

AGENDA NOTE – HRPDC EXECUTIVE COMMITTEE MEETING

ITEM #7: REGIONAL SEWER CONSOLIDATION STUDY

SUBJECT:

The consulting firm, HDR Engineering, has completed the Regional Sewer Consolidation report that evaluated the benefits of consolidating the sanitary sewer assets in the region.

BACKGROUND:

In Hampton Roads, each locality owns and operates their own sanitary sewer collection system carrying sewage away from homes and businesses to facilities owned and operated by the Hampton Roads Sanitation District (HRSD), the regional entity that treats sewage for all of Hampton Roads. The Regional Sewer Consolidation Study evaluated whether there are benefits to consolidating all sanitary sewer assets under HRSD.

HRSD submitted the report to the EPA before the August 31, 2013 deadline. The report recommends consolidating the sewer systems. Consolidation would save approximately \$1 billion over 30 years and simplify implementing sewer upgrades by optimizing the rehabilitation plans to be more cost effective.

The schedule approved by DEQ and the EPA requires each governing body to make a decision by February 2014 on whether or not to pursue consolidation.

The Executive Summary of the Regional Sewer Consolidation Study is attached. The final report and supporting documents are available at the links below:

- Regionalization of Sewer Systems Assets Study, Final Report, August 2013:
<http://www.hrpdc.org/uploads/docs/Regionalization%20of%20Sewer%20Systems%20Assets%20Study%20-%20Final%20Report.pdf>
- Appendix A: Financial Analysis, Supporting Data and Results:
<http://www.hrpdc.org/uploads/docs/Regionalization%20Study%20Final%20Report%20-%20Appendix%20A%20Financial%20Analysis%20Supporting%20Data.pdf>
- Appendix B: Overview of Federal and State Funding Opportunities:
<http://www.hrpdc.org/uploads/docs/Regionalization%20Study%20Final%20Report%20-%20Appendix%20B%20Funding%20Opportunities.pdf>
- Comparative Analysis Report, Revised August 2013:
<http://www.hrpdc.org/uploads/docs/Comparative%20Analysis%20Report%20FINAL%20Revised%20Aug%202013.pdf>

Ms. Whitney Katchmark, HRPDC Principal Water Resources Engineer, will brief the Commission on the study recommendations.

Attachment 7

RECOMMENDED ACTION:

For information purposes only.



Regionalization of Sewer System Assets Study

Final Report
August 2013

prepared for



prepared by



Attachment 7

Executive Summary

This study evaluates the cost savings of consolidating all local sewer systems in Hampton Roads under a single regional wastewater service provider.

The Hampton Roads Sanitation District (HRSD), who owns and operates a regional system of interceptors and wastewater treatment plants, and fourteen municipal entities that own and operate local sewer systems are subject to state and federal Consent Orders to address unpermitted wastewater discharges from their respective sewer systems. This Regionalization of Sewer System Assets Study evaluates the potential cost savings for Consent Order compliance of consolidating all local sewer systems in Hampton Roads under a single regional wastewater service provider. Results of this study show that Regionalization would be expected to provide net present value savings over 30 years of approximately \$948 million, compared to the current structure of distributed ownership and responsibility, in meeting the terms of the state and federal Consent Orders. Based on this finding, Regionalization of all sewer and wastewater system assets under a single regional entity, HRSD, is recommended.

Project Background

Wastewater collection, conveyance and treatment in the Hampton Roads region in southeast Virginia are provided by multiple entities. Fourteen individual municipal entities, including the cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach and Williamsburg; the counties of Gloucester, Isle of Wight, and York; the town of Smithfield; and the James City Service Authority (the Localities), own and operate sanitary sewer systems that deliver flow to a regional system of interceptors, pump stations and wastewater treatment plants owned and operated by the Hampton Roads Sanitation District (HRSD).

HRSD and 13 Localities entered into a Special Order by Consent to reduce unpermitted wastewater discharges from Locality and HRSD sewer systems.

