



UMASS DONAHUE INSTITUTE

Metro South Regional Water/Sewer Authority Investigative Analysis

Prepared for the Metro South Chamber of Commerce

by
UMass Donahue Institute
Economic and Public Policy Research

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This work was researched and developed by the Economic and Public Policy Research (EPPR) group at the UMass Donahue Institute. Key project members included:

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Study Overview

The Metro South Chamber of Commerce commissioned the Economic and Public Policy (EPPR) group at the UMass Donahue Institute (UMDI) to develop background research regarding a possible regional water and sewer collaboration in the Greater Brockton region of Massachusetts. There are a number of possible benefits often associated with regional water and sewer service, including:

- Enhanced economic development opportunities;
- Greater rate stability and consistency between municipalities;
- Better management of costs, including the execution of system-wide capital improvements; and
- Standardized water quality and supply between municipalities.

This research focuses on water and sewer service in 10 municipalities in the Greater Brockton region, as suggested by the Metro South Chamber of Commerce. The municipalities included are:

- Abington
- Avon
- Brockton
- East Bridgewater
- Easton
- Hanson
- Holbrook
- Stoughton
- West Bridgewater
- Whitman

There were two main phases to the current research. In Phase 1, EPPR staff gathered information and background materials related to water and sewer service in the Greater Brockton region. This background material includes examining past efforts to regionalize water and sewer service, as well as assessing existing rate conditions, infrastructure, and possible capacity constraints in the region. EPPR staff also conducted interviews with several local and regional experts about water and sewer services. Interviews were conducted with federal and state environmental officials, as well as representatives from regional and municipal government and local business leaders. Lastly, EPPR conducted three in-depth case studies of regional water and/or sewer collaborations around the northeastern U.S. A preliminary report of Phase I findings was delivered to the Metro South Chamber of Commerce in November 2014. The current Phase I write up was updated to reflect known changes to permit status of the Brockton Advanced Wastewater Reclamation Facility (AWRF). Draft changes to this permit were announced in late February and early March 2015.

The Phase I portion of this report is split into three main sections:

- Major interview themes;
- Metro South regional Data; and
- Case studies of other regional water and sewer collaborations in the northeastern region of the U.S.

Phase II of this project provides recommendations for various options regarding water and sewer collaboration in the Metro South region. Phase II considers potential regional implementation scenarios, key challenges to regionalization in the Greater Brockton region, and the potential advantages and disadvantages of collaboration.

Phase II of this report is split in to three main sections:

- Limitations and suggestions for regional collaboration in Metro South region;
- Detailed action scenarios; and
- Conclusion on regionalization and complexities associated in Metro South.

Major Interview Themes

EPPR conducted in-depth interviews with nine local and regional experts ranging from elected representatives, federal officials, regional planning professionals, and local business leaders. In depth interviews were conducted with:

- Pat Ciaramella, President, Old Colony Planning Council
- Dan Murphy, Chair of the Board of Selectmen, Town of Easton
- Curt Spaulding, Regional Administrator for New England, Environmental Protection Agency (EPA)
- Bill Carpenter, Mayor, City of Brockton
- David Colton, Town Administrator, Town of Easton
- Richard Rosen, President, Rosen Realty¹
- Rick Krugger, Water Superintendent, Town of West Bridgewater
- John Haines, Department of Public Works Director, Town of East Bridgewater
- Frank Hegarty, Chairman of the Board of Selectmen, Town of Avon

In addition, EPPR staff conducted informal informational interviews with:

- Jonathan Hobil, Massachusetts Department of Environmental Protection (MASSDEP)
- James McLaughlin, Massachusetts Department of Environmental Protection (MASSDEP)
- Brian Creedon, Water Systems Manager, City of Brockton

Interviews conducted with municipal officials focused on questions regarding local water and sewer supply. Municipal officials were also asked their thoughts on a regional water and/or sewer collaboration, including possible barriers to implementation and potential governance structures. Interview with environmental officials focused on technical issues in regionalization. Of particular interest for this project is the capacity, performance, and permitting of the Brockton AWRP.

