bins 1 = Sewer Extension, 2 = Cluster Treatment, 3 = Individual OSDS Upgrade, 4 = Low Priority / No Action (in Rural No Public Service Area); 5 = Low Priority / No Action (Existing/Planned/Future Sewer Service Area)

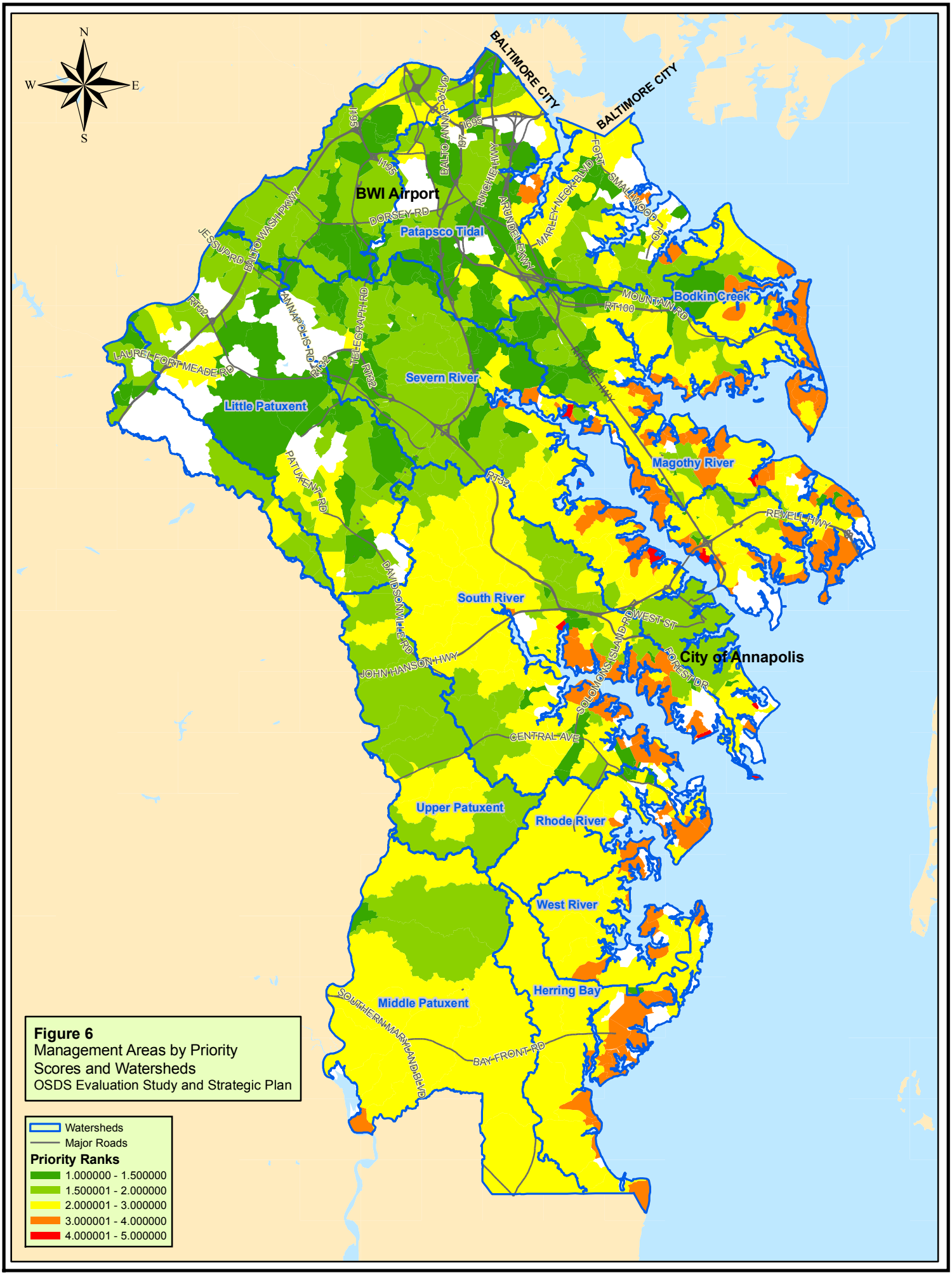


Figure 6
Management Areas by Priority Scores and Watersheds
OSDS Evaluation Study and Strategic Plan

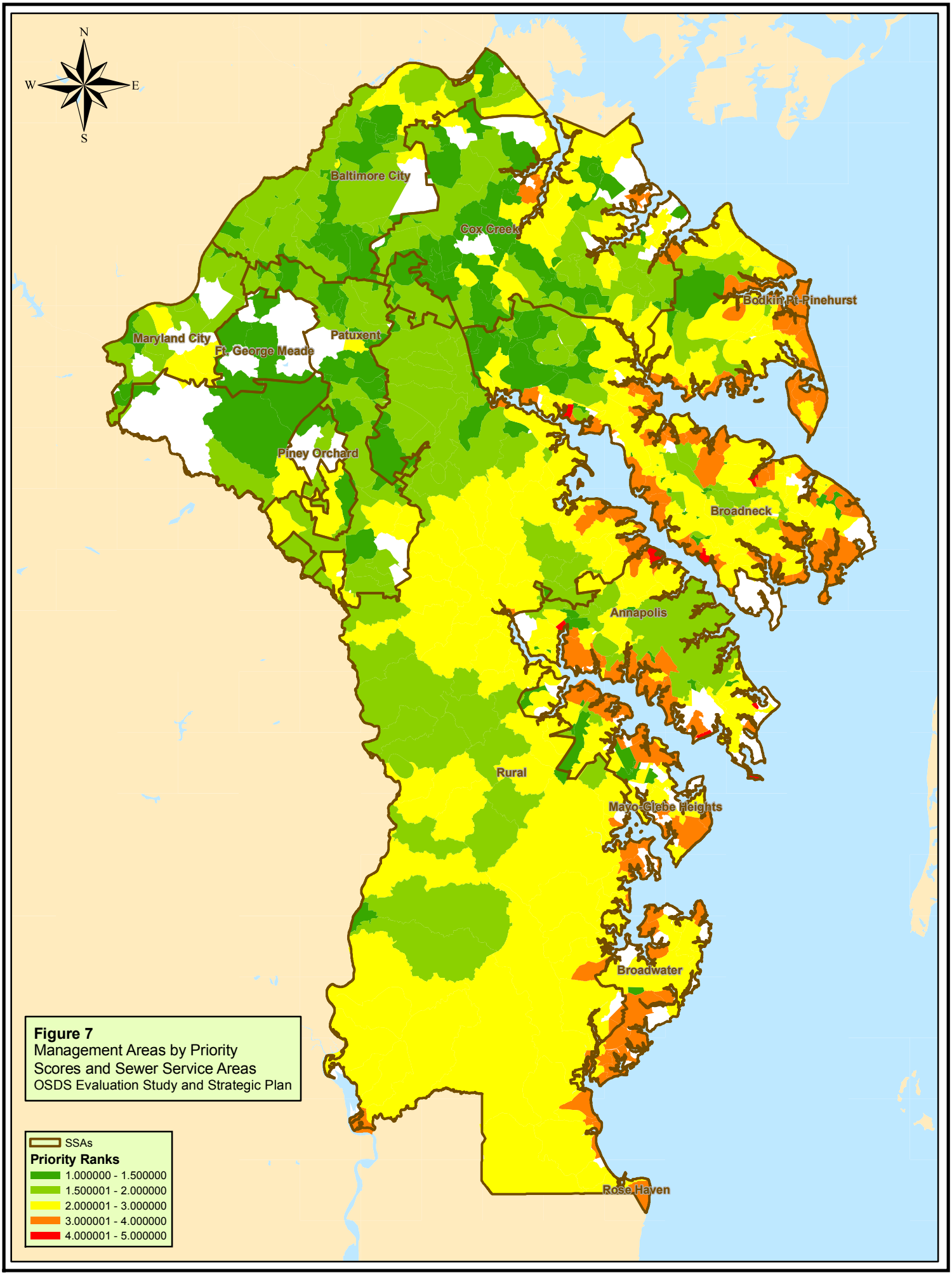


Figure 7
Management Areas by Priority Scores and Sewer Service Areas
OSDS Evaluation Study and Strategic Plan

Policy and Regulatory Issues

The preparation of this strategic plan for reducing nitrogen loads from onsite systems has revealed a number of issues that warrant further consideration. These issues fall into four categories—technical, policy, regulatory, and statutory—and must be addressed at some point if the County, Maryland, and the Chesapeake Bay Program are to design and implement efficient and cost-effective programs for the control of septic nitrogen loads. While some of these issues are addressed by the study, most will require action at the federal, state, or local level. This section describes these issues, identifies feasible options for addressing them, if possible, and makes recommendations if appropriate. It is divided into three parts—Technical Issues, County-Level Policy and Regulatory Issues, and State-Level Policy and Regulatory Issues.

Technical Issues

Need to Improve the Understanding of Existing OSDS Effluent Nitrogen Loads and Delivery Ratios

By design, this study undertook no new research on OSDS nitrogen removal performance or the percentage of OSDS effluent nitrogen that makes its way in surface waters. Instead, the assumptions on OSDS performance and delivery ratios being made by MDE and the Chesapeake Bay Program office were obtained and utilized.

The Chesapeake Bay Program's watershed model currently relies on assumptions about numbers of septic systems derived from 1980 census data, i.e. percentage of total number of households that are on septic systems. The watershed also uses an OSDS nitrogen delivery ratio assumption of 40 percent, based on literature values obtained around the same time. MDE's set of OSDS assumptions is generally consistent with the national literature values found at the beginning of this study and adopted for use in the study. As a result of the study analysis, MDE modified its set of assumptions on delivery ratios.

Although the understanding of OSDS loads has improved recently, the reality remains that the OSDS nitrogen loads to Anne Arundel County surface waters, and the load reductions that would be achieved by the recommended strategy, have a large degree of uncertainty because of the lack of a firm basis for some of the underlying assumptions. Understanding the magnitude of OSDS nitrogen loads to surface waters, and their impacts, as well as the efficacy of the strategy, would be greatly improved by additional research on these underlying assumptions.

OSDS Effluent Nitrogen Concentration. MDE has indicated, based on its literature review and experience, that the effluent nitrogen concentration at the edge of the drain field of a properly functioning OSDS ranges from 40 to 50 mg/L. This is generally consistent with the literature values found at the beginning of the study. Because this is a planning study, a certain degree of conservatism is appropriate in the assumptions; therefore the low end of the range, 40 mg/L, was used. Although 45 or 50 mg/L could have been used, it would not have changed the relative comparison of the alternatives, but only the magnitude of the loading and cost per pound calculations. However, improvement in the accuracy of the assumed concentration would provide a more-accurate estimate of actual loads to surface waters and the load reductions that could be achieved by the study.

A recent comprehensive literature review by the Water Environment Research Foundation found that the median septic effluent nitrogen concentration of the studies examined was 55.4 mg/L for single-source domestic OSDS, and 84.0 mg/L for non-medical commercial systems[3]. This lends support to the possibility that 40 mg/L may be low.

Delivery Ratios. The Chesapeake Bay Program's watershed model assumes a nitrogen delivery ratio of 40 percent for all septic systems regardless of location. As noted in TM-1, Maryland's 2006 TMDL Implementation Guidance document assumes a delivery ratio of 60 percent, regardless of location. This study evaluated applying delivery ratios ranging from 40 to 100 percent depending on distance from the nearest surface water (TM-1, page 25). During the course of the study, MDE adopted a set of delivery ratio assumptions based on location and distance to surface water. These delivery ratios are 80 percent for OSDS within the Critical Area, 50 percent for systems outside of the Critical Area but within 1,000 ft of a perennial surface water body, and 30 percent everywhere else. These four sets of assumptions produce substantially different results for estimating existing nitrogen loads to surface waters, expected load reductions, and the OSDS hookup credits. Table 16 illustrates the wide range in estimated total annual nitrogen loads produced by the four sets of assumptions.

TABLE 16
Impact of Delivery Ratio Assumptions on Estimated Total Annual OSDS Nitrogen Delivered to Surface Waters in Anne Arundel County

Delivery Ratio Assumption	Annual Load, lbs
40 Percent	640,000
80/50/30	880,000
60 Percent	960,000
TM1 40-100 Percent Scale	1,240,000

As noted above, there are little or no data underlying any of these assumptions. Additional research on delivery ratios would be extremely valuable in improving the accuracy of OSDS

[3] Water Environment Research Foundation (2007) *Influent Constituent Characteristics of the Modern Waste Stream from Single Sources: Literature Review*; Alexandria, Va.

load and load reduction estimations, and would result in more reliable and efficient OSDS plans. It would also facilitate additional refinements to the OSDS hookup credits. It is strongly recommended that the Chesapeake Bay Program and Maryland initiate and support research on OSDS delivery ratios as part of Tributary Strategy implementation.

County-Level Policy and Regulatory Issues

Coordination with the General Development Plan

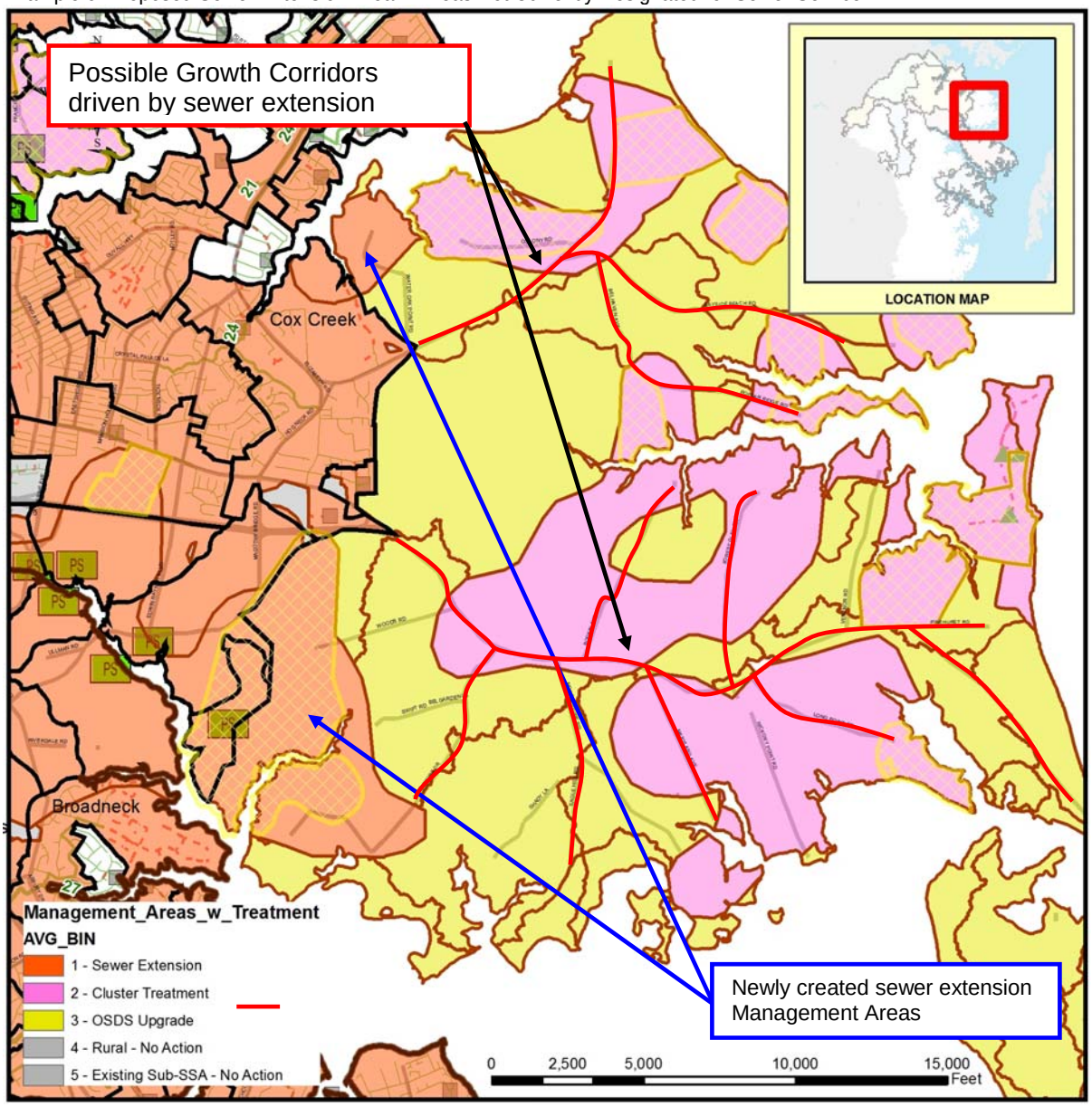
As noted earlier, the purpose of this study is to identify the most cost-effective ways to reduce OSDS nitrogen loads to surface waters and the Chesapeake Bay and recommend a strategic plan for accomplishing these reductions. These recommendations have implications for land use planning, zoning, and sewer service category decisions; so the adoption of a septics strategic plan must be coordinated with the County's General Development Plan (GDP). Likewise, the GDP should be consistent with the adopted septics strategy.

In some cases, the septics strategic plan makes recommendations regarding the extension of the existing sewer system into areas currently without sewer service. Sewer service may be planned in the future for some of these areas, or none may be planned (see example in Figure 8). The same situation exists regarding the recommendations to build community collection systems with local treatment at new cluster treatment facilities. This creates the potential for additional growth demands in these areas simply because of the proximity of sewers, but those demands would be inconsistent with the GDP. It is recommended that the County include provisions in the GDP to preclude or limit such unintended growth. Two examples of provisions of this type, taken from the Montgomery County Ten-Year Water and Sewer Plan, are:

- Designate the priority Management Areas identified in this study as Special SSAs created for a specific purpose (reduction of nitrogen loads to surface waters), with restrictions on the provision of sewer service within the SSA. In other words, sewer service could be restricted to the planned OSDS retirements.
- Designate sewer mains built for the primary purpose of OSDS retirement as limited access sewers and restrict connections to OSDS hookups and new development that is consistent with the existing GDP, zoning, and sewer service categories.

The potential for unintended growth cannot be completely eliminated however; ultimately, the only certain barrier to its occurrence is the political will to resist pressure to allow additional development simple because a sewer is present in an area with no planned growth. The County Council will always have the power to amend the GDP and zoning as it desires.

FIGURE 8
Example of Proposed Sewer Extension Area in Areas Not Currently Designated for Sewer Service.



Anne Arundel County is currently revising the GDP, with a target date of August, 2008 for the Final Draft. The development of the preliminary drafts should incorporate the findings and recommendations of the septics study that the County wants to implement. The schedule for development of the GDP drafts is such that these recommendations can be easily incorporated in the initial drafts. This will also provide the benefit of public review of the OSDS findings and recommendations. The current outline of major elements for the GDP Update 2008 does not include an OSDS element.

HB 1141, the *Land Use – Local Government Planning Act*, was signed into law in May 2006. HB 1141 establishes new requirements for comprehensive land use plans prepared by Maryland

jurisdictions. Among these requirements is that all jurisdictions with planning and zoning authority must include a WRE in their comprehensive plans by October 1, 2009. The purpose of the WRE is to ensure that planned land use does not exceed the "carrying capacity" of the watersheds. This is defined as water supplies and wastewater treatment capacity adequate to support the planned land uses and control of stormwater-related pollutant loads.

Figure 9 is from an HB 1141 guidance document recently made available by the Maryland Department of Planning (M&G, Managing Maryland's Growth, The Water Resources Element: Planning for Water Supply and Wastewater and Stormwater Management). It is a flow chart for assessing the water-related carrying capacity of local watersheds under forecast land use and population distributions. Pollutant loads for existing and proposed land uses are determined and the total compared to the "assimilative capacity" of the watershed in step 9.

Step 7 is an OSDS load analysis; steps 5 and 9 are the point source and stormwater load analyses. If the analysis indicates that the planned land use would result in violations of water quality standards, then it must be revised or other ways must be found to reduce the pollutant loadings.

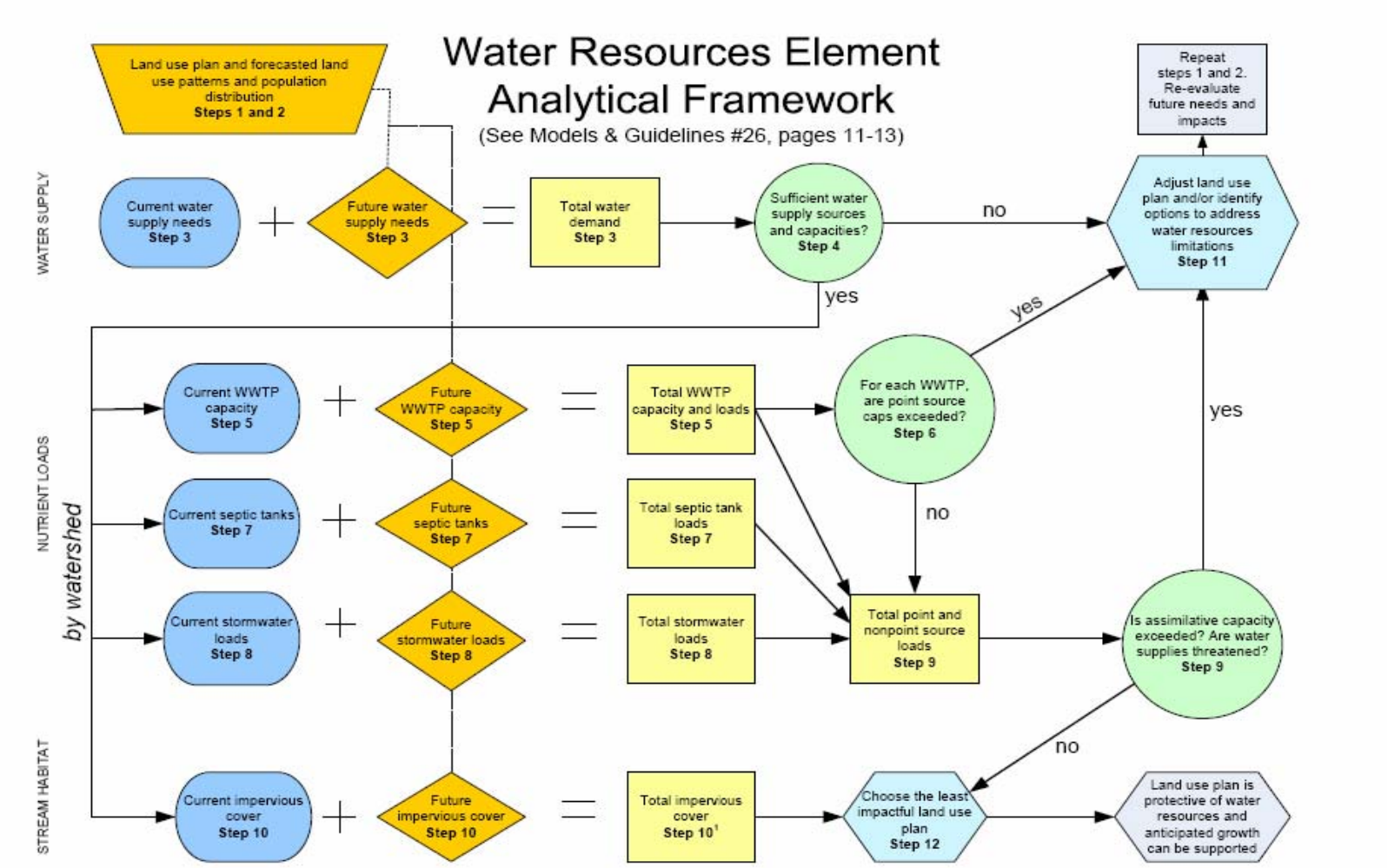
Under this implementation guidance for HB 1141, analysis of OSDS nitrogen loads is required as part of a comprehensive analysis for each of the County's 8-digit watersheds, as listed in Table 17. This list was taken from Tributary Strategy implementation guidance documents and includes all watersheds for which the county has tributary land area.

TABLE 17
8-Digit Watersheds Partially or Completely in Anne Arundel County

Baltimore Harbor	Patuxent River middle
Bodkin Creek	Patuxent River upper
Little Patuxent River	Severn River
Magothy River	South River
Patapsco River L N Br	West Chesapeake Bay
Patuxent River lower	West River

Implementing this guidance and attempting to fulfill the analytical requirements would raise several issues. The process illustrated in Figure 9 is essentially a comprehensive TMDL-like analysis. To do it adequately would require watershed land use/pollutant loading and dynamic water quality models for each of the watersheds. It is not clear how local jurisdictions could complete TMDL-like analyses for all of their watersheds within the next 2 years (Maryland's TMDL program typically takes a year or more to produce a TMDL for a given watershed), or where the financial and technical resources to do so would come from.

FIGURE 9
The Water Resources Element: Planning for Water Supply and Wastewater and Stormwater Management



1. The Center for Watershed Protection has developed a model that predicts water resource impacts due to watershed impervious cover. More information on the model can be found in the December 2005 Maryland Department of Natural Resources "A User's Guide to Watershed Planning in Maryland".

TMDLs are in fact required for all of these watersheds. Table 18 shows the impairments listed in the 2006 update of Maryland's 303(d) list of impaired waters. At some point, MDE will prepare TMDLs for each listed impairment in each watershed. (It is not clear from the 303(d) list, however, if the nutrient and sediment impairments are local impairments requiring local TMDLs, or are included because of the Chesapeake Bay mainstem impairment, in which case no local TMDL would be required.) The timing of most of these TMDLs is uncertain. The 303(d) list indicates that the Baltimore Harbor nutrient, the Severn River bacteria, the Little Patuxent metals, and the Middle Patuxent River metals impairments would be addressed "within the next 2 years." Given the lack of a schedule for TMDL preparation for the remaining impairments, it is not clear how the HB 1141 analyses can best be scheduled to both coordinate with the TMDLs and meet the comprehensive plan requirements presented in the guidance document.

TABLE 18
Anne Arundel County Impaired Waters, 2006 303(d) List

Watershed	Nutrients	Sediments	Biota	Bacteria	Metals	Toxics
Baltimore Harbor	X	X	X	X	X	X
Bodkin Creek	X	X	X		X	
Little Patuxent River	X	X	X		X	
Magothy River	X	X	X	X		X
Patapsco River L N Br	X	X	X		X	
Patuxent River lower	X	X	X	X		X
Patuxent River middle	X	X	X		X	X
Patuxent River upper	X	X	X		X	
Severn River	X	X	X	X		X
South River	X	X	X	X		X
W Chesapeake Bay	X	X	X	X		X
West River	X	X	X	X		

Another complicating factor in carrying out the HB 1141 analyses is that jurisdictions sharing a watershed would have to jointly assess its carrying capacity, necessitating coordinating the preparation of the comprehensive plans in some manner. This raises a host of potentially difficult issues, such as *could jurisdictions be expected to easily decide how to "share" the carrying capacity of a watershed*?

Impact Fee for New Onsite Sewage Disposal Systems

Even while implementing the recommendations of this study, Anne Arundel County will continue to experience the construction of new homes on OSDS. There is no guarantee that new systems will be denitrifying ones; there currently is no prohibition against the installation of conventional systems. Whether conventional or denitrifying, new OSDS would add significant new nitrogen loads to the county's surface waters in comparison to

those of new homes on public sewer and the existing septic loads the County intends to reduce through the implementation of the study recommendations.

The County and the State will spend significant amounts of money in the future to reduce septic nitrogen loads. To help offset this, one alternative is to assess a fee on new OSDS installations, the proceeds of which would be used for OSDS conversions, cluster treatment facilities, or sewer extensions to connect OSDS. The principle is that new OSDS nitrogen sources should be required to offset their loads by funding OSDS nitrogen load reductions elsewhere, through the imposition of the fee. The same principle has been applied to Maryland's point source strategy. New wastewater treatment plants, or existing ones wishing to expand beyond their nutrient allocations, must find offsets for their loads. One method under consideration by the State is providing offsets through payments to State funds, such as the cover crop or septic fund.

An analysis of possible fee structures is beyond the scope of this study. However, following are some initial questions to consider in assessing an OSDS impact fee:

1. What loads should new OSDS development be required to offset?
    - OSDS effluent nitrogen loads
    - OSDS effluent nitrogen loads and stormwater loads
    - OSDS effluent nitrogen loads, stormwater loads, and all other indirectly generated loads (e.g., transportation-related)
2. What mechanisms should be considered for making the offsets available?
    - Developer/builder acquires offsets directly through the Maryland trading and offsets program
    - Developer/builder acquires offsets by purchasing them from the County, with the revenue being dedicated to implementation of the OSDS strategic plan
3. What are the possible bases for the fee?
    - Cost to treat the same flow volume at a WRF
    - Cost to achieve equivalent reduction through OSDS conversion or hookup to sewer
    - Cost to acquire the offsets from lowest cost sources under Maryland's trading and offsets policy (e.g. credit/offset generators, payment to State funds).
4. How much cost should be recovered?
    - Full
    - Actual cost to achieve required load reduction elsewhere
    - A portion of the full or actual cost
    - Maximize revenue

Properly structuring and setting the fee would also require financial modeling of the expected revenue and expense, as well as assessing the financial impact on the community. It is recommended that the County initiate a separate study to assess the OSDS impact fee.

OSDS Reliability and Sustainability of Individual Upgrades

This study assessed OSDS nitrogen loadings and the costs to reduce them over a 50-year planning period. Adequate O&M costs to ensure proper operation of the facilities over the full planning period were included in the analysis. However, the three technologies considered in the study—upgrading conventional OSDS to achieve nitrogen removal, local cluster treatment facilities, and connection to public sewer—differ significantly in the assurance they provide that proper O&M would be carried out and the projected load reduction actually achieved over the full planning period.

The cluster collection and treatment systems, public sewers, and WRF facilities would all be under County ownership and control and can be relied upon to maintain the required performance level. Upgrading OSDS cannot provide the same assurance in the long run, however. Under MDE's septics upgrade policy, homeowners agreeing to the upgrades would sign a contract with the State, under which the State would pay the O&M costs, exclusive of energy, for the first 5 years. There is nothing in the contract that provides assurances that proper O&M would be provided beyond the initial 5-year period. In addition, beyond the initial 5 years, there would be nothing to prevent homeowners from shutting off the power to the OSDS to avoid the increased electricity costs they would incur as a result of the upgrade, as County Health Department staff has reportedly observed in some instances. Given the substantial annual power costs associated with nitrogen-removing OSD systems ($500-$800/yr), disconnection is likely to be more than an isolated occurrence.

Given the need for long-term reliability, the adequacy of the State contract with homeowners should be evaluated. It is possible that additional contractual requirements are needed. It is also possible that this issue should be addressed through additional State or County regulation.

State-Level Policy and Regulatory Issues

Translating and Applying Tributary Strategy Goals

Among the fundamental questions that arose at the beginning of this study was "What are the Tributary Strategy requirements for septic load reductions?" The answer should guide the County in the design of the septic systems strategic plan. However, this seemingly innocuous question does not have a straightforward answer, and while the tributary strategies can provide general programmatic guidance, they cannot provide specific recommendations or numeric load reduction goals at the County or sub-watershed level.

For purposes of Tributary Strategy development, Maryland divided the state into 10 watershed basins, as shown in Figure 10. Anne Arundel County encompasses portions of the Patapsco/Back River, Patuxent, and Lower Western Shore basins, as shown by the map excerpt in Figure 11.

FIGURE 10
Anne Arundel County and Tributary Basin Boundaries (Source - Maryland Department of Natural Resources)

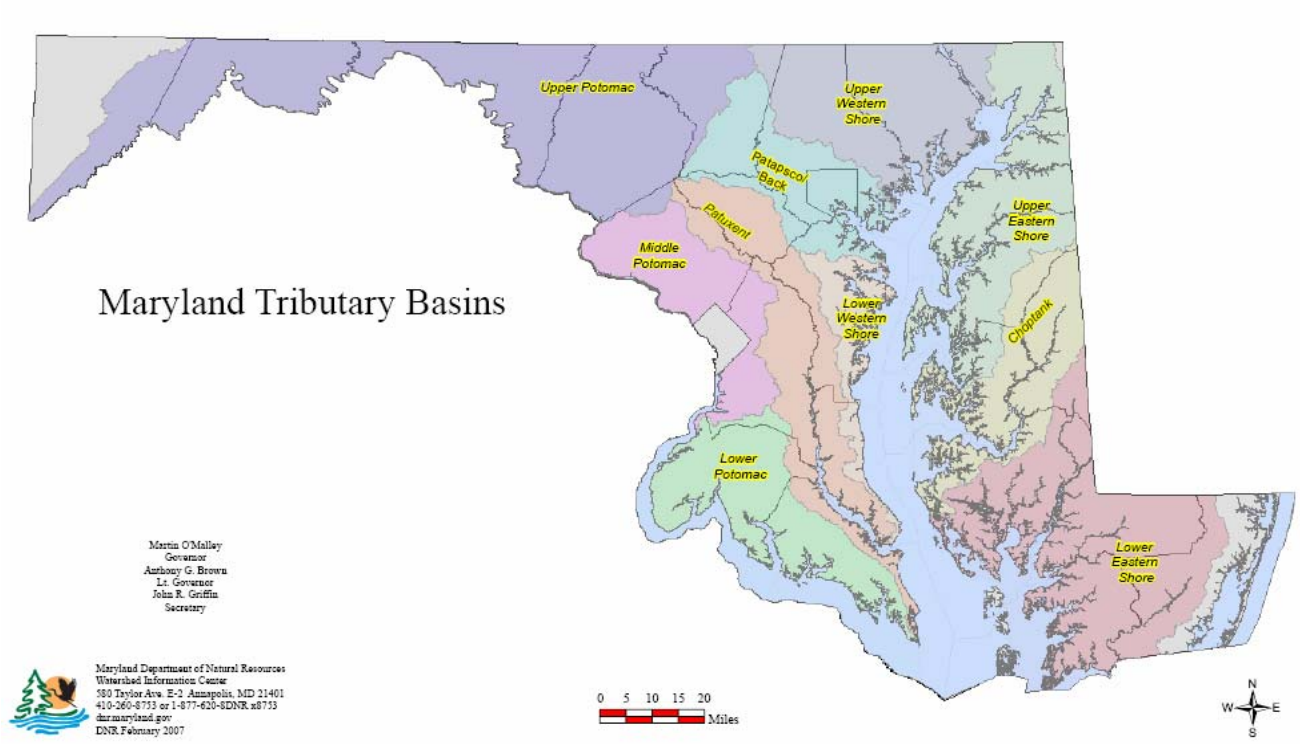
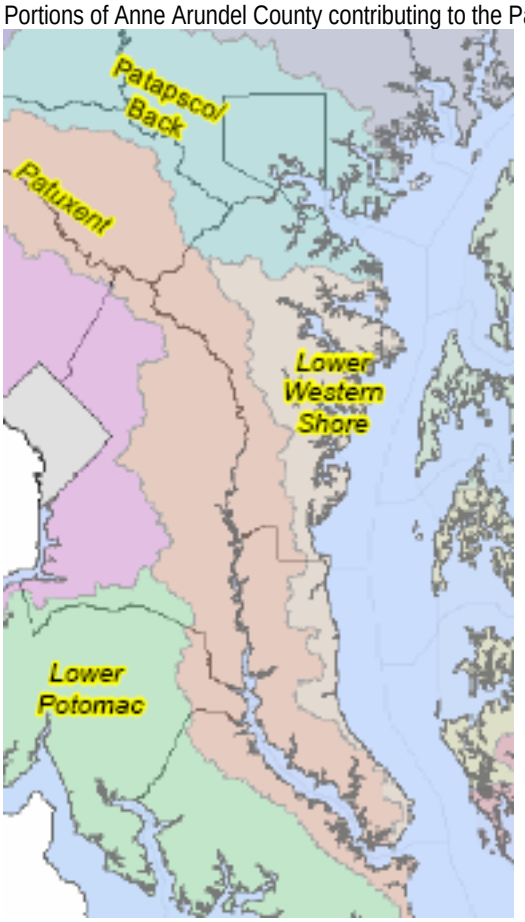


FIGURE 11
Portions of Anne Arundel County contributing to the Patapsco/Back River, Patuxent, and Lower Western Shore Basins



The Tributary Strategy nitrogen load goals for each of the 10 basins and the state as a whole are listed in Table 19 along with actual 2004 loads. The septic load goals and 2004 loads are also listed. The septic goals were derived by assuming that all systems were upgraded to denitrification capability. Table 20 shows the same information for the three tributaries encompassed by the County.

TABLE 19
Maryland Tributary Strategy Nitrogen Load Goals and 2004 Loads

Basin	Total Load Million Pounds per Year		Septic Load Million Pounds per Year	
	2004	Goal	2004	Goal
Choptank	3.79	2.89	0.13	0.07
Lower Eastern Shore	6.75	3.78	0.29	0.15
Lower Potomac	3.14	1.65	0.29	0.16
Lower Western Shore	1.70	0.84	0.44	0.23
Middle Potomac	6.25	5.82	0.27	0.14
Patapsco/Back River	11.8	9.19	0.33	0.17
Patuxent	3.96	2.46	0.45	0.23
Upper Eastern Shore	6.48	4.22	0.27	0.15
Upper Potomac	8.75	4.34	0.57	0.30
Upper Western Shore	4.29	2.06	0.46	0.24
Total	**56.91**	**37.25**	**3.50**	**1.83**

TABLE 20
Maryland Tributary Strategy Nitrogen Load Goals and 2004 Loads for Basins Encompassed by Anne Arundel County

Basin	Total Load Million Pounds per Year		Septic Load Million Pounds per Year	
	2004	Goal	2004	Goal
Lower Western Shore	1.70	0.84	0.44	0.23
Patapsco/Back River	11.8	9.19	0.33	0.17
Patuxent	3.96	2.46	0.45	0.23
Total	**17.46**	**12.49**	**1.22**	**0.63**

Following release of the Tributary Strategy Implementation Plan, the DNR and MDE began working with the counties and Baltimore City on the development of implementation plans for each of the 10 tributaries. Like the statewide implementation plan, the basin plans will indicate the current status of implementation of the point source, urban stormwater, and agriculture load components, along with projected 2- and 6-year changes in implementation metrics. These load estimates will be broken down on a watershed basis using the USGS 8-digit hydrologic unit code (HUC) for each watershed. For the septic component, which is included in the urban/suburban stormwater section, only the number of septic conversions to denitrifying systems and the number of septic hookups will be shown (for current

number, 2-year, and 6-year projections). MDE and DNR are currently developing a web-based reporting system for local jurisdictions to use to submit the required data, with the basin plans being prepared by DNR and MDE. Local jurisdictions will not be required to submit basin plans, but only the data and projections needed by the State agencies to prepare the plans.

Even though not required for the preparation of the basin implementation plans, this study evaluated whether the septic load goals for the Lower Western Shore, Patapsco/Back River and Patuxent basins shown in Table 20 could or should be divided into jurisdictional or watershed based allocations using the 8-digit HUCs. According to MDE, some Maryland jurisdictions have in fact asked the State to provide load goals based on their political boundaries. MDE intends to do so, reluctantly, but stresses that Chesapeake Bay watershed model results needed to do so in a reliable way do not exist; the model does not incorporate political boundaries, and there are differences in the land use databases used by the Chesapeake Bay Program and the State of Maryland[4]. It would take major model land-use database enhancements to incorporate political boundaries, so at present, any political sub-allocation of the tributary strategy load goals would be mathematically arbitrary and its use should be restricted to generalized planning purposes.

MDE, DNR, and the Chesapeake Bay Work Group are, however, considering whether such sub-allocations should be developed in the future, probably in conjunction with a Chesapeake Bay TMDL after 2010, but no decision on that is imminent.

Given this disconnect between political boundaries and tributary goals and the lack of smaller watershed level goals from MDE, the study team made no attempt to translate the tributary strategy septic load goals to numeric County goals. Further support for this decision comes from the fact that the County's strategy, if implemented, would be more effective and result in greater nitrogen load reductions than the strategy implicit in goals shown in Table 20, so there should be no question that it complies with the requirements of the tributary strategy.

Tributary Strategy and Chesapeake Bay Fund Restoration Act Cost Effectiveness

Maryland's Tributary Strategy Implementation Plan calls for all of the State's septic systems to be upgraded to denitrifying ones, or connected to public sewer. The Implementation Plan sets no priorities for which systems to address first. The type of GIS-based analysis conducted for this study, if conducted statewide, would provide more insight into the magnitude and geographic distribution of OSDS nitrogen loads, and could lead to increased effectiveness of the septics component of the strategy, as well as lowering the cost per pound of OSDS nitrogen reduction. While there is nothing in the strategy that would prevent local jurisdictions from undertaking similar analyses, it might be more efficient for MDE to undertake a statewide GIS-based OSDS mapping and loading analysis. Such an analysis could lead to prioritizing all of the State's OSDS.

It should be noted that the CBRFA requires giving priority to substandard OSDS in the Chesapeake Bay and Atlantic Coast Critical Areas. There are approximately 60,000 OSDS in

[4] Jim George, Maryland Department of the Environment, personal communication.

the Chesapeake Bay Critical Area. Applying the alternatives developed in this study to these systems would produce the load reductions shown in Table 21.

As shown in Table 19, Maryland's Tributary Strategy calls for reducing septic loads by 1.8 million pounds per year. Connecting all of the OSDS in the Critical Area alone to sewer or cluster treatment facilities would achieve about three-fourths of the desired statewide load reduction. A combination of OSDS connections, cluster treatment, and OSDS upgrades, such as developed in this study, would achieve somewhat less, but would still constitute a very large percentage of the State's OSDS nitrogen reduction goal. Consideration should be given to eliminating the priority restriction to substandard systems and expand it to all OSDS in the Critical Area.

The CBRFA currently allows the use of septic fund monies only for upgrading OSDS. Given the increased cost-effectiveness on a per pound of nitrogen basis of the sewer connection and cluster treatment options, as shown by this study and the recommended plan, strong consideration should be given to amending the statute to allow Bay Restoration Funds to be used for sewer extensions and hookups, as well as community collection systems and cluster treatment facilities, as long as the primary purpose is to reduce nitrogen loads to surface waters and the Chesapeake Bay.

TABLE 21
Chesapeake Bay Critical Area OSDS Loads and Potential Load Reductions

Approximately 60,000 Existing OSDS in Chesapeake Bay Critical Area Current Estimated Nitrogen Load = 1,480,000 Pounds/Year			
Alternative	**Load Reduction Pounds/Year**	**Resulting Load Pounds/Year**	**Percent Reduction**
No Action	0		0
OSDS Upgrade	740,000	740,000	50
Connection to Sewer or Cluster Treatment	1,350,000	130,000	91

Permitting Issues

Three NPDES permitting issues must be addressed—nitrogen wasteload allocations for new cluster treatment facilities, the handling of OSDS hookup credits under the County's bubble permit, and management options for cluster facility effluent given the restriction on discharge to shellfish waters.

Wasteload Allocation for New Cluster Treatment Facilities. Under Maryland's Point Source Strategy, new and expanding wastewater treatment plants, whether major or minor, get no allocation for nitrogen or phosphorus. Because a cluster treatment facility would bring about a substantial reduction in net nitrogen load, it would seem counter-intuitive and illogical if it were forced to find offsets for its own relatively minor nitrogen discharge. MDE should consider an exception to this policy for cluster treatment facilities constructed for the primary purpose of reducing OSDS nitrogen loads.