HRSD and the Localities have entered into Consent Special Orders with the Virginia State Water Control Board (SWCB) for the reduction of unpermitted discharges from Locality and HRSD sewer systems. These include a 2001 Order between the SWCB, the City of Norfolk and HRSD and a 2007 Regional Consent Order between HRSD, the 13 other Hampton Roads Localities, and the SWCB. HRSD and the 13 Localities party to the Regional Consent Order also entered into a

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Memorandum of Agreement (MOA) under which HRSD and the Localities agreed to work cooperatively in developing and implementing a Regional Wet Weather Management Plan (RWWMP) to reduce unpermitted discharges from sewer systems in the region. A separate 2010 Consent Order issued to HRSD by the U.S. Environmental Protection Agency (EPA) also requires HRSD, in consultation with the Localities, to develop and submit a RWWMP.

This study explores whether addressing wastewater system improvements on a regional basis might offer a more efficient and cost-effective approach to Consent Order compliance.

As work progressed on the RWWMP and other Consent Order provisions, HRSD and the Localities became interested in exploring if addressing wastewater system improvements on a regional rather than Locality-by-Locality basis might offer a more efficient and cost-effective approach to Consent Order compliance. HRSD, the 13 Localities party to

2007 Consent Order, and the City of Norfolk agreed to cooperate on a Regionalization Study to compare the cost of providing wastewater service, including implementation of sewer system rehabilitation and capacity enhancements and other requirements of the state and federal Consent Orders, under two approaches:

- a Non-Regionalized Scenario that maintains existing individual Locality and HRSD ownership and operational responsibilities;
- and a Regionalized Scenario with a single entity having sole responsibility for all wastewater systems in the region.

The SWCB and EPA were receptive to evaluating the potential benefits of regionalization, and have amended their respective Orders and milestones to

The Regionalization Study encompasses two parallel efforts: 1) a Comparative Analysis of capital improvements to the local sewer systems and HRSD's interceptor system and treatment plants to meet the Consent Orders; and 2) an evaluation and comparison of the overall costs of wastewater service and impacts to rate payers for the two scenarios, as well as the relevant legal, governance and local and regional coordination issues.

accommodate the Regionalization Study before the submittal of the RWWMP.

The Regionalization Study encompasses two parallel efforts comparing the Non-Regionalized and Regionalized Scenarios. A Comparative Analysis of capital improvements to the local sewer systems and HRSD's interceptor

system and treatment plants to meet the Consent Orders was led by Brown and Caldwell. In parallel, a team led by HDR Engineering, Inc. (HDR) evaluated and

compared the overall costs of wastewater service and impacts to rate payers for the two scenarios, as well as the legal, governance and local and regional coordination issues related to consolidating all wastewater systems under a single regional entity.

This Executive Summary and report document the HDR team's evaluation of the financial and non-monetary analyses performed for the Regionalization Study.

Project Objectives and Approach

The primary objective of the Regionalization Study is to compare the cost of providing wastewater service in 14 Hampton Roads Localities, in consideration of projected rehabilitation and capacity enhancement needs and other terms of the Consent Orders, for the following two scenarios:

- Non-Regionalized Scenario – the current structure in which each Locality continues to own, operate, and implement improvements to their own sewer systems and HRSD continues to own, operate and implement improvements to the regional interceptor and wastewater treatment plant system.
- Regionalized Scenario – replacing the current Locality/HRSD ownership structure with a single entity with full responsibility – own, operate and implement system improvements – for the regional wastewater collection, conveyance and treatment facilities serving the 14 Hampton Roads Localities.

Evaluations and analyses were supported by an extensive array of data provided by the HRSD and the Localities.

Evaluations and analyses were supported by an extensive array of data provided by the HRSD and the Localities. In many cases, data requests were supplemented by one-on-one conversations with HRSD and Locality staff to ensure that data were complete, specifically related to wastewater service, and understood by the HDR team. Key data used in the HDR team's analyses include the following.

- financial statements and schedules for outstanding debt;
- listing of wastewater assets including sewer system infrastructure (pipes, pump stations, treatment plants, etc.), equipment and rolling stock, including age and original cost of purchase or construction;
- annual wastewater operations and maintenance budgets, including annual revenues from rates, connection fees and other revenue sources and payments from wastewater utility funds to other Locality departments for services or payments in lieu of taxes;
- current wastewater rates;

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- organization charts, staffing statistics and job descriptions for wastewater utility, customer service and billing personnel; and
- descriptions of wastewater operations and maintenance facilities, including buildings, warehouses and storage yards.