Overall, three main themes emerged from our interviews with local experts:

- There is a great deal of interest in a sewer collaboration, but less so for a water or combined collaboration;
- Permitting delays/flow restrictions with the Brockton AWRP makes it difficult to know if or when a regional collaboration using the facility can be realized; and
- Concerns exist over municipal autonomy, control, and governance of a regional collaboration.

¹ In addition, Richard Rosen also served on the Whitman Board of Selectmen from 1983 through 1989 and was part of the Joint Sharing Committee in the 1980s that examined various collaboration issues in the Metro South region.

Interest in a Regional Collaboration

Interviews with local officials showed significant interest in a regional sewer collaboration with the Brockton AWRP serving as the main facility for participating municipalities. Municipal officials interviewed from Easton, West Bridgewater, East Bridgewater, and Avon all expressed interest in regional sewer service. All four of these towns have virtually no sewer service at all,² with the vast majority of sewage needs being handled by private septic systems. In all cases, town officials related the issue of expanded sewer service to potential economic development. In short, the reliance on private septic service hampers local business growth. Some town officials suggested that high volume water users or businesses that managed to grow to a certain size were opting to leave their towns for another municipality that offered sewer service. Multiple town officials underscored the importance of expanded sewer service for their respective industrial parks.

One important benefit of expanded economic development, particularly in local industrial parks, is the potential increase in local tax revenues. For example, Frank Hegarty, Chairman of the Board of Selectmen for the Town of Avon, estimates that approximately 70 percent of the town's revenues come from Avon's industrial park tenants. However, the lack of sewer service for the park constrains business expansion and tends to push tenants out of Avon.

The interest in regional water collaboration was certainly much lower. Officials from Easton and West Bridgewater both felt that their water needs were adequately met by their current supply of water and had no concern of significant or serious water shortages. Both towns are serviced by municipal wells. The towns of East Bridgewater and Avon, also serviced by municipal wells, were both interested in supplemental water supplies. Avon, for example, is considering adding an additional municipal well to their current supply, but would be open to tying in to another system if the cost made sense to the town.

Interviews with both municipal and non-municipal officials suggested that a sewer-only collaboration is the easiest path forward as the need for sewer service, particularly in commercial areas, is apparent in several towns in the Metro South region. However, Mayor Bill Carpenter of Brockton strongly felt that any regional collaborations going forward should be a combination of both water and sewer service. This was related to the Mayor's desire to purchase the Aquaria desalination plant and sell water to other communities in the region. While describing himself as having a "regional focus", Mayor Carpenter stressed that any arrangement made to regionalize local services had to be in the best interests of Brockton. In part, he expressed some concern that expanded sewer service in the region could lead to businesses moving from Brockton to surrounding towns in the region.

Several interviewees suggested that the desire to collaborate on a regional water and sewer or sewer-only option is related to how a town and its population feel about development. Some towns in the region have resisted sewer and water collaborations in the past, fearing that their communities may become overdeveloped. As noted above, some towns wish to embrace this development as a potential source of tax revenues.

² The Town of Easton has a small amount of sewer service in town. The town recently completed a Comprehensive Wastewater Management Plan outlining long term plans for the town to expand sewer service through building small treatment facilities in town, as well as connecting to facilities in Brockton and Norton. This sewer expansion is geared mainly towards commercial districts.

Permitting Restrictions at the Brockton AWRF

Any plan to create a regional water and sewer or a sewer-only collaboration centers around the Brockton AWRF. However, there are significant federal permitting hurdles for the facility. There is also a long history of environmental performance issues at the Brockton AWRF. In August 2013, the State lifted the consent decree on the facility after \$100 million in facility upgrades and repairs corrected for the large amounts of untreated sewage being discharged into the Taunton River.

Currently, the AWRF is operating with an Environmental Protection Agency (EPA) license that expired two years ago. The facility is currently permitted to treat 18 million gallons per day (MGD) under the existing expired permit. In October 2012, the Brockton AWRF filed a “Notice of Project Change” (NPC) with the EPA, requesting a renewed license with expanded sewer capacity to 20.5 MGD. This expanded service would allow Brockton to sell more sewer capacity to existing users, as well as connect other potential users in the region. Currently, the facility provides sewer service to the City of Brockton, the towns of Abington and Whitman, Stonehill College, and a handful of individual users around the region. The total “existing flows” attributed to towns using the facility is 16.88 MGD, however, several local experts interviewed suggested the facility actually treats less sewage per day than its permitted amount. Estimates of actual daily flow through the treatment facility ranged from 10-14 MGD.