Management of Cluster System Effluent. The discharge of wastewater effluent into surface waters designated as shellfish waters is prohibited. In some cases, this restricts the available OSDS options in some areas; cluster treatment facilities may not be selected where such restrictions exist. In these cases, alternate management options for the effluent may provide the answer. Such technologies could include spray irrigation or natural wetland flow augmentation. Both the State and local jurisdictions would benefit from the development of additional management options for cluster system effluent. The County should encourage MDE to support efforts to develop additional management options for cluster treatment effluent facility.

OSDS Hookup Credits and the Bubble Permit. Under the bubble permit for nutrients that the County expects to be issued for its WRFs, the County essentially has a single point source nitrogen wasteload allocation that is the sum of the wasteload allocations specified in Maryland's point source strategy for the facilities covered by the permit. Presumably then, when OSDS hookup credits are acquired, they will simply be added to this aggregate allocation, regardless of where in the county the hookup occurred. The County should obtain MDE concurrence in this interpretation and ensure that the bubble permit, when issued, is consistent with this interpretation.

Establishing the OSDS Hookup Credit

The idea of an OSDS nitrogen allocation hookup credit has been under discussion for several years. MDE's TMDL guidance document[5] states that "the pound loadings involved in septic connections are not particularly large, current estimates are that about one new residential unit could be justified for every two units that are connected" (p. 4-20). The loading analysis presented in TM-1 of this study indicated that OSDS loads in Anne Arundel County were significantly higher than the TMDL guidance document assumed in its discussion of the possible credit. Therefore, the TM-1 results argued for significantly higher credits.

MDE recently revised its proposed hookup credit. The draft nutrient trading policy, not yet released, proposes credits based on loads calculated using the 80/50/30 percent delivery ratios, depending on location. The policy also states that the proposed credits of 9.6, 4.5, and 1.6 pounds per year are for hookup to a treatment facility discharging at 4 mg/L TN and that non-residential systems should be treated on a case-by-case basis.

It is clear that more refinement to the OSDS hookup credit is needed. For example, Maryland wastewater treatment plants with ENR upgrades are required by the CBRFA to try to achieve an annual average TN concentration of 3 mg/L. The hookup credits proposed in the trading policy assumes that the treatment plant involved is discharging an annual average nitrogen concentration of 4 mg/L. It is not clear why the credits should not be based on 3 mg/L or—even better—the concentration that the treatment plant is actually achieving.

The hookup credit is also directly dependent on the delivery ratio, so it should remain open to adjustment as the understanding of actual delivery ratios improves. Another area needing clarification is how or where the hookup credits would be applied under Anne

[5] *TMDL Implementation Guidance for Local Governments*, Maryland Department of the Environment, 2006.

Arundel County's bubble permit for nutrients. Presumably, the permit essentially establishes a single countywide nitrogen allocation, and all hookup credits would just be added to this number. However, MDE concurrence with this interpretation is needed.

Whatever the ultimate magnitude of the OSDS hookup credit, it could be a smart growth tool for the County. The large number of septic systems in the Critical Area, with their high delivery ratios and hookup credits, could provide enough credits to accommodate a large amount of growth throughout the county. Table 22 illustrates this by using Management Area SV421 as an example. MDE's currently proposed methodology for calculating credits is used. If all 332 OSD systems in Management Area SV421 were retired and connected to a WRF or cluster treatment facility discharging at 4.0 mg/L nitrogen, up to 1,772 new domestic hookups could be accommodated under the County's point source bubble permit. The credits could also be used to offset urban stormwater or other nonpoint source loads as well. Under a nutrient trading program, such credits could become valuable commodities as Maryland experiences continuing growth pressure. MDE should continue to work with local jurisdictions and the wastewater community to refine the development and implementation of the OSDS hookup credits.

TABLE 22
OSDS Hookup Credit Calculation for Management Area SV421

	Residential			NonResidential			
Delivery Ratio	**No. OSDS**	**Credit/OSDS Pounds/Yr**	**Total Credit Pounds/Yr**	**No. OSDS**	**Credit/OSDS Pounds/Yr**	**Total Credit Pounds/Yr**	**Total Credit Pounds/Yr**
0.8	255	9.6	2,448	3	50	150	2,598
0.5	77	4.5	347	101	23	2,363	2,710
0.3	-	1.6	-	1	8	8	8
Total	**332**		**2,795**	**105**		**2,521**	**5,316**

Could support 1,772 new hookups to ENR facility, at 3.0 lbs per hookup (250 gpd x 4 mg/L).
Credit per OSDS is based on MDE's draft trading policy, which assumes 9.5 lb/person/yr, 3.2 person/OSDS, and the given delivery ratio. Nonresidential credits per OSDS were estimated based on the residential credit multiplied by the ratio of flow factors 1300/250.

Attachment A
List of Management Areas Sorted by MA ID and Naming Convention

Naming Convention for Management Areas

A unique identifier was created for each management area (MA) according to the following convention. Watershed### where:

- Watershed = Magothy, Severn with the following codes

Watershed	Code
Magothy River	MR
Severn River	SV
South River	SO
Upper Patuxent	UP
Little Patuxent	LP
West River	WR
Rhode River	RR
Patapso Tidal	PT
Patapso Non-Tidal	PN
Herring Bay	HB
Bodkin Creek	BC

- ### = arbitrary unique management identifier to allow for cross reference to priority ranks and other MA-based summary tables

The capability exists to form these labels based on any combination of fields within the OSDS database. Note that some of the MAs straddle watershed lines. In the final report, we will use the watershed where the majority of OSDS are located within an MA. Out of 682 MAs, there are 71 that cross watershed boundaries, in that they have OSDS in more than 1 watershed. Of those 71, there are 9 that are evenly split. In these cases, the MA was assigned to a watershed by arbitrarily assigning 40 and 60% OSDS in either watershed.

The following table is a complete listing of the MAs in alphabetical order by MA.

Alphabetical and Numerical Order by MA ID

MA ID	Area (Acres)	OSDS Count	Bin #	SSA	Existing Load (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)	Total EUAC ($/yr)	Total Initial Capital Cost ($)	$EUAC/lb Reduced	$IC/lb Reduced	Priority Rank	N reduction per OSDS (lb/yr/OSDS)	Priority Based on $EUAC/lb Reduced	Load After OSDS Upgrade (lb/yr)
BC153	33.4	2	1	Cox Creek	25	4	21	7560	76000	360	3618	1.41	10.50	LOW	12
BC172	1290.4	1164	2	Rural	17222	2480	14742	4132200	42140860	280	2859	2.01	12.67	LOW	8690
BC173	182.3	139	2	Rural	2987	307	2680	493450	5032285	184	1878	3.15	19.28	HIGH	1506
BC178	159.8	96	2	Rural	2124	207	1917	340800	3475535	178	1813	3.38	19.96	HIGH	1071
BC180	98.1	150	2	Rural	3071	287	2784	532500	5430523	191	1951	3.55	18.56	MEDIUM	1551
BC181	113.7	121	2	Rural	2464	243	2221	429550	4380622	193	1973	2.62	18.35	MEDIUM	1244
BC182	47.0	76	2	Rural	1716	160	1555	269800	2751465	173	1769	3.46	20.46	HIGH	866
BC183	38.6	47	2	Rural	914	87	827	166850	1701564	202	2057	3.47	17.60	MEDIUM	462
BC258	320.6	140	2	Bodkin Point	3408	319	3089	497000	5068488	161	1641	3.33	22.07	HIGH	1718
BC474	257.4	46	3	Rural	1824	916	908	172500	598000	190	659	3.54	19.74	MEDIUM	916
BC518	136.4	5	3	Rural	99	50	49	18750	65000	384	1330	3.58	9.78	LOW	50
BC565	137.8	149	2	Rural	3689	375	3314	528950	5394320	160	1628	2.66	22.24	HIGH	1858
BC567	148.2	224	2	Rural	5068	474	4594	795200	8109581	173	1765	3.10	20.51	HIGH	2557
BC615	97.4	21	3	Rural	794	398	396	78750	273000	199	689	2.35	18.87	MEDIUM	398
BC616	175.4	34	3	Rural	794	400	394	127500	442000	324	1122	3.01	11.58	LOW	400
BC617	55.5	11	3	Rural	258	129	128	41250	143000	322	1116	1.79	11.65	LOW	129
BC618	57.7	17	3	Rural	642	322	320	63750	221000	199	692	3.01	18.80	MEDIUM	322
BC619	1158.4	189	3	Rural	8333	4171	4163	708750	2457000	170	590	1.40	22.02	HIGH	4171
BC620	632.0	109	3	Rural	3921	1967	1954	408750	1417000	209	725	2.37	17.93	MEDIUM	1967
BC627	37.2	27	3	Rural	534	270	264	101250	351000	384	1330	2.71	9.78	LOW	270
BC628	488.5	222	3	Rural	4287	2159	2128	832500	2886000	391	1356	1.93	9.59	LOW	2159
BC629	171.1	20	3	Rural	1019	511	508	75000	260000	148	511	2.98	25.42	HIGH	511
BC679	41.9	1	3	Rural	127	63	63	3750	13000	59	205	3.70	63.35	HIGH	63
HB137	74.9	51	1	Broadwater	2383	225	2159	192780	1938000	89	898	3.20	42.32	HIGH	1195
HB185	120.8	7	3	Broadwater	566	283	283	26250	91000	93	322	3.64	40.39	HIGH	283
HB186	714.0	20	1	Broadwater	960	97	863	75600	760000	88	881	3.07	43.13	HIGH	481
HB429	106.9	154	3	Rural	3043	1538	1506	577500	2002000	384	1330	3.33	9.78	LOW	1538
HB472	416.4	6	1	Broadwater	332	31	301	22680	228000	75	757	3.11	50.22	HIGH	167
HB486	65.1	24	3	Rural	681	343	338	90000	312000	266	923	3.71	14.09	MEDIUM	343
HB488	351.9	8	3	Rural	232	117	116	30000	104000	259	898	2.90	14.48	MEDIUM	117
HB489	269.3	21	3	Rural	596	299	297	78750	273000	265	919	2.41	14.14	MEDIUM	299
HB490	264.4	4	1	Rose Haven	72	7	64	15120	152000	235	2366	3.26	16.06	MEDIUM	36
HB581	302.3	66	3	Rural	2078	1045	1033	247500	858000	240	831	3.13	15.65	MEDIUM	1045
HB585	184.5	60	1	Broadwater	1827	171	1656	226800	2280000	137	1377	3.29	27.60	HIGH	919
HB596	133.0	2	1	Broadwater	146	14	133	7560	76000	57	573	3.13	66.37	HIGH	73
HB598	70.0	1	1	Broadwater	20	2	18	3780	38000	211	2121	2.96	17.91	MEDIUM	10
HB600	90.7	2	1	Broadwater	40	4	36	7560	76000	211	2121	2.92	17.91	MEDIUM	20
HB601	195.4	7	1	Broadwater	138	13	125	26460	266000	211	2121	3.32	17.91	MEDIUM	70
HB602	53.0	1	1	Broadwater	127	12	115	3780	38000	33	331	2.96	114.82	HIGH	63
HB603	112.5	5	1	Broadwater	91	9	82	18900	190000	230	2313	3.11	16.43	MEDIUM	46
HB604	67.1	2	1	Broadwater	40	4	36	7560	76000	211	2121	3.17	17.91	MEDIUM	20

MA ID	Area (Acres)	OSDS Count	Bin #	SSA	Existing Load (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)	Total EUAC ($/yr)	Total Initial Capital Cost ($)	$EUAC/lb Reduced	$IC/lb Reduced	Priority Rank	N reduction per OSDS (lb/yr/OSDS)	Priority Based on $EUAC/lb Reduced	Load After OSDS Upgrade (lb/yr)
HB605	93.1	3	1	Broadwater	166	16	151	11340	114000	75	757	2.95	50.22	HIGH	83
HB622	1348.3	92	3	Rural	2952	1480	1472	345000	1196000	234	813	2.44	16.00	MEDIUM	1480
HB623	4245.4	323	3	Rural	10480	5256	5224	1211250	4199000	232	804	2.35	16.17	MEDIUM	5256
HB630	1600.5	69	3	Rural	3324	1666	1658	258750	897000	156	541	2.83	24.03	HIGH	1666
HB631	184.1	28	3	Rural	531	267	264	105000	364000	397	1378	2.30	9.44	LOW	267
HB632	1515.4	84	3	Rural	2497	1253	1244	315000	1092000	253	878	2.65	14.81	MEDIUM	1253
HB671	61.5	1	1	Rose Haven	127	12	115	3780	38000	33	331	2.55	114.82	HIGH	63
LP32	132.8	14	5	Patuxent	344	344	0	0	0	-	-	1.00	0.00	LOW	172
LP37	73.3	19	5	Patuxent	742	742	0	0	0	-	-	1.00	0.00	LOW	371
LP44	1.9	2	5	Patuxent	15	15	0	0	0	-	-	1.00	0.00	LOW	7
LP45	96.5	31	5	Rural	350	350	0	0	0	-	-	1.08	0.00	LOW	176
LP46	21.2	6	5	Patuxent	205	205	0	0	0	-	-	1.00	0.00	LOW	103
LP51	57.5	19	5	Patuxent	742	742	0	0	0	-	-	1.06	0.00	LOW	371
LP83	28.6	1	5	Maryland city	48	48	0	0	0	-	-	1.00	0.00	LOW	24
LP86	0.4	1	5	Patuxent	48	48	0	0	0	-	-	1.00	0.00	LOW	24
LP91	6.8	1	5	Maryland city	7	7	0	0	0	-	-	1.00	0.00	LOW	4
LP99	127.5	18	5	Patuxent	294	294	0	0	0	-	-	1.06	0.00	LOW	147
LP101	5.7	2	5	Baltimore City	15	15	0	0	0	-	-	1.00	0.00	LOW	7
LP102	64.5	25	5	Maryland city	265	265	0	0	0	-	-	1.02	0.00	LOW	134
LP110	159.2	23	5	Baltimore City	371	371	0	0	0	-	-	1.09	0.00	LOW	186
LP121	478.7	36	1	Patuxent	1781	267	1514	136080	1368000	90	903	1.66	42.06	HIGH	892
LP138	102.6	19	1	Maryland city	1103	165	938	71820	722000	77	770	1.67	49.37	HIGH	552
LP190	346.1	9	1	Piney Orchard	131	27	105	34020	342000	324	3262	1.28	11.65	LOW	66
LP191	275.9	4	1	Piney Orchard	49	7	42	15120	152000	360	3618	1.58	10.50	LOW	25
LP192	307.9	3	1	Piney Orchard	238	36	202	11340	114000	56	565	1.95	67.31	HIGH	119
LP194	250.4	18	1	Patuxent	1225	184	1041	68040	684000	65	657	1.84	57.84	HIGH	613
LP195	80.7	14	1	Patuxent	163	26	137	52920	532000	386	3878	1.52	9.80	LOW	82
LP197	0.1	1	1	Maryland city	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
LP200	446.8	22	1	Patuxent	391	61	330	83160	836000	252	2534	1.45	14.99	MEDIUM	196
LP202	963.7	7	1	Patuxent	421	63	358	26460	266000	74	744	1.83	51.08	HIGH	210
LP218	191.1	11	1	Patuxent	470	70	400	41580	418000	104	1046	1.60	36.32	HIGH	235
LP235	529.2	10	1	Patuxent	309	49	261	37800	380000	145	1458	1.44	26.06	HIGH	155
LP240	586.7	11	1	Patuxent	737	111	627	41580	418000	66	667	2.12	56.98	HIGH	369
LP243	424.5	46	1	Patuxent	1284	195	1088	173880	1748000	160	1606	1.54	23.66	HIGH	644
LP244	352.8	2	1	Patuxent	25	4	21	7560	76000	360	3618	1.82	10.50	LOW	12
LP245	280.6	1	1	Patuxent	12	2	11	3780	38000	360	3618	1.82	10.50	LOW	6
LP246	394.6	4	1	Patuxent	183	27	156	15120	152000	97	977	1.52	38.91	HIGH	92
LP247	714.4	9	1	Patuxent	579	87	492	34020	342000	69	695	1.82	54.68	HIGH	290
LP281	20.6	4	1	Patuxent	250	37	212	15120	152000	71	716	1.41	53.11	HIGH	125
LP316	357.7	2	3	Maryland city	158	79	79	7500	26000	95	328	1.82	39.59	HIGH	79
LP393	2809.6	1	3	Patuxent	79	40	40	3750	13000	95	328	1.41	39.59	HIGH	40
LP433	65.0	2	1	Maryland city	25	4	21	7560	76000	360	3618	1.61	10.50	LOW	12

MA ID	Area (Acres)	OSDS Count	Bin #	SSA	Existing Load (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)	Total EUAC ($/yr)	Total Initial Capital Cost ($)	$EUAC/lb Reduced	$IC/lb Reduced	Priority Rank	N reduction per OSDS (lb/yr/OSDS)	Priority Based on $EUAC/lb Reduced	Load After OSDS Upgrade (lb/yr)
LP434	508.1	6	2	Maryland city	475	71	404	21300	217221	53	538	2.31	67.31	HIGH	238
LP435	563.9	11	1	Maryland city	265	40	224	41580	418000	185	1864	1.64	20.38	HIGH	133
LP436	592.6	12	1	Maryland city	883	133	751	45360	456000	60	607	2.20	62.57	HIGH	442
LP439	466.6	30	1	Maryland city	705	106	599	113400	1140000	189	1903	1.61	19.97	MEDIUM	354
LP440	451.5	18	1	Maryland city	556	83	473	68040	684000	144	1446	1.84	26.28	HIGH	279
LP443	309.5	2	1	Maryland city	158	24	135	7560	76000	56	565	2.77	67.31	HIGH	79
LP444	529.7	13	1	Maryland city	562	84	477	49140	494000	103	1035	1.98	36.72	HIGH	281
LP550	68.4	4	3	Rural	116	58	58	15000	52000	259	898	1.92	14.48	MEDIUM	58
LP551	418.7	28	3	Rural	920	461	459	105000	364000	229	792	1.32	16.41	MEDIUM	461
LP552	839.5	13	4	Rural	417	417	0	0	0	-	-	1.00	0.00	LOW	209
LP564	137.7	120	1	Baltimore City	1482	222	1260	453600	4560000	360	3618	1.83	10.50	LOW	749
LP636	4026.6	2	3	Rural	25	12	12	7500	26000	614	2128	1.41	6.11	LOW	12
LP655	417.2	5	3	Rural	396	198	198	18750	65000	95	328	2.56	39.59	HIGH	198
LP656	1632.6	84	3	Rural	2919	1463	1456	315000	1092000	216	750	2.02	17.34	MEDIUM	1463
LP662	5.1	2	1	Maryland city	25	4	21	7560	76000	360	3618	1.41	10.50	LOW	12
LP672	7.3	3	1	Rural	37	6	32	11340	114000	360	3618	2.50	10.50	LOW	19
MP395	961.5	34	3	Rural	1430	716	714	127500	442000	179	619	2.41	20.99	HIGH	716
MP396	2347.5	164	3	Rural	3693	1855	1837	615000	2132000	335	1160	2.03	11.20	LOW	1855
MP397	3818.4	235	3	Rural	5925	2975	2950	881250	3055000	299	1035	1.99	12.55	LOW	2975
MP398	239.7	22	3	Rural	530	266	264	82500	286000	312	1083	1.46	12.00	LOW	266
MP399	2810.7	197	3	Rural	5580	2800	2780	738750	2561000	266	921	1.98	14.11	MEDIUM	2800
MP491	3062.2	352	3	Rural	10743	5390	5353	1320000	4576000	247	855	2.07	15.21	MEDIUM	5390
MP492	6122.1	494	3	Rural	14920	7483	7437	1852500	6422000	249	864	2.04	15.05	MEDIUM	7483
MP493	1406.4	66	3	Rural	3154	1579	1575	247500	858000	157	545	2.03	23.87	HIGH	1579
MP494	3469.3	194	3	Rural	6072	3045	3026	727500	2522000	240	833	2.16	15.60	MEDIUM	3045
MP495	1518.3	72	3	Rural	2711	1359	1352	270000	936000	200	692	2.38	18.78	MEDIUM	1359
MP496	512.9	8	3	Rural	347	174	173	30000	104000	173	601	2.10	21.64	HIGH	174
MP497	241.2	4	3	Rural	293	147	146	15000	52000	103	356	3.60	36.56	HIGH	147
MP498	3180.6	368	3	Rural	8224	4132	4092	1380000	4784000	337	1169	2.19	11.12	LOW	4132
MR25	12.4	8	5	Broadneck	59	59	0	0	0	-	-	1.08	0.00	LOW	30
MR26	12.5	4	5	Broadneck	30	30	0	0	0	-	-	1.17	0.00	LOW	15
MR27	1.3	1	5	Broadneck	7	7	0	0	0	-	-	1.00	0.00	LOW	4
MR28	8.6	6	5	Broadneck	44	44	0	0	0	-	-	1.37	0.00	LOW	22
MR31	1.5	3	5	Broadneck	22	22	0	0	0	-	-	1.30	0.00	LOW	11
MR33	1.1	1	5	Broadneck	7	7	0	0	0	-	-	1.89	0.00	LOW	4
MR34	9.1	12	5	Broadneck	89	89	0	0	0	-	-	1.13	0.00	LOW	45
MR35	2.9	1	5	Broadneck	48	48	0	0	0	-	-	1.67	0.00	LOW	24
MR36	4.2	4	5	Broadneck	30	30	0	0	0	-	-	1.17	0.00	LOW	15
MR38	4.4	3	5	Broadneck	62	62	0	0	0	-	-	1.22	0.00	LOW	31
MR39	385.8	341	1	Broadneck	4055	700	3355	1288980	12958000	384	3862	1.49	9.84	LOW	2046
MR40	15.4	12	1	Broadneck	349	52	296	45360	456000	153	1538	1.41	24.70	HIGH	175
MR41	98.4	40	1	Broadneck	628	94	534	151200	1520000	283	2848	1.65	13.34	LOW	316

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MR42	61.6	32	1	Broadneck	863	129	734	120960	1216000	165	1657	1.67	22.93	HIGH	433
MR43	62.6	19	1	Broadneck	502	75	427	71820	722000	168	1692	1.50	22.46	HIGH	252
MR57	8.2	1	5	Broadneck	7	7	0	0	0	-	-	1.00	0.00	LOW	4
MR61	289.7	119	1	Broadneck	2458	230	2229	449820	4522000	202	2029	3.13	18.73	MEDIUM	1241
MR65	545.2	258	5	Broadneck	2674	2674	0	0	0	-	-	1.03	0.00	LOW	1346
MR68	559.6	222	5	Broadneck	2247	2247	0	0	0	-	-	1.04	0.00	LOW	1131
MR77	2.0	2	5	Cox Creek	15	15	0	0	0	-	-	1.00	0.00	LOW	7
MR80	65.5	31	5	Broadneck	230	230	0	0	0	-	-	1.04	0.00	LOW	116
MR81	34.5	2	5	Cox Creek	15	15	0	0	0	-	-	1.00	0.00	LOW	7
MR82	10.3	1	5	Cox Creek	7	7	0	0	0	-	-	1.00	0.00	LOW	4
MR104	26.3	7	1	Cox Creek	153	23	130	26460	266000	203	2041	1.50	18.62	MEDIUM	77
MR105	77.9	1	1	Cox Creek	79	12	67	3780	38000	56	565	1.41	67.31	HIGH	40
MR125	22.2	16	1	Broadneck	198	30	168	60480	608000	360	3618	1.57	10.50	LOW	100
MR129	5.8	1	1	Broadneck	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
MR130	16.0	10	1	Broadneck	324	49	275	37800	380000	137	1380	1.41	27.54	HIGH	162
MR131	4.8	4	1	Broadneck	49	7	42	15120	152000	360	3618	1.41	10.50	LOW	25
MR132	6.6	1	1	Broadneck	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
MR145	383.3	89	1	Cox Creek	2971	445	2525	336420	3382000	133	1339	1.80	28.37	HIGH	1489
MR152	274.3	52	1	Cox Creek	1572	206	1365	196560	1976000	144	1447	2.15	26.26	HIGH	789
MR164	382.0	12	1	Cox Creek	482	72	410	45360	456000	111	1112	1.78	34.17	HIGH	242
MR177	104.8	16	1	Broadneck	316	30	287	60480	608000	211	2121	3.51	17.91	MEDIUM	160
MR179	1152.9	1448	1	Rural	24873	3024	21849	5473440	55024000	251	2518	2.32	15.09	MEDIUM	12551
MR223	174.1	59	1	Broadneck	996	149	847	223020	2242000	263	2647	1.80	14.36	MEDIUM	502
MR225	187.0	62	1	Broadneck	2036	305	1731	234360	2356000	135	1361	1.91	27.91	HIGH	1021
MR248	521.7	39	1	Broadneck	682	102	580	147420	1482000	254	2555	1.68	14.87	MEDIUM	343
MR249	62.8	6	1	Broadneck	141	21	120	22680	228000	189	1903	2.00	19.97	MEDIUM	71
MR252	409.9	32	1	Broadneck	611	69	542	120960	1216000	223	2245	2.24	16.93	MEDIUM	308
MR253	503.5	40	1	Broadneck	761	114	647	151200	1520000	234	2348	1.85	16.18	MEDIUM	383
MR255	389.6	28	1	Broadneck	598	82	516	105840	1064000	205	2060	2.24	18.44	MEDIUM	301
MR259	115.3	141	2	Rural	3100	290	2809	500550	5104692	178	1817	3.17	19.92	HIGH	1564
MR260	71.6	3	1	Broadneck	166	16	151	11340	114000	75	757	3.90	50.22	HIGH	83
MR261	84.7	2	1	Broadneck	40	4	36	7560	76000	211	2121	2.92	17.91	MEDIUM	20
MR262	128.0	27	1	Broadneck	534	50	484	102060	1026000	211	2121	3.37	17.91	MEDIUM	270
MR263	193.9	2	1	Broadneck	32	4	28	7560	76000	266	2674	2.17	14.21	MEDIUM	16
MR264	28.9	16	1	Broadneck	316	30	287	60480	608000	211	2121	3.25	17.91	MEDIUM	160
MR265	45.8	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.13	17.91	MEDIUM	20
MR266	43.3	5	1	Broadneck	77	9	67	18900	190000	281	2822	2.68	13.47	LOW	39
MR267	177.7	3	1	Broadneck	59	6	54	11340	114000	211	2121	2.96	17.91	MEDIUM	30
MR268	61.0	22	1	Broadneck	435	41	394	83160	836000	211	2121	2.56	17.91	MEDIUM	220
MR269	111.8	8	1	Broadneck	210	25	185	30240	304000	163	1641	3.36	23.16	HIGH	106
MR270	547.3	85	1	Broadneck	2388	297	2090	321300	3230000	154	1545	2.22	24.59	HIGH	1199
MR271	326.6	76	1	Broadneck	3479	481	2998	287280	2888000	96	963	2.36	39.45	HIGH	1743

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MR273	30.2	3	1	Broadneck	59	6	54	11340	114000	211	2121	2.74	17.91	MEDIUM	30
MR282	198.9	4	1	Broadneck	49	7	42	15120	152000	360	3618	2.02	10.50	LOW	25
MR283	136.1	2	1	Broadneck	99	14	85	7560	76000	89	892	2.37	42.61	HIGH	50
MR313	57.9	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.78	17.91	MEDIUM	20
MR314	54.7	1	1	Broadneck	20	2	18	3780	38000	211	2121	3.74	17.91	MEDIUM	10
MR315	33.5	3	1	Broadneck	59	6	54	11340	114000	211	2121	3.78	17.91	MEDIUM	30
MR317	244.4	7	1	Broadneck	153	23	130	26460	266000	203	2041	1.92	18.62	MEDIUM	77
MR318	56.8	6	1	Broadneck	119	11	107	22680	228000	211	2121	3.36	17.91	MEDIUM	60
MR319	216.7	12	1	Broadneck	237	22	215	45360	456000	211	2121	2.99	17.91	MEDIUM	120
MR320	139.8	1	1	Broadneck	12	2	11	3780	38000	360	3618	2.64	10.50	LOW	6
MR321	224.0	2	1	Broadneck	25	4	21	7560	76000	360	3618	2.58	10.50	LOW	12
MR322	120.2	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.13	17.91	MEDIUM	20
MR323	89.5	1	1	Broadneck	20	2	18	3780	38000	211	2121	4.00	17.91	MEDIUM	10
MR324	15.3	2	1	Broadneck	253	24	230	7560	76000	33	331	2.94	114.82	HIGH	127
MR325	109.8	2	1	Broadneck	146	14	133	7560	76000	57	573	2.72	66.37	HIGH	73
MR357	10.2	3	1	Broadneck	22	6	17	11340	114000	679	6830	1.00	5.56	LOW	11
MR358	4.9	5	1	Cox Creek	396	59	337	18900	190000	56	565	1.41	67.31	HIGH	198
MR371	171.9	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.17	17.91	MEDIUM	20
MR372	76.2	1	1	Broadneck	12	2	11	3780	38000	360	3618	2.23	10.50	LOW	6
MR373	508.3	45	1	Broadneck	778	83	695	170100	1710000	245	2461	3.07	15.44	MEDIUM	393
MR375	361.9	12	1	Broadneck	148	22	126	45360	456000	360	3618	2.02	10.50	LOW	75
MR376	172.2	3	1	Broadneck	238	36	202	11340	114000	56	565	2.59	67.31	HIGH	119
MR380	107.0	80	1	Broadneck	1447	148	1300	302400	3040000	233	2339	2.74	16.25	MEDIUM	731
MR381	75.4	23	1	Broadneck	447	42	405	86940	874000	215	2160	2.87	17.59	MEDIUM	226
MR382	105.1	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.13	17.91	MEDIUM	20
MR461	47.4	2	3	Rural	146	73	73	7500	26000	103	356	3.50	36.56	HIGH	73
MR462	304.4	47	3	Rural	1838	921	916	176250	611000	192	667	2.43	19.49	MEDIUM	921
MR463	682.4	197	3	Rural	4301	2160	2141	738750	2561000	345	1196	1.64	10.87	LOW	2160
MR464	705.4	135	3	Rural	3009	1516	1493	506250	1755000	339	1175	2.85	11.06	LOW	1516
MR469	29.1	13	3	Rural	257	130	127	48750	169000	384	1330	3.76	9.78	LOW	130
MR470	5.3	6	3	Rural	119	60	59	22500	78000	384	1330	3.51	9.78	LOW	60
MR471	4.8	6	3	Rural	119	60	59	22500	78000	384	1330	3.40	9.78	LOW	60
MR481	343.1	40	3	Rural	1218	613	605	150000	520000	248	859	3.51	15.13	MEDIUM	613
MR483	198.7	5	1	Broadneck	420	39	380	18900	190000	50	500	3.67	76.06	HIGH	210
MR499	59.4	15	1	Cox Creek	319	48	271	56700	570000	209	2102	1.57	18.08	MEDIUM	160
MR500	23.3	6	1	Cox Creek	74	11	63	22680	228000	360	3618	1.48	10.50	LOW	37
MR503	124.0	50	1	Broadneck	684	102	582	189000	1900000	325	3265	1.52	11.64	LOW	345
MR505	38.8	21	1	Broadneck	460	69	391	79380	798000	203	2041	1.64	18.62	MEDIUM	231
MR506	118.0	31	1	Broadneck	1118	168	950	117180	1178000	123	1239	1.94	30.66	HIGH	560
MR507	319.6	53	1	Broadneck	731	108	623	200340	2014000	321	3231	1.94	11.76	LOW	369
MR553	222.4	50	3	Rural	1095	553	542	187500	650000	346	1198	2.46	10.85	LOW	553
MR554	88.4	19	3	Rural	482	243	239	71250	247000	298	1032	3.52	12.60	LOW	243

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MR555	77.3	31	3	Rural	919	462	456	116250	403000	255	883	3.28	14.72	MEDIUM	462
MR556	110.7	53	3	Rural	1475	743	732	198750	689000	271	941	3.82	13.82	LOW	743
MR557	3.0	1	3	Rural	20	10	10	3750	13000	384	1330	3.74	9.78	LOW	10
MR558	8.6	7	3	Rural	138	70	68	26250	91000	384	1330	3.39	9.78	LOW	70
MR559	251.1	54	3	Rural	1388	699	689	202500	702000	294	1019	3.38	12.75	LOW	699
MR560	146.9	74	3	Rural	1569	792	777	277500	962000	357	1238	3.06	10.50	LOW	792
MR569	428.8	495	1	Broadneck	9052	1365	7686	1871100	18810000	243	2447	1.73	15.53	MEDIUM	4555
MR570	1380.4	1596	1	Broadneck	27150	3388	23762	6032880	60648000	254	2552	2.25	14.89	MEDIUM	13694
MR572	1067.7	1584	2	Rural	28796	3416	25381	5623200	57346325	222	2259	2.37	16.02	MEDIUM	14524
MR575	669.9	643	1	Broadneck	12002	1307	10695	2430540	24434000	227	2285	2.72	16.63	MEDIUM	6057
MR584	107.1	29	1	Broadneck	847	84	763	109620	1102000	144	1444	3.17	26.32	HIGH	426
MR624	228.9	10	1	Broadneck	257	39	219	37800	380000	173	1738	1.49	21.86	HIGH	129
MR638	294.9	32	3	Rural	475	239	236	120000	416000	509	1765	1.79	7.36	LOW	239
MR639	15.1	4	3	Rural	183	92	91	15000	52000	164	569	1.92	22.85	HIGH	92
MR658	103.2	4	3	Rural	116	58	58	15000	52000	259	898	1.41	14.48	MEDIUM	58
MR659	37.5	20	3	Rural	380	192	188	75000	260000	399	1382	3.98	9.41	LOW	192
MR660	82.1	10	3	Rural	198	100	98	37500	130000	384	1330	3.80	9.78	LOW	100
MR676	68.0	6	3	Broadneck	225	113	112	22500	78000	200	695	3.81	18.70	MEDIUM	113
MR677	60.7	2	1	Broadneck	25	4	21	7560	76000	360	3618	1.41	10.50	LOW	12
MR678	42.9	2	3	Broadneck	146	73	73	7500	26000	103	356	4.15	36.56	HIGH	73
PN11	140.1	57	1	Baltimore City	2241	336	1905	215460	2166000	113	1137	1.61	33.42	HIGH	1123
PN84	21.4	1	1	Baltimore City	79	12	67	3780	38000	56	565	2.08	67.31	HIGH	40
PN85	2277.5	22	1	Baltimore City	1141	171	970	83160	836000	86	862	1.82	44.07	HIGH	571
PN94	8.8	4	1	Baltimore City	49	7	42	15120	152000	360	3618	1.41	10.50	LOW	25
PN103	87.5	34	5	Baltimore City	292	292	0	0	0	-	-	1.14	0.00	LOW	147
PN106	120.3	24	5	Baltimore City	418	418	0	0	0	-	-	1.00	0.00	LOW	210
PN109	109.8	47	5	Baltimore City	428	428	0	0	0	-	-	1.10	0.00	LOW	216
PN111	28.4	3	5	Baltimore City	22	22	0	0	0	-	-	1.00	0.00	LOW	11
PN113	16.0	4	5	Baltimore City	70	70	0	0	0	-	-	1.17	0.00	LOW	35
PN115	4.3	3	5	Baltimore City	22	22	0	0	0	-	-	1.00	0.00	LOW	11
PN116	493.2	49	5	Baltimore City	804	804	0	0	0	-	-	1.05	0.00	LOW	404
PN118	70.7	22	5	Baltimore City	203	203	0	0	0	-	-	1.02	0.00	LOW	102
PN119	73.9	2	5	Baltimore City	15	15	0	0	0	-	-	1.00	0.00	LOW	7
PN120	10.9	1	5	Cox Creek	7	7	0	0	0	-	-	1.00	0.00	LOW	4
PN127	10.7	1	1	Baltimore City	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4
PN175	508.2	11	1	Baltimore City	465	70	395	41580	418000	105	1059	2.07	35.87	HIGH	233
PN176	757.3	185	1	Baltimore City	4490	673	3818	699300	7030000	183	1841	1.86	20.64	HIGH	2255
PN284	132.6	2	1	Baltimore City	15	4	11	7560	76000	679	6830	1.22	5.56	LOW	7
PN285	100.9	3	1	Baltimore City	194	26	168	11340	114000	67	677	2.79	56.12	HIGH	97
PN286	375.7	2	1	Baltimore City	15	4	11	7560	76000	679	6830	1.33	5.56	LOW	7
PN292	409.6	10	1	Baltimore City	511	59	452	37800	380000	84	841	1.97	45.20	HIGH	256
PN293	440.3	12	1	Baltimore City	451	52	399	45360	456000	114	1143	2.40	33.24	HIGH	226

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PN296	466.4	33	1	Baltimore City	1039	161	878	124740	1254000	142	1428	1.98	26.61	HIGH	521
PN297	567.7	71	1	Baltimore City	1038	161	877	268380	2698000	306	3078	1.77	12.35	LOW	523
PN298	333.5	13	1	Baltimore City	294	44	250	49140	494000	196	1975	1.82	19.24	MEDIUM	148
PN299	681.6	31	1	Baltimore City	1385	208	1178	117180	1178000	100	1000	1.87	37.99	HIGH	694
PN300	676.7	30	1	Baltimore City	951	126	825	113400	1140000	137	1382	1.92	27.50	HIGH	477
PN301	775.8	16	1	Baltimore City	352	60	292	60480	608000	207	2082	1.43	18.25	MEDIUM	177
PN302	187.5	27	1	Baltimore City	696	90	606	102060	1026000	168	1694	2.37	22.44	HIGH	349
PN303	512.7	29	1	Baltimore City	410	64	347	109620	1102000	316	3179	1.49	11.95	LOW	207
PN304	821.7	17	1	Baltimore City	658	92	567	64260	646000	113	1140	1.99	33.35	HIGH	330
PN305	251.9	1	1	Baltimore City	12	2	11	3780	38000	360	3618	2.23	10.50	LOW	6
PN309	1132.6	151	1	Baltimore City	3469	520	2949	570780	5738000	194	1945	1.98	19.53	MEDIUM	1743
PN310	1028.2	62	1	Baltimore City	1234	185	1049	234360	2356000	223	2246	1.85	16.92	MEDIUM	620
PN427	7.3	3	1	Baltimore City	171	26	145	11340	114000	78	786	1.56	48.37	HIGH	85
PN484	51.8	1	1	Patuxent	79	12	67	3780	38000	56	565	1.82	67.31	HIGH	40
PN487	230.0	17	3	Baltimore City	272	137	135	63750	221000	473	1638	1.65	7.94	LOW	137
PN563	65.1	73	1	Baltimore City	919	145	774	275940	2774000	356	3583	1.57	10.61	LOW	464
PN665	3.3	2	1	Baltimore City	25	4	21	7560	76000	360	3618	1.41	10.50	LOW	12
PN666	649.8	24	1	Baltimore City	492	74	418	90720	912000	217	2184	1.43	17.40	MEDIUM	247
PN667	653.7	27	1	Baltimore City	585	110	475	102060	1026000	215	2160	1.33	17.59	MEDIUM	294
PN670	210.5	14	3	Baltimore City	435	218	217	52500	182000	242	839	1.66	15.50	MEDIUM	218
PT12	99.6	10	1	Cox Creek	257	39	219	37800	380000	173	1738	1.78	21.86	HIGH	129
PT19	1339.8	52	1	Cox Creek	1573	236	1337	196560	1976000	147	1478	1.52	25.70	HIGH	789
PT66	17.3	3	5	Cox Creek	22	22	0	0	0	-	-	1.00	0.00	LOW	11
PT88	51.9	6	5	Cox Creek	44	44	0	0	0	-	-	1.00	0.00	LOW	22
PT89	1.9	1	5	Cox Creek	7	7	0	0	0	-	-	1.45	0.00	LOW	4
PT92	653.0	128	5	Cox Creek	2111	2111	0	0	0	-	-	1.03	0.00	LOW	1060
PT95	74.3	28	1	Cox Creek	346	52	294	105840	1064000	360	3618	1.45	10.50	LOW	175
PT96	47.2	22	1	Cox Creek	272	41	231	83160	836000	360	3618	1.76	10.50	LOW	137
PT98	92.4	2	5	Cox Creek	55	55	0	0	0	-	-	1.22	0.00	LOW	27
PT107	240.2	75	5	Cox Creek	957	957	0	0	0	-	-	1.04	0.00	LOW	481
PT108	77.2	25	5	Cox Creek	466	466	0	0	0	-	-	1.03	0.00	LOW	234
PT112	97.5	32	5	Baltimore City	1280	1280	0	0	0	-	-	1.02	0.00	LOW	640
PT117	703.8	28	5	Cox Creek	408	408	0	0	0	-	-	1.00	0.00	LOW	205
PT133	4.9	1	1	Cox Creek	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4
PT135	465.6	147	2	Cox Creek	6830	863	5966	521850	5321913	87	892	2.83	40.59	HIGH	3423
PT136	43.7	7	1	Cox Creek	77	13	64	26460	266000	416	4179	1.41	9.09	LOW	39
PT139	418.6	6	1	Cox Creek	171	31	140	22680	228000	162	1628	1.55	23.34	HIGH	86
PT140	240.4	1	1	Cox Creek	79	12	67	3780	38000	56	565	2.23	67.31	HIGH	40
PT141	344.1	1	1	Cox Creek	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4
PT143	63.7	2	1	Cox Creek	20	4	16	7560	76000	471	4730	1.54	8.03	LOW	10
PT144	657.4	45	1	Cox Creek	1085	153	932	170100	1710000	183	1835	2.06	20.71	HIGH	545
PT146	297.3	42	1	Cox Creek	1053	158	896	158760	1596000	177	1782	1.88	21.32	HIGH	529