Wastewater system improvements capital costs used in Regionalization Study analyses were provided by the Comparative Analysis Report prepared by Brown and Caldwell.

For the financial and legal analysis, HDR conducted a series of five workshops with a project Steering Committee, composed of representatives from the HRPDC, HRSD and each of the fourteen Localities.

The HDR team's approach included a series of five workshops with a project Steering Committee, composed of representatives from the HRPDC, HRSD and each of the fourteen Localities. Throughout the project, the Steering Committee members provided invaluable insight, guidance, and consensus

recommendations on handling key issues in cost of service analyses, transfer of assets and personnel, billing and customer service structures, and other important considerations in a potential transition to a Regionalized wastewater service provider.

Evaluation and Comparison of Regionalized and Non-Regionalized Scenarios

LEGAL REVIEW

A legal review was first performed to identify the existing legal basis and potential legal obstacles in creating a Regional Entity that will own and operate wastewater collection systems in the Hampton Roads Localities. Findings of the legal review are summarized as follows.

- HRSD's enabling legislation supports HRSD owning, operating and maintaining local collection systems.
- There are no apparent obstacles to HRSD assuming assets and debts from Localities.
- Modifications to HRSD's governing structure will require legislative action.

Based on results of the legal review and the consensus opinion of the steering committee members, it is logically assumed that HRSD would serve as the "Regional Entity".

Based on results of the legal review and the consensus opinion of the steering committee members for this Regionalization Study, it is logical for the

purposes of the Regionalization Study to assume that HRSD would serve as the “Regional Entity” envisioned under the Regionalization Scenario. Therefore, “HRSD” is used to refer to the Regional Entity in the following discussions.

COMPARING COSTS OF WASTEWATER SERVICE

The analyses of the cost of wastewater service for the Non-Regionalized and Regionalized Scenarios are based on the cash basis revenue requirement methodology. Annual revenue requirements in the cash basis methodology include operations and maintenance expenses, taxes and transfer payments to other departments, debt service and capital projects funded from rates. Capital projects funded from rates are typically “renewal and replacement” of infrastructure at the end of its service life.

How each revenue component of the cash basis methodology was handled in the financial analyses is summarized as follows.

Asset Valuation: Using data provided by HRSD and the Localities, total reported book value (original cost minus straight-line depreciation) of wastewater infrastructure assets in Hampton Roads is approximately \$2.6

All Locality sewer system infrastructure assets should be donated to HRSD under the Regionalization Scenario, so that ratepayers don't have to pay twice.

billion, including \$900 million in HRSD assets and \$1.7 billion in Locality sewer system assets. It is recommended and assumed in the financial analysis that all Locality sewer system infrastructure assets would be donated to HRSD under the Regionalization Scenario. This recommendation is consistent

with Steering Committee consensus that ratepayers have already paid for the majority of existing sewer system assets and shouldn't have to pay twice, as would be the case if existing Locality assets were sold to or leased by HRSD, under regionalization.

Debt: For the Regionalized Scenario, it is recommended and assumed in the financial analysis that existing Locality debt is conveyed to and refunded by

Existing Locality debt should be conveyed to and refunded by HRSD using a level debt service structure.

HRSD using a level debt service structure, amortized over 30 years at a 5% interest rate, as shown in Figure ES-1. The level debt service structure results in a higher total debt payment over 30 years but provides a uniform

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debt payment stream and lower initial annual debt payments, and more equally distributes debt between current and future rate payers, compared to the heavily front-loaded matched-maturity debt structure.