In the summer 2014, UMDI interviewed Curt Spalding, the EPA’s Regional Administrator for New England. He stated the EPA is pleased with the upgrades made at the Brockton AWRF. That said, Spalding described the Brockton AWRF as having a “suite of issues”, including concerns about capacity, inflow and outflow, bacteria levels, and nutrient discharges in to the Taunton River. In addition, the EPA needs to consider climate data and potential extreme rainfall that will put pressure on facilities. When asked about possible sewer collaboration in the Metro South region, Spalding said that the EPA has no official stance the regionalization of water and sewer services in Greater Brockton. However, if Brockton and the MassDEP can come together on a plan for regionalization, the EPA would be willing to accommodate increased flow capacity for the facility. That said, Spalding offered that the Brockton AWRF would need to present compelling reasons for a permit with expanded capacity, which has yet to be done.

In late February 2015, the EPA issued draft permit regulations with the Brockton AWRF. These draft regulations did not grant the requested increase capacity flow of 20.5 MGD.³ The EPA draft permit explicitly indicates the permit does not allow for increased capacity because the facility’s design flow increase has not yet been approved by MassDEP. Moreover, it has not been shown that Class B water quality standards can be attained at the increased flow, nor has the state conducted a review which demonstrates that this increase can be authorized under its antidegradation policy.⁴ Until the facility can get MassDEP to approve the request for additional flow capacity, the Brockton AWRF is limited to 18 MGD.⁵

Although the facility is limited to the 18 MGD with the new draft permit, a restriction on additional connections that was in the expired permit has been lifted. The Brockton AWRF has opened up

³ Environmental Protection Agency (EPA). “Water: Permitting (NPDES)”. Accessed February 19, 2015.

<http://water.epa.gov/polwaste/npdes/>

⁴ EPA NPDES Brockton Advanced Water Reclamation Facility NPDES Permit No. MA0101010

<http://www.epa.gov/region1/npdes/permits/draft/2015/draftma0101010permit.pdf>

⁵ It should be noted that MassDEP supported the NPC filed for the Brockton AWRF.

opportunities with their compliance and removal of infiltration/inflow (which will reduce sewer overflows). Therefore, the new draft permit removes the strict limitation on additional connections that is included in the current permit, so that some of the capacity that has opened up through removal of infiltration/inflow, even with the 18 MGD, can be allocated to other potential communities.⁶ Although this regulatory limitation has been lifted, the overall flow capacity restriction of 18 MGD limits the connections and additional flow that would be necessary for a regional effort.

Concerns over Governance, Autonomy, and Control

Several of the local experts interviewed about the possibility of a regional water and/or sewer collaboration expressed concerns over political feasibility. There is a long history of attempts to regionalize different services in the Greater Brockton area, including water and sewer delivery. Coupled with this long history are issues of distrust among municipalities regarding autonomy, control, and governance. Several interviewees suggested that local municipal leaders would have a hard time relinquishing control over their water and sewer systems to a regional collaboration.

When the governance structure of a regional collaboration was discussed, most local leaders offered that it would make sense that Brockton would have the most significant voice in any governing body, such as having more representation than the other participating towns. It was also offered that Brockton would likely need to be compensated for the infrastructural investments already made by the city in the water and sewer systems.

Multiple interviewees felt that leadership outside of local government would need to push any regional collaboration forward. Some suggested that the State, the Metro South Chamber of Commerce, and the Old Colony Planning Council (OCPC) could all play a significant role in getting municipal leadership together on water and/or sewer regionalization.

⁶ Ibid.

