APPENDIX G

FINAL DRAFT
WATER AND SEWER EXTENSION NEEDS
FOR EXISTING NEIGHBORHOODS (EXCERPT)

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FINAL DRAFT – Water and Sewer Extension Needs for Existing Neighborhoods

Prepared by the Subgroup on Unserved and Underserved Areas for the Bi-County Infrastructure Funding Working Group

WSSC
Where Water Matters

July 2014

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EXECUTIVE SUMMARY

Statement of Problem

Generally, unserved and underserved areas are those properties served by wells and/or septic systems (i.e. not connected to WSSC water and sewer systems). These unserved and underserved areas are located in the counties' defined water and sewer envelopes, indicating they may be within close proximity to existing water and sewer mains or were approved for construction of mains and extension of water and sewer line. However, the extension of service to these properties—even over relatively short distances—is too expensive to allow them to connect. These properties are typically older homes that were constructed prior to development of modern design criteria and regulations. Consequently, individual on-site systems were constructed on lots:

- That may not meet modern standards for septic system placement
- That lack areas approved for replacement wells or septic systems
- That may not have approvable repair or replacement areas for on-site systems

Because the operating lives of septic systems are typically estimated to be 30 ± years, the issue of unserved and underserved areas has been growing and is expected to continue to grow as septic systems age and fail.

The cost of extending new the water and sewer systems to serve these properties, whether desired by the homeowner or required due to a failing well or septic system, is too expensive to be initiated. Twenty years ago, WSSC constructed and financed community water and sewer lines and assessed a front foot benefit charge to homeowners. This system took advantage of economies of scale by spreading large infrastructure costs over a large number of properties resulting in an average front foot benefit assessment that was affordable. In the late 1990's, WSSC stopped constructing water and sewer lines for new subdivisions, instead relying on developers of those subdivisions to construct and finance these mains. This shift eliminated the benefits of economies of scale to the detriment of individual homeowners. Consequently, it has become next to impossible for the homeowners to upgrade these older houses to community water and/or sewer service, even when necessary due to failed or failing on-site systems.

This problem also works against fundamental goals in each County's Comprehensive Water Supply and Sewerage Systems Plan:

- That these plans establish public service envelopes based on adopted service policies and county-wide land use planning recommendations.

- Further, that water and sewer service policies, and infrastructure extension and financing mechanisms, act to promote the use public service within these envelopes both for new development and for existing development still using on-site systems.

Note: this report focuses primarily on sewer extensions as these are more costly and more difficult to attain sewer suitability. The findings, processes, and alternatives discussed in this report are equally applicable to both sewer and water extensions.

Bi-County Infrastructure Funding Working Group

WSSC established the Bi-County Infrastructure Working Group ("The Working Group") in 2010 to identify options for lowering the trajectory of rate increases. These options included obtaining access to alternative and/or less costly sources of revenue or methods of funding for operational and capital requirements in the context of the growing need to rehabilitate, upgrade and replace water and wastewater infrastructure and related facilities. The Working Group is comprised of representatives from the executive and legislative branches of Montgomery and Prince George's Counties, one WSSC Commissioner from each county, and WSSC staff. One of the policy issues identified for study by the Working Group is the extension of public water and/or sewer service to unserved and underserved areas of Montgomery and Prince George's Counties.

Subgroup on Unserved and Underserved Areas

A Subgroup of the Working Group was created to further study this issue and to develop possible alternatives to the existing funding mechanism. The Subgroup included staff members from the two counties and WSSC:

- Shirley Branch, Prince George's County, Department of Environmental Resources
- Chris Cullinan, WSSC, Finance Office
- Dave Lake, Montgomery County, Department of Environmental Protection
- Manfred Reichwein, Prince George's County, Health Department
- Alan Soukup, Montgomery County, Department of Environmental Protection
- Tom Traber, WSSC, Finance Office (retired 2013)

The scope of the Subgroup's efforts included:

- Documenting the current unserved and underserved conditions in each County
- Evaluating the pros/cons of current system using "sample communities" from each County
- Evaluation of financing criteria and alternatives
- Policy challenges/deficiencies of current system

- Identifying a roadmap to an "improved" system of extending water and sewer service to unserved and underserved areas
- Develop financing options/funds to implement an "improved" system

The Subgroup met seven times during 2013 and made three presentations to the Working Group and two presentations to WSSC Commissioners. These presentations functioned as educational presentations and progress reports. This report is comprised of the research and information presented to the Working Group and Commissioners.