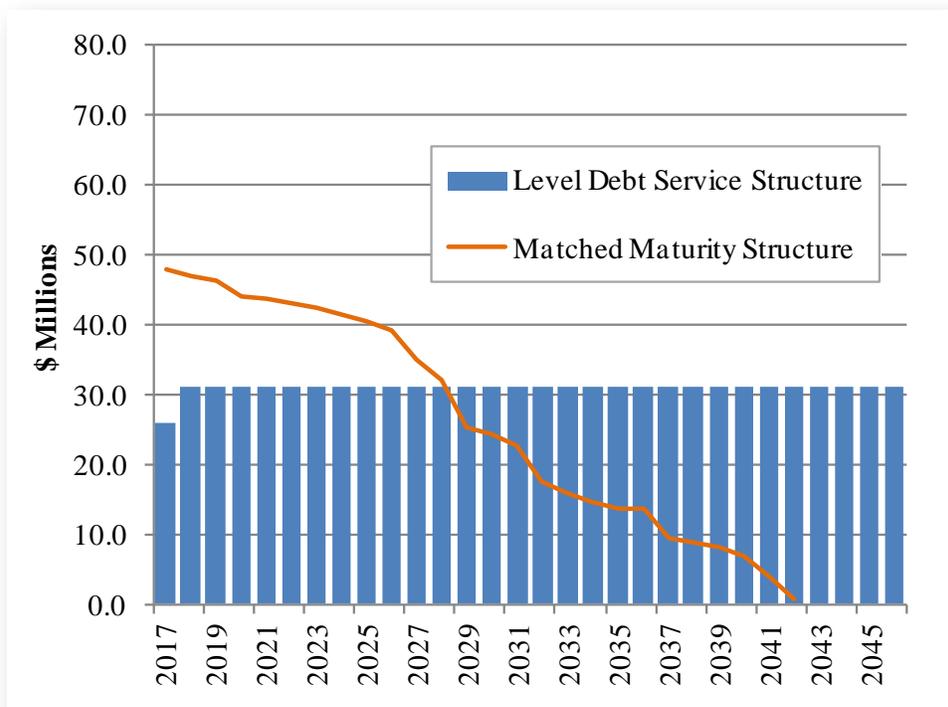


Figure ES-1 Debt Service for Existing Locality Sewer Debt, Regionalized Scenario

In the financial analysis for both scenarios, Consent Order capital improvements are assumed to be debt-funded, amortized over 30 years at 5% interest.

Costs Related to Operations and Maintenance: Costs for operation and maintenance of Locality sewer systems were evaluated as follows.

- Customer Service and Billing
 - Existing billing and customer service structures remain in place for the Non-Regionalized Scenario.
 - Existing billing structures remain in place, with all wastewater service charges incorporated into bills that HRSD already issues to customers in all Localities except Williamsburg, which charges customers in the City for all water and wastewater service.
 - All wastewater customer service responsibilities shift to HRSD under the Regionalized Scenario.

Costs for operations and maintenance of Locality sewer systems were evaluated based on several assumptions, as outlined in this section.

- Wastewater Utility Personnel
 - All Locality wastewater utility FTEs will transfer initially to HRSD under the Regionalization Scenario.
 - Duplicate positions totaling 102 full-time equivalents (FTEs) at the management and administration levels will be eliminated through attrition within the first five years of regionalization.
- Operations and Maintenance Facilities
 - Localities will not transfer operations and maintenance support facilities (office, warehouse, vehicle and repair shop space and equipment and storage yards) since they serve multiple utility and/or public works divisions.
 - Three new Operations Centers, at a total capital cost of \$30 million, are included in the Regionalized Scenario to supplement HRSD’s existing South Shore, North Shore and West Point Operations Centers to provide an approximate 30-minute drive time from Operations Centers to the extents of the regional sewer system.
- Operations and Maintenance (O&M) Costs for Local Sewer Systems
 - Each Locality’s annual sewer system O&M costs are adjusted upwards by 5% or 15% based on comparisons to QualServe metrics and expected demands for higher levels of O&M under the Consent Orders. Adjusted Locality O&M costs serve as the Non-Regionalized baseline cost.
 - Annual sewer system O&M costs for the Regionalized Scenario are calculated as the Non-Regionalized baseline cost minus labor costs associated with the reduction of 102 duplicate management and administrative FTEs.
 - Annual O&M costs for local sewer systems are summarized in Table ES-1.
 - Annual O&M costs for the regional interceptors and wastewater treatment plants are accounted for in the HRSD rate.