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PT147	503.8	23	1	Cox Creek	554	83	471	86940	874000	184	1855	1.77	20.49	HIGH	278
PT148	148.1	2	1	Cox Creek	92	14	78	7560	76000	97	977	1.82	38.91	HIGH	46
PT149	99.1	1	1	Cox Creek	127	12	115	3780	38000	33	331	3.33	114.82	HIGH	63
PT150	34.6	2	1	Cox Creek	40	4	36	7560	76000	211	2121	3.71	17.91	MEDIUM	20
PT151	347.4	17	1	Cox Creek	666	92	574	64260	646000	112	1125	1.83	33.78	HIGH	334
PT154	397.5	3	1	Cox Creek	37	6	32	11340	114000	360	3618	1.55	10.50	LOW	19
PT155	779.6	45	1	Cox Creek	808	123	685	170100	1710000	248	2496	1.60	15.22	MEDIUM	407
PT156	340.2	11	1	Cox Creek	143	20	123	41580	418000	338	3400	2.64	11.18	LOW	72
PT157	75.7	1	1	Cox Creek	20	2	18	3780	38000	211	2121	2.92	17.91	MEDIUM	10
PT158	355.9	12	1	Cox Creek	143	22	121	45360	456000	375	3765	1.65	10.09	LOW	72
PT159	67.4	1	1	Cox Creek	20	2	18	3780	38000	211	2121	2.55	17.91	MEDIUM	10
PT160	51.5	1	1	Cox Creek	7	2	6	3780	38000	679	6830	1.45	5.56	LOW	4
PT161	80.2	3	1	Cox Creek	159	16	143	11340	114000	79	796	2.84	47.75	HIGH	80
PT162	98.3	1	1	Cox Creek	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4
PT163	310.7	1	1	Cox Creek	20	2	18	3780	38000	211	2121	2.51	17.91	MEDIUM	10
PT166	708.5	5	1	Cox Creek	507	59	447	18900	190000	42	425	1.85	89.48	HIGH	253
PT167	583.4	14	1	Cox Creek	297	46	251	52920	532000	211	2121	1.44	17.91	MEDIUM	149
PT168	203.2	3	1	Cox Creek	104	16	88	11340	114000	128	1291	2.23	29.44	HIGH	52
PT169	370.3	6	1	Cox Creek	475	71	404	22680	228000	56	565	1.68	67.31	HIGH	238
PT203	397.7	7	3	Cox Creek	887	443	443	26250	91000	59	205	2.50	63.35	HIGH	443
PT204	573.3	1	1	Cox Creek	79	12	67	3780	38000	56	565	1.41	67.31	HIGH	40
PT205	746.9	12	1	Cox Creek	176	32	143	45360	456000	316	3181	1.24	11.94	LOW	88
PT206	630.5	9	1	Cox Creek	435	67	369	34020	342000	92	928	1.68	40.96	HIGH	218
PT207	94.0	2	1	Cox Creek	40	4	36	7560	76000	211	2121	2.51	17.91	MEDIUM	20
PT208	32.1	1	1	Cox Creek	20	2	18	3780	38000	211	2121	3.74	17.91	MEDIUM	10
PT209	65.8	1	1	Cox Creek	20	2	18	3780	38000	211	2121	3.33	17.91	MEDIUM	10
PT210	198.5	6	1	Cox Creek	119	11	107	22680	228000	211	2121	3.54	17.91	MEDIUM	60
PT211	136.5	6	1	Cox Creek	144	31	113	22680	228000	200	2013	1.48	18.88	MEDIUM	72
PT212	359.1	16	1	Cox Creek	277	30	247	60480	608000	245	2461	2.45	15.44	MEDIUM	140
PT213	503.5	3	1	Cox Creek	102	26	77	11340	114000	148	1484	1.00	25.61	HIGH	51
PT214	606.4	34	1	Cox Creek	292	73	219	128520	1292000	586	5893	1.00	6.45	LOW	147
PT215	597.4	21	1	Cox Creek	215	49	167	79380	798000	476	4788	1.34	7.94	LOW	109
PT216	574.9	41	1	Cox Creek	707	106	601	154980	1558000	258	2592	2.00	14.66	MEDIUM	356
PT217	454.6	1	1	Cox Creek	48	12	36	3780	38000	106	1066	1.45	35.63	HIGH	24
PT291	275.2	1	1	Baltimore City	48	12	36	3780	38000	106	1066	1.67	35.63	HIGH	24
PT295	217.8	1	3	Baltimore City	79	40	40	3750	13000	95	328	2.23	39.59	HIGH	40
PT306	338.6	4	1	Baltimore City	40	7	32	15120	152000	471	4730	1.95	8.03	LOW	20
PT307	36.9	1	1	Baltimore City	12	2	11	3780	38000	360	3618	1.82	10.50	LOW	6
PT308	548.6	22	1	Baltimore City	768	101	667	83160	836000	125	1254	2.08	30.31	HIGH	385
PT473	198.0	233	1	Rural	4958	470	4487	880740	8854000	196	1973	3.20	19.26	MEDIUM	2502
PT502	773.9	2	1	Cox Creek	206	24	182	7560	76000	42	417	2.96	91.06	HIGH	103
PT533	21.2	17	1	Cox Creek	210	31	179	64260	646000	360	3618	1.58	10.50	LOW	106

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PT561	299.2	42	3	Rural	1131	568	563	157500	546000	280	969	1.74	13.42	LOW	568
PT562	11.6	30	3	Rural	906	456	450	112500	390000	250	866	3.69	15.01	MEDIUM	456
PT566	654.2	613	2	Rural	11175	1202	9973	2176150	22192738	218	2225	2.56	16.27	MEDIUM	5643
PT586	542.5	88	1	Cox Creek	1597	263	1334	332640	3344000	249	2507	1.68	15.16	MEDIUM	803
PT587	534.4	4	1	Cox Creek	115	27	87	15120	152000	173	1740	1.31	21.83	HIGH	57
PT588	148.6	2	1	Cox Creek	15	4	11	7560	76000	679	6830	1.00	5.56	LOW	7
PT589	349.0	4	1	Cox Creek	146	27	119	15120	152000	127	1277	1.31	29.75	HIGH	73
PT590	137.4	2	1	Cox Creek	15	4	11	7560	76000	679	6830	1.22	5.56	LOW	7
PT591	554.0	142	1	Cox Creek	2890	433	2457	536760	5396000	218	2196	1.80	17.30	MEDIUM	1453
PT592	492.9	6	1	Cox Creek	344	41	303	22680	228000	75	752	2.49	50.53	HIGH	172
PT593	698.2	38	1	Cox Creek	2482	301	2181	143640	1444000	66	662	2.21	57.39	HIGH	1242
PT594	224.3	1	1	Cox Creek	127	12	115	3780	38000	33	331	2.51	114.82	HIGH	63
PT595	597.9	14	1	Cox Creek	424	46	378	52920	532000	140	1408	2.38	26.99	HIGH	213
PT608	234.9	24	3	Rural	967	485	482	90000	312000	187	648	2.99	20.07	MEDIUM	485
PT609	7.9	15	3	Rural	296	150	147	56250	195000	384	1330	3.74	9.78	LOW	150
PT661	297.4	5	1	Cox Creek	129	19	109	18900	190000	173	1738	1.65	21.86	HIGH	65
PT669	9.5	6	1	Broadneck	208	31	177	22680	228000	128	1291	1.59	29.44	HIGH	104
RR2	135.6	22	5	Mayo	444	444	0	0	0	-	-	1.08	0.00	LOW	222
RR72	214.6	3	3	Mayo	261	130	130	11250	39000	86	299	2.25	43.45	HIGH	130
RR74	105.7	1	1	Mayo	12	2	11	3780	38000	360	3618	2.23	10.50	LOW	6
RR400	57.3	9	3	Rural	606	303	302	33750	117000	112	387	3.42	33.59	HIGH	303
RR401	5624.9	359	3	Rural	9138	4588	4550	1346250	4667000	296	1026	2.25	12.67	LOW	4588
RR402	109.9	1	3	Rural	79	40	40	3750	13000	95	328	2.23	39.59	HIGH	40
RR403	169.7	3	3	Rural	273	137	136	11250	39000	82	286	3.79	45.49	HIGH	137
RR414	121.5	5	3	Rural	206	103	102	18750	65000	183	634	3.92	20.49	HIGH	103
RR445	189.0	1	1	Mayo	79	12	67	3780	38000	56	565	2.23	67.31	HIGH	40
RR446	45.5	1	1	Mayo	20	2	18	3780	38000	211	2121	2.51	17.91	MEDIUM	10
RR447	74.1	3	1	Mayo	27	6	22	11340	114000	524	5270	1.14	7.21	LOW	14
RR453	67.8	1	3	Mayo	20	10	10	3750	13000	384	1330	3.33	9.78	LOW	10
RR454	119.2	1	1	Mayo	20	2	18	3780	38000	211	2121	2.15	17.91	MEDIUM	10
RR455	32.7	1	1	Mayo	20	2	18	3780	38000	211	2121	2.55	17.91	MEDIUM	10
RR456	55.0	1	1	Mayo	127	12	115	3780	38000	33	331	3.33	114.82	HIGH	63
RR458	500.9	1	1	Mayo	20	2	18	3780	38000	211	2121	3.33	17.91	MEDIUM	10
RR460	96.3	2	1	Mayo	253	24	230	7560	76000	33	331	3.72	114.82	HIGH	127
RR610	603.4	13	3	Rural	778	390	389	48750	169000	125	435	2.42	29.90	HIGH	390
RR674	25.1	1	2	Mayo	127	12	115	3550	36203	31	315	3.70	114.82	HIGH	63
SO3	27.3	22	5	Annapolis	203	203	0	0	0	-	-	1.00	0.00	LOW	102
SO4	11.2	1	5	Annapolis	48	48	0	0	0	-	-	1.00	0.00	LOW	24
SO5	138.9	4	5	Annapolis	110	110	0	0	0	-	-	1.00	0.00	LOW	55
SO7	1.0	1	5	Annapolis	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SO8	37.8	5	5	Annapolis	197	197	0	0	0	-	-	1.00	0.00	LOW	99
SO9	23.5	3	5	Annapolis	22	22	0	0	0	-	-	1.00	0.00	LOW	11

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SO13	6.9	1	5	Annapolis	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SO14	8.7	7	5	Annapolis	52	52	0	0	0	-	-	1.35	0.00	LOW	26
SO16	36.4	1	5	Annapolis	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SO114	247.7	116	1	Annapolis	2532	264	2267	438480	4408000	193	1944	3.00	19.55	MEDIUM	1276
SO171	33.7	6	3	Rural	119	60	59	22500	78000	384	1330	3.07	9.78	LOW	60
SO193	265.8	10	3	Patuxent	190	96	95	37500	130000	396	1374	2.48	9.46	LOW	96
SO196	227.6	1	1	Patuxent	79	12	67	3780	38000	56	565	2.90	67.31	HIGH	40
SO256	430.4	35	3	Rural	1041	522	519	131250	455000	253	877	2.50	14.82	MEDIUM	522
SO257	388.7	77	3	Rural	1445	729	716	288750	1001000	403	1398	2.92	9.30	LOW	729
SO287	954.9	133	3	Rural	4050	2032	2019	498750	1729000	247	857	2.07	15.18	MEDIUM	2032
SO288	922.3	40	3	Rural	972	488	484	150000	520000	310	1074	2.41	12.11	LOW	488
SO311	343.0	19	1	Annapolis	482	45	437	71820	722000	164	1651	3.16	23.01	HIGH	243
SO312	516.1	1	1	Annapolis	20	2	18	3780	38000	211	2121	2.81	17.91	MEDIUM	10
SO328	111.3	23	1	Annapolis	435	52	383	86940	874000	227	2282	2.46	16.65	MEDIUM	219
SO329	171.3	44	3	Annapolis	869	439	430	165000	572000	384	1330	3.39	9.78	LOW	439
SO330	330.1	35	2	Annapolis	1171	115	1057	124250	1267122	118	1199	3.41	30.19	HIGH	589
SO331	314.3	22	1	Rural	723	121	602	83160	836000	138	1388	1.71	27.38	HIGH	362
SO332	57.9	33	1	Annapolis	1828	171	1657	124740	1254000	75	757	3.36	50.22	HIGH	916
SO333	293.1	29	1	Annapolis	621	64	557	109620	1102000	197	1978	2.64	19.21	MEDIUM	313
SO334	167.5	4	1	Annapolis	231	27	203	15120	152000	74	748	2.74	50.78	HIGH	115
SO337	167.9	13	1	Annapolis	161	24	137	49140	494000	360	3618	2.01	10.50	LOW	81
SO340	473.2	45	1	Annapolis	1019	103	915	170100	1710000	186	1868	3.09	20.34	HIGH	514
SO341	106.4	9	1	Annapolis	713	107	606	34020	342000	56	565	1.74	67.31	HIGH	356
SO342	50.0	2	1	Annapolis	127	24	103	7560	76000	73	738	1.20	51.47	HIGH	63
SO344	50.6	14	1	Annapolis	277	26	251	52920	532000	211	2121	3.10	17.91	MEDIUM	140
SO345	45.2	1	1	Annapolis	127	12	115	3780	38000	33	331	4.41	114.82	HIGH	63
SO350	187.5	2	1	Annapolis	40	4	36	7560	76000	211	2121	3.98	17.91	MEDIUM	20
SO352	318.3	102	1	Annapolis	4647	710	3937	385560	3876000	98	984	1.57	38.60	HIGH	2327
SO353	82.5	22	3	Annapolis	435	220	215	82500	286000	384	1330	2.80	9.78	LOW	220
SO355	65.9	7	1	Annapolis	124	13	111	26460	266000	239	2406	3.62	15.80	MEDIUM	62
SO360	281.9	3	1	Annapolis	52	6	46	11340	114000	245	2461	2.69	15.44	MEDIUM	26
SO361	176.5	76	3	Annapolis	1480	748	732	285000	988000	389	1350	3.50	9.63	LOW	748
SO362	226.1	86	3	Annapolis	1672	845	827	322500	1118000	390	1351	3.29	9.62	LOW	845
SO363	1546.0	273	3	Rural	4687	2361	2326	1023750	3549000	440	1526	2.29	8.52	LOW	2361
SO364	965.7	181	3	Rural	3590	1806	1784	678750	2353000	381	1319	2.21	9.85	LOW	1806
SO366	207.0	10	1	Annapolis	458	69	389	37800	380000	97	977	1.52	38.91	HIGH	229
SO367	166.3	1	1	Annapolis	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
SO368	66.6	1	1	Annapolis	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
SO369	257.2	1	1	Rural	79	12	67	3780	38000	56	565	2.23	67.31	HIGH	40
SO370	21.8	1	1	Annapolis	20	2	18	3780	38000	211	2121	3.33	17.91	MEDIUM	10
SO378	32.7	6	1	Annapolis	208	31	177	22680	228000	128	1291	1.55	29.44	HIGH	104
SO422	356.5	328	1	Annapolis	6858	1027	5831	1239840	12464000	213	2138	2.18	17.78	MEDIUM	3448

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SO423	242.0	227	1	Annapolis	3393	509	2883	858060	8626000	298	2992	1.75	12.70	LOW	1710
SO424	515.3	487	1	Annapolis	9645	969	8676	1840860	18506000	212	2133	2.86	17.82	MEDIUM	4869
SO425	332.1	240	1	Annapolis	5960	614	5347	907200	9120000	170	1706	3.12	22.28	HIGH	3002
SO426	292.9	280	1	Annapolis	5688	697	4990	1058400	10640000	212	2132	2.28	17.82	MEDIUM	2866
SO430	443.0	10	1	Annapolis	378	79	299	37800	380000	126	1269	1.12	29.94	HIGH	189
SO431	56.8	13	1	Annapolis	628	94	534	49140	494000	92	925	1.57	41.09	HIGH	315
SO441	34.1	22	1	Annapolis	1825	171	1654	83160	836000	50	505	2.66	75.18	HIGH	913
SO442	27.8	17	1	Annapolis	336	31	305	64260	646000	211	2121	3.72	17.91	MEDIUM	170
SO448	42.9	1	1	Mayo	20	2	18	3780	38000	211	2121	2.92	17.91	MEDIUM	10
SO449	484.7	3	1	Mayo	333	36	297	11340	114000	38	384	3.04	98.98	HIGH	166
SO450	114.7	12	3	Mayo	558	280	278	45000	156000	162	561	3.61	23.17	HIGH	280
SO451	50.4	1	1	Mayo	20	2	18	3780	38000	211	2121	3.74	17.91	MEDIUM	10
SO452	77.6	2	1	Mayo	40	4	36	7560	76000	211	2121	2.74	17.91	MEDIUM	20
SO457	247.4	7	1	Mayo	131	13	118	26460	266000	224	2254	2.94	16.86	MEDIUM	66
SO459	156.8	1	1	Mayo	20	2	18	3780	38000	211	2121	2.15	17.91	MEDIUM	10
SO465	94.8	15	3	Rural	279	140	139	56250	195000	404	1402	1.42	9.27	LOW	140
SO466	366.5	18	3	Rural	490	246	244	67500	234000	277	959	1.82	13.55	LOW	246
SO468	334.7	82	3	Rural	2193	1100	1093	307500	1066000	281	976	1.88	13.33	LOW	1100
SO508	211.7	1	1	Mayo	79	12	67	3780	38000	56	565	1.41	67.31	HIGH	40
SO515	23.4	8	1	Annapolis	158	15	143	30240	304000	211	2121	3.51	17.91	MEDIUM	80
SO516	505.5	90	1	Annapolis	2566	317	2249	340200	3420000	151	1521	2.61	24.99	HIGH	1290
SO517	119.0	7	1	Annapolis	633	83	550	26460	266000	48	483	1.61	78.62	HIGH	317
SO522	1168.7	188	3	Rural	5283	2650	2633	705000	2444000	268	928	1.91	14.00	LOW	2650
SO523	1117.3	141	3	Rural	3059	1536	1522	528750	1833000	347	1204	1.82	10.80	LOW	1536
SO524	448.4	79	3	Rural	1355	681	673	296250	1027000	440	1526	1.89	8.52	LOW	681
SO525	24.1	11	3	Rural	171	86	85	41250	143000	486	1685	2.19	7.71	LOW	86
SO526	431.5	67	3	Rural	1167	587	580	251250	871000	433	1502	1.91	8.65	LOW	587
SO527	270.1	58	3	Rural	1046	527	518	217500	754000	420	1454	2.62	8.94	LOW	527
SO528	752.2	229	3	Rural	3534	1781	1752	858750	2977000	490	1699	2.34	7.65	LOW	1781
SO529	157.2	18	3	Rural	262	132	130	67500	234000	521	1807	2.25	7.20	LOW	132
SO530	140.7	75	3	Rural	1252	633	620	281250	975000	454	1574	2.98	8.26	LOW	633
SO531	1437.9	201	3	Rural	3960	1992	1968	753750	2613000	383	1327	2.02	9.79	LOW	1992
SO532	444.1	6	3	Annapolis	300	150	150	22500	78000	150	520	1.66	24.98	HIGH	150
SO534	1050.8	267	3	Rural	4095	2064	2031	1001250	3471000	493	1709	2.02	7.61	LOW	2064
SO535	275.7	7	3	Rural	188	95	94	26250	91000	280	969	1.83	13.41	LOW	95
SO536	449.9	74	3	Rural	1085	547	538	277500	962000	516	1788	1.83	7.27	LOW	547
SO537	605.5	116	3	Rural	1967	991	977	435000	1508000	445	1544	2.16	8.42	LOW	991
SO538	741.7	98	3	Rural	2079	1045	1034	367500	1274000	355	1232	2.22	10.55	LOW	1045
SO539	849.1	87	3	Rural	1415	712	703	326250	1131000	464	1610	1.82	8.07	LOW	712
SO540	629.9	34	3	Rural	1289	646	643	127500	442000	198	687	2.34	18.91	MEDIUM	646
SO541	1386.9	113	3	Rural	2131	1072	1059	423750	1469000	400	1388	2.30	9.37	LOW	1072
SO542	1227.8	173	3	Rural	2892	1456	1436	648750	2249000	452	1567	2.18	8.30	LOW	1456

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SO543	758.8	132	3	Rural	2414	1213	1201	495000	1716000	412	1429	1.66	9.10	LOW	1213
SO547	238.0	91	2	Annapolis	2005	188	1817	323050	3294517	178	1814	3.03	19.96	HIGH	1012
SO576	137.2	129	3	Rural	1554	784	770	483750	1677000	628	2177	1.55	5.97	LOW	784
SO580	52.1	57	3	Annapolis	1126	569	557	213750	741000	384	1330	3.28	9.78	LOW	569
SO633	985.8	104	3	Rural	2153	1083	1071	390000	1352000	364	1263	2.13	10.30	LOW	1083
SO657	1023.8	110	3	Rural	1960	987	973	412500	1430000	424	1469	2.32	8.85	LOW	987
SO673	41.4	7	3	Annapolis	566	283	283	26250	91000	93	322	4.55	40.39	HIGH	283
SO680	71.7	54	3	Annapolis	992	500	492	202500	702000	412	1427	2.22	9.11	LOW	500
SO681	47.0	7	3	Annapolis	245	123	122	26250	91000	215	746	3.60	17.43	MEDIUM	123
SO682	122.3	34	1	Annapolis	802	113	689	128520	1292000	187	1876	1.73	20.25	MEDIUM	403
SO73	157.1	44	1	Mayo	603	81	521	166320	1672000	319	3206	2.48	11.85	LOW	305
SO75	17.2	4	1	Annapolis	116	17	99	15120	152000	153	1538	1.90	24.70	HIGH	58
SV6	31.3	1	5	Annapolis	48	48	0	0	0	-	-	1.00	0.00	LOW	24
SV10	34.4	18	1	Baltimore City	222	33	189	68040	684000	360	3618	1.83	10.50	LOW	112
SV15	3.9	2	5	Annapolis	95	95	0	0	0	-	-	1.00	0.00	LOW	48
SV17	43.1	15	5	Broadneck	151	151	0	0	0	-	-	1.24	0.00	LOW	76
SV18	3.9	2	5	Broadneck	55	55	0	0	0	-	-	1.00	0.00	LOW	27
SV20	4.4	4	1	Broadneck	49	7	42	15120	152000	360	3618	1.41	10.50	LOW	25
SV21	1082.1	139	1	Broadneck	3177	477	2700	525420	5282000	195	1956	1.81	19.42	MEDIUM	1596
SV22	9.5	5	5	Broadneck	117	117	0	0	0	-	-	1.00	0.00	LOW	59
SV23	2.3	1	5	Broadneck	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV24	82.0	10	5	Broadneck	74	74	0	0	0	-	-	1.00	0.00	LOW	37
SV29	58.3	22	1	Broadneck	539	81	458	83160	836000	181	1824	1.66	20.83	HIGH	271
SV30	255.1	49	1	Patuxent	1073	161	912	185220	1862000	203	2041	1.80	18.62	MEDIUM	539
SV47	12.9	10	5	Broadneck	74	74	0	0	0	-	-	1.00	0.00	LOW	37
SV48	12.0	1	5	Patuxent	48	48	0	0	0	-	-	1.00	0.00	LOW	24
SV49	24.6	1	1	Broadneck	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4
SV50	1.2	2	5	Broadneck	15	15	0	0	0	-	-	1.00	0.00	LOW	7
SV52	16.2	11	5	Broadneck	242	242	0	0	0	-	-	1.32	0.00	LOW	121
SV53	57.8	30	5	Patuxent	262	262	0	0	0	-	-	1.04	0.00	LOW	132
SV54	13.5	16	5	Broadneck	359	359	0	0	0	-	-	1.03	0.00	LOW	180
SV55	0.1	1	5	Rural	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV56	15.8	7	5	Broadneck	333	333	0	0	0	-	-	1.10	0.00	LOW	166
SV58	15.2	7	5	Patuxent	52	52	0	0	0	-	-	1.00	0.00	LOW	26
SV59	1212.9	1083	1	Broadneck	18508	2531	15977	4093740	41154000	256	2576	2.37	14.75	MEDIUM	9329
SV60	316.3	45	1	Broadneck	957	143	813	170100	1710000	209	2102	1.79	18.08	MEDIUM	481
SV62	821.8	61	1	Broadneck	2881	303	2578	230580	2318000	89	899	2.70	42.27	HIGH	1445
SV63	9.3	1	5	Patuxent	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV64	20.7	2	5	Broadneck	55	55	0	0	0	-	-	1.00	0.00	LOW	27
SV67	6.9	1	5	Rural	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV69	11.7	10	1	Broadneck	190	28	162	37800	380000	234	2348	1.41	16.18	MEDIUM	96
SV70	684.3	156	2	Broadneck	4369	579	3790	553800	5647744	146	1490	2.54	24.30	HIGH	2194

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SV71	45.4	10	1	Broadneck	257	39	219	37800	380000	173	1738	1.80	21.86	HIGH	129
SV76	13.5	8	5	Patuxent	59	59	0	0	0	-	-	1.00	0.00	LOW	30
SV78	23.8	32	5	Broadneck	237	237	0	0	0	-	-	1.00	0.00	LOW	120
SV87	116.8	22	5	Patuxent	323	323	0	0	0	-	-	1.02	0.00	LOW	162
SV90	30.8	25	5	Broadneck	185	185	0	0	0	-	-	1.00	0.00	LOW	94
SV93	66.3	56	5	Baltimore City	575	575	0	0	0	-	-	1.09	0.00	LOW	290
SV97	199.1	54	5	Baltimore City	480	480	0	0	0	-	-	1.04	0.00	LOW	242
SV100	2.8	1	5	Broadneck	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV122	2.8	1	1	Rural	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
SV123	32.0	12	1	Patuxent	349	52	296	45360	456000	153	1538	1.65	24.70	HIGH	175
SV124	17.0	5	1	Broadneck	195	29	166	18900	190000	114	1144	1.74	33.23	HIGH	98
SV126	5.6	3	1	Patuxent	37	6	32	11340	114000	360	3618	1.41	10.50	LOW	19
SV128	9.5	9	1	Baltimore City	111	17	95	34020	342000	360	3618	1.41	10.50	LOW	56
SV134	61.5	5	1	Patuxent	37	9	28	18900	190000	679	6830	1.00	5.56	LOW	19
SV142	36.4	24	1	Broadneck	296	44	252	90720	912000	360	3618	2.14	10.50	LOW	150
SV165	114.4	4	1	Cox Creek	44	7	37	15120	152000	408	4100	1.31	9.27	LOW	22
SV170	435.0	16	1	Cox Creek	302	50	252	60480	608000	240	2412	1.36	15.75	MEDIUM	152
SV174	906.3	32	1	Patuxent	950	149	801	120960	1216000	151	1518	1.48	25.03	HIGH	477
SV184	485.0	465	2	Broadneck	8159	989	7171	1650750	16834622	230	2348	2.46	15.42	MEDIUM	4115
SV198	339.3	12	1	Patuxent	282	52	230	45360	456000	197	1981	1.14	19.18	MEDIUM	142
SV199	334.8	8	1	Patuxent	633	95	538	30240	304000	56	565	1.77	67.31	HIGH	317
SV201	341.3	13	1	Patuxent	213	34	179	49140	494000	275	2767	1.63	13.73	LOW	107
SV220	265.4	29	1	Patuxent	492	74	418	109620	1102000	262	2635	1.49	14.42	MEDIUM	248
SV221	156.1	8	1	Broadneck	433	65	368	30240	304000	82	826	1.46	46.01	HIGH	217
SV222	326.6	5	1	Broadneck	412	39	373	18900	190000	51	510	2.60	74.57	HIGH	206
SV224	18.6	6	3	Broadneck	178	90	88	22500	78000	254	882	3.93	14.75	MEDIUM	90
SV226	168.0	32	1	Broadneck	724	69	655	120960	1216000	185	1856	3.54	20.48	HIGH	365
SV227	31.4	2	1	Broadneck	99	14	85	7560	76000	89	892	2.39	42.61	HIGH	50
SV228	27.5	2	1	Broadneck	40	4	36	7560	76000	211	2121	2.15	17.91	MEDIUM	20
SV229	117.5	3	1	Broadneck	52	6	46	11340	114000	245	2461	2.96	15.44	MEDIUM	26
SV230	22.9	13	1	Broadneck	471	44	427	49140	494000	115	1158	3.59	32.82	HIGH	237
SV231	229.2	21	1	Broadneck	606	79	527	79380	798000	151	1513	2.12	25.12	HIGH	304
SV232	67.3	6	1	Broadneck	119	11	107	22680	228000	211	2121	4.25	17.91	MEDIUM	60
SV233	715.4	50	1	Patuxent	764	122	641	189000	1900000	295	2963	1.54	12.83	LOW	385
SV234	438.0	65	1	Patuxent	1204	180	1024	245700	2470000	240	2413	1.85	15.75	MEDIUM	606
SV237	114.1	27	1	Patuxent	801	120	681	102060	1026000	150	1506	1.91	25.23	HIGH	402
SV238	205.1	8	1	Patuxent	299	45	254	30240	304000	119	1195	2.32	31.81	HIGH	150
SV239	140.9	38	1	Patuxent	536	80	456	143640	1444000	315	3167	1.46	12.00	LOW	270
SV242	332.2	11	1	Patuxent	208	40	168	41580	418000	248	2491	1.38	15.26	MEDIUM	105
SV250	29.8	9	1	Broadneck	178	17	161	34020	342000	211	2121	3.18	17.91	MEDIUM	90
SV251	109.8	15	1	Broadneck	259	38	222	56700	570000	256	2570	1.73	14.78	MEDIUM	131
SV254	148.4	8	1	Broadneck	265	25	240	30240	304000	126	1266	3.31	30.03	HIGH	133

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SV272	244.8	146	1	Broadneck	3073	310	2763	551880	5548000	200	2008	3.25	18.92	MEDIUM	1550
SV274	400.0	96	3	Broadneck	1612	812	800	360000	1248000	450	1560	2.06	8.34	LOW	812
SV275	67.8	34	1	Broadneck	768	83	686	128520	1292000	187	1884	3.69	20.17	MEDIUM	387
SV276	109.7	10	3	Broadneck	253	127	126	37500	130000	298	1034	2.44	12.57	LOW	127
SV277	74.2	4	3	Broadneck	79	40	39	15000	52000	384	1330	4.15	9.78	LOW	40
SV278	98.9	25	3	Broadneck	494	250	244	93750	325000	384	1330	3.66	9.78	LOW	250
SV279	590.5	15	3	Broadneck	724	363	361	56250	195000	156	540	3.57	24.06	HIGH	363
SV280	460.2	37	1	Broadneck	658	108	550	139860	1406000	254	2558	1.82	14.85	MEDIUM	331
SV289	535.6	281	3	Rural	4898	2468	2430	1053750	3653000	434	1503	2.43	8.65	LOW	2468
SV290	159.6	116	1	Annapolis	2277	264	2012	438480	4408000	218	2190	3.18	17.35	MEDIUM	1148
SV294	175.1	272	2	Rural	5452	512	4940	965600	9847349	195	1993	3.63	18.16	MEDIUM	2754
SV326	472.4	67	3	Broadneck	1390	700	690	251250	871000	364	1263	2.79	10.30	LOW	700
SV327	138.6	51	3	Broadneck	1008	509	499	191250	663000	384	1330	3.63	9.78	LOW	509
SV335	39.1	2	1	Annapolis	158	24	135	7560	76000	56	565	2.88	67.31	HIGH	79
SV336	483.2	92	1	Annapolis	2172	310	1862	347760	3496000	187	1878	2.26	20.24	MEDIUM	1091
SV338	1168.3	195	3	Rural	2981	1502	1479	731250	2535000	495	1714	1.94	7.58	LOW	1502
SV339	71.9	21	3	Rural	1022	511	511	78750	273000	154	534	1.14	24.34	HIGH	511
SV343	4612.0	19	1	Annapolis	368	55	313	71820	722000	229	2305	1.73	16.48	MEDIUM	185
SV346	71.2	1	1	Annapolis	20	2	18	3780	38000	211	2121	4.00	17.91	MEDIUM	10
SV347	52.5	1	1	Annapolis	20	2	18	3780	38000	211	2121	2.92	17.91	MEDIUM	10
SV348	329.8	28	1	Annapolis	1023	112	911	105840	1064000	116	1168	2.49	32.53	HIGH	513
SV349	18.9	1	3	Annapolis	127	63	63	3750	13000	59	205	4.59	63.35	HIGH	63
SV351	331.8	10	1	Annapolis	303	39	264	37800	380000	143	1439	2.91	26.41	HIGH	152
SV354	68.2	3	1	Annapolis	52	6	46	11340	114000	245	2461	2.16	15.44	MEDIUM	26
SV356	646.3	74	1	Patuxent	1515	227	1289	279720	2812000	217	2182	1.79	17.41	MEDIUM	762
SV359	330.0	10	1	Annapolis	582	89	493	37800	380000	77	770	2.29	49.32	HIGH	291
SV365	178.9	53	2	Broadneck	988	98	890	188150	1918785	211	2156	3.56	16.80	MEDIUM	499
SV374	108.4	4	2	Broadneck	257	37	220	14200	144814	65	659	2.00	54.96	HIGH	129
SV377	125.1	2	1	Broadneck	158	24	135	7560	76000	56	565	2.23	67.31	HIGH	79
SV379	13.3	2	3	Broadneck	40	20	20	7500	26000	384	1330	3.72	9.78	LOW	20
SV383	117.5	41	1	Broadneck	1039	106	933	154980	1558000	166	1669	3.06	22.76	HIGH	523
SV384	123.1	37	1	Broadneck	702	78	623	139860	1406000	224	2256	3.22	16.85	MEDIUM	354
SV385	179.3	63	1	Broadneck	1501	176	1324	238140	2394000	180	1808	3.30	21.02	HIGH	756
SV386	225.4	121	3	Broadneck	1566	791	775	453750	1573000	586	2030	2.02	6.40	LOW	791
SV387	53.4	27	3	Broadneck	854	430	425	101250	351000	238	827	3.79	15.73	MEDIUM	430
SV388	23.9	22	3	Broadneck	862	433	429	82500	286000	192	666	3.71	19.52	MEDIUM	433
SV389	34.5	24	3	Broadneck	425	215	210	90000	312000	428	1484	3.25	8.76	LOW	215
SV390	102.5	34	3	Broadneck	839	422	416	127500	442000	306	1062	3.10	12.24	LOW	422
SV391	769.9	196	3	Rural	3538	1779	1759	735000	2548000	418	1449	1.56	8.97	LOW	1779
SV392	537.5	65	3	Rural	1878	942	936	243750	845000	260	902	1.85	14.41	MEDIUM	942
SV394	1035.7	229	3	Rural	6910	3467	3443	858750	2977000	249	865	2.52	15.04	MEDIUM	3467
SV404	845.0	37	3	Rural	1836	919	917	138750	481000	151	525	1.76	24.78	HIGH	919

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SV405	475.6	90	3	Rural	1558	783	775	337500	1170000	436	1510	1.40	8.61	LOW	783
SV406	80.4	7	3	Rural	153	77	76	26250	91000	344	1193	1.47	10.89	LOW	77
SV407	178.4	21	3	Rural	547	274	273	78750	273000	289	1002	1.83	12.98	LOW	274
SV408	343.5	23	3	Rural	603	303	301	86250	299000	287	995	1.74	13.07	LOW	303
SV409	844.2	178	3	Rural	2971	1495	1476	667500	2314000	452	1568	1.60	8.29	LOW	1495
SV410	123.5	4	3	Rural	317	158	158	15000	52000	95	328	1.88	39.59	HIGH	158
SV411	61.0	10	3	Rural	625	313	312	37500	130000	120	417	3.72	31.20	HIGH	313
SV412	16.3	4	3	Rural	79	40	39	15000	52000	384	1330	4.40	9.78	LOW	40
SV413	80.8	1	3	Rural	127	63	63	3750	13000	59	205	2.88	63.35	HIGH	63
SV420	132.1	80	3	Rural	1369	691	677	300000	1040000	443	1535	2.89	8.47	LOW	691
SV421	400.4	437	1	Annapolis	14415	1860	12555	1651860	16606000	132	1323	2.67	28.73	HIGH	7239
SV467	7.8	6	3	Rural	119	60	59	22500	78000	384	1330	3.92	9.78	LOW	60
SV475	374.4	124	3	Rural	2548	1284	1264	465000	1612000	368	1275	2.95	10.20	LOW	1284
SV476	370.0	2	3	Rural	158	79	79	7500	26000	95	328	3.53	39.59	HIGH	79
SV477	32.1	23	3	Rural	561	283	278	86250	299000	310	1074	3.61	12.11	LOW	283
SV478	176.9	6	3	Rural	278	139	139	22500	78000	162	561	1.27	23.15	HIGH	139
SV479	685.6	109	3	Rural	1725	869	856	408750	1417000	477	1655	1.88	7.86	LOW	869
SV480	589.9	149	3	Rural	2665	1341	1324	558750	1937000	422	1463	2.27	8.88	LOW	1341
SV482	248.0	183	2	Broadneck	3907	368	3539	649650	6625238	184	1872	3.32	19.34	HIGH	1972
SV485	68.7	8	3	Broadneck	265	133	132	30000	104000	228	789	3.59	16.47	MEDIUM	133
SV504	491.6	62	1	Broadneck	1113	185	928	234360	2356000	252	2538	1.39	14.97	MEDIUM	560
SV509	37.0	21	3	Rural	522	263	259	78750	273000	304	1055	3.61	12.33	LOW	263
SV510	33.5	2	3	Rural	158	79	79	7500	26000	95	328	1.61	39.59	HIGH	79
SV511	94.3	6	3	Broadneck	211	106	105	22500	78000	214	744	2.75	17.48	MEDIUM	106
SV512	191.2	63	3	Broadneck	1038	523	515	236250	819000	459	1590	1.84	8.18	LOW	523
SV513	58.9	24	3	Broadneck	437	221	216	90000	312000	416	1442	2.66	9.01	LOW	221
SV514	147.6	32	3	Broadneck	660	333	327	120000	416000	367	1273	3.38	10.21	LOW	333
SV544	382.0	149	3	Rural	2674	1347	1327	558750	1937000	421	1460	2.54	8.91	LOW	1347
SV545	479.8	89	3	Rural	1186	599	587	333750	1157000	569	1973	2.50	6.59	LOW	599
SV546	458.2	31	1	Annapolis	1231	198	1034	117180	1178000	113	1140	2.25	33.34	HIGH	617
SV548	50.6	23	1	Annapolis	514	73	442	86940	874000	197	1979	2.49	19.20	MEDIUM	259
SV549	107.9	21	3	Annapolis	415	210	205	78750	273000	384	1330	4.07	9.78	LOW	210
SV568	574.4	626	1	Broadneck	5710	1196	4514	2366280	23788000	524	5269	1.17	7.21	LOW	2884
SV571	941.5	884	1	Broadneck	10197	1832	8364	3341520	33592000	400	4016	1.50	9.46	LOW	5145
SV573	162.6	171	1	Broadneck	2529	326	2204	646380	6498000	293	2949	2.48	12.89	LOW	1278
SV574	83.5	93	3	Rural	903	456	447	348750	1209000	780	2704	1.14	4.81	LOW	456
SV577	1340.3	1896	2	Rural	38734	4092	34642	6730800	68641813	194	1981	2.75	18.27	MEDIUM	19536
SV578	191.2	345	2	Rural	7515	717	6798	1224750	12490203	180	1837	3.28	19.70	HIGH	3793
SV579	251.9	292	2	Broadneck	5637	559	5078	1036600	10571418	204	2082	3.00	17.39	MEDIUM	2847
SV582	250.9	14	3	Broadneck	597	300	298	52500	182000	176	612	3.46	21.26	HIGH	300
SV583	49.0	16	1	Patuxent	465	70	395	60480	608000	153	1538	1.56	24.70	HIGH	233
SV611	1217.0	180	3	Rural	3857	1937	1919	675000	2340000	352	1219	1.58	10.66	LOW	1937

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SV612	129.7	3	3	Rural	171	85	85	11250	39000	132	457	1.68	28.43	HIGH	85
SV613	59.8	8	3	Rural	166	83	82	30000	104000	364	1263	1.79	10.30	LOW	83
SV621	32.7	1	3	Annapolis	127	63	63	3750	13000	59	205	4.11	63.35	HIGH	63
SV625	23.6	13	1	Annapolis	257	24	233	49140	494000	211	2121	3.35	17.91	MEDIUM	130
SV626	22.9	11	1	Annapolis	217	20	197	41580	418000	211	2121	3.37	17.91	MEDIUM	110
SV634	1404.2	285	3	Rural	5857	2943	2914	1068750	3705000	367	1271	1.78	10.22	LOW	2943
SV635	658.7	174	3	Rural	4073	2044	2029	652500	2262000	322	1115	1.54	11.66	LOW	2044
SV637	137.7	9	3	Rural	213	107	106	33750	117000	318	1103	2.08	11.79	LOW	107
SV668	72.9	8	1	Patuxent	99	25	75	30240	304000	405	4076	1.08	9.32	LOW	50
SV675	19.4	7	2	Broadneck	138	13	125	24850	253424	198	2021	3.45	17.91	MEDIUM	70
UP79	283.9	10	5	Maryland city	275	275	0	0	0	-	-	1.07	0.00	LOW	137
UP219	565.4	1	1	Patuxent	79	12	67	3780	38000	56	565	2.90	67.31	HIGH	40
UP236	146.7	61	1	Patuxent	4830	725	4106	230580	2318000	56	565	2.14	67.31	HIGH	2415
UP241	487.9	43	1	Patuxent	1266	190	1077	162540	1634000	151	1518	1.76	25.03	HIGH	635
UP428	251.7	281	2	Rural	3716	579	3137	997550	10173180	318	3243	1.70	11.16	LOW	1875
UP432	123.6	1	1	Maryland city	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
UP437	96.0	1	3	Maryland city	79	40	40	3750	13000	95	328	1.41	39.59	HIGH	40
UP438	171.2	1	3	Maryland city	12	6	6	3750	13000	614	2128	1.82	6.11	LOW	6
UP519	1623.9	254	3	Rural	5427	2727	2700	952500	3302000	353	1223	1.87	10.63	LOW	2727
UP520	1366.3	32	3	Rural	1264	633	631	120000	416000	190	659	1.99	19.71	MEDIUM	633
UP521	1271.3	98	3	Rural	2377	1194	1183	367500	1274000	311	1077	2.08	12.07	LOW	1194
UP640	154.4	2	3	Rural	92	46	46	7500	26000	164	569	1.61	22.85	HIGH	46
UP641	393.9	13	3	Rural	762	381	381	48750	169000	128	444	1.91	29.29	HIGH	381
UP642	1300.6	11	3	Rural	312	156	155	41250	143000	265	920	1.61	14.13	MEDIUM	156
UP645	149.4	1	4	Rural	48	48	0	0	0	-	-	1.00	0.00	LOW	24
UP646	637.9	18	3	Rural	618	310	308	67500	234000	219	759	2.07	17.13	MEDIUM	310
UP647	1159.6	64	3	Rural	1121	564	557	240000	832000	431	1493	1.78	8.70	LOW	564
UP648	2640.5	138	3	Rural	5353	2681	2671	517500	1794000	194	672	1.75	19.36	MEDIUM	2681
UP649	965.3	85	3	Rural	1786	897	888	318750	1105000	359	1244	1.84	10.45	LOW	897
UP650	663.3	55	3	Rural	1281	643	637	206250	715000	324	1122	2.25	11.59	LOW	643
UP651	1427.2	144	3	Rural	2834	1426	1409	540000	1872000	383	1329	2.03	9.78	LOW	1426
UP652	916.6	131	3	Rural	2691	1353	1338	491250	1703000	367	1273	1.97	10.21	LOW	1353
UP653	1090.1	102	3	Rural	2215	1113	1102	382500	1326000	347	1203	1.81	10.81	LOW	1113
UP654	999.8	181	3	Rural	3461	1741	1720	678750	2353000	395	1368	1.91	9.50	LOW	1741
UP663	772.1	8	1	Maryland city	433	65	368	30240	304000	82	826	1.87	46.01	HIGH	217
UP664	10.1	1	1	Maryland city	79	12	67	3780	38000	56	565	1.41	67.31	HIGH	40
WR1	66.5	6	5	Broadwater	44	44	0	0	0	-	-	1.00	0.00	LOW	22
WR187	264.5	22	1	Broadwater	716	81	635	83160	836000	131	1317	2.34	28.86	HIGH	359
WR188	150.2	32	1	Broadwater	953	89	864	120960	1216000	140	1407	3.35	27.00	HIGH	480
WR189	461.2	3	1	Broadwater	111	16	96	11340	114000	118	1191	2.46	31.91	HIGH	56
WR415	223.1	8	3	Rural	357	179	178	30000	104000	169	584	3.44	22.25	HIGH	179
WR416	325.2	14	3	Rural	1022	511	511	52500	182000	103	356	2.58	36.47	HIGH	511