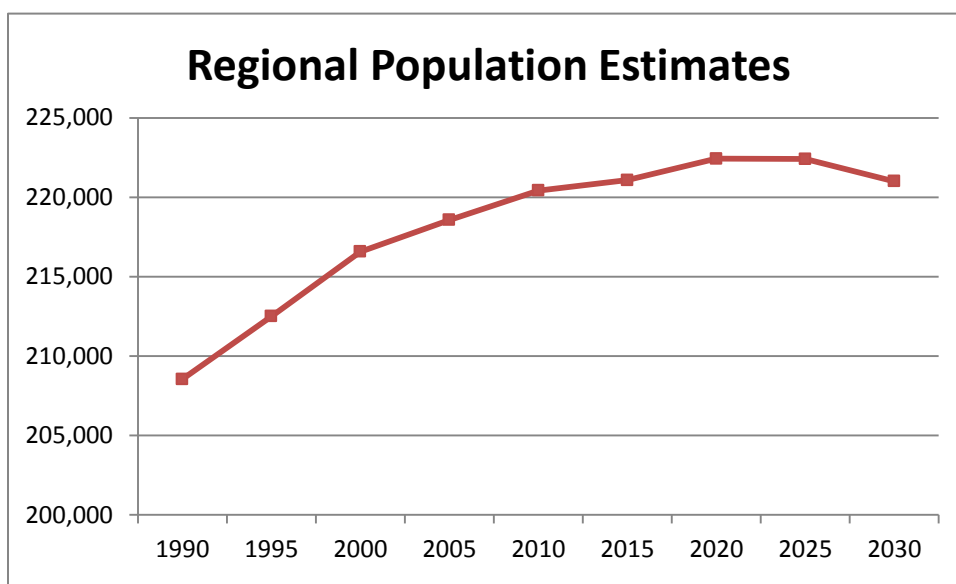
Metro South Regional Data

As part of information gathering on the Metro South region, EPPR staff amassed basic demographic, economic, and water and sewer data for the 10 cities and towns of focus: Abington, Avon, Brockton, East Bridgewater, Easton, Hanson, Holbrook, Stoughton, West Bridgewater, and Whitman. These data provide existing conditions in the region, as well projections for growth in the coming years. In addition, the water and sewer information helps provide a data-driven assessment of the water/sewer markets in the Metro South region.

Demographic Data

As we see in **Figure 1**, the Metro South region has experienced population growth since 1990. Overall, the combination of the 10 municipalities for this study grew nearly six percent between 1990 and 2010. Using the UMDI population projections for these same municipalities out to 2030, we see that the region is expected to continue to grow out to 2020 before population growth slows and then declines slightly by 2030.⁷

Figure 1: Metro South Regional Population Estimates



Source: U.S. Census Bureau, UMDI Population Estimates Program

Table 1 shows the total population, according to the U.S. Census Bureau, for each of the cities and towns in the region for 1990 and 2010, as well as the UMDI population projections for 2020 and 2030. As noted earlier, the region grew nearly six percent between 1990 and 2010. This lags

⁷ For more information on the methodology employed for UMDI population projections please visit: http://pep.donahue-institute.org/UMDI_LongTermPopulationProjectionsReport_2013.11.pdf. For more information on the population projections themselves, please visit: <http://pep.donahue-institute.org/>

slightly behind the state average of close to nine percent. In our study group, only Avon and Holbrook experienced population declines since 1990. Population gains stood out among East Bridgewater (24.2%), Easton (16.7%), Abington (15.7%), and Hanson (13.1%).

Table 1: Metro South Population Projections

| Community | Census 1990 | Census 2010 | Projection 2020 | Projection 2030 | Percent Population Change from 2010 to 2030 |
|--------------------------------------|------------------|------------------|------------------|------------------|---|
| Abington | 13,817 | 15,985 | 17,970 | 19,758 | 23.6% |
| Avon | 4,558 | 4,356 | 4,121 | 3,847 | -11.7% |
| Brockton | 92,788 | 93,810 | 93,884 | 92,394 | -1.5% |
| East Bridgewater | 11,104 | 13,794 | 14,400 | 14,887 | 7.9% |
| Easton | 19,807 | 23,112 | 22,531 | 21,268 | -8.0% |
| Hanson | 9,028 | 10,209 | 10,521 | 10,747 | 5.3% |
| Holbrook | 11,041 | 10,791 | 10,649 | 10,423 | -3.4% |
| Stoughton | 26,777 | 26,962 | 26,396 | 25,480 | -5.5% |
| West Bridgewater | 6,389 | 6,916 | 7,025 | 7,107 | 2.8% |
| Whitman | 13,240 | 14,489 | 14,931 | 15,094 | 4.2% |
| Regional Total | 208,549 | 220,424 | 222,428 | 221,005 | 0.3% |
| State Total for Massachusetts | 6,016,425 | 6,547,629 | 6,757,574 | 6,838,260 | 4.4% |

