Regionalization of Sewer System Assets Study

Final Report

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prepared for

HAMPTON ROADS PDC
PLANNING DISTRICT COMMISSION

prepared by

HDR

McGUIREWOODS

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List of Acronyms

Acronym	Definition
$/CCF	$/Hundred Cubic Feet
A&G	Administrative and General
AR	Accounts Receivable
AWWA	American Water Works Association
B&C	Brown and Caldwell
BAWSCA	Bay Area Water Supply and Conservation Agency
CC&B	Customer Care and Billing
CCTV	Closed Circuit Tele-Video
CIP	Capital Improvement Projects
CIS/AR	Customer Information and Accounts Receivables System
CMMS	Computerized Maintenance Management System
CPI	Cost of Living
Davenport	Davenport and Company LLC
DSC	Debt Service Charge
EPA	U.S. Environmental Protection Agency
ERU	Equivalent Residential Unit
FASB	Financial Accounting Standards Board
FOG	Fats, Oils and Grease
FTE	Full-Time Equivalent
GASB	Government Accounting Standards Board
GIS	Geographic Information System
HDR	HDR Engineering, Inc.
HR	Human Resources
HRPDC	Hampton Roads Planning District Commission
HRSD	Hampton Roads Sanitation District
HRUBS	HRSD's Regional Utility Billing System
I&I	Inflow and Infiltration
IPA	Interest Participation Agreement
IVR	Interactive Voice Response
JCSA	James City Service Authority
LPA	Lease/Purchase Agreement
McGuireWoods	McGuireWoods LLP
MGD	million gallons per day
MHI	Median Household Income
MOA	Memorandum of Agreement
MOM	Management Operations & Maintenance [Plans]
MWRA	Massachusetts Water Resources Authority

Acronym	Definition
NPV	Net Present Value
O&M	Operations and Maintenance
P&I	Principle and Interest
PAYGO	“Pay as you go”
PILOT	“Payment in lieu of taxes”
RTS	Regional Technical Standards
RWWMP	Regional Wet Weather Management Plan
SCCRWA	South Central Connecticut Regional Water Authority
SDC	System Development Charge
SLD	Straight Line Deprecation
SOC	Special Order by Consent
SPSA	[Virginia] Southeastern Public Service Authority
SSO	Sanitary Sewer Overflow
SWCB	[Virginia] State Water Control Board
TBD	To Be Determined
TBW	Tampa Bay Water
VDEQ	Virginia Department of Environmental Quality
VEDP	Virginia Economic Development Partnership
VRS	Virginia Retirement System
WEF	Water Environment Federation

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

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 accommodate the Regionalization Study before the submittal of the RWWMP.

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.

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;

- 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 identity 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 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.

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

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

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

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.

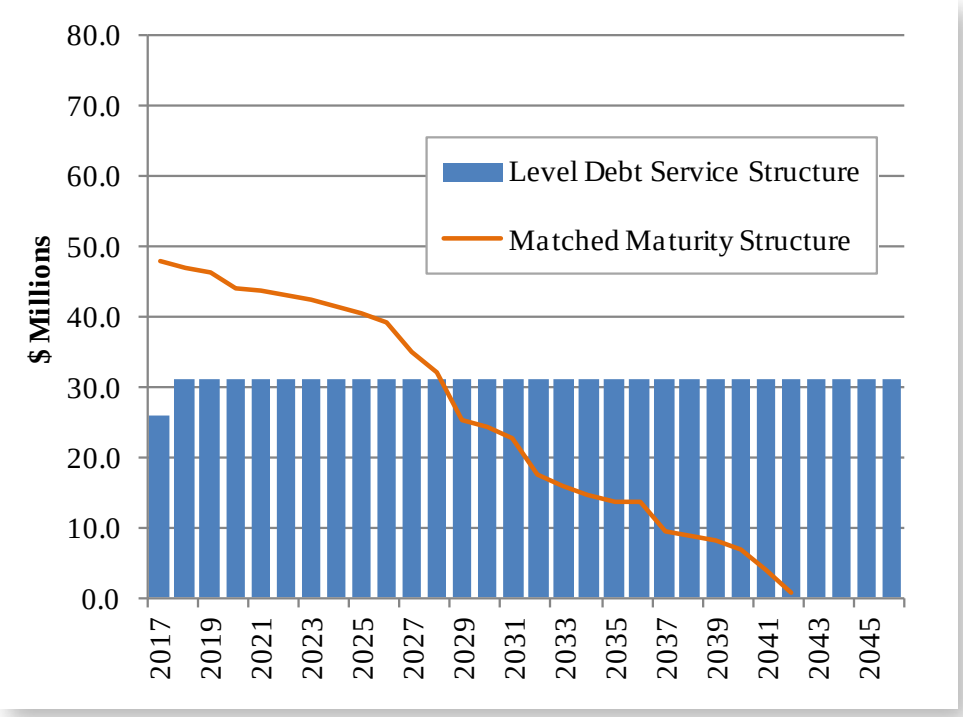

Figure ES-1 Debt Service for Existing Locality Sewer Debt, Regionalized Scenario

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

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 I\I 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.

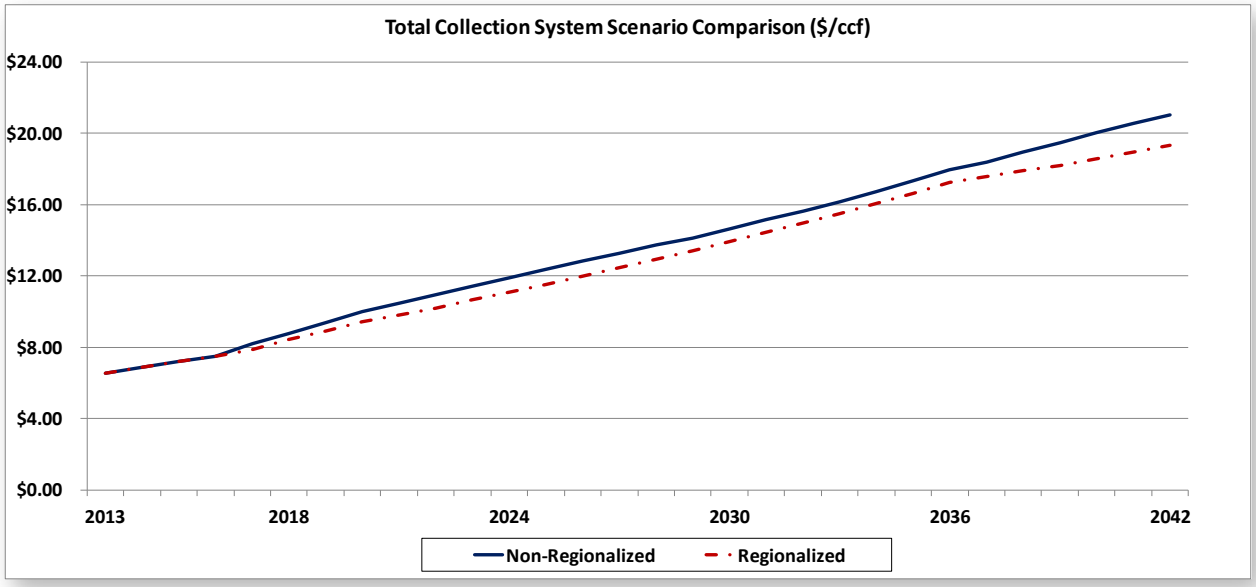

Figure ES-2 System-Wide Wastewater Service Costs

- 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]			
	Non-Regionalized	Regionalized	$ NPV Difference	NPV Percent 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 3additional 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

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.

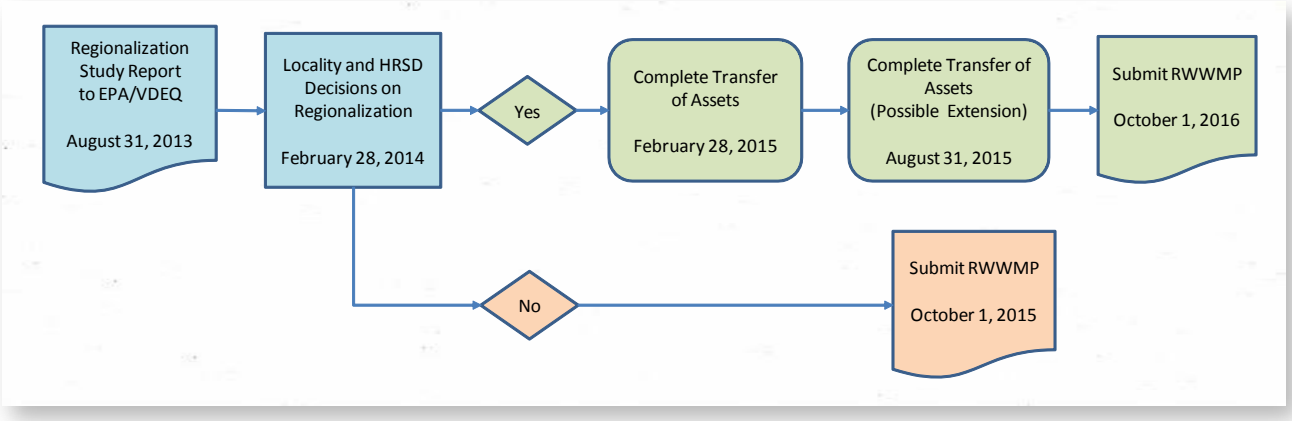

Figure ES-3 Consent Order Milestones

1.0 Project Background

1.1 Purpose and Objectives

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).[1] Locality and HRSD wastewater systems serve a population of 1.6 million over a 2,000 mile service area, and total more than 5,800 miles of gravity sewer, 1,100 miles of force main, almost 1,600 pumping stations, and nine wastewater treatment plants with a combined design permitted capacity of 248.5 million gallons per day (MGD). (See Figure 1.1.)

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

In September 2007, HRSD and thirteen of the Localities (with the exception of Norfolk[2]) entered into a Special Order by Consent with the Commonwealth of Virginia State Water Control Board (SWCB), administered by the Virginia Department of Environmental Quality (VDEQ), to address unpermitted wastewater discharges from Locality and HRSD sewer systems. Actions required by the VDEQ Order include sanitary sewer system monitoring and modeling, condition and capacity assessments, and the development of a Regional Wet Weather Management Plan (RWWMP) describing capacity enhancements and rehabilitation measures to improve performance of the region's wastewater systems to minimize the occurrence of unpermitted discharges. HRSD and the Localities agreed under the terms of the VDEQ Order and a separate Memorandum of Agreement (MOA) to work together to implement the terms of the VDEQ Order, including the development of the RWWMP. A separate 2010 Consent Decree issued to HRSD by the U.S. Environmental Protection Agency (EPA) and the Commonwealth of Virginia also requires HRSD, in consultation with the Localities, to develop and submit a RWWMP.

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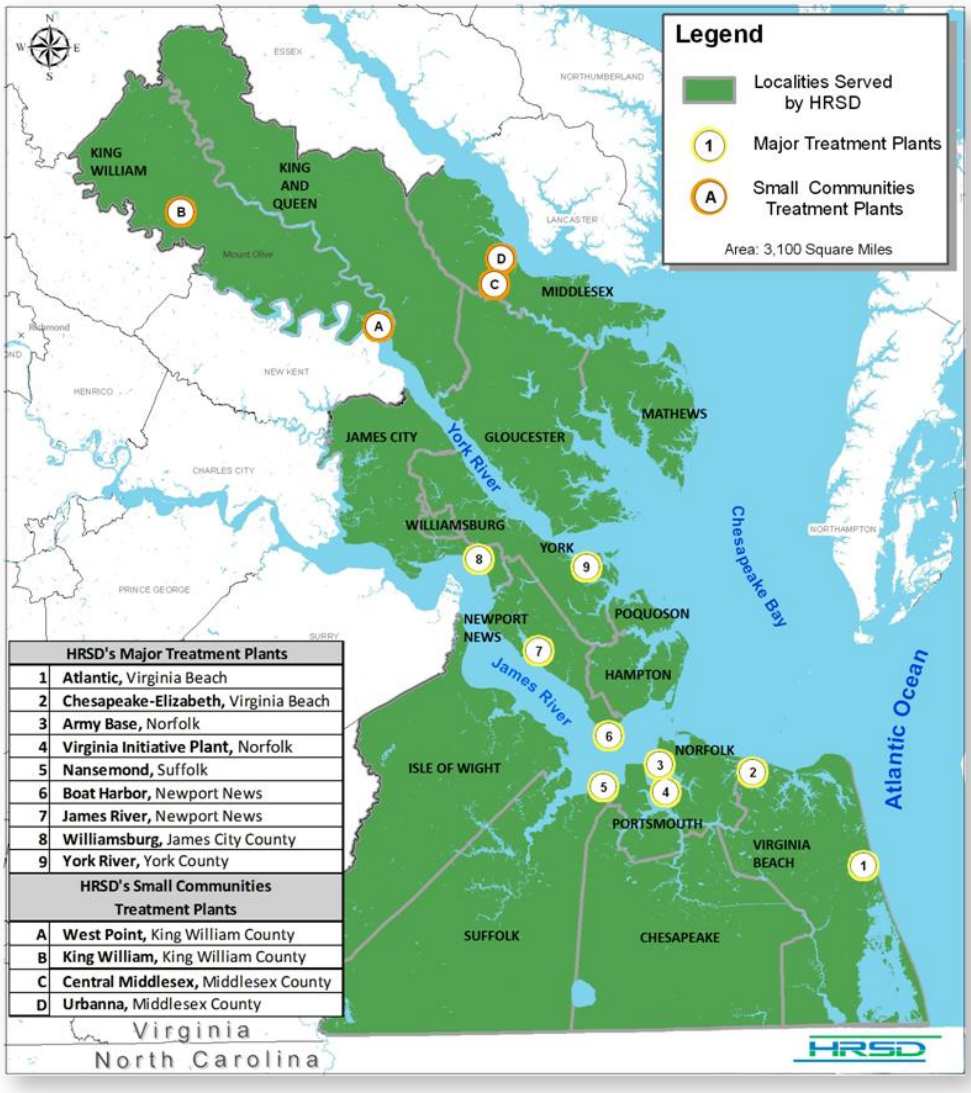
1 HRSD also provides wastewater service in Matthews, Middlesex, King and Queen and King William Counties, which are not included in the Regionalization Study.

2 The City of Norfolk, which together with HRSD entered into an earlier 2001 Consent Order with the SWCB to address unpermitted wastewater discharges, is not a party to the 2007 Order.



HRSD's Major Treatment Plants	
1	**Atlantic,** Virginia Beach
2	**Chesapeake-Elizabeth,** Virginia Beach
3	**Army Base,** Norfolk
4	**Virginia Initiative Plant,** Norfolk
5	**Nansemond,** Suffolk
6	**Boat Harbor,** Newport News
7	**James River,** Newport News
8	**Williamsburg,** James City County
9	**York River,** York County
HRSD's Small Communities Treatment Plants	
A	**West Point,** King William County
B	**King William,** King William County
C	**Central Middlesex,** Middlesex County
D	**Urbanna,** Middlesex County

Figure 1.1 HRSD Service Area and Hampton Roads Localities

HRSD and the Localities also agreed in the VDEQ Order and MOA to develop and comply with the Regional Technical Standards (RTS), which provide detailed requirements for completing the work embodied in the VDEQ Order. The RTS were developed to support a consistent approach to evaluating wet weather flow, sewer system performance, and sewer system rehabilitation and capacity enhancement and to define the content and approach to developing the RWWMP.

The Localities and HRSD have worked diligently in monitoring system flows, evaluating system capacity and performance during wet weather, and identifying

potential improvements to reduce I/I and increase capacity in the Locality and HRSD wastewater systems. As work progressed, HRSD and the Localities became interested in evaluating if improving the region's wastewater systems to comply with the VDEQ and EPA Orders might be accomplished more efficiently and cost-effectively under a regional approach, with a single entity assuming responsibility for all local sewer and regional interceptor and treatment systems, instead of the current structure with responsibility distributed among fourteen Localities and HRSD.

HRSD, the Localities party to the VDEQ Order, and the City of Norfolk agreed to cooperate on a Regionalization Study to compare the cost of providing wastewater service and complying with the VDEQ and EPA Orders under two approaches: one that maintains existing individual Locality and HRSD ownership and operational responsibilities, and one with a single entity having sole responsibility for all wastewater systems in the region. The VDEQ and EPA were receptive to evaluating the potential benefits of regionalization, and agreed to amend their respective Orders and milestones to accommodate a study of regionalization before the submittal of the RWWMP.

The Localities and HRSD turned to the Hampton Roads Planning District Commission (HRPDC) to coordinate and manage the Regionalization Study. In August 2012, the HRPDC selected through a competitive process a team led by HDR Engineering, Inc. (HDR) to execute the Regionalization Study. This report documents the evaluations performed and findings and recommendations of the HDR team.

1.2 Project Objectives and Approach

1.2.1 PROJECT OBJECTIVES

The primary objective of the Regionalization Study is to compare the cost of providing wastewater service in fourteen Hampton Roads Localities, in consideration of projected rehabilitation and capacity enhancement needs and other terms of the VDEQ and EPA 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

This study compares the cost of providing wastewater service and complying with the Special orders under two scenarios: 1) through existing responsibility and ownership of wastewater services by individual locality and HRSD, and 2) through a new, regionalized single entity responsible for all wastewater systems in the region.

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 fourteen Hampton Roads Localities.

The study also assesses potential legal impediments to regionalization and makes recommendations for how assets, debt, personnel and operational functions related to wastewater infrastructure might be managed in a regionalized scenario.

Objectives of the Regionalization Study also include assessing potential legal impediments to Regionalization and developing overall recommendations for how assets, debt, personnel, and operational functions related to wastewater infrastructure might be managed in the Regionalized Scenario. Considerations for the governance structure of a regional entity and coordination between a regional entity and the Localities to manage demands for new or expanded wastewater service to support growth and economic development are also evaluated.

It is also important to note what the Regionalization Study is not intended to do. While the Regionalization Study and this report compare two approaches for providing wastewater service in Hampton Roads, they do not constitute an implementation plan for regionalization or a detailed representation of how a single regional wastewater entity ultimately might be structured, operate and interact with the Localities it serves.

1.2.2 Summary of Project Approach

The following summarizes the topics evaluated to meet the objectives of the Regionalization Study, which are described in detail in subsections of this report.

- Legal Review – an analysis of legal issues supporting or constraining Regionalization, including any existing legal basis or need for enabling legislation to form a regional wastewater service entity and legal issues surrounding the transfer and assignment of assets and Liabilities and Entitlements from Localities to a regional entity.
- Infrastructure Assets – an evaluation of current sewer infrastructure asset value and options for transferring assets from Localities to a regional entity.
- Operations and Maintenance – an evaluation and comparison of staffing, equipment and rolling stock, operations and maintenance support facilities,

and annual costs for sewer system operations and maintenance under the Non-Regionalized and Regionalized Scenarios. Results of these analyses provide the annual operations and maintenance cost component for the financial analyses comparing the cost of service for the two scenarios.

- Customer Service and Billing – an evaluation of how wastewater billing and customer service, including emergency and routine service requests, might be structured in the Regionalized Scenario compared to the current structures under the Non-Regionalized Scenario.
- Debt Service – an analysis of alternatives in the Regionalized Scenario for handling outstanding Locality and HRSD wastewater system debt, as well as a recommended approach for handling future debt for wastewater system capital improvements in the financial analyses for both Non-Regionalized and Regional Scenarios.
- Financial Analysis – a financial model is used to develop and compare the cost of wastewater service under the Non-Regionalized and Regionalized Scenarios. Cost of service includes existing debt service, servicing new debt for debt-funded capital improvements for system rehabilitation and capacity enhancements related to the Consent Orders, and annual operations and maintenance costs. The analysis compares the relative cost to wastewater customers in each Locality under the Non-Regionalized and Regionalized Scenarios. Annual costs for the typical residential wastewater customer are also compared to household incomes in each Locality for reference when considering affordability indices in EPA guidance.
- Governance and Coordination with Localities – Appropriate governance structures for a Regionalized wastewater entity are assessed, using the current HRSD Commission structure as a baseline. Management structures, policies and procedures for effective coordination between a regional entity and the Localities in planning for and responding to wastewater service demands related to growth and economic development are assessed. Coordination between a Regionalized entity, Localities, and other government officials on public education, community relations, and effective response during emergencies and other matters of public safety is also assessed.
- Conclusions, Recommendations and Steps Forward – based on the analyses performed, conclusions are summarized and a recommendation made on whether or not Regionalization is in the best interests of the Hampton Roads region as a whole and should be pursued. Appropriate next steps toward implementation of the Regionalized approach are also identified.

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

Evaluations and analyses were supported by an extensive array of data provided by 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;
- 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.

The HDR team conducted a series of five workshops with a project Steering Committee. The Steering committee was composed of representatives from 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 for 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.

1.3 Integration with Comparative Analysis of Capital Costs

A Comparative Analysis Study was also conducted to develop a suite of preliminary capital improvements and capital improvement costs.

The evaluation of the potential benefits of regionalizing wastewater systems in Hampton Roads consists of two parallel studies, the Regionalization Study and the Comparative Analysis Study. The Regionalization Study performed by the HDR team concentrates on the relative cost of service and overall structure for a Regionalized wastewater service provider compared to a continued Non-Regionalized approach. The Comparative Analysis Study led by Brown and

Caldwell concentrates on developing a suite of preliminary capital improvements and capital improvement costs to eliminate SSOs at various levels of service per the terms of the VDEQ and EPA Orders.

As summarized above and detailed in later sections of this report, the HDR team developed costs for servicing existing debt and estimates of annual operations and maintenance costs as inputs to the financial model used to estimate the total costs and relative rates for wastewater service. The HDR team also calculated costs for servicing new debt to fund the capital improvements necessary for compliance with the VDEQ and EPA Orders. The actual Consent Order-driven capital improvements costs for both the Non-Regionalized and Regionalized Scenarios were developed and provided by Brown and Caldwell and documented in the Comparative Analysis Report.

Results of the Comparative Analysis study showed that Consent Order-driven capital improvements can be accomplished more efficiently and cost effectively on a regional basis.

The Comparative Analysis Report should be referred to for a full description and detail on how capital improvements and capital costs were developed in relation to objective and requirements of the VDEQ and EPA Orders. In general, the Comparative Analysis produced capital cost estimates for regional capacity enhancements to the HRSD interceptor and treatment plant system, capacity enhancements to the Locality sewer systems, rehabilitation of HRSD and Locality collection and conveyance systems to reduce I/I, and a private lateral rehabilitation program implemented by HRSD, for both Non-Regionalized and Regionalized Scenarios. The results of the Comparative Analysis study showed that Consent Order-driven capital improvements, especially sewer system rehabilitation to reduce I/I, can be accomplished more efficiently and cost effectively on a region-wide and wastewater treatment plant service area basis under the Regionalized Scenario than under the Non-Regionalized Scenario in which rehabilitation and I/I reduction are implemented at the level of each individual Locality.

Capital costs from the Brown and Caldwell Comparative Analysis report and used in HDR's financial analyses are summarized in Section 7 of this HDR Regionalization Study report.

2.0 Legal Review

2.1 Introduction

2.1.1 What was Reviewed and Why

McGuireWoods LLP reviewed and evaluated the legal authorizations for, and legal impediments to, the regional consolidation of sewer system collection assets and functions. The regional entity is assumed to be HRSD.

McGuireWoods LLP ("McGuireWoods") was tasked with the review and evaluation of the legal authorizations for, and legal impediments to, the regional consolidation of sewer system collection assets and functions in Hampton Roads under a single regional entity. As an existing entity with regional authority and responsibility for providing wastewater service, HRSD provides a ready model for the "regional entity" considered in this Regionalization Study. For the purposes of the legal review discussed in this section, the "regional entity" is assumed to be HRSD, referred to here as the District.

The scope of McGuire Woods' review included the review and evaluation of the District's enabling legislation, the charters or other legislation authorizing the ownership and operation of sewer collection system assets by the District's member jurisdictions, general federal and Virginia law and the provisions of debt instruments and other contracts governing the ownership and operation of sewer collection system assets as they may apply to either the District or the member jurisdictions.

Note that the scope of the legal review described here does not extend to a review of specific contracts that individual Localities may be party to. Localities should confer with their own legal staff or legal counsel to determine how existing contracts may affect the conveyance of sewer system assets, obligations, and so forth under the Regionalized Scenario.

2.1.2 Why Choose the District?

Virginia law authorizes the establishment of several different regional entities that could serve as the vehicle for the consolidation and operation of the various local sewer collection systems in Hampton Roads. Examples include water and waste authorities established under Virginia Code Sections 15.2-5100 through 15.2-5159 or a "joint powers" entity established under Section 15.2-1300. However, as will become readily apparent below, not much energy was devoted

to examining alternative entities because of the evident fitness of the District for the tasks under consideration.

2.1.3 History, Authorization and Purpose

The District was created in 1940 by the Virginia General Assembly as a political subdivision of the Commonwealth of Virginia and was established as a governmental instrumentality to provide for the public health and welfare. Chapter 66, Acts of the Assembly of 1960, validated and confirmed prior legislation creating the District and repealed earlier acts of the Virginia General Assembly enacted with respect to the District. Chapter 66, Acts of the Assembly of 1960, as amended, will be referred to below as the "HRSD Act."

The District embraces all the territory within the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach and Williamsburg; the Counties of Gloucester, Isle of Wight, James City, King and Queen, King William, Mathews, Middlesex and York; and the town of Urbanna. Territory may be added to the District as provided in the HRSD Act. The HRSD Act also provides that the territory of a county included within HRSD shall include all the territory lying within the boundaries of any town in the county.

HRSD (the District) was created specifically to abate pollution in the Hampton Roads area of Virginia. It includes the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach and Williamsburg; the Counties of Gloucester, Isle of Wight, James City, King and Queen, King William, Mathews, Middlesex and York; and the town of Urbanna.

The District was created for the specific purpose of abating pollution in the Hampton Roads area of Virginia through the interception of existing wastewater outfalls, the construction of wastewater treatment facilities and the installation of interceptors throughout the service area. The District does not provide water, solid waste disposal or stormwater mitigation. The cities, counties and military establishments the District serves provide those services. With the exception of the Counties of King William, King and Queen, Middlesex, and Matthews, the collection systems, consisting of sewers, pump stations and force mains which carry wastewater from industries, homes, apartments and businesses to the District's interception system, are currently the responsibility of the various cities, counties and military establishments within the District.

The District is a separate legal entity from the various cities, counties and military establishments within the District.

The District does not provide water, solid waste disposal or stormwater mitigation. The cities, counties and military establishments the District serves provide those services.

The District traces its origins to 1925, when the Virginia Department of Health condemned a large oyster producing area in Hampton Roads. The closure resulted in the Virginia General Assembly creating in 1927 a "Commission to Investigate and Survey the Seafood Industry of Virginia." Subsequent studies recommended a public body to construct and operate a sewage system in the area.

In 1934, the Virginia General Assembly created the Hampton Roads Sanitation Disposal Commission with instructions to plan the elimination of pollution in Hampton Roads. Recommendations were made to the General Assembly which resulted in the Sanitary Districts Law of 1938, along with "An Act to provide for and create the Hampton Roads Sanitation District." In a referendum held on November 5, 1940, a majority of the voters approved the creation of the District.

The District's first construction project, the Warwick County Trunk Sewer, began on June 26, 1946. The District commenced operations on July 1, 1946, using facilities acquired from the United States Government. The District's first treatment plant, the Army Base Treatment Plant, commenced operations on October 14, 1947. Since that time, the facilities of the District have been expanded to provide wastewater treatment service to all major population centers within its boundaries.

2.2 Highlights of the HRSD Act

Section 10 of the HRSD Act sets forth the general powers of the District to be exercised by or at the direction of the Commission.

Section 2 of the HRSD Act provides that the functions, affairs and property of HRSD shall be managed and controlled by a commission, known as the "Hampton Roads Sanitation District Commission" (the "Commission"), consisting of eight members appointed by the Governor.

Section 10 of the HRSD Act sets forth the general powers of the District to be exercised by or at the direction of the Commission. The Commission is hereby authorized and empowered, among other things, to:

- construct, and to improve, extend, enlarge, reconstruct, maintain, equip, repair and operate a sewage disposal system or systems, enter within or

without or partly within and partly without the corporate limits of the District, and to construct sewer improvements within the corporate limits of the District;

- issue revenue bonds, notes or other obligations of the District for any of its authorized purposes, payable solely from the special funds provided under the authority of this act and pledged for their payment, all as provided in the HRSD Act;
- fix and collect rates, fees and other charges for the services and facilities furnished by any such sewage disposal system or sewer improvements, and to fix and collect charges for making connections;
- acquire in the name of the District, either by purchase, lease, grant, or the exercise of the right of eminent domain, such lands, structures, property, rights, rights of way, easements, franchises and other interests in or relating to lands, including lands, under water and riparian rights, and to acquire such personal property, as it may deem necessary in connection with the construction; improvement, extension, enlargement or operation of any sewage disposal system or sewer improvements, and to hold and dispose of all real and personal property under its control;
- employ, in its discretion, consulting engineers, attorneys, accountants, construction and financial experts, managers, and such other officers, employees and agents as may be necessary in its judgment, and to fix their compensation;
- exercise jurisdiction, control and supervision over any sewage disposal system or systems or sewer improvements operated or maintained by the Commission and to make and enforce such rules and regulations for the maintenance and operation of any such sewage disposal system or systems or sewer improvements as may, in the judgment of the Commission, be necessary or desirable for the efficient operation of any such system or improvements and for accomplishing the purpose of the HRSD Act; and
- make and enter into all contracts and agreements necessary or incidental to the performance of its duties and the execution of its powers under the HRSD Act.

Section 8 of this Regionalization Study Report provides additional discussion of the Commission and its responsibilities, including recommendations on Commission and governance structures under the Regionalized Scenario.

2.3 Locality Charters and State Law

In the HRSD Act, the General Assembly encourages the consolidation of sewer system assets and functions in the District.

In this HRSD Act, the General Assembly has evidenced a strong intent to encourage the consolidation of sewer system assets and functions in the District. The General Assembly has swept aside the normal procedures

for transfer of property by a locality (such as advertisements and public hearings) when the locality is transferring property to the District. Section 11(a) of the HRSD Act provides, among other things, that

> *...all counties, cities, towns and political subdivisions, notwithstanding any contrary provision of law, are hereby authorized and empowered to lease, lend, grant or convey to the District at the request of the Commission upon such terms and conditions as may be mutually agreed upon, without the necessity for any advertisement, order of court or other action or formality, any real property which may be necessary or convenient to the effectuation of the authorized purposes of the Commission, including public highways and other real property already devoted to public use.*

2.4 Summary

Based on the legal review described above, existing legal authority granted to HRSD and the Localities supports and creates no impediment to the regionalization of sewer system assets in Hampton Roads.

3.0 Infrastructure Assets

3.1 Introduction

In a regional scenario, the transfer of wastewater infrastructure assets can be handled a number of ways, ranging from outright sale of assets to the Regional Entity to leasing of assets by the Regional Entity to a "donation" of assets to the Regional Entity.

A significant component of consolidating the 14 Localities and HRSD in to one regionalized operating entity is the transfer of all the wastewater collection system assets currently owned, operated, and maintained by each of the Localities over to the Regional Entity. The new Regional Entity will assume the operational responsibility and liability associated with the asset transfer.

The transfer of wastewater infrastructure assets can be handled a number of ways, ranging from outright sale of assets to the Regional Entity to leasing of assets by the Regional Entity to a "donation" of assets to the Regional Entity.

The objectives of the HDR team's evaluation of wastewater infrastructure assets are to:

- apply an appropriate methodology to estimate the current value of wastewater assets owned by the Localities and HRSD,
- recommend an appropriate approach for handling the transfer of assets to the Regional Entity, and
- account for any costs associated with the transfer of assets in the financial analysis of the Regionalized Scenario.

3.2 Background on Asset Valuation

Public agencies maintain a fixed asset ledger of all wastewater assets owned and constructed by the municipality in perpetuity. The value of these assets is recorded based on the actual original purchase and/or construction cost of the asset.

Public agencies are required to maintain a fixed asset ledger of all wastewater assets owned and constructed by the municipality in perpetuity. The value of these assets are recorded based on the actual original purchase and/or construction cost of the asset including all associated soft costs like engineering design, construction management, land purchase, etc. The asset values are "booked" in the fixed asset account ledger and are depreciated in accordance with the Government Accounting Standards Board (GASB) reporting standard 34 utilizing either Depreciation Method 1 or 2. The

"book value" of the sewer assets, or Original Cost Less Depreciation, is reported in annual financial statements in accordance with GASB requirements. It was determined through discussions with HRSD and the 14 Localities that all use GASB 34 Method 1, Straight-Line Depreciation (SLD), for compliance purposes.

The SLD methodology does not necessarily provide a direct comparison of book value of wastewater assets between Localities, for several reasons. First, the SLD method reduces the asset value annually based on the prorated depreciation expense over the service life assigned to the asset when it is booked. There is no industry standard for asset service life expectancies for the numerous wastewater asset classes/types. Asset service lives used in calculating the SLD can vary greatly between agencies and can lead to prematurely depreciating assets or result in assets being retired before they are fully depreciated. These variances can significantly impact the current book value of the agencies' assets.

How each Locality defines its sewer assets, by class, by type, and to what level of detail, affects the service life estimates and impacts the book value. Some agencies group assets, assign service life and book the asset value at the facility level, such as a pump station, even though the facility has multiple structural, mechanical, electrical and other asset types that have different service lives. Other agencies book assets at the asset class/type level – pump, motor, valve, etc. These different approaches result in varying asset values for similar types of facilities/assets between Localities, and can lead to the retirement/replacement of assets that are not removed from the fixed asset ledger and continue to be depreciated even though the asset is no longer is service.

Developing comparable estimates of the value of wastewater infrastructure assets that might be transferred to a Regional Entity is complicated by differences in asset valuation practices among the Localities. The HDR evaluated various methodologies to account for differences in valuation practices.

Other accounting practices such as how removal and salvage costs of existing assets are recorded when those assets are retired or replaced and removed from service also lead to variances in current asset valuations.

Developing comparable estimates of the value of wastewater infrastructure assets that might be transferred to a Regional Entity is complicated by differences in asset valuation practices among the Localities. The HDR team was tasked with evaluating asset valuation methodologies that account for differences in

valuation practices and lead to reasonable and appropriate estimates of asset value. Evaluation of alternative asset valuation methodologies and selection of the recommended approach for use in the analysis of the Regionalized Scenario are discussed in the following section.

3.3 Asset Valuation Methodology

The purpose of the asset valuation is to provide a high-level assessment of the value of wastewater utility assets held by HRSD and each of the 14 Localities. The valuation will provide each Locality an initial estimate of the current monetary value of the sewer utility assets it would transfer to the Regional Entity under the Regionalized Scenario.

The HDR team worked with members of the Steering Committee during workshops to develop the recommended approach for the asset valuation.

The HDR team worked with members of the Steering Committee during initial project workshops to develop the recommended approach to the asset valuation. Key considerations in selecting the recommended approach include how Locality sewer system assets would be transferred to the Regional Entity – whether they would be donated, leased or sold – and the level of effort and data requirements associated with each asset valuation alternative.

3.3.1 Asset Transfer and Valuation Alternatives

At the first workshop, a primary goal was to determine the best way to transfer assets from Localities to a Regional Entity.

One of the primary goals of Project Workshop No. 1 was to determine, for the purposes of analysis of the Regionalized Scenario, whether Localities would contribute, receive reimbursement for, or lease their sewer assets to the Regional Entity. Based on the consensus approach for transferring assets, an appropriate asset valuation method would then be selected.

The following asset transfer alternatives were presented and discussed at Workshop No. 1

- Asset Contribution
  - Regional Entity assumes full risk and liability on Day 1
  - Regional Entity pays for all capital and operating costs on Day 1
  - Regional Entity pays for shared Locality assets for a period of up to 5 years.

- Asset Reimbursement
  - Regional Entity assumes full risk and liability on Day 1 – discounted reimbursement payments
  - Regional Entity and Localities share risk and liability on negotiated time frame – increased reimbursement payments
  - Reimbursement Payments:
    - One time upfront payment
    - Phased payment structure
    - Amortized payments through annual fees (20–30 year reimbursement period including interest)
- Long-Term Lease Agreement
  - Localities retain ownership of sewer assets
  - Regional Entity and Localities have shared risk and liability
  - Annual lease payments to Localities
  - Amortized capital improvements would reduce annual lease payments
  - Rate Authority remains with Locality – rate increase approval agreements

HDR developed and presented five asset valuation methods during the workshop and discussed the advantages and disadvantages of each.

HDR developed and presented five asset valuation methods during the workshop and discussed the advantages and disadvantages of each method in relation to the asset transfer alternatives. The five valuation methods are summarized in Table 3.1.

Table 3.1 Asset Valuation Methods

Valuation Method	Advantages	Disadvantages
A. Original Cost	• Should be readily available from fixed asset registry or financial statements at a summary level	• Does not reflect the time value of the rate payers' investment • Under-values utility assets • May not have sufficient detail to itemize asset costs • Availability of accurate data
B. Original Cost Less Depreciation	• Should be readily available from fixed asset registry or financial statements at a summary level • Straight-Line Depreciation (SLD) provides an estimate of the asset remaining life	• Further understates the value of the rate payers' investment • SLD might over or understate the asset value based on the current asset condition

Table 3.1 Asset Valuation Methods

Valuation Method	Advantages	Disadvantages
C. Asset Replacement Cost	• Recognizes the current value to rate payers	• May over-value assets • Requires increased asset registry details and more effort to determine replacement costs • Doesn't account for asset use or remaining service life
D. Asset Replacement Cost Less Depreciation	• Recognizes that the facilities are not new at the time of acquisition • Recognizes the current value and provides a Straight-Line Depreciation (SLD) for estimating the asset remaining life	• If assets are bundled by facility, not as accurate as original cost method • Increased challenges to replacement cost calculations
E. Asset Replacement Less Condition-Based Depreciation	• Most accurate method to assess asset value	• Significant increase in time and effort to perform condition assessment of assets • Need accurate asset registry data

As a general rule, existing assets should be valued using either original/historical cost, which is the easiest to determine, or replacement cost. In our experience historical costs understates the value of the asset, particularly when there has been a significant lag between the time of construction and the time of asset reimbursement.

Replacement cost methods of valuation reflect today's cost to construct equivalent facilities but do not account for the actual use and wear and tear of the asset prior to the asset transfer. To address this concern, replacement cost less depreciation is a generally accepted methodology within the utility industry.

As noted previously, SLD accounting methods adopted by many agencies for compliance under GASB 34 may under-value the asset. For many utility asset classes the actual service life of the asset extends well beyond the initial estimate of service life, resulting in a considerable portion of an agency's assets that are fully depreciated but are still in operation and will be for many years. Additionally, many agencies "bundle" assets at the facility level. Bundling creates valuation challenges when assets within the facility are replaced, but

still depreciated based on the original facility depreciation schedule, making it difficult to assess individual asset life and the actual original cost of the facility.

Replacement Cost Less Condition-Based Depreciation is the preferred asset valuation method in today's industry.

Replacement Cost Less Condition-Based Depreciation, which better reflects the actual value of the asset based on condition and a condition-based assessment of useful service life, is the preferred asset valuation method in the industry today. To adequately implement condition-based depreciation of assets, the fixed-asset registry must be up to date and itemized by asset classes to provide a basis for a consistent replacement cost estimate and to assign service lives to each asset class. Then the condition of each asset must be assessed based on age; physical observation; operator assessment; inspection, testing and performance; and/or forensic analysis.

3.3.2 Recommended Asset Valuation Methodology

The Steering Committee recommended that all Locality sewer assets should be contributed, with zero cost to the Regional Entity.

It was the consensus of the Steering Committee members participating in Workshop No.1 that sewer service customers should not have to pay for sewer utility assets twice. "Paying twice" would occur in cases where ratepayers have paid off the cost for constructing a Locality asset, the asset is transferred to the Regional Entity under a reimbursement or lease transfer alternative, and the Regional Entity charges those same ratepayers to recover the reimbursement or lease costs of the asset transfer. Based on the "not paying twice" principle, the consensus of Workshop No. 1 participants was that the Localities should not request reimbursement of sewer assets transferred to the Regional Entity. Accordingly, it is assumed for the evaluation and financial analysis of the Regionalized Scenario that all Locality sewer assets will be contributed, with zero transfer cost, to the Regional Entity.

The book value asset valuation approach was chosen to estimate the value of wastewater infrastructure assets held by the Localities and HRSD.

Based on the contribution of assets to the Regional Entity and general availability of asset data, it was agreed during Workshop No. 1 that the book value asset valuation approach (original cost less depreciation –

Asset Valuation Method B in Table 3.1) was the most straightforward and appropriate method for estimating the value of wastewater infrastructure assets held by the Localities and HRSD.

3.3.3 ASSET DATA REQUIREMENTS

Adjusting reported book values by recalculating the depreciation amount for each asset class based on common asset service lives was the recommended approach to provide more comparable estimates of asset value among the Localities.

Localities report the book value of their sewer system assets, based on original cost less straight-line depreciation based on asset service life, in their financial statements. Since Localities may use different practices in assigning asset service life, it was agreed that adjusting reported book values by recalculating the depreciation amount for each asset class based on common asset service lives recommended by HDR would provide more comparable estimates of asset value among the Localities.

Advantages and disadvantages of the reported and adjusted book value approaches are summarized as follows.

- Using book value from Localities Financial Reports
  - Advantages
    - Fixed asset and depreciation allowance information is readily available and will require minimal asset-related data collection on part of the Localities.
    - During Workshop No. 1, there was consensus that the asset contribution transfer alternative should be used in the analysis, thus minimizing the needed level of accuracy of the asset value.
  - Disadvantage
    - Potential non-uniformity in the manner and methodology implemented by each Locality in recording original costs and estimating service lives for "bundled" assets, which impact the calculated depreciation values and result in varying book value estimates for similar assets/asset classes.
- Using readjusted book value based on consistent asset service lives
  - Advantages
    - Results in a comparison of all assets (from various Localities) on same service life basis since age and the original cost of the asset will be sole parameters in calculating the asset value.
    - The remaining non-depreciated value of the assets using the Straight-Line Depreciation (SLD) methodology is the readjusted book value.