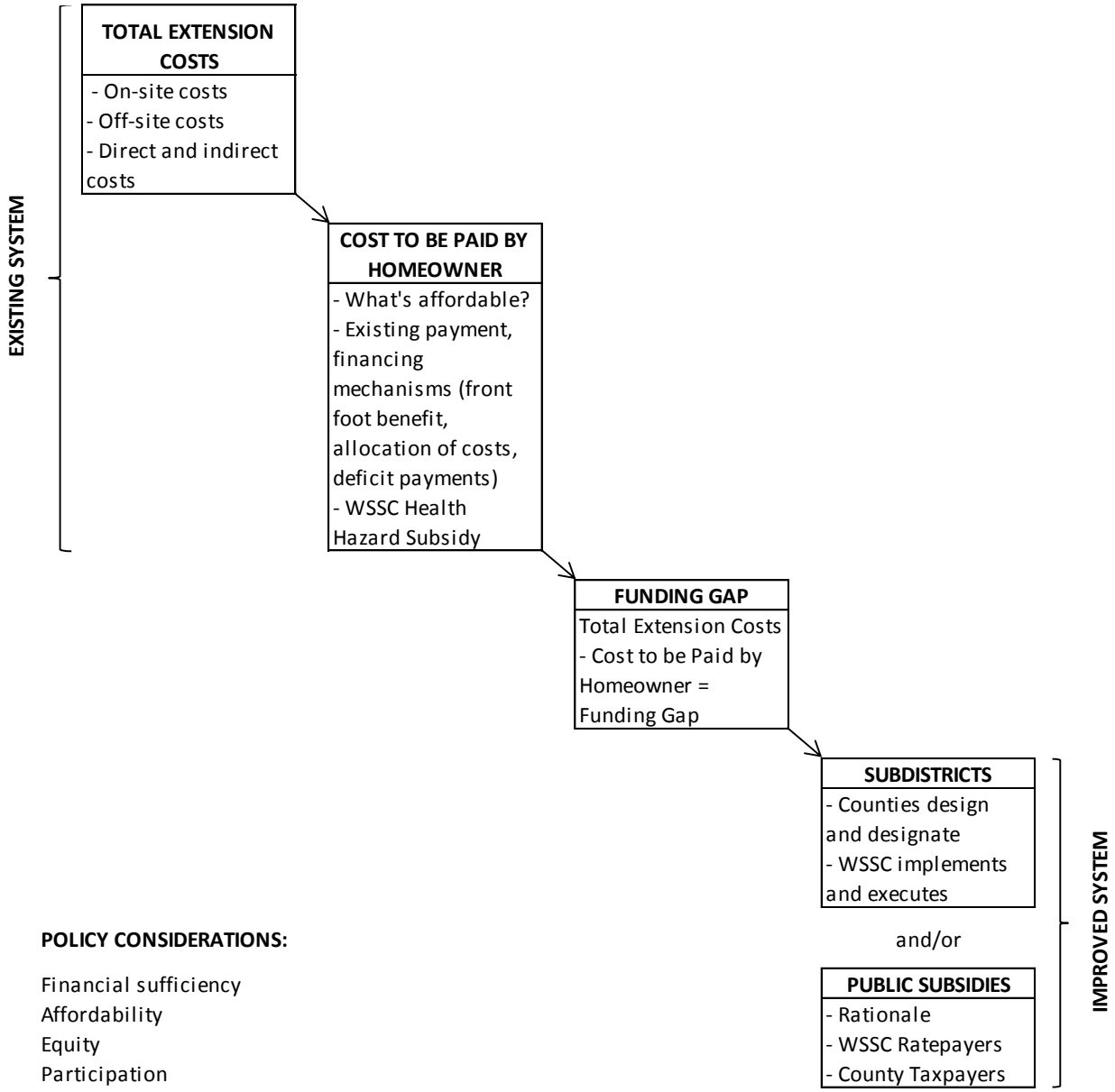
Findings of the Subgroup Regarding the Current System of Extensions

The current system of financing extensions is flawed. This is evident in the fact that since 2005, only sixteen extensions have been completed. The current front foot benefit system was designed to pool large and small extensions and allocates costs over a large number of connections which made extensions affordable. The current system does not work for small scale extensions, including health hazard situations. The current system has significant financial and policy challenges including affordability for applicants, financial sufficiency, equity and participation. Maintaining the status quo is not a sustainable, viable solution for systematically addressing the issue of unserved and underserved areas. The current system is not economical for failed systems or communities requesting service.