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WR417	39.0	3	3	Rural	59	30	29	11250	39000	384	1330	3.29	9.78	LOW	30
WR418	1020.2	34	3	Rural	2155	1079	1077	127500	442000	118	411	2.76	31.67	HIGH	1079
WR419	684.9	49	3	Rural	1631	819	812	183750	637000	226	785	2.87	16.57	MEDIUM	819
WR501	92.1	8	1	Broadwater	578	55	524	30240	304000	58	581	2.65	65.44	HIGH	290
WR597	158.4	5	1	Broadwater	99	9	90	18900	190000	211	2121	3.15	17.91	MEDIUM	50
WR599	1704.8	29	1	Broadwater	968	114	855	109620	1102000	128	1289	2.27	29.47	HIGH	486
WR606	198.7	3	1	Broadwater	59	6	54	11340	114000	211	2121	2.79	17.91	MEDIUM	30
WR607	135.2	1	1	Broadwater	20	2	18	3780	38000	211	2121	3.33	17.91	MEDIUM	10
WR614	1908.1	106	3	Rural	3515	1763	1752	397500	1378000	227	786	2.31	16.53	MEDIUM	1763
WR643	280.3	17	3	Rural	619	311	309	63750	221000	207	716	2.70	18.15	MEDIUM	311
WR644	329.4	16	3	Rural	662	332	330	60000	208000	182	631	3.27	20.61	HIGH	332

Attachment B
Detailed Management Area Rankings by Average Nitrogen Reduction per OSDS

N
W
E
S

BALTIMORE CITY
BALTIMORE CITY
BWI Airport
Patapsco Non-tidal
Patapsco Tidal
Bodkin Creek
Severn River
Little Patuxent
Magothy River
South River
City of Annapolis
Upper Patuxent
Rhode River
West River
Middle Patuxent
Herring Bay

Figure B-1
Management Area Index Map
OSDS Evaluation Study and Strategic Plan

Major Roads
Watersheds

Management Areas
Priority for Treatment
Low
Medium
High

MA's Ranked by $EUAC/LB Reduced

MA ID	Area (Acres)	OSDS Count	Bin #	SSA	Existing Load (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)	Total EUAC ($/yr)	Total Initial Capital Cost ($)	$EUAC/lb Reduced	$IC/lb Reduced	Priority Rank	N reduction per OSDS (lb/yr/OSDS)	Priority Based on $EUAC/lb Reduced	Load After OSDS Upgrade (lb/yr)
RR674	25.1	1	2	Mayo	127	12	115	3550	36203	31	315	3.70	114.82	HIGH	63
PT149	99.1	1	1	Cox Creek	127	12	115	3780	38000	33	331	3.33	114.82	HIGH	63
MR324	15.3	2	1	Broadneck	253	24	230	7560	76000	33	331	2.94	114.82	HIGH	127
SO345	45.2	1	1	Annapolis	127	12	115	3780	38000	33	331	4.41	114.82	HIGH	63
RR456	55.0	1	1	Mayo	127	12	115	3780	38000	33	331	3.33	114.82	HIGH	63
RR460	96.3	2	1	Mayo	253	24	230	7560	76000	33	331	3.72	114.82	HIGH	127
PT594	224.3	1	1	Cox Creek	127	12	115	3780	38000	33	331	2.51	114.82	HIGH	63
HB602	53.0	1	1	Broadwater	127	12	115	3780	38000	33	331	2.96	114.82	HIGH	63
HB671	61.5	1	1	Rose Haven	127	12	115	3780	38000	33	331	2.55	114.82	HIGH	63
SO449	484.7	3	1	Mayo	333	36	297	11340	114000	38	384	3.04	98.98	HIGH	166
PT502	773.9	2	1	Cox Creek	206	24	182	7560	76000	42	417	2.96	91.06	HIGH	103
PT166	708.5	5	1	Cox Creek	507	59	447	18900	190000	42	425	1.85	89.48	HIGH	253
SO517	119.0	7	1	Annapolis	633	83	550	26460	266000	48	483	1.61	78.62	HIGH	317
MR483	198.7	5	1	Broadneck	420	39	380	18900	190000	50	500	3.67	76.06	HIGH	210
SO441	34.1	22	1	Annapolis	1825	171	1654	83160	836000	50	505	2.66	75.18	HIGH	913
SV222	326.6	5	1	Broadneck	412	39	373	18900	190000	51	510	2.60	74.57	HIGH	206
LP434	508.1	6	2	Maryland city	475	71	404	21300	217221	53	538	2.31	67.31	HIGH	238
SO341	106.4	9	1	Annapolis	713	107	606	34020	342000	56	565	1.74	67.31	HIGH	356
PT169	370.3	6	1	Cox Creek	475	71	404	22680	228000	56	565	1.68	67.31	HIGH	238
SV199	334.8	8	1	Patuxent	633	95	538	30240	304000	56	565	1.77	67.31	HIGH	317
MR358	4.9	5	1	Cox Creek	396	59	337	18900	190000	56	565	1.41	67.31	HIGH	198
LP192	307.9	3	1	Piney Orchard	238	36	202	11340	114000	56	565	1.95	67.31	HIGH	119
MR376	172.2	3	1	Broadneck	238	36	202	11340	114000	56	565	2.59	67.31	HIGH	119
PN84	21.4	1	1	Baltimore City	79	12	67	3780	38000	56	565	2.08	67.31	HIGH	40
MR105	77.9	1	1	Cox Creek	79	12	67	3780	38000	56	565	1.41	67.31	HIGH	40
PT140	240.4	1	1	Cox Creek	79	12	67	3780	38000	56	565	2.23	67.31	HIGH	40
SO196	227.6	1	1	Patuxent	79	12	67	3780	38000	56	565	2.90	67.31	HIGH	40
PT204	573.3	1	1	Cox Creek	79	12	67	3780	38000	56	565	1.41	67.31	HIGH	40
UP219	565.4	1	1	Patuxent	79	12	67	3780	38000	56	565	2.90	67.31	HIGH	40
SV335	39.1	2	1	Annapolis	158	24	135	7560	76000	56	565	2.88	67.31	HIGH	79
SO369	257.2	1	1	Rural	79	12	67	3780	38000	56	565	2.23	67.31	HIGH	40
SV377	125.1	2	1	Broadneck	158	24	135	7560	76000	56	565	2.23	67.31	HIGH	79
LP443	309.5	2	1	Maryland city	158	24	135	7560	76000	56	565	2.77	67.31	HIGH	79
RR445	189.0	1	1	Mayo	79	12	67	3780	38000	56	565	2.23	67.31	HIGH	40
PN484	51.8	1	1	Patuxent	79	12	67	3780	38000	56	565	1.82	67.31	HIGH	40
SO508	211.7	1	1	Mayo	79	12	67	3780	38000	56	565	1.41	67.31	HIGH	40
UP664	10.1	1	1	Maryland city	79	12	67	3780	38000	56	565	1.41	67.31	HIGH	40
UP236	146.7	61	1	Patuxent	4830	725	4106	230580	2318000	56	565	2.14	67.31	HIGH	2415
MR325	109.8	2	1	Broadneck	146	14	133	7560	76000	57	573	2.72	66.37	HIGH	73
HB596	133.0	2	1	Broadwater	146	14	133	7560	76000	57	573	3.13	66.37	HIGH	73
WR501	92.1	8	1	Broadwater	578	55	524	30240	304000	58	581	2.65	65.44	HIGH	290
SV349	18.9	1	3	Annapolis	127	63	63	3750	13000	59	205	4.59	63.35	HIGH	63

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SV413	80.8	1	3	Rural	127	63	63	3750	13000	59	205	2.88	63.35	HIGH	63
SV621	32.7	1	3	Annapolis	127	63	63	3750	13000	59	205	4.11	63.35	HIGH	63
BC679	41.9	1	3	Rural	127	63	63	3750	13000	59	205	3.70	63.35	HIGH	63
PT203	397.7	7	3	Cox Creek	887	443	443	26250	91000	59	205	2.50	63.35	HIGH	443
LP436	592.6	12	1	Maryland city	883	133	751	45360	456000	60	607	2.20	62.57	HIGH	442
SV374	108.4	4	2	Broadneck	257	37	220	14200	144814	65	659	2.00	54.96	HIGH	129
LP194	250.4	18	1	Patuxent	1225	184	1041	68040	684000	65	657	1.84	57.84	HIGH	613
PT593	698.2	38	1	Cox Creek	2482	301	2181	143640	1444000	66	662	2.21	57.39	HIGH	1242
LP240	586.7	11	1	Patuxent	737	111	627	41580	418000	66	667	2.12	56.98	HIGH	369
PN285	100.9	3	1	Baltimore City	194	26	168	11340	114000	67	677	2.79	56.12	HIGH	97
LP247	714.4	9	1	Patuxent	579	87	492	34020	342000	69	695	1.82	54.68	HIGH	290
LP281	20.6	4	1	Patuxent	250	37	212	15120	152000	71	716	1.41	53.11	HIGH	125
SO342	50.0	2	1	Annapolis	127	24	103	7560	76000	73	738	1.20	51.47	HIGH	63
LP202	963.7	7	1	Patuxent	421	63	358	26460	266000	74	744	1.83	51.08	HIGH	210
SO334	167.5	4	1	Annapolis	231	27	203	15120	152000	74	748	2.74	50.78	HIGH	115
PT592	492.9	6	1	Cox Creek	344	41	303	22680	228000	75	752	2.49	50.53	HIGH	172
SO332	57.9	33	1	Annapolis	1828	171	1657	124740	1254000	75	757	3.36	50.22	HIGH	916
MR260	71.6	3	1	Broadneck	166	16	151	11340	114000	75	757	3.90	50.22	HIGH	83
HB472	416.4	6	1	Broadwater	332	31	301	22680	228000	75	757	3.11	50.22	HIGH	167
HB605	93.1	3	1	Broadwater	166	16	151	11340	114000	75	757	2.95	50.22	HIGH	83
LP138	102.6	19	1	Maryland city	1103	165	938	71820	722000	77	770	1.67	49.37	HIGH	552
SV359	330.0	10	1	Annapolis	582	89	493	37800	380000	77	770	2.29	49.32	HIGH	291
PN427	7.3	3	1	Baltimore City	171	26	145	11340	114000	78	786	1.56	48.37	HIGH	85
PT161	80.2	3	1	Cox Creek	159	16	143	11340	114000	79	796	2.84	47.75	HIGH	80
UP663	772.1	8	1	Maryland city	433	65	368	30240	304000	82	826	1.87	46.01	HIGH	217
SV221	156.1	8	1	Broadneck	433	65	368	30240	304000	82	826	1.46	46.01	HIGH	217
RR403	169.7	3	3	Rural	273	137	136	11250	39000	82	286	3.79	45.49	HIGH	137
PN292	409.6	10	1	Baltimore City	511	59	452	37800	380000	84	841	1.97	45.20	HIGH	256
PN85	2277.5	22	1	Baltimore City	1141	171	970	83160	836000	86	862	1.82	44.07	HIGH	571
RR72	214.6	3	3	Mayo	261	130	130	11250	39000	86	299	2.25	43.45	HIGH	130
PT135	465.6	147	2	Cox Creek	6830	863	5966	521850	5321913	87	892	2.83	40.59	HIGH	3423
HB186	714.0	20	1	Broadwater	960	97	863	75600	760000	88	881	3.07	43.13	HIGH	481
SV227	31.4	2	1	Broadneck	99	14	85	7560	76000	89	892	2.39	42.61	HIGH	50
MR283	136.1	2	1	Broadneck	99	14	85	7560	76000	89	892	2.37	42.61	HIGH	50
HB137	74.9	51	1	Broadwater	2383	225	2159	192780	1938000	89	898	3.20	42.32	HIGH	1195
SV62	821.8	61	1	Broadneck	2881	303	2578	230580	2318000	89	899	2.70	42.27	HIGH	1445
LP121	478.7	36	1	Patuxent	1781	267	1514	136080	1368000	90	903	1.66	42.06	HIGH	892
SO431	56.8	13	1	Annapolis	628	94	534	49140	494000	92	925	1.57	41.09	HIGH	315
PT206	630.5	9	1	Cox Creek	435	67	369	34020	342000	92	928	1.68	40.96	HIGH	218
HB185	120.8	7	3	Broadwater	566	283	283	26250	91000	93	322	3.64	40.39	HIGH	283
SO673	41.4	7	3	Annapolis	566	283	283	26250	91000	93	322	4.55	40.39	HIGH	283
LP655	417.2	5	3	Rural	396	198	198	18750	65000	95	328	2.56	39.59	HIGH	198
PT295	217.8	1	3	Baltimore City	79	40	40	3750	13000	95	328	2.23	39.59	HIGH	40

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LP316	357.7	2	3	Maryland city	158	79	79	7500	26000	95	328	1.82	39.59	HIGH	79
LP393	2809.6	1	3	Patuxent	79	40	40	3750	13000	95	328	1.41	39.59	HIGH	40
RR402	109.9	1	3	Rural	79	40	40	3750	13000	95	328	2.23	39.59	HIGH	40
SV410	123.5	4	3	Rural	317	158	158	15000	52000	95	328	1.88	39.59	HIGH	158
UP437	96.0	1	3	Maryland city	79	40	40	3750	13000	95	328	1.41	39.59	HIGH	40
SV476	370.0	2	3	Rural	158	79	79	7500	26000	95	328	3.53	39.59	HIGH	79
SV510	33.5	2	3	Rural	158	79	79	7500	26000	95	328	1.61	39.59	HIGH	79
MR271	326.6	76	1	Broadneck	3479	481	2998	287280	2888000	96	963	2.36	39.45	HIGH	1743
SO366	207.0	10	1	Annapolis	458	69	389	37800	380000	97	977	1.52	38.91	HIGH	229
PT148	148.1	2	1	Cox Creek	92	14	78	7560	76000	97	977	1.82	38.91	HIGH	46
LP246	394.6	4	1	Patuxent	183	27	156	15120	152000	97	977	1.52	38.91	HIGH	92
SO352	318.3	102	1	Annapolis	4647	710	3937	385560	3876000	98	984	1.57	38.60	HIGH	2327
PN299	681.6	31	1	Baltimore City	1385	208	1178	117180	1178000	100	1000	1.87	37.99	HIGH	694
MR461	47.4	2	3	Rural	146	73	73	7500	26000	103	356	3.50	36.56	HIGH	73
MP497	241.2	4	3	Rural	293	147	146	15000	52000	103	356	3.60	36.56	HIGH	147
MR678	42.9	2	3	Broadneck	146	73	73	7500	26000	103	356	4.15	36.56	HIGH	73
WR416	325.2	14	3	Rural	1022	511	511	52500	182000	103	356	2.58	36.47	HIGH	511
LP444	529.7	13	1	Maryland city	562	84	477	49140	494000	103	1035	1.98	36.72	HIGH	281
LP218	191.1	11	1	Patuxent	470	70	400	41580	418000	104	1046	1.60	36.32	HIGH	235
PN175	508.2	11	1	Baltimore City	465	70	395	41580	418000	105	1059	2.07	35.87	HIGH	233
PT217	454.6	1	1	Cox Creek	48	12	36	3780	38000	106	1066	1.45	35.63	HIGH	24
PT291	275.2	1	1	Baltimore City	48	12	36	3780	38000	106	1066	1.67	35.63	HIGH	24
MR164	382.0	12	1	Cox Creek	482	72	410	45360	456000	111	1112	1.78	34.17	HIGH	242
RR400	57.3	9	3	Rural	606	303	302	33750	117000	112	387	3.42	33.59	HIGH	303
PT151	347.4	17	1	Cox Creek	666	92	574	64260	646000	112	1125	1.83	33.78	HIGH	334
PN11	140.1	57	1	Baltimore City	2241	336	1905	215460	2166000	113	1137	1.61	33.42	HIGH	1123
PN304	821.7	17	1	Baltimore City	658	92	567	64260	646000	113	1140	1.99	33.35	HIGH	330
SV546	458.2	31	1	Annapolis	1231	198	1034	117180	1178000	113	1140	2.25	33.34	HIGH	617
PN293	440.3	12	1	Baltimore City	451	52	399	45360	456000	114	1143	2.40	33.24	HIGH	226
SV124	17.0	5	1	Broadneck	195	29	166	18900	190000	114	1144	1.74	33.23	HIGH	98
SV230	22.9	13	1	Broadneck	471	44	427	49140	494000	115	1158	3.59	32.82	HIGH	237
SV348	329.8	28	1	Annapolis	1023	112	911	105840	1064000	116	1168	2.49	32.53	HIGH	513
SO330	330.1	35	2	Annapolis	1171	115	1057	124250	1267122	118	1199	3.41	30.19	HIGH	589
WR418	1020.2	34	3	Rural	2155	1079	1077	127500	442000	118	411	2.76	31.67	HIGH	1079
WR189	461.2	3	1	Broadwater	111	16	96	11340	114000	118	1191	2.46	31.91	HIGH	56
SV238	205.1	8	1	Patuxent	299	45	254	30240	304000	119	1195	2.32	31.81	HIGH	150
SV411	61.0	10	3	Rural	625	313	312	37500	130000	120	417	3.72	31.20	HIGH	313
MR506	118.0	31	1	Broadneck	1118	168	950	117180	1178000	123	1239	1.94	30.66	HIGH	560
PT308	548.6	22	1	Baltimore City	768	101	667	83160	836000	125	1254	2.08	30.31	HIGH	385
RR610	603.4	13	3	Rural	778	390	389	48750	169000	125	435	2.42	29.90	HIGH	390
SV254	148.4	8	1	Broadneck	265	25	240	30240	304000	126	1266	3.31	30.03	HIGH	133
SO430	443.0	10	1	Annapolis	378	79	299	37800	380000	126	1269	1.12	29.94	HIGH	189
PT589	349.0	4	1	Cox Creek	146	27	119	15120	152000	127	1277	1.31	29.75	HIGH	73

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UP641	393.9	13	3	Rural	762	381	381	48750	169000	128	444	1.91	29.29	HIGH	381
WR599	1704.8	29	1	Broadwater	968	114	855	109620	1102000	128	1289	2.27	29.47	HIGH	486
PT168	203.2	3	1	Cox Creek	104	16	88	11340	114000	128	1291	2.23	29.44	HIGH	52
SO378	32.7	6	1	Annapolis	208	31	177	22680	228000	128	1291	1.55	29.44	HIGH	104
PT669	9.5	6	1	Broadneck	208	31	177	22680	228000	128	1291	1.59	29.44	HIGH	104
WR187	264.5	22	1	Broadwater	716	81	635	83160	836000	131	1317	2.34	28.86	HIGH	359
SV421	400.4	437	1	Annapolis	14415	1860	12555	1651860	16606000	132	1323	2.67	28.73	HIGH	7239
SV612	129.7	3	3	Rural	171	85	85	11250	39000	132	457	1.68	28.43	HIGH	85
MR145	383.3	89	1	Cox Creek	2971	445	2525	336420	3382000	133	1339	1.80	28.37	HIGH	1489
MR225	187.0	62	1	Broadneck	2036	305	1731	234360	2356000	135	1361	1.91	27.91	HIGH	1021
HB585	184.5	60	1	Broadwater	1827	171	1656	226800	2280000	137	1377	3.29	27.60	HIGH	919
MR130	16.0	10	1	Broadneck	324	49	275	37800	380000	137	1380	1.41	27.54	HIGH	162
PN300	676.7	30	1	Baltimore City	951	126	825	113400	1140000	137	1382	1.92	27.50	HIGH	477
SO331	314.3	22	1	Rural	723	121	602	83160	836000	138	1388	1.71	27.38	HIGH	362
WR188	150.2	32	1	Broadwater	953	89	864	120960	1216000	140	1407	3.35	27.00	HIGH	480
PT595	597.9	14	1	Cox Creek	424	46	378	52920	532000	140	1408	2.38	26.99	HIGH	213
PN296	466.4	33	1	Baltimore City	1039	161	878	124740	1254000	142	1428	1.98	26.61	HIGH	521
SV351	331.8	10	1	Annapolis	303	39	264	37800	380000	143	1439	2.91	26.41	HIGH	152
MR584	107.1	29	1	Broadneck	847	84	763	109620	1102000	144	1444	3.17	26.32	HIGH	426
LP440	451.5	18	1	Maryland city	556	83	473	68040	684000	144	1446	1.84	26.28	HIGH	279
MR152	274.3	52	1	Cox Creek	1572	206	1365	196560	1976000	144	1447	2.15	26.26	HIGH	789
LP235	529.2	10	1	Patuxent	309	49	261	37800	380000	145	1458	1.44	26.06	HIGH	155
SV70	684.3	156	2	Broadneck	4369	579	3790	553800	5647744	146	1490	2.54	24.30	HIGH	2194
PT19	1339.8	52	1	Cox Creek	1573	236	1337	196560	1976000	147	1478	1.52	25.70	HIGH	789
BC629	171.1	20	3	Rural	1019	511	508	75000	260000	148	511	2.98	25.42	HIGH	511
PT213	503.5	3	1	Cox Creek	102	26	77	11340	114000	148	1484	1.00	25.61	HIGH	51
SV237	114.1	27	1	Patuxent	801	120	681	102060	1026000	150	1506	1.91	25.23	HIGH	402
SO532	444.1	6	3	Annapolis	300	150	150	22500	78000	150	520	1.66	24.98	HIGH	150
SV231	229.2	21	1	Broadneck	606	79	527	79380	798000	151	1513	2.12	25.12	HIGH	304
UP241	487.9	43	1	Patuxent	1266	190	1077	162540	1634000	151	1518	1.76	25.03	HIGH	635
SV174	906.3	32	1	Patuxent	950	149	801	120960	1216000	151	1518	1.48	25.03	HIGH	477
SO516	505.5	90	1	Annapolis	2566	317	2249	340200	3420000	151	1521	2.61	24.99	HIGH	1290
SV404	845.0	37	3	Rural	1836	919	917	138750	481000	151	525	1.76	24.78	HIGH	919
MR40	15.4	12	1	Broadneck	349	52	296	45360	456000	153	1538	1.41	24.70	HIGH	175
SV583	49.0	16	1	Patuxent	465	70	395	60480	608000	153	1538	1.56	24.70	HIGH	233
SO75	17.2	4	1	Annapolis	116	17	99	15120	152000	153	1538	1.90	24.70	HIGH	58
SV123	32.0	12	1	Patuxent	349	52	296	45360	456000	153	1538	1.65	24.70	HIGH	175
MR270	547.3	85	1	Broadneck	2388	297	2090	321300	3230000	154	1545	2.22	24.59	HIGH	1199
SV339	71.9	21	3	Rural	1022	511	511	78750	273000	154	534	1.14	24.34	HIGH	511
SV279	590.5	15	3	Broadneck	724	363	361	56250	195000	156	540	3.57	24.06	HIGH	363
HB630	1600.5	69	3	Rural	3324	1666	1658	258750	897000	156	541	2.83	24.03	HIGH	1666
MP493	1406.4	66	3	Rural	3154	1579	1575	247500	858000	157	545	2.03	23.87	HIGH	1579
BC565	137.8	149	2	Rural	3689	375	3314	528950	5394320	160	1628	2.66	22.24	HIGH	1858

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LP243	424.5	46	1	Patuxent	1284	195	1088	173880	1748000	160	1606	1.54	23.66	HIGH	644
BC258	320.6	140	2	Bodkin Point	3408	319	3089	497000	5068488	161	1641	3.33	22.07	HIGH	1718
SO450	114.7	12	3	Mayo	558	280	278	45000	156000	162	561	3.61	23.17	HIGH	280
SV478	176.9	6	3	Rural	278	139	139	22500	78000	162	561	1.27	23.15	HIGH	139
PT139	418.6	6	1	Cox Creek	171	31	140	22680	228000	162	1628	1.55	23.34	HIGH	86
MR269	111.8	8	1	Broadneck	210	25	185	30240	304000	163	1641	3.36	23.16	HIGH	106
MR639	15.1	4	3	Rural	183	92	91	15000	52000	164	569	1.92	22.85	HIGH	92
UP640	154.4	2	3	Rural	92	46	46	7500	26000	164	569	1.61	22.85	HIGH	46
SO311	343.0	19	1	Annapolis	482	45	437	71820	722000	164	1651	3.16	23.01	HIGH	243
MR42	61.6	32	1	Broadneck	863	129	734	120960	1216000	165	1657	1.67	22.93	HIGH	433
SV383	117.5	41	1	Broadneck	1039	106	933	154980	1558000	166	1669	3.06	22.76	HIGH	523
MR43	62.6	19	1	Broadneck	502	75	427	71820	722000	168	1692	1.50	22.46	HIGH	252
PN302	187.5	27	1	Baltimore City	696	90	606	102060	1026000	168	1694	2.37	22.44	HIGH	349
WR415	223.1	8	3	Rural	357	179	178	30000	104000	169	584	3.44	22.25	HIGH	179
SO425	332.1	240	1	Annapolis	5960	614	5347	907200	9120000	170	1706	3.12	22.28	HIGH	3002
BC619	1158.4	189	3	Rural	8333	4171	4163	708750	2457000	170	590	1.40	22.02	HIGH	4171
SV71	45.4	10	1	Broadneck	257	39	219	37800	380000	173	1738	1.80	21.86	HIGH	129
PT12	99.6	10	1	Cox Creek	257	39	219	37800	380000	173	1738	1.78	21.86	HIGH	129
MR624	228.9	10	1	Broadneck	257	39	219	37800	380000	173	1738	1.49	21.86	HIGH	129
PT661	297.4	5	1	Cox Creek	129	19	109	18900	190000	173	1738	1.65	21.86	HIGH	65
BC567	148.2	224	2	Rural	5068	474	4594	795200	8109581	173	1765	3.10	20.51	HIGH	2557
PT587	534.4	4	1	Cox Creek	115	27	87	15120	152000	173	1740	1.31	21.83	HIGH	57
MP496	512.9	8	3	Rural	347	174	173	30000	104000	173	601	2.10	21.64	HIGH	174
BC182	47.0	76	2	Rural	1716	160	1555	269800	2751465	173	1769	3.46	20.46	HIGH	866
SV582	250.9	14	3	Broadneck	597	300	298	52500	182000	176	612	3.46	21.26	HIGH	300
PT146	297.3	42	1	Cox Creek	1053	158	896	158760	1596000	177	1782	1.88	21.32	HIGH	529
BC178	159.8	96	2	Rural	2124	207	1917	340800	3475535	178	1813	3.38	19.96	HIGH	1071
SO547	238.0	91	2	Annapolis	2005	188	1817	323050	3294517	178	1814	3.03	19.96	HIGH	1012
MR259	115.3	141	2	Rural	3100	290	2809	500550	5104692	178	1817	3.17	19.92	HIGH	1564
MP395	961.5	34	3	Rural	1430	716	714	127500	442000	179	619	2.41	20.99	HIGH	716
SV385	179.3	63	1	Broadneck	1501	176	1324	238140	2394000	180	1808	3.30	21.02	HIGH	756
SV578	191.2	345	2	Rural	7515	717	6798	1224750	12490203	180	1837	3.28	19.70	HIGH	3793
SV29	58.3	22	1	Broadneck	539	81	458	83160	836000	181	1824	1.66	20.83	HIGH	271
WR644	329.4	16	3	Rural	662	332	330	60000	208000	182	631	3.27	20.61	HIGH	332
PT144	657.4	45	1	Cox Creek	1085	153	932	170100	1710000	183	1835	2.06	20.71	HIGH	545
RR414	121.5	5	3	Rural	206	103	102	18750	65000	183	634	3.92	20.49	HIGH	103
PN176	757.3	185	1	Baltimore City	4490	673	3818	699300	7030000	183	1841	1.86	20.64	HIGH	2255
SV482	248.0	183	2	Broadneck	3907	368	3539	649650	6625238	184	1872	3.32	19.34	HIGH	1972
BC173	182.3	139	2	Rural	2987	307	2680	493450	5032285	184	1878	3.15	19.28	HIGH	1506
PT147	503.8	23	1	Cox Creek	554	83	471	86940	874000	184	1855	1.77	20.49	HIGH	278
SV226	168.0	32	1	Broadneck	724	69	655	120960	1216000	185	1856	3.54	20.48	HIGH	365
LP435	563.9	11	1	Maryland city	265	40	224	41580	418000	185	1864	1.64	20.38	HIGH	133
SO340	473.2	45	1	Annapolis	1019	103	915	170100	1710000	186	1868	3.09	20.34	HIGH	514

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SO682	122.3	34	1	Annapolis	802	113	689	128520	1292000	187	1876	1.73	20.25	MEDIUM	403
SV336	483.2	92	1	Annapolis	2172	310	1862	347760	3496000	187	1878	2.26	20.24	MEDIUM	1091
PT608	234.9	24	3	Rural	967	485	482	90000	312000	187	648	2.99	20.07	MEDIUM	485
SV275	67.8	34	1	Broadneck	768	83	686	128520	1292000	187	1884	3.69	20.17	MEDIUM	387
LP439	466.6	30	1	Maryland city	705	106	599	113400	1140000	189	1903	1.61	19.97	MEDIUM	354
MR249	62.8	6	1	Broadneck	141	21	120	22680	228000	189	1903	2.00	19.97	MEDIUM	71
BC474	257.4	46	3	Rural	1824	916	908	172500	598000	190	659	3.54	19.74	MEDIUM	916
UP520	1366.3	32	3	Rural	1264	633	631	120000	416000	190	659	1.99	19.71	MEDIUM	633
BC180	98.1	150	2	Rural	3071	287	2784	532500	5430523	191	1951	3.55	18.56	MEDIUM	1551
SV388	23.9	22	3	Broadneck	862	433	429	82500	286000	192	666	3.71	19.52	MEDIUM	433
MR462	304.4	47	3	Rural	1838	921	916	176250	611000	192	667	2.43	19.49	MEDIUM	921
SO114	247.7	116	1	Annapolis	2532	264	2267	438480	4408000	193	1944	3.00	19.55	MEDIUM	1276
BC181	113.7	121	2	Rural	2464	243	2221	429550	4380622	193	1973	2.62	18.35	MEDIUM	1244
PN309	1132.6	151	1	Baltimore City	3469	520	2949	570780	5738000	194	1945	1.98	19.53	MEDIUM	1743
UP648	2640.5	138	3	Rural	5353	2681	2671	517500	1794000	194	672	1.75	19.36	MEDIUM	2681
SV577	1340.3	1896	2	Rural	38734	4092	34642	6730800	68641813	194	1981	2.75	18.27	MEDIUM	19536
SV21	1082.1	139	1	Broadneck	3177	477	2700	525420	5282000	195	1956	1.81	19.42	MEDIUM	1596
SV294	175.1	272	2	Rural	5452	512	4940	965600	9847349	195	1993	3.63	18.16	MEDIUM	2754
PT473	198.0	233	1	Rural	4958	470	4487	880740	8854000	196	1973	3.20	19.26	MEDIUM	2502
PN298	333.5	13	1	Baltimore City	294	44	250	49140	494000	196	1975	1.82	19.24	MEDIUM	148
SO333	293.1	29	1	Annapolis	621	64	557	109620	1102000	197	1978	2.64	19.21	MEDIUM	313
SV548	50.6	23	1	Annapolis	514	73	442	86940	874000	197	1979	2.49	19.20	MEDIUM	259
SV198	339.3	12	1	Patuxent	282	52	230	45360	456000	197	1981	1.14	19.18	MEDIUM	142
SV675	19.4	7	2	Broadneck	138	13	125	24850	253424	198	2021	3.45	17.91	MEDIUM	70
SO540	629.9	34	3	Rural	1289	646	643	127500	442000	198	687	2.34	18.91	MEDIUM	646
BC615	97.4	21	3	Rural	794	398	396	78750	273000	199	689	2.35	18.87	MEDIUM	398
BC618	57.7	17	3	Rural	642	322	320	63750	221000	199	692	3.01	18.80	MEDIUM	322
MP495	1518.3	72	3	Rural	2711	1359	1352	270000	936000	200	692	2.38	18.78	MEDIUM	1359
SV272	244.8	146	1	Broadneck	3073	310	2763	551880	5548000	200	2008	3.25	18.92	MEDIUM	1550
PT211	136.5	6	1	Cox Creek	144	31	113	22680	228000	200	2013	1.48	18.88	MEDIUM	72
MR676	68.0	6	3	Broadneck	225	113	112	22500	78000	200	695	3.81	18.70	MEDIUM	113
BC183	38.6	47	2	Rural	914	87	827	166850	1701564	202	2057	3.47	17.60	MEDIUM	462
MR61	289.7	119	1	Broadneck	2458	230	2229	449820	4522000	202	2029	3.13	18.73	MEDIUM	1241
SV30	255.1	49	1	Patuxent	1073	161	912	185220	1862000	203	2041	1.80	18.62	MEDIUM	539
MR505	38.8	21	1	Broadneck	460	69	391	79380	798000	203	2041	1.64	18.62	MEDIUM	231
MR317	244.4	7	1	Broadneck	153	23	130	26460	266000	203	2041	1.92	18.62	MEDIUM	77
MR104	26.3	7	1	Cox Creek	153	23	130	26460	266000	203	2041	1.50	18.62	MEDIUM	77
SV579	251.9	292	2	Broadneck	5637	559	5078	1036600	10571418	204	2082	3.00	17.39	MEDIUM	2847
MR255	389.6	28	1	Broadneck	598	82	516	105840	1064000	205	2060	2.24	18.44	MEDIUM	301
WR643	280.3	17	3	Rural	619	311	309	63750	221000	207	716	2.70	18.15	MEDIUM	311
PN301	775.8	16	1	Baltimore City	352	60	292	60480	608000	207	2082	1.43	18.25	MEDIUM	177
SV60	316.3	45	1	Broadneck	957	143	813	170100	1710000	209	2102	1.79	18.08	MEDIUM	481
MR499	59.4	15	1	Cox Creek	319	48	271	56700	570000	209	2102	1.57	18.08	MEDIUM	160

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BC620	632.0	109	3	Rural	3921	1967	1954	408750	1417000	209	725	2.37	17.93	MEDIUM	1967
PT150	34.6	2	1	Cox Creek	40	4	36	7560	76000	211	2121	3.71	17.91	MEDIUM	20
PT157	75.7	1	1	Cox Creek	20	2	18	3780	38000	211	2121	2.92	17.91	MEDIUM	10
PT159	67.4	1	1	Cox Creek	20	2	18	3780	38000	211	2121	2.55	17.91	MEDIUM	10
PT163	310.7	1	1	Cox Creek	20	2	18	3780	38000	211	2121	2.51	17.91	MEDIUM	10
MR177	104.8	16	1	Broadneck	316	30	287	60480	608000	211	2121	3.51	17.91	MEDIUM	160
PT207	94.0	2	1	Cox Creek	40	4	36	7560	76000	211	2121	2.51	17.91	MEDIUM	20
PT208	32.1	1	1	Cox Creek	20	2	18	3780	38000	211	2121	3.74	17.91	MEDIUM	10
PT209	65.8	1	1	Cox Creek	20	2	18	3780	38000	211	2121	3.33	17.91	MEDIUM	10
PT210	198.5	6	1	Cox Creek	119	11	107	22680	228000	211	2121	3.54	17.91	MEDIUM	60
SV228	27.5	2	1	Broadneck	40	4	36	7560	76000	211	2121	2.15	17.91	MEDIUM	20
SV232	67.3	6	1	Broadneck	119	11	107	22680	228000	211	2121	4.25	17.91	MEDIUM	60
MR261	84.7	2	1	Broadneck	40	4	36	7560	76000	211	2121	2.92	17.91	MEDIUM	20
MR264	28.9	16	1	Broadneck	316	30	287	60480	608000	211	2121	3.25	17.91	MEDIUM	160
MR265	45.8	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.13	17.91	MEDIUM	20
MR267	177.7	3	1	Broadneck	59	6	54	11340	114000	211	2121	2.96	17.91	MEDIUM	30
MR268	61.0	22	1	Broadneck	435	41	394	83160	836000	211	2121	2.56	17.91	MEDIUM	220
MR273	30.2	3	1	Broadneck	59	6	54	11340	114000	211	2121	2.74	17.91	MEDIUM	30
SO312	516.1	1	1	Annapolis	20	2	18	3780	38000	211	2121	2.81	17.91	MEDIUM	10
MR313	57.9	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.78	17.91	MEDIUM	20
MR314	54.7	1	1	Broadneck	20	2	18	3780	38000	211	2121	3.74	17.91	MEDIUM	10
MR315	33.5	3	1	Broadneck	59	6	54	11340	114000	211	2121	3.78	17.91	MEDIUM	30
MR318	56.8	6	1	Broadneck	119	11	107	22680	228000	211	2121	3.36	17.91	MEDIUM	60
MR319	216.7	12	1	Broadneck	237	22	215	45360	456000	211	2121	2.99	17.91	MEDIUM	120
MR322	120.2	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.13	17.91	MEDIUM	20
MR323	89.5	1	1	Broadneck	20	2	18	3780	38000	211	2121	4.00	17.91	MEDIUM	10
SV346	71.2	1	1	Annapolis	20	2	18	3780	38000	211	2121	4.00	17.91	MEDIUM	10
SV347	52.5	1	1	Annapolis	20	2	18	3780	38000	211	2121	2.92	17.91	MEDIUM	10
SO350	187.5	2	1	Annapolis	40	4	36	7560	76000	211	2121	3.98	17.91	MEDIUM	20
SO370	21.8	1	1	Annapolis	20	2	18	3780	38000	211	2121	3.33	17.91	MEDIUM	10
MR371	171.9	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.17	17.91	MEDIUM	20
MR382	105.1	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.13	17.91	MEDIUM	20
RR446	45.5	1	1	Mayo	20	2	18	3780	38000	211	2121	2.51	17.91	MEDIUM	10
SO448	42.9	1	1	Mayo	20	2	18	3780	38000	211	2121	2.92	17.91	MEDIUM	10
SO451	50.4	1	1	Mayo	20	2	18	3780	38000	211	2121	3.74	17.91	MEDIUM	10
SO452	77.6	2	1	Mayo	40	4	36	7560	76000	211	2121	2.74	17.91	MEDIUM	20
RR454	119.2	1	1	Mayo	20	2	18	3780	38000	211	2121	2.15	17.91	MEDIUM	10
RR455	32.7	1	1	Mayo	20	2	18	3780	38000	211	2121	2.55	17.91	MEDIUM	10
RR458	500.9	1	1	Mayo	20	2	18	3780	38000	211	2121	3.33	17.91	MEDIUM	10
SO459	156.8	1	1	Mayo	20	2	18	3780	38000	211	2121	2.15	17.91	MEDIUM	10
SO515	23.4	8	1	Annapolis	158	15	143	30240	304000	211	2121	3.51	17.91	MEDIUM	80
HB598	70.0	1	1	Broadwater	20	2	18	3780	38000	211	2121	2.96	17.91	MEDIUM	10
HB600	90.7	2	1	Broadwater	40	4	36	7560	76000	211	2121	2.92	17.91	MEDIUM	20

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HB604	67.1	2	1	Broadwater	40	4	36	7560	76000	211	2121	3.17	17.91	MEDIUM	20
WR606	198.7	3	1	Broadwater	59	6	54	11340	114000	211	2121	2.79	17.91	MEDIUM	30
WR607	135.2	1	1	Broadwater	20	2	18	3780	38000	211	2121	3.33	17.91	MEDIUM	10
SV626	22.9	11	1	Annapolis	217	20	197	41580	418000	211	2121	3.37	17.91	MEDIUM	110
SV250	29.8	9	1	Broadneck	178	17	161	34020	342000	211	2121	3.18	17.91	MEDIUM	90
MR262	128.0	27	1	Broadneck	534	50	484	102060	1026000	211	2121	3.37	17.91	MEDIUM	270
SO442	27.8	17	1	Annapolis	336	31	305	64260	646000	211	2121	3.72	17.91	MEDIUM	170
SV625	23.6	13	1	Annapolis	257	24	233	49140	494000	211	2121	3.35	17.91	MEDIUM	130
SO344	50.6	14	1	Annapolis	277	26	251	52920	532000	211	2121	3.10	17.91	MEDIUM	140
HB601	195.4	7	1	Broadwater	138	13	125	26460	266000	211	2121	3.32	17.91	MEDIUM	70
WR597	158.4	5	1	Broadwater	99	9	90	18900	190000	211	2121	3.15	17.91	MEDIUM	50
PT167	583.4	14	1	Cox Creek	297	46	251	52920	532000	211	2121	1.44	17.91	MEDIUM	149
SV365	178.9	53	2	Broadneck	988	98	890	188150	1918785	211	2156	3.56	16.80	MEDIUM	499
SO426	292.9	280	1	Annapolis	5688	697	4990	1058400	10640000	212	2132	2.28	17.82	MEDIUM	2866
SO424	515.3	487	1	Annapolis	9645	969	8676	1840860	18506000	212	2133	2.86	17.82	MEDIUM	4869
SO422	356.5	328	1	Annapolis	6858	1027	5831	1239840	12464000	213	2138	2.18	17.78	MEDIUM	3448
SV511	94.3	6	3	Broadneck	211	106	105	22500	78000	214	744	2.75	17.48	MEDIUM	106
PN667	653.7	27	1	Baltimore City	585	110	475	102060	1026000	215	2160	1.33	17.59	MEDIUM	294
MR381	75.4	23	1	Broadneck	447	42	405	86940	874000	215	2160	2.87	17.59	MEDIUM	226
SO681	47.0	7	3	Annapolis	245	123	122	26250	91000	215	746	3.60	17.43	MEDIUM	123
LP656	1632.6	84	3	Rural	2919	1463	1456	315000	1092000	216	750	2.02	17.34	MEDIUM	1463
SV356	646.3	74	1	Patuxent	1515	227	1289	279720	2812000	217	2182	1.79	17.41	MEDIUM	762
PN666	649.8	24	1	Baltimore City	492	74	418	90720	912000	217	2184	1.43	17.40	MEDIUM	247
SV290	159.6	116	1	Annapolis	2277	264	2012	438480	4408000	218	2190	3.18	17.35	MEDIUM	1148
PT566	654.2	613	2	Rural	11175	1202	9973	2176150	22192738	218	2225	2.56	16.27	MEDIUM	5643
PT591	554.0	142	1	Cox Creek	2890	433	2457	536760	5396000	218	2196	1.80	17.30	MEDIUM	1453
UP646	637.9	18	3	Rural	618	310	308	67500	234000	219	759	2.07	17.13	MEDIUM	310
MR572	1067.7	1584	2	Rural	28796	3416	25381	5623200	57346325	222	2259	2.37	16.02	MEDIUM	14524
MR252	409.9	32	1	Broadneck	611	69	542	120960	1216000	223	2245	2.24	16.93	MEDIUM	308
PN310	1028.2	62	1	Baltimore City	1234	185	1049	234360	2356000	223	2246	1.85	16.92	MEDIUM	620
SO457	247.4	7	1	Mayo	131	13	118	26460	266000	224	2254	2.94	16.86	MEDIUM	66
SV384	123.1	37	1	Broadneck	702	78	623	139860	1406000	224	2256	3.22	16.85	MEDIUM	354
WR419	684.9	49	3	Rural	1631	819	812	183750	637000	226	785	2.87	16.57	MEDIUM	819
WR614	1908.1	106	3	Rural	3515	1763	1752	397500	1378000	227	786	2.31	16.53	MEDIUM	1763
SO328	111.3	23	1	Annapolis	435	52	383	86940	874000	227	2282	2.46	16.65	MEDIUM	219
MR575	669.9	643	1	Broadneck	12002	1307	10695	2430540	24434000	227	2285	2.72	16.63	MEDIUM	6057
SV485	68.7	8	3	Broadneck	265	133	132	30000	104000	228	789	3.59	16.47	MEDIUM	133
LP551	418.7	28	3	Rural	920	461	459	105000	364000	229	792	1.32	16.41	MEDIUM	461
SV343	4612.0	19	1	Annapolis	368	55	313	71820	722000	229	2305	1.73	16.48	MEDIUM	185
HB603	112.5	5	1	Broadwater	91	9	82	18900	190000	230	2313	3.11	16.43	MEDIUM	46
SV184	485.0	465	2	Broadneck	8159	989	7171	1650750	16834622	230	2348	2.46	15.42	MEDIUM	4115
HB623	4245.4	323	3	Rural	10480	5256	5224	1211250	4199000	232	804	2.35	16.17	MEDIUM	5256
MR380	107.0	80	1	Broadneck	1447	148	1300	302400	3040000	233	2339	2.74	16.25	MEDIUM	731