- It is anticipated that the Localities will have difficulty providing the original cost data by asset/asset class as most agencies historically recorded the original costs by project and the asset values were "lumped together". To estimate the original cost of the Localities assets, HDR will use an estimated replacement cost for each asset/asset class and back calculate the original cost value using historical CPI factors and the age of the asset provided by the Localities as accepted under GASB 34 guidelines. This will provide added consistency in comparing the asset book value being contributed by each Locality.

– Disadvantage

- Will require additional data collection on part of the Localities (must determine the age, initial cost of installation, material, size, etc.)

3.4 Asset Data Collection and Analysis

Based on the consensus at Workshop No.1 to use the Adjusted Book Value (Original Cost Less Adjusted Depreciation using common asset service life projections) of the Localities sewer assets, an asset data request was submitted to HRSD and the Localities. The list of data requested is summarized in Table 3.2.

Table 3.2 Asset Data Request

GIS database of sewer assets (installation date, age, size, material, length/quantity)
Inventory of assets with install date, quantity, current depreciated amount
Depreciation schedule
Full financial fixed asset register/schedule with book value of assets
Annual reports
Rehabilitation Plan
Wet Weather Capital Plan
Operation budget
Appraisals of land and buildings
Copies of any contracts with outside services for sewer maintenance, repair or construction

Fixed-asset data were received from each of the Localities except for Isle of Wight and Williamsburg.

Analysis of the asset data received concluded that there was insufficient information to support the intended Adjusted Book Value methodology. Specifically, age or installation date, size, material, and quantity data were insufficient to categorize the various Locality assets into common asset classes,

Because it was not possible to categorize the various assets into common classes to assign consistent service life projections, it was agreed to use only the recorded book value of the Localities' sewer assets as reported on their most recent financial statements.

assign consistent asset service life projections, or to recreate or adjust depreciation costs for assets and asset classes for any of the Localities. Due to the limitations of the available asset data, it was agreed to use only the recorded book value of the Localities' sewer assets as reported on their most recent financial statements.

3.5 Asset Valuation

In compiling asset book values, sewer assets were categorized into four asset classes:

- Intangible Plant
- Collection System
- Pumping Assets
- General Assets (including treatment plants)

The total estimated current asset value of wastewater infrastructure assets held by HRSD and the Localities is approximately $2.6 billion.

Total wastewater infrastructure asset values for HRSD and the 14 Localities are summarized by asset category in Table 3.3 and by Locality in Table 3.4. Based on the fixed asset and depreciation data received from HRSD and the Localities, the total estimated current asset value of wastewater infrastructure assets held by HRSD and the Localities is approximately $2.6 billion.

Table 3.3 Consolidated Asset Value

Utility Asset Class	Combined Book Value
Intangible Plant	$ 31,419,829
Collection System	$1,396,450,667
Pumping Assets	$ 161,377,023
General Assets	$1,014,682,727
TOTAL	**$2,603,930,246**

Table 3.4 Individual Locality Asset Value

Locality	Book Value
HRSD	$ 910,291,550
Virginia Beach	$ 455,533,857
Newport News	$ 333,009,904
Portsmouth	$ 195,120,717
Norfolk	$ 170,712,953
Chesapeake	$ 163,558,813
Suffolk	$ 143,277,344
York County	$ 99,791,796
James City County	$ 64,970,644
Hampton	$ 41,424,953
Poquoson	$ 13,668,607
Smithfield	$ 7,126,995
Gloucester	$ 5,442,111
Isle of Wight	No Data
Williamsburg	No Data
TOTAL	**$2,603,930,246**

3.6 Conclusions

There were no flaws, restrictions, or covenants that would prohibit the transfer of assets from HRSD and the 14 Localities to HRSD or a new Regional Sewer Entity.

As a result of the asset valuation, it has been concluded that there are no fatal flaws, restrictions, or covenants that would prohibit the transfer of approximately $2.6 billion of contributed sewer utility assets – approximately $1.69 billion in Locality sewer assets and $910 million in HRSD assets – to a single Regional Entity.

4.0 Debt

4.1 Introduction

Davenport and Company LLC ("Davenport") was tasked with reviewing the outstanding utility system debt of each of the Localities in order to identify the portion of existing debt related to sewer system projects. Once the specific amount of sewer debt was identified for each Locality, alternatives for transferring and structuring existing sewer debt over to a Regional wastewater entity were analyzed. An appropriate alternative for structuring existing debt under the Regionalized Scenario was selected for use in the financial analysis. Appropriate structures for future debt service for both Non-Regionalized and Regionalized Scenarios were then identified.

4.2 Existing Debt Data Collected

Most of the existing utility debt includes both water and sewer components. This study separated out the sewer portion of the existing debt in order to analyze the transfer of this sewer debt over to a Regional Entity.

Most of the Localities participating in this study are currently operating a combined water and sewer system utility. As a result, most of the existing utility debt includes both water and sewer components. It was necessary to identify just the sewer portion of the existing debt for each individual system in order to analyze the transfer of this sewer debt over to a Regional Entity.

The first step was gathering all public data available regarding the Localities' existing utility debt, including financial statements and offering documents for publically offered debt. Local debt service schedules for related debt issued through the Virginia Resources Authority were also obtained. This data was used to determine the amount of utility system debt outstanding for each Locality and which series of bonds potentially had a sewer component.

An information request was prepared and sent to each Locality to fill gaps in the data. Once all information was in hand, a sewer debt model for each Locality, which shows the total debt service payments for all outstanding sewer debt on a series by series basis, was built. A summary of the existing sewer debt service payment for the Localities is shown on Figure 4.1. The compiled debt payment data was then used to calculate the cost of retiring/transferring each Locality's sewer debt over to the Regional Entity under the Regionalized Scenario.

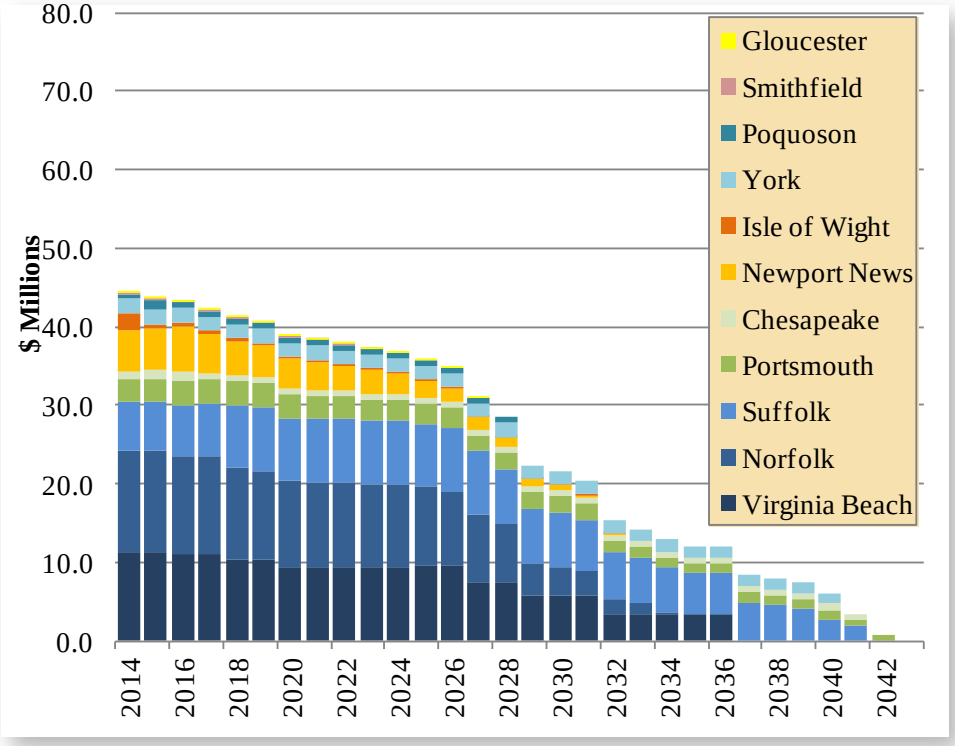


Figure 4.1 Existing Debt Service Payments by Locality

4.3 Transfer of Existing Debt under Regionalized Scenario

4.3.1 Conveyance of Existing Debt

Under the Regional Scenario, each participating Locality would convey its existing debt over to the Regional Entity. Depending on the redemption and legal provisions of each individual series of outstanding sewer system debt held by a Locality, the Regional Entity will either immediately defease the bonds so that they are no longer local obligations or assume the debt. If the bonds are defeased, the Regional Entity will either redeem the bonds at the call date or defease the bonds to maturity. In the case of combined water and sewer bonds, only the sewer portion of the bonds would be defeased. The sewer portion would be 'stripped' from the existing payment structure and the remaining water portion would remain intact and continued to be paid by the local government.

Each Locality would convey its existing debt over to a Regional Entity, which would either defease the bonds so that they are no longer local obligations or assume the debt.

The specifics of the defeasance or assumption of debt will need to be agreed upon and referenced in the legal documentation covering the transfer of Locality

assets to the Regional Entity. Note that the full provisions of each Locality bond issue have not been analyzed in detail for this Regionalization Study, and Localities should confer with their own legal staff and bond counsels to determine specific requirements that may affect the conveyance of their existing debt under the Regionalized Scenario.

4.3.2 CREDIT RATINGS

Locality Credit Ratings: Under the Regionalized Scenario, so long as the conveyance of sewer operations results in an appropriate allocation of revenues, expenses and debt between a Locality's water and sewer system, there is no reason to believe that a Locality's credit ratings would be adversely impacted as a result of this transfer.

As previously discussed, under Regionalization the Localities would benefit from a significant reduction in future capital costs associated with the Consent Order as well as reduced utility operational costs.

HRSD's Credit Ratings: Under the consolidated approach, HRSD's debt burden would increase. However, HRSD would also be collecting additional revenues. So long as HRSD can adhere to its financial standards and policies (debt service coverage, liquidity, etc.), the consolidation should have a neutral rating impact to HRSD.

One of the financial challenges HRSD will face will be blending its existing debt with the new consolidated debt and future debt needed for capital costs, while minimizing the impact to the rate payer. This future debt structure will be one driver in determining how much rates will need to be adjusted to meet future needs while maintaining HRSD's financial standards.

4.3.3 STRUCTURING CONSIDERATIONS AND APPROACH

Under the analysis, it was assumed the conveyance of existing sewer debt would occur at the beginning of fiscal year 2017. As a result, the Regional Entity would issue refunding bonds in an amount sufficient to redeem or defease each Locality's sewer debt outstanding at that point.

Two structures were considered for refunding bonds: 1) a 'matched-maturity' structure and 2) a 'level' debt service structure.

In determining the amortization structure of the refunding bonds, two main options were considered. The first was a 'matched-maturity' structure, where the refunding bonds matched the structure of the existing

aggregate sewer debt service. The other approach was a 30-year 'level' debt service structure. Debt payments for the two refunding structures are shown on Figure 4.2.

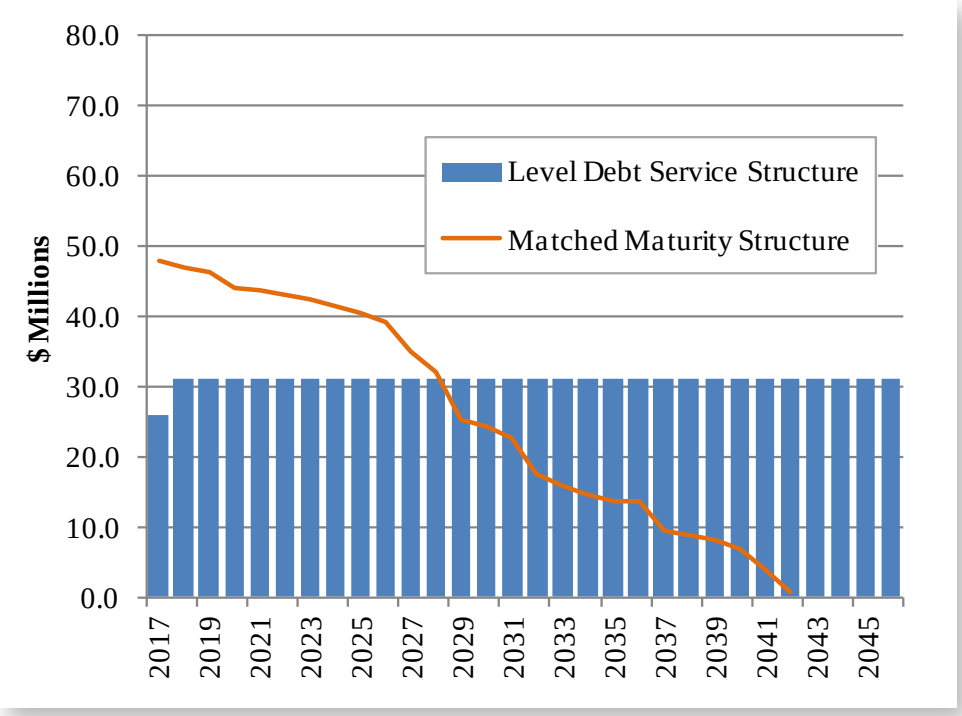


Figure 4.2 Regionalized Scenario Debt Service Refinancing

As shown on Figure 4.2, the matched maturity structure results in a front-loaded debt service structure with higher payments initially and lower payments in the future. The debt service structure of the existing Locality debt is front loaded because a large portion of the debt was funded with general obligation bonds and state revolving fund loans, which are typically amortized over a shorter period of time than the useful life of the assets financed.

The major benefit of the matched-maturity approach is less total debt service over time since the debt is retired earlier. However, higher initial debt payments under this structure translate into higher initial rates for all ratepayers under Regionalization. The matched-maturity approach may also result in allocating a disproportionate share of the debt payments to the current users, as opposed to future users of the assets.

The level debt service structure results in equal payments over 30 years. Most utility systems that issue revenue bonds issue their debt over 25 or 30 years

with a level payment structure in order to fairly allocate the costs over the useful life of the assets financed.

A major benefit of the level debt service approach is that lower initial debt payments, through 2028 as shown on Figure 4.2, translate into lower initial rates, compared to the matched maturity structure. Although more total debt service is paid over the course of 30 years, the level debt service structure creates a uniform payment stream to allocate the cost of the debt over both current and future rate payers.

The level debt service structure was applied for the purposes of the financial analysis in this study. A different structure may be selected during implementation.

The level service structure for refunding existing Locality sewer debt under the Regionalized Scenario is applied in the financial analysis described in Section 7, primarily to dampen out the impact of debt refunding on the region-wide rate. Note that while the level debt service structure is selected for the purposes of this study, should Regionalization be pursued, a different refunding structure may be chosen based on more in-depth evaluation and implementation planning.

The interest rate assumption used in the debt analysis is 5.00%. This rate approximates the average of the 30-year high grade municipal borrowing benchmark since 1990.

4.4 New Debt Service Structure

For all new capital costs funded through long term debt, the same structuring and interest rate assumptions as outlined above are used in the financial analysis: 30-year level debt service with a 5.00% borrowing rate. Utilizing 30-year amortization ensures that both current and future rate payers equally share in the cost of capital projects that will benefit both parties.

5.0 Operations and Maintenance

5.1 Introduction

Transferring operations and maintenance responsibilities from the 14 Localities to a single Regional Entity could result in some savings, but also some added expenses. This study identified relative cost differences between the two scenarios.

Operations and maintenance (O&M) functions were evaluated to estimate and compare the costs for operating and maintaining local sewer systems under the Non-Regional and Regional Scenarios. A reasonable assumption was made for the Regionalization Study that operations and maintenance of the regional interceptor and wastewater treatment plant systems would not differ significantly between the two scenarios. However, the transfer of operations and maintenance responsibilities for local sewer systems from the 14 Localities to a single Regional Entity would likely result in some savings in annual O&M costs due to organizational efficiencies but also some added expenditures for housing personnel and equipment transferred from the Localities to the regional entity. Therefore, a primary objective in the O&M evaluation was to identify relative cost differences for local sewer system operations and maintenance for inclusion in the financial analysis of the two scenarios.

Costs for operating and maintaining the regional interceptor and wastewater treatment plant system owned and operated by HRSD were not explicitly evaluated in this analysis. Any potential increases in O&M demands for the interceptor and treatment plant system would be expected to be the same for both the Non-Regionalized and Regionalized Scenarios. With no cost differential between the two scenarios, it is not necessary to examine in detail potential changes in interceptor and treatment plant O&M to compare the two scenarios. Interceptor and treatment plant O&M costs are built into the HRSD $/CCF rate, which is used in the financial analysis to estimate total costs for wastewater service under both scenarios.

In this study, annual operating and maintenance expenses were analyzed with the recognition that the data is limited. If a decision is made to regionalize, an implementation phase would be undertaken to determine more specific details about staff, equipment, work locations and more.

Note that developing a detailed O&M structure and plan was not the objective of the Regionalization Study O&M evaluation. The information and analytical detail required to address that objective is generally not attainable, nor warranted, in analyzing annual

O&M expenses at this stage of the regionalization process. To have that kind of information available requires agreements between parties at the very earliest stages of evaluation and decisions must be made on the disposition of personnel, equipment, etc. The more prudent approach is to analyze annual O&M expenses with the recognition of the limitations of the data. Then, if a decision is made to regionalize, an implementation planning phase would typically be undertaken wherein specific details regarding staff, equipment, work locations, etc. would be determined. Opportunities to improve business practices, productivity, organizational structures, etc., can also be examined as part of the implementation planning phase.

5.2 Overview of Approach

The following local sewer system operations and maintenance components were evaluated to develop O&M-related costs for the financial analysis of the Non-Regionalized and Regionalized Scenarios:

- Personnel,
- Equipment and rolling stock,
- Operation and maintenance performance measures,
- Total annual O&M expenditures, and
- O&M support facilities.

Locality and HRSD data were collected and evaluated to determine how local sewer system O&M expenditures and disposition of equipment, rolling stock, and O&M facilities are expected to change in the future and/or differ between the Non-Regionalized and Regionalized Scenarios. Data collected and basic assumptions underlying the evaluation are summarized as follows.

5.2.1 O&M Data

Data needs were discussed at the first project workshop held in September 2012. Based on workshop discussions, the following data were requested from each Locality.

Staffing and Personnel: Requested data included:

- Wastewater Division Organizational Chart (showing the employee classification for each position)
- Salary Range for each job classification
- Benefits for each job classification

- Job description for each job classification
- Number of staff per job classification (budgeted/vacant)
- Years of service for each current employee in each job classification
- Positions shared between water and wastewater operations (% of the split in workload, staff time, etc.)

The data requested are standard human resource-type information, so the submissions were generally complete and well organized. In instances where staff had both water and wastewater responsibility, but no breakdown of responsibility was provided, wastewater full-time equivalents (FTEs) were estimated using a 50-50 split in responsibility. Based on the data provided, estimated wastewater FTEs total 666 for the Localities and 774 for HRSD.

Staffing and personnel data showed no significant anomalies in salaries and benefits, so integrating staff into a Regional Entity should not pose any major challenges.

Data provided did not reveal significant anomalies in salaries and benefits, so integration of staff in a regionalized approach should not present insurmountable obstacles. However, potential adjustments to salaries and benefits structures would need to be analyzed in greater detail during transition planning should regionalization be pursued. Regarding retirement benefits, assuming that HRSD serves as the Regional Entity, most personnel transferring from the Localities to HRSD should continue to be covered under the Virginia Retirement System (VRS). Transition planning would need to address how retirement benefits for personnel not covered under VRS would be handled.

Rolling Stock and Equipment Data: For rolling stock, the following data were requested:

- Inventory
- Age, condition and/or remaining useful life of each piece of rolling stock/equipment
- If equipment and rolling stock is shared between water and wastewater, indicate % split

Data submitted varied from Locality to Locality, but in most cases it was not sufficient to assess the age and condition of equipment or develop a firm estimate of equipment allocated to local sewer system O&M. Most Localities indicated that sewer system rolling stock and equipment would transfer to the

regional entity, and a detailed analysis of existing stock and equipment inventories, including an age and condition assessment, should be performed during the transition planning effort should regionalization be pursued.

Operations and Maintenance Program and Performance Data: Data requested for this item included:

- O&M Program Descriptions (e.g., cleaning, CCTV, FOG, etc.)
- Productivity goals for each program
- Actual performance metrics for each program

Only very limited data on O&M programs and performance measures were provided.

Annual Operations and Maintenance Expenses: Annual O&M expenditures, as included on audited financial statements per standards established by the Government Accounting Standards Board (GASB) or Financial Accounting Standards Board (FASB), were requested and received from each Locality.

Operational Support Facilities Data: For this final item, the requested data included:

- Location of each support facility
- Function of each support facility (e.g., office, maintenance, fleet, storage, etc.)
- Size of each support facility
- Customer Service and billing facilities (customer service counter location, size and staffing)
- Shared with other functions of local government? If so, estimate percentage dedicated to wastewater

Initial Data Assessment and Final Evaluation Approach: Based on the data received and the overall objective of estimating cost adjustments and differences between the Non-Regionalized and Regionalized Scenarios, staffing, total annual O&M costs and O&M support facilities were evaluated further. Labor costs account for the majority of sewer system O&M expenditures, are likely to increase to some degree in the future based on regulatory and final Consent Order requirements, and are expected to differ between the two scenarios due to efficiencies of a single regional entity having responsibility for all local sewer systems. Locality O&M support facilities serve multiple functions and are unlikely to transfer to the regional entity, so costs will be incurred under the Regionalized Scenario to construct new facilities to house personnel and

equipment transferred to the regional entity. Section 5.4 describes the evaluation of O&M support facilities and costs included in the financial analysis.

Equipment and rolling stock is assumed to transfer from the Localities to the Regional Entity, and significant up-front costs for replacement or additional equipment are not expected. Condition assessments and projections of future costs for replacing existing rolling stock were beyond the level of detail of the O&M evaluation for this Regionalization Study and not possible with the basic data provided by the Localities. Therefore, equipment and rolling stock were not evaluated further.

It was initially intended to use sewer system O&M program descriptions and performance measures to assess the current "level of service" and potential adjustments to annual O&M expenditures to put all Localities at some common baseline level of service. However, this was not possible given the very limited data available and provided by the Localities.

The operations and maintenance evaluation of local sewer systems concentrated on adjustments and differences in staffing and total annual expenditures between the two scenarios.

Considering this overall approach, the local sewer system O&M evaluation concentrated on adjustments and differences in staffing and total annual O&M expenditures between the two scenarios. The basic approach and supporting assumptions in the staffing and O&M expenditures analysis are summarized below.

5.2.2 STAFFING AND O&M EXPENDITURES ANALYSIS

The basic approach to the staffing and O&M expenditure analysis is summarized as follows.

- Establish Non-Regionalized Baseline O&M Expenditures – annual sewer system O&M expenditures were adjusted upwards, based on a comparison of current expenditures to industry metrics, to account for likely demands by the VDEQ and/or EPA for increased O&M efforts in final management, operations and maintenance (MOM) plans. The adjusted baseline costs represent increased level of effort in field O&M measures.
- Establish Regionalized O&M expenditures by adjusting the Non-Regionalized baseline to account for staff reductions over time due to management and operational efficiencies of a single entity having sole responsibility for local sewer systems.

Details and key assumptions of this basic approach are described as follows.

Staffing and Personnel Adjustments: A major consideration in this evaluation was the desire of the localities to not layoff any current wastewater staff under the regionalized scenario. Instead, the direction given the HDR Team was to assume transfer of all existing wastewater staff and allow "optimization" to occur through attrition. Optimization can assume many forms, but in this evaluation it represents the elimination of duplicate staff positions and those positions that do not fit the regionalized entity. The exception to this "duplicate staff" reduction effort is found in the field-level staff performing/supporting O&M activities. For these staff positions, no reductions are assumed.

All existing staff would be transferred to a regional entity in a desire to not lay off current staff. Over time, "optimization" would occur through attrition – elimination of duplicate positions or positions that do not fit the regionalized entity.

This employee sensitive approach highlights another important consideration in the regionalized approach. As would be borne out in an implementation plan, "Day 1" will have a labor cost that is higher than that of an ultimate optimized staffing level for the regionalized entity. Not until Year 5 – the end of the period over which attrition is assumed to occur – will the analysis show the full benefit of staff reductions through attrition. The reduction in annual O&M expenses from Day 1 to the end of the 5th year will be projected on a straight line basis.

Impact of MOM on Staffing and O&M Expenditures: Another basic premise of this analysis is that future Management Operations and Maintenance (MOM) Plan requirements will have an impact on staffing levels. HRSD, along with the 14 Localities participating in this study, have MOM Plan requirements specified in the regional Consent Order. Additionally, HRSD's Consent Decree requires the development of another MOM Plan in 2018. This 2018 plan will likely be required to show more stringent requirements. This is particularly true if regionalization occurs, as Regulators would view the formation of a regional entity as a convenient opportunity to develop a consistent level of service for the new comprehensive, regional wastewater collection system.

Therefore, it was assumed that MOM requirements will not get any less stringent in the future for either the Regionalized or Non-Regionalized scenarios and will in fact, become more stringent. A defensible level of resources for O&M activities will ultimately be based upon collection system performance, i.e., the number of

The Special Order by Consent requires Management Operations & Maintenance (MOM) Plans that may become more stringent for a single regional entity, resulting in increased annual expenses. To avoid bias in this study, the magnitude of increases in expenses due to MOM requirements is shown to be essentially the same for the regionalized and non-regionalized scenarios.

sanitary sewer overflows (SSOs) that occur as a result of what could be interpreted as a lack of preventive and corrective maintenance. Also, as MOM programs mature, more data is collected on the wastewater system's condition and the causes of SSOs. In general, this will result in increased scrutiny being placed on the activities deemed necessary to prevent the documented SSOs. O&M field activities such as closed circuit tele-video (CCTV), sewer cleaning and routine inspections are often adjusted upwards to include more footage being covered annually and at increased frequencies where appropriate.

So while there is a strong certainty that MOM requirements will become more stringent – resulting in increased O&M costs – an approach was chosen so as not to unnecessarily bias either the Regionalized or Non-Regionalized Scenarios. The sum of the increases in annual O&M expenses due to increased MOM requirements for each locality in the Non-Regionalized Scenario became the basis for the increase in O&M expenses for the Regionalized Scenario. The magnitude of the MOM-related increase is essentially the same for the Regionalized and Non-Regionalized scenarios.

Use of QualServe Metrics to Establish Baseline O&M Expenditures:
Projecting the impact of future regulatory requirements on annual O&M spending requires a crystal ball. As previously alluded, most communities working under an enforcement action generally see the level of effort for O&M activities increase over time as more data is collected and the trends for SSOs are analyzed. The O&M activities necessary to achieve a desired result in terms of the incidences of SSOs are also known as the "level of service".

The QualServe system of metrics was used to benchmark current spending. Given the number of smaller localities in our study, we selected the metric Operating & Management Cost per Customer Account as the best fit.

Adjustments to Locality O&M were made based on a comparison of current levels of service, based on annual O&M expenses, to standard benchmarks for O&M spending for wastewater utilities. The QualServe system of metrics was used to benchmark current spending. The American Water Works Association and the Water

Environment Federation collaborated on the effort that created QualServe, with a stated objective of "building a performance measurement system for water and wastewater utilities". Survey data has been periodically collected from 180 water and wastewater utilities to create 22 high-level indicators of everyday utility performance. The most recent QualServe dataset published in 2008 was used for the Regionalization Study.

The specific metric used in this study is the O&M Cost per Customer Account. To help ensure consistency in the calculation of this metric, QualServe has specified the use of those O&M costs as reported on audited financial statements for communities that follow Government Accounting Standards Board (GASB) or Financial Accounting Standards Board (FASB). This is the O&M cost number provided by each locality for this Regionalization Study.

The QualServe data is summarized in several different forms. For example, the value of our chosen metric of O&M Cost per Customer Account is calculated for the datasets in the following ways:

- All communities
- Communities separated into regions (e.g., Region III includes Alabama, Arkansas, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Texas and Virginia)
- Communities grouped by population served (0 – 10,000; 10,001 – 50,000; 50,001 – 100,000; 100,001 – 500,000; and > 500,000)

For this evaluation, the O&M Cost per Customer Account metric calculated by population served is the most appropriate given the number of smaller Localities in our study.

Additionally, values for the top quartile, median and bottom quartile are calculated for each of the above three categories. Typically with the use of these metrics, the top quartile would represent a lower O&M cost per customer account and therefore, an indication of a well-run utility. However, in order to capture some of the higher annual O&M costs that communities in the QualServe dataset may already be incurring due to more stringent regulatory requirements, the bottom quartile number was selected.

The analysis for the Non-Regionalized scenario is straightforward, with "Day 1" essentially being business as usual. The only adjustment made to the current scenario is that future annual O&M expenses will be adjusted by increasing current annual O&M expenses by one of two factors:

- For those communities whose calculated metric of O&M Cost per Customer Account met or exceeded the QualServe metric, the current annual O&M expense was increased by 5 percent, spread out over the first five years of the analysis period.
- For those communities whose calculated metric of O&M Cost per Customer Account did not meet the QualServe metric, the current annual O&M expenses was increased by 15 percent, spread out over the first five years of the analysis period.

Operating and maintenance expenses may increase by 5 percent or 15 percent, depending on whether the community's calculated metrics met or exceeded the QualServe metric. These values were determined to be the best representation of potential adjustments needed for the future level of service that results from more stringent MOM requirements.

Note that adjusting annual O&M costs for Localities spending less than the applicable QualServe metric, with no adjustments for Localities spending at or above the applicable QualServe metric, was initially considered. While QualServe metrics provide a useful tool for comparing how Localities "measure up", blindly applying a straight ratio approach could easily introduce bias and unrealistically inflate differences between localities. This was the case in this analysis, where simply increasing O&M expenditures to match the applicable QualServe metric resulted in annual spending increases for several Localities that the HDR team considered to be unrealistically high under any Consent Order scenario. Therefore, 5 and 15 percent adjustments were selected as appropriate middle-of-the-road representations of the future level of O&M spending based on QualServe comparisons and expected demands for additional spending driven by Consent Order MOM requirements.

5.3 Development of Annual O&M Expenses

5.3.1 NON-REGIONALIZED SCENARIO – BASELINE O&M

As discussed above, the QualServe metric of Annual O&M Cost per Customer Account was selected as the best fit for comparing and adjusting for potential future MOM requirements sewer system O&M expenditures for the Localities, based upon the data submitted. Annual O&M expenditures were adjusted by 5 percent for Localities meeting or exceeding the QualServe metric and by 15 percent for Localities in which spending falls below the QualServe metric.

Table 5.1 summarizes for each Locality current annual O&M costs, the calculation of the metric Annual O&M Cost per Customer Account and the comparison to the QualServe metric value based on population served.

Table 5.1 Locality Annual O&M Costs Compared to QualServe Metric (2013 Dollars)

Locality	Current Annual O&M Expense	Number of Customer Accounts	2012 Population (HRPDC 2012 Data Book)	O&M Cost per Customer Account	QualServe Metric Value
Chesapeake	$7,760,950	62,137	225,898	125	209
Gloucester	$1,096,637	1,493	36,987	735	164
Hampton	$10,631,988	45,772	137,372	232	209
Isle of Wight	$471,736	2,236	35,457	211	164
JCSA	$6,253,046	21,488	68,874	291	214
Newport News	$12,756,378	50,250	181,027	254	209
Norfolk	$9,336,721	64,203	243,985	145	209
Poquoson	$1,137,653	4,805	12,240	237	164
Portsmouth	$4,746,074	32,687	96,368	145	214
Smithfield	$603,694	3,367	11,785	179	164
Suffolk	$6,934,774	21,350	85,692	325	214
Virginia Beach	$23,947,575	129,150	441,246	185	209
Williamsburg	$529,355	3,065	14,256	173	164
York	$5,730,541	19,930	65,973	288	214
AGGREGATE	$91,937,122	461,933	1,657,160	199	209

As the values in Table 5.1 demonstrate, most localities met the selected QualServe metric. For those that did not, it does not necessarily indicate a poorly performing locality.

Table 5.2 shows for each Locality the adjusted baseline annual O&M expenditures.

Table 5.2 Adjusted Baseline Annual O&M Costs, Non-Regionalized Scenario (2013 Dollars)

Locality	Current Annual O&M Expense	Percentage Adjustment	Future Annual O&M Expense
Chesapeake	$7,760,950	15%	$8,925,093
Gloucester	$1,096,637	5%	$1,151,469
Hampton	$10,631,988	5%	$ 11,163,587
Isle of Wight	$471,736	5%	$ 495,323
JCSA	$6,253,046	5%	$6,565,698
Newport News	$12,756,378	5%	$13,394,197
Norfolk	$9,336,721	15%	$10,737,229
Poquoson	$1,137,653	5%	$1,194,536
Portsmouth	$4,746,074	15%	$5,457,985
Smithfield	$603,694	5%	$633,879
Suffolk	$6,934,774	5%	$7,281,513
Virginia Beach	$23,947,575	15%	$27,539,711
Williamsburg	$529,355	5%	$555,823
York	$5,730,541	5%	$6,017,068
TOTAL	$91,937,122	10%	$101,113,111

As discussed in Section 7, baseline cost adjustments are applied to the financial analysis as straight-line increases over a five-year period, with an additional 3 percent annual escalation for general inflation.

5.3.2 REGIONALIZED SCENARIO

Starting with the Non-Regionalized Baseline as Day 1 costs, annual O&M expenditures for local sewer system O&M in the Regionalized Scenario were adjusted downward based on a reduction in duplicate staff positions through attrition. Total staffing on Day 1 for the regional entity is assumed to be 1,440 FTEs, the sum of current wastewater FTEs estimated for HRSD (774) and the Localities (666). Similarly, total sewer system annual O&M expenditures on Day 1 are the same in the Non-Regionalized and Regionalized Scenarios.

Based on a review of current staffing numbers by position and job descriptions provided by HRSD and the Localities, there would be an estimated 102 duplicate management and administrative FTEs in the regional entity on Day 1. Starting

Based on a review of positions and job descriptions provided by HRSD and the Localities, there would be an estimated 102 redundant management and administrative positions in a regionalized entity. Reductions would occur over a five-year period.

with the Non-Regionalized adjusted baseline annual O&M cost of $101,113,111 shown in Table 5.2 and subtracting total personnel costs for the 102 duplicate FTEs results in an adjusted annual O&M cost for sewer system O&M in the Regionalized Scenario of $88,151,000.

It is important to note that the assumed reduction of 102 FTEs under regionalization were estimated by identifying apparent overlaps in positions and FTEs that occur when existing HRSD and Locality staff are combined into a single entity. Specific individual positions or personnel on current HRSD or Locality staffs were not identified or targeted for eventual elimination, through attrition, assumed for the Regionalized Scenario.

It is also important to note that all FTE reductions assumed in the Regionalized Scenario are from office-based management and administrative positions and not field-based positions with hands-on sewer O&M responsibilities. This assumption keeps field O&M levels consistent between the Non-Regionalized and Regionalized Scenarios.

In the financial analysis, reductions in annual O&M costs due to FTE reductions in the Regionalized Scenario are implemented on a straight-line basis over a five-year period from the formation of the regional entity. Costs are adjusted for inflation using a 3 percent annual inflation rate.

Management and operational efficiencies of a single regional entity are expected to produce a significant reduction in the annual costs of operating and maintaining local sewer systems.

Based on the analysis described here, management and operational efficiencies of a single entity being responsible for all local sewer systems is expected to produce a significant reduction in the annual costs of operating and maintaining local sewer systems.

5.4 Operations and Maintenance Facilities

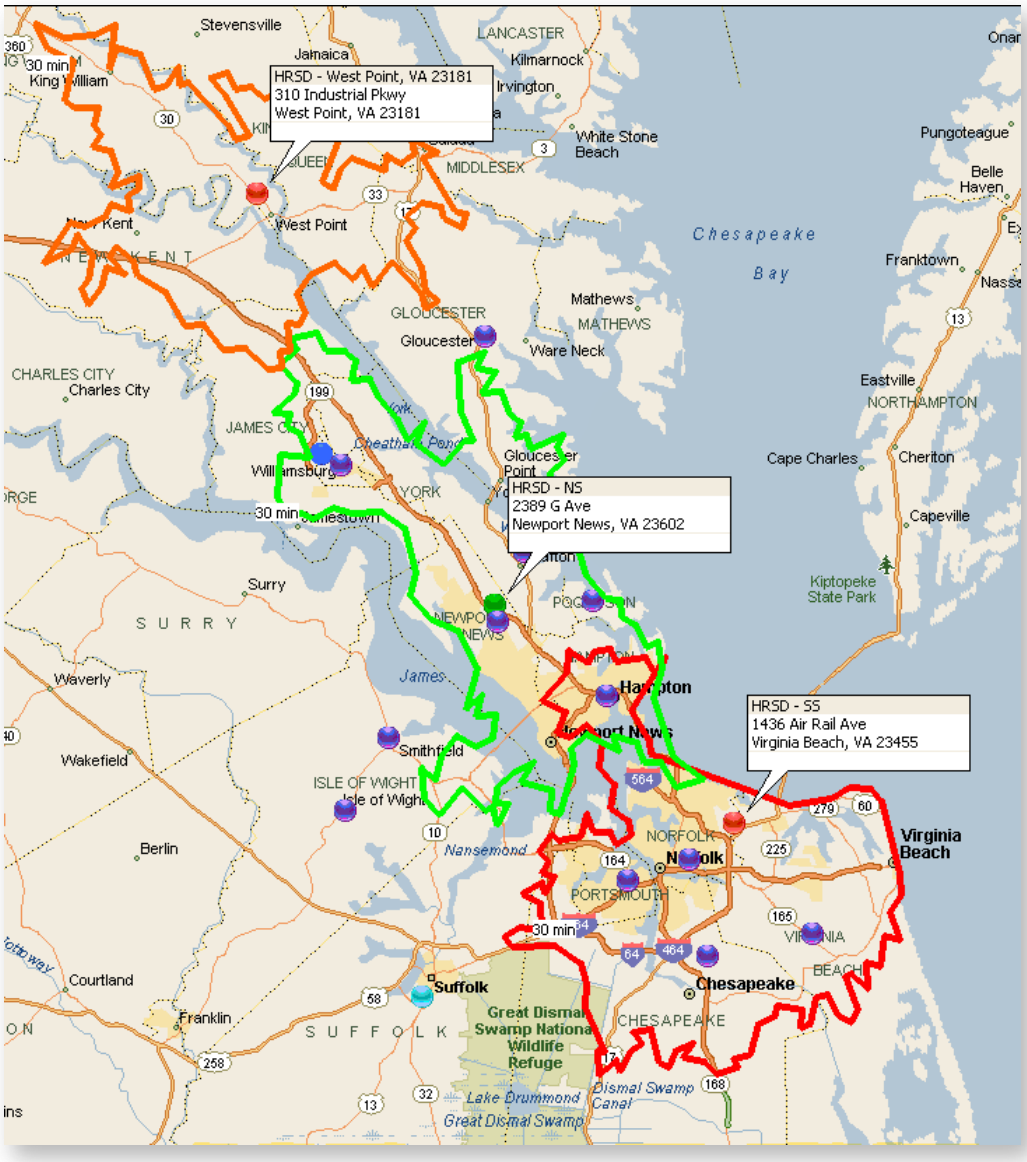
Existing operations and maintenance support facilities (O&M Facilities), which include office and personnel space, shops, garages and warehouses and storage yards, were evaluated to determine if additional facilities would be needed or recommended for either the Non-Regional and Regional Scenarios, and if so, to account for the capital cost of new facilities in the financial and rate analysis.

For the purposes of the Regionalization study, none of the existing, multi-purpose Locality operations and maintenance support facilities would transfer to the Regional Entity. Therefore, a number of new facilities would likely be required under regionalization.

Most if not all the Locality-owned O&M Facilities serve both water and wastewater utility operations and in some cases other public works functions such as street and roadway and stormwater system maintenance. Based on O&M Facility information (provided by the Localities or available from the various Locality wastewater utility or public works websites) and the analysis of annual operations and maintenance described above, no additional O&M Facility needs are expected for the Non-Regional Scenario. Which if any of the Locality-owned O&M Facilities would transfer to a Regional wastewater entity is best evaluated and decided during transition planning should regionalization be pursued. For the purposes of the Regionalization Study, it is assumed that none of the existing, multi-purpose Locality O&M Facilities would transfer to the Regional Entity. Therefore, a number of new O&M Facilities owned and operated by the Regional Entity would likely be required under regionalization.

New O&M facilities under regionalization were evaluated assuming that HRSD's three existing O&M Facilities (south Shore, North Shore and West Point Operations Centers) would continue to serve as sewer system operations and maintenance facilities. The need for additional O&M Facilities was then evaluated by examining typical travel times from O&M Facilities to the extents of the regional sewer system.

Figure 5.1 shows 30-minute drive time zones, based on actual roadways and speed limits, for HRSD's South Shore, North Shore and West Point Operations Centers, as well as the general locations of Locality O&M Facilities for reference. As shown, not all areas of a regional sewer system, in particular Isle of Wight County, Smithfield, Suffolk, portions of James City and Gloucester Counties, and southern portions of Chesapeake and Virginia Beach, can be reached within 30 minutes from HRSD's existing Operations Centers. Based on the drive-time analysis, a minimum of three new centralized O&M Facilities, one in Suffolk, one in central to southern Virginia Beach or Chesapeake, and one in the north-western James City County/Williamsburg area, are recommended to supplement the three existing HRSD Operations Centers for the Regional Scenario.



Map Key: Drive times from HRSD's existing Operations Centers shown in red (South Shore), green (North Shore) and orange (West Point). Existing Locality O&M Facility locations designated by purple circles.

Figure 5.1 30-Minute Drive Time Zones from HRSD Operations Centers

For the financial analysis, a capital cost allowance of $10 million for each new O&M Facility is used, based on the cost of HRSD's recently constructed North Shore Operations Center. A total capital cost of $30 million for three new O&M Facilities is included in the financial analysis for the Regionalized Scenario.