Framework for Moving Toward an "Improved System"

The Subgroup identified a framework for moving forward from the current system to an improved system. The framework involves several decision points and requires the coordinated efforts of Montgomery County, Prince George's County, and WSSC. The following figure illustrates the framework for moving forward including several decision points to be addressed.

Figure 1: Decision-Making Framework for Moving Toward an "Improved System"



The Improved System: Sub Districts

The Subgroup suggested sub districts as a possible improved system for funding water and sewer extensions. Sub districts would spread large infrastructure costs over a large number of properties and would remedy a number of the challenges and issues under the current system. Both the counties and WSSC have experience using sub districts to finance capital program infrastructure projects, but the concept has never been used for water distribution or sewer collection systems. The fundamental goal is to equitably allocate the large costs of extending public sewer extensions over a large number of properties to be served. The current health hazard extension system results in large costs which are not financially viable for individual applicants who initiate extension projects. In cases where an extension is able to serve more than one property, abutting property owners may opt out of connecting to the new main. This places more of the financial burden on the applicant, which raises significant questions of equity. The sub district mechanism, along with modifications to WSSC front foot benefit assessment policies, has the potential to mitigate these characteristics of the current system. The sub district mechanism would also provide those who directly benefit from connecting to the public sewer system pay for the extension costs.

Conclusions and Next Steps

Maintaining the status quo is not a viable, sustainable solution to what is expected to be an increasing number of failing water wells and/or septic systems. An improved system for addressing the extension of water and sewer service has been identified along with a process for moving toward the improved system. Both the counties and WSSC have roles to play in the improved system. This will require unified leadership from the counties and the Commission including the commitment of resources to educate, plan, and lay the foundation for the improved process.

By consensus, the Working Group accepted the Subgroup's findings and framework for moving toward an improved system. The Working Group transmitted its consensus to WSSC's Commissioners. WSSC's Commissioners unanimously accepted the findings of the Subgroup on March 19, 2014 and authorized the transmittal of such findings to the legislative and executive branches of the two counties. The counties will be asked to endorse this concept and discussion and move forward toward an improved system. This will necessitate spending time and resources to more fully develop the process forward. The worth of this effort will be evident by the commitment of time, talent, and financial resources. The unified leadership of the Commission and counties will be required to move toward an improved system.

CURRENT UNSERVED AND UNDERSERVED CONDITIONS

This section of the report documents the Commission's experience in constructing residential service lines and the current unserved and underserved conditions in each County.

WSSC

Prior to 1998, WSSC was responsible for the design, construction and financing of all water and sewer extensions built within the Sanitary District. This included all types of projects ranging from large multi-part subdivisions to those serving just one property. The Commission would build and pay for the mains and then recover costs by assessing properties front foot benefit charges.

In 1997, a WSSC task force benchmarked with local jurisdictions and recommended changing the process by which subdivision lines are built and financed. At that time, WSSC's General Bonds (which funded subdivision line construction) were 50% of WSSC's total $1.8 billion outstanding debt, and the General Bond portion on the Commission annual debt service was 46%. In WSSC's FY'98 budget, debt service costs were 49% of total expenses. The rating agencies and the counties were becoming concerned about the large percentage of total revenues that were devoted to debt service. Since General Bonds were almost half of the debt service, the Counties and the Commission decided to eliminate the General Bond debt by having developers build the subdivision lines and turn them over to the Commission. This was the method used by virtually all jurisdictions. Over time, this would eliminate the majority of new General Bond issuances, and lower the debt service percentage of the operating budget.

The Counties were concerned about the effect that overlapping debt would have on their ratings. Utilizing assessed values to allocate WSSC's debt (since an ad valorem assessment would use assessed values), Montgomery County was allocated approximately 66% of the total and Prince George's was allocated 34%. This meant that of WSSC $1.8 billion in debt, the Rating Agencies would use $1.2 billion for Montgomery County and $0.6 billion for Prince George's. The Counties wanted WSSC to lower the overlapping debt, and the General Bond was the most logical one to reduce by having developers pay for and build the subdivision lines and turn them over to the Commission.

In 1998, WSSC proposed legislation requiring that subdivision lines be constructed at the expense of the owner/developer. House Bill 824 was sponsored by the Montgomery County and Prince George's County delegations and supported by WSSC. HB 824 was passed and phased in over three years.