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MR253	503.5	40	1	Broadneck	761	114	647	151200	1520000	234	2348	1.85	16.18	MEDIUM	383
SV69	11.7	10	1	Broadneck	190	28	162	37800	380000	234	2348	1.41	16.18	MEDIUM	96
HB622	1348.3	92	3	Rural	2952	1480	1472	345000	1196000	234	813	2.44	16.00	MEDIUM	1480
HB490	264.4	4	1	Rose Haven	72	7	64	15120	152000	235	2366	3.26	16.06	MEDIUM	36
SV387	53.4	27	3	Broadneck	854	430	425	101250	351000	238	827	3.79	15.73	MEDIUM	430
SO355	65.9	7	1	Annapolis	124	13	111	26460	266000	239	2406	3.62	15.80	MEDIUM	62
HB581	302.3	66	3	Rural	2078	1045	1033	247500	858000	240	831	3.13	15.65	MEDIUM	1045
SV170	435.0	16	1	Cox Creek	302	50	252	60480	608000	240	2412	1.36	15.75	MEDIUM	152
SV234	438.0	65	1	Patuxent	1204	180	1024	245700	2470000	240	2413	1.85	15.75	MEDIUM	606
MP494	3469.3	194	3	Rural	6072	3045	3026	727500	2522000	240	833	2.16	15.60	MEDIUM	3045
PN670	210.5	14	3	Baltimore City	435	218	217	52500	182000	242	839	1.66	15.50	MEDIUM	218
MR569	428.8	495	1	Broadneck	9052	1365	7686	1871100	18810000	243	2447	1.73	15.53	MEDIUM	4555
SV229	117.5	3	1	Broadneck	52	6	46	11340	114000	245	2461	2.96	15.44	MEDIUM	26
SV354	68.2	3	1	Annapolis	52	6	46	11340	114000	245	2461	2.16	15.44	MEDIUM	26
SO360	281.9	3	1	Annapolis	52	6	46	11340	114000	245	2461	2.69	15.44	MEDIUM	26
MR373	508.3	45	1	Broadneck	778	83	695	170100	1710000	245	2461	3.07	15.44	MEDIUM	393
PT212	359.1	16	1	Cox Creek	277	30	247	60480	608000	245	2461	2.45	15.44	MEDIUM	140
MP491	3062.2	352	3	Rural	10743	5390	5353	1320000	4576000	247	855	2.07	15.21	MEDIUM	5390
SO287	954.9	133	3	Rural	4050	2032	2019	498750	1729000	247	857	2.07	15.18	MEDIUM	2032
SV242	332.2	11	1	Patuxent	208	40	168	41580	418000	248	2491	1.38	15.26	MEDIUM	105
MR481	343.1	40	3	Rural	1218	613	605	150000	520000	248	859	3.51	15.13	MEDIUM	613
PT155	779.6	45	1	Cox Creek	808	123	685	170100	1710000	248	2496	1.60	15.22	MEDIUM	407
MP492	6122.1	494	3	Rural	14920	7483	7437	1852500	6422000	249	864	2.04	15.05	MEDIUM	7483
PT586	542.5	88	1	Cox Creek	1597	263	1334	332640	3344000	249	2507	1.68	15.16	MEDIUM	803
SV394	1035.7	229	3	Rural	6910	3467	3443	858750	2977000	249	865	2.52	15.04	MEDIUM	3467
PT562	11.6	30	3	Rural	906	456	450	112500	390000	250	866	3.69	15.01	MEDIUM	456
MR179	1152.9	1448	1	Rural	24873	3024	21849	5473440	55024000	251	2518	2.32	15.09	MEDIUM	12551
LP200	446.8	22	1	Patuxent	391	61	330	83160	836000	252	2534	1.45	14.99	MEDIUM	196
SV504	491.6	62	1	Broadneck	1113	185	928	234360	2356000	252	2538	1.39	14.97	MEDIUM	560
SO256	430.4	35	3	Rural	1041	522	519	131250	455000	253	877	2.50	14.82	MEDIUM	522
HB632	1515.4	84	3	Rural	2497	1253	1244	315000	1092000	253	878	2.65	14.81	MEDIUM	1253
MR570	1380.4	1596	1	Broadneck	27150	3388	23762	6032880	60648000	254	2552	2.25	14.89	MEDIUM	13694
MR248	521.7	39	1	Broadneck	682	102	580	147420	1482000	254	2555	1.68	14.87	MEDIUM	343
SV224	18.6	6	3	Broadneck	178	90	88	22500	78000	254	882	3.93	14.75	MEDIUM	90
SV280	460.2	37	1	Broadneck	658	108	550	139860	1406000	254	2558	1.82	14.85	MEDIUM	331
MR555	77.3	31	3	Rural	919	462	456	116250	403000	255	883	3.28	14.72	MEDIUM	462
SV251	109.8	15	1	Broadneck	259	38	222	56700	570000	256	2570	1.73	14.78	MEDIUM	131
SV59	1212.9	1083	1	Broadneck	18508	2531	15977	4093740	41154000	256	2576	2.37	14.75	MEDIUM	9329
PT216	574.9	41	1	Cox Creek	707	106	601	154980	1558000	258	2592	2.00	14.66	MEDIUM	356
HB488	351.9	8	3	Rural	232	117	116	30000	104000	259	898	2.90	14.48	MEDIUM	117
LP550	68.4	4	3	Rural	116	58	58	15000	52000	259	898	1.92	14.48	MEDIUM	58
MR658	103.2	4	3	Rural	116	58	58	15000	52000	259	898	1.41	14.48	MEDIUM	58
SV392	537.5	65	3	Rural	1878	942	936	243750	845000	260	902	1.85	14.41	MEDIUM	942

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SV220	265.4	29	1	Patuxent	492	74	418	109620	1102000	262	2635	1.49	14.42	MEDIUM	248
MR223	174.1	59	1	Broadneck	996	149	847	223020	2242000	263	2647	1.80	14.36	MEDIUM	502
HB489	269.3	21	3	Rural	596	299	297	78750	273000	265	919	2.41	14.14	MEDIUM	299
UP642	1300.6	11	3	Rural	312	156	155	41250	143000	265	920	1.61	14.13	MEDIUM	156
MP399	2810.7	197	3	Rural	5580	2800	2780	738750	2561000	266	921	1.98	14.11	MEDIUM	2800
MR263	193.9	2	1	Broadneck	32	4	28	7560	76000	266	2674	2.17	14.21	MEDIUM	16
HB486	65.1	24	3	Rural	681	343	338	90000	312000	266	923	3.71	14.09	MEDIUM	343
SO522	1168.7	188	3	Rural	5283	2650	2633	705000	2444000	268	928	1.91	14.00	LOW	2650
MR556	110.7	53	3	Rural	1475	743	732	198750	689000	271	941	3.82	13.82	LOW	743
SV201	341.3	13	1	Patuxent	213	34	179	49140	494000	275	2767	1.63	13.73	LOW	107
SO466	366.5	18	3	Rural	490	246	244	67500	234000	277	959	1.82	13.55	LOW	246
PT561	299.2	42	3	Rural	1131	568	563	157500	546000	280	969	1.74	13.42	LOW	568
SO535	275.7	7	3	Rural	188	95	94	26250	91000	280	969	1.83	13.41	LOW	95
BC172	1290.4	1164	2	Rural	17222	2480	14742	4132200	42140860	280	2859	2.01	12.67	LOW	8690
MR266	43.3	5	1	Broadneck	77	9	67	18900	190000	281	2822	2.68	13.47	LOW	39
SO468	334.7	82	3	Rural	2193	1100	1093	307500	1066000	281	976	1.88	13.33	LOW	1100
MR41	98.4	40	1	Broadneck	628	94	534	151200	1520000	283	2848	1.65	13.34	LOW	316
SV408	343.5	23	3	Rural	603	303	301	86250	299000	287	995	1.74	13.07	LOW	303
SV407	178.4	21	3	Rural	547	274	273	78750	273000	289	1002	1.83	12.98	LOW	274
SV573	162.6	171	1	Broadneck	2529	326	2204	646380	6498000	293	2949	2.48	12.89	LOW	1278
MR559	251.1	54	3	Rural	1388	699	689	202500	702000	294	1019	3.38	12.75	LOW	699
SV233	715.4	50	1	Patuxent	764	122	641	189000	1900000	295	2963	1.54	12.83	LOW	385
RR401	5624.9	359	3	Rural	9138	4588	4550	1346250	4667000	296	1026	2.25	12.67	LOW	4588
SO423	242.0	227	1	Annapolis	3393	509	2883	858060	8626000	298	2992	1.75	12.70	LOW	1710
MR554	88.4	19	3	Rural	482	243	239	71250	247000	298	1032	3.52	12.60	LOW	243
SV276	109.7	10	3	Broadneck	253	127	126	37500	130000	298	1034	2.44	12.57	LOW	127
MP397	3818.4	235	3	Rural	5925	2975	2950	881250	3055000	299	1035	1.99	12.55	LOW	2975
SV509	37.0	21	3	Rural	522	263	259	78750	273000	304	1055	3.61	12.33	LOW	263
PN297	567.7	71	1	Baltimore City	1038	161	877	268380	2698000	306	3078	1.77	12.35	LOW	523
SV390	102.5	34	3	Broadneck	839	422	416	127500	442000	306	1062	3.10	12.24	LOW	422
SV477	32.1	23	3	Rural	561	283	278	86250	299000	310	1074	3.61	12.11	LOW	283
SO288	922.3	40	3	Rural	972	488	484	150000	520000	310	1074	2.41	12.11	LOW	488
UP521	1271.3	98	3	Rural	2377	1194	1183	367500	1274000	311	1077	2.08	12.07	LOW	1194
MP398	239.7	22	3	Rural	530	266	264	82500	286000	312	1083	1.46	12.00	LOW	266
SV239	140.9	38	1	Patuxent	536	80	456	143640	1444000	315	3167	1.46	12.00	LOW	270
PN303	512.7	29	1	Baltimore City	410	64	347	109620	1102000	316	3179	1.49	11.95	LOW	207
PT205	746.9	12	1	Cox Creek	176	32	143	45360	456000	316	3181	1.24	11.94	LOW	88
UP428	251.7	281	2	Rural	3716	579	3137	997550	10173180	318	3243	1.70	11.16	LOW	1875
SV637	137.7	9	3	Rural	213	107	106	33750	117000	318	1103	2.08	11.79	LOW	107
SO73	157.1	44	1	Mayo	603	81	521	166320	1672000	319	3206	2.48	11.85	LOW	305
MR507	319.6	53	1	Broadneck	731	108	623	200340	2014000	321	3231	1.94	11.76	LOW	369
SV635	658.7	174	3	Rural	4073	2044	2029	652500	2262000	322	1115	1.54	11.66	LOW	2044
BC617	55.5	11	3	Rural	258	129	128	41250	143000	322	1116	1.79	11.65	LOW	129

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UP650	663.3	55	3	Rural	1281	643	637	206250	715000	324	1122	2.25	11.59	LOW	643
BC616	175.4	34	3	Rural	794	400	394	127500	442000	324	1122	3.01	11.58	LOW	400
LP190	346.1	9	1	Piney Orchard	131	27	105	34020	342000	324	3262	1.28	11.65	LOW	66
MR503	124.0	50	1	Broadneck	684	102	582	189000	1900000	325	3265	1.52	11.64	LOW	345
MP396	2347.5	164	3	Rural	3693	1855	1837	615000	2132000	335	1160	2.03	11.20	LOW	1855
MP498	3180.6	368	3	Rural	8224	4132	4092	1380000	4784000	337	1169	2.19	11.12	LOW	4132
PT156	340.2	11	1	Cox Creek	143	20	123	41580	418000	338	3400	2.64	11.18	LOW	72
MR464	705.4	135	3	Rural	3009	1516	1493	506250	1755000	339	1175	2.85	11.06	LOW	1516
SV406	80.4	7	3	Rural	153	77	76	26250	91000	344	1193	1.47	10.89	LOW	77
MR463	682.4	197	3	Rural	4301	2160	2141	738750	2561000	345	1196	1.64	10.87	LOW	2160
MR553	222.4	50	3	Rural	1095	553	542	187500	650000	346	1198	2.46	10.85	LOW	553
UP653	1090.1	102	3	Rural	2215	1113	1102	382500	1326000	347	1203	1.81	10.81	LOW	1113
SO523	1117.3	141	3	Rural	3059	1536	1522	528750	1833000	347	1204	1.82	10.80	LOW	1536
SV611	1217.0	180	3	Rural	3857	1937	1919	675000	2340000	352	1219	1.58	10.66	LOW	1937
UP519	1623.9	254	3	Rural	5427	2727	2700	952500	3302000	353	1223	1.87	10.63	LOW	2727
SO538	741.7	98	3	Rural	2079	1045	1034	367500	1274000	355	1232	2.22	10.55	LOW	1045
PN563	65.1	73	1	Baltimore City	919	145	774	275940	2774000	356	3583	1.57	10.61	LOW	464
MR560	146.9	74	3	Rural	1569	792	777	277500	962000	357	1238	3.06	10.50	LOW	792
UP649	965.3	85	3	Rural	1786	897	888	318750	1105000	359	1244	1.84	10.45	LOW	897
PT95	74.3	28	1	Cox Creek	346	52	294	105840	1064000	360	3618	1.45	10.50	LOW	175
SO337	167.9	13	1	Annapolis	161	24	137	49140	494000	360	3618	2.01	10.50	LOW	81
PT96	47.2	22	1	Cox Creek	272	41	231	83160	836000	360	3618	1.76	10.50	LOW	137
SV10	34.4	18	1	Baltimore City	222	33	189	68040	684000	360	3618	1.83	10.50	LOW	112
SV20	4.4	4	1	Broadneck	49	7	42	15120	152000	360	3618	1.41	10.50	LOW	25
RR74	105.7	1	1	Mayo	12	2	11	3780	38000	360	3618	2.23	10.50	LOW	6
PN94	8.8	4	1	Baltimore City	49	7	42	15120	152000	360	3618	1.41	10.50	LOW	25
SV122	2.8	1	1	Rural	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
MR125	22.2	16	1	Broadneck	198	30	168	60480	608000	360	3618	1.57	10.50	LOW	100
SV128	9.5	9	1	Baltimore City	111	17	95	34020	342000	360	3618	1.41	10.50	LOW	56
MR129	5.8	1	1	Broadneck	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
MR131	4.8	4	1	Broadneck	49	7	42	15120	152000	360	3618	1.41	10.50	LOW	25
MR132	6.6	1	1	Broadneck	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
SV142	36.4	24	1	Broadneck	296	44	252	90720	912000	360	3618	2.14	10.50	LOW	150
BC153	33.4	2	1	Cox Creek	25	4	21	7560	76000	360	3618	1.41	10.50	LOW	12
LP191	275.9	4	1	Piney Orchard	49	7	42	15120	152000	360	3618	1.58	10.50	LOW	25
LP197	0.1	1	1	Maryland city	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
LP244	352.8	2	1	Patuxent	25	4	21	7560	76000	360	3618	1.82	10.50	LOW	12
LP245	280.6	1	1	Patuxent	12	2	11	3780	38000	360	3618	1.82	10.50	LOW	6
MR282	198.9	4	1	Broadneck	49	7	42	15120	152000	360	3618	2.02	10.50	LOW	25
PN305	251.9	1	1	Baltimore City	12	2	11	3780	38000	360	3618	2.23	10.50	LOW	6
PT307	36.9	1	1	Baltimore City	12	2	11	3780	38000	360	3618	1.82	10.50	LOW	6
MR320	139.8	1	1	Broadneck	12	2	11	3780	38000	360	3618	2.64	10.50	LOW	6
MR321	224.0	2	1	Broadneck	25	4	21	7560	76000	360	3618	2.58	10.50	LOW	12

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SO367	166.3	1	1	Annapolis	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
SO368	66.6	1	1	Annapolis	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
MR372	76.2	1	1	Broadneck	12	2	11	3780	38000	360	3618	2.23	10.50	LOW	6
UP432	123.6	1	1	Maryland city	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
LP433	65.0	2	1	Maryland city	25	4	21	7560	76000	360	3618	1.61	10.50	LOW	12
LP662	5.1	2	1	Maryland city	25	4	21	7560	76000	360	3618	1.41	10.50	LOW	12
PN665	3.3	2	1	Baltimore City	25	4	21	7560	76000	360	3618	1.41	10.50	LOW	12
MR677	60.7	2	1	Broadneck	25	4	21	7560	76000	360	3618	1.41	10.50	LOW	12
SV126	5.6	3	1	Patuxent	37	6	32	11340	114000	360	3618	1.41	10.50	LOW	19
PT154	397.5	3	1	Cox Creek	37	6	32	11340	114000	360	3618	1.55	10.50	LOW	19
MR375	361.9	12	1	Broadneck	148	22	126	45360	456000	360	3618	2.02	10.50	LOW	75
MR500	23.3	6	1	Cox Creek	74	11	63	22680	228000	360	3618	1.48	10.50	LOW	37
PT533	21.2	17	1	Cox Creek	210	31	179	64260	646000	360	3618	1.58	10.50	LOW	106
LP564	137.7	120	1	Baltimore City	1482	222	1260	453600	4560000	360	3618	1.83	10.50	LOW	749
LP672	7.3	3	1	Rural	37	6	32	11340	114000	360	3618	2.50	10.50	LOW	19
SV326	472.4	67	3	Broadneck	1390	700	690	251250	871000	364	1263	2.79	10.30	LOW	700
SV613	59.8	8	3	Rural	166	83	82	30000	104000	364	1263	1.79	10.30	LOW	83
SO633	985.8	104	3	Rural	2153	1083	1071	390000	1352000	364	1263	2.13	10.30	LOW	1083
SV634	1404.2	285	3	Rural	5857	2943	2914	1068750	3705000	367	1271	1.78	10.22	LOW	2943
UP652	916.6	131	3	Rural	2691	1353	1338	491250	1703000	367	1273	1.97	10.21	LOW	1353
SV514	147.6	32	3	Broadneck	660	333	327	120000	416000	367	1273	3.38	10.21	LOW	333
SV475	374.4	124	3	Rural	2548	1284	1264	465000	1612000	368	1275	2.95	10.20	LOW	1284
PT158	355.9	12	1	Cox Creek	143	22	121	45360	456000	375	3765	1.65	10.09	LOW	72
SO364	965.7	181	3	Rural	3590	1806	1784	678750	2353000	381	1319	2.21	9.85	LOW	1806
SO531	1437.9	201	3	Rural	3960	1992	1968	753750	2613000	383	1327	2.02	9.79	LOW	1992
UP651	1427.2	144	3	Rural	2834	1426	1409	540000	1872000	383	1329	2.03	9.78	LOW	1426
HB429	106.9	154	3	Rural	3043	1538	1506	577500	2002000	384	1330	3.33	9.78	LOW	1538
SV327	138.6	51	3	Broadneck	1008	509	499	191250	663000	384	1330	3.63	9.78	LOW	509
SO329	171.3	44	3	Annapolis	869	439	430	165000	572000	384	1330	3.39	9.78	LOW	439
SO580	52.1	57	3	Annapolis	1126	569	557	213750	741000	384	1330	3.28	9.78	LOW	569
SV277	74.2	4	3	Broadneck	79	40	39	15000	52000	384	1330	4.15	9.78	LOW	40
SV379	13.3	2	3	Broadneck	40	20	20	7500	26000	384	1330	3.72	9.78	LOW	20
SV412	16.3	4	3	Rural	79	40	39	15000	52000	384	1330	4.40	9.78	LOW	40
RR453	67.8	1	3	Mayo	20	10	10	3750	13000	384	1330	3.33	9.78	LOW	10
MR557	3.0	1	3	Rural	20	10	10	3750	13000	384	1330	3.74	9.78	LOW	10
SO171	33.7	6	3	Rural	119	60	59	22500	78000	384	1330	3.07	9.78	LOW	60
WR417	39.0	3	3	Rural	59	30	29	11250	39000	384	1330	3.29	9.78	LOW	30
SV467	7.8	6	3	Rural	119	60	59	22500	78000	384	1330	3.92	9.78	LOW	60
MR470	5.3	6	3	Rural	119	60	59	22500	78000	384	1330	3.51	9.78	LOW	60
MR471	4.8	6	3	Rural	119	60	59	22500	78000	384	1330	3.40	9.78	LOW	60
BC518	136.4	5	3	Rural	99	50	49	18750	65000	384	1330	3.58	9.78	LOW	50
MR558	8.6	7	3	Rural	138	70	68	26250	91000	384	1330	3.39	9.78	LOW	70
MR660	82.1	10	3	Rural	198	100	98	37500	130000	384	1330	3.80	9.78	LOW	100

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SO353	82.5	22	3	Annapolis	435	220	215	82500	286000	384	1330	2.80	9.78	LOW	220
MR469	29.1	13	3	Rural	257	130	127	48750	169000	384	1330	3.76	9.78	LOW	130
SV278	98.9	25	3	Broadneck	494	250	244	93750	325000	384	1330	3.66	9.78	LOW	250
PT609	7.9	15	3	Rural	296	150	147	56250	195000	384	1330	3.74	9.78	LOW	150
BC627	37.2	27	3	Rural	534	270	264	101250	351000	384	1330	2.71	9.78	LOW	270
SV549	107.9	21	3	Annapolis	415	210	205	78750	273000	384	1330	4.07	9.78	LOW	210
MR39	385.8	341	1	Broadneck	4055	700	3355	1288980	12958000	384	3862	1.49	9.84	LOW	2046
LP195	80.7	14	1	Patuxent	163	26	137	52920	532000	386	3878	1.52	9.80	LOW	82
SO361	176.5	76	3	Annapolis	1480	748	732	285000	988000	389	1350	3.50	9.63	LOW	748
SO362	226.1	86	3	Annapolis	1672	845	827	322500	1118000	390	1351	3.29	9.62	LOW	845
BC628	488.5	222	3	Rural	4287	2159	2128	832500	2886000	391	1356	1.93	9.59	LOW	2159
UP654	999.8	181	3	Rural	3461	1741	1720	678750	2353000	395	1368	1.91	9.50	LOW	1741
SO193	265.8	10	3	Patuxent	190	96	95	37500	130000	396	1374	2.48	9.46	LOW	96
HB631	184.1	28	3	Rural	531	267	264	105000	364000	397	1378	2.30	9.44	LOW	267
MR659	37.5	20	3	Rural	380	192	188	75000	260000	399	1382	3.98	9.41	LOW	192
SV571	941.5	884	1	Broadneck	10197	1832	8364	3341520	33592000	400	4016	1.50	9.46	LOW	5145
SO541	1386.9	113	3	Rural	2131	1072	1059	423750	1469000	400	1388	2.30	9.37	LOW	1072
SO257	388.7	77	3	Rural	1445	729	716	288750	1001000	403	1398	2.92	9.30	LOW	729
SO465	94.8	15	3	Rural	279	140	139	56250	195000	404	1402	1.42	9.27	LOW	140
SV668	72.9	8	1	Patuxent	99	25	75	30240	304000	405	4076	1.08	9.32	LOW	50
SV165	114.4	4	1	Cox Creek	44	7	37	15120	152000	408	4100	1.31	9.27	LOW	22
SO680	71.7	54	3	Annapolis	992	500	492	202500	702000	412	1427	2.22	9.11	LOW	500
SO543	758.8	132	3	Rural	2414	1213	1201	495000	1716000	412	1429	1.66	9.10	LOW	1213
PT136	43.7	7	1	Cox Creek	77	13	64	26460	266000	416	4179	1.41	9.09	LOW	39
SV513	58.9	24	3	Broadneck	437	221	216	90000	312000	416	1442	2.66	9.01	LOW	221
SV391	769.9	196	3	Rural	3538	1779	1759	735000	2548000	418	1449	1.56	8.97	LOW	1779
SO527	270.1	58	3	Rural	1046	527	518	217500	754000	420	1454	2.62	8.94	LOW	527
SV544	382.0	149	3	Rural	2674	1347	1327	558750	1937000	421	1460	2.54	8.91	LOW	1347
SV480	589.9	149	3	Rural	2665	1341	1324	558750	1937000	422	1463	2.27	8.88	LOW	1341
SO657	1023.8	110	3	Rural	1960	987	973	412500	1430000	424	1469	2.32	8.85	LOW	987
SV389	34.5	24	3	Broadneck	425	215	210	90000	312000	428	1484	3.25	8.76	LOW	215
UP647	1159.6	64	3	Rural	1121	564	557	240000	832000	431	1493	1.78	8.70	LOW	564
SO526	431.5	67	3	Rural	1167	587	580	251250	871000	433	1502	1.91	8.65	LOW	587
SV289	535.6	281	3	Rural	4898	2468	2430	1053750	3653000	434	1503	2.43	8.65	LOW	2468
SV405	475.6	90	3	Rural	1558	783	775	337500	1170000	436	1510	1.40	8.61	LOW	783
SO363	1546.0	273	3	Rural	4687	2361	2326	1023750	3549000	440	1526	2.29	8.52	LOW	2361
SO524	448.4	79	3	Rural	1355	681	673	296250	1027000	440	1526	1.89	8.52	LOW	681
SV420	132.1	80	3	Rural	1369	691	677	300000	1040000	443	1535	2.89	8.47	LOW	691
SO537	605.5	116	3	Rural	1967	991	977	435000	1508000	445	1544	2.16	8.42	LOW	991
SV274	400.0	96	3	Broadneck	1612	812	800	360000	1248000	450	1560	2.06	8.34	LOW	812
SO542	1227.8	173	3	Rural	2892	1456	1436	648750	2249000	452	1567	2.18	8.30	LOW	1456
SV409	844.2	178	3	Rural	2971	1495	1476	667500	2314000	452	1568	1.60	8.29	LOW	1495
SO530	140.7	75	3	Rural	1252	633	620	281250	975000	454	1574	2.98	8.26	LOW	633

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SV512	191.2	63	3	Broadneck	1038	523	515	236250	819000	459	1590	1.84	8.18	LOW	523
SO539	849.1	87	3	Rural	1415	712	703	326250	1131000	464	1610	1.82	8.07	LOW	712
PT143	63.7	2	1	Cox Creek	20	4	16	7560	76000	471	4730	1.54	8.03	LOW	10
PT306	338.6	4	1	Baltimore City	40	7	32	15120	152000	471	4730	1.95	8.03	LOW	20
PN487	230.0	17	3	Baltimore City	272	137	135	63750	221000	473	1638	1.65	7.94	LOW	137
PT215	597.4	21	1	Cox Creek	215	49	167	79380	798000	476	4788	1.34	7.94	LOW	109
SV479	685.6	109	3	Rural	1725	869	856	408750	1417000	477	1655	1.88	7.86	LOW	869
SO525	24.1	11	3	Rural	171	86	85	41250	143000	486	1685	2.19	7.71	LOW	86
SO528	752.2	229	3	Rural	3534	1781	1752	858750	2977000	490	1699	2.34	7.65	LOW	1781
SO534	1050.8	267	3	Rural	4095	2064	2031	1001250	3471000	493	1709	2.02	7.61	LOW	2064
SV338	1168.3	195	3	Rural	2981	1502	1479	731250	2535000	495	1714	1.94	7.58	LOW	1502
MR638	294.9	32	3	Rural	475	239	236	120000	416000	509	1765	1.79	7.36	LOW	239
SO536	449.9	74	3	Rural	1085	547	538	277500	962000	516	1788	1.83	7.27	LOW	547
SO529	157.2	18	3	Rural	262	132	130	67500	234000	521	1807	2.25	7.20	LOW	132
SV568	574.4	626	1	Broadneck	5710	1196	4514	2366280	23788000	524	5269	1.17	7.21	LOW	2884
RR447	74.1	3	1	Mayo	27	6	22	11340	114000	524	5270	1.14	7.21	LOW	14
SV545	479.8	89	3	Rural	1186	599	587	333750	1157000	569	1973	2.50	6.59	LOW	599
SV386	225.4	121	3	Broadneck	1566	791	775	453750	1573000	586	2030	2.02	6.40	LOW	791
PT214	606.4	34	1	Cox Creek	292	73	219	128520	1292000	586	5893	1.00	6.45	LOW	147
UP438	171.2	1	3	Maryland city	12	6	6	3750	13000	614	2128	1.82	6.11	LOW	6
LP636	4026.6	2	3	Rural	25	12	12	7500	26000	614	2128	1.41	6.11	LOW	12
SO576	137.2	129	3	Rural	1554	784	770	483750	1677000	628	2177	1.55	5.97	LOW	784
SV49	24.6	1	1	Broadneck	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4
PN127	10.7	1	1	Baltimore City	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4
PT133	4.9	1	1	Cox Creek	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4
SV134	61.5	5	1	Patuxent	37	9	28	18900	190000	679	6830	1.00	5.56	LOW	19
PT141	344.1	1	1	Cox Creek	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4
PT160	51.5	1	1	Cox Creek	7	2	6	3780	38000	679	6830	1.45	5.56	LOW	4
PT162	98.3	1	1	Cox Creek	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4
PN284	132.6	2	1	Baltimore City	15	4	11	7560	76000	679	6830	1.22	5.56	LOW	7
PN286	375.7	2	1	Baltimore City	15	4	11	7560	76000	679	6830	1.33	5.56	LOW	7
MR357	10.2	3	1	Broadneck	22	6	17	11340	114000	679	6830	1.00	5.56	LOW	11
PT588	148.6	2	1	Cox Creek	15	4	11	7560	76000	679	6830	1.00	5.56	LOW	7
PT590	137.4	2	1	Cox Creek	15	4	11	7560	76000	679	6830	1.22	5.56	LOW	7
SV574	83.5	93	3	Rural	903	456	447	348750	1209000	780	2704	1.14	4.81	LOW	456
LP552	839.5	13	4	Rural	417	417	0	0	0	-	-	1.00	0.00	LOW	209
UP645	149.4	1	4	Rural	48	48	0	0	0	-	-	1.00	0.00	LOW	24
WR1	66.5	6	5	Broadwater	44	44	0	0	0	-	-	1.00	0.00	LOW	22
RR2	135.6	22	5	Mayo	444	444	0	0	0	-	-	1.08	0.00	LOW	222
SO3	27.3	22	5	Annapolis	203	203	0	0	0	-	-	1.00	0.00	LOW	102
SO4	11.2	1	5	Annapolis	48	48	0	0	0	-	-	1.00	0.00	LOW	24
SO5	138.9	4	5	Annapolis	110	110	0	0	0	-	-	1.00	0.00	LOW	55
SV6	31.3	1	5	Annapolis	48	48	0	0	0	-	-	1.00	0.00	LOW	24

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SO7	1.0	1	5	Annapolis	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SO8	37.8	5	5	Annapolis	197	197	0	0	0	-	-	1.00	0.00	LOW	99
SO9	23.5	3	5	Annapolis	22	22	0	0	0	-	-	1.00	0.00	LOW	11
SO13	6.9	1	5	Annapolis	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SO14	8.7	7	5	Annapolis	52	52	0	0	0	-	-	1.35	0.00	LOW	26
SV15	3.9	2	5	Annapolis	95	95	0	0	0	-	-	1.00	0.00	LOW	48
SO16	36.4	1	5	Annapolis	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV17	43.1	15	5	Broadneck	151	151	0	0	0	-	-	1.24	0.00	LOW	76
SV18	3.9	2	5	Broadneck	55	55	0	0	0	-	-	1.00	0.00	LOW	27
SV22	9.5	5	5	Broadneck	117	117	0	0	0	-	-	1.00	0.00	LOW	59
SV23	2.3	1	5	Broadneck	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV24	82.0	10	5	Broadneck	74	74	0	0	0	-	-	1.00	0.00	LOW	37
MR25	12.4	8	5	Broadneck	59	59	0	0	0	-	-	1.08	0.00	LOW	30
MR26	12.5	4	5	Broadneck	30	30	0	0	0	-	-	1.17	0.00	LOW	15
MR27	1.3	1	5	Broadneck	7	7	0	0	0	-	-	1.00	0.00	LOW	4
MR28	8.6	6	5	Broadneck	44	44	0	0	0	-	-	1.37	0.00	LOW	22
MR31	1.5	3	5	Broadneck	22	22	0	0	0	-	-	1.30	0.00	LOW	11
LP32	132.8	14	5	Patuxent	344	344	0	0	0	-	-	1.00	0.00	LOW	172
MR33	1.1	1	5	Broadneck	7	7	0	0	0	-	-	1.89	0.00	LOW	4
MR34	9.1	12	5	Broadneck	89	89	0	0	0	-	-	1.13	0.00	LOW	45
MR35	2.9	1	5	Broadneck	48	48	0	0	0	-	-	1.67	0.00	LOW	24
MR36	4.2	4	5	Broadneck	30	30	0	0	0	-	-	1.17	0.00	LOW	15
LP37	73.3	19	5	Patuxent	742	742	0	0	0	-	-	1.00	0.00	LOW	371
MR38	4.4	3	5	Broadneck	62	62	0	0	0	-	-	1.22	0.00	LOW	31
LP44	1.9	2	5	Patuxent	15	15	0	0	0	-	-	1.00	0.00	LOW	7
LP45	96.5	31	5	Rural	350	350	0	0	0	-	-	1.08	0.00	LOW	176
LP46	21.2	6	5	Patuxent	205	205	0	0	0	-	-	1.00	0.00	LOW	103
SV47	12.9	10	5	Broadneck	74	74	0	0	0	-	-	1.00	0.00	LOW	37
SV48	12.0	1	5	Patuxent	48	48	0	0	0	-	-	1.00	0.00	LOW	24
SV50	1.2	2	5	Broadneck	15	15	0	0	0	-	-	1.00	0.00	LOW	7
LP51	57.5	19	5	Patuxent	742	742	0	0	0	-	-	1.06	0.00	LOW	371
SV52	16.2	11	5	Broadneck	242	242	0	0	0	-	-	1.32	0.00	LOW	121
SV53	57.8	30	5	Patuxent	262	262	0	0	0	-	-	1.04	0.00	LOW	132
SV54	13.5	16	5	Broadneck	359	359	0	0	0	-	-	1.03	0.00	LOW	180
SV55	0.1	1	5	Rural	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV56	15.8	7	5	Broadneck	333	333	0	0	0	-	-	1.10	0.00	LOW	166
MR57	8.2	1	5	Broadneck	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV58	15.2	7	5	Patuxent	52	52	0	0	0	-	-	1.00	0.00	LOW	26
SV63	9.3	1	5	Patuxent	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV64	20.7	2	5	Broadneck	55	55	0	0	0	-	-	1.00	0.00	LOW	27
MR65	545.2	258	5	Broadneck	2674	2674	0	0	0	-	-	1.03	0.00	LOW	1346
PT66	17.3	3	5	Cox Creek	22	22	0	0	0	-	-	1.00	0.00	LOW	11
SV67	6.9	1	5	Rural	7	7	0	0	0	-	-	1.00	0.00	LOW	4

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MR68	559.6	222	5	Broadneck	2247	2247	0	0	0	-	-	1.04	0.00	LOW	1131
SV76	13.5	8	5	Patuxent	59	59	0	0	0	-	-	1.00	0.00	LOW	30
MR77	2.0	2	5	Cox Creek	15	15	0	0	0	-	-	1.00	0.00	LOW	7
SV78	23.8	32	5	Broadneck	237	237	0	0	0	-	-	1.00	0.00	LOW	120
UP79	283.9	10	5	Maryland city	275	275	0	0	0	-	-	1.07	0.00	LOW	137
MR80	65.5	31	5	Broadneck	230	230	0	0	0	-	-	1.04	0.00	LOW	116
MR81	34.5	2	5	Cox Creek	15	15	0	0	0	-	-	1.00	0.00	LOW	7
MR82	10.3	1	5	Cox Creek	7	7	0	0	0	-	-	1.00	0.00	LOW	4
LP83	28.6	1	5	Maryland city	48	48	0	0	0	-	-	1.00	0.00	LOW	24
LP86	0.4	1	5	Patuxent	48	48	0	0	0	-	-	1.00	0.00	LOW	24
SV87	116.8	22	5	Patuxent	323	323	0	0	0	-	-	1.02	0.00	LOW	162
PT88	51.9	6	5	Cox Creek	44	44	0	0	0	-	-	1.00	0.00	LOW	22
PT89	1.9	1	5	Cox Creek	7	7	0	0	0	-	-	1.45	0.00	LOW	4
SV90	30.8	25	5	Broadneck	185	185	0	0	0	-	-	1.00	0.00	LOW	94
LP91	6.8	1	5	Maryland city	7	7	0	0	0	-	-	1.00	0.00	LOW	4
PT92	653.0	128	5	Cox Creek	2111	2111	0	0	0	-	-	1.03	0.00	LOW	1060
SV93	66.3	56	5	Baltimore City	575	575	0	0	0	-	-	1.09	0.00	LOW	290
SV97	199.1	54	5	Baltimore City	480	480	0	0	0	-	-	1.04	0.00	LOW	242
PT98	92.4	2	5	Cox Creek	55	55	0	0	0	-	-	1.22	0.00	LOW	27
LP99	127.5	18	5	Patuxent	294	294	0	0	0	-	-	1.06	0.00	LOW	147
SV100	2.8	1	5	Broadneck	7	7	0	0	0	-	-	1.00	0.00	LOW	4
LP101	5.7	2	5	Baltimore City	15	15	0	0	0	-	-	1.00	0.00	LOW	7
LP102	64.5	25	5	Maryland city	265	265	0	0	0	-	-	1.02	0.00	LOW	134
PN103	87.5	34	5	Baltimore City	292	292	0	0	0	-	-	1.14	0.00	LOW	147
PN106	120.3	24	5	Baltimore City	418	418	0	0	0	-	-	1.00	0.00	LOW	210
PT107	240.2	75	5	Cox Creek	957	957	0	0	0	-	-	1.04	0.00	LOW	481
PT108	77.2	25	5	Cox Creek	466	466	0	0	0	-	-	1.03	0.00	LOW	234
PN109	109.8	47	5	Baltimore City	428	428	0	0	0	-	-	1.10	0.00	LOW	216
LP110	159.2	23	5	Baltimore City	371	371	0	0	0	-	-	1.09	0.00	LOW	186
PN111	28.4	3	5	Baltimore City	22	22	0	0	0	-	-	1.00	0.00	LOW	11
PT112	97.5	32	5	Baltimore City	1280	1280	0	0	0	-	-	1.02	0.00	LOW	640
PN113	16.0	4	5	Baltimore City	70	70	0	0	0	-	-	1.17	0.00	LOW	35
PN115	4.3	3	5	Baltimore City	22	22	0	0	0	-	-	1.00	0.00	LOW	11
PN116	493.2	49	5	Baltimore City	804	804	0	0	0	-	-	1.05	0.00	LOW	404
PT117	703.8	28	5	Cox Creek	408	408	0	0	0	-	-	1.00	0.00	LOW	205
PN118	70.7	22	5	Baltimore City	203	203	0	0	0	-	-	1.02	0.00	LOW	102
PN119	73.9	2	5	Baltimore City	15	15	0	0	0	-	-	1.00	0.00	LOW	7
PN120	10.9	1	5	Cox Creek	7	7	0	0	0	-	-	1.00	0.00	LOW	4

Attachment C
Detailed Management Area Rankings by Priority Ranking

MA's Ranked by Priority Rank

MA ID	Area (Acres)	OSDS Count	Bin #	SSA	Existing Load (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)	Total EUAC ($/yr)	Total Initial Capital Cost ($)	$EUAC/lb Reduced	$IC/lb Reduced	Priority Rank	N reduction per OSDS (lb/yr/OSDS)	Priority Based on $EUAC/lb Reduced	Load After OSDS Upgrade (lb/yr)
SV349	18.9	1	3	Annapolis	127	63	63	3750	13000	59	205	4.59	63.35	HIGH	63
SO673	41.4	7	3	Annapolis	566	283	283	26250	91000	93	322	4.55	40.39	HIGH	283
SO345	45.2	1	1	Annapolis	127	12	115	3780	38000	33	331	4.41	114.82	HIGH	63
SV412	16.3	4	3	Rural	79	40	39	15000	52000	384	1330	4.40	9.78	LOW	40
SV232	67.3	6	1	Broadneck	119	11	107	22680	228000	211	2121	4.25	17.91	MEDIUM	60
MR678	42.9	2	3	Broadneck	146	73	73	7500	26000	103	356	4.15	36.56	HIGH	73
SV277	74.2	4	3	Broadneck	79	40	39	15000	52000	384	1330	4.15	9.78	LOW	40
SV621	32.7	1	3	Annapolis	127	63	63	3750	13000	59	205	4.11	63.35	HIGH	63
SV549	107.9	21	3	Annapolis	415	210	205	78750	273000	384	1330	4.07	9.78	LOW	210
MR323	89.5	1	1	Broadneck	20	2	18	3780	38000	211	2121	4.00	17.91	MEDIUM	10
SV346	71.2	1	1	Annapolis	20	2	18	3780	38000	211	2121	4.00	17.91	MEDIUM	10
SO350	187.5	2	1	Annapolis	40	4	36	7560	76000	211	2121	3.98	17.91	MEDIUM	20
MR659	37.5	20	3	Rural	380	192	188	75000	260000	399	1382	3.98	9.41	LOW	192
SV224	18.6	6	3	Broadneck	178	90	88	22500	78000	254	882	3.93	14.75	MEDIUM	90
SV467	7.8	6	3	Rural	119	60	59	22500	78000	384	1330	3.92	9.78	LOW	60
RR414	121.5	5	3	Rural	206	103	102	18750	65000	183	634	3.92	20.49	HIGH	103
MR260	71.6	3	1	Broadneck	166	16	151	11340	114000	75	757	3.90	50.22	HIGH	83
MR556	110.7	53	3	Rural	1475	743	732	198750	689000	271	941	3.82	13.82	LOW	743
MR676	68.0	6	3	Broadneck	225	113	112	22500	78000	200	695	3.81	18.70	MEDIUM	113
MR660	82.1	10	3	Rural	198	100	98	37500	130000	384	1330	3.80	9.78	LOW	100
SV387	53.4	27	3	Broadneck	854	430	425	101250	351000	238	827	3.79	15.73	MEDIUM	430
RR403	169.7	3	3	Rural	273	137	136	11250	39000	82	286	3.79	45.49	HIGH	137
MR313	57.9	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.78	17.91	MEDIUM	20
MR315	33.5	3	1	Broadneck	59	6	54	11340	114000	211	2121	3.78	17.91	MEDIUM	30
MR469	29.1	13	3	Rural	257	130	127	48750	169000	384	1330	3.76	9.78	LOW	130
PT609	7.9	15	3	Rural	296	150	147	56250	195000	384	1330	3.74	9.78	LOW	150
PT208	32.1	1	1	Cox Creek	20	2	18	3780	38000	211	2121	3.74	17.91	MEDIUM	10
MR314	54.7	1	1	Broadneck	20	2	18	3780	38000	211	2121	3.74	17.91	MEDIUM	10
SO451	50.4	1	1	Mayo	20	2	18	3780	38000	211	2121	3.74	17.91	MEDIUM	10
MR557	3.0	1	3	Rural	20	10	10	3750	13000	384	1330	3.74	9.78	LOW	10
SO442	27.8	17	1	Annapolis	336	31	305	64260	646000	211	2121	3.72	17.91	MEDIUM	170
RR460	96.3	2	1	Mayo	253	24	230	7560	76000	33	331	3.72	114.82	HIGH	127
SV379	13.3	2	3	Broadneck	40	20	20	7500	26000	384	1330	3.72	9.78	LOW	20
SV411	61.0	10	3	Rural	625	313	312	37500	130000	120	417	3.72	31.20	HIGH	313
SV388	23.9	22	3	Broadneck	862	433	429	82500	286000	192	666	3.71	19.52	MEDIUM	433
HB486	65.1	24	3	Rural	681	343	338	90000	312000	266	923	3.71	14.09	MEDIUM	343
PT150	34.6	2	1	Cox Creek	40	4	36	7560	76000	211	2121	3.71	17.91	MEDIUM	20
RR674	25.1	1	2	Mayo	127	12	115	3550	36203	31	315	3.70	114.82	HIGH	63
BC679	41.9	1	3	Rural	127	63	63	3750	13000	59	205	3.70	63.35	HIGH	63
SV275	67.8	34	1	Broadneck	768	83	686	128520	1292000	187	1884	3.69	20.17	MEDIUM	387
PT562	11.6	30	3	Rural	906	456	450	112500	390000	250	866	3.69	15.01	MEDIUM	456