We recommend a minimum of three new centralized O&M Facilities to supplement the three existing HRSD Operations Centers in a Regional Scenario. A total capital cost of $30 million for the three new facilities is included in the financial analysis.

It is again noted that this broad assessment of additional O&M Facilities was performed only for the purposes of developing an initial capital cost for use in the comparative financial analysis. A more detailed evaluation of overall O&M Facility requirements based on the actual operations and maintenance program structures and specific personnel, equipment and materials storage space requirements of a Regional Entity will be needed during transition and implementation planning, should regionalization be pursued.

6.0 Customer Service and Billing

6.1 Introduction

The Localities and HRSD each provide wastewater billing and other customer service functions associated with their respective wastewater systems.

For the Non-Regionalized Scenario, it is assumed that current billing and customer service practices will continue at both the Locality and HRSD levels. As discussed in Section 5, no adjustments to current baseline staffing levels and personnel costs attributed to wastewater customer service are made for the financial analysis of the Non-Regional Scenario.

Current billing and customer service practices were evaluated to assess how these functions should be handled in the Regionalized Scenario and to determine if adjustments to annual operations and maintenance costs should be made in the financial analysis.

6.2 Billing Structure

Under existing billing structures, the wastewater customer in Hampton Roads receives bills for wastewater service from their respective Locality, from HRSD, or from both. Four billing models are currently in use.

- Model 1 – The customer receives separate Locality and HRSD bills. The Locality issues and collects payment on a utility bill that includes Locality charges for water, sewer, and in some cases stormwater utility and other public works services. HRSD receives customer demographic data, water consumption, adjustments, and move-in/move-out data from the Locality, calculates HRSD treatment charges and issues and collects payment on its own bill to the wastewater customer.
- Model 2 – The customer receives a single Hampton Roads Utility Billing System (HRUBS) bill for all water, sewer and wastewater treatment, and other utility and/or public works services. HRUBS, operated and managed by HRSD, is a cooperative billing service between HRSD and participating Localities. The Locality calculates its charges and adjustments on their independent accounts receivable (AR) system. HRSD receives customer demographic data, consumption, and move-in/move-out data from the Locality, as well as the Locality's calculated charges (pass-through charges) and adjustments. HRSD calculates HRSD treatment charges and issues the HRUBS combined utility bill for HRSD and Locality charges. HRSD receives customer payments and allocates them between HRSD and the Locality.
- Model 3 – Similar to Model 2, the customer receives a single, comprehensive utility bill via HRUBS. In contrast to Model 2, the Locality has abandoned its independent customer information and accounts receivables system (CIS/AR).

The Locality and HRSD use Customer Care and Billing (CC&B) as their combined CIS/AR system. Localities upload meter readings and manually enter demographic and move-in/move-out data into CC&B. Locality and HRSD charges are calculated in CC&B. HRSD issues the HRUBS bill with HRSD and Locality charges, receives customer payments and allocates them between HRSD and the jurisdiction.

- Model 4 –The customer receives a single bill from the Locality, who bills on HRSD's behalf. The Locality uses its independent Billing/AR system to calculate Locality and HRSD charges, issues a combined bill to the customer, and collects customer payments. The Locality provides a report to HRSD of consumption billed and remits payments received for HRSD charges.

Table 6.1 summarizes the current billing models used by each Locality.

Table 6.1 Billing Models by Locality

Billing Model	Localities	Responsibilities
Model 1	Gloucester, Hampton, Isle of Wight, Newport News, Poquoson, Portsmouth, Virginia Beach, York County	• Locality generates its own bills and collects • HRSD generates its own bills and collects
Model 2	Chesapeake, Norfolk, Smithfield	• Locality sends its charges to HRSD • HRSD sends combined bill, collects and distributes Locality portion to Locality
Model 3	James City, Suffolk	• Localities collect and submit meter data • HRSD does complete bill, collects and distributes Locality portion to Locality
Model 4	Williamsburg	• Locality bills on behalf of HRSD, collects payment, and remits HRSD wastewater payments to HRSD

After an evaluation of billing and customer service practices, the Steering Committee recommended that the existing billing structure should be maintained in a regionalized scenario.

In general, the existing billing structure appears to serve the needs of HRSD, the Localities and the customer. Consensus of the project Steering Committee is that there is no reason to change the way bills for wastewater service are issued and collected under the Regionalized Scenario. Therefore, it is recommended that the existing billing structure be maintained under regionalization. That said, there are opportunities for streamlining existing billing operations,

including expanded use of Billing Method 3 (moving away from Billing Method 2) to facilitate the entry of Locality customer and water consumption data into the HRUBS combined billing system.

Under the Regionalized Scenario, it is envisioned that the current mix of Locality and HRSD utility billing would be retained. All wastewater service charges would be incorporated into bills that HRSD already issues to customers in all Localities except Williamsburg. Customers in Localities using Billing Method 1 would continue to receive a Locality utility bill for water, stormwater, and other local services and a separate HRSD bill for all wastewater service. Customers in Localities using HRUBS would continue to receive a HRUBS bill for all utility services provided by the Locality and HRSD, and Williamsburg could continue to bill customers for both local and HRSD services. The only real change the customer would see under regionalization is that wastewater service would be billed at a single, comprehensive region-wide rate (described in Section 7) instead of being split between a sewer/wastewater collection rate and a separate treatment rate as under current practice.

Since the current billing structure is assumed to remain in place, with no significant change in effort or responsibilities, no cost adjustments related to billing services are made in the financial analysis of the Regionalized Scenario.

6.3 Customer Service

6.3.1 Recommendation for the Regional Scenario

Because the Regional Entity would provide all wastewater services, it is recommended that it should be responsible for all wastewater-related customer service.

Customer service functions include handling billing and account management inquiries as well as requests for emergency and routine sewer maintenance and repair. As noted previously, it is assumed for the Non-Regionalized Scenario that Localities and HRSD will continue to perform their respective customer service functions as they do now.

Two wastewater customer service structure alternatives were considered for the Regionalization Scenario. Since under regionalization all wastewater service is provided by the single Regional Entity, it is assumed that all customer inquiries and requests related to wastewater service will need to be directed to the Regional Entity for response and resolution. The two alternative structures differ mainly in the initial point of customer contact and the initiation and routing of work orders and other service requests.

In the first alternative, the Locality remains the point of customer contact and Locality personnel and systems initiate service request and route them to the Regional Entity for execution, as shown on Figure 6.1.

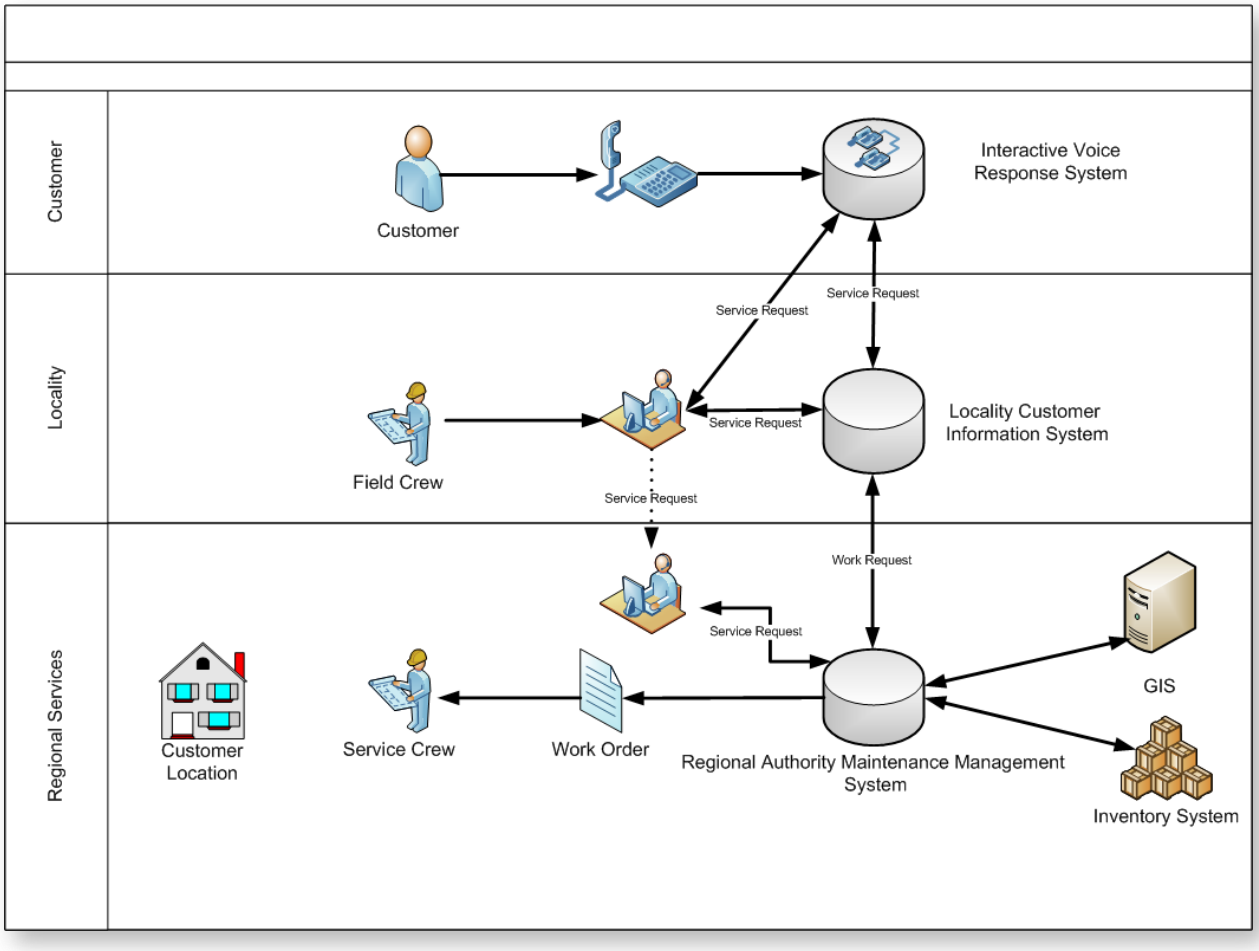


Figure 6.1 Existing Customer Service Structure Applied to the Regional Scenario

In the second alternative, the Regional Entity directly handles all wastewater-related customer service, with the Locality only involved in redirecting wastewater-related customer calls they may continue to receive to the Regional Entity.

In discussions about customer service alternatives at project Workshop No. 4, Project Steering Committee members were unanimous in their preference that all wastewater related customer service be handled directly by the Regional Entity, with minimal involvement of the Localities. Since the Localities would no longer be in the wastewater business under the Regionalized Scenario, it is

entirely reasonable that the Regional Entity handle all wastewater customer service functions, from the initial customer contact through work order and service initiation through execution and customer follow-up. Therefore, it is recommended that the Regional Entity have sole responsibility for wastewater-related customer service under the Regionalized Scenario.

Figure 6.2 illustrates a potential wastewater customer service structure for the preferred approach with the Regional Entity having full responsibility for all wastewater customer service. An interactive voice response system serves as the initial entry point into the system. Because it is likely that some customers will continue to call a Locality customer service agent for wastewater service, and perhaps the wastewater service number for water, stormwater or other Locality services, the ability to redirect customer calls to the appropriate entity should be provided as shown.

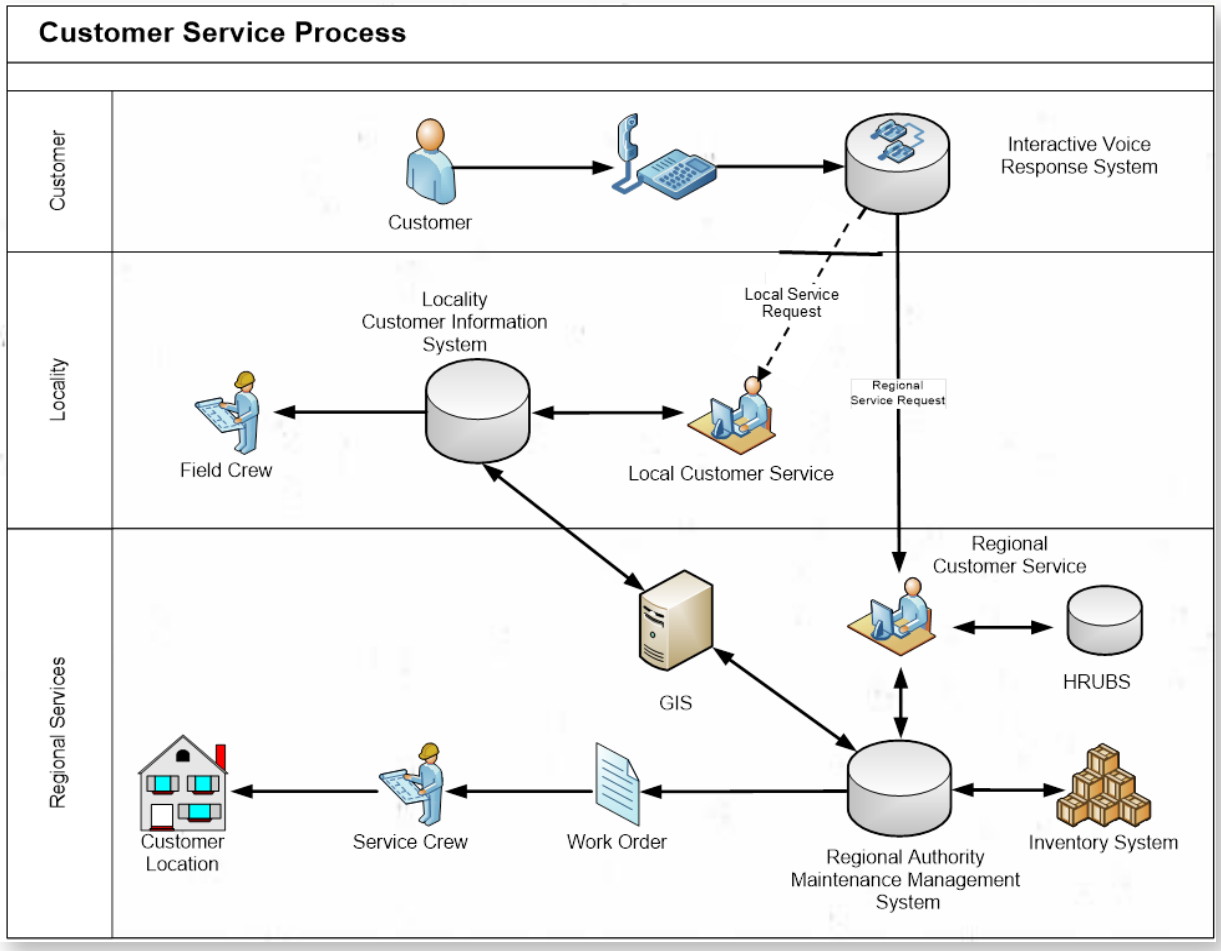


Figure 6.2 Customer Service Structure with Full Regional Entity Responsibility

The structure of customer service under a Regional Entity would include a centralized billing system, a computerized maintenance management system and GIS to increase efficiency and organize data.

The consolidated services provided to HRSD customers would be designed around a customer service framework that not only improves the efficiency of its service, but the organization of service level data that will help to identify opportunities for improving the dependability of the infrastructure. The main tools for managing customer service and billing are a billing system, a computerized maintenance management system (CMMS) and GIS.

The consolidated HRSD has many components to its customer service functions such as customer support, service requests, billing and collection, and certain other data management aspects related to planning of operations and maintenance activities.

Billing will be similar to the current model that allows localities to bill on their own or for collective services through the HRUBS.

All customer service data could be centralized by HRSD, made available to the localities as needed, and used in developing plans for improving the basic management of the assets as well as identifying some potential needs for the service expansion or improvement.

HRSD will use a centralized customer service support center with direct access to the HRUBS billing information system that is interfaced with a CMMS to document and store work order history. The customer service staff will use the CMMS for tracking and work request and reviewing work order history.

HRSD customers will be able to make service and account-related inquiries by calling a central Customer Service number included on their bill or sewer service or through the HRSD web site as a customer self service function. The Customer Service group will receive various call types and resolve miscellaneous inquiries such as payment locations, office hours, mailing address changes, requests for transferring service, billing inquiries, and bill adjustments. Information related to water, wastewater and related public services and the account status will be available.

Every inquiry will be documented in HRUBS or the CMMS, depending on the call or service request type, service request paperwork that may need to completed or how the request is routed to the appropriate person for follow-up.

Recommended customer service goals for the Regional Entity are summarized as follows.

- Minimize service disruptions and maintain a level of service for customer response and resolution that is equal to or exceeds national benchmarking standards such as AWWA.
- Maintain a single region-wide phone number for all wastewater-related customer service.
- Minimize the number of people the customer is required to contact.
- Minimize impact to the customer service staffing level at the localities to no more than necessary for provide local services.
- Allow localities the ability to view the progress of work orders generated as a result of the customer calls and requests.
- Ability to share GIS information with the Localities.
- Customer Service staff will have the ability to work with customer profiles that are rich in detail, to act on well structured information gathered over time; to better document each case; to make better decisions about customers' requests, and to consequently benefit from a higher customer satisfaction ratio.
- Use of an Interactive Voice Response (IVR) to extend the level of service after work hours. The IVR solutions should enable users to retrieve information including billing balances, utility outages, and work order status.
- Provide access to and manage account and personal information (i.e., address, phone number).
- Provide for electronic payments.
- Support customers' ability to send e-mail messages and requests to a customer service representative.

The customer service processes should be supported by a central information system, CMMS. Customer Service staff would use the CMMS to facilitate customer service and be able to view customer account status, including account number, enter data for customer owned meters, track work order status and generate service requests.

Customer Service staff would utilize the CMMS to record and route work orders related to customer service requests. Interfacing with a CMMS increases

efficiency, decreases inconsistency errors between systems, and provides an ability to share data easily between departments.

The Customer Service staff should have access to the HRUBS and the CMMS, using the CMMS to generate and manage work orders. At a minimum, information that could be viewed by Customer Service staff should include the following.

- Customer account status
- All associated customer accounts
- Work Order and service request history (if access to the CMMS)
- Pending service requests and Work Orders (if access to the CMMS)
- Location of the customer (inside or outside the Regional Entity)
- Call history
- Common contact numbers (inside HRSD and for other jurisdictions)
- Status of local service disruptions, including water pressure/quality
- Old and pending bills

6.3.2 Considerations for the Financial Analysis

For the financial analysis, it is assumed that the Regional Entity would match the number of customer service staff that the Localities had allocated for sewer system customer service.

In assessing the costs of customer service under the Regionalized Scenario, it is first noted that most Localities have proposed retaining their existing customer service staff rather than transferring a portion of that staff, who typically handle water, wastewater, and other local service requests, to the Regional Entity. As described in Section 5, it is assumed that operations and maintenance staffing levels in the Regional Entity, which include customer service personnel, will match the combined staffing levels of the 14 Localities. For the purposes of the financial analysis, an assumption is made that the Regional Entity would add a number of customer service full-time equivalents (FTEs) matching the total estimated Locality FTEs allocated to sewer system customer service. Locality FTE and cost estimates for sewer customer service are included with the total Locality annual operations and maintenance costs that are used as the baseline O&M costs for the Regionalized Scenario as well. Therefore, annual costs for the additional customer service FTEs in the Regional Entity are included in the baseline O&M costs in the financial analysis of the Regionalized Scenario, with no additional adjustments required.

Should Localities choose to retain their existing customer service staffing levels under regionalization, the loss of sewer service revenue would tend to shift some of the customer service cost to water and other utility or public works services. This potential cost shift and impact on Locality water rates and other service charges have not been evaluated in the financial analysis of the Regionalized Scenario.

7.0 Financial and Rate Evaluation

7.1 Introduction

An important aspect of the Regionalization Study is gaining an understanding of the potential financial and rate impacts under Non-Regionalized and Regionalized Scenarios. From this financial and rate evaluation, policy makers should have a high-level understanding of the potential projected short and long-term impacts under these differing Scenarios.

Simply stated, it is presumed that the financial and rate impacts under regionalization must not exceed those same financial and rate impacts under a Non-Regionalized Scenario. While there appears to be certain O&M and capital infrastructure savings under regionalization, the key question is the magnitude of those savings and the long-term benefit to each Locality and the region as a whole.

This section of the Regionalization Study report will review the technical analyses undertaken to evaluate the financial and rate impacts under the Non-Regionalized and Regionalized Scenarios.

7.2 Limitations of the Financial/Rate Review

The financial and rate evaluation contained herein has been developed utilizing generally accepted wastewater financial planning and rate-setting methodologies and techniques. The technical analyses undertaken as a part of this regionalization study are based upon data and information supplied by the various Localities and other outside parties (Comparative Analysis by Brown and Caldwell). This data and information were the key inputs into this study. HDR reviewed these key inputs for reasonableness and worked directly with various parties to attempt to verify and confirm data. However, even with the steps and measures used by HDR in reviewing and checking the key inputs, HDR cannot guarantee or assure the complete accuracy or veracity of the key inputs used within this analysis.

The financial and rate impacts are based on estimates and projections over a 30-year period. Actual changes in growth, capital infrastructure costs, regulatory requirements and other events may vary substantially from this study's projections.

The projected financial and rate impacts developed herein are based on estimates and projections of future costs, anticipated growth, capital infrastructure costs, regulatory requirements and other events

over a thirty (30) year period. As those future costs, anticipated growth, capital infrastructure costs, regulatory requirements and other events vary from the 30-year financial and rate projections contained herein, the actual results may vary substantially from this study's projections. The estimates of future financial performance and rates are based upon projections which may or may not be realized. Finally, HDR has used certain simplifying assumptions and a simplified methodology to model a complex transaction. Other events, not taken into account or anticipated, may occur and may significantly affect the actual results when compared to the projections or estimates contained herein.

Additionally, there are certain other customers that HRSD serves that are not party to this regional system assessment. These include the small community customers and direct connect customers. It was possible to isolate and eliminate from the analysis the revenue, expenses and flow for the small communities. For the direct connect customers, the flow from several major direct connection customers was eliminated from the analysis.

7.3 Data Collection and Information Sources

The collection of financial, consumptive and other key data was an important starting point for the financial and rate analysis. One of the more challenging aspects of this study was the accumulation and collection of data in a consistent format. Each Locality has their own approach to accounting for costs and accumulating data. For this study to be meaningful and beneficial, it was recognized that the data and information would need to be accumulated in a consistent format. The use of a consistent format for the collection of data and information provided two key benefits. First, all data and information would be accumulated and assembled in the same manner (i.e., apples to apples). The other major benefit of a consistent format for data collection was from a modeling perspective. Each Locality can be easily viewed on a stand-alone basis, but also easily summed under a Regionalized Scenario.

Each Locality entered its data in an Excel template developed by HDR. This process of collecting data was efficient and also minimized concerns about the validity and accuracy of the data.

To begin the process of data and information collection, HDR developed an Excel template with all of the data and information needed for the study. The intent in developing this template was to allow each Locality to fill in the template with its own data and information. This accomplished two objectives. The first objective was to attempt to collect this data and information in the most efficient manner possible. Having the

Localities enter the data and information from their records was far more efficient than each Locality providing HDR with numerous and various financial and statistical reports. By having each Locality enter the data, HDR also accomplished the second objective which was to minimize disagreements about the interpretation and use of a Locality's data and information. Had HDR entered each entity's financial and statistical information, there may have been questions or concerns from each entity as to whether HDR had interpreted or entered the data correctly. Via this process of using a data template and having each entity enter their own specific data, questions about the validity or accuracy of the data have been for the most part minimized, but not totally eliminated.

The data request template was an Excel™-based spreadsheet designed to collect specific data. The data request template was provided to each Locality, along with HRSD. A number of specific data areas were contained in the template. Provided below is a summary of the key components or areas of the data request template.

- Exhibit 1 – Rate Revenue, Customers, Usage and Miscellaneous Information
  - Number of customers by class of service (active accounts as of June 2012)
  - Total annual billed flows by class of service
  - Current rates (fixed and variable charges) for each customer class of service
  - Current average residential monthly bill (e.g., $23.48/month) and the amount of assumed flow included within the average residential monthly bill
  - Total annual depreciation expense for 2011
  - If available, projected customer growth for 2013 – 2020
  - Opportunity to provide any relevant notes or information on the above data and information

- Exhibit 2 – Revenue Sources (Budget 2011, Actual 2011, Budget 2012 and Projected 2013)
  - Wastewater annual rate revenue (local collection system) for the various customer classes of service (as applicable; residential, commercial, industrial, institutional and other [describe])
  - System development charge (i.e., connection charges, general facility charges, etc.) revenues – collection system only. These are customer growth-related fees
  - System development charge for one (1) equivalent residential unit (ERU)
  - Opportunity to provide any relevant notes or information on the above revenue data

- Exhibit 3(A) – Revenue Requirement [Expenses] (Budget 2011, Actual 2011, Budget 2012 and Projected 2013)
  - Wastewater operations O&M expenses (detailed in 11 subaccounts; e.g., salaries and wages, overtime, medical benefits, etc.)
  - Assumed number of FTEs for wastewater operations
  - Customer service and accounting
  - Assumed number of FTEs for customer service and accounting
  - Administrative and general (A&G) expenses
  - Assumed number of FTEs included within A&G expenses
  - Other O&M (excluding annual depreciation expense)
  - Opportunity to provide any relevant notes or information on the above expense data
- Exhibit 3(B) – Revenue Requirement [Expenses] – continued (Budget 2011, Actual 2011, Budget 2012 and Projected 2013)
  - Annual amount of taxes and transfer payments. These were subcategorized into three types; 1. Interfund payments to the City (e.g., a PILOT payment) or other local taxes, 2. Interdepartmental payments for indirect costs (e.g., legal, HR, finance, etc.), and 3. Taxes and/or transfer payments to an outside entity (e.g., state tax, etc.)
  - Opportunity to provide any relevant notes or information on the above tax/transfer data
- Exhibit 3(C) – Revenue Requirement [Expenses] – continued (Budget 2011, Actual 2011, Budget 2012 and Projected 2013)
  - Annual amount of debt service funded (paid for) via growth related fees (system development charge revenues)
  - Opportunity to provide any relevant notes or information on the above debt funding method
  - Detail of cash reserve balances – as of budget 2012 and projected 2013. Cash reserves were divided between operating reserves, capital/renewal and replacement reserve, rate stabilization reserve and emergency reserves. Note: A simple definition of each type of reserve was provided
  - Opportunity to provide any relevant notes or information on reserve balances
- Exhibit 4 – Outstanding Debt
  - For each outstanding debt issue, provide the schedule of principle and interest payments for 2013 – 2042
  - For each debt issue above, specify the minimum debt service coverage (DSC) ratio (e.g., 1.25)

A similar but more extensive data request was provided to HRSD. HRSD was asked to provide their data and information as it related to each of the individual

HDR requested data from HRSD as it related to each of the individual Localities. In most cases, the data was similar to that provided by the Localities.

Localities (e.g., revenues, customers, volumes of consumption). From this data and information, HDR was able to evaluate the information provided by the Locality and the information provided/recorded by HRSD. In most cases the information was very similar and did not raise any issues. However, in other cases, where significant differences appeared between data sources, HDR worked with HRSD and the Locality to clarify or resolve the data disparity.

For those Localities that provided an incomplete or no data file, HDR worked with the available data and information from other sources to essentially complete the data file[3]. Those Localities that had not submitted a data file were provided a copy for review of the data file developed by HDR from the various system data submitted. During the course of the study, HDR informed the Localities of the status of the data request and that each Locality had remaining time and opportunity to complete the data request. In those cases where a completed or substantially completed file was provided to HDR, it was reviewed and any areas with issues or questions were resolved with the Locality.

Once HDR received the data, they began their technical analysis of each Locality's wastewater utility to determine the costs by component for a revenue requirement.

Once the data was received, HDR began their technical analysis of each Locality's wastewater utility to determine the costs by component for a revenue requirement. This aspect of the analysis is discussed in more detail in Subsection 7.6. HDR's initial review and analysis of each Locality's costs was presented at project Workshop No. 3. As a result of that presentation, a few Localities contacted HDR with questions about their data and information. One item in particular that some Localities noted was the use of system development charge (SDC)[4] revenues. HDR worked individually with these Localities to reach a mutual agreement concerning how they would be handled for the specific Locality.[5]

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[3] During the study's data collection process, there were other requests for various financial information (e.g., budgets, financial statements, debt schedules, etc.).

[4] System development charges are growth-related fees associated with new customers connecting to the system. These fees may also be called capacity fees, plant investment fees, connection fees, etc.

[5] Generally, SDC revenues should be used to pay for capacity-related improvements or to pay for capacity related debt service. In the case of the capital infrastructure improvements associated with this study, they appear to be more regulatory related, and for that reason alone, HDR has recommended the exclusion of these revenues in the rate setting process. Furthermore, these growth-related revenues are dependent upon customer growth and new connections and as such, are not a reliable source for long-term funding or planning.

Given the collection of the data, the focus of the study shifted to the development of the overall methodology.

7.4 Review of the General Methodology

The method used for the technical analysis was a simplified revenue requirement analysis.

The methodology used for the technical analysis was a simplified revenue requirement analysis. A revenue requirement analysis is a summation of the total annual operation and maintenance expenses and capital-related costs incurred in meeting a utility's service requirements. The Water Environment Federation (WEF) Manual of Practice No. 27 notes the following:

> *"In providing adequate service to its customers, every wastewater utility must receive sufficient annual revenue to ensure proper operations and maintenance (O&M) of facilities, development and perpetuation of the physical condition of the system, compliance with regulatory requirements, and maintenance of the utility's financial integrity. The first phase in the establishment of the appropriate overall level of revenues for the utility and the rates necessary to generate that revenue is to establish the total annual revenue requirements for the period in which the rates are to be effective."*[6]

While this study has utilized a revenue requirement analysis, the analysis developed herein is not a "rate study." Rather, the objectives of this study are far different from a rate study in which the main objective is typically to establish wastewater rates for one to five year period.

7.4.1 Objectives of the Financial/Rate Technical Analysis

The focus of this technical analysis is on the financial and rate impacts for each Locality under regionalization vs. non-regionalization. This study differs from a traditional "rate study."

In conducting this technical analysis of the financial and rate impacts, the basic question to be addressed by this study is "what are the financial/rate impacts to each Locality under a status quo scenario versus regionalization?" In order to answer that key question, the technical analysis didn't need to be as technically detailed as a traditional revenue requirement analysis within a rate study. Instead, the focus

[6] Water Environment Federation, Manual of Practice No. 27, Financing and Charges for Wastewater Systems, 2004, p. 75.

of this study is on the financial and rate impacts from the needed regulatory capital investment under Non-Regionalized and Regionalized Scenarios.

This portion of the study has been described as reviewing the financial and rate impacts at "30,000 feet" since the analysis is attempting to measure relative impacts of different courses of action over a 30-year time frame. From that understanding, certain objectives for this portion of the technical analysis were established. These objectives were as follows.

- The analysis should utilize "generally accepted" methodologies.
- The key focus of the model should be on the capital infrastructure funding and financing.
- Attempt to provide as much of an "apples to apples" comparison between the Localities as reasonably possible.
- Analysis should provide a clear understanding of the relative costs of Non-Regionalized and Regionalized Scenarios for each Locality and for the region as a whole.

From these key objectives, the financial/rate model was developed.

7.4.2 Overview of the "Cash Basis" Methodology

In establishing a financial plan or rates, there are two generally accepted methodologies; the "cash basis" and the "utility/ accrual" basis. The "cash basis" is the most commonly used methodology for public utilities. Figure 7.1 provides an overview of the "cash basis" methodology.

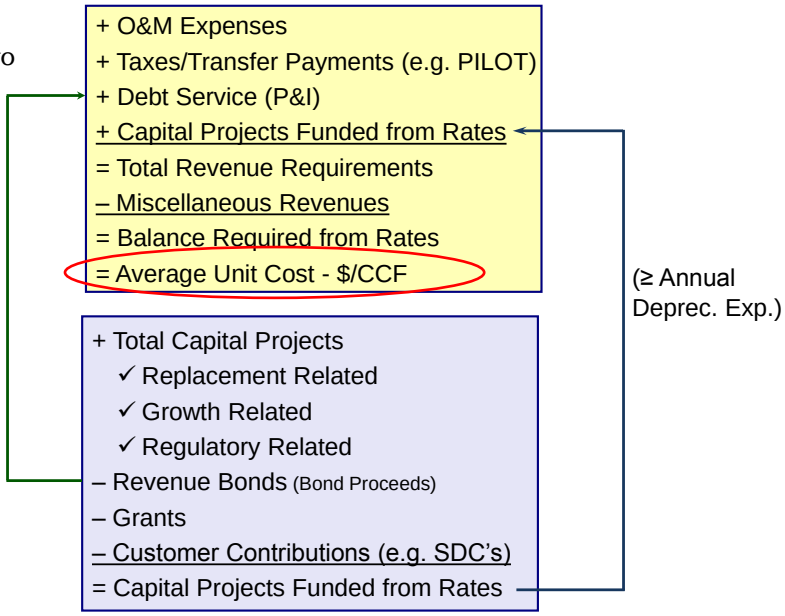


Figure 7.1 Overview of the "Cash Basis" Revenue Requirement Methodology

The top yellow box in Figure 7.1 is the "cash basis" revenue requirement. A cash basis revenue requirement is composed of four cost components; O&M expenses, taxes or transfer payments, debt service (principle and interest payments) and capital projects funded from rates. It is this last component, capital projects funded from rates, which is the focus of the bottom blue box. This box provides an understanding of how different capital infrastructure projects are funded and how they impact a utility's rates. As can be seen, there are at least three types of capital infrastructure projects that a utility may incur over time; replacement-related projects, growth-related projects and regulatory related projects. Replacement related projects are those which repair or replace the existing infrastructure of a utility (e.g., replacement of a pump). The next type of capital project is a growth-related project. A growth-related project is related to the expansion of capacity for purposes of meeting growth. Finally, a regulatory-related project is a project driven by regulatory or legal requirements, and not necessarily driven by replacement or growth-related needs.

There are at least three types of capital infrastructure projects that a utility may incur over time: replacement-related projects, growth-related projects and regulatory-related projects.

The segregation of these types of projects is important, since each may be funded in a slightly different manner. Replacement related projects are generally funded on a "pay as you go" basis. Rates should be sufficient to fund the annual replacement of those items that become worn out and obsolete. A very simple measure of the needed funding for this component is annual depreciation expense. This accounting value reflects the utility's current investment in facilities; however, it does not reflect replacement value which is likely higher than annual depreciation expense. In contrast to replacement type projects, growth-related projects are often funded by growth related fees (e.g., system development charges, capacity fees, connection fees, etc.). A growth-related project may be funded directly from growth-related reserves (i.e., an SDC reserve), or they may be funded via long-term debt and then re-paid using SDC revenues. This approach generally implies that "growth pays for growth". Finally, regulatory-related projects can be funded in a number of different ways, but for purposes of this study, it is assumed that they are funded via long-term debt. When a project is funded via long-term debt, it impacts the revenue requirements (top yellow box) by becoming an annual debt service payment. The

Each Locality was reviewed for their level of annual replacement funding. At a minimum, a utility should be funding an amount at least equal to their annual depreciation expense.

amount of the annual debt service payment is a function of the interest rate on the debt and the length of repayment (term). As can be seen in the Figure 7.1, any long-term borrowing becomes an annual debt service payment within the revenue requirement. Finally, there is the question of how much capital funding from rates (i.e., pay-as-you-go funding) should be included within the revenue requirement. At a minimum, a utility should be funding an amount at least equal to their annual depreciation expense. Figure 7.1 indicates funding equal to or greater than annual depreciation expense. As will be discussed in more detail below, each Locality was reviewed for their level of annual replacement funding.

One of the key objectives of this study is to place each Locality on an "apples to apples" comparison basis. A good example of this issue is the funding of replacement capital within rates. To place each Locality on an "apples to apples" comparison basis, the replacement capital funding for each Locality was set within the financial analysis to at least equal their annual depreciation expense. In that way, a common minimum funding level was established to reasonably reflect the need to maintain the existing infrastructure. The other "apples to apples" adjustment was on O&M levels in which the expense levels were adjusted using a comparison of existing O&M expenses to AWWA QualServe metrics. This aspect of adjusting the O&M is discussed in more detail below.

Using this basic "cash basis" framework, along with the data and information supplied by each Locality, a simplified revenue requirement analysis[7] was developed for a 30-year period. Provided below is a more detailed discussion of each of the component costs of the revenue requirements.

The major source of funding for each Locality is rate revenues. For the purposes of this study, a revenue growth rate of 1% was assumed to be reasonable.

Revenues: The major source of funding for each Locality is rate revenues. As a part of the initial data request, each Locality provided a summary of their current revenue levels, some by major customer group. In the revenue requirement models that HDR develops, no rate adjustments are assumed and rate revenues are projected in future years considering only customer growth. In this way, the balance or deficiency of funds at the bottom

[7] "Simplified" refers to the level of detail used to develop the analysis. The analysis uses the same "generally accepted" cash basis framework as a comprehensive rate study, but in this case, certain simplifying assumptions were used to project revenues and expenses over the 30-year period, with the goal or objective of understanding at a macro level the relative impacts of different courses of action and investments.

of the revenue requirement model will reflect the total overall needed adjustments in relation to "today's" rates. Customer and revenue growth was assumed within this model, but not by individual Locality. Given that this model is projecting revenues and costs over a 30-year period, it was assumed that a "regional" growth rate should be applied to all customers. HDR recognizes and understands that each Locality will have differing customer growth rates over the next 30-years, but for purposes of this study, using a simplified regional customer/revenue growth rate appeared to be reasonable and appropriate. The regional customer growth rate assumed within this study was 1%. This is based on the growth estimate developed for the HRPDC Hampton Roads Regional Water Supply Plan, completed in July 2011.

Utilities also have other miscellaneous and non-rate funding sources (e.g., tax revenues). These miscellaneous and non-rate funding sources were accounted for within the study, but it is important to note that the final measure used within this study is a comparison to customer's existing rate levels without taxes, transfers and pilot payments.

The use of system development charge (growth-related) revenues as a funding source was not included as a revenue source to offset O&M and capital costs. As HDR noted during the course of the study, these growth-related revenues are not a reliable source of funds in that they are dependent upon growth, but more importantly, technically, they should only be applied against growth-related capital infrastructure projects. In addition, growth-related revenues technically should not be applied against O&M expenses, since the basis for their collection is to provide for expanded capacity to accommodate growth, not to pay for O&M expenses. The focus of the capital projects in this study are regulatory-related projects and not growth-related. For the vast majority of the Localities, no growth-related revenue was included within the analysis. The exceptions are JCSA, Chesapeake, and Suffolk, who specifically requested their SDC revenue inclusion.

O&M Expenses: Each Locality provided their current collection system O&M funding levels. HDR analyzed these funding levels and then adjusted the O&M funding levels upwards over a five-year period for each Locality based on a comparison to AWWA QualServe metrics, and to account for potential increases in O&M requirements driven by the Consent Order. Collection system adjustments to annual O&M funding levels are discussed in detail in Section 5.

Table 7.1 provides a summary of annual O&M expenses for both the Non-Regionalized and Regionalized Scenarios in 2013 dollars. Savings in annual O&M under the Regionalized Scenario are due to assumed reduction through attrition in redundant management and administrative personnel. As described in Section 5, both O&M increases the Non-Regionalized Scenario and decreases for staff attrition under the Regionalized Scenario are phased in over a five-year period in the financial analysis.

Table 7.1 Total 2013 Collection System O&M Expenses – Non-Regionalized and Regionalized ($000)

Locality	Non-Regionalized		Regionalized (Year 5)
	Unadjusted[1]	Adjusted (Year 5)	
City of Chesapeake	7,761	8,925	
Gloucester County	1,097	1,151	
City of Hampton	10,632	11,164	
Isle of Wight County	472	495	
JCSA	6,253	6,566	
City of Newport News	12,756	13,394	
City of Norfolk	9,336	10,737	
City of Poquoson	1,138	1,195	
City of Portsmouth	4,746	5,458	
City of Smithfield	604	634	
City of Suffolk	6,935	7,281	
City of Virginia Beach	23,948	27,540	
City of Williamsburg	529	556	
York County	5,730	6,017	
TOTAL	**91,937**	**101,113**	**88,151**

[1] Unadjusted includes capital outlay, but excludes depreciation expense and all taxes and/or transfer, and pilot payments. Unadjusted for inflation.

The O&M costs shown above do not include the cost of treatment, which is covered under HRSD's rates. In establishing the treatment costs by Locality, any high strength surcharges or other miscellaneous charges have been removed from the costs in order to provide a consistent treatment cost on a per unit basis.

The annual collection system O&M expenses shown above also exclude depreciation expense and all taxes and/or transfer payments. These exclusions were made since the revenue requirements, as developed in this model,

separately account for both depreciation expense (capital improvements funded from rates) and taxes/transfer payments. These two components are discussed in more detail below.

As noted, annual O&M expenses shown in Table 7.1 are in 2013 dollars. Annual O&M expenses were inflated in the financial analysis using a general inflation factor of 3% per year. This simplification of the projection of O&M appeared to be reasonable and appropriate given the high level "30,000 foot" comparison desired from the comparison.

Taxes and Transfer Payments: Within the data request developed for the financial/rate model, each Locality was asked to segregate their taxes and transfer payments between

- Interfund payments to the City (e.g., a PILOT payment) or other local taxes
- Interdepartmental payments for indirect costs (e.g., legal, HR, finance, etc.), and
- Taxes and/or transfer payments to an outside entity (e.g., state tax, etc.)

Localities were asked to provide data segregated by taxes and transfer payments to allow for clear identification of the types of taxes and tax obligations of each Locality's wastewater utility.

The reason for this segregation of taxes and transfer payments was to allow for clear identification of the types of taxes and the tax obligations of each Locality's wastewater utility. To better understand the differences and distinction between these types of taxes and transfer payments, a more detailed discussion is provided below.