This change has had a significant impact on the costs associated with the smaller projects needed for health hazard and single residential extension projects. The cost of constructing service extensions for these health hazards and single residential dwelling units has always been very expensive, but these few, costly projects were offset by the many, less costly developer projects that WSSC constructed. In a

typical year, there are several hundred of the large developer projects constructed versus only a few dozen health hazard or single residential units built. These large projects had economies of scale that lowered the average cost for all jobs. Also, the large projects involved construction in unimproved areas while the health hazard or single residential projects usually involve construction in improved areas that involve impacts to pavement and other utilities and the need for traffic control. These legislative changes resulted in a situation that makes it increasingly more difficult for homeowners to afford water and sewer extensions through WSSC.

WSSC currently has two processes for constructing residential service lines. The first process for constructing service lines is when WSSC builds the extension in already developed areas. This report focuses on WSSC built extensions.

The second process is the Service Extension Process (SEP) is for developer built and financed extensions for new development. Under the SEP process, preliminary subdivision plans that are submitted to Montgomery County, Prince George's County, or MNCP&PC for approval will be reviewed by the WSSC to determine the availability of water and sewer service, make recommendations, and note special conditions. A representative from WSSC will attend the development review committee meetings in Montgomery County and the subdivision review committee meetings in Prince George's County to discuss WSSC's findings with the Applicant and the committee. General review comments will be provided at the MNCP&PC meeting. It should be understood that new and additional review comments are likely when more detailed information on the proposed public extension(s) is provided during the Hydraulic Planning Analysis and System Integrity Review processes for SEP projects. A full description of the SEP process can be found on the Commission's website: http://wsscwater.com/home/jsp/content/sep-process-step1.faces.

The next two sections of the report document the current unserved and underserved sewer conditions in each County. The counties agreed to review areas consisting of five (5) or more greater lots where septic systems are in use and, do not have access to or availability of sewer mains on main line extensions.

Prince George's County

The Prince George's County Department of Environmental Resources analyzed sewer service GIS data and determined there are approximately 4,977 properties on septic systems within the sewer service envelope. Typically, these properties are located in 30+ year old neighborhoods and subdivisions, constructed prior to being planned for sewer service, or before sewer service was made available. It was expected that lots would connect when sewer service was made available via constructed mains and extensions, and would relinquish the use of septic systems. However, these lines have either gone unconstructed or not constructed within a reasonable distance for lot owners to connect, and the costs

to extend and connect beyond their means. Staff identified approximately 4,977 properties on septic systems for which 2,087 properties (approximately 42%) are within these underserved areas. The figure below summarizes the current conditions by Council District in Prince George's County. The map depicts the approximately locations (countywide) of underserved areas that met the criteria of five (5) or greater lots.

Figure 2: Summary of Current Conditions in Prince George's County by Council District

Council District	*Approximate* Septic Usage	*Approximate* Underserved areas	*Approximate* Residences	*Approximate* (Post-sewer) septic use
1	578	5	100	478
2	14	0	0	14
3	57	1	5	52
4	381	6	85	296
5	171	2	30	141
6	1,103	17	825	278
7	139	1	7	132
8	688	19	250	438
9	1,846	39	785	1,061
TOTAL	**4,977**	**90**	**2,087**	**2,890** [1]

Assumptions/Observations:

*Unsewered/underserved areas are based upon the criteria of **five (5) or more residential lots** ;*
Approximate septic usage is based upon review of lots having no abutting sewer lines

District 2 - no underserved areas for the criteria used

District 6 - includes residential subdivisions i.e. Brock Hall, Brock Hall Manor & Brock Hall Gardens (@450 homes)