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MR483	198.7	5	1	Broadneck	420	39	380	18900	190000	50	500	3.67	76.06	HIGH	210
SV278	98.9	25	3	Broadneck	494	250	244	93750	325000	384	1330	3.66	9.78	LOW	250
HB185	120.8	7	3	Broadwater	566	283	283	26250	91000	93	322	3.64	40.39	HIGH	283
SV327	138.6	51	3	Broadneck	1008	509	499	191250	663000	384	1330	3.63	9.78	LOW	509
SV294	175.1	272	2	Rural	5452	512	4940	965600	9847349	195	1993	3.63	18.16	MEDIUM	2754
SO355	65.9	7	1	Annapolis	124	13	111	26460	266000	239	2406	3.62	15.80	MEDIUM	62
SV509	37.0	21	3	Rural	522	263	259	78750	273000	304	1055	3.61	12.33	LOW	263
SO450	114.7	12	3	Mayo	558	280	278	45000	156000	162	561	3.61	23.17	HIGH	280
SV477	32.1	23	3	Rural	561	283	278	86250	299000	310	1074	3.61	12.11	LOW	283
SO681	47.0	7	3	Annapolis	245	123	122	26250	91000	215	746	3.60	17.43	MEDIUM	123
MP497	241.2	4	3	Rural	293	147	146	15000	52000	103	356	3.60	36.56	HIGH	147
SV230	22.9	13	1	Broadneck	471	44	427	49140	494000	115	1158	3.59	32.82	HIGH	237
SV485	68.7	8	3	Broadneck	265	133	132	30000	104000	228	789	3.59	16.47	MEDIUM	133
BC518	136.4	5	3	Rural	99	50	49	18750	65000	384	1330	3.58	9.78	LOW	50
SV279	590.5	15	3	Broadneck	724	363	361	56250	195000	156	540	3.57	24.06	HIGH	363
SV365	178.9	53	2	Broadneck	988	98	890	188150	1918785	211	2156	3.56	16.80	MEDIUM	499
BC180	98.1	150	2	Rural	3071	287	2784	532500	5430523	191	1951	3.55	18.56	MEDIUM	1551
BC474	257.4	46	3	Rural	1824	916	908	172500	598000	190	659	3.54	19.74	MEDIUM	916
PT210	198.5	6	1	Cox Creek	119	11	107	22680	228000	211	2121	3.54	17.91	MEDIUM	60
SV226	168.0	32	1	Broadneck	724	69	655	120960	1216000	185	1856	3.54	20.48	HIGH	365
SV476	370.0	2	3	Rural	158	79	79	7500	26000	95	328	3.53	39.59	HIGH	79
MR554	88.4	19	3	Rural	482	243	239	71250	247000	298	1032	3.52	12.60	LOW	243
MR481	343.1	40	3	Rural	1218	613	605	150000	520000	248	859	3.51	15.13	MEDIUM	613
MR470	5.3	6	3	Rural	119	60	59	22500	78000	384	1330	3.51	9.78	LOW	60
MR177	104.8	16	1	Broadneck	316	30	287	60480	608000	211	2121	3.51	17.91	MEDIUM	160
SO515	23.4	8	1	Annapolis	158	15	143	30240	304000	211	2121	3.51	17.91	MEDIUM	80
SO361	176.5	76	3	Annapolis	1480	748	732	285000	988000	389	1350	3.50	9.63	LOW	748
MR461	47.4	2	3	Rural	146	73	73	7500	26000	103	356	3.50	36.56	HIGH	73
BC183	38.6	47	2	Rural	914	87	827	166850	1701564	202	2057	3.47	17.60	MEDIUM	462
BC182	47.0	76	2	Rural	1716	160	1555	269800	2751465	173	1769	3.46	20.46	HIGH	866
SV582	250.9	14	3	Broadneck	597	300	298	52500	182000	176	612	3.46	21.26	HIGH	300
SV675	19.4	7	2	Broadneck	138	13	125	24850	253424	198	2021	3.45	17.91	MEDIUM	70
WR415	223.1	8	3	Rural	357	179	178	30000	104000	169	584	3.44	22.25	HIGH	179
RR400	57.3	9	3	Rural	606	303	302	33750	117000	112	387	3.42	33.59	HIGH	303
SO330	330.1	35	2	Annapolis	1171	115	1057	124250	1267122	118	1199	3.41	30.19	HIGH	589
MR471	4.8	6	3	Rural	119	60	59	22500	78000	384	1330	3.40	9.78	LOW	60
SO329	171.3	44	3	Annapolis	869	439	430	165000	572000	384	1330	3.39	9.78	LOW	439
MR558	8.6	7	3	Rural	138	70	68	26250	91000	384	1330	3.39	9.78	LOW	70
MR559	251.1	54	3	Rural	1388	699	689	202500	702000	294	1019	3.38	12.75	LOW	699
SV514	147.6	32	3	Broadneck	660	333	327	120000	416000	367	1273	3.38	10.21	LOW	333
BC178	159.8	96	2	Rural	2124	207	1917	340800	3475535	178	1813	3.38	19.96	HIGH	1071
MR262	128.0	27	1	Broadneck	534	50	484	102060	1026000	211	2121	3.37	17.91	MEDIUM	270

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SV626	22.9	11	1	Annapolis	217	20	197	41580	418000	211	2121	3.37	17.91	MEDIUM	110
MR269	111.8	8	1	Broadneck	210	25	185	30240	304000	163	1641	3.36	23.16	HIGH	106
MR318	56.8	6	1	Broadneck	119	11	107	22680	228000	211	2121	3.36	17.91	MEDIUM	60
SO332	57.9	33	1	Annapolis	1828	171	1657	124740	1254000	75	757	3.36	50.22	HIGH	916
WR188	150.2	32	1	Broadwater	953	89	864	120960	1216000	140	1407	3.35	27.00	HIGH	480
SV625	23.6	13	1	Annapolis	257	24	233	49140	494000	211	2121	3.35	17.91	MEDIUM	130
BC258	320.6	140	2	Bodkin Point	3408	319	3089	497000	5068488	161	1641	3.33	22.07	HIGH	1718
PT149	99.1	1	1	Cox Creek	127	12	115	3780	38000	33	331	3.33	114.82	HIGH	63
RR456	55.0	1	1	Mayo	127	12	115	3780	38000	33	331	3.33	114.82	HIGH	63
PT209	65.8	1	1	Cox Creek	20	2	18	3780	38000	211	2121	3.33	17.91	MEDIUM	10
SO370	21.8	1	1	Annapolis	20	2	18	3780	38000	211	2121	3.33	17.91	MEDIUM	10
RR458	500.9	1	1	Mayo	20	2	18	3780	38000	211	2121	3.33	17.91	MEDIUM	10
WR607	135.2	1	1	Broadwater	20	2	18	3780	38000	211	2121	3.33	17.91	MEDIUM	10
RR453	67.8	1	3	Mayo	20	10	10	3750	13000	384	1330	3.33	9.78	LOW	10
HB429	106.9	154	3	Rural	3043	1538	1506	577500	2002000	384	1330	3.33	9.78	LOW	1538
HB601	195.4	7	1	Broadwater	138	13	125	26460	266000	211	2121	3.32	17.91	MEDIUM	70
SV482	248.0	183	2	Broadneck	3907	368	3539	649650	6625238	184	1872	3.32	19.34	HIGH	1972
SV254	148.4	8	1	Broadneck	265	25	240	30240	304000	126	1266	3.31	30.03	HIGH	133
SV385	179.3	63	1	Broadneck	1501	176	1324	238140	2394000	180	1808	3.30	21.02	HIGH	756
WR417	39.0	3	3	Rural	59	30	29	11250	39000	384	1330	3.29	9.78	LOW	30
SO362	226.1	86	3	Annapolis	1672	845	827	322500	1118000	390	1351	3.29	9.62	LOW	845
HB585	184.5	60	1	Broadwater	1827	171	1656	226800	2280000	137	1377	3.29	27.60	HIGH	919
SV578	191.2	345	2	Rural	7515	717	6798	1224750	12490203	180	1837	3.28	19.70	HIGH	3793
SO580	52.1	57	3	Annapolis	1126	569	557	213750	741000	384	1330	3.28	9.78	LOW	569
MR555	77.3	31	3	Rural	919	462	456	116250	403000	255	883	3.28	14.72	MEDIUM	462
WR644	329.4	16	3	Rural	662	332	330	60000	208000	182	631	3.27	20.61	HIGH	332
HB490	264.4	4	1	Rose Haven	72	7	64	15120	152000	235	2366	3.26	16.06	MEDIUM	36
SV272	244.8	146	1	Broadneck	3073	310	2763	551880	5548000	200	2008	3.25	18.92	MEDIUM	1550
MR264	28.9	16	1	Broadneck	316	30	287	60480	608000	211	2121	3.25	17.91	MEDIUM	160
SV389	34.5	24	3	Broadneck	425	215	210	90000	312000	428	1484	3.25	8.76	LOW	215
SV384	123.1	37	1	Broadneck	702	78	623	139860	1406000	224	2256	3.22	16.85	MEDIUM	354
PT473	198.0	233	1	Rural	4958	470	4487	880740	8854000	196	1973	3.20	19.26	MEDIUM	2502
HB137	74.9	51	1	Broadwater	2383	225	2159	192780	1938000	89	898	3.20	42.32	HIGH	1195
SV290	159.6	116	1	Annapolis	2277	264	2012	438480	4408000	218	2190	3.18	17.35	MEDIUM	1148
SV250	29.8	9	1	Broadneck	178	17	161	34020	342000	211	2121	3.18	17.91	MEDIUM	90
MR371	171.9	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.17	17.91	MEDIUM	20
HB604	67.1	2	1	Broadwater	40	4	36	7560	76000	211	2121	3.17	17.91	MEDIUM	20
MR259	115.3	141	2	Rural	3100	290	2809	500550	5104692	178	1817	3.17	19.92	HIGH	1564
MR584	107.1	29	1	Broadneck	847	84	763	109620	1102000	144	1444	3.17	26.32	HIGH	426
SO311	343.0	19	1	Annapolis	482	45	437	71820	722000	164	1651	3.16	23.01	HIGH	243
BC173	182.3	139	2	Rural	2987	307	2680	493450	5032285	184	1878	3.15	19.28	HIGH	1506
WR597	158.4	5	1	Broadwater	99	9	90	18900	190000	211	2121	3.15	17.91	MEDIUM	50

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HB596	133.0	2	1	Broadwater	146	14	133	7560	76000	57	573	3.13	66.37	HIGH	73
MR265	45.8	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.13	17.91	MEDIUM	20
MR322	120.2	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.13	17.91	MEDIUM	20
MR382	105.1	2	1	Broadneck	40	4	36	7560	76000	211	2121	3.13	17.91	MEDIUM	20
HB581	302.3	66	3	Rural	2078	1045	1033	247500	858000	240	831	3.13	15.65	MEDIUM	1045
MR61	289.7	119	1	Broadneck	2458	230	2229	449820	4522000	202	2029	3.13	18.73	MEDIUM	1241
SO425	332.1	240	1	Annapolis	5960	614	5347	907200	9120000	170	1706	3.12	22.28	HIGH	3002
HB603	112.5	5	1	Broadwater	91	9	82	18900	190000	230	2313	3.11	16.43	MEDIUM	46
HB472	416.4	6	1	Broadwater	332	31	301	22680	228000	75	757	3.11	50.22	HIGH	167
SO344	50.6	14	1	Annapolis	277	26	251	52920	532000	211	2121	3.10	17.91	MEDIUM	140
SV390	102.5	34	3	Broadneck	839	422	416	127500	442000	306	1062	3.10	12.24	LOW	422
BC567	148.2	224	2	Rural	5068	474	4594	795200	8109581	173	1765	3.10	20.51	HIGH	2557
SO340	473.2	45	1	Annapolis	1019	103	915	170100	1710000	186	1868	3.09	20.34	HIGH	514
SO171	33.7	6	3	Rural	119	60	59	22500	78000	384	1330	3.07	9.78	LOW	60
MR373	508.3	45	1	Broadneck	778	83	695	170100	1710000	245	2461	3.07	15.44	MEDIUM	393
HB186	714.0	20	1	Broadwater	960	97	863	75600	760000	88	881	3.07	43.13	HIGH	481
SV383	117.5	41	1	Broadneck	1039	106	933	154980	1558000	166	1669	3.06	22.76	HIGH	523
MR560	146.9	74	3	Rural	1569	792	777	277500	962000	357	1238	3.06	10.50	LOW	792
SO449	484.7	3	1	Mayo	333	36	297	11340	114000	38	384	3.04	98.98	HIGH	166
SO547	238.0	91	2	Annapolis	2005	188	1817	323050	3294517	178	1814	3.03	19.96	HIGH	1012
BC616	175.4	34	3	Rural	794	400	394	127500	442000	324	1122	3.01	11.58	LOW	400
BC618	57.7	17	3	Rural	642	322	320	63750	221000	199	692	3.01	18.80	MEDIUM	322
SO114	247.7	116	1	Annapolis	2532	264	2267	438480	4408000	193	1944	3.00	19.55	MEDIUM	1276
SV579	251.9	292	2	Broadneck	5637	559	5078	1036600	10571418	204	2082	3.00	17.39	MEDIUM	2847
MR319	216.7	12	1	Broadneck	237	22	215	45360	456000	211	2121	2.99	17.91	MEDIUM	120
PT608	234.9	24	3	Rural	967	485	482	90000	312000	187	648	2.99	20.07	MEDIUM	485
BC629	171.1	20	3	Rural	1019	511	508	75000	260000	148	511	2.98	25.42	HIGH	511
SO530	140.7	75	3	Rural	1252	633	620	281250	975000	454	1574	2.98	8.26	LOW	633
HB602	53.0	1	1	Broadwater	127	12	115	3780	38000	33	331	2.96	114.82	HIGH	63
PT502	773.9	2	1	Cox Creek	206	24	182	7560	76000	42	417	2.96	91.06	HIGH	103
HB598	70.0	1	1	Broadwater	20	2	18	3780	38000	211	2121	2.96	17.91	MEDIUM	10
MR267	177.7	3	1	Broadneck	59	6	54	11340	114000	211	2121	2.96	17.91	MEDIUM	30
SV229	117.5	3	1	Broadneck	52	6	46	11340	114000	245	2461	2.96	15.44	MEDIUM	26
SV475	374.4	124	3	Rural	2548	1284	1264	465000	1612000	368	1275	2.95	10.20	LOW	1284
HB605	93.1	3	1	Broadwater	166	16	151	11340	114000	75	757	2.95	50.22	HIGH	83
MR324	15.3	2	1	Broadneck	253	24	230	7560	76000	33	331	2.94	114.82	HIGH	127
SO457	247.4	7	1	Mayo	131	13	118	26460	266000	224	2254	2.94	16.86	MEDIUM	66
PT157	75.7	1	1	Cox Creek	20	2	18	3780	38000	211	2121	2.92	17.91	MEDIUM	10
MR261	84.7	2	1	Broadneck	40	4	36	7560	76000	211	2121	2.92	17.91	MEDIUM	20
SV347	52.5	1	1	Annapolis	20	2	18	3780	38000	211	2121	2.92	17.91	MEDIUM	10
SO448	42.9	1	1	Mayo	20	2	18	3780	38000	211	2121	2.92	17.91	MEDIUM	10
HB600	90.7	2	1	Broadwater	40	4	36	7560	76000	211	2121	2.92	17.91	MEDIUM	20

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SO257	388.7	77	3	Rural	1445	729	716	288750	1001000	403	1398	2.92	9.30	LOW	729
SV351	331.8	10	1	Annapolis	303	39	264	37800	380000	143	1439	2.91	26.41	HIGH	152
SO196	227.6	1	1	Patuxent	79	12	67	3780	38000	56	565	2.90	67.31	HIGH	40
UP219	565.4	1	1	Patuxent	79	12	67	3780	38000	56	565	2.90	67.31	HIGH	40
HB488	351.9	8	3	Rural	232	117	116	30000	104000	259	898	2.90	14.48	MEDIUM	117
SV420	132.1	80	3	Rural	1369	691	677	300000	1040000	443	1535	2.89	8.47	LOW	691
SV413	80.8	1	3	Rural	127	63	63	3750	13000	59	205	2.88	63.35	HIGH	63
SV335	39.1	2	1	Annapolis	158	24	135	7560	76000	56	565	2.88	67.31	HIGH	79
MR381	75.4	23	1	Broadneck	447	42	405	86940	874000	215	2160	2.87	17.59	MEDIUM	226
WR419	684.9	49	3	Rural	1631	819	812	183750	637000	226	785	2.87	16.57	MEDIUM	819
SO424	515.3	487	1	Annapolis	9645	969	8676	1840860	18506000	212	2133	2.86	17.82	MEDIUM	4869
MR464	705.4	135	3	Rural	3009	1516	1493	506250	1755000	339	1175	2.85	11.06	LOW	1516
PT161	80.2	3	1	Cox Creek	159	16	143	11340	114000	79	796	2.84	47.75	HIGH	80
PT135	465.6	147	2	Cox Creek	6830	863	5966	521850	5321913	87	892	2.83	40.59	HIGH	3423
HB630	1600.5	69	3	Rural	3324	1666	1658	258750	897000	156	541	2.83	24.03	HIGH	1666
SO312	516.1	1	1	Annapolis	20	2	18	3780	38000	211	2121	2.81	17.91	MEDIUM	10
SO353	82.5	22	3	Annapolis	435	220	215	82500	286000	384	1330	2.80	9.78	LOW	220
PN285	100.9	3	1	Baltimore City	194	26	168	11340	114000	67	677	2.79	56.12	HIGH	97
SV326	472.4	67	3	Broadneck	1390	700	690	251250	871000	364	1263	2.79	10.30	LOW	700
WR606	198.7	3	1	Broadwater	59	6	54	11340	114000	211	2121	2.79	17.91	MEDIUM	30
LP443	309.5	2	1	Maryland city	158	24	135	7560	76000	56	565	2.77	67.31	HIGH	79
WR418	1020.2	34	3	Rural	2155	1079	1077	127500	442000	118	411	2.76	31.67	HIGH	1079
SV511	94.3	6	3	Broadneck	211	106	105	22500	78000	214	744	2.75	17.48	MEDIUM	106
SV577	1340.3	1896	2	Rural	38734	4092	34642	6730800	68641813	194	1981	2.75	18.27	MEDIUM	19536
SO334	167.5	4	1	Annapolis	231	27	203	15120	152000	74	748	2.74	50.78	HIGH	115
MR380	107.0	80	1	Broadneck	1447	148	1300	302400	3040000	233	2339	2.74	16.25	MEDIUM	731
SO452	77.6	2	1	Mayo	40	4	36	7560	76000	211	2121	2.74	17.91	MEDIUM	20
MR273	30.2	3	1	Broadneck	59	6	54	11340	114000	211	2121	2.74	17.91	MEDIUM	30
MR575	669.9	643	1	Broadneck	12002	1307	10695	2430540	24434000	227	2285	2.72	16.63	MEDIUM	6057
MR325	109.8	2	1	Broadneck	146	14	133	7560	76000	57	573	2.72	66.37	HIGH	73
BC627	37.2	27	3	Rural	534	270	264	101250	351000	384	1330	2.71	9.78	LOW	270
WR643	280.3	17	3	Rural	619	311	309	63750	221000	207	716	2.70	18.15	MEDIUM	311
SV62	821.8	61	1	Broadneck	2881	303	2578	230580	2318000	89	899	2.70	42.27	HIGH	1445
SO360	281.9	3	1	Annapolis	52	6	46	11340	114000	245	2461	2.69	15.44	MEDIUM	26
MR266	43.3	5	1	Broadneck	77	9	67	18900	190000	281	2822	2.68	13.47	LOW	39
SV421	400.4	437	1	Annapolis	14415	1860	12555	1651860	16606000	132	1323	2.67	28.73	HIGH	7239
SO441	34.1	22	1	Annapolis	1825	171	1654	83160	836000	50	505	2.66	75.18	HIGH	913
SV513	58.9	24	3	Broadneck	437	221	216	90000	312000	416	1442	2.66	9.01	LOW	221
BC565	137.8	149	2	Rural	3689	375	3314	528950	5394320	160	1628	2.66	22.24	HIGH	1858
WR501	92.1	8	1	Broadwater	578	55	524	30240	304000	58	581	2.65	65.44	HIGH	290
HB632	1515.4	84	3	Rural	2497	1253	1244	315000	1092000	253	878	2.65	14.81	MEDIUM	1253
PT156	340.2	11	1	Cox Creek	143	20	123	41580	418000	338	3400	2.64	11.18	LOW	72

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MR320	139.8	1	1	Broadneck	12	2	11	3780	38000	360	3618	2.64	10.50	LOW	6
SO333	293.1	29	1	Annapolis	621	64	557	109620	1102000	197	1978	2.64	19.21	MEDIUM	313
SO527	270.1	58	3	Rural	1046	527	518	217500	754000	420	1454	2.62	8.94	LOW	527
BC181	113.7	121	2	Rural	2464	243	2221	429550	4380622	193	1973	2.62	18.35	MEDIUM	1244
SO516	505.5	90	1	Annapolis	2566	317	2249	340200	3420000	151	1521	2.61	24.99	HIGH	1290
SV222	326.6	5	1	Broadneck	412	39	373	18900	190000	51	510	2.60	74.57	HIGH	206
MR376	172.2	3	1	Broadneck	238	36	202	11340	114000	56	565	2.59	67.31	HIGH	119
WR416	325.2	14	3	Rural	1022	511	511	52500	182000	103	356	2.58	36.47	HIGH	511
MR321	224.0	2	1	Broadneck	25	4	21	7560	76000	360	3618	2.58	10.50	LOW	12
LP655	417.2	5	3	Rural	396	198	198	18750	65000	95	328	2.56	39.59	HIGH	198
PT566	654.2	613	2	Rural	11175	1202	9973	2176150	22192738	218	2225	2.56	16.27	MEDIUM	5643
MR268	61.0	22	1	Broadneck	435	41	394	83160	836000	211	2121	2.56	17.91	MEDIUM	220
HB671	61.5	1	1	Rose Haven	127	12	115	3780	38000	33	331	2.55	114.82	HIGH	63
PT159	67.4	1	1	Cox Creek	20	2	18	3780	38000	211	2121	2.55	17.91	MEDIUM	10
RR455	32.7	1	1	Mayo	20	2	18	3780	38000	211	2121	2.55	17.91	MEDIUM	10
SV70	684.3	156	2	Broadneck	4369	579	3790	553800	5647744	146	1490	2.54	24.30	HIGH	2194
SV544	382.0	149	3	Rural	2674	1347	1327	558750	1937000	421	1460	2.54	8.91	LOW	1347
SV394	1035.7	229	3	Rural	6910	3467	3443	858750	2977000	249	865	2.52	15.04	MEDIUM	3467
PT594	224.3	1	1	Cox Creek	127	12	115	3780	38000	33	331	2.51	114.82	HIGH	63
PT163	310.7	1	1	Cox Creek	20	2	18	3780	38000	211	2121	2.51	17.91	MEDIUM	10
PT207	94.0	2	1	Cox Creek	40	4	36	7560	76000	211	2121	2.51	17.91	MEDIUM	20
RR446	45.5	1	1	Mayo	20	2	18	3780	38000	211	2121	2.51	17.91	MEDIUM	10
SO256	430.4	35	3	Rural	1041	522	519	131250	455000	253	877	2.50	14.82	MEDIUM	522
LP672	7.3	3	1	Rural	37	6	32	11340	114000	360	3618	2.50	10.50	LOW	19
PT203	397.7	7	3	Cox Creek	887	443	443	26250	91000	59	205	2.50	63.35	HIGH	443
SV545	479.8	89	3	Rural	1186	599	587	333750	1157000	569	1973	2.50	6.59	LOW	599
SV348	329.8	28	1	Annapolis	1023	112	911	105840	1064000	116	1168	2.49	32.53	HIGH	513
SV548	50.6	23	1	Annapolis	514	73	442	86940	874000	197	1979	2.49	19.20	MEDIUM	259
PT592	492.9	6	1	Cox Creek	344	41	303	22680	228000	75	752	2.49	50.53	HIGH	172
SV573	162.6	171	1	Broadneck	2529	326	2204	646380	6498000	293	2949	2.48	12.89	LOW	1278
SO193	265.8	10	3	Patuxent	190	96	95	37500	130000	396	1374	2.48	9.46	LOW	96
SO73	157.1	44	1	Mayo	603	81	521	166320	1672000	319	3206	2.48	11.85	LOW	305
SV184	485.0	465	2	Broadneck	8159	989	7171	1650750	16834622	230	2348	2.46	15.42	MEDIUM	4115
WR189	461.2	3	1	Broadwater	111	16	96	11340	114000	118	1191	2.46	31.91	HIGH	56
MR553	222.4	50	3	Rural	1095	553	542	187500	650000	346	1198	2.46	10.85	LOW	553
SO328	111.3	23	1	Annapolis	435	52	383	86940	874000	227	2282	2.46	16.65	MEDIUM	219
PT212	359.1	16	1	Cox Creek	277	30	247	60480	608000	245	2461	2.45	15.44	MEDIUM	140
SV276	109.7	10	3	Broadneck	253	127	126	37500	130000	298	1034	2.44	12.57	LOW	127
HB622	1348.3	92	3	Rural	2952	1480	1472	345000	1196000	234	813	2.44	16.00	MEDIUM	1480
MR462	304.4	47	3	Rural	1838	921	916	176250	611000	192	667	2.43	19.49	MEDIUM	921
SV289	535.6	281	3	Rural	4898	2468	2430	1053750	3653000	434	1503	2.43	8.65	LOW	2468
RR610	603.4	13	3	Rural	778	390	389	48750	169000	125	435	2.42	29.90	HIGH	390

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HB489	269.3	21	3	Rural	596	299	297	78750	273000	265	919	2.41	14.14	MEDIUM	299
SO288	922.3	40	3	Rural	972	488	484	150000	520000	310	1074	2.41	12.11	LOW	488
MP395	961.5	34	3	Rural	1430	716	714	127500	442000	179	619	2.41	20.99	HIGH	716
PN293	440.3	12	1	Baltimore City	451	52	399	45360	456000	114	1143	2.40	33.24	HIGH	226
SV227	31.4	2	1	Broadneck	99	14	85	7560	76000	89	892	2.39	42.61	HIGH	50
MP495	1518.3	72	3	Rural	2711	1359	1352	270000	936000	200	692	2.38	18.78	MEDIUM	1359
PT595	597.9	14	1	Cox Creek	424	46	378	52920	532000	140	1408	2.38	26.99	HIGH	213
SV59	1212.9	1083	1	Broadneck	18508	2531	15977	4093740	41154000	256	2576	2.37	14.75	MEDIUM	9329
MR283	136.1	2	1	Broadneck	99	14	85	7560	76000	89	892	2.37	42.61	HIGH	50
PN302	187.5	27	1	Baltimore City	696	90	606	102060	1026000	168	1694	2.37	22.44	HIGH	349
BC620	632.0	109	3	Rural	3921	1967	1954	408750	1417000	209	725	2.37	17.93	MEDIUM	1967
MR572	1067.7	1584	2	Rural	28796	3416	25381	5623200	57346325	222	2259	2.37	16.02	MEDIUM	14524
MR271	326.6	76	1	Broadneck	3479	481	2998	287280	2888000	96	963	2.36	39.45	HIGH	1743
BC615	97.4	21	3	Rural	794	398	396	78750	273000	199	689	2.35	18.87	MEDIUM	398
HB623	4245.4	323	3	Rural	10480	5256	5224	1211250	4199000	232	804	2.35	16.17	MEDIUM	5256
SO528	752.2	229	3	Rural	3534	1781	1752	858750	2977000	490	1699	2.34	7.65	LOW	1781
SO540	629.9	34	3	Rural	1289	646	643	127500	442000	198	687	2.34	18.91	MEDIUM	646
WR187	264.5	22	1	Broadwater	716	81	635	83160	836000	131	1317	2.34	28.86	HIGH	359
SO657	1023.8	110	3	Rural	1960	987	973	412500	1430000	424	1469	2.32	8.85	LOW	987
SV238	205.1	8	1	Patuxent	299	45	254	30240	304000	119	1195	2.32	31.81	HIGH	150
MR179	1152.9	1448	1	Rural	24873	3024	21849	5473440	55024000	251	2518	2.32	15.09	MEDIUM	12551
WR614	1908.1	106	3	Rural	3515	1763	1752	397500	1378000	227	786	2.31	16.53	MEDIUM	1763
LP434	508.1	6	2	Maryland city	475	71	404	21300	217221	53	538	2.31	67.31	HIGH	238
SO541	1386.9	113	3	Rural	2131	1072	1059	423750	1469000	400	1388	2.30	9.37	LOW	1072
HB631	184.1	28	3	Rural	531	267	264	105000	364000	397	1378	2.30	9.44	LOW	267
SV359	330.0	10	1	Annapolis	582	89	493	37800	380000	77	770	2.29	49.32	HIGH	291
SO363	1546.0	273	3	Rural	4687	2361	2326	1023750	3549000	440	1526	2.29	8.52	LOW	2361
SO426	292.9	280	1	Annapolis	5688	697	4990	1058400	10640000	212	2132	2.28	17.82	MEDIUM	2866
WR599	1704.8	29	1	Broadwater	968	114	855	109620	1102000	128	1289	2.27	29.47	HIGH	486
SV480	589.9	149	3	Rural	2665	1341	1324	558750	1937000	422	1463	2.27	8.88	LOW	1341
SV336	483.2	92	1	Annapolis	2172	310	1862	347760	3496000	187	1878	2.26	20.24	MEDIUM	1091
RR72	214.6	3	3	Mayo	261	130	130	11250	39000	86	299	2.25	43.45	HIGH	130
MR570	1380.4	1596	1	Broadneck	27150	3388	23762	6032880	60648000	254	2552	2.25	14.89	MEDIUM	13694
SO529	157.2	18	3	Rural	262	132	130	67500	234000	521	1807	2.25	7.20	LOW	132
UP650	663.3	55	3	Rural	1281	643	637	206250	715000	324	1122	2.25	11.59	LOW	643
RR401	5624.9	359	3	Rural	9138	4588	4550	1346250	4667000	296	1026	2.25	12.67	LOW	4588
SV546	458.2	31	1	Annapolis	1231	198	1034	117180	1178000	113	1140	2.25	33.34	HIGH	617
MR255	389.6	28	1	Broadneck	598	82	516	105840	1064000	205	2060	2.24	18.44	MEDIUM	301
MR252	409.9	32	1	Broadneck	611	69	542	120960	1216000	223	2245	2.24	16.93	MEDIUM	308
PT140	240.4	1	1	Cox Creek	79	12	67	3780	38000	56	565	2.23	67.31	HIGH	40
SO369	257.2	1	1	Rural	79	12	67	3780	38000	56	565	2.23	67.31	HIGH	40
SV377	125.1	2	1	Broadneck	158	24	135	7560	76000	56	565	2.23	67.31	HIGH	79

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RR445	189.0	1	1	Mayo	79	12	67	3780	38000	56	565	2.23	67.31	HIGH	40
PT295	217.8	1	3	Baltimore City	79	40	40	3750	13000	95	328	2.23	39.59	HIGH	40
RR402	109.9	1	3	Rural	79	40	40	3750	13000	95	328	2.23	39.59	HIGH	40
PT168	203.2	3	1	Cox Creek	104	16	88	11340	114000	128	1291	2.23	29.44	HIGH	52
RR74	105.7	1	1	Mayo	12	2	11	3780	38000	360	3618	2.23	10.50	LOW	6
PN305	251.9	1	1	Baltimore City	12	2	11	3780	38000	360	3618	2.23	10.50	LOW	6
MR372	76.2	1	1	Broadneck	12	2	11	3780	38000	360	3618	2.23	10.50	LOW	6
SO538	741.7	98	3	Rural	2079	1045	1034	367500	1274000	355	1232	2.22	10.55	LOW	1045
MR270	547.3	85	1	Broadneck	2388	297	2090	321300	3230000	154	1545	2.22	24.59	HIGH	1199
SO680	71.7	54	3	Annapolis	992	500	492	202500	702000	412	1427	2.22	9.11	LOW	500
SO364	965.7	181	3	Rural	3590	1806	1784	678750	2353000	381	1319	2.21	9.85	LOW	1806
PT593	698.2	38	1	Cox Creek	2482	301	2181	143640	1444000	66	662	2.21	57.39	HIGH	1242
LP436	592.6	12	1	Maryland city	883	133	751	45360	456000	60	607	2.20	62.57	HIGH	442
MP498	3180.6	368	3	Rural	8224	4132	4092	1380000	4784000	337	1169	2.19	11.12	LOW	4132
SO525	24.1	11	3	Rural	171	86	85	41250	143000	486	1685	2.19	7.71	LOW	86
SO542	1227.8	173	3	Rural	2892	1456	1436	648750	2249000	452	1567	2.18	8.30	LOW	1456
SO422	356.5	328	1	Annapolis	6858	1027	5831	1239840	12464000	213	2138	2.18	17.78	MEDIUM	3448
MR263	193.9	2	1	Broadneck	32	4	28	7560	76000	266	2674	2.17	14.21	MEDIUM	16
SO537	605.5	116	3	Rural	1967	991	977	435000	1508000	445	1544	2.16	8.42	LOW	991
SV354	68.2	3	1	Annapolis	52	6	46	11340	114000	245	2461	2.16	15.44	MEDIUM	26
MP494	3469.3	194	3	Rural	6072	3045	3026	727500	2522000	240	833	2.16	15.60	MEDIUM	3045
MR152	274.3	52	1	Cox Creek	1572	206	1365	196560	1976000	144	1447	2.15	26.26	HIGH	789
SV228	27.5	2	1	Broadneck	40	4	36	7560	76000	211	2121	2.15	17.91	MEDIUM	20
RR454	119.2	1	1	Mayo	20	2	18	3780	38000	211	2121	2.15	17.91	MEDIUM	10
SO459	156.8	1	1	Mayo	20	2	18	3780	38000	211	2121	2.15	17.91	MEDIUM	10
UP236	146.7	61	1	Patuxent	4830	725	4106	230580	2318000	56	565	2.14	67.31	HIGH	2415
SV142	36.4	24	1	Broadneck	296	44	252	90720	912000	360	3618	2.14	10.50	LOW	150
SO633	985.8	104	3	Rural	2153	1083	1071	390000	1352000	364	1263	2.13	10.30	LOW	1083
SV231	229.2	21	1	Broadneck	606	79	527	79380	798000	151	1513	2.12	25.12	HIGH	304
LP240	586.7	11	1	Patuxent	737	111	627	41580	418000	66	667	2.12	56.98	HIGH	369
MP496	512.9	8	3	Rural	347	174	173	30000	104000	173	601	2.10	21.64	HIGH	174
SV637	137.7	9	3	Rural	213	107	106	33750	117000	318	1103	2.08	11.79	LOW	107
PT308	548.6	22	1	Baltimore City	768	101	667	83160	836000	125	1254	2.08	30.31	HIGH	385
PN84	21.4	1	1	Baltimore City	79	12	67	3780	38000	56	565	2.08	67.31	HIGH	40
UP521	1271.3	98	3	Rural	2377	1194	1183	367500	1274000	311	1077	2.08	12.07	LOW	1194
PN175	508.2	11	1	Baltimore City	465	70	395	41580	418000	105	1059	2.07	35.87	HIGH	233
UP646	637.9	18	3	Rural	618	310	308	67500	234000	219	759	2.07	17.13	MEDIUM	310
MP491	3062.2	352	3	Rural	10743	5390	5353	1320000	4576000	247	855	2.07	15.21	MEDIUM	5390
SO287	954.9	133	3	Rural	4050	2032	2019	498750	1729000	247	857	2.07	15.18	MEDIUM	2032
SV274	400.0	96	3	Broadneck	1612	812	800	360000	1248000	450	1560	2.06	8.34	LOW	812
PT144	657.4	45	1	Cox Creek	1085	153	932	170100	1710000	183	1835	2.06	20.71	HIGH	545
MP492	6122.1	494	3	Rural	14920	7483	7437	1852500	6422000	249	864	2.04	15.05	MEDIUM	7483

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UP651	1427.2	144	3	Rural	2834	1426	1409	540000	1872000	383	1329	2.03	9.78	LOW	1426
MP493	1406.4	66	3	Rural	3154	1579	1575	247500	858000	157	545	2.03	23.87	HIGH	1579
MP396	2347.5	164	3	Rural	3693	1855	1837	615000	2132000	335	1160	2.03	11.20	LOW	1855
SO531	1437.9	201	3	Rural	3960	1992	1968	753750	2613000	383	1327	2.02	9.79	LOW	1992
MR282	198.9	4	1	Broadneck	49	7	42	15120	152000	360	3618	2.02	10.50	LOW	25
LP656	1632.6	84	3	Rural	2919	1463	1456	315000	1092000	216	750	2.02	17.34	MEDIUM	1463
SV386	225.4	121	3	Broadneck	1566	791	775	453750	1573000	586	2030	2.02	6.40	LOW	791
SO534	1050.8	267	3	Rural	4095	2064	2031	1001250	3471000	493	1709	2.02	7.61	LOW	2064
MR375	361.9	12	1	Broadneck	148	22	126	45360	456000	360	3618	2.02	10.50	LOW	75
BC172	1290.4	1164	2	Rural	17222	2480	14742	4132200	42140860	280	2859	2.01	12.67	LOW	8690
SO337	167.9	13	1	Annapolis	161	24	137	49140	494000	360	3618	2.01	10.50	LOW	81
PT216	574.9	41	1	Cox Creek	707	106	601	154980	1558000	258	2592	2.00	14.66	MEDIUM	356
MR249	62.8	6	1	Broadneck	141	21	120	22680	228000	189	1903	2.00	19.97	MEDIUM	71
SV374	108.4	4	2	Broadneck	257	37	220	14200	144814	65	659	2.00	54.96	HIGH	129
PN304	821.7	17	1	Baltimore City	658	92	567	64260	646000	113	1140	1.99	33.35	HIGH	330
UP520	1366.3	32	3	Rural	1264	633	631	120000	416000	190	659	1.99	19.71	MEDIUM	633
MP397	3818.4	235	3	Rural	5925	2975	2950	881250	3055000	299	1035	1.99	12.55	LOW	2975
LP444	529.7	13	1	Maryland city	562	84	477	49140	494000	103	1035	1.98	36.72	HIGH	281
PN296	466.4	33	1	Baltimore City	1039	161	878	124740	1254000	142	1428	1.98	26.61	HIGH	521
MP399	2810.7	197	3	Rural	5580	2800	2780	738750	2561000	266	921	1.98	14.11	MEDIUM	2800
PN309	1132.6	151	1	Baltimore City	3469	520	2949	570780	5738000	194	1945	1.98	19.53	MEDIUM	1743
PN292	409.6	10	1	Baltimore City	511	59	452	37800	380000	84	841	1.97	45.20	HIGH	256
UP652	916.6	131	3	Rural	2691	1353	1338	491250	1703000	367	1273	1.97	10.21	LOW	1353
LP192	307.9	3	1	Piney Orchard	238	36	202	11340	114000	56	565	1.95	67.31	HIGH	119
PT306	338.6	4	1	Baltimore City	40	7	32	15120	152000	471	4730	1.95	8.03	LOW	20
MR506	118.0	31	1	Broadneck	1118	168	950	117180	1178000	123	1239	1.94	30.66	HIGH	560
MR507	319.6	53	1	Broadneck	731	108	623	200340	2014000	321	3231	1.94	11.76	LOW	369
SV338	1168.3	195	3	Rural	2981	1502	1479	731250	2535000	495	1714	1.94	7.58	LOW	1502
BC628	488.5	222	3	Rural	4287	2159	2128	832500	2886000	391	1356	1.93	9.59	LOW	2159
MR317	244.4	7	1	Broadneck	153	23	130	26460	266000	203	2041	1.92	18.62	MEDIUM	77
MR639	15.1	4	3	Rural	183	92	91	15000	52000	164	569	1.92	22.85	HIGH	92
LP550	68.4	4	3	Rural	116	58	58	15000	52000	259	898	1.92	14.48	MEDIUM	58
PN300	676.7	30	1	Baltimore City	951	126	825	113400	1140000	137	1382	1.92	27.50	HIGH	477
SO526	431.5	67	3	Rural	1167	587	580	251250	871000	433	1502	1.91	8.65	LOW	587
UP641	393.9	13	3	Rural	762	381	381	48750	169000	128	444	1.91	29.29	HIGH	381
SO522	1168.7	188	3	Rural	5283	2650	2633	705000	2444000	268	928	1.91	14.00	LOW	2650
UP654	999.8	181	3	Rural	3461	1741	1720	678750	2353000	395	1368	1.91	9.50	LOW	1741
SV237	114.1	27	1	Patuxent	801	120	681	102060	1026000	150	1506	1.91	25.23	HIGH	402
MR225	187.0	62	1	Broadneck	2036	305	1731	234360	2356000	135	1361	1.91	27.91	HIGH	1021
SO75	17.2	4	1	Annapolis	116	17	99	15120	152000	153	1538	1.90	24.70	HIGH	58
MR33	1.1	1	5	Broadneck	7	7	0	0	0	-	-	1.89	0.00	LOW	4
SO524	448.4	79	3	Rural	1355	681	673	296250	1027000	440	1526	1.89	8.52	LOW	681