An interfund payment is a payment (transfer) made to another municipal fund. The best example of this type of payment/transfer is a "payment-in-lieu-of taxes" (PILOT) payment. A number of municipal utilities have PILOT payments which transfer funds from the utility to their City's general fund. This type of payment/transfer is not a tax payment in that the payment is not paid to another outside governmental agency. In fact, PILOT payments are often considered to be subordinate payments to a utility's debt service obligations. That is not to downplay the importance of PILOT payments to a City, but rather place in context the obligation. While a PILOT payment may not reflect any services provided by the City to the utility, the next type of payment does. An interdepartmental payment is compensation for services provided to the utility. For example, a utility may use the City's finance department for accounting, billing and customer service purposes. The interdepartmental payment is to

compensate the finance department for the services rendered to the utility. Finally, the last category of payments is taxes paid to an outside organization or entity (e.g., taxes paid to the State of Virginia, etc.). These are direct payments and clear obligations of the utility.

Taxes and transfer payments were removed from the analysis because not all Localities have equal or identical payment obligations.

Under the Non-Regionalization Scenario, it has been assumed that all tax payments and transfers will remain in place. Essentially, each Locality will continue to operate as they do today, and it has been assumed that each Locality will continue to make comparable tax and transfer payments. Under a Regionalization Scenario, the issue of tax and transfer payments becomes more complicated. Since not all Localities have equal or identical tax/transfer payment obligations, it was concluded that the best and most reasonable approach for purposes of projecting costs under the Regionalized Scenario was to completely remove taxes and transfer payments from the analysis. Therefore, to maintain consistency and an "apples to apples" comparison between the two Scenarios in the financial analysis, taxes and transfer payments were excluded in the calculations of the costs of wastewater service for both Scenarios. Note that the inclusion or exclusion of taxes/transfer payments does not have a significant impact on the final results, but removing these costs does produce a more straightforward comparison.

As was discussed during the various HRPDC project workshops, if a Locality currently has PILOT payments, it has been assumed that this payment could be added to customer bills under the Regionalized Scenario. This is discussed in more detail in Section 7.8.

The interdepartmental payments are also complicated under regionalization. Localities may still provide services which benefit the Regional Entity (e.g., warehouse/service centers, etc.). While it is likely that some form of payments may be made between the Regional Entity and the Locality, it is difficult to project the possible needs provided by the Locality and the corresponding compensation (payment). It is recommended that handling transfer payments under the Regionalized Scenario be evaluated further during transition and implementation planning, should regionalization be pursued.

Table 7.2 provides a summary of the current tax and transfer payments by type, as reported by each Locality.

Table 7.2
Summary of the Tax Payments – Annual Payments ($000) and Stated in $/CCF[1]

Locality	PILOT Payments		Interdepartmental Transfers		Other Taxes and Payments	
	$	$/CCF	$	$/CCF	$	$/CCF
City of Chesapeake	$0	$0.00	$0	$0.00	$0	$0.00
Gloucester County	$0	$0.00	$0	$0.00	$0	$0.00
City of Hampton	$0	$0.00	$456	$0.09	$0	$0.00
Isle of Wight County	$0	$0.00	$0	$0.00	$0	$0.00
JCSA	$359	$0.15	$0	$0.00	$0	$0.00
City of Newport News	$0	$0.00	$200	$0.03	$0	$0.00
City of Norfolk	$1,615	$0.21	$1,625	$0.21	$0	$0.00
City of Poquoson	$0	$0.00	$130	$0.35	$0	$0.00
City of Portsmouth	$535	$0.19	$377	$0.14	$0	$0.00
City of Smithfield	$0	$0.00	$92	$0.08	$0	$0.00
City of Suffolk	$0	$0.00	$270	$0.14	$0	$0.00
City of Virginia Beach	$2,000	$0.13	$2,322	$0.16	$0	$0.00
City of Williamsburg	$0	$0.00	$0	$0.00	$0	$0.00
York County	$0	$0.00	$0	$0.00	$0	$0.00

[1] Taxes and transfer payments as reported by each Locality

As can be seen in the above table, a number of Localities have no tax or transfer obligations, while a number of Localities have one or two tax/transfer obligations, but not all three types.

In stating the tax/transfer payments in $/CCF, the payments were divided by each Locality's flow. This calculation may provide a good reference point for potentially understanding the impact of these payments on a Locality's rates at the present time, but also the potential additional impacts under regionalization if these payments are continued.

Debt Service: The next cost component of the cash basis revenue requirement is debt service, existing and future. Under the Non-Regionalized Scenario, it was assumed that the existing debt obligations of each Locality would simply continue forward. As a part of the initial data request, the debt service schedules for any outstanding debt issues were requested. For any future debt issues, it was assumed that any new debt would carry an interest rate of 5.0% and a term of 30 years and would begin in 2017 for both Regionalized and Non-Regionalized Scenarios. This level of interest rate is certainly higher than

current interest rates, but current interest rates are at historic lows. Given that the same interest rate assumptions were used for both Non-Regionalized and Regionalized Scenarios, any differences between the assumed interest rates and the actual interest rates will have comparable impacts between the Scenarios.

Under the Regionalization Scenario, refunding of debt would be a part of the uniform rate to be paid by all regionalized customers.

For the Regionalized Scenario, Davenport and Company, LLC developed the financing plan for the refunding and refinancing of the existing outstanding debt. A more detailed discussion of the key assumptions concerning the refinancing of the current outstanding debt service can be found in Section 4 of this Report. Under the Regionalized Scenario, the refunded debt is repaid by all customers of the regionalized system. At the third HRPDC Workshop, it was determined that the refunding of the debt will be a part of the uniform rate applied to all regionalized customers.

For future major regulatory projects (Non-Regionalized and Regionalized), it was assumed that 100% of the projects will be funded via long-term debt issues. While this will obviously not occur, it does provide a reasonable evaluation of the two alternatives in that, again, the same financing assumptions are being used. Additionally, for every $1 million in debt service payments, there was an additional $250,000 in rate funding added to verify that debt service coverage requirements would be met.

In summary, the following are the key assumptions in financing the Regionalized and Non-Regionalized capital costs.

- All regional and non-regional capital costs will be 100% debt financed.
- All debt is assumed to be financed over 30 years at 5% interest (Virginia Beach is at 4.75%).
- Implementation of any new debt for both Scenarios begins 2017, including the refinanced Localities' existing debt.
- By beginning implementation in 2017, five years of debt are not included in this 30-year analysis.
- To ensure all Localities are treated equally in meeting a minimum debt service coverage ratio of 1.25, all debt, including existing debt, is multiplied by 0.25 and that level of rate funding is assumed to be included in order that each Locality meets a minimum level of coverage.

Funding for capital improvement projects is intended to be used to replace infrastructure that is worn out and obsolete. Some or all of this funding may be provided by rates.

Capital Improvement Funding from Rates: The final cost component of the cash basis revenue requirement is capital improvement funding from rates. Each Locality has existing infrastructure which must be maintained and eventually upgraded and/or replaced. From a rate setting perspective, these types of capital improvement projects (CIP) are often referred to as "renewal and replacement" capital improvements. Each Locality may use a slightly different term, but the intent and use of this funding is consistent across all Localities. That is, as the existing infrastructure becomes worn out and obsolete, it must be replaced. A certain portion or all of the cost of these renewal and replacement capital projects may be funded from rates. Funding of capital improvements from rates is also commonly referred to as "pay as you go" funding or PAYGO funding. As the name implies the intent of this funding is to pay for the annual renewal and replacement projects on a cash flow basis.

To determine the level of rate funding, the "annual depreciation expense" financial measure was used. This method reflects the current infrastructure in place but does not account for differences in service life of the assets.

In developing the financial/rate model, it was recognized that these annual renewal and replacement projects would not be eliminated by the size or magnitude of the regulatory projects. Each local system will still need to be maintained which will require a funding source and adequate funding. As noted above, generally the primary funding source for renewal and replacement capital projects is rates. To determine the "adequate" level of rate funding, a simple financial measure – the annual depreciation expense – was utilized. Annual depreciation expense reflects the current infrastructure in place for each Locality. While this is a simplistic guideline, it does place all of the Localities on "common footing" for purposes of the funding level for this cost component. This funding guideline does, however, have some obvious shortcomings. First, depreciation expense reflects the average investment in existing infrastructure that may be fifteen to thirty years old. Given that, depreciation expense is not the same as replacement cost. Therefore, even with the funding of annual depreciation expense for the funding of renewal and replacements projects, it likely is not fully sufficient for purposes of fully funding the replacement cost of renewal and replacement projects. Next, depreciation expense is an accounting concept and the useful life assumed for accounting purposes may not align with

the actual service life. Service lives on some assets may greatly exceed the assumed accounting useful life. Finally, while depreciation of assets uses a "straight-line" concept in which the annual depreciation expense is relatively stable from year to year, it is not uncommon for renewal and replacement projects to vary significantly from year to year.

Even with the shortcomings noted above for using annual depreciation expense as a funding guideline, it does reflect generally accepted industry guidelines. More importantly, as will be noted in the technical discussion, meeting debt service coverage (DSC) ratios[8] is a benefit derived from capital improvement funding from rates. As each Locality issues additional debt, the need to meet coverage requirements will drive this component of funding upward, likely well beyond current annual depreciation expense levels.

For purposes of this analysis, each Locality has had their capital improvements from rates component adjusted to reflect their annual depreciation expense. The annual depreciation expense for each Locality was requested as a part of the initial data request. The annual depreciation expense as a funding level was adjusted through time for assumed inflation (3% per year). No adjustment was made to this value for new or added infrastructure.

Shown in Table 7.3 are depreciation expenses used in the financial analysis as the portion of capital improvements funded from rates. Assumed current funding levels, estimated by a simple calculation of total reported revenues less total O&M, debt and taxes and transfers, are shown for reference. It is important to note again that the numbers in Table 7.3 are used only to provide a common basis for the financial analysis and should not be viewed as recommendations on an appropriate level of replacement and renewal funding. It's also important to note that using the depreciation expense to represent rate-funded renewal and replacement costs does not affect the relative cost difference between the Non-Regionalized and Regionalized Scenarios since the same expense is applied to the financial analysis of both Scenarios.

[8] A debt service coverage (DSC) ratio is a simple measure of a utility's ability to repay outstanding debt obligations. The DSC is calculated in accordance with the respective rate covenants for the debt obligation. In general, the O&M and tax obligations of the utility are subtracted from the revenues of the utility. This balance is the amount of funds available for debt service and this balance is divided by the debt service payment. The result is the DSC ratio for the current time period. A DSC ratio greater than 1.0 is generally accomplished from the rate funding component of capital improvements.

Table 7.3
Summary of Collection System Capital Improvement Funding from Rates
(Renewal and Replacement Projects) ($000)

Locality	Non-Regionalized		Regionalized
	Calculated Funding Level[1]	Adjusted to Depreciation Expense	
City of Chesapeake[2]	$12,330	$4,697	
Gloucester County	$(671)	$183	
City of Hampton[3]	$ 1,835	$1,005	
Isle of Wight County	$(425)	$436	
JCSA	$3,205	$2,808	
City of Newport News	$1,520	$544	
City of Norfolk	$5,235	$4,818	
City of Poquoson	$688	$615	
City of Portsmouth[2]	$3,395	$1,019	
City of Smithfield	$588	$167	
City of Suffolk[4]	$1,337	$2,545	
City of Virginia Beach	$15,740	$11,200	
City of Williamsburg	$84	$57	
York County	$2,665	$2,778	
Total Collection System	$47,526	$32,872	$32,872

[1] Net of revenues less expenses.

[2] Not adjusted for combined utility. Balance may reflect portion of water utility expenses.

[3] Hampton also has $3.3 million in the 2013 budget for "Consent Order" which may be additional capital.

[4] Suffolk's depreciation expense was estimated based on City asset files.

HRSD's rate-funded capital improvements and depreciation expense are not handled as a separate annual expense in the financial analysis. These annual costs are reflected in the HRSD rate, which is used in the financial analysis to capture current conveyance and treatment costs in the calculation of the overall cost of wastewater service.

The above concludes the discussion of the general methodology and key assumptions used to develop the financial model and 30-year revenue requirement model. The methodology developed, along with the key assumptions noted above were used to develop the base case analysis. To this base case analysis, the capital improvements related to the Consent Order were

added. A detailed discussion of the capital improvements associated with the Consent Order is provided below.

7.5 Consent Order Capital Improvements – Non-Regionalized and Regionalized

Capital improvements needed to meet the Consent Order are a major input into the financial planning and rate model. These are different from the renewal and replacement projects.

A major input into the financial planning and rate model is the capital improvements needed under the Consent Order as described in the Comparative Analysis Report referenced in Section 1. These improvements are not the same as the renewal and replacement capital projects discussed above (Capital Improvement Funding from Rates), but rather, the additional capital improvement projects needed to meet the Consent Order, which is over and above current funding for renewal and replacement projects. In addition, these capital improvements vary between the Non-Regionalized and Regionalized Scenario. Capital costs were developed for the Comparative Analysis study conducted by Brown and Caldwell and provided to HDR for use in this Regionalization Study. A brief overview of the Consent Order capital improvements for the Non-Regionalized and Regionalized Scenarios is provided below.

7.5.1 Non-Regionalized Capital Improvements to Meet the Consent Order

The Non-Regionalized Consent Order capital improvements assume that each Locality will complete their capital needs on an individual basis. Provided in Table 7.4 is a summary of Consent Order capital improvements provided in the Comparative Analysis Report.

Table 7.4 Consent Order Capital Improvements by Locality, Non-Regionalized Scenario ($000)

Locality	Non-Regionalized Capital Costs[1]		
	Locality Capacity Improvements	Locality Rehabilitation	Total CIP Cost[1]
City of Chesapeake	$48,277	$271,751	$320,028
Gloucester County	$7,646	$7,516	$15,162
City of Hampton	$47,100	$155,666	$202,766
Isle of Wight County	$0	$150	$150
JCSA	$20,000	$63,626	$83,626

Table 7.4 Consent Order Capital Improvements by Locality, Non-Regionalized Scenario ($000)

Locality	Non-Regionalized Capital Costs[1]		
	Locality Capacity Improvements	Locality Rehabilitation	Total CIP Cost[1]
City of Newport News	$53,789	$125,806	$179,595
City of Norfolk	$16,318	$425,000	$441,318
City of Poquoson	$1,300	$14,004	$15,304
City of Portsmouth	$53,694	$247,403	$301,097
City of Smithfield	$0	$3,814	$3,814
City of Suffolk	$14,958	$29,331	$44,289
City of Virginia Beach	$69,400	$349,596	$418,996
City of Williamsburg	$4,100	$17,000	$21,100
York County	$0	$72,500	$72,500
TOTAL	**$336,582**	**$1,783,163**	**$2,119,745**

[1] As developed by Brown and Caldwell in the Comparative Analysis, stated in 2013 dollars, plus $425 million in local rehabilitation costs reported by the City of Norfolk for their individual Consent Order commitments, which are not included under the Regional Consent Order and the Comparative Analysis estimates.

The above table reflects the need for approximately $2.2 billion in improvements to local sewer systems under the Non-Regionalized Scenario.

The costs of the improvements were provided as a lump sum investment and they were not provided by specific year of improvement. Given that, for purposes of financial/rate modeling, this information needed to be converted or translated into annual capital improvement costs. To put these total costs into an annual investment, the above costs were divided by the anticipated number of years over which these investments would be made, as reported for each Locality in the Comparative Analysis Report. This provided the anticipated annual investment needed for non-regionalization in 2013 dollars. The first year of implementation is 2017. Capital costs are escalated for inflation using an annual inflation rate of 3%, so the annual costs will increase over time. Table 7.5 presents the annualized capital costs for each Locality in 2017.

Table 7.5 Annualized 2017 Consent Order Capital Improvement Costs by Locality, Non-Regionalized Scenario ($000)

Locality	Duration (Years)[1]	Non-Regionalized Costs		
		Locality Capacity Improvements[2]	Locality Rehabilitation[2]	Total CIP Cost[2]
City of Chesapeake	30	$1,811	$10,195	$12,007
Gloucester County	25	$344	$338	$683
City of Hampton	25	$2,121	$7,008	$9,129
Isle of Wight County	25	$0	$7	$7
JCSA	20	$1,125	$3,581	$4,706
City of Newport News	25	$2,422	$5,664	$8,085
City of Norfolk	25	$735	$19,134	$19,868
City of Poquoson	25	$59	$630	$689
City of Portsmouth	30	$2,014	$9,282	$11,296
City of Smithfield	20	$0	$215	$215
City of Suffolk	15	$1,122	$2,201	$3,323
City of Virginia Beach	30	$2,604	$13,116	$15,720
City of Williamsburg	20	$231	$957	$1,187
York County	25	$0	$3,264	$3,264
TOTAL		**$14,587**	**$75,592**	**$90,179**

[1] Durations (length in years) were provided by each Locality to HRPDC and B&C, with the exception of Gloucester and Isle of Wight. No implementation schedule was provided so the system average of 25 years was applied.

[2] Inflated to 2017 dollars. Each subsequent year the capital costs are escalated for inflation, so the annual costs will increase over time.

As noted above, the annual capital costs shown in Table 7.5 are escalated at 3% per year for each year of implementation. These annual values were then entered into the financial/rate model for analysis.

In addition to each locality's improvements, HRSD will also have a significant level of capital improvements needed to meet the Consent Order. Provided below in Table 7.6 is an estimate of HRSD's capital improvements.

Table 7.6 HRSD Consent Capital Improvements, Non-Regionalized Scenario ($000)

Locality	Locality Rehabilitation	Private I&I	Regional Wet Weather Improvement	Total CIP Cost[1]
HRSD	$173,338	$289,248	$659,390	$1,121,976

[1] As developed by Brown and Caldwell in the Comparative Analysis, stated in 2013 dollars.

The HRSD rehabilitation costs have a planned 10-year implementation period, while the other capital costs are implemented over a 20-year period. These costs are then treated similarly to the Locality capacity and rehabilitation costs, where they are divided by the implementation period to determine the annual cost to be financed. These annual costs are then escalated 3% per year and debt financed to determine the debt service payment and debt service coverage requirements. The same financing assumptions apply to these debt issues. Those debt and rate funded capital costs are then divided by total system flow of the 14 Localities to determine a cost per CCF. That cost per CCF is then multiplied by each Locality's flow (2012 escalated for growth in future years) to determine each Locality's cost each year.

The above CIP costs reflect the total needed improvements for non-regionalized service over varying implementation time periods. The HRSD capital improvements are in addition to the $2.1 billion in locality improvements above. In total, it appears that approximately $3.2 billion in improvements over the next 25 to 30 years will be needed under the non-regionalization Scenario to meet the Consent Order.

7.5.2 Regionalized Capital Improvements to Meet the Consent Order

The Regionalized Consent Order capital improvements assume a coordinated approach to determining the improvements that most efficiently and effectively address the Consent Order problems. Consent Order capital improvement costs for the Regionalized Scenario developed by Brown and Caldwell for the Comparative Analysis, which total just under $2.2 billion compared to the $3.2 billion total for the Non-Regionalized Scenario, are shown in Table 7.7.

Table 7.7 Consent Order Capital Improvements, Regionalized Scenario ($000)[1]

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	$2,175,069

[1] As developed by Brown and Caldwell in the Comparative Analysis, revised July 22, 2013. In 2013 dollars.

The combined total for the Non-Regionalized Scenario of approximately $3.2 billion compared to the regional Scenario total capital cost of $2.2 billion in Table 7.7 indicate the difference in total capital costs over time. What this cost

difference means to the region as a whole and to each individual Locality is the subject of the financial analysis, discussed below.

7.6 Review of the Technical Analyses

Given the above assumptions, the focus shifts the technical analysis of the individual Localities and the system as a whole. In the development of the financial model, each individual Locality was evaluated under the Non-Regionalized Scenario and then compared to the results of the Regionalized Scenario. Table 7.8 provides a summary of the various assumptions used for each of the cost components included within the revenue requirements.

Table 7.8 Cost Component Assumptions for the Non-Regionalized and Regionalized Scenarios

Type of Cost	Non-Regionalized	Regionalized
HRSD Treatment – HRSD O&M, Debt Service, Rate-Funded CIP	Escalated at 7% per year through 2020, 3.5% per year thereafter	Escalated at 7% per year through 2020, 3.5% per year thereafter
Collection System O&M Expenses	Adjusted O&M – Escalated	Adjusted O&M Minus FTE Reductions – Escalated
Debt – Existing Locality Sewer Debt	Existing Debt Schedule	Refinanced – 30-year level debt service at 5%
Debt – Future	Non-Regionalized Debt for Consent Order CIP	Regionalized Debt for Consent Order CIP
Level of Rate Funded Renewal & Replacement Capital Projects	Applies to Local Sewer Systems – Set at Depreciation Expense - Escalated	Applies to Local Sewer Systems – Set at Depreciation Expense – Escalated
Consent Order CIP	Non-Regionalized – 100% Debt Financed.	Regionalized – 100% Debt Financed
Taxes	Existing – Escalated, but excluded from the analyses	Excluded – Direct Tax Payment to Outside Agencies, Locality Add-On
Transfers Payments	Existing – Escalated, but excluded from analyses	Excluded – Service and Basis for Payment TBD
PILOT Payments	Existing – Escalated, but exclude from analyses	Excluded – Locality Add-On Decision

Given the above assumptions, the technical analyses were developed. Provided below is a more detailed discussion of the technical analyses on a system-wide basis and for each of the Localities.

7.6.1 System-Wide

An important perspective is a system-wide perspective. That is, from a regional perspective is regionalization financially advantageous when compared to non-regionalization? To place the analysis in a meaningful context, the annual revenue requirements for each year, and each Scenario, was converted to a $/hundred cubic feet (CCF)[9]. To achieve this conversion, the total revenue requirement was divided by the estimated total flows. The total system-wide flows were the sum of each Locality's estimated flows for 2012 escalated at 1% per year for growth.

Figure 7.2 compares $/CCF costs under the two Scenarios on a system-wide basis for the 30-year period of 2013 – 2042.

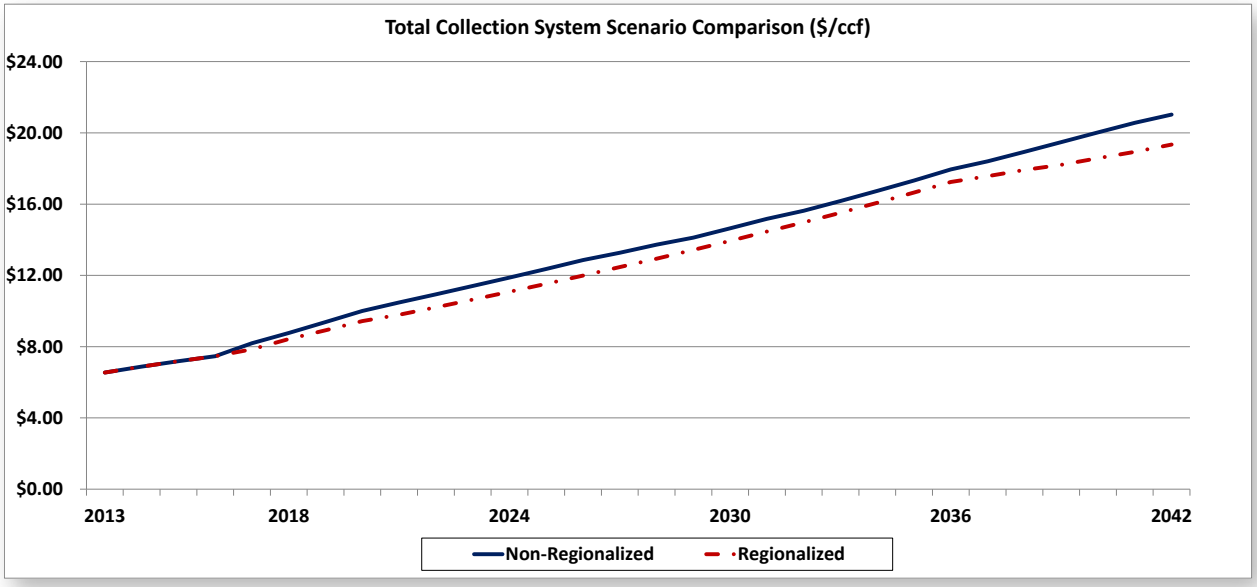


Figure 7.2 System-Wide Comparison – $/CCF

The comparisons within this analysis are based on a number of assumptions to provide an order of magnitude. With that in mind, it appears that regionalization would be beneficial to the region from a financial/rate perspective.

It should be remembered that the comparisons within this analysis are based on a number of assumptions to provide an order of magnitude comparison between the Non-Regionalized and Regionalized approaches for meeting Consent Order requirements. These analyses are not

[9] One hundred cubic feet = 748 gallons

intended to provide actual costs per CCF nor future projected rates. As noted throughout this Section of the report, there are certain costs excluded from the final per unit rates as these will be decisions by the Localities as to whether to include those costs in the future or not. In addition, actual costs and/or financing mechanisms may differ substantially from the assumptions applied for this analysis.

As can be seen from Figure 7.2, on a system-wide basis, it appears that regionalization, from a financial/rate perspective, will be beneficial to the region.

While Figure 7.2 provides a system-wide perspective, technical analyses were also developed for each individual Locality to better understand the financial/rate impacts at a local level.

7.6.2 Individual Locality Analyses

The development of scenarios for each locality used the locality-specific data provided by each utility, with adjustments to O&M funding levels, rate-funded renewal and replacement costs using the Locality's depreciation expense, and Consent Order capital costs provided in the Comparative Analysis Report.

In the case of the Regionalized Scenario, the Consent Decree capital improvements and the analysis were not developed on a Locality basis. Rather, it was developed based on HRSD implementing the capital improvements on a system-wide basis. To create the curve on Figure 7.2 for the Regionalized Scenario, the regionalized costs were allocated based on the regional flows. This produces a regionalized $/CCF rate that is the same for all Localities.

Each Locality is briefly described below, including any specifics about their financial data that should be noted. The average monthly bill for a residential customer, either as provided by each Locality or retrieved from their website, is also listed along with the average residential monthly usage. Although several of the Localities bill on a bi-monthly basis, a monthly bill is calculated for purposes of this comparison. This information is followed by the summary of the analyses results.

For each Locality, the costs of wastewater service were calculated for each Scenario on an annual basis for each year of the 30-year analysis period. Costs are compared on a $/CCF basis and an average monthly residential bill.

Costs of wastewater service, including local collection system and HRSD conveyance and treatment cost components, were calculated

for each Locality under each Scenario on an annual basis for each year of the 30-year analysis period. Costs of service under the two Scenarios are compared on a $/CCF basis (in future dollars) and an average monthly residential bill (on a net present value basis). $/CCF costs for the Non-Regionalized Scenario were calculated by dividing total annual costs by the reported annual flow for each Locality (escalated for growth at 1% per year). The uniform, region-wide $/CCF cost for the Regionalized Scenario was calculated by dividing total annual costs by the total flow from all Localities. Monthly average bills are based on Locality-specific average monthly residential customer flows for Localities that reported average monthly flow data. The region-wide average monthly flow of 7 CCF, which was provided by HRSD, was used to calculate average monthly bills for Localities that did not report average monthly flow data.

In is important to note again that the $/CCF and average monthly bill charts compare the total cost of wastewater service, including local wastewater collection plus conveyance and treatment in the regional interceptor and treatment plant system.

7.6.3 City of Chesapeake

The City serves approximately 62,000 wastewater customers, with an estimated flow of 6.3 million CCF in 2012. The average residential collection system monthly bill, as reported by the City, is $44.69 for a reported average of 9 CCFs of flow.

The City of Chesapeake operates its wastewater and water utilities as a combined utility. For any utility with combined operations it can be difficult to attribute certain costs equitably to each utility service. HDR worked with the City to attempt to allocate costs as equitably as possible between the wastewater and water operations and capital needs. Customer services and administrative costs were allocated 50%/50% to each utility, per the City's direction. The City was able to segregate operating and debt costs specific to the wastewater utility. The City's system development charges were included in the revenue as these are expended on capital projects. The City also provided asset records from which HDR calculated the sewer depreciation expense to be $4.697 million.

Consent Order capital costs are spread over a 30-year period, beginning in 2017. For the non-regional option, approximately $12 million in 2017 is debt financed. That amount is inflated annually.

Figure 7.3 presents a graphical summary of the scenario comparison for the City of Chesapeake's technical analysis on a cost per CCF basis.

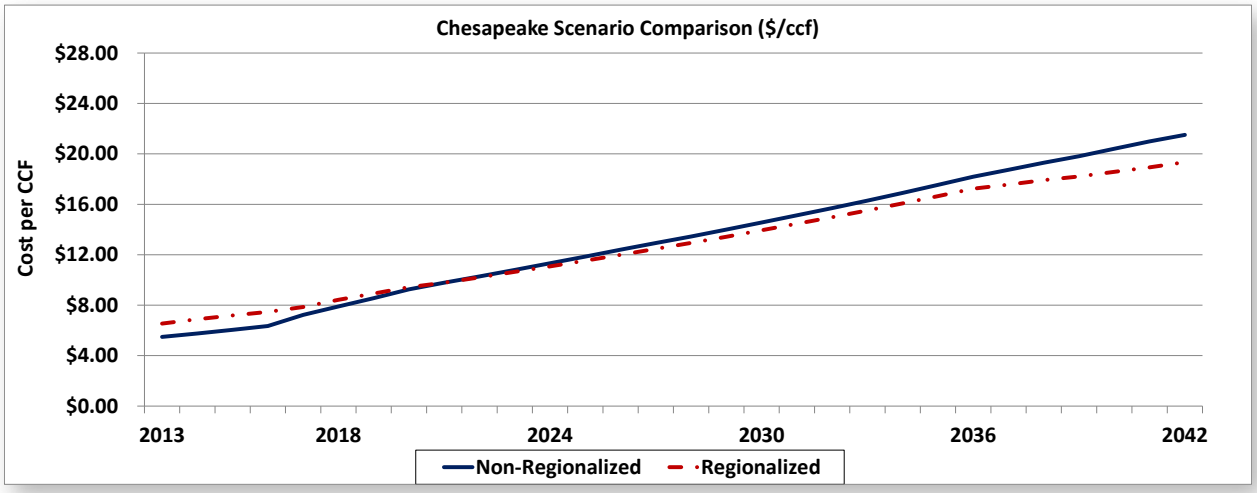


Figure 7.3 Summary of the City of Chesapeake Scenarios ($/CCF)

On a cost per CCF basis, it appears that the Regionalized Scenario would be slightly more beneficial over time to the City's customers. When comparing the different cost components (O&M, debt, capital funding from rates, and Consent Order costs) on a cost per CCF basis between the Regionalized and Non-Regionalized Scenarios, it appears that Chesapeake's collection system O&M remains lower than the regional O&M costs throughout the 30-year time period. However, the other three cost components are lower under the Regionalized Scenario.

When reviewed on a net present value basis shown in Figure 7.4, the Regionalized Scenario also provides a savings over time. Both Figures show that Chesapeake would pay slightly higher rates at the onset of regionalization but slightly lower rates after the first several years. That appears to be due to the large ending fund balance available at the beginning of the analysis review period. This balance showing is due to the combined utility and the difficulties in accurately attributing costs appropriately to each utility. Some of the balance of funds is assumed to be related to water utility expenses. However exact allocation of water expenses was not available for this analysis. Therefore, the balance appears to be related to sewer related resources. The City may want to consider carefully the overall benefits of regionalization due to the difficulties in separating costs by utility.

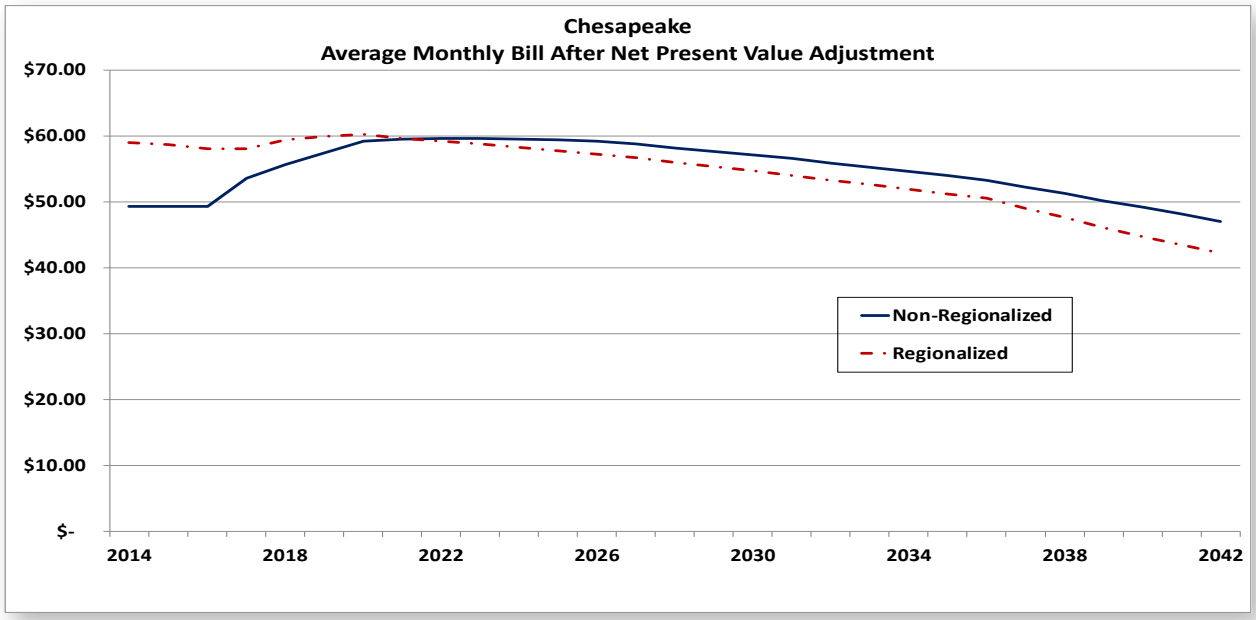


Figure 7.4 Comparison of Net Present Value of City of Chesapeake's Estimated Average Monthly Bill

7.6.4 Gloucester County

Gloucester serves approximately 1,500 wastewater customers, with an estimated flow of 170,000 CCF reported for 2012. The average residential collection system monthly bill is $28.94 for a reported average of 8 CCFs of flow, as reported by Gloucester.

Gloucester provided a completed financial data file to HDR. Depreciation expense for 2011 was based on 20% of the Department of Public Utilities total depreciation expense, at $183,000. Consent Order capital costs are spread over a 25-year period, beginning in 2017. For the non-regional option, approximately $680,000 in 2017 is debt financed. That amount is inflated annually.

Figure 7.5 presents a graphical summary of the scenario comparison for Gloucester County's technical analysis on a cost per CCF basis.

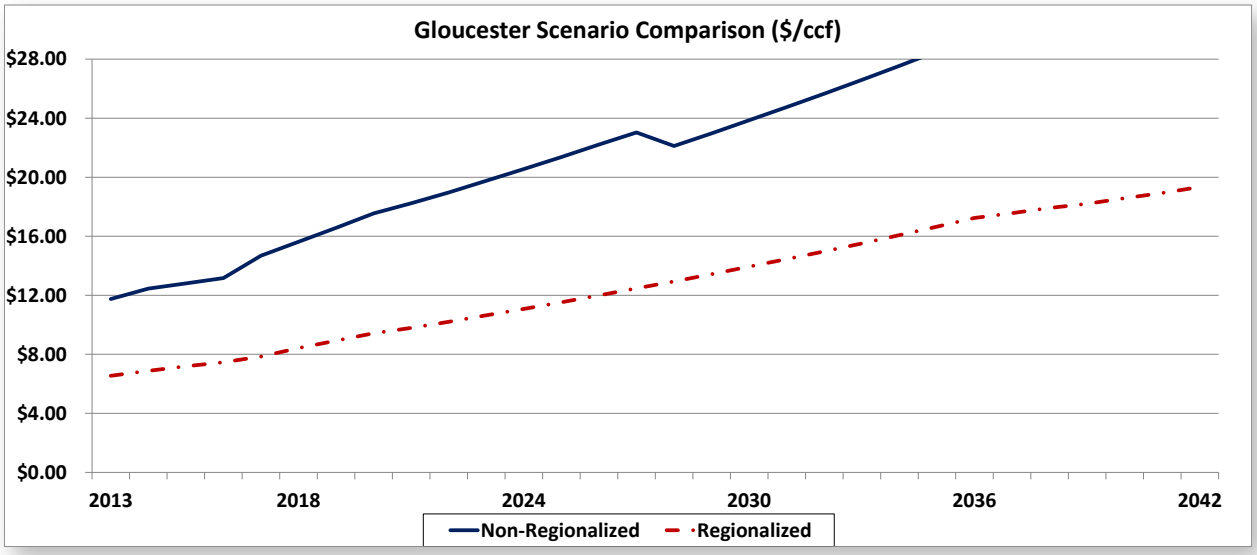


Figure 7.5 Summary of Gloucester's Regional and Non-Regional Scenarios ($/CCF)

On a cost per CCF basis, it appears that the Regionalized option would be quite beneficial to Gloucester's wastewater customers on a cost per CCF basis. The average unit cost for all cost components is much lower for the regional option than for the non-regional option for Gloucester County.

Additionally, when viewed from a net present value perspective, the regional option is much more favorable for Gloucester's customers, as presented in Figure 7.6.

These results are likely related to the fact that the data file provided indicates that current wastewater rate revenue is not fully covering the total collection system operating costs. O&M expenses and debt total over $1 million and rate revenue provided was projected to be $517,000 for 2013. Additional revenue from the General Fund of approximately $162,000 per year also aids in covering debt service payments.

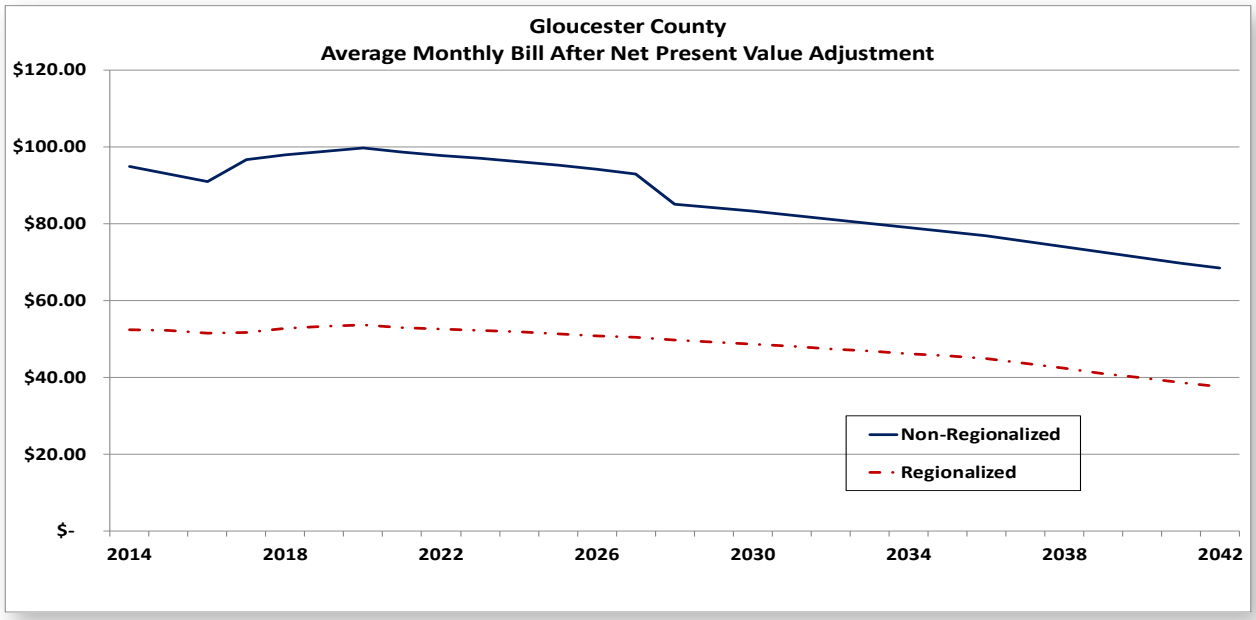


Figure 7.6 Net Present Value of Gloucester's Average Monthly Bill for Regional and Non-Regional Options

7.6.5 City of Hampton

The City of Hampton serves approximately 45,000 wastewater customers, with an estimated flow of 5.1 million CCF in 2012. The average residential collection system monthly bill, as reported by City, is $10.36 for an assumed average of 7 CCFs of flow.

The City of Hampton had budget and depreciation expenses separated for the wastewater collection system. HDR worked with the data submitted by the City to develop the data file and provided the file to the City for review. In the 2013 budget the City has allocated $3.3 million for funding Consent Order work. City data indicated that the Fiscal Year 2012 depreciation expense was $1.005 million. Hampton does have a transfer payment for "Enterprise Fund" of $456,000 in the budget for indirect cost allocation.

Consent Order capital costs for the Non-Regionalized Scenario are spread over a 25-year period, beginning in 2017. For the non-regional option, approximately $9 million in 2017 is debt financed. That amount is inflated annually over the 25-year period.

Figure 7.7 presents a scenario comparison for the City of Hampton's cost per CCF basis for this analysis.