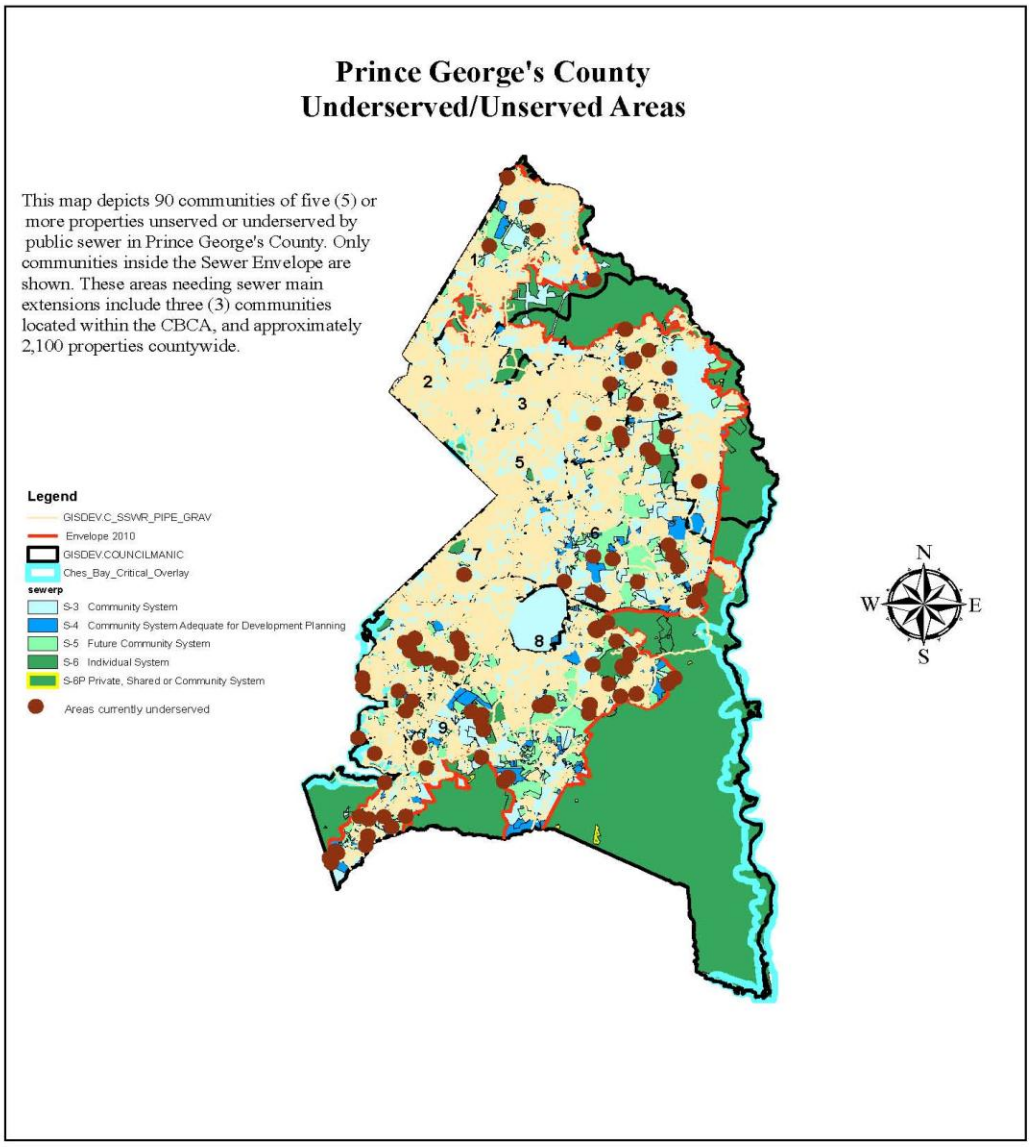
*District 8 - includes 3 communities located within the **Chesapeake Bay Critical Area** (@40 homes)*

District 9 - includes residential subdivisions i.e. Pleasant Springs, Early Manor, Wards , New England (@260 homes)

***(1)** -- of this 2,890 number, some would remain on septic systems by choice, constraints, costs and distance to sewer mains*

The following map graphically depicts this summary information.