Table ES-1 Local Sewer System Annual Operations and Maintenance Cost Comparison

Current Locality Total	Adjusted Non-Regionalized Baseline	Regionalized
\$92 million	\$101 million	\$88 million

Taxes and Transfer Payments: Taxes, payments in lieu of taxes, payments for services provided by other departments and other transfer payments are not included in the financial analysis and comparison of the Non-Regionalized and Regionalized Scenarios since not all Localities employ these types of payments.

Rate-Funded Capital Improvements: Levels of rate-funded capital improvements for routine renewal and replacement of sewer system infrastructure vary

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widely from Locality to Locality, and in most cases are not explicitly identified in the annual operations and maintenance expenses provided by the Localities. To put all Localities on a common footing, rate funded capital improvements are included in the financial analysis as the annual sewer infrastructure depreciation reported by or in some cases estimated for each Locality. Use of the depreciation expense reflects generally accepted industry guidelines for funding renewal and replacement.

Consent Order Capital Improvements: Capital improvement costs, which include capacity enhancements and rehabilitation to the Locality sewer systems and HRSD’s interceptor and treatment plant system, are provided in the Comparative Analysis of Consent Order-driven improvements prepared by Brown and Caldwell.

- Total Consent Order-related capital improvements, including costs related to Norfolk’s separate Consent Order, total over \$3.2 billion in the Non-Regionalized Scenario, as shown in Table ES-2.
- Consent Order capital improvements costs for the Regionalized Scenario total almost \$2.2 billion, as summarized in Table ES-3. Total savings in Consent Order-related capital improvements under regionalization are estimated at over \$1 billion, mostly from reduced capital costs for local sewer system rehabilitation.

Total net present value savings in Consent Order-related capital improvements under regionalization are estimated at over \$1 billion over 30 years.

Table ES-2 Total Consent Order Capital Improvements, Non-Regionalized Scenario (\$000)

Locality	Non-Regionalized Capital Costs			
	Capacity Improvements	Rehabilitation	Private II Reduction	Total CIP Cost
Locality Total	\$336,582	\$1,783,163 ¹		\$2,119,745
HRSD	\$659,390	\$173,338	\$289,248	\$1,121,976
TOTAL	\$995,972	\$1,956,501	\$289,248	\$3,241,721

¹ Includes Norfolk’s estimated \$425 million for rehabilitation costs related to their individual Consent Order, which are not covered by the 2007 Regional Order and not included the Comparative Analysis capital improvements estimates.

Table ES-3 Consent Order Capital Improvements, Regionalized Scenario (\$000)

Locality	Locality Rehab	Private I&I	Regional Wet Weather Improvement	Upstream Capacity Improvements	Total CIP Cost
HRSD	\$1,005,256	\$210,495	\$635,138	\$324,179	\$2,175,068

Financial Analysis Results: The financial analysis model was used to calculate the total annual costs for wastewater service, including wastewater collection in local sewer systems, conveyance in the regional interceptor system and treatment at the regional wastewater treatment plants. Costs of service were calculated for each Locality and on a system-wide basis under the Non-Regionalized Scenario and compared to the costs of service calculated for the region as a whole under the Regionalized Scenarios. Costs are compared over a 30-year planning horizon.

- Costs of service comparisons under each scenario were developed for each Locality on a unit cost, \$/CCF basis. For reference, a system-wide average unit cost under the Non-Regionalized Scenario is compared to the unit cost for the Regionalized Scenario on Figure ES-2.