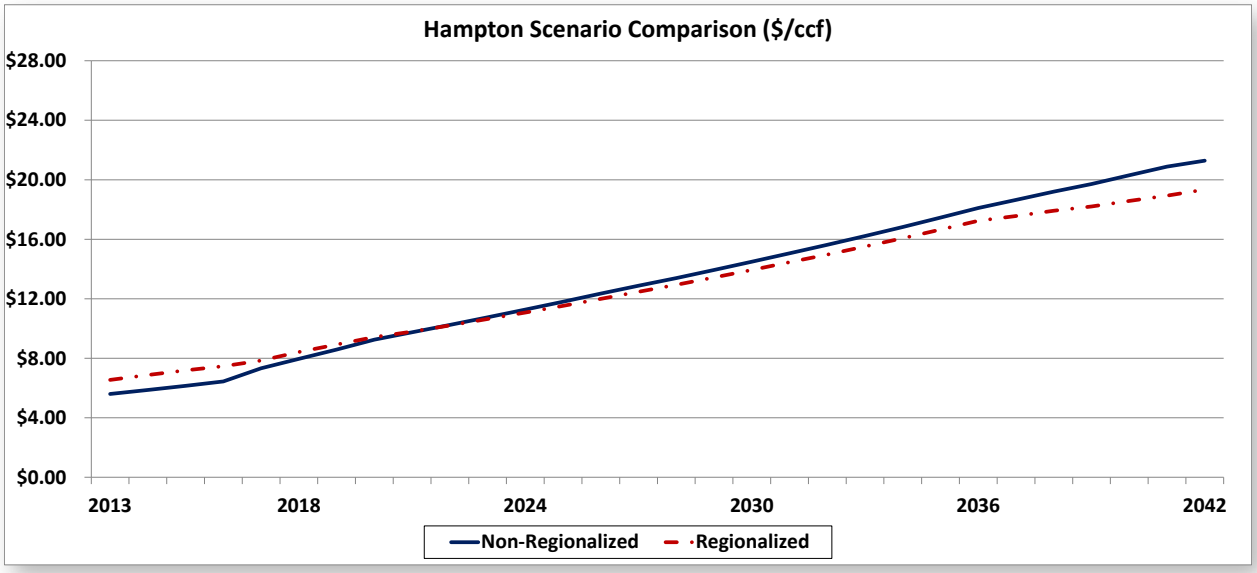


Figure 7.7 Summary of the City of Hampton Scenario Results ($/CCF)

On a cost per CCF basis, it appears that the Regionalized option would be slightly beneficial to the City's customers, but with slightly higher rates during the first several years of regionalization. The cost per CCF for debt service from 2017 through 2020 is lower under the Non-Regionalized than for the Regionalized Scenario for Hampton because the City carries no current sewer debt. Additionally, the funding from rates for capital is lower for Hampton's Non-Regionalized Scenario through 2039. However, the collection system O&M and Consent Order costs per CCF are higher for Hampton in the Non-Regionalized Scenario than for the regional option.

On a net present value basis the results are similar, as shown in Figure 7.8.

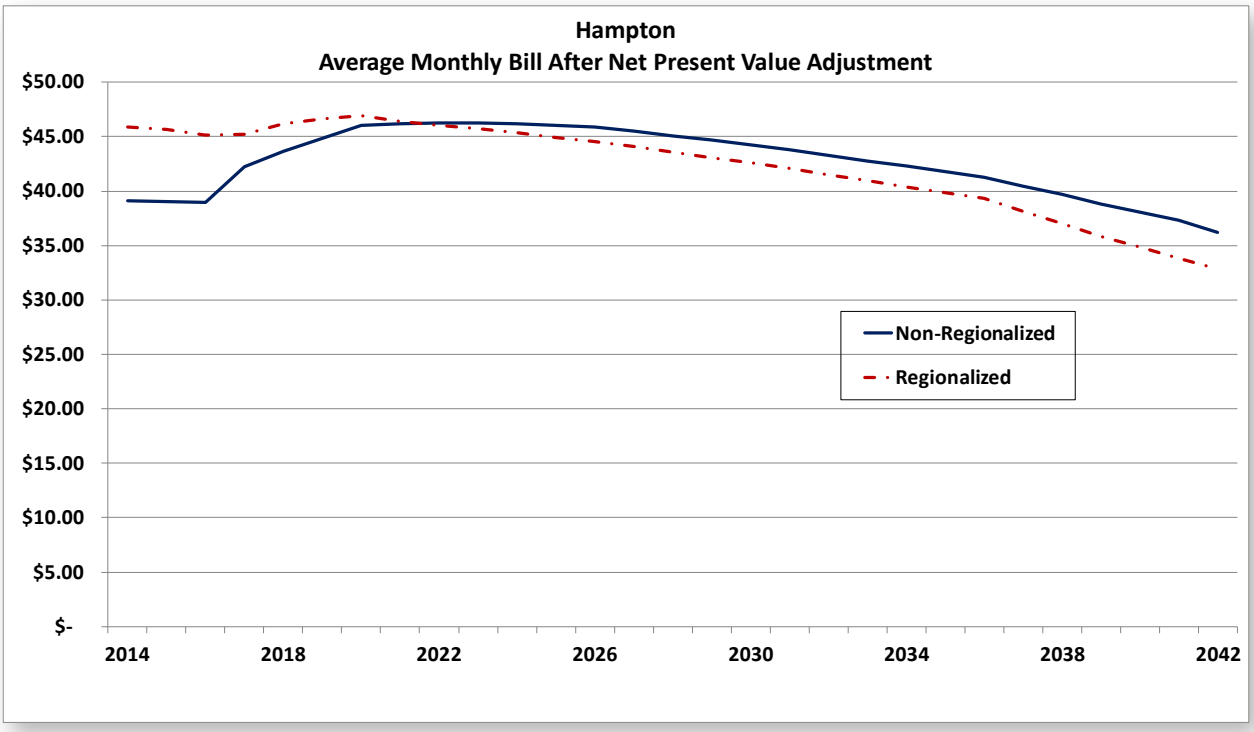


Figure 7.8 Comparison of Net Present Value of City of Hampton's Estimated Average Monthly Bill

7.6.6 Isle of Wight County

Isle of Wight County serves approximately 2,200 wastewater customers, with an estimated flow of 133,000 CCF reported by HRSD for 2012. The flow reported by the County could not be reconciled to the reported number of customers. Therefore the flow as reported by HRSD was used in the analysis. The reported average residential collection system monthly bill is $47.89 bi-monthly, or $23.95 monthly for a reported average of 4.5 CCFs of flow, per the Isle of Wight data file.

In the data file provided by Isle of Wight, depreciation expense for 2011 was reported as $436,000. Consent Order capital costs are spread over a 25-year period, beginning in 2017. Isle of Wight is one of two exceptions in the region that is projected to rate finance Consent Order capital costs under the Non-Regionalized Scenario since total capital cost (escalated) is only $168,000, or approximately $6,800 annually. Isle of Wight rate revenue appears to cover collection system operating costs and some capital. However, there is a debt payment identified during the debt analysis conducted by Davenport which does not appear to be fully funded through the wastewater rate revenue. The debt payments are listed as approximately $720,000 per year in 2013–2014 and

declining annually until retired in 2032. The regional option appears to be quite beneficial to Isle of Wight customers on a cost per CCF basis. Figure 7.9 presents the scenario comparison for Isle of Wight.

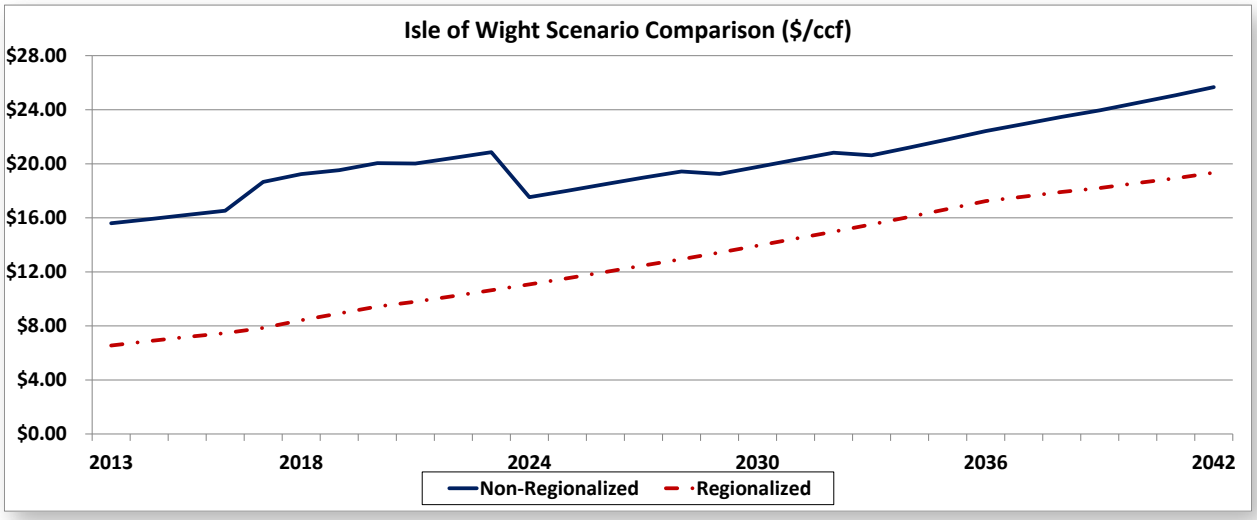


Figure 7.9 Summary of Isle of Wight's Regional and Non-Regional Scenarios ($/CCF)

The average unit cost for the regional option is much lower for all cost components than the non-regional option.

Additionally, when viewed from a net present value perspective, the regional option is much more favorable for Isle of Wight customers, as presented in Figure 7.10.

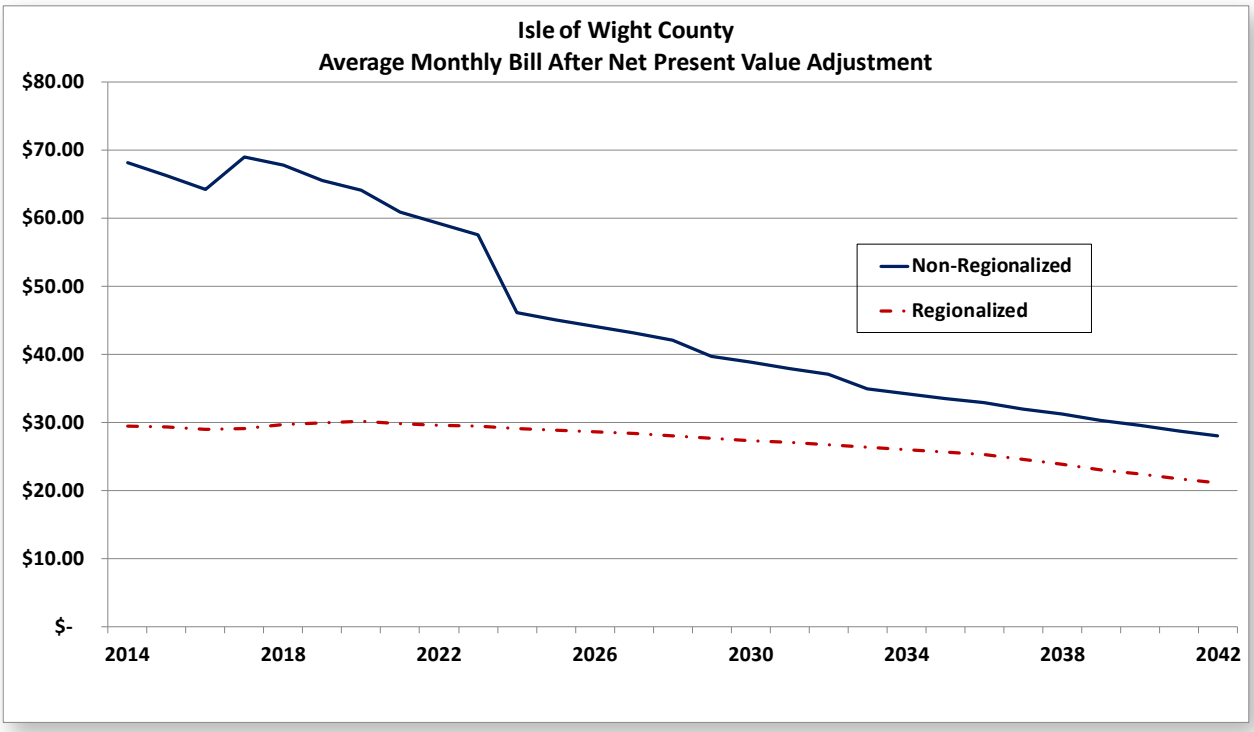


Figure 7.10 Comparison of Net Present Value of Isle of Wight's Estimated Average Monthly Bill

After the debt issue is retired the non-regional Scenario appears to be more cost effective for the County's customers in the latter part of the 30-year period. However, the savings of the first ten years, from a net present value perspective, outweigh the last 20 years, with a 30-year savings of approximately $19 million.

7.6.7 James City County Service Authority (JCSA)

JCSA serves approximately 21,000 wastewater customers, with an estimated flow of 2.3 million CCF in 2012. The average residential collection system monthly bill is $16.80 for an assumed average of 8 CCFs of flow, as reported by JCSA.

JCSA provided a relatively complete financial data file and continued to provide data throughout the project. JCSA was one of the three utilities for whom system development charge revenue was included, per the Locality's direction. In the 2013 budget JCSA allocated $750,000 to fund Consent Order work. That was funded by a recent rate adjustment. A total of $1.54 million in Consent Order work is planned for 2013. JCSA's reported 2011 depreciation expense

was $2.8 million. JCSA indicated a transfer payment of $358,500 to the County for various services provided to the Authority.

Consent Order capital costs for the Non-Regionalized Scenario are spread over a 20-year period, beginning in 2017. For the non-regional option, approximately $4.7 million is debt financed in 2017. That amount is inflated annually over the 20-year period.

Within JCSA's budget and data file there appears to be adequate funding for wastewater operations and capital.

Figure 7.11 presents a comparison of the Scenarios for JCSA's on a cost per CCF basis.

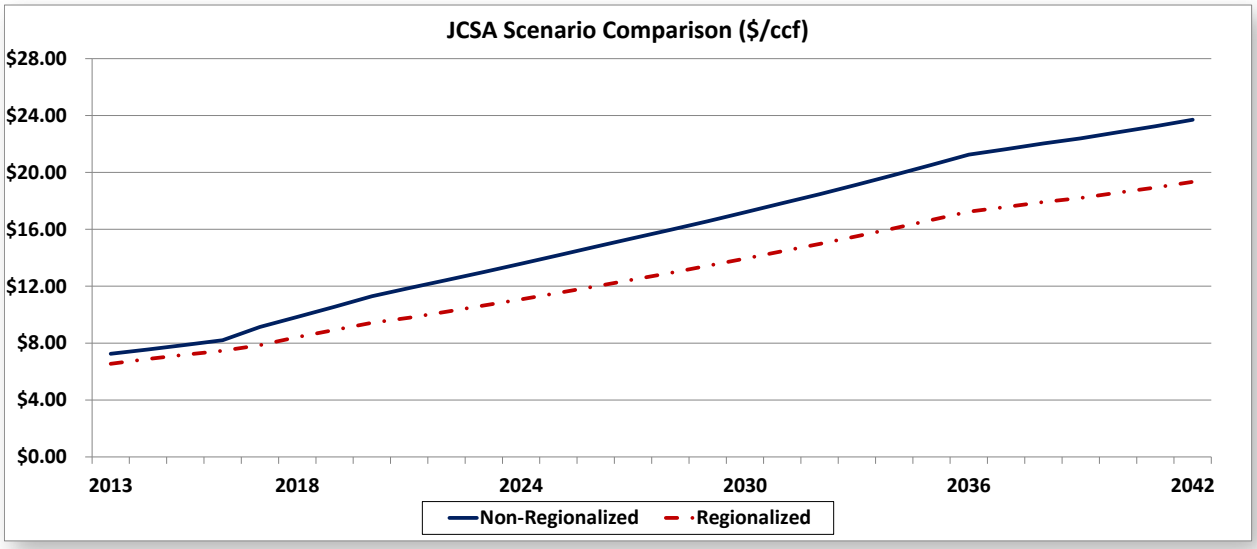


Figure 7.11 Summary of the JCSA Scenario Results ($/CCF)

On a cost per CCF basis, it appears that the Regionalized option would be beneficial to JCSA's customers. In evaluating the cost per CCF for each cost component of the regional and non-regional systems, only the non-regional debt unit cost is lower than the regional debt unit cost through 2020. Then the regional option debt also becomes lower than the non-regional option for JCSA.

From a net present value perspective, the regional option also appears to be more beneficial to JCSA's customers, as presented in Figure 7.12.

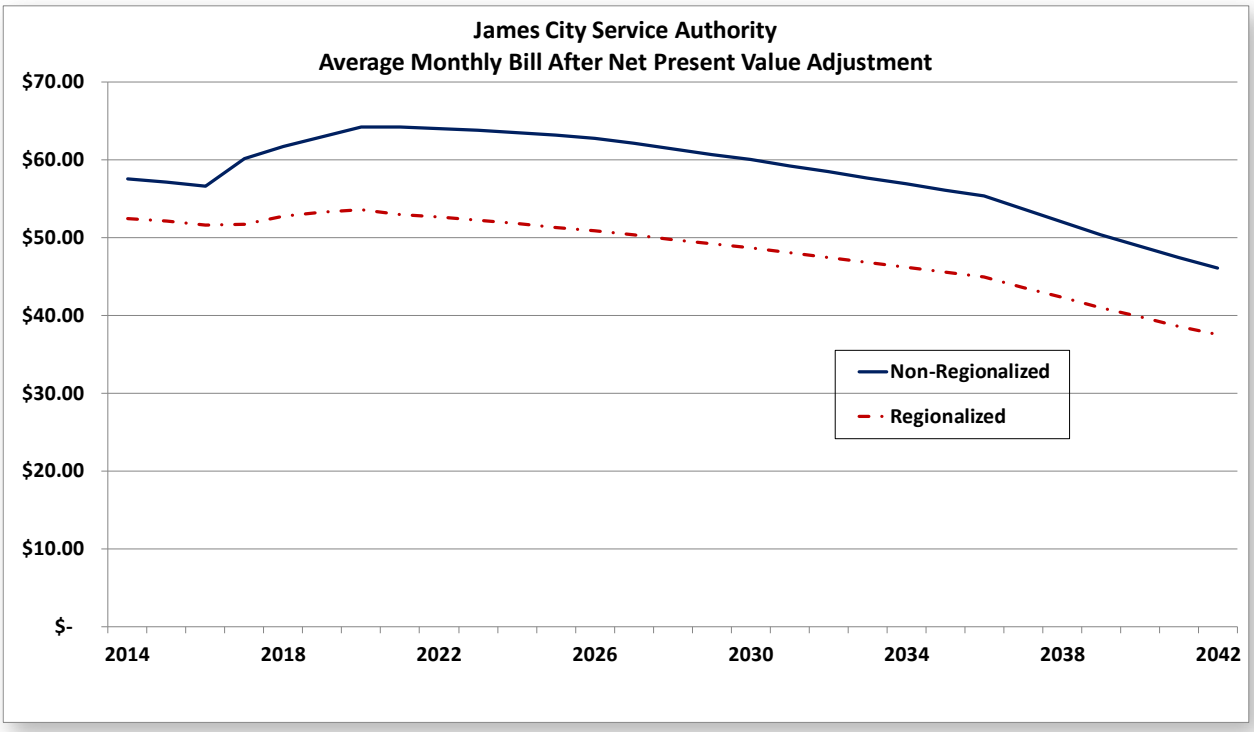


Figure 7.12 Comparison of Net Present Value of JCSA's Estimated Average Monthly Bill

7.6.8 City of Newport News

The City of Newport News serves approximately 50,000 wastewater customers, with an estimated flow of 6.9 million CCF in 2012. The average residential collection system monthly bill, as reported by the City, is $26.13 for an assumed average of 7 CCFs of flow.

HDR worked with the data submitted by the City to develop the data file and provided the file to the City for review. City data indicated that the Fiscal Year 2011 depreciation expense was $543,000. Newport News has a $750,000 transfer to the General Fund which is actually a debt repayment. Therefore, following the one-on-one meetings with the localities, this expense was reclassified as debt for the period of 2013 to 2015.

Consent Order capital costs for the Non-Regionalized Scenario are spread over a 25-year period, beginning in 2017. For the non-regional option, approximately $8 million is debt financed in 2017. That amount is inflated annually over the 25-year period.

Figure 7.13 presents a scenario comparison for the City of Newport News's cost per CCF basis for this analysis.

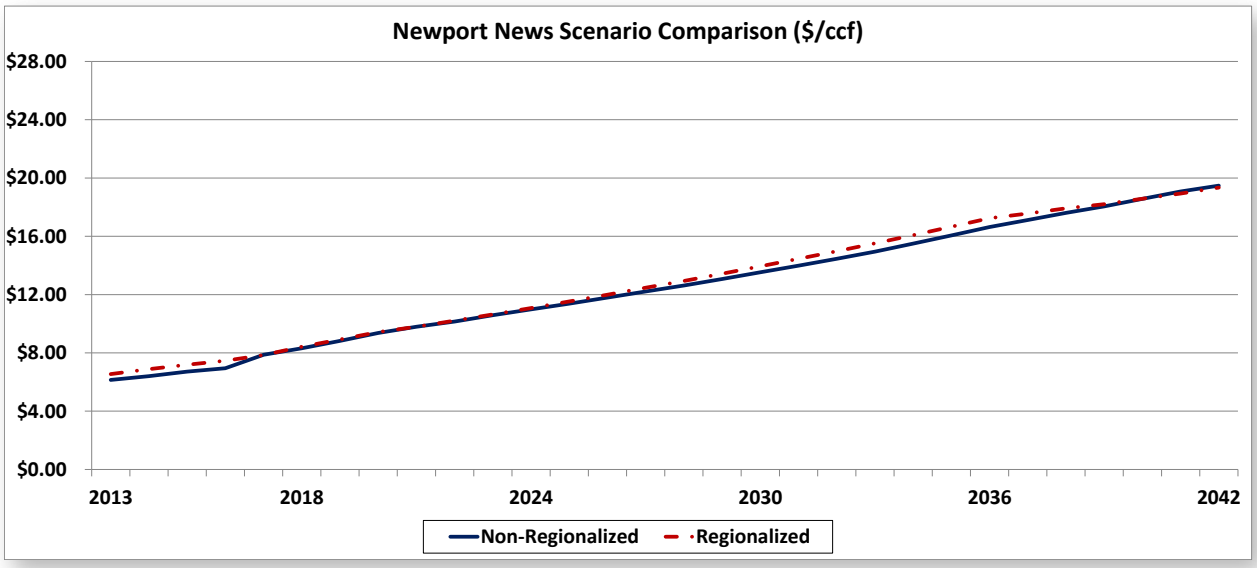


Figure 7.13 Summary of the City of Newport News Scenario Results ($/CCF)

On a cost per CCF basis, the Regionalized Scenario appears to be comparable to the Non-Regionalized Scenario. Most of the cost components for the Regionalized option are lower than the Non-Regionalized option for Newport News. However, for the Non-Regionalized Scenario, the capital funding from rates cost per CCF is lower than the Regionalized option throughout the entire 30-year period. From a net present value perspective the non-regional option is comparable to the regional option as shown in Figure 7.14.

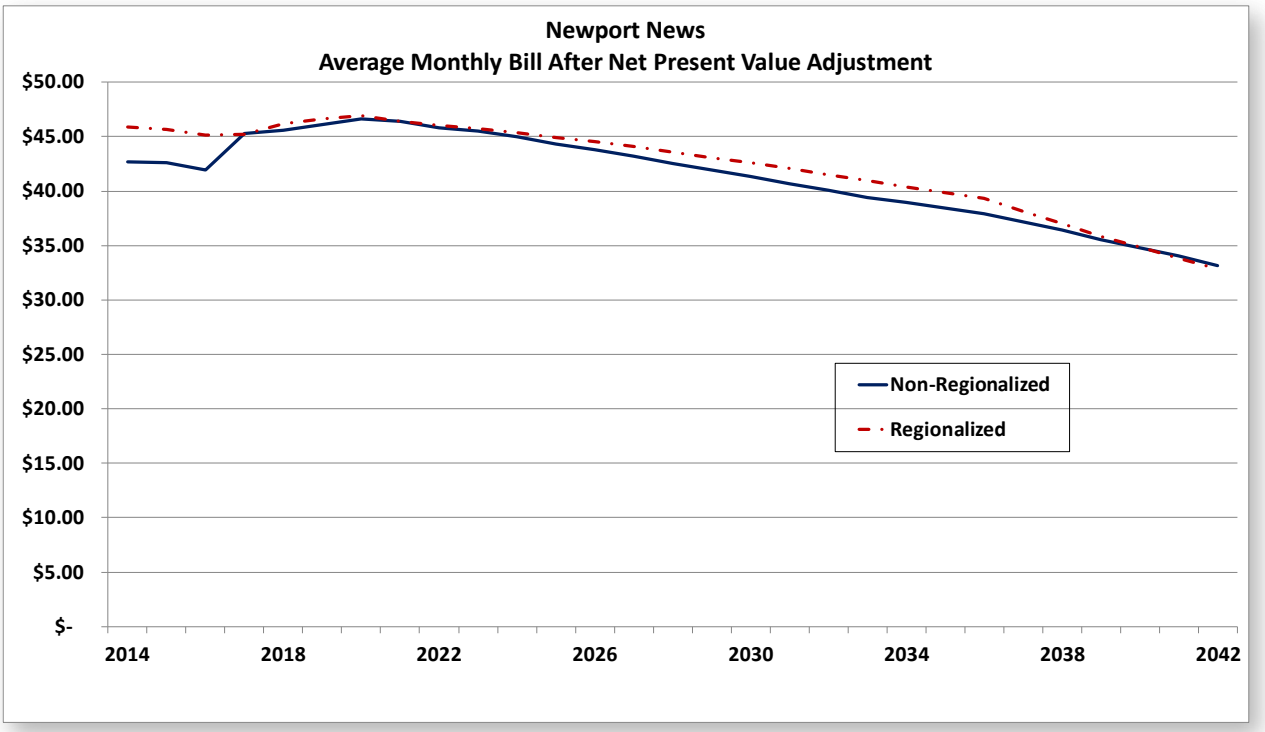


Figure 7.14 Comparison of Net Present Value of Newport News' Estimated Average Monthly Bill

7.6.9 City of Norfolk

The City of Norfolk serves approximately 64,000 wastewater customers, with an estimated flow of 7.68 million CCF in 2012. The average residential collection system monthly bill, as reported by the City, is $20.34 for an assumed average of 6 CCFs of flow.

Norfolk provided a completed data file for the project. City data indicated that the Fiscal Year 2011 depreciation expense was $4.82 million. Norfolk has a transfer and PILOT payment totaling $3.2 million.

As stated earlier in this report, Norfolk is under a separate Consent Order with HRSD and VDEQ. The capital costs identified by the City to address their Consent Order issues total $425 million, over a 25-year period. An additional $16.3 million in Locality capacity improvements are identified for Norfolk in the Comparative Analysis Report under the Non-Regionalized Scenario. For the Non-Regionalized Scenario approximately $20 million in total Consent Order capital improvements is debt financed in 2017. That amount is inflated annually over the 25-year period.

Figure 7.15 presents a scenario comparison for Norfolk on a cost per CCF basis.

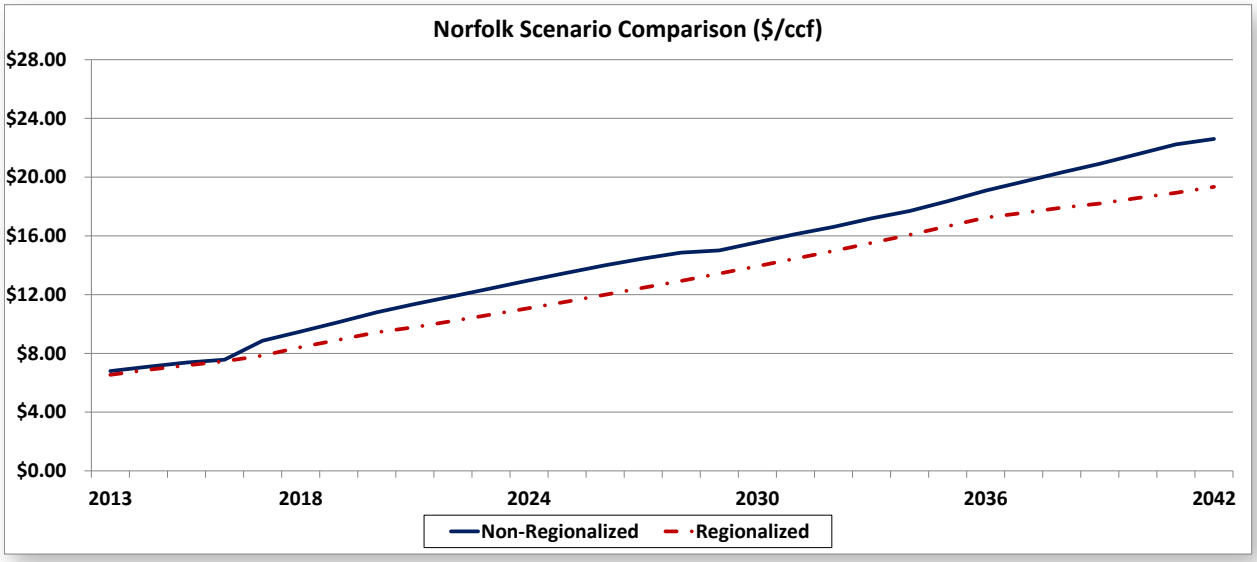


Figure 7.15 Summary of the City of Norfolk Scenario Results ($/CCF)

As Figure 7.15 indicates, the regional option is more favorable to the City of Norfolk's customers from an average cost per CCF perspective. All cost components in the regional system were lower than the non-regional option except the collection system costs, which were $0.10 to $0.12 lower per CCF under the non-regional approach.

From a net present value perspective, the regional option again appears to be more beneficial to the City's customers, as presented in Figure 7.16.

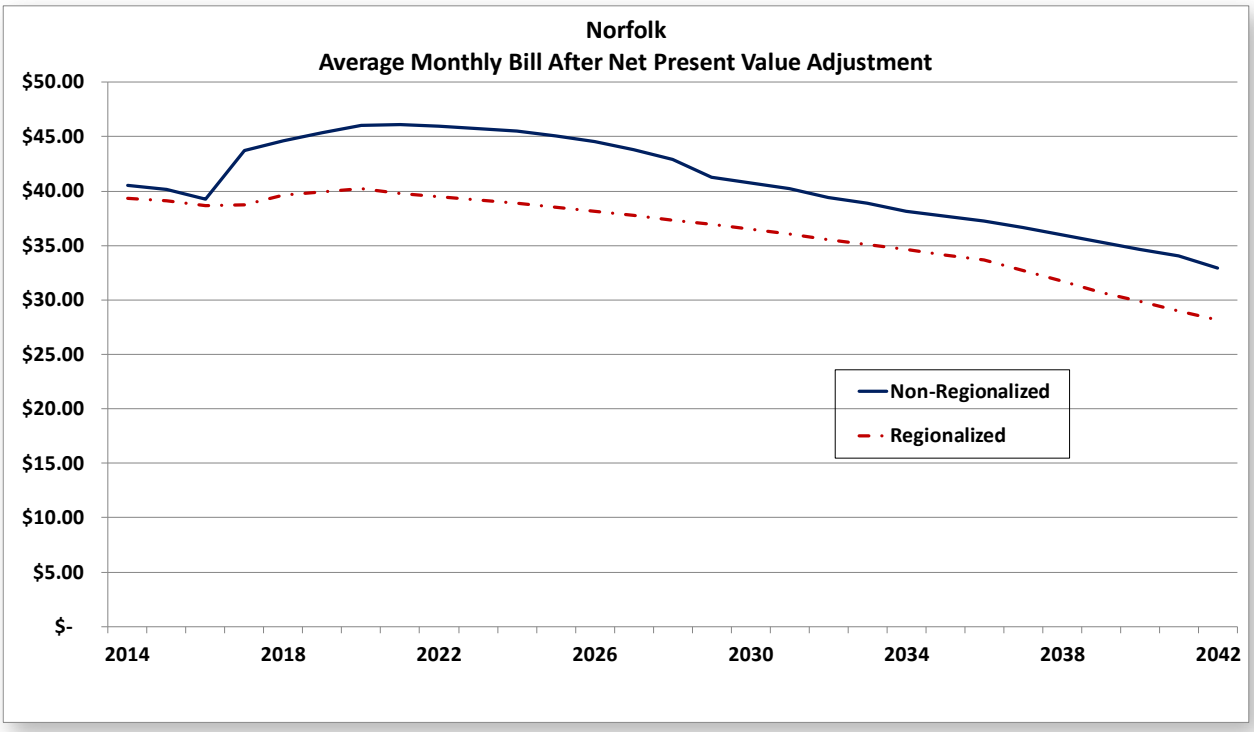


Figure 7.16 Comparison of Net Present Value of Norfolk's Estimated Average Monthly Bill

7.6.10 City of Poquoson

The City of Poquoson serves approximately 4,800 wastewater customers, with an estimated flow of 372,000 CCF in 2012. The average residential collection system bill is a flat rate of $25.00 per month for an assumed average of 7 CCFs of flow, based on the HRSD system average of 7 CCF.

HDR used data provided by the City to develop the financial data file, which was provided to the City for review. The 2013 budget indicated a wastewater system depreciation expense of 615,000. Poquoson has a transfer payment of $130,000 for indirect cost allocation. The City's budget indicates that operating costs are fully funded by utility revenue.

Non-regional capital costs identified for the City total $17 million over a 25-year period. For the non-regional option, approximately $690,000 is debt financed in 2017. That amount is inflated annually over the 25-year period.

All cost components for Poquoson are lower under the regional option than the non-regional option on a cost per CCF basis. Figure 7.17 presents a scenario comparison for Poquoson on a cost per CCF basis.

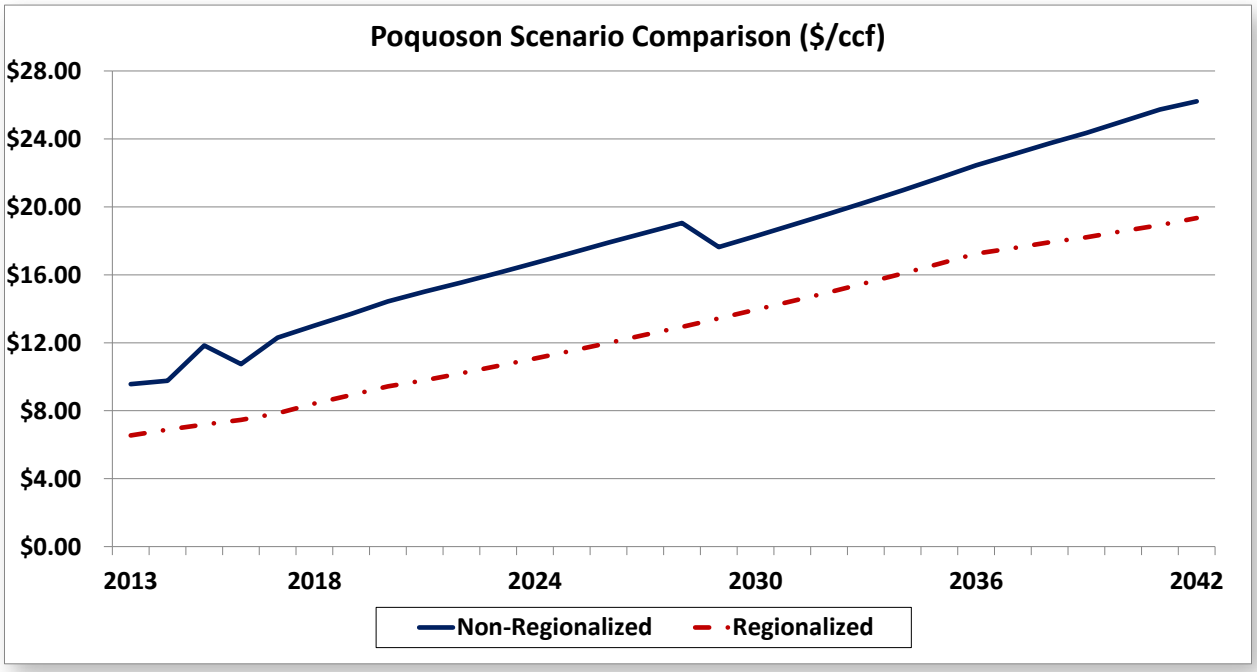


Figure 7.17 Summary of the City of Poquoson Scenario Results ($/CCF)

As Figure 7.17 indicates, the regional option is significantly more favorable to the City's customers from an average cost per CCF basis.

From a net present value perspective, the regional option is again financially more beneficial to the City's customers, as presented in Figure 7.18.

Figure 7.18 indicates the regional option is more favorable to the City's wastewater customers from a financial perspective. The drop in the rate in both charts for the non-regional costs in 2015 and 2028 is related to a debt payoff in 2015 and the retirement of the remainder of existing debt in 2028.

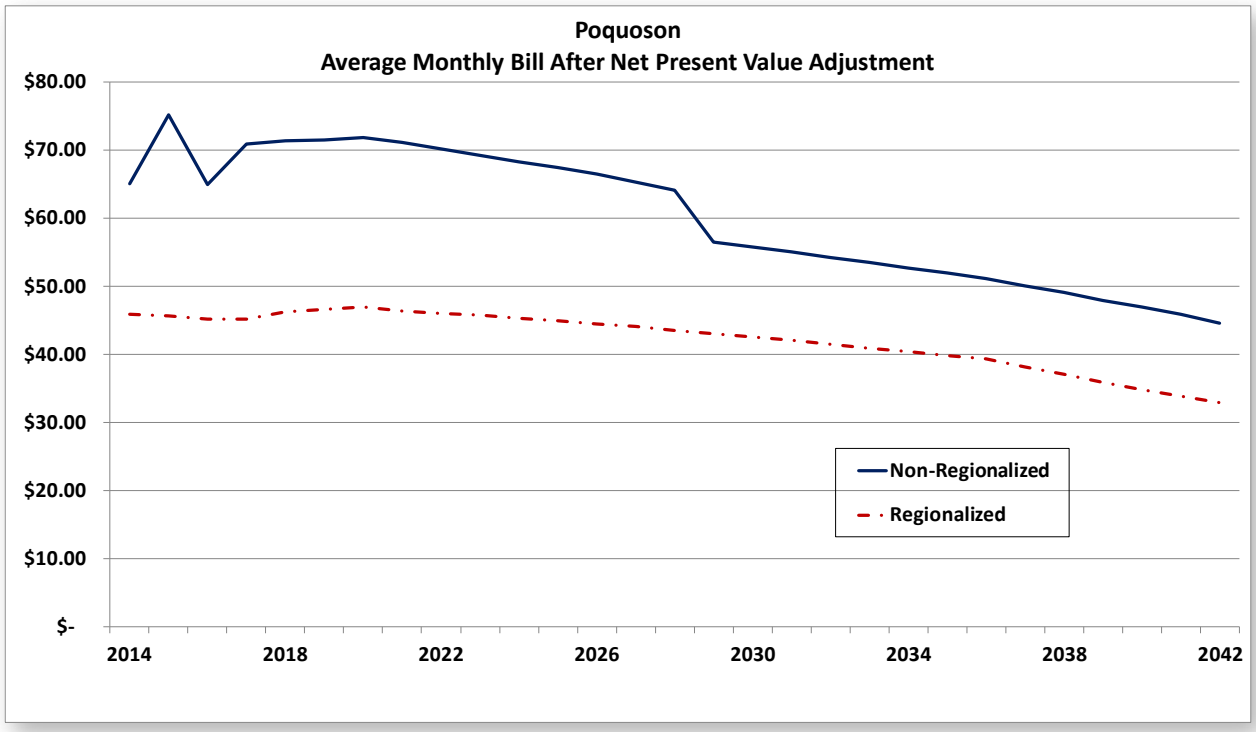


Figure 7.18 Comparison of Net Present Value of Poquoson's Estimated Average Monthly Bill

7.6.11 City of Portsmouth

The City of Portsmouth serves approximately 32,500 wastewater customers, with an estimated flow of 3.69 million CCF in 2012. The average residential collection system bill is $19.46 per month for an assumed average of 7 CCFs of flow.

The City operates the water and wastewater utilities on a combined basis and worked with HDR to segregate wastewater expenses to the degree possible. HDR used data provided by the City to develop the financial data file, which was provided to the City for review. The City then provided additional data. The wastewater system depreciation expense was determined by applying 22% to the total utility depreciation expense, to derive a depreciation expense of $1 million. The 22% represents the sewer utility's proportion of total utility rate revenue, including all water utility rate revenue. Portsmouth has two tax and transfer payments. There is a PILOT of $535,000 and a transfer for indirect costs of $377,000 in 2013.

Non-regional capital costs identified for the City total $278 million over a 30-year period. For the non-regional option, approximately $11.3 million is debt financed in 2017. That amount is inflated annually over the 30-year period. Figure 7.19 presents a scenario comparison for Portsmouth on a cost per CCF basis.

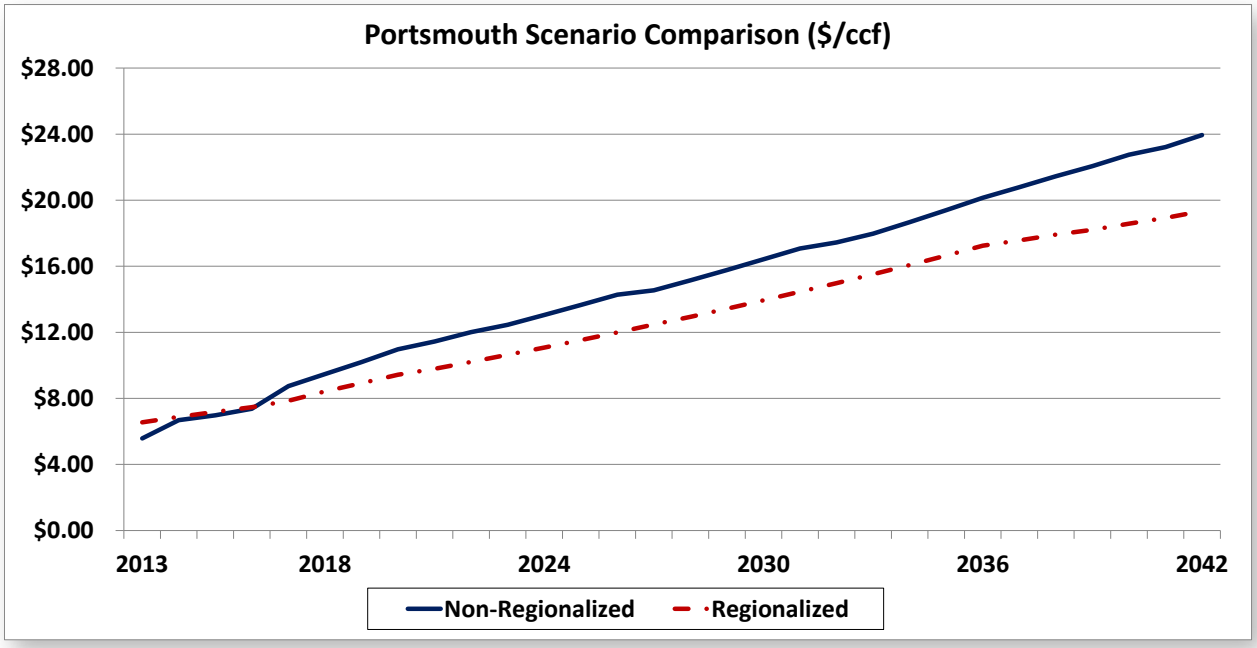


Figure 7.19 Summary of the City of Portsmouth Scenario Results ($/CCF)

As Figure 7.19 indicates, the regional option is more favorable to the City's customers from an average cost per CCF basis. For Portsmouth all of the regional costs per CCF are lower than the non-regional costs. The collection cost per CCF is just about the same for both options. Debt, rate funding and the Consent Order costs make the regional option more favorable for the City.