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SO468	334.7	82	3	Rural	2193	1100	1093	307500	1066000	281	976	1.88	13.33	LOW	1100
SV410	123.5	4	3	Rural	317	158	158	15000	52000	95	328	1.88	39.59	HIGH	158
PT146	297.3	42	1	Cox Creek	1053	158	896	158760	1596000	177	1782	1.88	21.32	HIGH	529
SV479	685.6	109	3	Rural	1725	869	856	408750	1417000	477	1655	1.88	7.86	LOW	869
PN299	681.6	31	1	Baltimore City	1385	208	1178	117180	1178000	100	1000	1.87	37.99	HIGH	694
UP519	1623.9	254	3	Rural	5427	2727	2700	952500	3302000	353	1223	1.87	10.63	LOW	2727
UP663	772.1	8	1	Maryland city	433	65	368	30240	304000	82	826	1.87	46.01	HIGH	217
PN176	757.3	185	1	Baltimore City	4490	673	3818	699300	7030000	183	1841	1.86	20.64	HIGH	2255
PN310	1028.2	62	1	Baltimore City	1234	185	1049	234360	2356000	223	2246	1.85	16.92	MEDIUM	620
PT166	708.5	5	1	Cox Creek	507	59	447	18900	190000	42	425	1.85	89.48	HIGH	253
SV234	438.0	65	1	Patuxent	1204	180	1024	245700	2470000	240	2413	1.85	15.75	MEDIUM	606
MR253	503.5	40	1	Broadneck	761	114	647	151200	1520000	234	2348	1.85	16.18	MEDIUM	383
SV392	537.5	65	3	Rural	1878	942	936	243750	845000	260	902	1.85	14.41	MEDIUM	942
SV512	191.2	63	3	Broadneck	1038	523	515	236250	819000	459	1590	1.84	8.18	LOW	523
UP649	965.3	85	3	Rural	1786	897	888	318750	1105000	359	1244	1.84	10.45	LOW	897
LP440	451.5	18	1	Maryland city	556	83	473	68040	684000	144	1446	1.84	26.28	HIGH	279
LP194	250.4	18	1	Patuxent	1225	184	1041	68040	684000	65	657	1.84	57.84	HIGH	613
SV10	34.4	18	1	Baltimore City	222	33	189	68040	684000	360	3618	1.83	10.50	LOW	112
LP202	963.7	7	1	Patuxent	421	63	358	26460	266000	74	744	1.83	51.08	HIGH	210
SO535	275.7	7	3	Rural	188	95	94	26250	91000	280	969	1.83	13.41	LOW	95
LP564	137.7	120	1	Baltimore City	1482	222	1260	453600	4560000	360	3618	1.83	10.50	LOW	749
SV407	178.4	21	3	Rural	547	274	273	78750	273000	289	1002	1.83	12.98	LOW	274
PT151	347.4	17	1	Cox Creek	666	92	574	64260	646000	112	1125	1.83	33.78	HIGH	334
SO536	449.9	74	3	Rural	1085	547	538	277500	962000	516	1788	1.83	7.27	LOW	547
SO523	1117.3	141	3	Rural	3059	1536	1522	528750	1833000	347	1204	1.82	10.80	LOW	1536
LP247	714.4	9	1	Patuxent	579	87	492	34020	342000	69	695	1.82	54.68	HIGH	290
SO539	849.1	87	3	Rural	1415	712	703	326250	1131000	464	1610	1.82	8.07	LOW	712
PN484	51.8	1	1	Patuxent	79	12	67	3780	38000	56	565	1.82	67.31	HIGH	40
LP244	352.8	2	1	Patuxent	25	4	21	7560	76000	360	3618	1.82	10.50	LOW	12
LP245	280.6	1	1	Patuxent	12	2	11	3780	38000	360	3618	1.82	10.50	LOW	6
PT307	36.9	1	1	Baltimore City	12	2	11	3780	38000	360	3618	1.82	10.50	LOW	6
UP438	171.2	1	3	Maryland city	12	6	6	3750	13000	614	2128	1.82	6.11	LOW	6
LP316	357.7	2	3	Maryland city	158	79	79	7500	26000	95	328	1.82	39.59	HIGH	79
PT148	148.1	2	1	Cox Creek	92	14	78	7560	76000	97	977	1.82	38.91	HIGH	46
PN298	333.5	13	1	Baltimore City	294	44	250	49140	494000	196	1975	1.82	19.24	MEDIUM	148
PN85	2277.5	22	1	Baltimore City	1141	171	970	83160	836000	86	862	1.82	44.07	HIGH	571
SO466	366.5	18	3	Rural	490	246	244	67500	234000	277	959	1.82	13.55	LOW	246
SV280	460.2	37	1	Broadneck	658	108	550	139860	1406000	254	2558	1.82	14.85	MEDIUM	331
UP653	1090.1	102	3	Rural	2215	1113	1102	382500	1326000	347	1203	1.81	10.81	LOW	1113
SV21	1082.1	139	1	Broadneck	3177	477	2700	525420	5282000	195	1956	1.81	19.42	MEDIUM	1596
SV30	255.1	49	1	Patuxent	1073	161	912	185220	1862000	203	2041	1.80	18.62	MEDIUM	539
MR145	383.3	89	1	Cox Creek	2971	445	2525	336420	3382000	133	1339	1.80	28.37	HIGH	1489

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SV71	45.4	10	1	Broadneck	257	39	219	37800	380000	173	1738	1.80	21.86	HIGH	129
PT591	554.0	142	1	Cox Creek	2890	433	2457	536760	5396000	218	2196	1.80	17.30	MEDIUM	1453
MR223	174.1	59	1	Broadneck	996	149	847	223020	2242000	263	2647	1.80	14.36	MEDIUM	502
SV613	59.8	8	3	Rural	166	83	82	30000	104000	364	1263	1.79	10.30	LOW	83
SV356	646.3	74	1	Patuxent	1515	227	1289	279720	2812000	217	2182	1.79	17.41	MEDIUM	762
BC617	55.5	11	3	Rural	258	129	128	41250	143000	322	1116	1.79	11.65	LOW	129
MR638	294.9	32	3	Rural	475	239	236	120000	416000	509	1765	1.79	7.36	LOW	239
SV60	316.3	45	1	Broadneck	957	143	813	170100	1710000	209	2102	1.79	18.08	MEDIUM	481
MR164	382.0	12	1	Cox Creek	482	72	410	45360	456000	111	1112	1.78	34.17	HIGH	242
SV634	1404.2	285	3	Rural	5857	2943	2914	1068750	3705000	367	1271	1.78	10.22	LOW	2943
UP647	1159.6	64	3	Rural	1121	564	557	240000	832000	431	1493	1.78	8.70	LOW	564
PT12	99.6	10	1	Cox Creek	257	39	219	37800	380000	173	1738	1.78	21.86	HIGH	129
PN297	567.7	71	1	Baltimore City	1038	161	877	268380	2698000	306	3078	1.77	12.35	LOW	523
PT147	503.8	23	1	Cox Creek	554	83	471	86940	874000	184	1855	1.77	20.49	HIGH	278
SV199	334.8	8	1	Patuxent	633	95	538	30240	304000	56	565	1.77	67.31	HIGH	317
PT96	47.2	22	1	Cox Creek	272	41	231	83160	836000	360	3618	1.76	10.50	LOW	137
UP241	487.9	43	1	Patuxent	1266	190	1077	162540	1634000	151	1518	1.76	25.03	HIGH	635
SV404	845.0	37	3	Rural	1836	919	917	138750	481000	151	525	1.76	24.78	HIGH	919
UP648	2640.5	138	3	Rural	5353	2681	2671	517500	1794000	194	672	1.75	19.36	MEDIUM	2681
SO423	242.0	227	1	Annapolis	3393	509	2883	858060	8626000	298	2992	1.75	12.70	LOW	1710
PT561	299.2	42	3	Rural	1131	568	563	157500	546000	280	969	1.74	13.42	LOW	568
SO341	106.4	9	1	Annapolis	713	107	606	34020	342000	56	565	1.74	67.31	HIGH	356
SV124	17.0	5	1	Broadneck	195	29	166	18900	190000	114	1144	1.74	33.23	HIGH	98
SV408	343.5	23	3	Rural	603	303	301	86250	299000	287	995	1.74	13.07	LOW	303
MR569	428.8	495	1	Broadneck	9052	1365	7686	1871100	18810000	243	2447	1.73	15.53	MEDIUM	4555
SO682	122.3	34	1	Annapolis	802	113	689	128520	1292000	187	1876	1.73	20.25	MEDIUM	403
SV343	4612.0	19	1	Annapolis	368	55	313	71820	722000	229	2305	1.73	16.48	MEDIUM	185
SV251	109.8	15	1	Broadneck	259	38	222	56700	570000	256	2570	1.73	14.78	MEDIUM	131
SO331	314.3	22	1	Rural	723	121	602	83160	836000	138	1388	1.71	27.38	HIGH	362
UP428	251.7	281	2	Rural	3716	579	3137	997550	10173180	318	3243	1.70	11.16	LOW	1875
MR248	521.7	39	1	Broadneck	682	102	580	147420	1482000	254	2555	1.68	14.87	MEDIUM	343
PT169	370.3	6	1	Cox Creek	475	71	404	22680	228000	56	565	1.68	67.31	HIGH	238
SV612	129.7	3	3	Rural	171	85	85	11250	39000	132	457	1.68	28.43	HIGH	85
PT206	630.5	9	1	Cox Creek	435	67	369	34020	342000	92	928	1.68	40.96	HIGH	218
PT586	542.5	88	1	Cox Creek	1597	263	1334	332640	3344000	249	2507	1.68	15.16	MEDIUM	803
MR42	61.6	32	1	Broadneck	863	129	734	120960	1216000	165	1657	1.67	22.93	HIGH	433
PT291	275.2	1	1	Baltimore City	48	12	36	3780	38000	106	1066	1.67	35.63	HIGH	24
MR35	2.9	1	5	Broadneck	48	48	0	0	0	-	-	1.67	0.00	LOW	24
LP138	102.6	19	1	Maryland city	1103	165	938	71820	722000	77	770	1.67	49.37	HIGH	552
SO543	758.8	132	3	Rural	2414	1213	1201	495000	1716000	412	1429	1.66	9.10	LOW	1213
SV29	58.3	22	1	Broadneck	539	81	458	83160	836000	181	1824	1.66	20.83	HIGH	271
PN670	210.5	14	3	Baltimore City	435	218	217	52500	182000	242	839	1.66	15.50	MEDIUM	218

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SO532	444.1	6	3	Annapolis	300	150	150	22500	78000	150	520	1.66	24.98	HIGH	150
LP121	478.7	36	1	Patuxent	1781	267	1514	136080	1368000	90	903	1.66	42.06	HIGH	892
PT661	297.4	5	1	Cox Creek	129	19	109	18900	190000	173	1738	1.65	21.86	HIGH	65
SV123	32.0	12	1	Patuxent	349	52	296	45360	456000	153	1538	1.65	24.70	HIGH	175
PN487	230.0	17	3	Baltimore City	272	137	135	63750	221000	473	1638	1.65	7.94	LOW	137
PT158	355.9	12	1	Cox Creek	143	22	121	45360	456000	375	3765	1.65	10.09	LOW	72
MR41	98.4	40	1	Broadneck	628	94	534	151200	1520000	283	2848	1.65	13.34	LOW	316
MR505	38.8	21	1	Broadneck	460	69	391	79380	798000	203	2041	1.64	18.62	MEDIUM	231
LP435	563.9	11	1	Maryland city	265	40	224	41580	418000	185	1864	1.64	20.38	HIGH	133
MR463	682.4	197	3	Rural	4301	2160	2141	738750	2561000	345	1196	1.64	10.87	LOW	2160
SV201	341.3	13	1	Patuxent	213	34	179	49140	494000	275	2767	1.63	13.73	LOW	107
SV510	33.5	2	3	Rural	158	79	79	7500	26000	95	328	1.61	39.59	HIGH	79
UP640	154.4	2	3	Rural	92	46	46	7500	26000	164	569	1.61	22.85	HIGH	46
LP433	65.0	2	1	Maryland city	25	4	21	7560	76000	360	3618	1.61	10.50	LOW	12
PN11	140.1	57	1	Baltimore City	2241	336	1905	215460	2166000	113	1137	1.61	33.42	HIGH	1123
UP642	1300.6	11	3	Rural	312	156	155	41250	143000	265	920	1.61	14.13	MEDIUM	156
SO517	119.0	7	1	Annapolis	633	83	550	26460	266000	48	483	1.61	78.62	HIGH	317
LP439	466.6	30	1	Maryland city	705	106	599	113400	1140000	189	1903	1.61	19.97	MEDIUM	354
SV409	844.2	178	3	Rural	2971	1495	1476	667500	2314000	452	1568	1.60	8.29	LOW	1495
PT155	779.6	45	1	Cox Creek	808	123	685	170100	1710000	248	2496	1.60	15.22	MEDIUM	407
LP218	191.1	11	1	Patuxent	470	70	400	41580	418000	104	1046	1.60	36.32	HIGH	235
PT669	9.5	6	1	Broadneck	208	31	177	22680	228000	128	1291	1.59	29.44	HIGH	104
SV611	1217.0	180	3	Rural	3857	1937	1919	675000	2340000	352	1219	1.58	10.66	LOW	1937
PT533	21.2	17	1	Cox Creek	210	31	179	64260	646000	360	3618	1.58	10.50	LOW	106
LP191	275.9	4	1	Piney Orchard	49	7	42	15120	152000	360	3618	1.58	10.50	LOW	25
MR499	59.4	15	1	Cox Creek	319	48	271	56700	570000	209	2102	1.57	18.08	MEDIUM	160
SO352	318.3	102	1	Annapolis	4647	710	3937	385560	3876000	98	984	1.57	38.60	HIGH	2327
MR125	22.2	16	1	Broadneck	198	30	168	60480	608000	360	3618	1.57	10.50	LOW	100
PN563	65.1	73	1	Baltimore City	919	145	774	275940	2774000	356	3583	1.57	10.61	LOW	464
SO431	56.8	13	1	Annapolis	628	94	534	49140	494000	92	925	1.57	41.09	HIGH	315
SV583	49.0	16	1	Patuxent	465	70	395	60480	608000	153	1538	1.56	24.70	HIGH	233
SV391	769.9	196	3	Rural	3538	1779	1759	735000	2548000	418	1449	1.56	8.97	LOW	1779
PN427	7.3	3	1	Baltimore City	171	26	145	11340	114000	78	786	1.56	48.37	HIGH	85
SO576	137.2	129	3	Rural	1554	784	770	483750	1677000	628	2177	1.55	5.97	LOW	784
SO378	32.7	6	1	Annapolis	208	31	177	22680	228000	128	1291	1.55	29.44	HIGH	104
PT139	418.6	6	1	Cox Creek	171	31	140	22680	228000	162	1628	1.55	23.34	HIGH	86
PT154	397.5	3	1	Cox Creek	37	6	32	11340	114000	360	3618	1.55	10.50	LOW	19
LP243	424.5	46	1	Patuxent	1284	195	1088	173880	1748000	160	1606	1.54	23.66	HIGH	644
SV635	658.7	174	3	Rural	4073	2044	2029	652500	2262000	322	1115	1.54	11.66	LOW	2044
PT143	63.7	2	1	Cox Creek	20	4	16	7560	76000	471	4730	1.54	8.03	LOW	10
SV233	715.4	50	1	Patuxent	764	122	641	189000	1900000	295	2963	1.54	12.83	LOW	385
LP246	394.6	4	1	Patuxent	183	27	156	15120	152000	97	977	1.52	38.91	HIGH	92

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PT19	1339.8	52	1	Cox Creek	1573	236	1337	196560	1976000	147	1478	1.52	25.70	HIGH	789
MR503	124.0	50	1	Broadneck	684	102	582	189000	1900000	325	3265	1.52	11.64	LOW	345
SO366	207.0	10	1	Annapolis	458	69	389	37800	380000	97	977	1.52	38.91	HIGH	229
LP195	80.7	14	1	Patuxent	163	26	137	52920	532000	386	3878	1.52	9.80	LOW	82
MR104	26.3	7	1	Cox Creek	153	23	130	26460	266000	203	2041	1.50	18.62	MEDIUM	77
SV571	941.5	884	1	Broadneck	10197	1832	8364	3341520	33592000	400	4016	1.50	9.46	LOW	5145
MR43	62.6	19	1	Broadneck	502	75	427	71820	722000	168	1692	1.50	22.46	HIGH	252
PN303	512.7	29	1	Baltimore City	410	64	347	109620	1102000	316	3179	1.49	11.95	LOW	207
MR624	228.9	10	1	Broadneck	257	39	219	37800	380000	173	1738	1.49	21.86	HIGH	129
SV220	265.4	29	1	Patuxent	492	74	418	109620	1102000	262	2635	1.49	14.42	MEDIUM	248
MR39	385.8	341	1	Broadneck	4055	700	3355	1288980	12958000	384	3862	1.49	9.84	LOW	2046
PT211	136.5	6	1	Cox Creek	144	31	113	22680	228000	200	2013	1.48	18.88	MEDIUM	72
SV174	906.3	32	1	Patuxent	950	149	801	120960	1216000	151	1518	1.48	25.03	HIGH	477
MR500	23.3	6	1	Cox Creek	74	11	63	22680	228000	360	3618	1.48	10.50	LOW	37
SV406	80.4	7	3	Rural	153	77	76	26250	91000	344	1193	1.47	10.89	LOW	77
MP398	239.7	22	3	Rural	530	266	264	82500	286000	312	1083	1.46	12.00	LOW	266
SV239	140.9	38	1	Patuxent	536	80	456	143640	1444000	315	3167	1.46	12.00	LOW	270
SV221	156.1	8	1	Broadneck	433	65	368	30240	304000	82	826	1.46	46.01	HIGH	217
PT95	74.3	28	1	Cox Creek	346	52	294	105840	1064000	360	3618	1.45	10.50	LOW	175
LP200	446.8	22	1	Patuxent	391	61	330	83160	836000	252	2534	1.45	14.99	MEDIUM	196
PT217	454.6	1	1	Cox Creek	48	12	36	3780	38000	106	1066	1.45	35.63	HIGH	24
PT160	51.5	1	1	Cox Creek	7	2	6	3780	38000	679	6830	1.45	5.56	LOW	4
PT89	1.9	1	5	Cox Creek	7	7	0	0	0	-	-	1.45	0.00	LOW	4
PT167	583.4	14	1	Cox Creek	297	46	251	52920	532000	211	2121	1.44	17.91	MEDIUM	149
LP235	529.2	10	1	Patuxent	309	49	261	37800	380000	145	1458	1.44	26.06	HIGH	155
PN301	775.8	16	1	Baltimore City	352	60	292	60480	608000	207	2082	1.43	18.25	MEDIUM	177
PN666	649.8	24	1	Baltimore City	492	74	418	90720	912000	217	2184	1.43	17.40	MEDIUM	247
SO465	94.8	15	3	Rural	279	140	139	56250	195000	404	1402	1.42	9.27	LOW	140
MR358	4.9	5	1	Cox Creek	396	59	337	18900	190000	56	565	1.41	67.31	HIGH	198
MR105	77.9	1	1	Cox Creek	79	12	67	3780	38000	56	565	1.41	67.31	HIGH	40
PT204	573.3	1	1	Cox Creek	79	12	67	3780	38000	56	565	1.41	67.31	HIGH	40
SO508	211.7	1	1	Mayo	79	12	67	3780	38000	56	565	1.41	67.31	HIGH	40
UP664	10.1	1	1	Maryland city	79	12	67	3780	38000	56	565	1.41	67.31	HIGH	40
LP281	20.6	4	1	Patuxent	250	37	212	15120	152000	71	716	1.41	53.11	HIGH	125
LP393	2809.6	1	3	Patuxent	79	40	40	3750	13000	95	328	1.41	39.59	HIGH	40
UP437	96.0	1	3	Maryland city	79	40	40	3750	13000	95	328	1.41	39.59	HIGH	40
MR658	103.2	4	3	Rural	116	58	58	15000	52000	259	898	1.41	14.48	MEDIUM	58
SV20	4.4	4	1	Broadneck	49	7	42	15120	152000	360	3618	1.41	10.50	LOW	25
PN94	8.8	4	1	Baltimore City	49	7	42	15120	152000	360	3618	1.41	10.50	LOW	25
SV122	2.8	1	1	Rural	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
MR129	5.8	1	1	Broadneck	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
MR131	4.8	4	1	Broadneck	49	7	42	15120	152000	360	3618	1.41	10.50	LOW	25

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MR132	6.6	1	1	Broadneck	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
BC153	33.4	2	1	Cox Creek	25	4	21	7560	76000	360	3618	1.41	10.50	LOW	12
LP197	0.1	1	1	Maryland city	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
SO367	166.3	1	1	Annapolis	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
SO368	66.6	1	1	Annapolis	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
UP432	123.6	1	1	Maryland city	12	2	11	3780	38000	360	3618	1.41	10.50	LOW	6
LP662	5.1	2	1	Maryland city	25	4	21	7560	76000	360	3618	1.41	10.50	LOW	12
PN665	3.3	2	1	Baltimore City	25	4	21	7560	76000	360	3618	1.41	10.50	LOW	12
MR677	60.7	2	1	Broadneck	25	4	21	7560	76000	360	3618	1.41	10.50	LOW	12
SV126	5.6	3	1	Patuxent	37	6	32	11340	114000	360	3618	1.41	10.50	LOW	19
PT136	43.7	7	1	Cox Creek	77	13	64	26460	266000	416	4179	1.41	9.09	LOW	39
LP636	4026.6	2	3	Rural	25	12	12	7500	26000	614	2128	1.41	6.11	LOW	12
MR130	16.0	10	1	Broadneck	324	49	275	37800	380000	137	1380	1.41	27.54	HIGH	162
SV69	11.7	10	1	Broadneck	190	28	162	37800	380000	234	2348	1.41	16.18	MEDIUM	96
SV128	9.5	9	1	Baltimore City	111	17	95	34020	342000	360	3618	1.41	10.50	LOW	56
MR40	15.4	12	1	Broadneck	349	52	296	45360	456000	153	1538	1.41	24.70	HIGH	175
SV405	475.6	90	3	Rural	1558	783	775	337500	1170000	436	1510	1.40	8.61	LOW	783
BC619	1158.4	189	3	Rural	8333	4171	4163	708750	2457000	170	590	1.40	22.02	HIGH	4171
SV504	491.6	62	1	Broadneck	1113	185	928	234360	2356000	252	2538	1.39	14.97	MEDIUM	560
SV242	332.2	11	1	Patuxent	208	40	168	41580	418000	248	2491	1.38	15.26	MEDIUM	105
MR28	8.6	6	5	Broadneck	44	44	0	0	0	-	-	1.37	0.00	LOW	22
SV170	435.0	16	1	Cox Creek	302	50	252	60480	608000	240	2412	1.36	15.75	MEDIUM	152
SO14	8.7	7	5	Annapolis	52	52	0	0	0	-	-	1.35	0.00	LOW	26
PT215	597.4	21	1	Cox Creek	215	49	167	79380	798000	476	4788	1.34	7.94	LOW	109
PN667	653.7	27	1	Baltimore City	585	110	475	102060	1026000	215	2160	1.33	17.59	MEDIUM	294
PN286	375.7	2	1	Baltimore City	15	4	11	7560	76000	679	6830	1.33	5.56	LOW	7
SV52	16.2	11	5	Broadneck	242	242	0	0	0	-	-	1.32	0.00	LOW	121
LP551	418.7	28	3	Rural	920	461	459	105000	364000	229	792	1.32	16.41	MEDIUM	461
PT589	349.0	4	1	Cox Creek	146	27	119	15120	152000	127	1277	1.31	29.75	HIGH	73
SV165	114.4	4	1	Cox Creek	44	7	37	15120	152000	408	4100	1.31	9.27	LOW	22
PT587	534.4	4	1	Cox Creek	115	27	87	15120	152000	173	1740	1.31	21.83	HIGH	57
MR31	1.5	3	5	Broadneck	22	22	0	0	0	-	-	1.30	0.00	LOW	11
LP190	346.1	9	1	Piney Orchard	131	27	105	34020	342000	324	3262	1.28	11.65	LOW	66
SV478	176.9	6	3	Rural	278	139	139	22500	78000	162	561	1.27	23.15	HIGH	139
PT205	746.9	12	1	Cox Creek	176	32	143	45360	456000	316	3181	1.24	11.94	LOW	88
SV17	43.1	15	5	Broadneck	151	151	0	0	0	-	-	1.24	0.00	LOW	76
PN284	132.6	2	1	Baltimore City	15	4	11	7560	76000	679	6830	1.22	5.56	LOW	7
PT590	137.4	2	1	Cox Creek	15	4	11	7560	76000	679	6830	1.22	5.56	LOW	7
MR38	4.4	3	5	Broadneck	62	62	0	0	0	-	-	1.22	0.00	LOW	31
PT98	92.4	2	5	Cox Creek	55	55	0	0	0	-	-	1.22	0.00	LOW	27
SO342	50.0	2	1	Annapolis	127	24	103	7560	76000	73	738	1.20	51.47	HIGH	63
SV568	574.4	626	1	Broadneck	5710	1196	4514	2366280	23788000	524	5269	1.17	7.21	LOW	2884

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MR26	12.5	4	5	Broadneck	30	30	0	0	0	-	-	1.17	0.00	LOW	15
MR36	4.2	4	5	Broadneck	30	30	0	0	0	-	-	1.17	0.00	LOW	15
PN113	16.0	4	5	Baltimore City	70	70	0	0	0	-	-	1.17	0.00	LOW	35
PN103	87.5	34	5	Baltimore City	292	292	0	0	0	-	-	1.14	0.00	LOW	147
SV574	83.5	93	3	Rural	903	456	447	348750	1209000	780	2704	1.14	4.81	LOW	456
RR447	74.1	3	1	Mayo	27	6	22	11340	114000	524	5270	1.14	7.21	LOW	14
SV339	71.9	21	3	Rural	1022	511	511	78750	273000	154	534	1.14	24.34	HIGH	511
SV198	339.3	12	1	Patuxent	282	52	230	45360	456000	197	1981	1.14	19.18	MEDIUM	142
MR34	9.1	12	5	Broadneck	89	89	0	0	0	-	-	1.13	0.00	LOW	45
SO430	443.0	10	1	Annapolis	378	79	299	37800	380000	126	1269	1.12	29.94	HIGH	189
PN109	109.8	47	5	Baltimore City	428	428	0	0	0	-	-	1.10	0.00	LOW	216
SV56	15.8	7	5	Broadneck	333	333	0	0	0	-	-	1.10	0.00	LOW	166
SV93	66.3	56	5	Baltimore City	575	575	0	0	0	-	-	1.09	0.00	LOW	290
LP110	159.2	23	5	Baltimore City	371	371	0	0	0	-	-	1.09	0.00	LOW	186
SV668	72.9	8	1	Patuxent	99	25	75	30240	304000	405	4076	1.08	9.32	LOW	50
MR25	12.4	8	5	Broadneck	59	59	0	0	0	-	-	1.08	0.00	LOW	30
RR2	135.6	22	5	Mayo	444	444	0	0	0	-	-	1.08	0.00	LOW	222
LP45	96.5	31	5	Rural	350	350	0	0	0	-	-	1.08	0.00	LOW	176
UP79	283.9	10	5	Maryland city	275	275	0	0	0	-	-	1.07	0.00	LOW	137
LP99	127.5	18	5	Patuxent	294	294	0	0	0	-	-	1.06	0.00	LOW	147
LP51	57.5	19	5	Patuxent	742	742	0	0	0	-	-	1.06	0.00	LOW	371
PN116	493.2	49	5	Baltimore City	804	804	0	0	0	-	-	1.05	0.00	LOW	404
PT107	240.2	75	5	Cox Creek	957	957	0	0	0	-	-	1.04	0.00	LOW	481
SV53	57.8	30	5	Patuxent	262	262	0	0	0	-	-	1.04	0.00	LOW	132
SV97	199.1	54	5	Baltimore City	480	480	0	0	0	-	-	1.04	0.00	LOW	242
MR68	559.6	222	5	Broadneck	2247	2247	0	0	0	-	-	1.04	0.00	LOW	1131
MR80	65.5	31	5	Broadneck	230	230	0	0	0	-	-	1.04	0.00	LOW	116
PT92	653.0	128	5	Cox Creek	2111	2111	0	0	0	-	-	1.03	0.00	LOW	1060
MR65	545.2	258	5	Broadneck	2674	2674	0	0	0	-	-	1.03	0.00	LOW	1346
SV54	13.5	16	5	Broadneck	359	359	0	0	0	-	-	1.03	0.00	LOW	180
PT108	77.2	25	5	Cox Creek	466	466	0	0	0	-	-	1.03	0.00	LOW	234
PT112	97.5	32	5	Baltimore City	1280	1280	0	0	0	-	-	1.02	0.00	LOW	640
SV87	116.8	22	5	Patuxent	323	323	0	0	0	-	-	1.02	0.00	LOW	162
PN118	70.7	22	5	Baltimore City	203	203	0	0	0	-	-	1.02	0.00	LOW	102
LP102	64.5	25	5	Maryland city	265	265	0	0	0	-	-	1.02	0.00	LOW	134
PT213	503.5	3	1	Cox Creek	102	26	77	11340	114000	148	1484	1.00	25.61	HIGH	51
PT214	606.4	34	1	Cox Creek	292	73	219	128520	1292000	586	5893	1.00	6.45	LOW	147
SV49	24.6	1	1	Broadneck	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4
PN127	10.7	1	1	Baltimore City	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4
PT133	4.9	1	1	Cox Creek	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4
SV134	61.5	5	1	Patuxent	37	9	28	18900	190000	679	6830	1.00	5.56	LOW	19
PT141	344.1	1	1	Cox Creek	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4

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PT162	98.3	1	1	Cox Creek	7	2	6	3780	38000	679	6830	1.00	5.56	LOW	4
MR357	10.2	3	1	Broadneck	22	6	16.692	11340	114000	679.36736	6829.619	1.00	5.56	LOW	11
PT588	148.6	2	1	Cox Creek	15	4	11	7560	76000	679	6830	1.00	5.56	LOW	7
LP552	839.5	13	4	Rural	417	417	0	0	0	-	-	1.00	0.00	LOW	209
UP645	149.4	1	4	Rural	48	48	0	0	0	-	-	1.00	0.00	LOW	24
WR1	66.5	6	5	Broadwater	44	44	0	0	0	-	-	1.00	0.00	LOW	22
SO3	27.3	22	5	Annapolis	203	203	0	0	0	-	-	1.00	0.00	LOW	102
SO4	11.2	1	5	Annapolis	48	48	0	0	0	-	-	1.00	0.00	LOW	24
SO5	138.9	4	5	Annapolis	110	110	0	0	0	-	-	1.00	0.00	LOW	55
SV6	31.3	1	5	Annapolis	48	48	0	0	0	-	-	1.00	0.00	LOW	24
SO7	1.0	1	5	Annapolis	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SO8	37.8	5	5	Annapolis	197	197	0	0	0	-	-	1.00	0.00	LOW	99
SO9	23.5	3	5	Annapolis	22	22	0	0	0	-	-	1.00	0.00	LOW	11
SO13	6.9	1	5	Annapolis	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV15	3.9	2	5	Annapolis	95	95	0	0	0	-	-	1.00	0.00	LOW	48
SO16	36.4	1	5	Annapolis	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV18	3.9	2	5	Broadneck	55	55	0	0	0	-	-	1.00	0.00	LOW	27
SV22	9.5	5	5	Broadneck	117	117	0	0	0	-	-	1.00	0.00	LOW	59
SV23	2.3	1	5	Broadneck	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV24	82.0	10	5	Broadneck	74	74	0	0	0	-	-	1.00	0.00	LOW	37
MR27	1.3	1	5	Broadneck	7	7	0	0	0	-	-	1.00	0.00	LOW	4
LP32	132.8	14	5	Patuxent	344	344	0	0	0	-	-	1.00	0.00	LOW	172
LP37	73.3	19	5	Patuxent	742	742	0	0	0	-	-	1.00	0.00	LOW	371
LP44	1.9	2	5	Patuxent	15	15	0	0	0	-	-	1.00	0.00	LOW	7
LP46	21.2	6	5	Patuxent	205	205	0	0	0	-	-	1.00	0.00	LOW	103
SV47	12.9	10	5	Broadneck	74	74	0	0	0	-	-	1.00	0.00	LOW	37
SV48	12.0	1	5	Patuxent	48	48	0	0	0	-	-	1.00	0.00	LOW	24
SV50	1.2	2	5	Broadneck	15	15	0	0	0	-	-	1.00	0.00	LOW	7
SV55	0.1	1	5	Rural	7	7	0	0	0	-	-	1.00	0.00	LOW	4
MR57	8.2	1	5	Broadneck	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV58	15.2	7	5	Patuxent	52	52	0	0	0	-	-	1.00	0.00	LOW	26
SV63	9.3	1	5	Patuxent	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV64	20.7	2	5	Broadneck	55	55	0	0	0	-	-	1.00	0.00	LOW	27
PT66	17.3	3	5	Cox Creek	22	22	0	0	0	-	-	1.00	0.00	LOW	11
SV67	6.9	1	5	Rural	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV76	13.5	8	5	Patuxent	59	59	0	0	0	-	-	1.00	0.00	LOW	30
MR77	2.0	2	5	Cox Creek	15	15	0	0	0	-	-	1.00	0.00	LOW	7
SV78	23.8	32	5	Broadneck	237	237	0	0	0	-	-	1.00	0.00	LOW	120
MR81	34.5	2	5	Cox Creek	15	15	0	0	0	-	-	1.00	0.00	LOW	7
MR82	10.3	1	5	Cox Creek	7	7	0	0	0	-	-	1.00	0.00	LOW	4
LP83	28.6	1	5	Maryland city	48	48	0	0	0	-	-	1.00	0.00	LOW	24
LP86	0.4	1	5	Patuxent	48	48	0	0	0	-	-	1.00	0.00	LOW	24

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PT88	51.9	6	5	Cox Creek	44	44	0	0	0	-	-	1.00	0.00	LOW	22
SV90	30.8	25	5	Broadneck	185	185	0	0	0	-	-	1.00	0.00	LOW	94
LP91	6.8	1	5	Maryland city	7	7	0	0	0	-	-	1.00	0.00	LOW	4
SV100	2.8	1	5	Broadneck	7	7	0	0	0	-	-	1.00	0.00	LOW	4
LP101	5.7	2	5	Baltimore City	15	15	0	0	0	-	-	1.00	0.00	LOW	7
PN106	120.3	24	5	Baltimore City	418	418	0	0	0	-	-	1.00	0.00	LOW	210
PN111	28.4	3	5	Baltimore City	22	22	0	0	0	-	-	1.00	0.00	LOW	11
PN115	4.3	3	5	Baltimore City	22	22	0	0	0	-	-	1.00	0.00	LOW	11
PT117	703.8	28	5	Cox Creek	408	408	0	0	0	-	-	1.00	0.00	LOW	205
PN119	73.9	2	5	Baltimore City	15	15	0	0	0	-	-	1.00	0.00	LOW	7
PN120	10.9	1	5	Cox Creek	7	7	0	0	0	-	-	1.00	0.00	LOW	4

Attachment D
Methodology for Defining OSDS Management Areas

Methodology for Defining OSDS Management Areas

The 3-step process that was used to delineate each OSDS Management Area (MA) is presented in detail below. The process is clarified further based on comments from the County as provided in map markups of January 8, 2008. County comments are organized into groups of similar issues, followed by a response to the comments.

Methodology for Defining and Ranking OSDS Management Areas

In Task 4, the treatment alternatives and costs developed in Tasks 2 and 3 were evaluated geospatially to develop recommendations for groups of OSDS referred to here as OSDS management areas. A management area was defined as a service area that would have the same treatment approach recommended for each OSDS within the management area. The management areas were separated into four treatment approach categories:

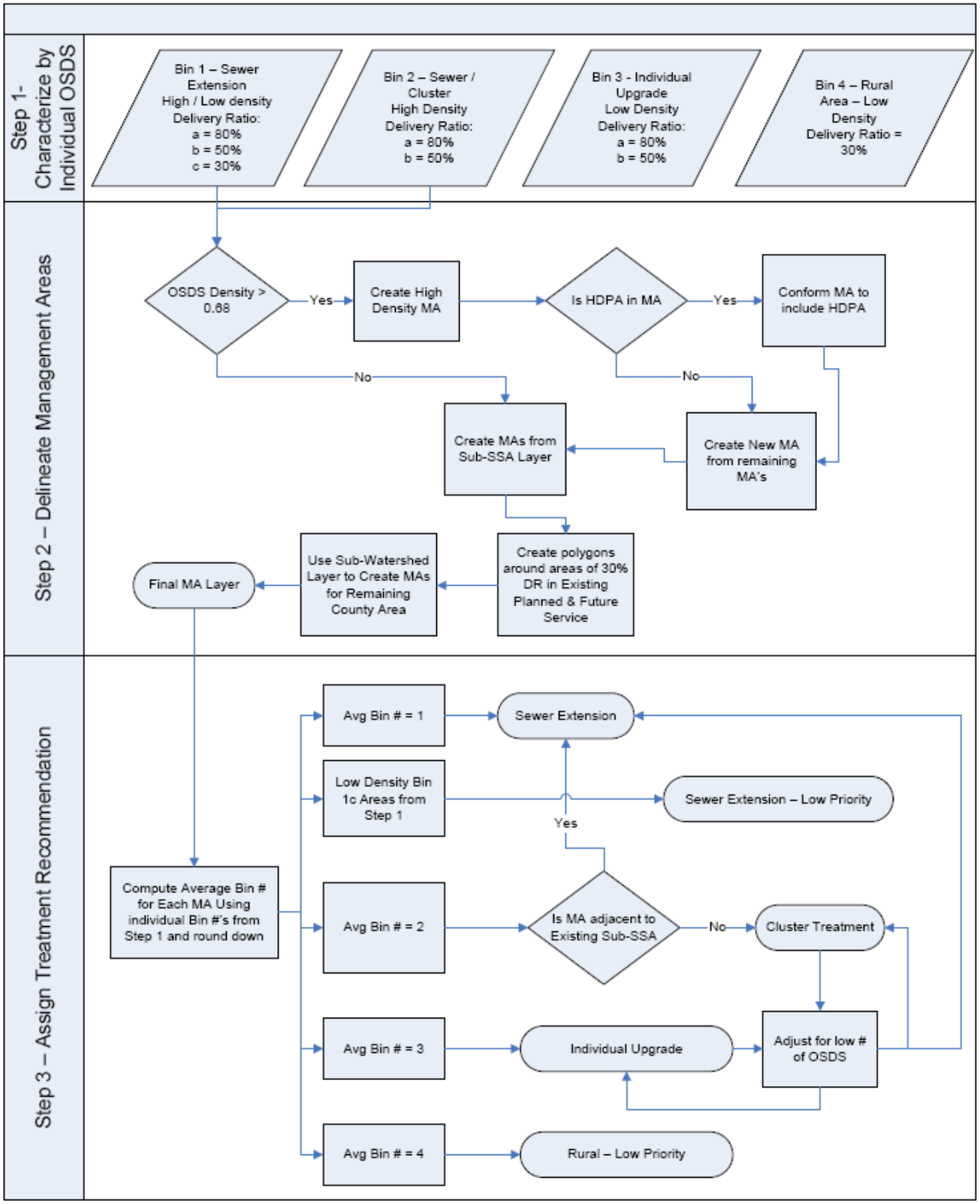
1. Sewer system extensions with treatment at existing centralized wastewater reclamation facilities upgraded for enhanced nutrient removal
2. Cluster wastewater treatment facilities
3. Upgrade each individual OSDS to an enhanced onsite sewage disposal system
4. No near-term action, which consists of either:
   - low-density, low nitrogen delivery onsite systems in rural areas, or
   - low-density, low nitrogen delivery onsite systems in areas designated for existing, planned, or future service

Management Area Delineation and Analysis

The concept of management areas provides logical groups of OSDS sites that are assigned the most cost-effective and environmentally beneficial treatment technology for each area. The overall procedure was a three step process: 1) characterize OSDS by density and delivery ratio and place into Bins 2) group OSDS into management areas, and 3) assign a treatment approach to each management area. In other words, each management area was comprised of a group, of OSDS that had like characteristics that would allow the same treatment technology to be assigned to all OSDS in the bin. This process is illustrated in Figure 1 and uses the following criteria to group the OSDS into Management Areas (MA):

- Planned sewer service (existing, planned, future, no service)
- OSDS density
- Nitrogen delivery ratio
- Subwatershed divides in rural SSAs with no planned sewer service
- Proximity to sewer
- Health Department-identified problem area

FIGURE 1
Procedure for Delineating OSDS Management Areas and Treatment Recommendations



Step 1 - Initial Bin Characterization

The first step in the Bin characterization was to apply the cost-density threshold reported in the Evaluation of Treatment Alternatives and Costs (Technical Memorandum in Appendix C of this Final Report This threshold was calculated as 0.68 OSDS per acre as part of the cost analysis performed in Appendix C. This value represented the point at which the equivalent uniform annual cost for sewer extension and cluster treatment became less costly than upgrading the onsite systems individually (i.e., OSDS that were more cost-effective to provide a local collection system for). In addition, all OSDS within existing, planned, or future service areas were initially assigned to Bin 1 for sewer extension.

In Appendix C, the project team evaluated several nitrogen delivery scenarios. The nitrogen delivery ratio adopted for this implementation plan analysis is based on the loading approach adopted recently by MDE. The following loading assumptions were applied to characterize the nitrogen delivery of OSDS as a function of distance to receiving water and were used to further subdivide the individual onsite systems in each Bin as follows:

- 80 percent in Chesapeake Bay Critical Areas (i.e. within 1000 ft of tidal surface waters)
- 50 percent for areas outside of Critical Areas, but within 1,000 ft of surface waters (i.e. non-tidal surface waters)
- 30 percent all others

For OSDS outside the Existing, Planned, and Future Service Areas, each OSDS was classified as Bin 2 - Sewer or Cluster Treatment if the OSDS density was above 0.68 and therefore cost-effective to provide a local sewer system. Bin 2 required further evaluation of the proximity to existing county sewers in order to assign the final treatment approach and this is discussed further as part of the formation of the OSDS management areas.

OSDS outside this area and below the density threshold were classified as Bin 3 – Individual Upgrade. All OSDS that were below the density threshold and 30% delivery ratio were placed into Bin 4 for low priority.