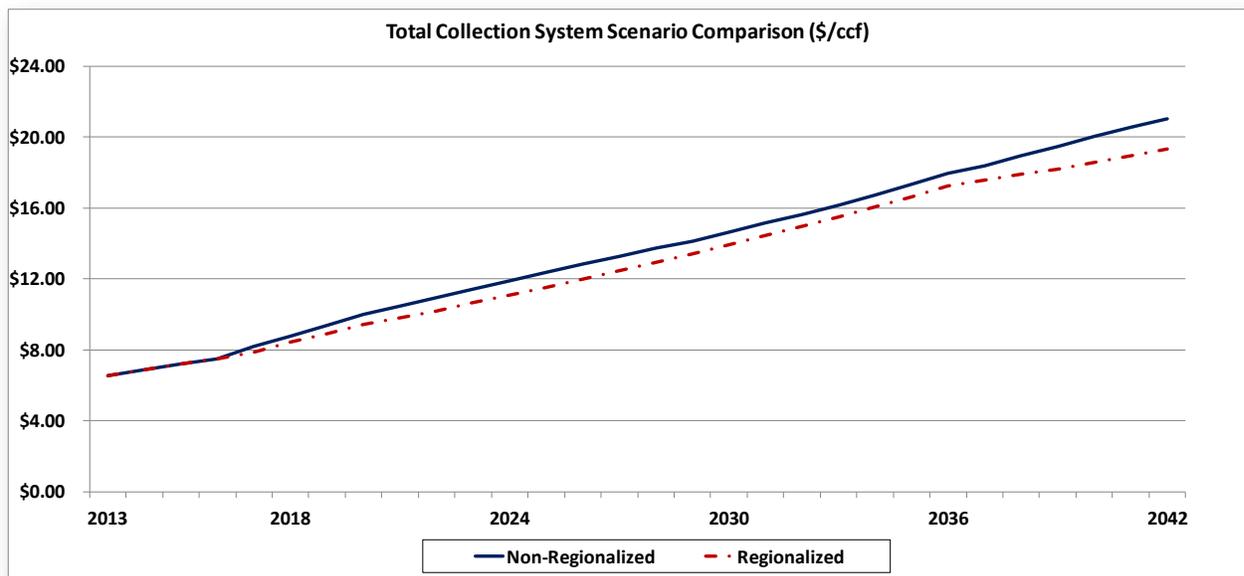


Figure ES-2 System-Wide Wastewater Service Costs

- Net present value (NPV) costs (30-year planning period at a 5 percent discount rate) were also calculated for each Locality and the entire region. Table ES-4 compares the total 30-year NPV for the Non-Regionalized and Regionalized Scenarios. The Regionalized Scenario provides a total NPV savings over 30 years of \$948 million. The 30-year NPV savings includes \$386 million in operations and maintenance cost savings and a savings of \$562 million for financing Consent Order capital improvements. Refinancing existing Locality debt using the level debt service structure, which produces lower initial annual payments but higher total payments, has approximately the same 30-year NPV as the matched maturity structure with its higher initial annual payments.

Table ES-4 Summary of the 30-Year Net Present Value (\$000,000)

	30-Year Net Present Value ^[1]			NPV Percent Difference
	Non-Regionalized	Regionalized	\$ NPV Difference	
TOTAL	\$11,919	\$10,971	\$948	8.6%

- While Regionalization provides a net economic benefit to the region as a whole, not all ratepayers see the same benefit. Ratepayers in most Localities, but not all, are projected to see an overall savings under the Regionalization Scenario.
 - Significant NPV Savings (25% or higher) – Gloucester, Isle of Wight, Suffolk, Poquoson and York County (11% of the region’s ratepayers)
 - Moderate NPV Savings (> 10%) – James City Service Authority, Smithfield, Norfolk, and Portsmouth (26% of the region’s ratepayers)
 - Small NPV Savings – Chesapeake, Hampton, and Virginia Beach (51% of the region’s ratepayers)
 - NPV Increase – Newport News and Williamsburg (12% of the region’s ratepayers)

Regionalization provides a net economic benefit to the region as a whole, but not all ratepayers would see the same benefit.

GOVERNANCE AND LOCAL COORDINATION UNDER REGIONALIZATION

Governance: The existing HRSD Commission comprises 8 members who are appointed by the Governor of Virginia to a four-year term. Steering Committee consensus is that changes to the current Commission structure are needed under the Regionalized Scenario. Recommended changes to the HRSD Commission structure include:

- Expand the Commission to 17 voting members, one from each municipal entity in the HRSD service area (the 14 Localities participating in the Regionalization Study plus 3 additional municipalities served by HRSD that are not party to the Consent Orders or part of the Regionalization Study). Members would be appointed by the Governor from a slate of 3 nominees submitted by elected officials of each municipal entity.
- Add a 17-member ex-officio advisory committee, one member appointed by each municipal entity, and each member an employee of his or her respective municipality.

The Steering Committee recommends that the Commission should be expanded to 17 voting members, one from each municipality in the HRSD service area.