From a net present value perspective, the regional option is again financially more beneficial to the City's customers, as presented in Figure 7.20.

Figure 7.20 indicates the regional option is more favorable to the City's wastewater customers from a financial perspective starting around 2022. The irregularities in both charts for the non-regional costs and the Funding Depreciation comparison scenario are related to the structuring of existing debt payments.

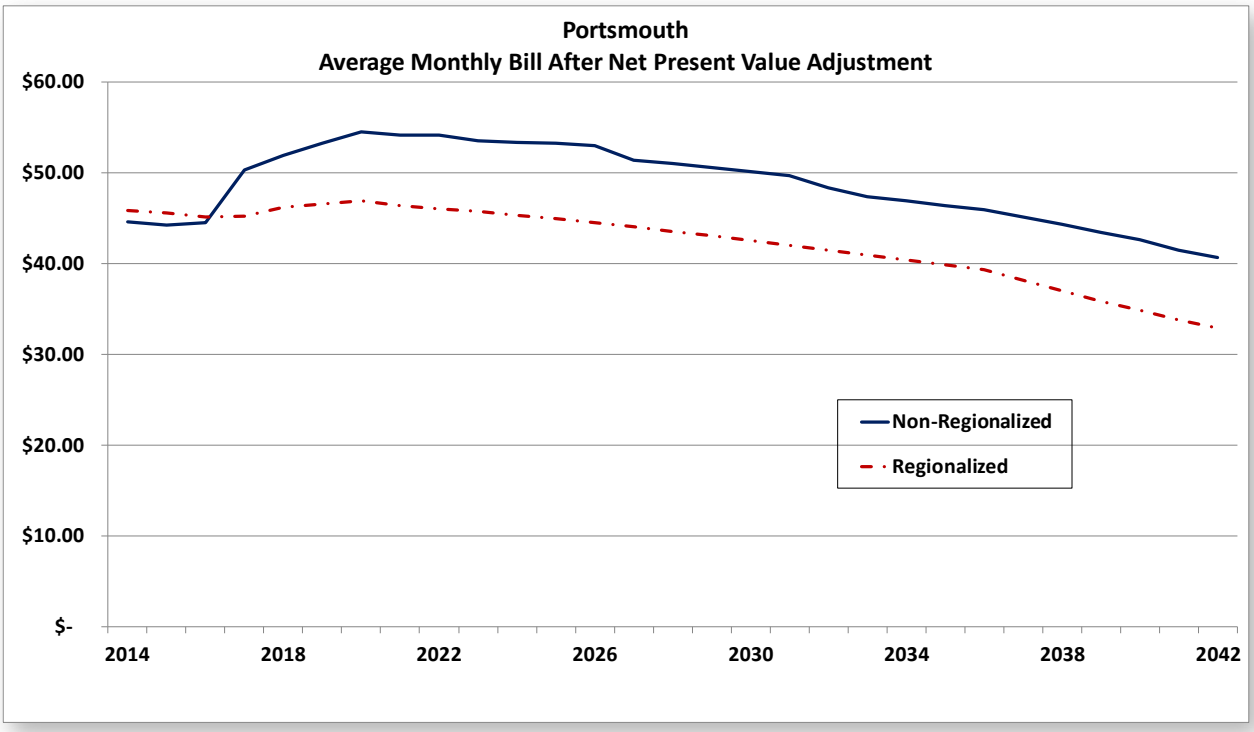


Figure 7.20 Comparison of Net Present Value of Portsmouth's Estimated Average Monthly Bill

7.6.12 Town of Smithfield

The Town serves approximately 3,300 wastewater customers, with an estimated flow of 265,000 CCF in 2012. The average residential collection system monthly bill, as reported by the Town, is $27.82(or $55.64 bi-monthly) for a reported average of 6 CCFs of flow per month.

Smithfield provided a financial data file to HDR. The Town brings in over $800,000 in regular rate revenue and currently has projected an additional $490,000 per year for Consent Order work. The revenue fully funds current operating and capital needs. Annual depreciation expense for 2011 is reported as $421,000. Smithfield's 2013 budget has a transfer of $92,000 to the General Fund for indirect cost allocations. Additionally, there is a $1,000 transfer to HRPDC.

Consent Order capital costs are estimated at a total of $4.2 million spread over a 20-year period. For the non-regional option, approximately $215,000 is cash financed beginning in 2017. That amount is inflated annually.

Figure 7.21 presents a graphical summary of the scenario comparison for Smithfield's technical analysis on a cost per CCF basis.

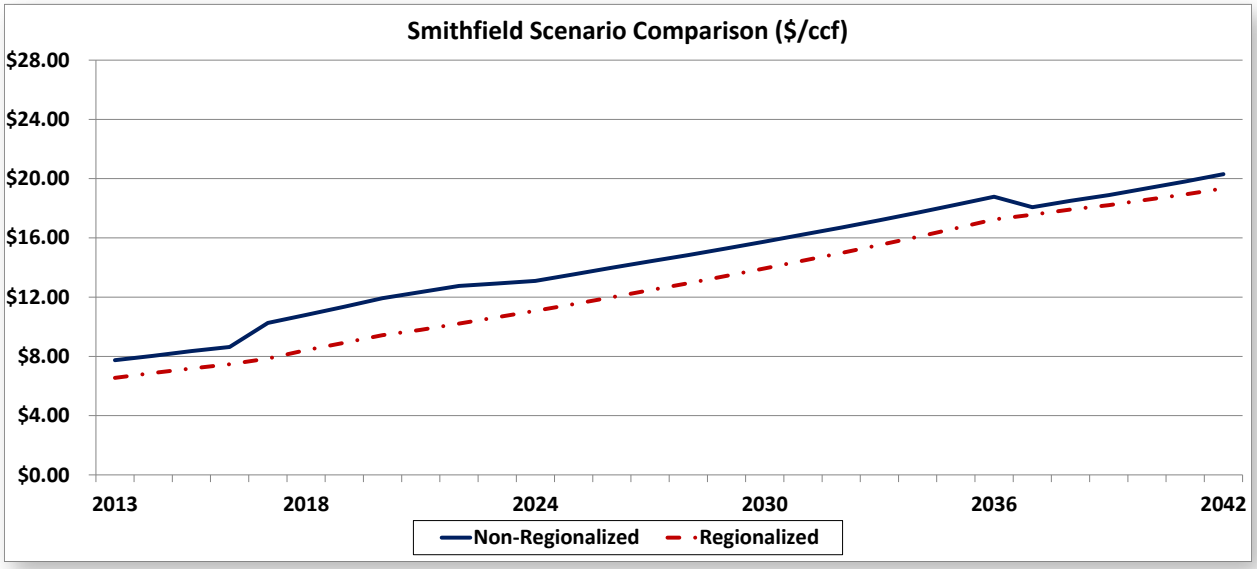


Figure 7.21 Summary of Smithfield's Regional Scenarios ($/CCF)

On a cost per CCF basis the Regionalized option appears to be beneficial to the Town's customers up until the last few years of the analysis period, when the cash financing of the Consent Order projects ends. All regional cost components except debt are lower than the non-regional cost components on a $/CCF basis. The net present value of these expenses over the 30 year period is shown in Figure 7.22. The net present value shifts as the Town's existing debt payments are retired.

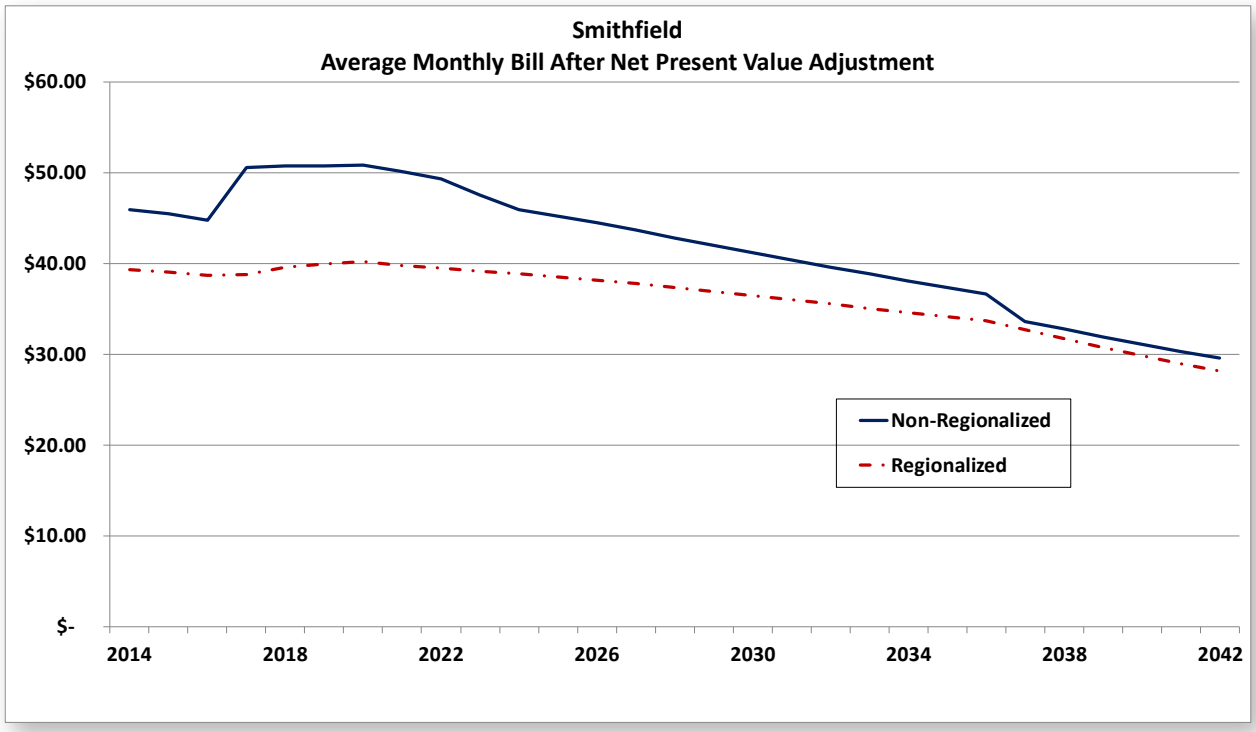


Figure 7.22 Comparison of Net Present Value of Smithfield's Estimated Average Monthly Bill

7.6.13 City of Suffolk

The City of Suffolk serves approximately 21,000 wastewater customers, with an estimated flow of 3.69 million CCF in 2012. The average residential collection system bill is $34.12 per month for an assumed average of 6.5 CCFs of flow.

The City operates the water and wastewater utilities on a combined basis and worked with HDR to segregate wastewater expenses to the degree possible. Additionally, the City provided a copy of the sewer utility rate model which contained some necessary financial data. HDR used data provided by the City to develop the financial data file, which was provided to the City for review. The City then provided comments. The wastewater system depreciation expense was determined to be approximately $2.5 million, based on other Hampton Roads utilities of similar size. Suffolk has a $270,000 transfer to General Fund for indirect costs.

Non-regional capital costs identified for the City are approximately $50 million implemented over a 15-year period. For the non-regional option, approximately $3 million is debt financed in 2017. That amount is inflated annually over the 15-year period.

Figure 7.23 presents a scenario comparison for Suffolk on a cost per CCF basis.

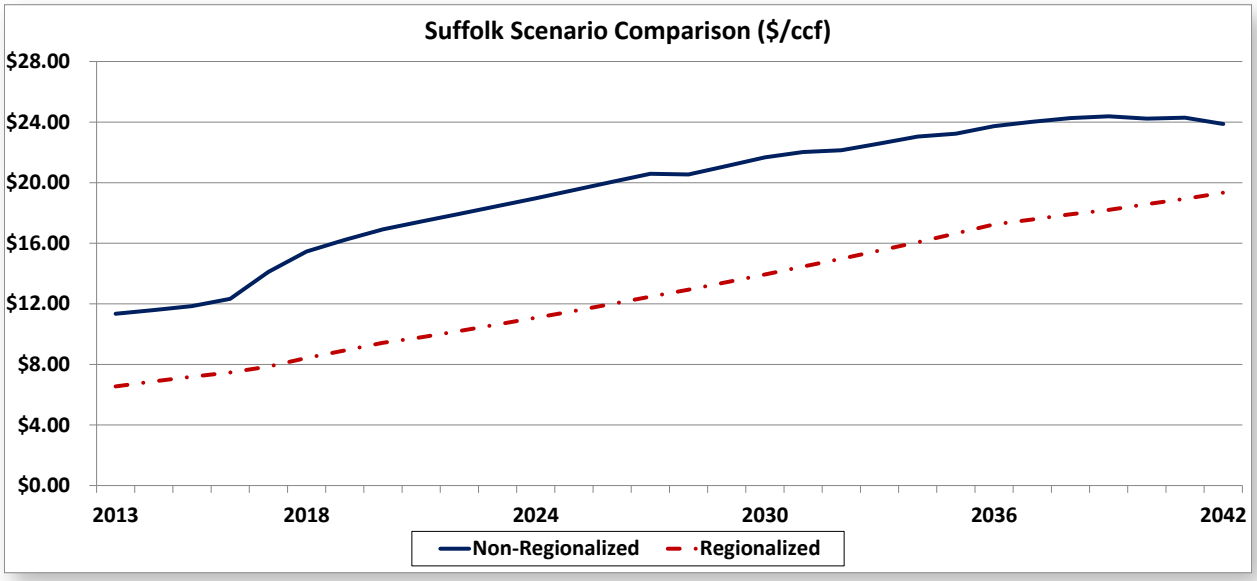


Figure 7.23 Summary of the City of Suffolk Scenario Results ($/CCF)

As Figure 7.23 indicates, the regional option is much more favorable to the City's customers from an average cost per CCF basis.

From a net present value perspective, the regional average monthly bill is significantly more financially beneficial to the City's customers as presented in Figure 7.24.

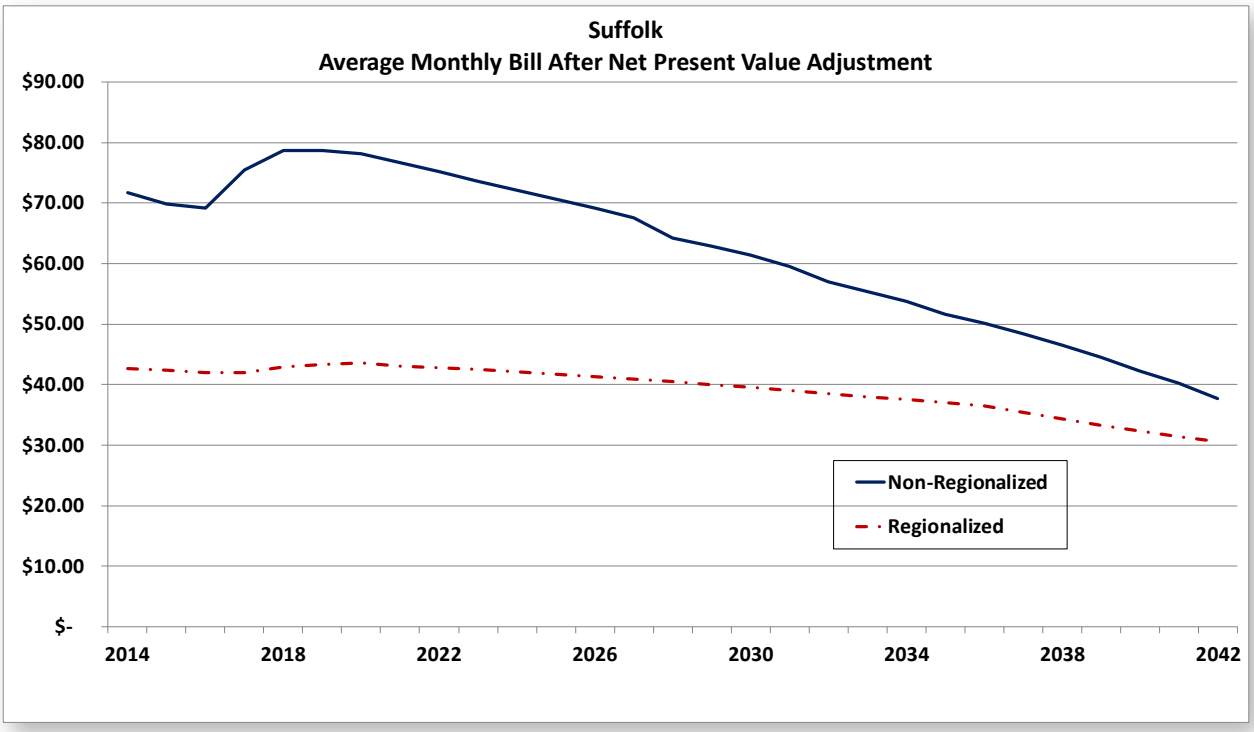


Figure 7.24 Comparison of Net Present Value of Suffolk's Estimated Average Monthly Bill

7.6.14 City of Virginia Beach

The City of Virginia Beach serves approximately 129,000 wastewater customers, with an estimated flow of 14.9 million CCF in 2012. The average residential collection system bill is $24.86 per month. No average residential flow was provided.

The City provided a financial data file. The wastewater system 2011 depreciation expense was estimated to be $11.2 million, 55% of the total combined utilities depreciation. Virginia Beach has an indirect cost transfer to General Fund of $2.8 million and a $2 million PILOT payment in the 2013 budget. Wastewater rate revenue more than fully funds wastewater operating and capital expenses for the first several years of the analysis.

Non-regional capital costs identified for the City are approximately $470 million implemented over a 30-year period. For the non-regional option, approximately $16 million is debt financed in 2017. That amount is inflated annually over the 30-year period.

Figure 7.25 presents a scenario comparison for Virginia Beach on a cost per CCF basis.

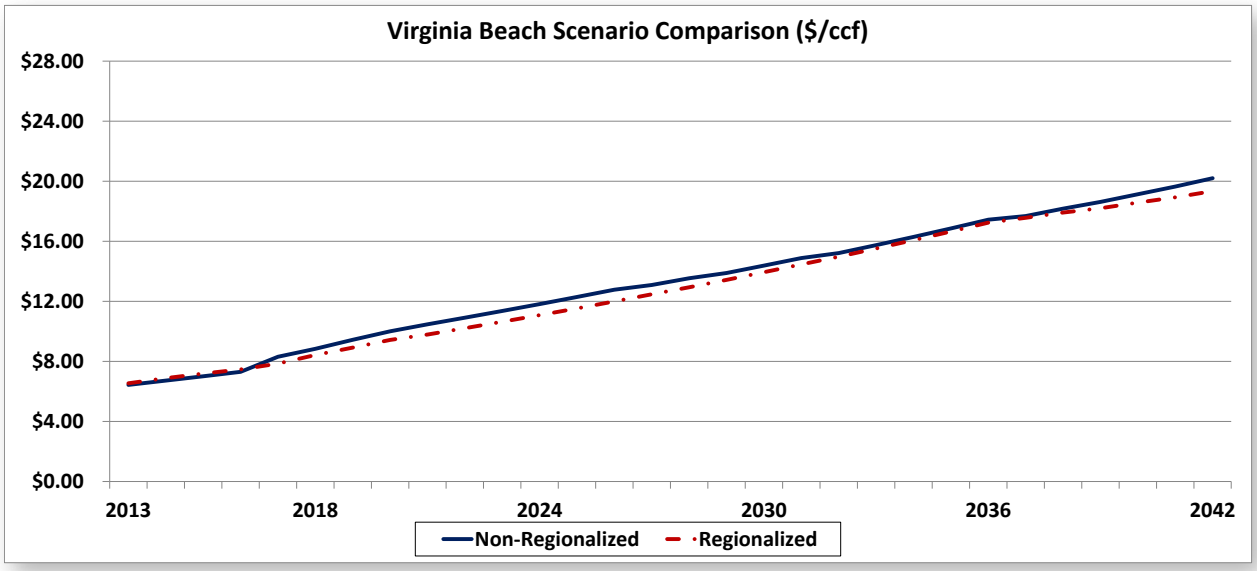


Figure 7.25 Summary of the City of Virginia Beach Scenario Results ($/CCF)

As Figure 7.25 indicates, the regional and non-regional options are comparable on an average unit cost perspective.

From a net present value viewpoint, the regional option is slightly more financially beneficial to the City's customers, as presented in Figure 7.26.

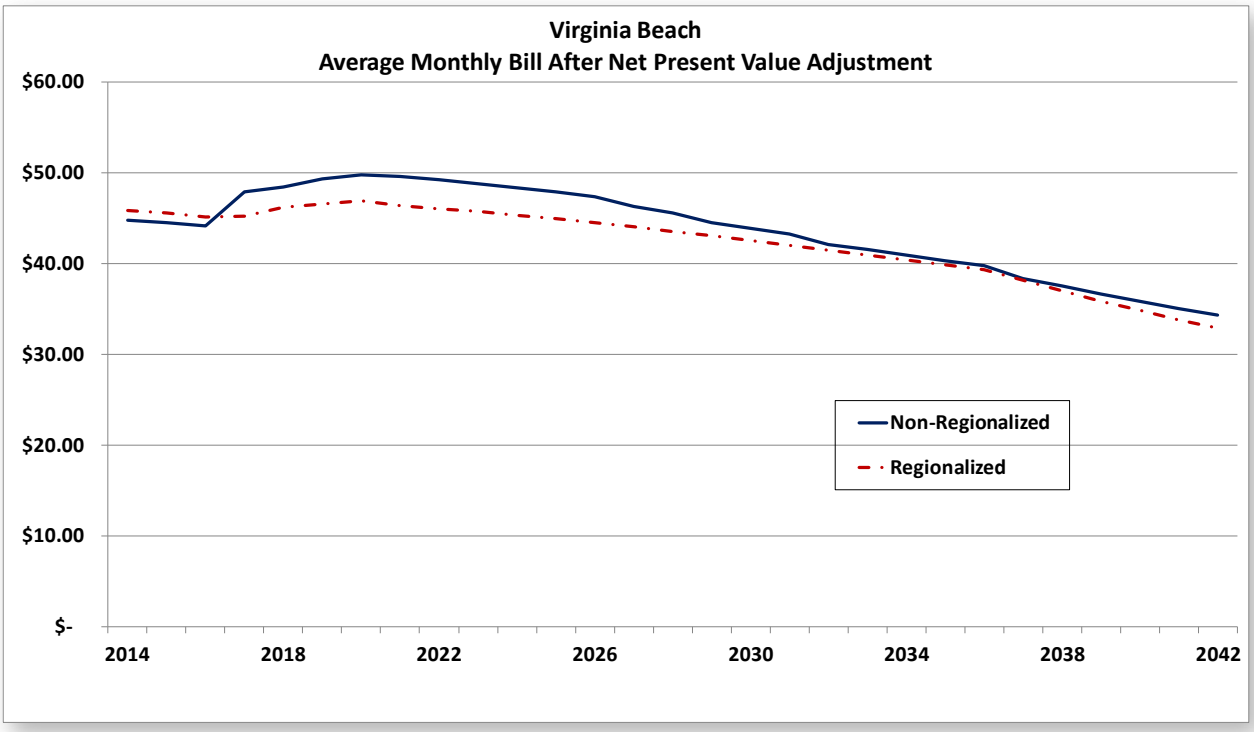


Figure 7.26 Comparison of Net Present Value of Virginia Beach's Estimated Average Monthly Bill

7.6.15 City of Williamsburg

The City serves approximately 3,500 wastewater customers, with an estimated flow of 900,000 CCF for 2012. As described by the City, this total flow includes several large institutional and commercial customers. The average residential collection system monthly bill is $2.89 (not including the HRSD treatment rate) for a reported average of 7 CCFs of flow.

Williamsburg provided a financial data file and followed-up with responses to clarify data. Depreciation expense for 2011 was reported and confirmed to be $56,000. After the one-on-one meetings with the localities the City provided revised flow, customer, and average rate information. The revised flow more accurately represents customers' actual flow and revised the results fairly dramatically for the City from the draft report results.

Consent Order capital costs total approximately $24 million over a 20-year implementation period, beginning in 2017. For the non-regional option, approximately $1.2 million in 2017 is debt financed. That amount is increased annually for inflation.

Figure 7.27 presents a graphical summary of the scenario comparison for Williamsburg County's technical analysis on a cost per CCF basis, including both the local collection system and HRSD treatment rate components.

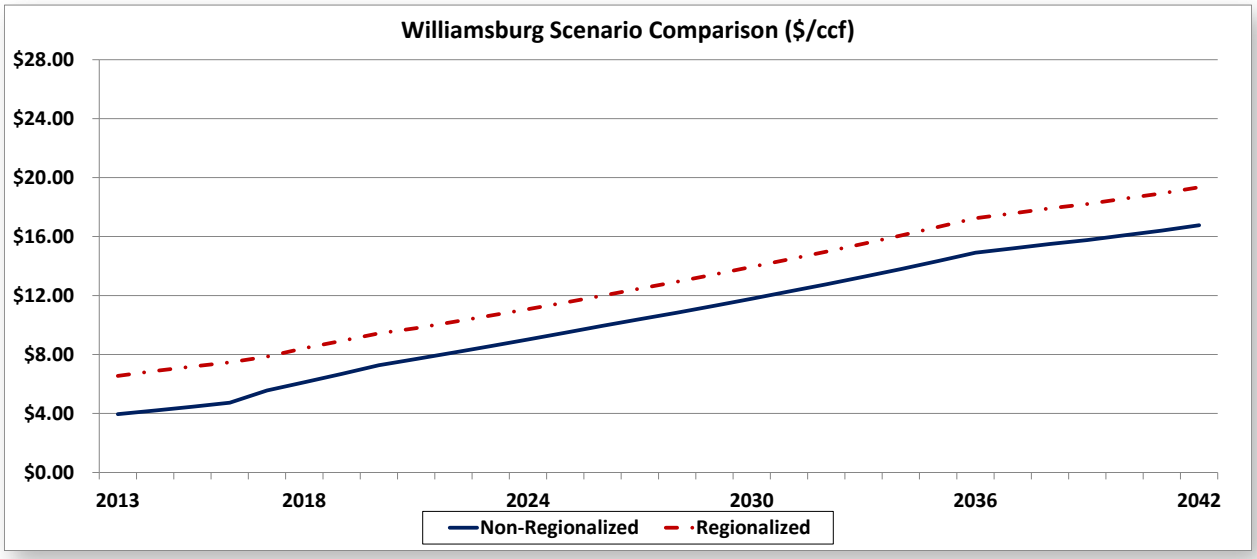


Figure 7.27 Summary of Williamsburg's Scenario Results ($/CCF)

As Figure 7.27 indicates, the non-regional option appears to be financially more favorable for the City's customers from an average cost per unit. The lower $/CCF cost under the Non-Regionalized Scenario is attributed to the City's lack of existing sewer debt and their low local collection system component of the overall wastewater rate.

The net present value analysis of both options indicates similar results, as presented in Figure 7.28.

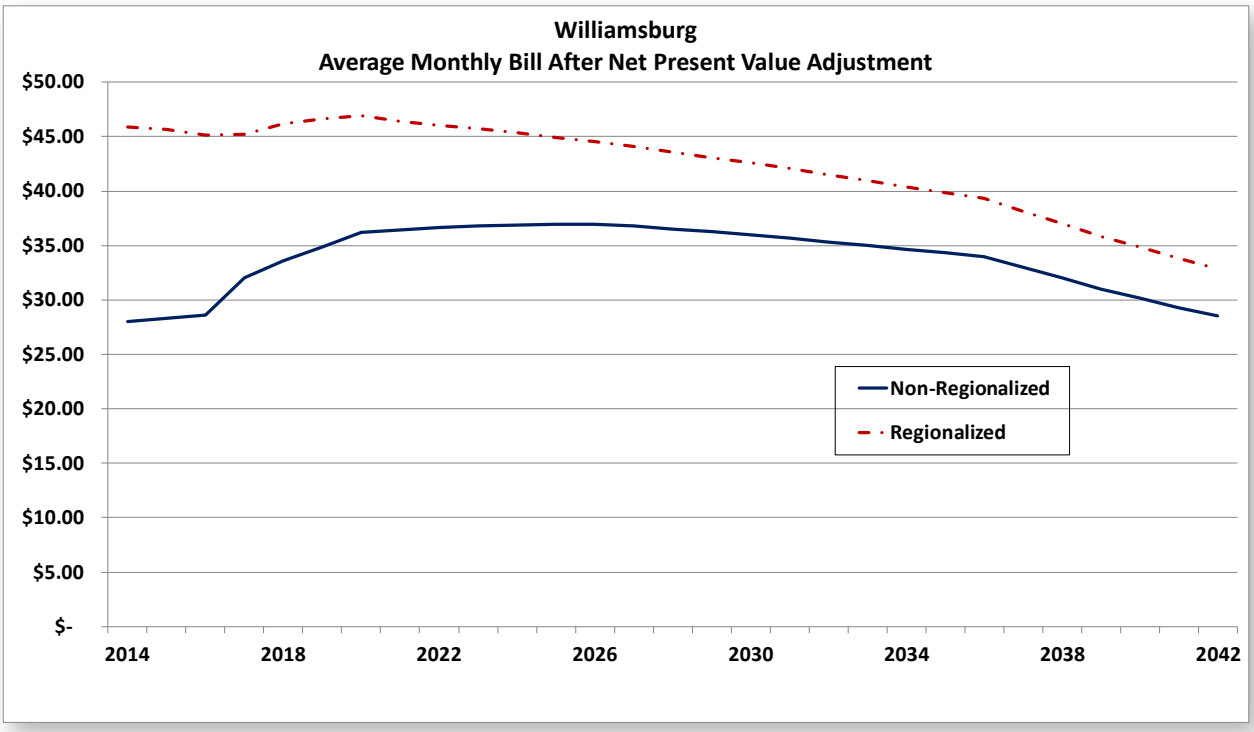


Figure 7.28 Comparison of Net Present Value of Williamsburg's Estimated Average Monthly Bill

7.6.16 York County

York County serves approximately 20,000 wastewater customers, with an estimated flow of 1.7 million CCF for 2012. The average residential collection system monthly bill is a flat rate of $22.00 ($44.00 bi-monthly).

HDR developed a data file from data provided by the County and provided the file to the County for review. The County's data indicates that revenue adequately covers wastewater O&M and capital expenses. Depreciation expense for 2011 was reported and confirmed to be $2.8 million.

Consent Order capital costs total approximately $82 million over a 25-year implementation period, beginning in 2017. For the non-regional option, approximately $3.3 million in 2017 is debt financed. That amount is increased annually for inflation.

Figure 7.29 presents a graphical summary of the scenario comparison for York County's technical analysis on a cost per CCF basis.

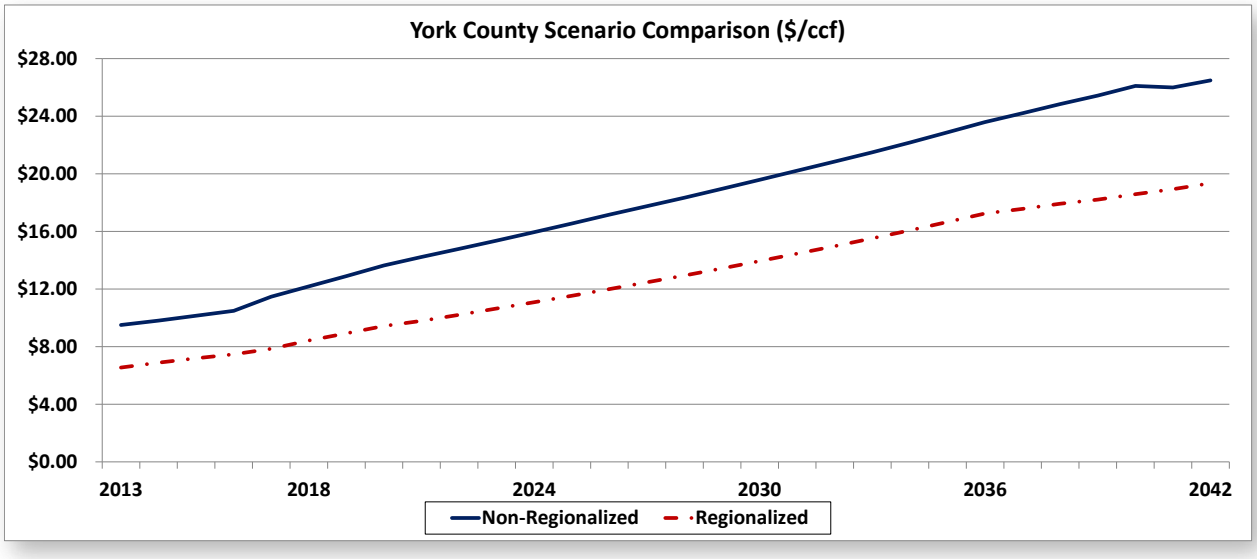


Figure 7.29 Summary of York County's Scenario Results ($/CCF)

As Figure 7.29 indicates, the regional option appears to be financially favorable for the County's customers.

The net present value analysis of both options also indicates that the regional option is much more favorable financially to the County's customers, as presented in Figure 7.30.

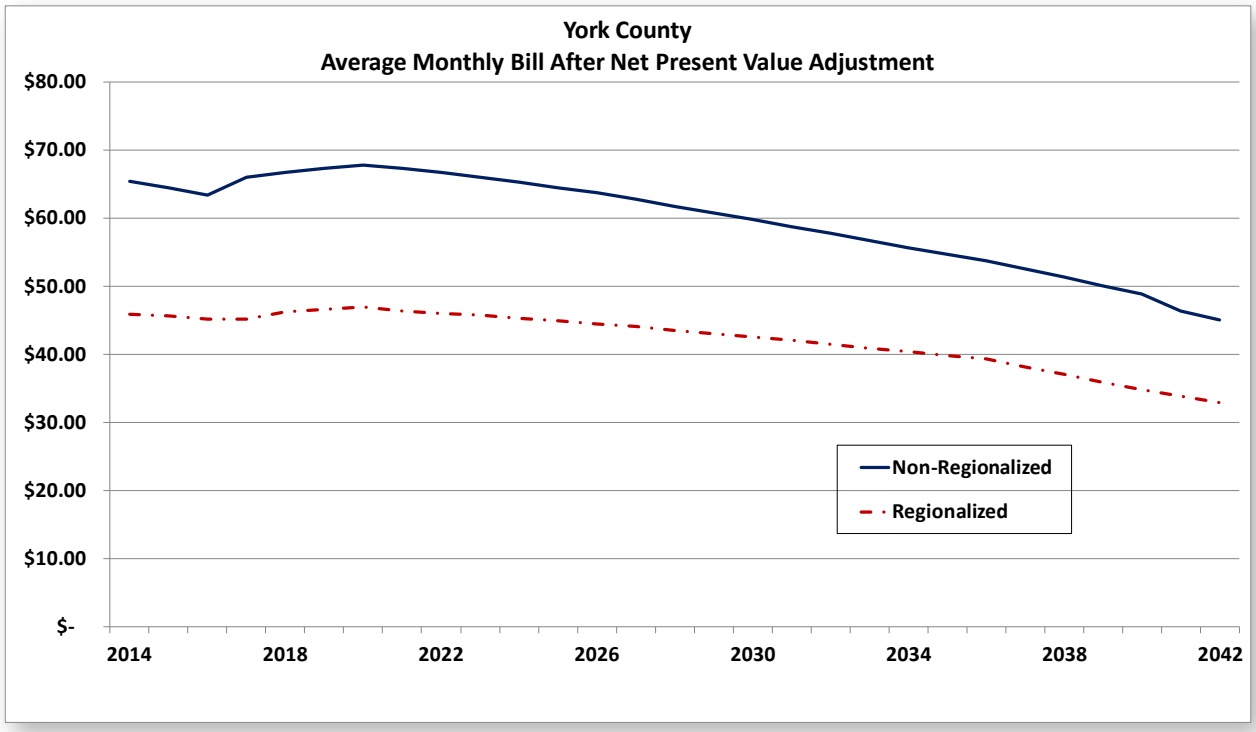


Figure 7.30 Comparison of Net Present Value of York County's Estimated Average Monthly Bill

7.7 Review of the Findings/Results

The summary analyses above provides a general understanding of the relative financial and rate impacts of non-regionalization and regionalization for each Locality, along with the more relevant measure of the net present value analysis. The net present value provides the total cost and savings for the 30-year period, discounted to today's dollars.

In conducting the net present value analysis, the revenue requirement for each entity was discounted to present costs using an assumed discount rate of 5%. Presented in Table 7.9 is a summary of the 30-year net present value for each Locality under the Non-Regionalized and Regionalized Scenarios. Note that each Locality's Regionalized Scenario net present value shown in Table 7.9 was calculated as a percentage of total region-wide net present value using each Locality's share of the total region-wide annual flow.

Table 7.9 Summary of the 30-Year Net Present Value ($000,000)

Locality	30-Year Net Present Value[1]			NPV Percent Reduction	% Allocation (% of Region-Wide Flow)
	Non-Regionalized	Regionalized	NPV Savings		
City of Chesapeake	1,338	1,325	14	1.0%	12.1%
Gloucester County	69	39	30	78.9%	0.3%
City of Hampton	1,086	1,076	10	0.9%	9.8%
Isle of Wight County	47	28	19	68.7%	0.2%
JCSA	$586	$486	$100	20.6%	4.4%
City of Newport News	$1,401	$1,434	($33)	(2.3%)	13.1%
City of Norfolk	$1,805	$1,604	$201	12.5%	14.6%
City of Poquoson	$111	$78	$33	42.3%	0.7%
City of Portsmouth	$883	$770	$113	14.6%	7.0%
City of Smithfield	$64	$55	$8	15.0%	0.5%
City of Suffolk	$656	$416	$240	57.7%	3.8%
City of Virginia Beach	$3,215	$3,113	$101	3.2%	28.4%
City of Williamsburg	$150	$188	($38)	(20.0%)	1.7%
York County	$509	$360	$149	41.4%	3.3%
TOTAL	**$11,919**	**$10,971**	**$948**	**8.6%**	

[1] NPV assumes an inflation rate of 3% and a discount rate of 5%.

[2] Some columns slightly off due to rounding of decimals.

The total net present value of the Non-Regionalized Scenario is $11.919 billion, compared to a net present value of the Regionalized Scenario of $10.971 billion. The difference of $948 million represents the net present value savings to the region under Regionalization. Savings include $386 million in O&M costs and $562 million in capital improvement financing costs. Level debt service refinancing of existing Locality debt adds $134 million in overall debt payments over 30 years but has the same 30-year NPV as the matched maturity option.

Localities should keep in mind that because each Locality's share of total Regionalized Scenario net present value is based on flow and a uniform region-wide growth rate, a Locality that grows faster than the region-wide average over the 30-year analysis period would see an increase in their share of the

The net present value of savings to the region under Regionalization is $948 million. A Locality that grows faster than the average would see an increase in net present value. Conversely, Localities that grow more slowly would see a decrease in value.

Regionalized net present value. Conversely, Localities that grow at a slower-than-average rate would see a decrease in their individual share.

In summary, it appears that, based on the assumptions used within this study, regionalization makes financial sense for the majority of the Localities. Figure 7.31 presents the net present value results on a system-wide basis.

Each Locality will be making the decision on their own depending on their own financial results as well as other non-cost criterion important to each Locality, which may include regulatory issues, governance issues, risk, etc.

7.8 Other Key Issues – Taxes and Transfer Payments

A legal review was performed to assess potential options for handling taxes and transfer payments under the Regionalized Scenario.

As noted previously, taxes, payments in lieu of taxes, interdepartmental transfers and other types of transfer payments currently borne by several of the Locality wastewater utilities were not included in the financial and rate analysis comparing Non-Regionalized and Regionalized Scenarios. However, some Localities may find it appropriate to continue to capture revenues associated with such payments under the Regionalized Scenario. A legal review was performed to assess potential options for handling these types of payments under the Regionalized Scenario.

As illustrated by a string of recent court decisions, including the invalidation of the tolling arrangements for the Downtown Tunnel-Midtown Tunnel-Martin Luther King, Jr. Boulevard transportation project, Virginia law is increasingly hostile to the imposition of any unelected body of any charge or fee that is not narrowly tailored to defraying the cost of the service provided to the payee. As such, any attempt by HRSD to include in its own rates a component to permit HRSD to make a payment in lieu of taxes ("PILOT"), franchise fee or a return on investment payment to its member jurisdictions is susceptible to challenge as an impermissible "tax" imposed by an unelected body (that is, the HRSD Commission).

What Virginia Code Section 58.1-3814 either permits, or would permit with a slight change, is the imposition by the governing body of any HRSD member locality of a sewer utility tax on its residents and an arrangement by which HRSD would collect the tax by adding it to the bills HRSD would send to its

customers within the locality. The utility tax revenues would not become part of HRSD's revenues, but HRSD would collect such revenues and transfer them to the locality. Of course, no locality would be obligated to impose a utility tax, and the rate at which any locality could impose the tax could vary within the parameters of Virginia law.