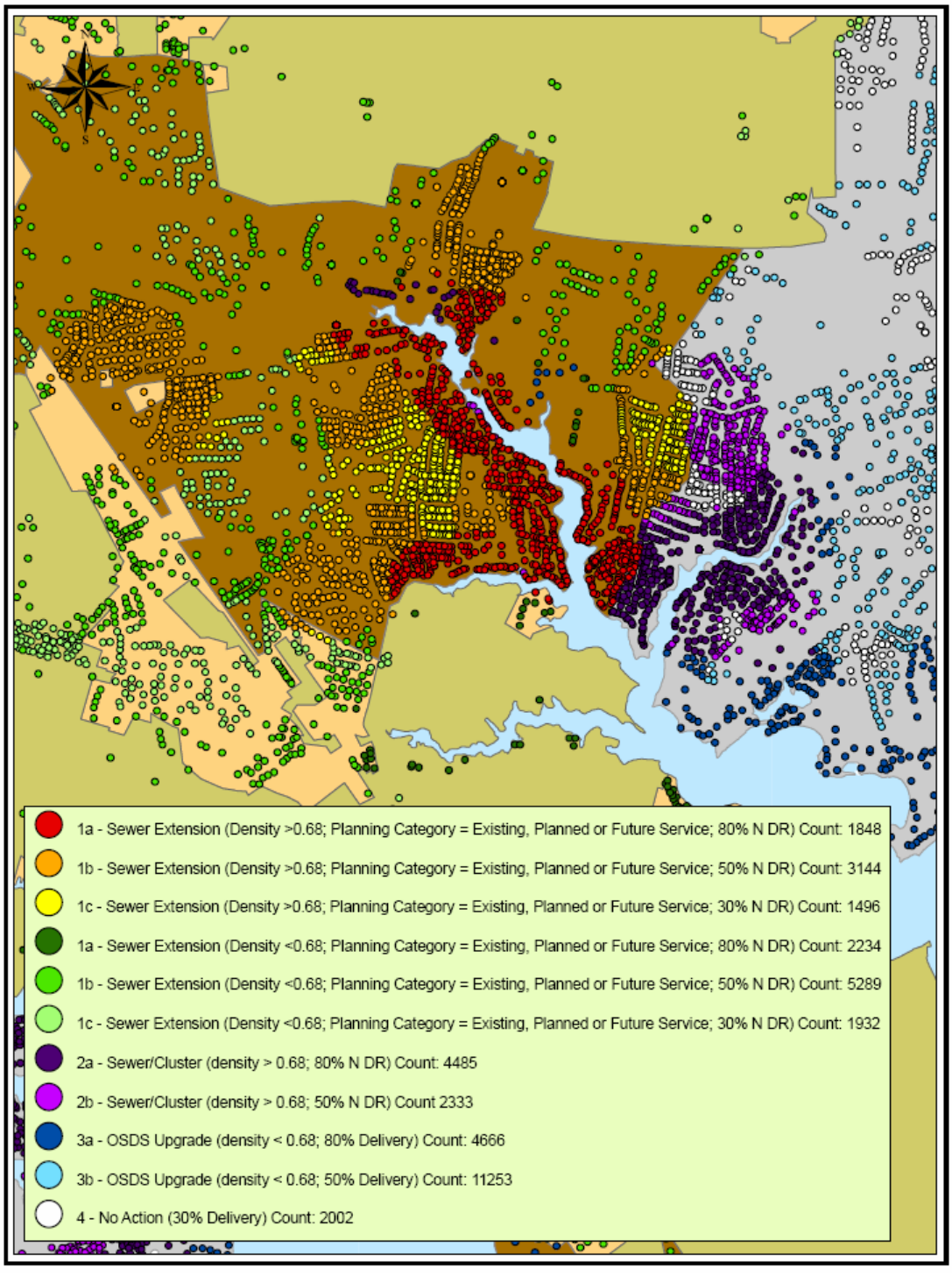
Nitrogen delivery ratio was used to further subdivide each initial bin to identify areas that would benefit from a higher level of treatment, using the following nomenclature:

- a: delivery ratio = 80 percent
- b: delivery ratio = 50 percent
- c: delivery ratio = 30 percent

The resulting initial bin characterization was broken down as follows and is illustrated in Figure 2:

- **Bin 1 – Sewer Extension -** Assign OSDS in county areas designated for Existing / Planned / Future Sewer Service
  - Bin 1, High Density ($\rho > 0.68$)
    - a: delivery ratio = 80 percent
    - b: delivery ratio = 50 percent
    - c: delivery ratio = 30 percent

FIGURE 2
Example of Initial Treatment Bin Characterization



  - Bin 1, Low Density ($\rho < 0.68$)
    - a: delivery ratio = 80 percent
    - b: delivery ratio = 50 percent
    - c: delivery ratio = 30 percent

- **Bin 2 Cluster or Sewer Area**

  - 2a: $\rho > 0.68$; delivery ratio = 80 percent
  - 2b: $\rho > 0.68$; delivery ratio = 50 percent

- **Bin 3 OSDS Upgrade**

  - 3a: $\rho < 0.68$; delivery ratio = 80 percent
  - 3b: $\rho < 0.68$; DR = 50 percent

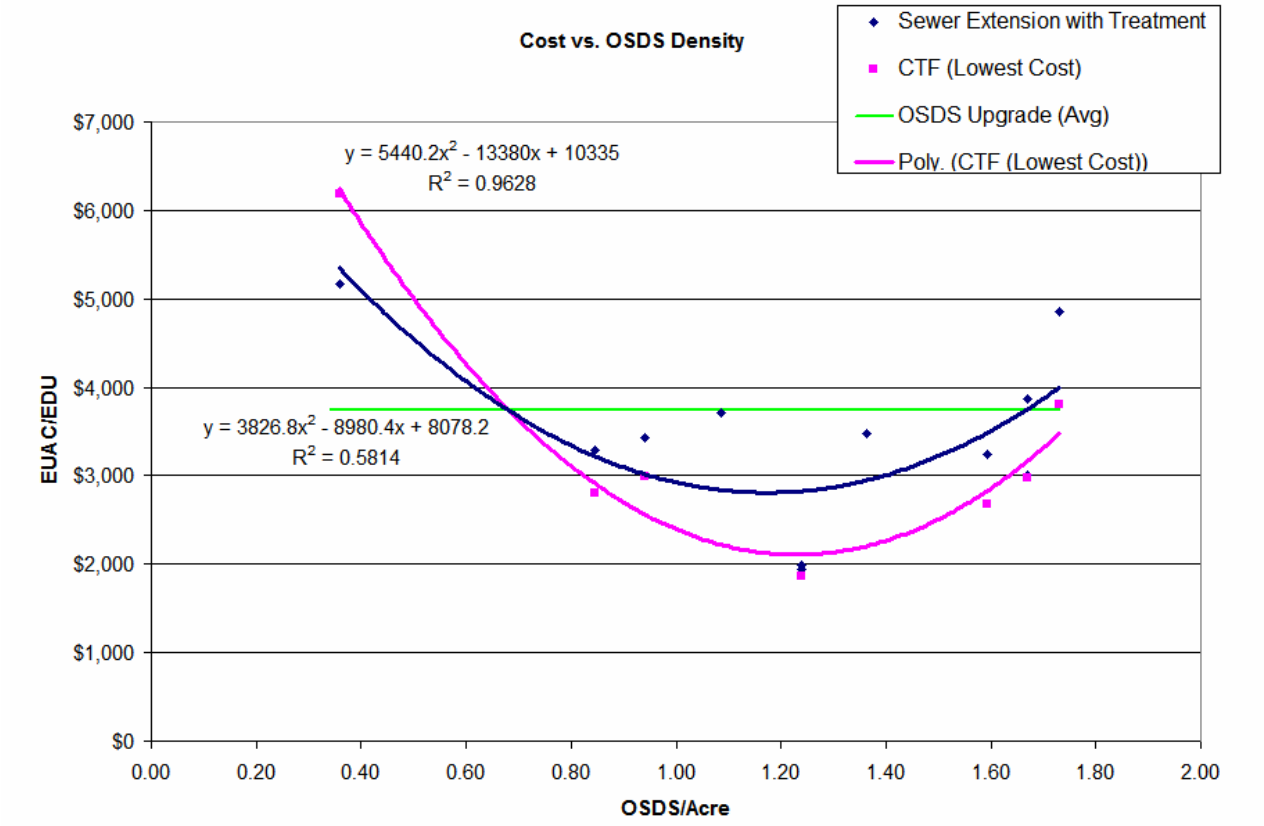
- **Bin 4 – Near-Term No Action – Low Priority Rural** (Rural OSDS w/ 30 percent delivery).

Step 2 - Management Area Delineations

The initial bin characterization provided an initial snapshot of the spatial distribution of the individual OSDS for which a cost-effective sewer service extension could be provided. The purpose of step 2 was to provide logical groups of OSDS sites that are assigned the most cost-effective and environmentally beneficial treatment in terms of nitrogen reduction. Each grouping is called a Management Areas (MA). In addition, the MAs were intended to inform the countywide planning process and possible restructuring of growth boundaries as the comprehensive plan and water resource provisions of HB 1141 are addressed. The general process to derive management areas from the individual system characterization was applied as follows:

The density-cost threshold was used to selecting all OSDS that would be practical to include in a local collection system for connection to the County sewer system or a cluster treatment facility. The density-cost threshold of 0.68 OSDS/acre (Figure 3) was applied by selecting all OSDS where density was greater than 0.53. The value of 0.53 was selected to extend or "push out" the area boundaries to capture adjacent onsite systems that would still be practical to include in a local collection system that would be connected to the County sewer system or a cluster treatment facility. As illustrated in Figure 4, this would help to capture adjacent onsite systems that may be reasonably cost-effective for sewer extension from adjacent higher density OSDS areas. The density limit of 0.53 also was chosen based on a sensitivity analysis to determine a practical cutoff point for including adjacent OSDS without greatly expanding the management area. The result of this is shown in Figure 5. Polygons were then generated using the GIS to enclose all onsite systems with a density value of 0.53 or greater. The OSDS density polygons were also merged with the Health Department's septic problem areas (HDPA) so that existing HDPAs would fall entirely with a management area.

FIGURE3
Equivalent Uniform Annual Cost vs. OSDS Density



The areas within the existing SSA boundary that did not fall into a high density polygon were formed into management areas using the existing sub-SSA boundaries from the County Water and Sewer Master Plan. Any area of overlap was erased from the sub-SSAs, and the remaining subSSA polygons were copied into the management area layer.

Areas of low density, and low-delivery ratio within the existing, planned and future service area were isolated by using the Resource Conservation Area (RCA) and a 1000' buffer on the streams layer. This step isolated areas within the Existing, Planned, Future service area that would not be cost effective to provide sewer to for future consideration as the County updates its comprehensive plan. The individual OSDS that fell below the density threshold and within the 30 percent delivery ratio category within areas of planned or future service were separated by using the 1000-ft surface water buffer and critical areas layer. These polygons were assigned to Bin 5. Bin 5 is essentially the same as Bin 1c (low priority / no action) from the individual characterization formed in Step 1. Bin 5 specifically isolated the onsite systems that were within areas designated for sewer service, but were not cost-effective to sewer or provide a cluster treatment facility for. Bin 5 represents areas that could be considered for changes in the County designation for sewer service, unless planned future development density will increase to the point where sewer extension or

FIGURE 4
Example of use of OSDS density of 0.53 to capture adjacent OSDS in the development of management areas

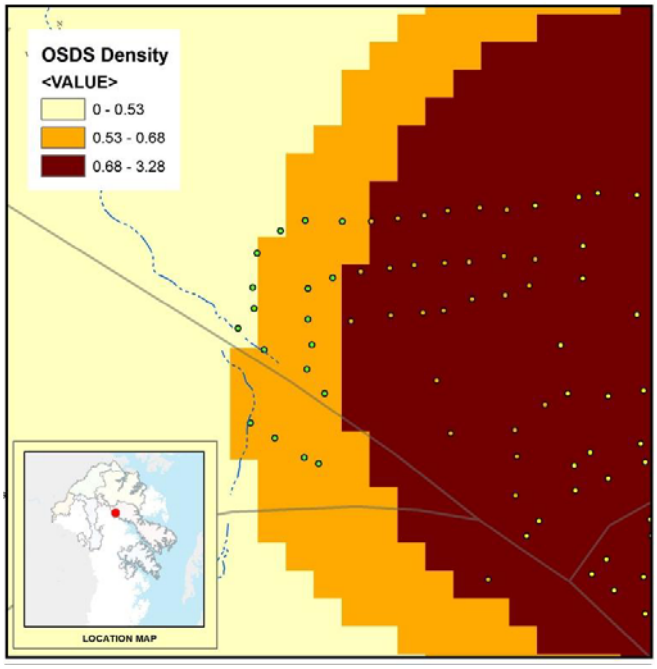
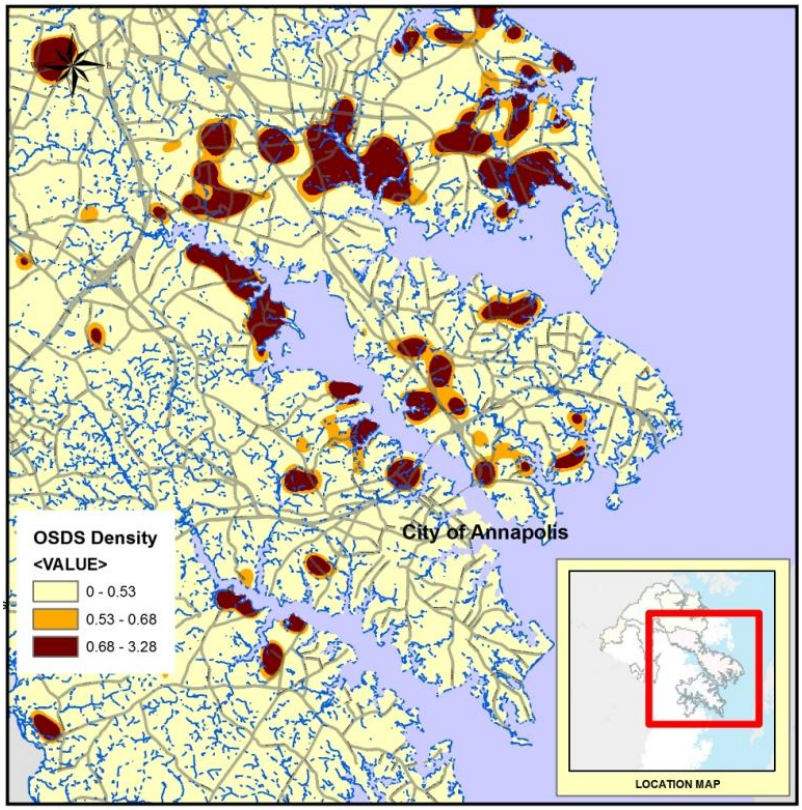


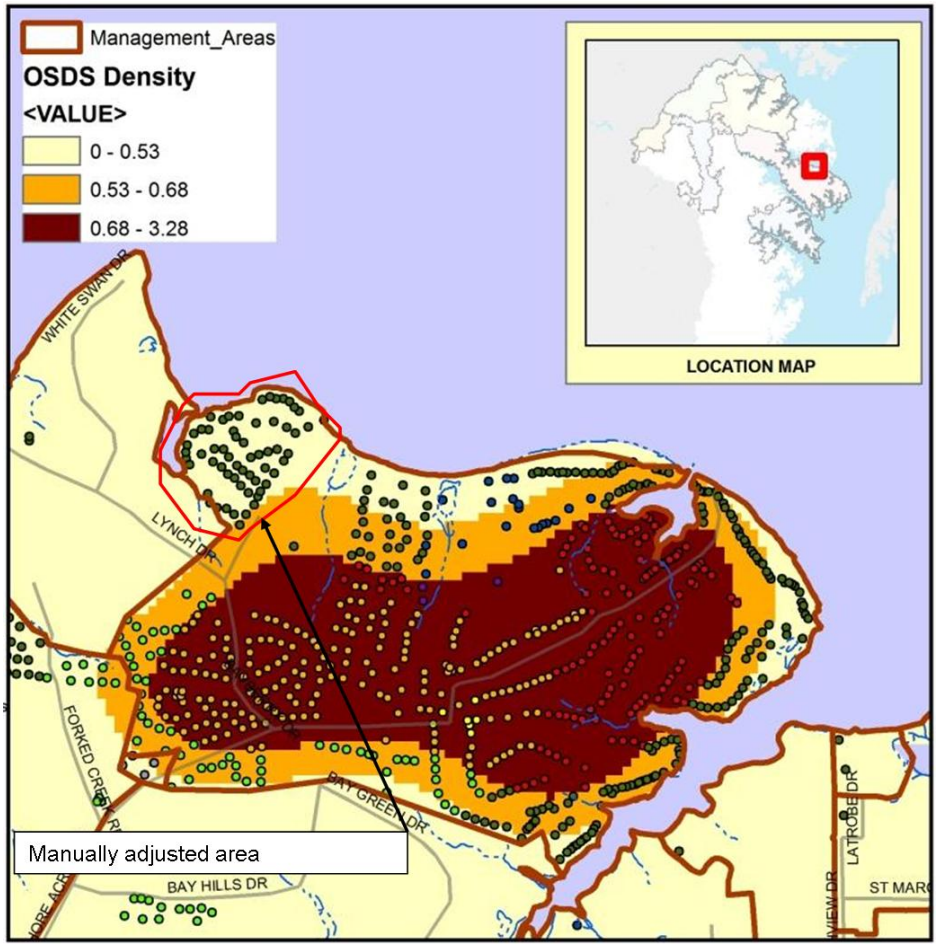
FIGURE 5
Impact of pushing out density polygons to capture additional OSDS within management areas



cluster treatment facilities are cost-effective. This may be due to higher density zoning for example.

MAs outside of the existing service area and outside of the density polygons were formed using the sub-watershed layer provided by the County. The final step was to delete all management area polygons that did not contain any onsite systems and perform some basic clean-up of areas. As shown in Figure 6, a moderate level of manual adjustment was then applied to clean up boundaries across water bodies and to consolidate OSDS groups with like characteristics that were not grouped by the automated process.

FIGURE 6
Example of Management area determination by creation of density polygons



Step 3 – Assign Recommended Treatment Approach

After management areas were delineated using the procedure defined above, a treatment bin # was assigned for all OSDS within each management area using the following designations which generally follow the original individual OSDS Bin classifications:

1 – Sewer Extension
2 – Cluster Treatment
3 – Individual Upgrade

4 – Rural – Low density / Low Priority
1c – Sewer Extension (Low Density / Low Priority)

The methodology for assigning the recommended treatment approach is discussed in detail in Attachment C and was generally applied as follows:

1. The bin number from the individual OSDS characterization was averaged for each management area and rounded down to establish the initial treatment recommendation for each MA. The averaging process effectively allocated a 1 or a 2 to MAs in which it would be cost-effective to provide a local collection system.
2. MAs defined from the 30 percent delivery ratio areas within the areas of existing, planned or future service were assigned Bin 4 for no action or as low-priority.
3. All management areas with an average Bin number 2 would become sewer or cluster-based on further review. In each case, these management areas were assigned sewer extension where the area was adjacent to a location with existing sewer service, thereby making it practical to connect to the County sewer system. These areas were moved into Bin 1 and a sewer extension was assigned.
4. Areas with a Bin 2 average that were not immediately adjacent to an SSA were assumed to be managed with a cluster treatment facility. This also allowed for further consideration of policy issues associated with the extension of sewers to areas that may prompt significant unintended growth.
5. Areas with an average bin of 3 were allocated for individual upgrades.
6. Areas with an average bin of 4 were assigned a no-action or low priority
7. Lastly, MAs with a low number of OSDS resulted in an average bin number that was not consistent with this approach and these were evaluated individually as discussed in Attachment C. In these cases, some level of splitting and adjustment of the MA boundaries was performed. Case examples are provided in Attachment C

Of particular note from this process is that the MA delineation approach highlighted many instances where the current County planning categories for existing, planned, and future sewer service may not provide the most cost-effective treatment because of the relative low density of the onsite systems in these areas. This is indicative of the fact that the provision of cost-effective treatment is inherently governed by buildout density and nitrogen reduction requirements. In this light, a one-size-fits-all approach to providing treatment for onsite systems is not the most cost-effective and as a result will demand innovation at the policy level in order to develop a publicly acceptable, affordable, and effective strategy for the onsite systems.

The MAs are also intended to inform the countywide planning process and possible restructuring of growth boundaries as the comprehensive plan and water resource provisions of HB 1141 are addressed. More specifically, the delineation approach highlighted many instances where the current County planning categories for existing, planned, and future sewer service may not provide the most cost-effective treatment because of the relative low density of the onsite systems in these areas. This is indicative of the fact that the provision of cost-effective treatment is inherently governed by buildout density and nitrogen reduction requirements. In this light, a one-size-fits-all approach to

providing treatment for onsite systems is not the most cost-effective and as a result will demand innovation at the policy level in order to develop a publicly acceptable, affordable, and effective strategy for the onsite systems.

Because of the numerous outstanding policy issues governing permitting and crediting the various treatment approaches, a high level of detailed editing of the management areas was not performed. As a result, the automated process has left some small management areas that could be consolidated in the future when undertaking a facility plan and design for the recommended treatment alternative. The prioritization approach, however, will ensure that the most cost-effective treatment approach is applied to areas of highest nitrogen delivery and density first.

Attachment E
Watershed-Based Breakdown of Loads and Costs

Existing Nitrogen Load by Watershed and Sewer Planning Category									
	SEWER PLANNING CATEGORY								
WATERSHED	blank	Existing Service	Future Service	No Public Service	Other	Park	Planned Service	Resource Conservation Area	Grand Total
blank	2425		111	79				238	2853
Bodkin Creek		292		59797			230	7496	67815
Herring Bay	12	1039		19181			5155	8018	33406
Little Patuxent		2405	4203	7047	456		10789		24899
Magothy River		8615	71448	66946		12	23331	8164	178517
Middle Patuxent				59574				3865	63439
Patapsco Non-tidal		3549	4835	1244		153	14343	645	24770
Patapsco Tidal		6547	9624	10552	79	79	14225	8853	49959
Rhode River		510		9512			364	2070	12457
Severn River	329	11204	47004	138539	208	470	28734	12860	239348
South River	148	10812	24243	73623	317		9338	9359	127840
Upper Patuxent		4973		35379		60	1489	166	42067
West River		1026		6259			1663	4682	13630
Grand Total	2915	50973	161468	487732	1059	775	109661	66417	881000

Load After Treatment by Watershed and Sewer Planning Category									
	SEWER PLANNING CATEGORY								
WATERSHED	blank	Existing Service	Future Service	No Public Service	Other	Park	Planned Service	Resource Conservation Area	Grand Total
blank	475		11	16				32	533
Bodkin Creek		38		13938			22	2204	16202
Herring Bay	6	100		9636			686	3697	14125
Little Patuxent		384	1027	3497	73		3269		8250
Magothy River		1081	11735	14300		2	6730	2414	36262
Middle Patuxent				29895				1935	31830
Patapsco Non-tidal		555	1150	326		36	4149	65	6281
Patapsco Tidal		1075	3758	2663	40	40	3036	1265	11876
Rhode River		64		4775			354	934	6126
Severn River	49	1667	6851	41709	63	235	7171	3488	61234
South River	27	1381	2856	34209	158		1842	3554	44027
Upper Patuxent		746		16401		54	370	83	17654
West River		112		3139			220	2040	5511
Grand Total	557	7202	27387	174505	334	367	27848	21711	259911

Load Reduction by Watershed and Sewer Planning Category									
	SEWER PLANNING CATEGORY								
WATERSHED	blank	Existing Service	Future Service	No Public Service	Other	Park	Planned Service	Resource Conservation Area	Grand Total
blank	1951		100	64				206	2320
Bodkin Creek		254		45859			208	5292	51613
Herring Bay	6	939		9545			4469	4321	19280
Little Patuxent		2021	3176	3550	383		7520		16650
Magothy River		7535	59714	52646		11	16601	5749	142256
Middle Patuxent				29679				1930	31609
Patapsco Non-tidal		2995	3685	918		117	10194	580	18489
Patapsco Tidal		5472	5866	7888	40	40	11189	7589	38083
Rhode River		446		4737			11	1136	6330
Severn River	280	9537	40153	96829	145	235	21563	9372	178114
South River	122	9431	21387	39413	158		7496	5805	83813
Upper Patuxent		4227		18978		6	1119	83	24413
West River		914		3121			1443	2642	8119
Grand Total	2358	43771	134081	313227	725	408	81812	44706	621089

Initial Capital Cost ($M)

Bin	Initial Capital/ EDU	Bodkin Creek	Herring Bay	Little Patuxent	Magothy River	Middle Patuxent	Patapsco Non-tidal	Patapsco Tidal	Rhode River	Severn River	South River	Upper Patuxent	West River	Blank	Total	%
1	$38,000	$0.38	$6.31	$18.85	$240.73	$0.00	$32.76	$49.78	$0.57	$166.25	$82.80	$3.99	$3.65	$2.89	$609	54.6%
2	$36,203	$86.13	$0.00	$0.22	$68.79	$0.00	$0.00	$17.45	$0.04	$132.58	$4.56	$10.17	$0.00	$1.48	$321	28.8%
3	$13,000	$9.15	$11.38	$1.83	$10.50	$28.68	$0.35	$1.59	$5.19	$46.18	$48.45	$17.17	$3.24	$0.22	$184	16.5%
4	$0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0	0.0%
1c	$0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0	0.0%
Total		$95.66	$17.68	$20.90	$320.02	$28.68	$33.11	$68.82	$5.79	$345.00	$135.81	$31.34	$6.89	$4.59	$1,114	
%		8.6%	1.6%	1.9%	28.7%	2.6%	3.0%	6.2%	0.5%	31.0%	12.2%	2.8%	0.6%	0.4%		

EUAC ($M)

Bin	EUAC/ EDU	Bodkin Creek	Herring Bay	Little Patuxent	Magothy River	Middle Patuxent	Patapsco Non-tidal	Patapsco Tidal	Rhode River	Severn River	South River	Upper Patuxent	West River	Blank	Total	%
1	$3,780	$0.04	$0.63	$1.87	$23.95	$0.00	$3.26	$4.95	$0.06	$16.54	$8.24	$0.40	$0.36	$0.29	$61	41.7%
2	$3,550	$8.45	$0.00	$0.02	$6.75	$0.00	$0.00	$1.71	$0.00	$13.00	$0.45	$1.00	$0.00	$0.15	$32	21.7%
3	$3,750	$2.64	$3.28	$0.53	$3.03	$8.27	$0.10	$0.46	$1.50	$13.32	$13.98	$4.95	$0.93	$0.06	$53	36.6%
4	$0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0	0.0%
1c	$0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0	0.0%
Total		$11.12	$3.91	$2.42	$33.72	$8.27	$3.36	$7.12	$1.56	$42.86	$22.66	$6.35	$1.30	$0.50	$145	
%		7.7%	2.7%	1.7%	23.2%	5.7%	2.3%	4.9%	1.1%	29.5%	15.6%	4.4%	0.9%	0.3%		

TN Load by Watershed

Existing Load (lb/yr)

Bin	Bodkin Creek	Herring Bay	Little Patuxent	Magothy River	Middle Patuxent	Patapsco Non-tidal	Patapsco Tidal	Rhode River	Severn River	South River	Upper Patuxent	West River	Blank	Total	%
1	79	6503	16296	117796	0	21438	28505	630	87220	50562	6510	3396	1659	340594	38.7%
2	45337	0	475	34064	0	0	12859	127	74618	3176	3716	0	843	175215	19.9%
3	22399	26903	4851	20012	63439	457	4504	11348	73328	73356	31621	10189	351	342760	38.9%
4	0	0	417	0	0	0	0	0	0	0	48	0	0	465	0.1%
1c	0	0	2860	6646	0	2875	4091	352	4181	746	172	44	0	21967	2.5%
Total	67815	33406	24899	178517	63439	24770	49959	12457	239348	127840	42067	13630	2853	881000	
%	7.7%	3.8%	2.8%	20.3%	7.2%	2.8%	5.7%	1.4%	27.2%	14.5%	4.8%	1.5%	0.3%		

Load After Treatment (lb/yr)

Bin	Bodkin Creek	Herring Bay	Little Patuxent	Magothy River	Middle Patuxent	Patapsco Non-tidal	Patapsco Tidal	Rhode River	Severn River	South River	Upper Patuxent	West River	Blank	Total	%
1	18	617	2471	15356	0	3176	3993	68	12280	6069	976	358	241	45623	17.6%
2	4943	0	71	4190	0	0	1532	12	7894	303	579	0	116	19639	7.6%
3	11240	13508	2431	10070	31830	230	2260	5695	36880	36909	15879	5108	177	172218	66.3%
4	0	0	417	0	0	0	0	0	0	0	48	0	0	465	0.2%
1c	0	0	2860	6646	0	2875	4091	352	4181	746	172	44	0	21967	8.5%
Total	16202	14125	8250	36262	31830	6281	11876	6126	61234	44027	17654	5511	533	259911	
%	6.2%	5.4%	3.2%	14.0%	12.2%	2.4%	4.6%	2.4%	23.6%	16.9%	6.8%	2.1%	0.2%		

TN Load Reduction (lb/yr)

Bin	Bodkin Creek	Herring Bay	Little Patuxent	Magothy River	Middle Patuxent	Patapsco Non-tidal	Patapsco Tidal	Rhode River	Severn River	South River	Upper Patuxent	West River	Blank	Total	%
1	61	5886	13826	102440	0	18262	24512	562	74941	44494	5534	3038	1418	294971	113.5%
2	40393	0	404	29874	0	0	11328	115	66725	2873	3137	0	728	155576	59.9%
3	11159	13394	2420	9942	31609	227	2244	5654	36449	36446	15742	5081	175	170542	65.6%
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
1c	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
Total	51613	19280	16650	142256	31609	18489	38083	6330	178114	83813	24413	8119	2320	621089	
%	19.9%	7.4%	6.4%	54.7%	12.2%	7.1%	14.7%	2.4%	68.5%	32.2%	9.4%	3.1%	0.9%		

Cost Efficiency by Watershed

Initial Capital Cost of Treatment ($/LB)

Bin	Bodkin Creek	Herring Bay	Little Patuxent	Magothy River	Middle Patuxent	Patapsco Non-tidal	Patapsco Tidal	Rhode River	Severn River	South River	Upper Patuxent	West River	Blank	Average
1	$6,273	$1,072	$1,363	$2,350	-	$1,794	$2,031	$1,014	$2,218	$1,861	$721	$1,201	$2,036	$1,995
2	$2,132	-	$538	$2,303	-	-	$1,540	$315	$1,987	$1,588	$3,243	-	$2,040	$1,743
3	$820	$849	$757	$1,057	$907	$1,546	$707	$917	$1,267	$1,329	$1,091	$637	$1,266	$1,012
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1c	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Average	$3,075	$960	$886	$1,903	$907	$1,670	$1,426	$749	$1,824	$1,593	$1,685	$919	$1,781	

EUAC of Treatment ($/LB)

Bin	Bodkin Creek	Herring Bay	Little Patuxent	Magothy River	Middle Patuxent	Patapsco Non-tidal	Patapsco Tidal	Rhode River	Severn River	South River	Upper Patuxent	West River	Blank	Average
1	$624	$107	$136	$234	-	$178	$202	$101	$221	$185	$72	$119	$203	$198
2	$209	-	$53	$226	-	-	$151	$31	$195	$156	$318	-	$200	$171
3	$237	$245	$218	$305	$262	$446	$204	$265	$365	$383	$315	$184	$365	$292
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1c	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Average	$357	$176	$136	$255	$262	$312	$186	$132	$260	$241	$235	$152	$256	

Average OSDS Priority

Bin	Bodkin Creek	Herring Bay	Little Patuxent	Magothy River	Middle Patuxent	Patapsco Non-tidal	Patapsco Tidal	Rhode River	Severn River	South River	Upper Patuxent	West River	Blank	Average
1	1.04	3.17	1.70	2.19	N/A	1.84	1.97	2.38	2.13	2.52	2.03	2.77	2.83	2.21
2	2.66	N/A	2.31	2.31	N/A	N/A	2.74	3.70	2.88	3.14	1.70	N/A	2.86	2.70
3	2.11	2.71	1.84	2.72	2.08	1.69	2.74	2.27	2.18	2.23	1.92	2.66	2.84	2.31
4	N/A	N/A	1.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.00	N/A	N/A	1.00
1c	N/A	N/A	1.03	1.05	N/A	1.07	1.04	1.04	1.05	1.07	1.00	1.00	N/A	1.04
Average	1.94	2.94	1.58	2.07	2.08	1.53	2.12	2.35	2.06	2.24	1.53	2.14	2.84	

Watershed	SSA	Sewer_TypeE	Number of OSDS	TN Existing (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)
Bodkin Creek	Bodkin Pt-Pinehurst	Existing Service	6	225	21	204
		No Public Service	114	2,787	261	2,527
		Planned Service	11	217	20	197
		Resource Conservation Area	9	178	17	161
	Bodkin Pt-Pinehurst Total		*140*	*3,408*	*319*	*3,089*
	Cox Creek	Existing Service	9	67	17	50
		Planned Service	1	12	2	11
	Cox Creek Total		*10*	*79*	*18*	*61*
	Rural	No Public Service	2,752	57,010	13,677	43,332
		Resource Conservation Area	191	7,318	2,188	5,130
	Rural Total		*2,943*	*64,328*	*15,865*	*48,463*
Bodkin Creek Total			3,093	67,815	16,202	51,613
Herring Bay	Broadwater	Existing Service	23	853	83	770
		Planned Service	145	5,155	686	4,469
		Resource Conservation Area	21	1,377	419	958
	Broadwater Total		*189*	*7,385*	*1,188*	*6,198*
	Rose Haven	Existing Service	4	186	17	169
	Rose Haven Total		*4*	*186*	*17*	*169*
	Rural	No Public Service	722	19,181	9,636	9,545
		Resource Conservation Area	125	6,640	3,278	3,363
	Rural Total		*847*	*25,822*	*12,914*	*12,908*

Watershed	SSA	Sewer_TypeE	Number of OSDS	TN Existing (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)
	(blank)	(blank)	1	12	6	6
	(blank) Total		*1*	*12*	*6*	*6*
Herring Bay Total			1,041	33,406	14,125	19,280
Little Patuxent	Baltimore City	Future Service	190	3,683	892	2,791
	Baltimore City Total		*190*	*3,683*	*892*	*2,791*
	Ft. George Meade	No Public Service	1	79	40	40
	Ft. George Meade Total		*1*	*79*	*40*	*40*
	Maryland City	Existing Service	2	87	14	73
		Future Service	24	519	135	385
		No Public Service	2	158	79	79
		Other	6	408	61	347
		Planned Service	108	4,165	849	3,316
	Maryland City Total		*142*	*5,338*	*1,138*	*4,200*
	Patuxent	Existing Service	72	2,187	344	1,843
		No Public Service	1	7	4	4
		Other	1	48	12	36
		Planned Service	186	6,329	2,369	3,960
	Patuxent Total		*260*	*8,571*	*2,729*	*5,842*
	Piney Orchard	Existing Service	9	131	27	105
		Planned Service	8	294	50	244
	Piney Orchard Total		*17*	*426*	*77*	*349*

Watershed	SSA	Sewer_TypeE	Number of OSDS	TN Existing (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)
	Rural	No Public Service	183	6,802	3,375	3,427
	Rural Total		*183*	*6,802*	*3,375*	*3,427*
Little Patuxent Total			793	24,899	8,250	16,650
Magothy River	Broadneck	Existing Service	357	8,174	1,000	7,174
		Future Service	2,878	52,255	8,052	44,203
		No Public Service	6	119	11	107
		Park	1	12	2	11
		Planned Service	1,522	22,480	6,590	15,890
		Resource Conservation Area	41	1,452	288	1,164
	Broadneck Total		*4,805*	*84,492*	*15,942*	*68,549*
	Cox Creek	Existing Service	11	442	80	361
		Future Service	1,023	19,053	3,666	15,386
		No Public Service	34	710	73	637
		Planned Service	21	851	140	711
		Resource Conservation Area	29	1,749	164	1,585
	Cox Creek Total		*1,118*	*22,804*	*4,124*	*18,681*
	Rural	Future Service	9	141	17	124
		No Public Service	3,572	66,118	14,216	51,902
		Resource Conservation Area	122	4,962	1,963	3,000
	Rural Total		*3,703*	*71,221*	*16,196*	*55,026*
Magothy River Total			9,626	178,517	36,262	142,256

Watershed	SSA	Sewer_TypeE	Number of OSDS	TN Existing (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)
Middle Patuxent	Rural	No Public Service	2,155	59,574	29,895	29,679
		Resource Conservation Area	51	3,865	1,935	1,930
	Rural Total		*2,206*	*63,439*	*31,830*	*31,609*
Middle Patuxent Total			2,206	63,439	31,830	31,609
Patapsco Non-tidal	Baltimore City	Existing Service	131	3,537	553	2,984
		Future Service	264	4,629	1,079	3,550
		No Public Service	59	1,244	326	918
		Park	7	153	36	117
		Planned Service	645	14,257	4,130	10,127
		Resource Conservation Area	8	645	65	580
	Baltimore City Total		*1,114*	*24,465*	*6,189*	*18,276*
	Cox Creek	Future Service	3	206	71	135
	Cox Creek Total		*3*	*206*	*71*	*135*
	Patuxent	Existing Service	1	12	2	11
		Planned Service	2	87	19	67
	Patuxent Total		*3*	*99*	*21*	*78*
Patapsco Non-tidal Total			1,120	24,770	6,281	18,489
Patapsco Tidal	Baltimore City	Existing Service	14	239	56	183
		No Public Service	6	456	93	362
		Other	1	79	40	40

Watershed	SSA	Sewer_TypeE	Number of OSDS	TN Existing (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)
		Park	1	79	40	40
		Planned Service	37	603	160	444
		Resource Conservation Area	1	127	12	115
	Baltimore City Total		*60*	*1,583*	*400*	*1,183*
	Broadneck	Future Service	29	420	69	351
		Planned Service	150	1,398	316	1,082
	Broadneck Total		*179*	*1,818*	*385*	*1,433*
	Cox Creek	Existing Service	286	6,308	1,020	5,289
		Future Service	447	9,204	3,688	5,515
		No Public Service	8	966	483	483
		Planned Service	523	12,224	2,560	9,663
		Resource Conservation Area	88	5,874	764	5,110
	Cox Creek Total		*1,352*	*34,576*	*8,516*	*26,061*
	Rural	No Public Service	459	9,130	2,087	7,043
		Resource Conservation Area	113	2,852	488	2,364
	Rural Total		*572*	*11,982*	*2,575*	*9,407*
Patapsco Tidal Total			2,163	49,959	11,876	38,083
Rhode River	Mayo-Glebe Heights	Existing Service	14	510	64	446
		Planned Service	15	357	346	11
		Resource Conservation Area	5	633	214	420
	Mayo-Glebe Heights Total		*34*	*1,501*	*624*	*877*

Watershed	SSA	Sewer_TypeE	Number of OSDS	TN Existing (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)
	Rural	No Public Service	371	9,512	4,775	4,737
		Planned Service	1	7	7	-
		Resource Conservation Area	24	1,437	720	717
	Rural Total		*396*	*10,956*	*5,502*	*5,454*
Rhode River Total			430	12,457	6,126	6,330
Severn River	Annapolis	Existing Service	125	3,841	612	3,229
		Future Service	680	19,267	2,479	16,787
		No Public Service	10	411	104	308
		Planned Service	18	1,263	311	953
		Resource Conservation Area	30	1,448	344	1,104
	Annapolis Total		*863*	*26,231*	*3,850*	*22,381*
	Baltimore City	Existing Service	5	52	9	43
		Future Service	4	49	7	42
		Planned Service	73	760	550	210
	Baltimore City Total		*82*	*861*	*567*	*295*
	Broadneck	Existing Service	170	3,854	484	3,370
		Future Service	1,492	27,126	4,238	22,888
		No Public Service	1,566	29,237	7,224	22,013
		Planned Service	1,499	20,406	4,547	15,859
		Resource Conservation Area	240	7,165	2,040	5,125
	Broadneck Total		*4,967*	*87,788*	*18,533*	*69,254*

Watershed	SSA	Sewer_TypeE	Number of OSDS	TN Existing (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)
	Cox Creek	Existing Service	13	126	24	102
		Future Service	8	89	15	74
		Planned Service	9	215	37	179
	Cox Creek Total		*30*	*430*	*75*	*355*
	Patuxent	Existing Service	166	3,331	537	2,794
		Future Service	30	472	111	361
		No Public Service	2	25	4	21
		Other	4	116	17	99
		Planned Service	326	6,083	1,720	4,363
	Patuxent Total		*528*	*10,027*	*2,389*	*7,638*
	Rural	No Public Service	5,303	108,866	34,378	74,487
		Other	2	92	46	46
		Park	11	470	235	235
		Planned Service	1	7	7	-
		Resource Conservation Area	134	4,247	1,104	3,143
	Rural Total		*5,451*	*113,682*	*35,771*	*77,911*
	(blank)	(blank)	5	329	49	280
	(blank) Total		*5*	*329*	*49*	*280*
Severn River Total			11,926	239,348	61,234	178,114
South River	Annapolis	Existing Service	344	10,277	1,317	8,960
		Future Service	1,235	24,243	2,856	21,387

Watershed	SSA	Sewer_TypeE	Number of OSDS	TN Existing (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)
		No Public Service	305	5,972	2,071	3,900
		Planned Service	234	8,562	1,621	6,941
		Resource Conservation Area	218	6,233	2,088	4,144
	Annapolis Total		*2,336*	*55,286*	*9,953*	*45,333*
	Mayo-Glebe Heights	Existing Service	11	443	50	393
		Planned Service	41	519	155	365
		Resource Conservation Area	18	783	301	482
	Mayo-Glebe Heights Total		*70*	*1,746*	*506*	*1,240*
	Patuxent	Existing Service	1	79	12	67
		Planned Service	10	257	66	191
	Patuxent Total		*11*	*336*	*78*	*258*
	Rural	Existing Service	1	12	2	11
		No Public Service	3,620	67,631	32,137	35,495
		Other	4	317	158	158
		Resource Conservation Area	29	2,343	1,165	1,179
	Rural Total		*3,654*	*70,304*	*33,462*	*36,842*
	(blank)	No Public Service	1	20	2	18
		(blank)	12	148	27	122
	(blank) Total		*13*	*168*	*28*	*140*
South River Total			6,084	127,840	44,027	83,813

Watershed	SSA	Sewer_TypeE	Number of OSDS	TN Existing (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)
Upper Patuxent	Ft. George Meade	Park	1	48	48	-
	Ft. George Meade Total		*1*	*48*	*48*	-
	Maryland City	Existing Service	8	433	65	368
		No Public Service	1	79	40	40
		Park	1	12	6	6
		Planned Service	8	185	174	11
	Maryland City Total		*18*	*709*	*285*	*424*
	Patuxent	Existing Service	70	4,540	681	3,859
		No Public Service	1	7	4	4
		Planned Service	19	1,304	196	1,108
	Patuxent Total		*90*	*5,852*	*880*	*4,972*
	Rural	No Public Service	1,603	35,292	16,358	18,934
		Resource Conservation Area	3	166	83	83
	Rural Total		*1,606*	*35,459*	*16,441*	*19,017*
Upper Patuxent Total			1,715	42,067	17,654	24,413
West River	Broadwater	Existing Service	28	1,026	112	914
		Planned Service	63	1,663	220	1,443
		Resource Conservation Area	11	752	70	682
	Broadwater Total		*102*	*3,440*	*402*	*3,038*
	Rural	No Public Service	180	6,259	3,139	3,121
		Resource Conservation Area	69	3,930	1,970	1,960
	Rural Total		*249*	*10,189*	*5,108*	*5,081*

Watershed	SSA	Sewer_TypeE	Number of OSDS	TN Existing (lb/yr)	Load After Treatment (lb/yr)	Load Reduction (lb/yr)
West River Total			351	13,630	5,511	8,119
(blank)	Annapolis	Future Service	1	20	2	18
		Resource Conservation Area	1	20	2	18
	Annapolis Total		*2*	*40*	*4*	*36*
	Broadneck	Future Service	5	91	9	82
		No Public Service	1	20	10	10
	Broadneck Total		*6*	*111*	*19*	*92*
	Rural	No Public Service	3	59	6	54
		Resource Conservation Area	2	206	24	182
	Rural Total		*5*	*265*	*29*	*236*
	(blank)	Resource Conservation Area	1	12	6	6
		(blank)	120	2,425	475	1,951
	(blank) Total		*121*	*2,437*	*481*	*1,957*
(blank) Total			134	2,853	533	2,320
Grand Total			40,682	881,000	259,911	621,089