Local Coordination: Recommendations to foster enhanced coordination between HRSD and local governments on issues such as sewer extensions and new connections, especially in support of growth and economic development efforts in the Localities, and public policy, outreach and communication, are as follows.

- Create a new position within HRSD for an Economic Development Coordinator to work with local government economic development officials and serve as the HRSD point-person for all needs for wastewater service to support economic development.
- Expand HRSD's Planning and Analysis staff to work directly with developers and in coordination with local planning departments on requests for new sewer connections and extensions.
- Create within HRSD two new Government Liaison positions, one for the North Shore and one for the South Shore, to work closely with and serve as the main point of contact for local utility, public works and emergency response departments and elected officials to enhance coordination on matters of mutual interest.

HRSD should create new staff positions to enhance coordination with local governments on economic development efforts, public policy, outreach and communication.

Recommendations for Regionalization

Regionalization of all wastewater systems in the Hampton Roads region, with HRSD assuming ownership and operation of Locality sewer systems, is recommended. Regionalization will provide considerable economic benefits to ratepayers across the region and consolidate and reduce the risks associated with compliance with state and federal Consent Orders related to unpermitted wastewater discharges.

Based on the results of this study, we recommend regionalization of all wastewater systems in the Hampton Roads region. Regionalization will provide considerable economic benefits and reduce the risks associated with unpermitted wastewater discharges.

This study has compared the costs of wastewater service under the Consent Order environment. It has demonstrated the economic benefits and a broad framework for how Locality sewer system infrastructure and obligations might be conveyed to HRSD. However, the Regionalization Study and this Study Report do not constitute an implementation plan for regionalization, and there are many details of how a regional wastewater utility ultimately would be structured, operate and interact with the Hampton Roads Localities. Should regionalization be pursued, a detailed implementation and transition plan, which is beyond the

Regionalization of Sewer System Assets Study

scope of this study, is needed to establish and document the myriad agreements and activities that will need to be in place and performed to convey all wastewater systems and responsibilities in the region to HRSD.

The amended Consent Orders require the submission of the Regionalization Study and Comparative Analysis Reports to the Virginia Department of Environmental Quality and the EPA by August 31, 2013. As shown on Figure ES-3, under the amended Consent Order the Localities and HRSD have until February 28, 2014 to make the final decision on regionalization, with subsequent milestones depending on the outcome of that decision.

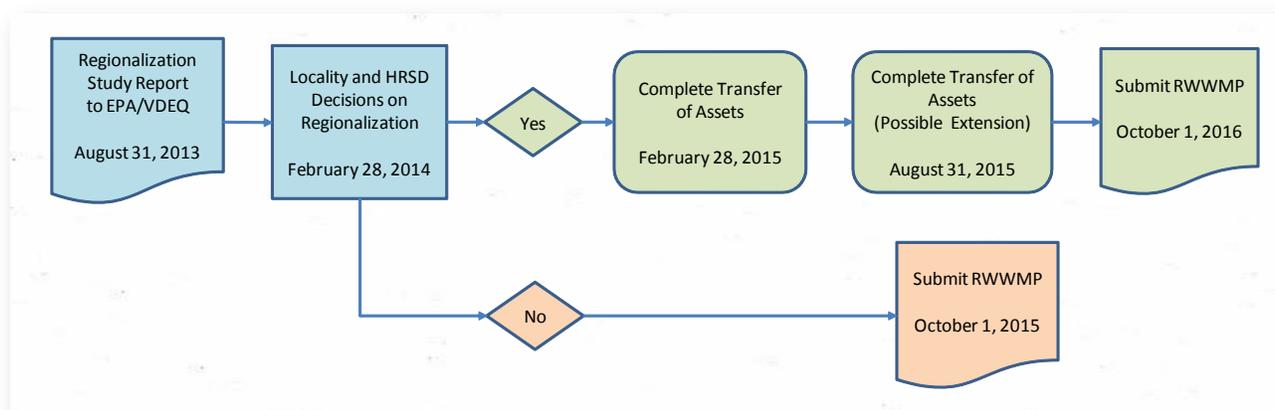


Figure ES-3 Consent Order Milestones