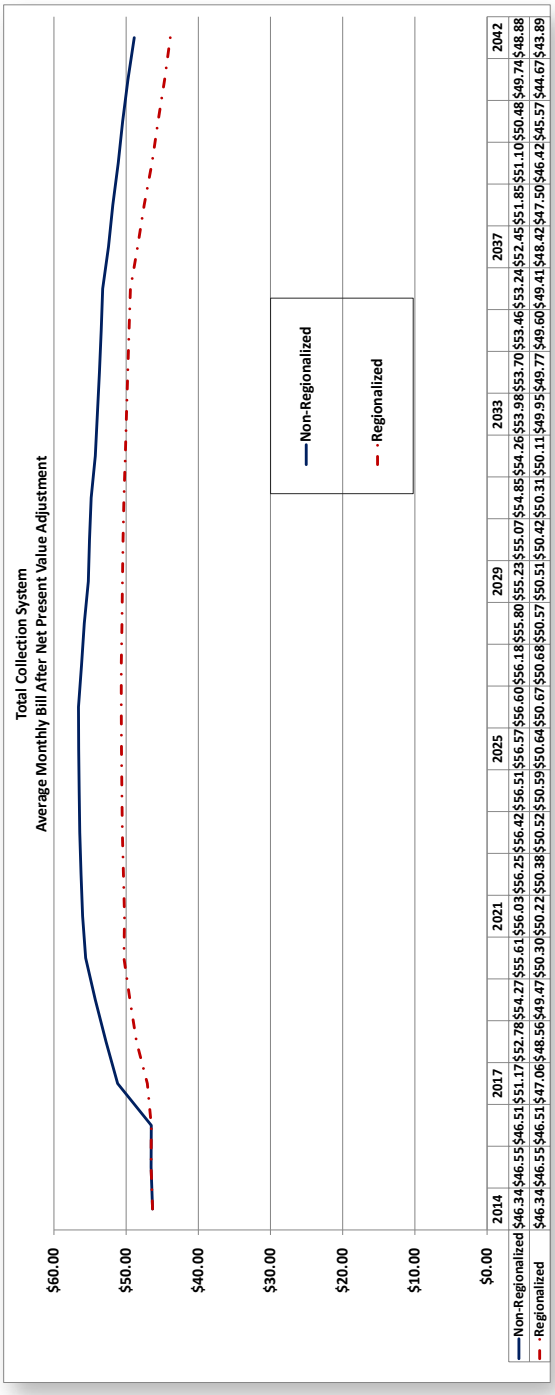


Figure 7.31 – System-Wide Comparison of Net Present Value Average Monthly Bills

Virginia Code Section 58.1-3814 authorizes localities to impose a "tax on the consumers of [a] utility service or service provided by any water or heat, light and power company…." There is some uncertainty as to whether such tax may be imposed on sewer or sewage disposal and treatment services. However, there is precedent for authorizing the imposition of a utility tax on sewer service. The General Assembly recently provided for the establishment of the Bristol Virginia Utilities Authority and in the enabling legislation expressly provided that the participating localities could consider sewer service as a "utility service" for purposes of imposing the utility tax under Virginia Code Section 58.1-3814. There appears to be no principled reason for not granting the HRSD member localities the same power.

Virginia Code Section 58.1-3814 provides that the utility tax may not exceed 20 percent of any customer's monthly bill and may not exceed $15 per month for residential customers.

A similar option that is authorized under current Virginia law is the "service charge" authorized under Virginia Code Section 58.1-3400 et seq. A locality may impose on certain types of property otherwise exempt from property taxes (for example, property owned by a political subdivision of the Commonwealth or a hospital or private school) a charge for the purpose of furnishing police and fire protection and for the collection and disposal of refuse. In the case of a service charge imposed on HRSD, in no event shall the service charge exceed 20 percent of the real estate tax rate of the locality imposing the service charge. HRSD could include a component in its rates to cover the payment of such a service charge without a risk of having the component being deemed an impermissible tax. There would need to be a policy determination of whether HRSD would assess a service charge component system-wide or only on the customers of the localities imposing the service charge.

7.9 Assessing Affordability

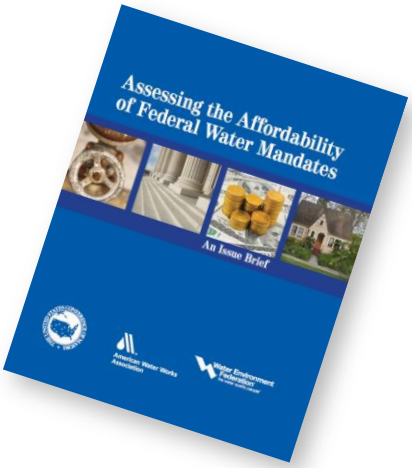
Affordability is a concern of all utilities given the fact that rates and charges for utility services have recently been increasing at a pace which exceeds the overall cost of living. Affordability has now come to the forefront of many financial and rate discussions, particularly as it relates to major capital infrastructure funding and financing.

When discussing utility rates and customer bills it is not uncommon to consider a customer's *ability* and *willingness* to pay. Willingness to pay is related to the perceived value of the commodity and is not the focus of the affordability

discussion. Rather, ability to pay is focused on whether customers can pay for the service.

In recent months, and during the course of this study, there has been significant discussion within the industry concerning affordability, particularly as it relates federal mandates. The United States Conference of Mayors, AWWA and WEF recently developed an Issue Brief on the Topic of Affordability.[10] The Issue Brief notes the following:

> *"Investment to meet federal water and wastewater requirements can impose significant financial hardships on households, businesses, and the broader communities in which they are located. When communities face large – and sometimes multiple – federal water mandates, the combined impact of the required expenditures can be extremely expensive for everyone in that community who pays a water or wastewater bill (most consumers get one combined bill for water and wastewater services). For the utility, the cumulative suite of required investments not only strains fiscal capacity but may also displace other important investments, including critical but non-mandatory capital improvement and infrastructure renewal projects. For the greater community, mandatory investments may also squeeze out other important priorities, such as social safety net programs and economic development efforts. For the residents and businesses in affected cities, the capital and operating expenses associated with federal mandates are often reflected in water and wastewater bills that must grow faster than household incomes and the general rate of inflation. Very significant affordability challenges are often created, particularly for lower-income households."*[11]



Ability to pay and affordability have traditionally been measured around median household income levels. Under this approach, affordability for the community is defined as a percentage of the median household income. Residential bills which exceed this threshold are considered unaffordable. Typical measures used have ranged from 1.5% to 2.5% of a community's median household income. For example, assuming a 2.0% threshold a community with a median

[10] Assessing the Affordability of Federal Water Mandates, An Issue Brief, by the United States Conference of Mayors, American Water Works Association, Water Environment and Stratus Consulting, 2013.

[11] Ibid., p. 1.

household income of $45,000 would have an affordability threshold of $900 per year or $75.00 per month. However, median household income is a community wide measure, and even if a rate is affordable for the community, it does not necessarily imply that all customers can afford the rate. Income levels will vary within a community and each community will have some segment of their population which may have affordability issues.

The EPA uses a two-phase approach to assess financial capability (affordability). The first phase assesses the impact on the household (similar to the above example), while the second phase examines the debt, socioeconomic and financial conditions of the utility. The results of this two-phase analysis are combined into a Financial Capability Matrix.

The financial capability calculation is fairly detailed and it is not the intent of this Regionalization Study Report to evaluate affordability impacts at that level. However, with regard to the range of values used for the analysis, EPA assesses the impact to communities as follows[12]:

Financial Impact	**Residential Indicator (% of MHI)**
Low	Less than 1.0% of MHI
Mid-Range	1.0% – 2.0% of MHI
High	Greater than 2.0% MHI

For purposes of this discussion, a 2% threshold has been used to evaluate the estimated portion of customers within each Locality that may have affordability issues. As an industry, the limitations and issues associated with measuring or assessing affordability are well publicized and discussed, particularly as they relate to the use of median household income. The evaluation presented here has attempted to move beyond a simple median household income approach and identify income levels across each Locality. Ultimately, it is important to understand that affordability issues are not isolated to a few Localities within the region. Rather, it appears that affordability is an issue which will need to be addressed by each Locality, regardless of whether or not regionalization occurs.

While affordability is discussed here to provide a point of reference, it is important to remember that recommendations on what represents an "affordable" plan and which scenario is more "affordable" are not being made in this Regionalization Study. Affordability is properly addressed in negotiations

[12] Source: EPA: Combined Sewer Overflows – Guidance for Financial Capability Assessment and Schedule Development, February 1997.

with state and federal regulatory agencies during development of the Regional Wet Weather Management Plant and future Consent Decree modifications.

7.9.1 EVALUATION OF COMMUNITY AFFORDABILITY THRESHOLDS

The evaluation of individual Locality thresholds was based upon median household incomes obtained from city-data.com and supplemented in some cases by the US Census Bureau 2007–2011 American Community Survey data, shown in Table 7.10. The median household incomes reflect 2009 levels and a more updated value was not available. However, given the downturn and slow recovery in the economy over the last few years, the 2009 value may remain reasonable for purposes of this analysis. If the median household income is understated, it simply provides a more conservative estimate of affordability.

Table 7.10 Individual Locality Estimated Affordability Thresholds[1]

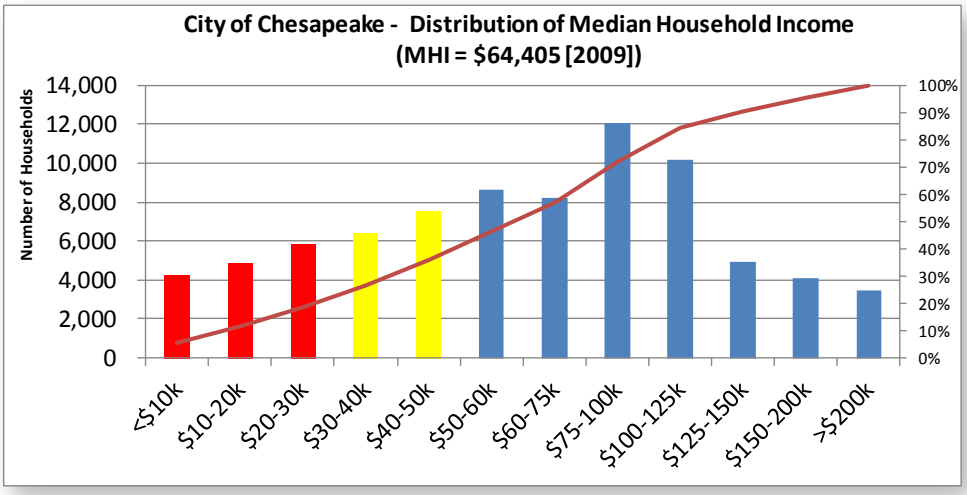
Locality	Median Household Income	Monthly Threshold at 2.0%
City of Chesapeake	$64,405	$107.34
Gloucester County	$57,733	$96.22
City of Hampton	$46,440	$77.40
Isle of Wight County	$57,690	$96.15
JCSA	$70,664	$117.77
City of Newport News	$49,554	$82.59
City of Norfolk	$42,741	$71.23
City of Poquoson	$83,304	$138.84
City of Portsmouth	$43,082	$71.80
City of Smithfield	$59,872	$99.79
City of Suffolk	$57,083	$95.14
City of Virginia Beach	$59,298	$98.83
City of Williamsburg	$40,562	$67.60
York County	$73,666	$122.78

[1] Source: www.city-data.com. Median household income reflects unadjusted 2009 values.

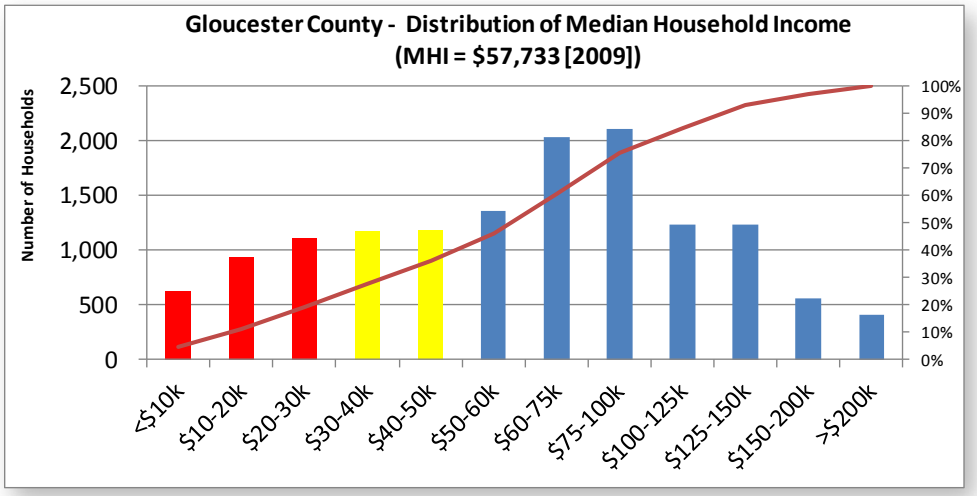
As can be seen from Table 7.10, the median household income varies by Locality, and thus, the affordability threshold at 2% of MHI also varies. It is important to note that affordability will be an issue whether regionalization occurs or not. For most Localities, regionalization will produce lower bills and lessen the impacts of affordability.

Interestingly, using a simple MHI test and the average monthly bills under regionalization, no Locality fails the MHI threshold test at 2.0%. There certainly are Localities which are near that threshold, but not over. Under that very simple test, regionalization appears to be "affordable" for all Localities. However, that simple test fails to recognize the range of income levels within each Locality. This was the point to be made in the joint issue paper released by the US Conference of Mayors, AWWA and WEF. The Issue Paper notes that EPA's affordability criteria underestimates the effect of rising water bills on low-income, fixed-income and renter-occupied households. The paper offers several alternative metrics for better gauging the affordability of federal mandates. It suggests the impact on customer bills should be assessed across entire income distributions, and especially the lower end as a percentage of income. That is the approach that this study has taken.

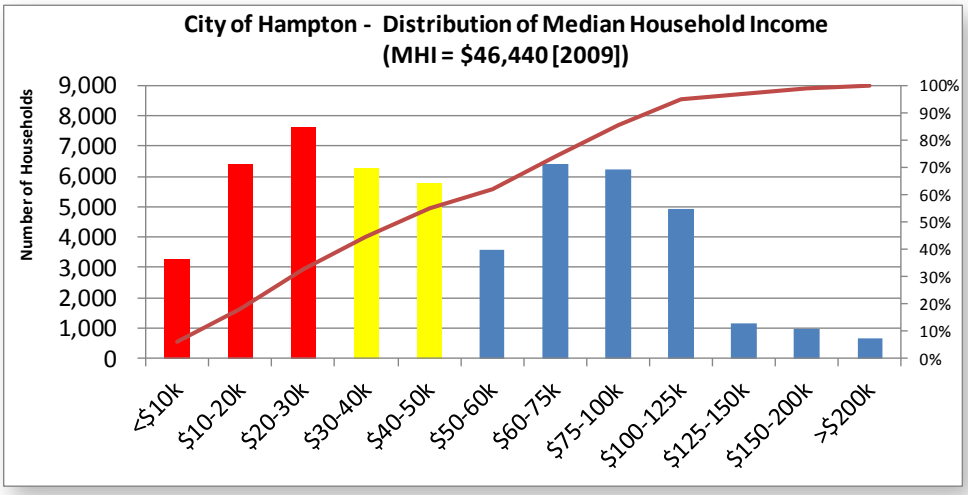
While the simple MHI threshold test provides a broad measure of the community-wide impact, it does not reflect the range of income levels within a community. Stated another way, a community may be under the calculated affordability threshold, but that does not imply that all customers will, at an individual level, find the rate to be affordable. To better understand this aspect of affordability, average monthly wastewater bills under the Regionalization Scenario were compared to the distribution of household incomes in each Locality to illustrate potential impacts on lower-income households. Selected as the basis of comparison were average monthly bills in 2020, when Consent Order capital financing as well as operations and maintenance efficiencies under regionalization are reflected in the cost of service. Assessments for each Locality, based upon the best available information for the various Localities, are summarized as follows.



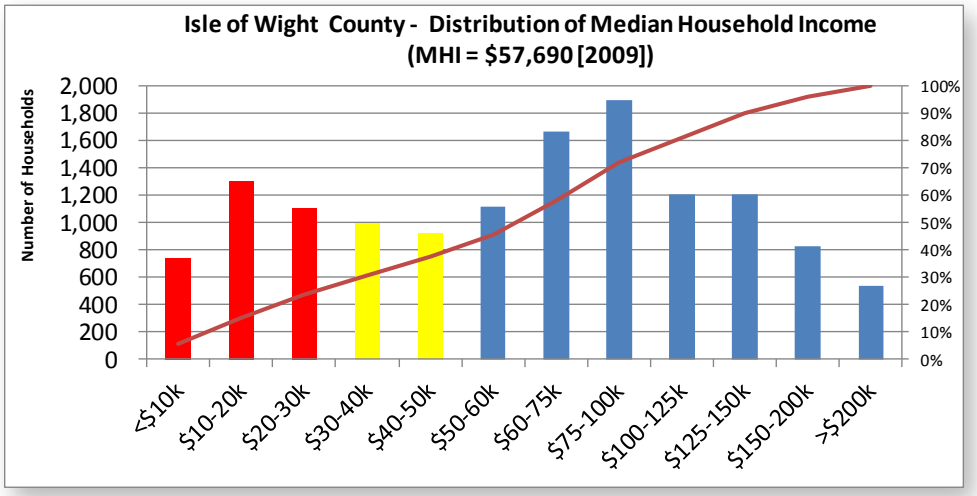
City of Chesapeake – The City of Chesapeake's median household income in 2009 was approximately $65,000. This is one of the higher median household incomes within the region. To place this income level in context, approximately 19% of the households have incomes which are less than $30,000 per year (red bars), and 36% have incomes less than $50,000 per year (red and yellow bars). As can be seen in the graph, Chesapeake's MHI leans toward higher income levels, but still has a number of low-income households. The Regionalization Study has estimated an average monthly bill of $84.88 (2020 rate of $9.43/CCF times 9 CCF) in 2020 for Chesapeake. Given a 2% MHI affordability threshold, this implies that annual incomes less than $50,928, or approximately 36% of Chesapeake household incomes from 2009 may have affordability issues. It should be noted that the incomes of 2009 from citydata.com have not been adjusted (i.e., inflated), so the percentage of the population with affordability issues could certainly be much less than shown in this study. It should also be noted that the assumed average use of 9 CCF for a Chesapeake customer is higher than the regional average.



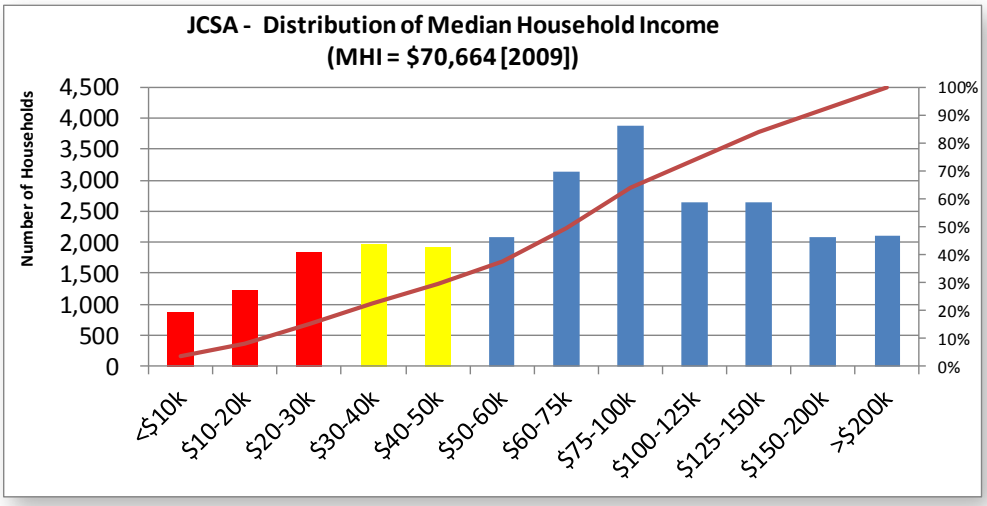
Gloucester County –Gloucester County's median household income is approximately $58,000. This MHI level is just in the top half of the region. To place this income level in context, approximately 19% of the households have incomes which are less than $30,000 per year (red bars), and 36% have incomes less than $50,000 per year (red and yellow bars). There is a wide range of low and middle income households. The distribution of incomes shown above are extracted from the American Community Survey and in some cases, modified (estimated) to match the income stratifications of citydata.com. The Regionalization Study has estimated an average monthly bill of $75.45 (2020 rate of 9.43/CCF times 8 CCF) in 2020 for the County. Given a 2% MHI affordability threshold, this implies that annual incomes less than $45,300, or approximately 28% of Gloucester household incomes from 2009 may have affordability issues. It should be noted that the income levels have not been adjusted (i.e., inflated), so the percentage of the population with affordability issues could certainly be much less than shown in this study. It should also be noted that the assumed average use of 8 CCF for a Gloucester customer is slightly higher than the regional average.



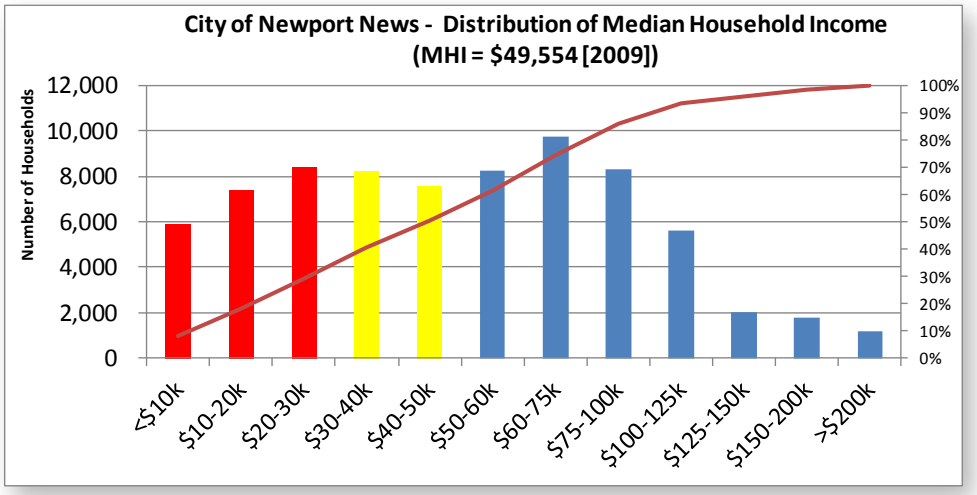
City of Hampton – The City of Hampton's median household income is approximately $46,400. This is in the bottom half of the median household incomes within the region. To place this income level in context, roughly 32% of the households have incomes which are less than $30,000 per year (red bars), and 55% have incomes less than $50,000 per year (red and yellow bars). As can be seen in the graph, Hampton has a wide range of low and middle income households, but the income levels do lean toward lower-income households. The Regionalization Study has estimated an average monthly bill of $66.02 (2020 rate of $9.43/CCF times 7 CCF) in 2020 for Hampton. Given a 2% MHI affordability threshold, this implies that annual incomes less than $39,600, or approximately 44% of Hampton household incomes from 2009 may have affordability issues. It should be noted that the incomes of 2009 from citydata.com have not been adjusted (i.e., inflated), so the percentage of the population with affordability issues could certainly be much less than shown in this study. It should also be noted that the assumed average use of 7 CCF for a Hampton customer is roughly the regional average.



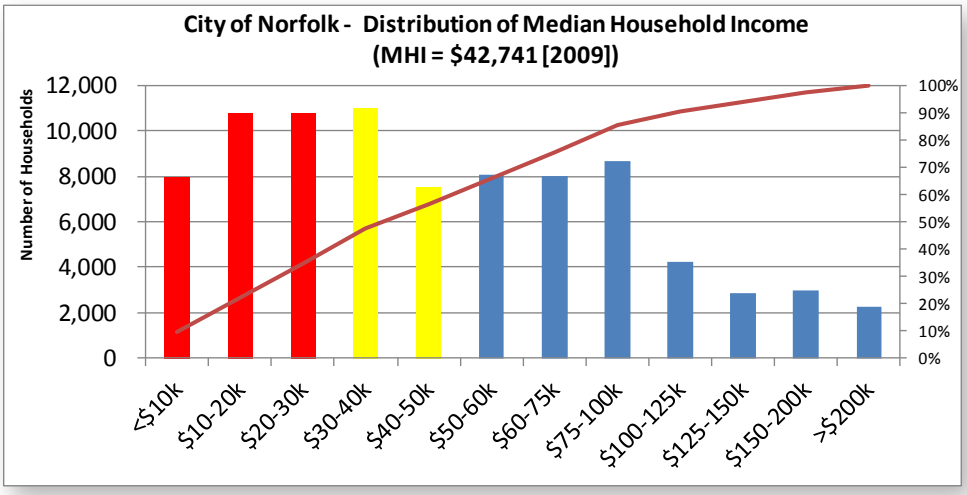
Isle of Wight County – The Isle of Wight County's median household income is approximately $58,000. This MHI level is roughly in the middle of the region's range of MHI's. To place this income level in context, approximately 23% of the households have incomes which are less than $30,000 per year (red bars), and 37% have incomes less than $50,000 per year (red and yellow bars). As can be seen in the graph, there is a wide range of low and middle income households. The distribution of incomes shown above are extracted from the American Community Survey and in some cases, modified (estimated) to match the income stratifications of citydata.com. The Regionalization Study has estimated an average monthly bill of $42.44 (2020 rate of $9.43/CCF times 4.5 CCF) in 2020 for the County. Given a 2% MHI affordability threshold, this implies that annual incomes less than $25,500, or approximately 19% of Isle of Wight household incomes from 2009 may have affordability issues. It should be noted that the income levels have not been adjusted (i.e., inflated), so the percentage of the population with affordability issues could certainly be much less than shown in this study. It should also be noted that the assumed average use of 4.5 CCF for an Isle of Wight customer is the lowest regional average.



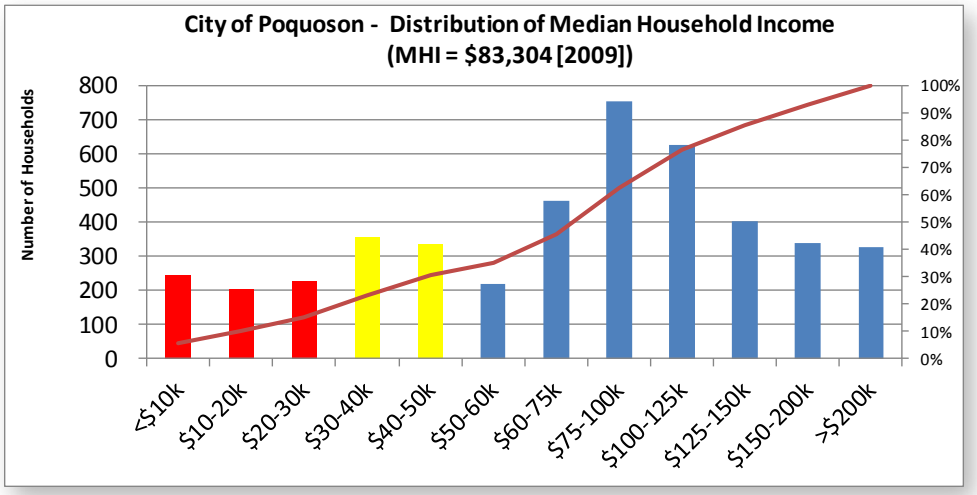
James City County Service Authority – The James City County Service Authority's median household income is approximately $71,000. This MHI level is near the top of the region's range of median household incomes. To place this income level in context, approximately 15% of the households have incomes which are less than $30,000 per year (red bars), and 30% have incomes less than $50,000 per year (red and yellow bars). As can be seen in the graph, there are some lower income households within the community, but the majority of incomes are in the higher income levels. The distribution of incomes shown above are extracted from the American Community Survey and in some cases, modified (estimated) to match the income stratifications of citydata.com. The Regionalization Study has estimated an average monthly bill of $75.45 (2020 rate of $9.43/CCF times 8 CCF) in 2020 for JCSA. Given a 2% MHI affordability threshold, this implies that annual incomes less than $45,300, or approximately 26% of JCSA household incomes from 2009 may have affordability issues. It should be noted that the income levels have not been adjusted (i.e., inflated), so the percentage of the population with affordability issues could actually be much less than shown in this study. It should also be noted that the assumed average use of 8 CCF for a JCSA customer is slightly above the regional average.



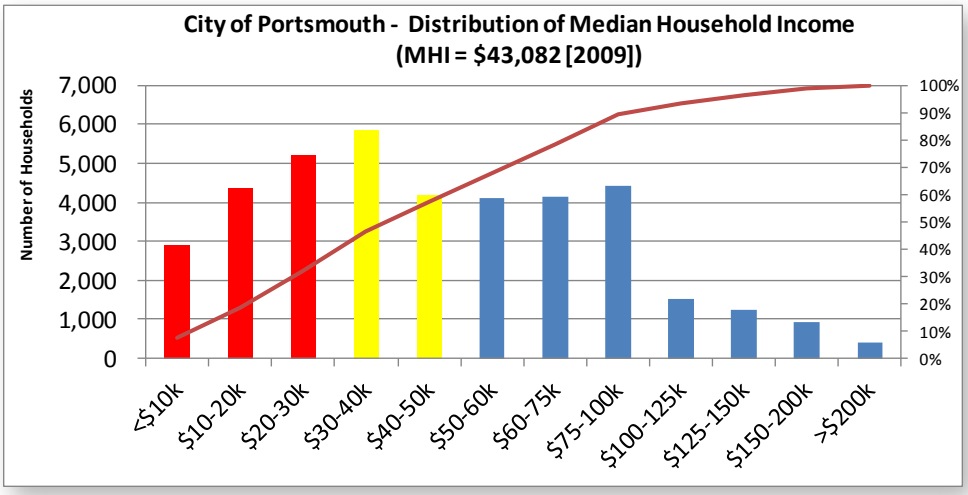
City of Newport News – The City of Newport News' median household income is approximately $50,000. This MHI level is in the bottom half of the region. To place this income level in context, approximately 29% of the households have incomes which are less than $30,000 per year (red bars), and 51% have incomes less than $50,000 per year (red and yellow bars). As can be seen in the graph, Newport News has a wide range of low and middle income households. The Regionalization Study has estimated an average monthly bill of $66.02 (2020 rate of $9.43/CCF times 7 CCF) in 2020 for Newport News. Given a 2% MHI affordability threshold, this implies that annual incomes less than $39,600, or approximately 40% of Newport News household incomes from 2009 may have affordability issues. It should be noted that the incomes of 2009 from citydata.com have not been adjusted (i.e., inflated), so the percentage of the population with affordability issues could actually be much less than shown in this study. It should also be noted that the assumed average use of 7 CCF for a Newport News customer is roughly the regional average.



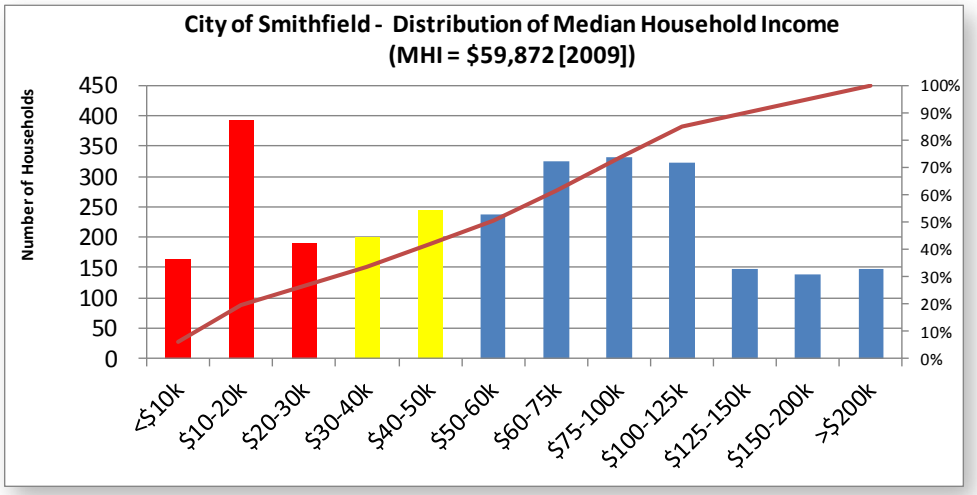
City of Norfolk – The City of Norfolk's median household income is approximately $43,000. This MHI level is one of the lowest within the region. To place this income level in context, roughly 35% of the households have incomes which are less than $30,000 per year (red bars), and 56% have incomes less than $50,000 per year (red and yellow bars). As can be seen in the graph, Norfolk's MHI clearly has a higher proportion of lower-income households. The Regionalization Study has estimated an average monthly bill of $56.59 (2020 rate of $9.43/CCF times 6 CCF) in 2020 for Norfolk. Given a 2% MHI affordability threshold, this implies that annual incomes less than $34,000, or approximately 41% of Norfolk's household incomes from 2009 may have affordability issues. It should be noted that the incomes of 2009 from citydata.com have not been adjusted (i.e., inflated), so the percentage of the population with affordability issues could actually be much less than shown in this study. It should also be noted that the assumed average use of 6 CCF for a Norfolk customer is slightly lower than the regional average.



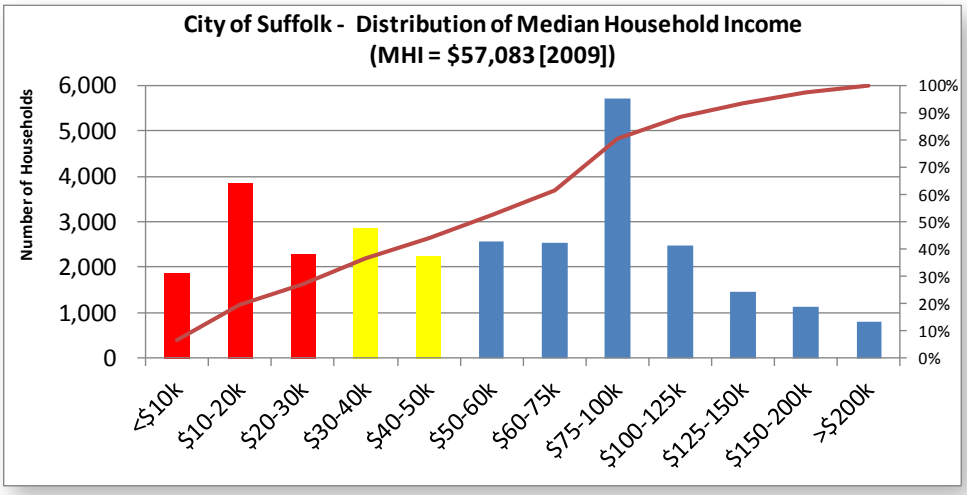
City of Poquoson – The City of Poquoson's median household income is approximately $83,000. This MHI level is the highest within the region. To place this income level in context, only 15% of the households have incomes which are less than $30,000 per year (red bars), and approximately 30% have incomes less than $50,000 per year (red and yellow bars). As can be seen in the graph, Poquoson's MHI leans heavily toward higher income levels, but there are still a number of customers at lower-income levels. The Regionalization Study has estimated an average monthly bill of $66.02 (2020 rate of $9.43/CCF times 7 CCF) in 2020 for Poquoson. Given a 2% MHI affordability threshold, this implies that annual incomes less than $39,600, or approximately 23% of Poquoson's household incomes from 2009 may have affordability issues. It should be noted that the incomes of 2009 from citydata.com have not been adjusted (i.e., inflated), so the percentage of the population with affordability issues could actually be much less than shown in this study. It should also be noted that the assumed average use of 7 CCF for a Poquoson customer is roughly the regional average.



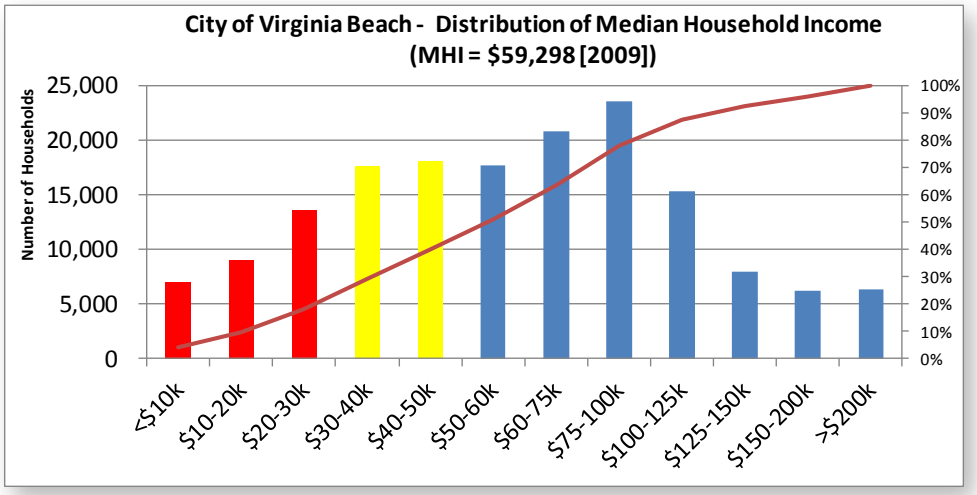
City of Portsmouth – The City of Portsmouth's median household income is approximately $43,000, and is one of the lowest within the region. To place this income level in context, roughly 32% of the households have incomes which are less than $30,000 per year (red bars), and 57% have incomes less than $50,000 per year (red and yellow bars). As can be seen in the graph, Portsmouth's MHI has a much larger proportion of lower-income households. The Regionalization Study has estimated an average monthly bill of $66.02 (2020 rate of $9.43/CCF times 7 CCF) in 2020 for Portsmouth. Given a 2% MHI affordability threshold, this implies that annual incomes less than $39,600, or approximately 47% of Portsmouth's household incomes from 2009 may have affordability issues. It should be noted that the incomes of 2009 from citydata.com have not been adjusted (i.e., inflated), so the percentage of the population with affordability issues could actually be much less than shown in this study. It should also be noted that the assumed average use of 7 CCF for a Portsmouth customer is roughly the regional average.



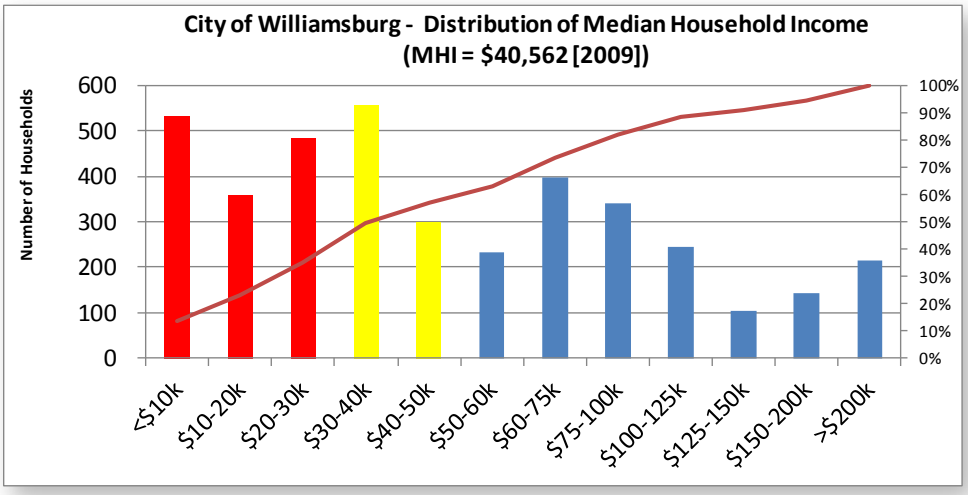
Town of Smithfield – The Town of Smithfield's median household income in 2009 was approximately $60,000. This is in the top half of the median household incomes within the region. To place this income level in context, roughly 26% of the households have incomes which are less than $30,000 per year (red bars), and 42% have incomes less than $50,000 per year (red and yellow bars). As can be seen in the graph, Smithfield's MHI leans toward higher income levels, but still has a number of lower-income households. The Regionalization Study has estimated an average monthly bill of $56.59 (2020 rate of $9.43/CCF times 6 CCF) in 2020 for Smithfield. Given a 2% MHI affordability threshold, this implies that annual incomes less than $34,000, or approximately 29% of Smithfield's household incomes from 2009 may have affordability issues. It should be noted that the incomes of 2009 from citydata.com have not been adjusted (i.e., inflated), so the percentage of the population with affordability issues could actually be much less than shown in this study. It should also be noted that the assumed average use of 6 CCF for a Smithfield customer is slightly less than the regional average.



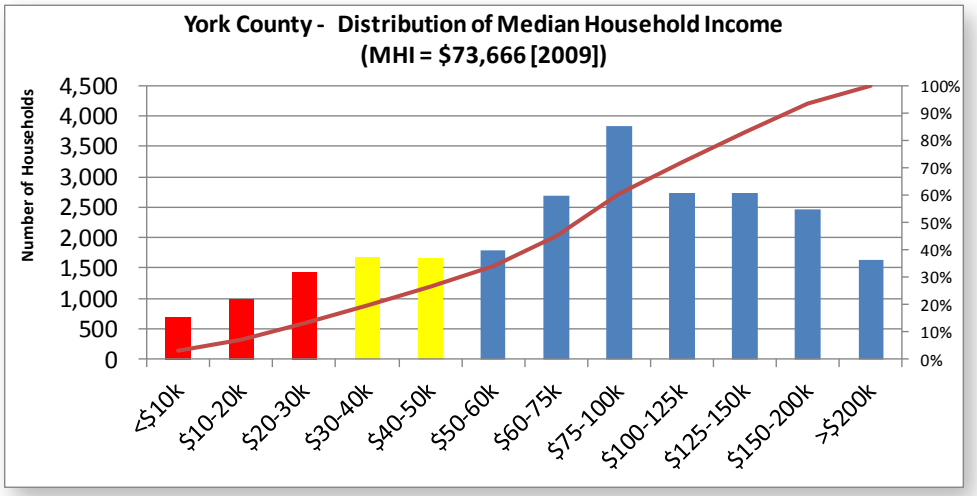
City of Suffolk – The City of Suffolk's median household income in 2009 was approximately $57,000. This is approximately the mid-range of the median household incomes within the region. To place this income level in context, roughly 27% of the households have incomes which are less than $30,000 per year (red bars), and 44% have incomes less than $50,000 per year (red and yellow bars). As can be seen in the graph, Suffolk has a range of median household incomes and appears to have a number of middle to high income customers, but still has a fairly substantial amount of lower income customers. The Regionalization Study has estimated an average monthly bill of $61.31 (2020 rate of $9.43/CCF times 6.5 CCF) in 2020 for Suffolk. Given a 2% MHI affordability threshold, this implies that annual incomes less than $36,800, or approximately 32% of Suffolk's household incomes from 2009 may have affordability issues. It should be noted that the incomes of 2009 from citydata.com have not been adjusted (i.e., inflated), so the percentage of the population with affordability issues could actually be much less than shown in this study. It should also be noted that the assumed average use of 6.5 CCF for a Suffolk customer is slightly less than the regional average.