Figure 3: Map of Current Conditions in Prince George's County



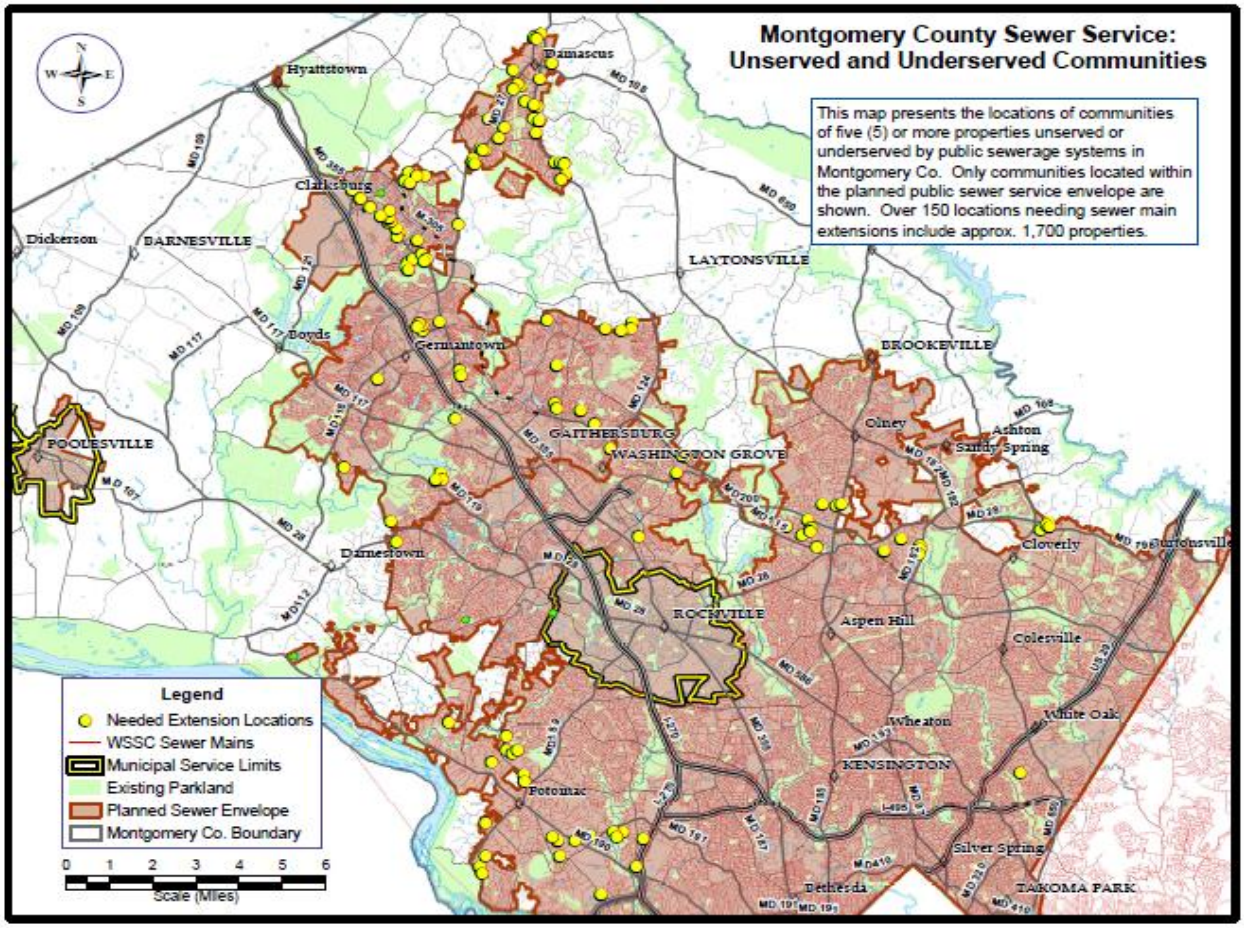
Montgomery County

Within Montgomery County's defined community water and sewer service envelopes are properties that were initially developed on and continue to be served by individual, on-site wells and septic systems. These homes on these properties were typically constructed either prior to the area being planned for community water or sewer service or before community systems were available. These homes are commonly 30 to 60+ years old. They are often located near areas that have subsequently been planned for subdivision and development; where water and sewer infrastructure has been built for the newer development. Accordingly, it is not uncommon for these older houses on wells and septic systems to be located near (within 1,000 feet) existing community water and sewer infrastructure. They are often surrounded by the newer development using community water and sewer systems.

In some cases, homes using private, on-site systems only require a connection to an existing WSSC main. However, many other properties using wells and septic systems do not have access to existing WSSC water and/or sewer mains; requiring new main extensions for service. Subgroup members from Montgomery County reported that approximately 150 neighborhoods within the county's defined water/sewer service envelopes, but without existing access to WSSC service, contain more than 1,700 homes that currently continue to use on-site systems.[1] As illustrated in the following map, although these neighborhoods are scattered widely across the county, there are identified clusters of affected neighborhoods in areas such as Clarksburg, Damascus, Germantown, Norbeck, and Potomac.

[1] To maintain consistency with the analysis provided by Prince George's County Department of Environmental Resources, the Montgomery County Department of Environmental Protection evaluated only those neighborhoods within the defined community service envelopes where at least five properties lacked access to community water and/or sewer service.

Figure 4: Map of Current Conditions in Montgomery County



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