City of Virginia Beach – The City of Virginia Beach's median household income in 2009 was slightly less than $60,000. This is in the top half of the median household incomes within the region. To place this income level in context, roughly 18% of the households have incomes which are less than $30,000 per year (red bars), and 40% have incomes less than $50,000 per year (red and yellow bars). As can be seen in the graph, Virginia Beach's MHI definitely leans toward higher income levels, but still has a fairly large proportion of lower-income households. The Regionalization Study has estimated an average monthly bill of $66.02 (2020 rate of $9.43/CCF times 7 CCF) in 2020 for Virginia Beach. Given a 2% MHI affordability threshold, this implies that annual incomes less than $39,600, or approximately 29% of Virginia Beach's household incomes from 2009 may have affordability issues. It should be noted that the incomes of 2009 from citydata.com have not been adjusted (i.e., inflated), so the percentage of the population with affordability issues could actually be much less than shown in this study. It should also be noted that the assumed average use of 7 CCF for a Virginia Beach customer is roughly the regional average.



City of Williamsburg –The City of Williamsburg's median household income is approximately $41,000, and is one of the lowest within the region. Roughly 35% of the households have incomes which are less than $30,000 per year (red bars), and 57% have incomes less than $50,000 per year (red and yellow bars). As can be seen in the graph, Williamsburg's MHI has a much larger proportion of lower-income households. The Regionalization Study has estimated an average monthly bill of $66.02 (2020 rate of $9.43/CCF times 7 CCF) in 2020 for Williamsburg. Given a 2% MHI affordability threshold, this implies that annual incomes less than $39,600, or approximately 49% of Williamsburg's household incomes from 2009 may have affordability issues. It should be noted that the incomes of 2009 from citydata.com have not been adjusted (i.e., inflated), so the percentage of the population with affordability issues could actually be much less than shown in this study. It should also be noted that the assumed average use of 7 CCF for a Williamsburg customer is roughly the regional average.



York County – York County's median household income is approximately $74,000. This MHI level is near the top of the region's range of median household incomes. To place this income level in context, approximately 13% of the households have incomes which are less than $30,000 per year (red bars), and 26% have incomes less than $50,000 per year (red and yellow bars). As can be seen in the graph, there are some lower income households within the community, but the majority of incomes are in the higher income levels. The distribution of incomes shown above are extracted from the American Community Survey and in some cases, modified (estimated) to match the income stratifications of citydata.com. The Regionalization Study has estimated an average monthly bill of $66.02 (2020 rate of $9.43/CCF times 7 CCF) in 2020 for York County. Given a 2% MHI affordability threshold, this implies that annual incomes less than $39,600, or approximately 20% of York County household incomes from 2009 may have affordability issues. It should be noted that the income levels have not been adjusted (i.e., inflated), so the percentage of the population with affordability issues could actually be much less than shown in this study. It should also be noted that the assumed average use of 7 CCF for a York County customer is roughly the regional average.

7.9.2 Summary of Affordability

Overall, it appears that, although the Regionalized Scenario appears to be financially more beneficial to the majority of wastewater customers in the region, there could be thousands of households that could fall into the "unaffordable" category by 2020, four years into the estimated implementation time frame for regionalization. The percentage of households for which the regional rate can be considered as unaffordable ranges from 20% to 49% of a Locality's households. It is important to remember that for many of these households, the Non-

Regionalized Scenario could potentially be even more expensive. It is also important to note that affordability is likely a current issue for a good portion of the lower income households within the region today, and not an issue that is a result of or generated by the regionalization discussion.

7.10 Summary

This section of the Regionalization Study has reviewed the financial and rate impacts of two different courses of action for the region: continuing under the Non-Regionalized Scenario of distributed ownership and responsibility for wastewater systems or moving to a Regionalized Scenario with a single entity having ownership and responsibility for all wastewater systems in the region. Based on the technical analysis undertaken herein, and the data and key assumptions on which that analysis is based, it appears that Regionalization will provide the region with financial savings over a 30-year period of approximately $948 million (net present value, in current day dollars), or an average of $31.6 million per year.

While the results of the financial/rate analysis are one input in the decision process, it is an important one. Each Locality will need to consider the financial/rate benefits and impacts in the context of their own jurisdiction, as well as the region as a whole.

8.0 Governance and Local Coordination

8.1 Overview of Governance and Local Coordination Issues

Previous sections of this study report have examined the potential cost-effectiveness and efficiencies of a single regional entity assuming ownership and responsibility of both local sewer systems and regional interceptor and wastewater treatment systems in Hampton Roads. In considering regionalization of wastewater systems it is also important to ask and research the following question:

> *If it is determined to be more efficient and cost-effective for a regional public entity to assume control over locally owned sewage collection systems, what is the best governance structure for the regional entity and how can the regional entity maintain effective coordination with local governments?*

As the questions of cost-effectiveness and efficiency have been considered, it has been assumed that HRSD would be the regional entity that would assume ownership and responsibility of Locality collections systems. Governance and local coordination were evaluated based on that assumption.

This study explored the best potential governance structure for the regional entity and how the regional entity can maintain effective coordination with local governments.

This Governance and Local Coordination section discusses within the context of regionalization such issues as local representation on the HRSD commission, how the Localities and HRSD interact on economic development matters, how service extensions are considered, how HRSD will maintain excellent customer-service responsiveness, and how HRSD will conduct outreach to external stakeholders.

8.2 Current Governance and Local Coordination

Currently, the Localities and HRSD operate in partnership for the collection, conveyance, and treatment of wastewater. Localities and HRSD have specific authorities and responsibilities and work together in a coordinated manner.

The Localities in the HRSD service area, per local, state, and federal regulations and laws, are responsible for financing, constructing, operating, and

maintaining wastewater collection and conveyance infrastructure. The elected and appointed officials in each local jurisdiction in the HRSD service area are responsible for their infrastructure and collaborate with HRSD on system integration and other such matters.

HRSD, per state and federal regulations and laws, is responsible for financing, constructing, operating, and maintaining sewage infrastructure that accepts, treats, and disposes of wastewater that Localities convey to it. HRSD is governed by a gubernatorial-appointed eight-member commission and is operated by a professional staff.

The Localities and HRSD collaborate, through established policies and protocols as well as customary procedures and relationships, on how Locality-owned and HRSD-owned infrastructure are integrated, maintained, and expanded. It is especially critical that those who govern, manage, operate, and maintain integrated systems that serve 1.6 million people work together closely and constructively.

The Localities and HRSD have their own utility and public information staffs who work together on integrated wastewater infrastructure matters, including repairs and rehabilitation as well as new construction projects. They also work together on utility-related health and public safety matters.

The Localities and HRSD work well together on integrated sewage system issues and utility-related health and public safety. They are less coordinated when it comes to public outreach on wastewater collection and treatment issues.

When it comes to public outreach and public education on wastewater collection and treatment issues, the Localities and HRSD work in a less coordinated matter under the current structure. On matters related to collections systems it is the Localities who communicate with and perform outreach to the public – necessarily the case since HRSD has no current role in locally owned collection system matters. Likewise, on matters related to regional wastewater conveyance and treatment, it is primarily HRSD who communicates with and performs outreach to the public since the Localities have no current role in HRSD-owned treatment matters.

All of this is not to say, however, that the Localities and HRSD do not coordinate and work together on matters of public interest – they do, especially when it comes to health and public safety concerns.

This Regionalization Study has looked in depth at existing governance structures and local coordination efforts so that should regionalization be recommended and deliberated by the Localities and HRSD, governance and local coordination options will be readily at hand for further consideration.

8.2.1 HRSD COMMISSION STRUCTURE

Current Commission Governance Structure: HRSD is a political subdivision of the Commonwealth of Virginia. Its statutory authority, including its purpose, powers, duties, and current governance structure, is set forth in Virginia Code § 21-291.2.

HRSD is empowered to collect and treat wastewater within its service district per permits issued by the State Water Control Board and the U.S. Environmental Protection Agency.

The Governor appoints the eight-member HRSD governing board, the Hampton Roads Sanitation District Commission. The Governor appoints one member from each of the following individual jurisdictions or groups of jurisdictions:

- City of Chesapeake
- City of Hampton
- City of Newport News
- City of Norfolk
- City of Portsmouth
- City of Suffolk or Isle of Wight County
- City of Virginia Beach
- City of Williamsburg, City of Poquoson, Town of Urbana, James City County, Gloucester County, King William County, Mathews County, Middlesex County, King and Queen County, York County.

Each commissioner is appointed to a four-year term and serves at the pleasure of the Governor. There is no limit to the number of successive terms one can serve.

Summary of Stakeholder Input: How a regional entity responsible for a consolidated wastewater collection system would be governed has been discussed and commented on at length by Steering Committee members during project workshops, summarized as follows.

- The Role of a Commissioner

  The current HRSD governance structure – the Governor appoints eight members to four-year terms, with most members being appointed from a single locality while others are appointed from a group of localities – has been in place since the 1970s. However, the way in which HRSD commissioners are appointed has led to both misunderstanding and a certain level of frustration as expressed by members of the Steering Committee.

  First, there appears to be a somewhat common misunderstanding that commissioners are "representatives" of the jurisdiction(s) from which they are appointed. To be certain, by law, commissioners must reside in the jurisdiction (or group of jurisdictions) from which they are appointed. However, this is not to say that individual commissioners are "representatives of" the specific jurisdictional interests.

  The HRSD commissioner is appointed to oversee and safeguard the operational, managerial and financial interests of HRSD. The commissioner's role is not necessarily to engage in politics or serve as a representative for the jurisdiction from which he or she is appointed.

  A commissioner's legal and fiduciary responsibility is, generally, to oversee and safeguard the operational, managerial, and financial interests of HRSD as an entity. Specifically, by law, this includes such responsibilities as constructing, improving, equipping, repairing, and operating HRSD's sewage disposal system; issuing revenue bonds or other financial instruments, as authorized; setting rates and collecting fees; acquiring property and structures; hiring and managing staff to construct, operate, and maintain the sewage disposal system; and entering into contracts and agreements pertinent to the sewer disposal system's operations.

  The misunderstanding that an HRSD commissioner is a representative of the jurisdiction(s) from which he or she is appointed has led to some frustration as expressed by some Steering Committee members, including the fact that locally elected or appointed officials from specific HRSD member localities have little or no input on who the Governor might choose to appoint and that there is little or no routine communication between HRSD commissioners and the jurisdiction(s) from which he or she is appointed.

  Steering Committee members noted their general dissatisfaction in the current HRSD governance structure, and the commonly expressed sentiment that a governance structure perceived to be more equitable will be necessary in order for locally elected officials to support regionalization of wastewater collection systems.

  That said, the frustration expressed by Steering Committee members has been largely passive, as there has been no apparent concerted effort over the years to legislatively change the governance structure that has been in place for

some 40 years. This Regionalization Study has created the first significant opportunity in many years to rethink HRSD's governance structure.

This Regionalization Study has created an opportunity for the Steering Committee to make legislative changes to the HRSD governance structure for the first time in 40 years.

- Governance Under Regionalization – a number of general recommendations and principles regarding changes to the HRSD governance structure under regionalization emerged during workshops and other discussions with Steering Committee members.
  - The regional entity governing board should be equitable among its member jurisdictions.
  - The regional entity governing board should not be composed of elected officials, and its members should have backgrounds and expertise directly relevant to a utility's operations.
  - The regional entity should have sole rate-setting authority (i.e., rates should not be subject to any other public body's approval).
  - The regional entity should be customer-focused, especially in such matters as billing, infrastructure repairs, and other such matters common to retail customer interaction.
  - The regional entity's capital infrastructure program should be consistent with the Localities' comprehensive plans.
  - The regional entity should handle locally driven economic development matters equitably.

Based on Steering Committee comments and other input, certain governance recommendations are made as described in section 8.3

8.2.2 SERVICE EXTENSIONS

Each local government, per state law, must have a Comprehensive Plan for the locality's intentions for the orderly physical growth in residential, commercial, industrial, institutional, agricultural, transportation, conservation and recreation, and other such development. Comprehensive Plans must be reviewed at least every five years.

HRSD aligns its service extensions with the Localities in order to provide comprehensive public water and sewer services. The service extensions are subject to contracts called Interest Participation Agreements and Lease/Purchase Agreements.

HRSD pays close attention to a Locality's Comprehensive Plan, and it tries to align its service extensions with a Locality's service extensions. Simply put, if a Locality decides to extend public water service to a certain area, then HRSD likely will extend public sewer service to that same area, thus providing comprehensive public water and sewer services.

Interest Participation Agreements: HRSD extends certain infrastructure (interceptor lines) subject to an Interest Participation Agreement (IPA) with a Locality. An IPA is a contract between HRSD and a Locality, whereby the Locality provides financial assistance to HRSD for the construction of a new line to serve a new area. IPAs can be negotiated with a single Locality or with multiple Localities (in cases where a new line run through more than one Locality). In the case of IPAs, Localities make payments to HRSD.

HRSD and Localities in its service area have used IPAs successfully for many years, including in important economic development matters.

Lease/Purchase Agreements: HRSD also has provisions to enter into Lease/Purchase Agreement (LPA) with Localities. LPAs generally work like IPAs in that they are contracts between HRSD and one or more Locality for the construction of interceptor lines. An LPA would be used instead of an IPA when the Locality (or Localities) constructs the line, not HRSD. Such locality-led projects may at times be necessary when a line construction for various reasons may not be practical or financially prudent for HRSD to do. In the case of LPAs, HRSD makes payments to the Locality (or Localities).

Like IPAs, HRSD and Localities in its service area have used LPAs successfully for many years. LPAs may be used for important economic development matters.

Service Area Expansions: HRSD prepared its "Development Plan 2000" in 2003. This document sets forth HRSD's anticipated facility expansions over the next 10–20 years, based on projected flows tied to population and employment projections, to meet the growing needs of the Hampton Roads region. Development Plan 2000 was prepared with input from the Localities in HRSD's service area. However, Development Plan 2000 has not been updated recently due to the Consent Decree. Some parts of the plan are active while other parts have been superseded by the Consent Decree.

HRSD has procedures in place to review requests from Localities to expand services. For individual projects, HRSD has established a "Development Review Process" to guide how a proposal is reviewed and implemented.

Localities may submit requests to HRSD for a service area expansion. HRSD has procedures in place to ensure all requests are considered and acted upon consistently as well as ensure its engineers have all necessary information to determine the service area expansion's impact to HRSD's interceptor system.

When a Locality requests a service area expansion, HRSD conducts a preliminary sanitary sewer system capacity assessment and provides those results to the Locality. When there is sufficient capacity in the system, HRSD notifies the Locality of service area expansion approval. However, if there is not sufficient capacity, then HRSD and the Locality collaboratively conduct alternative analyses to determine what system improvements are needed to accommodate additional flows from the service area expansion.

Where service area requests involve industrial permitting, additional analyses must be conducted on the type of discharge and flow volume.

Development Review Process: For individual projects, HRSD has an established "Development Review Process" that governs how proposed new connections and modifications to its infrastructure and service areas, whether from private developers or local governments, are considered and implemented. The Development Review Process begins with the preliminary project plan review, technical review, and regulatory and standards compliance analysis. Depending on project location, a North Shore or South Shore engineer is assigned. Projects are tracked in HRSD's "Track It" system.

A Pressure Analysis is conducted and Flow Acceptance is modeled, as necessary, per HRSD's established procedures. Pressure Analysis letters are issued to the project owner and designer (good for one year) and Flow Acceptance letters are issued to a Locality (good for five years), and the tracking database and GIS are updated.

8.2.3 ECONOMIC DEVELOPMENT

Economic development is a term that encompasses many elements related to job creation and retention, including, among other things, workforce training and competencies, quality of secondary and higher education systems, land availability, utility infrastructure availability and capacities, transportation system convenience and adequacies, and the general costs of doing business, including various local and state taxes, fees, and rates.

Virginia is the 12th largest state, has the 10th largest economy, and is the 7th wealthiest state per capita. The Hampton Roads region is a significant part of each of these statistics – the region represents 20% of the state's population, is a major part of the state's economy, and thus contributes substantially to its per capita wealth.

Virginia's major economic sectors are agriculture, manufacturing, defense, business services (financial, IT, etc.), and tourism. In the Hampton Roads region, each of these sectors is significantly represented.

It is therefore very important to consider in this Regionalization Study how HRSD will effectively work with local economic development officials whose mission is to create and retain high-paying jobs and maintain the region as a primary economic engine for the state.

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Local and Regional Economic Development Approaches: Economic development is inherently competitive among localities, especially among those within a defined region. This is true in Hampton Roads.

Individual Localities in Hampton Roads, like any other region, have their own economic development goals and strategies that are reflective of community decisions based, in part, on land-use decisions, infrastructure capacities and plans, and workforce readiness. Local economies have a generally healthy mix of the primary economic sectors. A few sectors – defense, agriculture, and tourism – might play outsized roles in certain Localities.

Without forsaking their own individual economic development strategies and goals, the Hampton Roads local governments have generally lined up behind a regional economic development strategy that emphasizes "interdependence" in its economy, assets, and people. It is broadly recognized that the region's many major employers attract workers from across jurisdictions and that disposable income is thus widespread, and that infrastructure, especially transportation, is less jurisdictional than interconnected.

The Hampton Roads region has multiple economic development entities. All cities and counties within the HRSD service area have their own economic development departments, and there also are regional economic development entities, such as the Hampton Roads Partnership and the Hampton Roads Economic Development Alliance. It is routine for local and regional economic development entities to coordinate with the Virginia Economic Development Partnership (VEDP), the lead state entity whose mission is to attract and retain jobs.

It is common for HRSD to interact with all of these economic development agencies – local, regional, and state. HRSD works to provide objective, straightforward wastewater infrastructure and capacity information to all economic development partners.

HRSD has existing guidelines and protocols directing how its staff interacts with local and regional economic development officials. In HRSD's Development Plan 2000, there are prescribed procedures for how HRSD will work with local governments (including local economic development officials) to advance interceptor lines extensions to facilitate economic development projects. As a general rule, HRSD avoids opining on economic development matters that are clearly within the purview of local governments.

HRSD will need to interact with local economic development officials on such matters as capital programs planning, routine plan review, new connections and capacity expansions and service area extensions associated with Locality economic development opportunities.

Regionalization Study workshop participants have expressed some concern over how HRSD will interact with local economic development officials under the Regionalized Scenario, with HRSD owning local collection systems, on such matters as capital programs planning, routine plan review, new connections and capacity expansions, and service area extensions associated with Locality economic development opportunities. It is especially noted by local government economic development officials that for certain significant economic development prospects, such as major manufacturing facilities, utilities are an upfront consideration. As such, local economic development staffs and their local utility department counterparts have close working relationships, and there is insistence that HRSD staff work equally closely with them in order to fast-track high-priority prospects and projects.

8.2.4 COMMUNICATIONS AND OUTREACH

Locality utility and economic development departments, whether large or small, have one or more persons responsible for representing their departments to internal and external stakeholders – other departments and elected officials, customers they serve, neighboring communities and governments, state and federal regulators, and the media – on project-specific items as well as on more general matters to the public at large.

Locality utility and economic development staffs usually work closely on matters and projects of community importance. Coordination within a local government is generally uncomplicated, and easy, uncomplicated communications is the expectation.

Likewise, HRSD has dedicated staff responsible for representing HRSD and communicating its mission, responsibilities, and operations to external stakeholders. The HRSD Communications Division is part of the General Manager's office.

Generally speaking, the HRSD Communications Division focuses on communicating HRSD's role in protecting public health and water quality. It also supports environmental education and outreach projects.

The Communication Division's communications and outreach efforts run the gambit: general customer service for billing-related inquiries (very common); information on capital infrastructure projects that impact residents and commuters, such as new construction, rehabs, and repairs (very common); health and public safety officials, especially in times of emergency; schools and other community groups; and the media.

The HRSD Communications Division currently is not responsible for working directly with local government officials, developers, or state and federal regulators on specific technical matters related to projects or infrastructure.

However, the HRSD Communications Division does not have within its principal responsibility working directly with local government officials, developers, or state and federal regulators on the nitty-gritty of project- or infrastructure-specific matters. These communications and working relationships are typically managed by the General Manager in coordination with such departments as Engineering or Operations. These communications are often technical in nature, and they are carried out on a staff-to-staff level.

8.3 Recommendations for Regionalization

Over the course of the Regionalization Study, there has been significant interest paid to governance and local government coordination.

There is wide agreement that HRSD should have a more inclusive governance structure and more robust capabilities to work with local governments.

Specifically, representatives from all affected Hampton Roads Localities – counties, cities and towns; rural, suburban, and urban – have suggested in a relatively united fashion that an HRSD organization that assumes control over heretofore locally owned infrastructure should have a more inclusive governance structure and more robust capabilities to work with local governments on infrastructure, economic development, and public communications matters.

The general recommendations regarding governance and local government coordination are as follows.

- Restructure the current HRSD commission to be more inclusive of all of its member jurisdictions. That is, the commission should have one person from each local government – county or city – in its service area.
- Expand HRSD staff to more closely collaborate with local governments on infrastructure, economic development, and government relations efforts.
- Combine efforts to comprehensively conduct public outreach and educational communications.

These recommendations are discussed more specifically below.

8.3.1 GOVERNANCE

Governance Review: As "governance" has been a much-discussed issue, it is necessary to provide context to how it has been researched in this Regionalization Study and why certain recommendations have been made.

More than a dozen examples of regional authority governance structures were reviewed in depth for this study.

A considerable effort was made to review governance structures at major metropolitan regional authorities across the country. There are many governance models in place, and more than a dozen were reviewed in depth. A few examples demonstrate the variety of governance models.

- **Massachusetts Water Resources Authority (MWRA)** – The Massachusetts Water Resources Authority is a wholesale water and sewer services authority serving 61 Boston-area communities with a collective population of 2.5 million people. The MRWA has an 11-member board of directors, who are appointed in a variety of ways: the governor of Massachusetts appoints three members, the mayor of Boston appoints three members, the Town of Winthrop's council president appoints one member, the mayor of the City of Quincy appoints one member, and the MWRA advisory council appoints three members. Members' terms in office vary according to state law or the local ordinance for each appointing authority.

- **Tampa Bay Water (TBW)** – Tampa Bay Water is the regional wholesale drinking water provider to six localities and 2.3 million people. The six localities served by TBW include Hillsborough County, Pasco County, Pinellas County, the City of New Port Richey, the City of St. Petersburg, and the City of Tampa. TBW is governed by a nine-member board of directors, composed of two elected officials from each county and one elected official from each city. Each board member is appointed by the local government to which he or she is elected.
- **Bay Area Water Supply and Conservation Agency (BAWSCA)** – The Bay Area Water Supply and Conservation Agency provides wholesale drinking water to 24 cities and water districts and two private utilities in the three San Francisco Bay-area counties of Alameda, Santa Clara, and San Mateo. Residents served number 1.7 million. BAWSCA is governed by a 26-member board of directors, with one coming from each locality, agency, or private utility. The BAWCSA board members are appointed by the governing boards of participating entities, and terms of office tend to vary.
- **South Central Connecticut Regional Water Authority (SCCRWA)** – The South Central Connecticut Regional Water Authority provides wholesale drinking water to 20 localities with a collective population of 430,000. The SCCRWA has two governing boards. First, there is a Regional Water Authority Board (operational board), which has a five-person board of directors. Second, there is a Representative Policy Board, which has one representative from each of the 20 localities, plus one member appointed by the Governor. The policy board allows for weighted votes based on a formula reflecting the number of customers per the amount of land owned by the locality. There are 101 weighted votes, with the provision that no single representative can have more than 13 of the 101 total votes.
- **Southeastern Public Service Authority (SPSA); Virginia** – The Southeastern Public Service Authority is the South Hampton Roads regional solid waste disposal authority. It serves eight jurisdictions: City of Chesapeake, City of Franklin, City of Portsmouth, City of Norfolk, City of Suffolk, City of Virginia Beach, Isle of Wight County, and Southampton County. These localities have a combined population of 1.2 million.

  SPSA's governing board consists of eight members, one from each member jurisdiction. Each board member is appointed by the Governor from a slate of three nominees submitted by each of the eight member jurisdictions. Nominees are residents of their respective jurisdiction. Each appointee serves a term of four years; a member can only serve two consecutive terms. Additionally, there is provision for eight ex-officio members appointed by SPSA member localities (and eight alternates to them), each being a local government employee.

As noted, there is as wide a variety of regional utility authority governance models as can be imagined. Many are complicated – perhaps more complex in structure than would be preferred. Generally, where regional authorities have complex governance structures, it is likely the

The challenge is to create a balanced governance structure that provides adequate representation but is not overly complex.

result of member jurisdictions wanting to be adequately represented. In itself, that is a reasonable goal. The trick, however, is creating a balanced governance structure that provides adequate representation but does not inhibit governance, management, and operational efficiency. In other words, do not make it more difficult than it needs to be.

A proposed change in governance structure would allow for one resident citizen from each jurisdiction in the HRSD service area to serve as a representative on the HRSD governing board. Such a change would require an act of the General Assembly to be passed and signed by the Governor.

HRSD Commission – A New Governance Structure: It is worth reiterating that the governing board for an "authority" created by an act of the General Assembly has fiduciary responsibilities for the financial and operational wellbeing of that authority. That is, it is less a "representative" board where individual members' actions might be expected by some to align with the wishes of the local government for the jurisdiction from which the board member is appointed.

In discussions over the course of this Regionalization Study with representatives from affected Hampton Roads jurisdictions, a "consensus" has generally emerged that the current HRSD governance structure is not considered optimal if Localities are to consider transferring considerable infrastructure assets to HRSD. It is the general opinion that locally elected leaders will want an HRSD governing board whereby each jurisdiction in the HRSD service area will have one resident citizen serving on the board. HRSD currently has 17 cities and counties in its service area – that means a revised HRSD commission would have 17 members instead of its current eight members.

Governance Recommendation: Should a regional public entity – HRSD – assume ownership and responsibility of heretofore locally owned sanitary sewer systems, it is recommended that HRSD be governed by a commission consisting of one resident from each jurisdiction in its service area. Such a change would require an act of the General Assembly to be passed and signed by the Governor. The 2009 restructuring of SPSA's governing board provides a recent precedent for the General Assembly taking such action.

Specifics of the recommended governing structure for the regional entity are as follows.

- A 17-member commission, with each member being appointed by the Governor.
- Each local government in HRSD's service area would nominate three residents from that locality to the Governor for appointment consideration.
- No person currently elected to a local government body could be appointed.
- Appointees' professional qualifications should be in fields of expertise relevant to a management and operations of a regional utility authority.
- Terms of office should be for four years, with a commissioner being eligible for no more than two successive terms.
- Allowance should be made for 17 ex-officio members to be appointed. The ex-officio members would serve in an advisory capacity without voting privileges. Each ex-officio should be a local government employee appointed by his or her locally elected governing body. There also may be an alternate for each local ex-officio member.

8.3.2 Service Extensions and Infrastructure Coordination

As discussed above, Locality wastewater utility departments and HRSD have generally collaborated well over the years when it comes to integrating locally owned wastewater collection systems with HRSD-owned interceptor and treatment systems. There exist long-standing policies and protocols as well as customary habits and relationships for handling local sewer system extensions and integration and coordination of rehabilitation and repair projects. For the most part, the current well-established procedures for evaluating and approving new connections and extensions of sewer service (both currently developed areas without sewer service and new development) are expected to remain in place under regionalization.

HRSD would become the main point of contact and work much more directly with developers, planning departments and others requesting new or expanded sewer service. Otherwise, current procedures for evaluating and approving new sewer service connections and extensions are expected to remain in place.

What will change under regionalization is who developers, local planning department staff, and other parties needing or seeking new sewer service connections or extensions will contact and work with to handle sewer service needs. Currently, these parties work mostly with local utility department staff, who evaluate the impacts of the requested service on local sewer systems and manage the connection approval procedures with HRSD. Under

regionalization, HRSD would become the main point of contact and work much more directly with developers, planning departments and others requesting new or expanded sewer service. It is suggested that HRSD will need to apply additional staff resources to manage requests for new or expanded sewer service.

A fairly common question raised by the Regionalization Study Steering Committee members was if requests for sewer extensions under regionalization would be accommodated in a timely manner if such extensions aren't included in or scheduled well out into the future in HRSD's project plans and CIP. Interest Participation Agreements and Lease/Purchase Agreements between HRSD and Localities, which are commonly accepted among Locality utility and economic development departments, can help address this concern.

Interest Participation Agreements and Lease/Purchase Agreements can help address the concern about whether requests for sewer extensions under regionalization would be accommodated in a timely manner if such extensions aren't included in or scheduled well in advance.

Initial recommendations for managing issues of sewer extensions and infrastructure coordination under regionalization are as follows:

- HRSD and the Localities should work together to update HRSD's "Development Plan 2000" as implementation planning for regionalization and development of the RWWMP progress. As it has in the past, HRSD would lead the update effort in consultation with Localities within its service territory.
- HRSD should expand and supplement their development services staff in their Planning and Analysis group to manage requests for new and expanded sewer service. It is assumed that additional development services staff could be assigned from among Locality staff that transfer to HRSD under regionalization.
- Procedures should be developed under which HRSD will approve and assume ownership of sewer extensions that are implemented and/or paid for by local governments, as long as such extensions are compatible with downstream system capacity and peak flow targets. In updating Development Plan 2000, HRSD and localities can review how IPAs and LPAs have been working and can improve the process as necessary.

8.3.3 ECONOMIC DEVELOPMENT COORDINATION

How HRSD coordinates with local economic development staff is important to local governments. This has been expressed by virtually all local government and economic development representatives who have participated in the Regionalization Study workshops and discussions. At issue is the willingness for

local governments to give up certain utility functions and decision-making authority that have direct impact on development, whether residential, commercial, or industrial.

An effective relationship between HRSD and local economic development staff will require enhanced coordination and willingness of local governments to give up certain functions and authority.

Recommendations to foster enhanced coordination on wastewater infrastructure needs associated with economic development opportunities under regionalization are as follows.

- Create within HRSD a new Economic Development Coordinator position.
  - HRSD would be the hiring entity, and the position would be paid for by HRSD.
  - HRSD would prepare the job description and set forth the coordinator's responsibilities.
  - Generally, it is anticipated that this position would work with local government economic development officials on both the North Shore and South Shore, and would serve as HRSD point of contact on all economic development projects.
- As part of HRSD's update of "Development Plan 2000," include a more robust section on the importance of economic development coordination and how current procedures and protocols can be enhanced.

8.3.4 Government Affairs and Outreach

Hampton Roads local governments carry out government affairs functions in various ways. Some local governments vest these responsibilities principally in the chief administrative office and the chief elected official, while others have a person dedicated to government affairs who reports to the chief administrative officer or his designee.

HRSD vests government affairs in its General Manager's office, with support from staff in HRSD's Communications Division.

It is understood that if HRSD is to assume authority over heretofore locally owned wastewater collection infrastructure, thereby having comprehensive responsibility over collection and treatment systems, local governments desire to have increased, steady collaboration with HRSD.

The following is recommended to foster increased day-to-day communications between HRSD and local government staffs and officials.

- Create within HRSD two Government Affairs Liaison positions – one to work with local governments on the North Shore and one to work with local governments on the South Shore.
  - HRSD would be the hiring entity, and the positions would be paid for by HRSD.
  - HRSD would prepare the job descriptions and set for the liaison positions' responsibilities.
  - The Liaisons would be expected to develop close working relationships with local government utilities departments, administrative offices, and elected officials, and to work closely with the HRSD Economic Development Coordinator.

To ensure increased and steady collaboration between HRSD and local governments, HRSD should create two Government Affairs Liaison positions.

9.0 Summary of Conclusions and Recommendations

9.1 Comparing the Non-Regionalized and Regionalized Scenarios

This report documents the evaluation of owning, operating and improving wastewater systems in Hampton Roads, in particular doing so under state and federal Consent Orders to reduce unpermitted discharges, under two scenarios – the current Non-Regionalized structure with 14 individual Localities responsible for local sewer collection and HRSD responsible for regional conveyance and treatment, and a fully Regionalized Scenario with a single entity responsible for all collection, conveyance and treatment. The main objective of this evaluation is to compare the relative cost of providing wastewater service under the two scenarios.

Consent Order compliance and wastewater systems operation and maintenance could continue effectively under the current Non-Regionalized structure. However, there are significant economic benefits to Regionalization.

Nothing in this evaluation suggests that effective solutions to Consent Order compliance and wastewater systems operation and maintenance cannot continue to be provided under the current Non-Regionalized structure, within the limitations of a structure of distributed ownership and responsibility. Those limitations include the realities of an "everything, everywhere" approach to sewer system improvements in which all Localities target the same performance objectives, which may be an equitable approach but as shown by the results of the Comparative Analysis study not necessarily an efficient one from a region-wide perspective. The fact that rate payers can pay for improvements to their own municipally owned system, but not for systems owned by other municipalities, is a potential barrier to a more efficient region-wide approach.

Successful implementation of the Regional Wet Weather Management Plan (RWWMP) is more complex and has a higher risk of Consent Order non-compliance under the Non-Regionalized approach. Careful integration of project implementation among 14 Localities and HRSD is required, and a lapse in any of the 14 Localities in constructing projects on schedule and to the expected level of performance can jeopardize compliance and the overall performance commitments in the regional plan.

That said, and as commonly expressed by Steering Committee members during the execution of the Regionalization Study, there is some truth to the fact that under the current structure each Locality has more direct control in coordinating sewer system improvements with new service demands arising from growth and economic development efforts in their respective Locality. This is not to say that growth and development related decisions can be made in a vacuum – local improvements must be coordinated with HRSD – but there is a greater level of control over local system improvements under the Non-Regionalized structure.

The Regionalization Study evaluations have demonstrated significant economic benefits of the Regionalized Scenario to wastewater rate payers in Hampton Roads. The shift from an equitable, Locality-focused approach under Non-Regionalization toward an efficient region-wide approach under Regionalization produces estimated savings of approximately $1 billion for capital improvements (in 2013 dollars) for Consent Order compliance. Using the more appropriate measure of net present value over the 30-year planning horizon for this study, capital savings and operations and maintenance efficiencies combined provide estimated net present value savings of $948 million.

Capital savings and operations and maintenance efficiencies could provide an estimated net present value savings of $948 million over 30 years.

In addition to the economic benefits, implementation of a Regional Wet Weather Management Plan by a single entity is significantly less complex in a Regionalized structure, compared to coordinating such improvements and relying on timely execution among 15 different entities. Single-source responsibility is a more appropriate structure for managing the risks associated with implementing a region-wide program and complying with Consent Order requirements.

9.2 Recommendations on Regionalization

Based on the results of this Regionalization Study and the parallel Comparative Analysis on which it relies, the Regionalized Scenario offers significant economic benefits, reduced complexity of implementation of a Regional Wet Weather Management Plan, and improved management of risk associated with plan implementation and Consent Order Compliance compared to the current Non-Regionalized structure. For these reasons, it is recommended that HRSD and the 14 Hampton Roads Localities pursue the regionalization of wastewater

systems in Hampton Roads, with HRSD serving as the regional wastewater service provider.

Key recommendations for the Regionalized structure are summarized as follows.

- Localities should donate sewer infrastructure, equipment and rolling stock assets to HRSD, at no cost.
- Outstanding Locality sewer debt should be refinanced using a level debt structure.
- All Locality sewer utility personnel should transfer to HRSD, with no layoffs. Redundant management and administrative positions should be phased out through attrition.
- To enhance coordination with local governments, particularly in relation to growth and economic development-driven demands for new sewer service, the following changes to HRSD's Commission and staffing are recommended.
  - Expand the HRSD Commission to 17 members, one for each municipal entity within HRSD's service area. Commission members should be appointed by the Governor from among a slate of three candidates nominated by each municipal entity.
  - Create a 17 member ex-officio committee, composed of one appointed employee of each municipal entity in the HRSD service area, to serve in an advisory capacity to the Commission.
  - Expand HRSD's Planning and Analysis staff to handle requests for sewer extensions and other improvements related to growth and economic development.
  - Create within the General Manager's office a new Economic Development Coordinator position to foster active engagement and day-to-day coordination with the Localities' economic development and planning departments.
  - Create two new Government Affairs Coordinator positions to enhance coordination between HRSD and the municipal entities on common policy, communications, and public affairs issues.

9.3 Next Steps to Regionalization

9.3.1 Decision and Implementation Timeline

The Regionalization Study and Comparative Analysis Reports will be submitted to the EPA and VDEQ by August 31, 2013. The amended Consent Order timeline follows the Regionalization Study recommendation that regionalization of sewer system assets be pursued and includes a six-month period for the Localities and HRSD to consider, deliberate, and make a decision to implement regionalization or maintain the current non-regionalized structure. As shown on Figure 9.1, subsequent Consent Order milestones depend on the outcome of the regionalization decisions: the Localities and HRSD will either move forward with

implementation of the Regionalized Scenario and transfer of assets over a 12- to 18-month period or continue work toward the completion of the RWWMP.

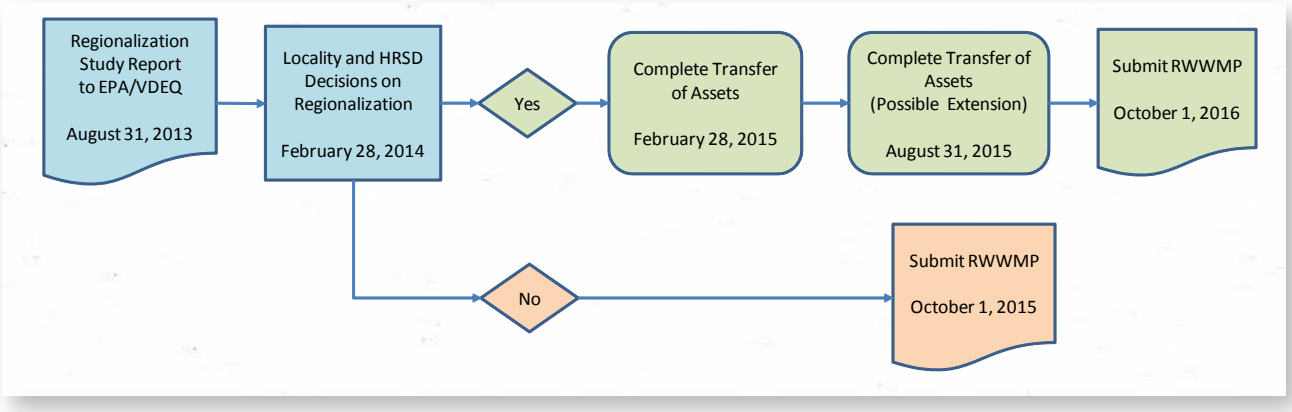

Figure 9.1 Consent Order Timeline

9.3.2 Transition Planning

Outlined in the Regionalization Study are broad, general approaches to structuring and making the transition from the current Non-Regionalized to a fully Regionalized wastewater service structure. By no means does this study provide or intend to provide a detailed implementation plan for regionalization.

As HRSD and the Localities pursue regionalization, a number of key issues will need to be negotiated and detailed transition and implementation plans developed. Some key elements that HRSD and the Localities will need to work on together to move toward regionalization are summarized as follows.

- Negotiate an agreed-upon structure and operating rules for an expanded HRSD Commission. This will need to be accomplished within the next six months for the Localities to make their final decisions on regionalization by February 28, 2014 per the amended Consent Order schedule.
- Legislative Action – Once the decision to regionalize is clear, initiate the appropriate legislative action needed to amend the HRSD charter to modify the HRSD Commission structure. Keeping in mind that the Virginia General Assembly convenes in January and the decision to regionalize may not be final until the end of February 2014, it is unlikely that a charter amendment could be completed during the 2014 legislative session via the normal steps for the legislative process, summarized as follows.
  - HRSD Commission adopts a resolution to amend the HRSD charter to modify the Commission structure. Note that this is more protocol than a legal requirement. The resolution should include specific details of the new Commission structure and be adopted in the late summer/early fall.

  - Select one or more Hampton Roads legislators, preferably both a House and Senate member, who agree to carry the legislation for the charter change. This should be done in the early fall.
  - Legislators submit draft bills for the HRSD charter change to the General Assembly's Division of Legislative Services for formal drafting of the bills. This should be done in November.
  - Legislators file House and Senate Charter Change bills, as early as the first week of December but no later than the opening day of the legislative session in January.
  - Charter Change bills for political subdivisions of the Commonwealth must receive a two-thirds approval vote in both the House and Senate, as required by the Virginia Constitution.
  - Based on the normal legislative process and timeline, it is likely that the HRSD charter change would be completed in 2015 legislative session, but probably not before the first Consent Order milestone for the transfer of assets of February 28, 2015. Should the Localities and HRSD want the charter change in place prior to completing the transfer of assets, they would need to request and get EPA and VDEQ approval of the six-month extension to August 31, 2015.
  - There is a provision that allows the Governor of Virginia to submit a bill to the legislature at any time. This is rarely done, and to the HDR team's knowledge has not been done for a Charter Change bill.

- Review and modify as necessary HRSD procedures for handling requests for service extensions, connections, and other items related to providing new or expanded sewer service in support of growth and economic development activities.
- Develop a detailed transition plan for the transfer of Locality sewer assets, equipment and personnel to HRSD. In addition to the myriad of logistical details that will need to be addressed for the transition, the plan should also address detailed staffing plans and job descriptions, workspace planning, equipment and rolling stock requirements and condition assessments, and operations support facility needs and planning. Given the relatively short 12- to 18-month timeframe in the amended Consent Order from the decision to regionalize to the completion of the transfer of assets to HRSD, the transition plan should be a high priority once the decision to regionalize is imminent.