Source: U.S. Census Bureau, UMDI Population Estimates Program

Overall, the region is expected to grow only slightly between 2010 and 2020, with a modest decrease in total projected population between 2020 and 2030. In total, the region's population is expected to be basically unchanged between 2010 and 2030. Comparatively, the Commonwealth is projected to grow over four percent during the same time period. Focusing on the period between 2010 and 2030, significant population gains are projected for Abington (23.6%), East Bridgewater (7.9%), and Hanson (5.3%). UMDI projections estimate declines in Avon (-11.7%), Easton (-8.0%), Stoughton (-5.5%), Holbrook (-3.4%), and Brockton (-1.5%).

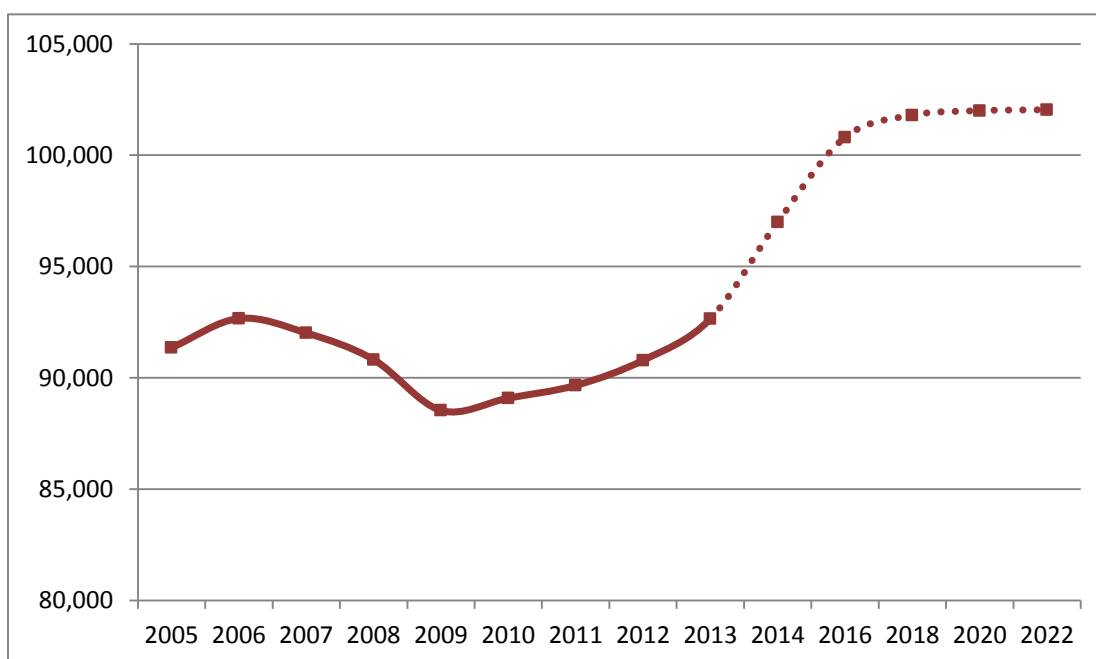
In short, Population projections indicate modest regional growth that could put pressure on existing water and sewer services in the region in the coming years.

Economic Data

In **Figure 2** we see the Brockton Workforce Investment Area (WIA)⁸ has recovered essentially all of the jobs lost during the Great Recession. Employment estimates in 2013 are the highest in the region since 2006. Moreover, using total employment projections from the Massachusetts Department of Labor and Workforce Development, we estimate that total number of jobs in the region will increase by over 12 percent by 2022.⁹

These projections suggest, again, the potential for greater pressure on the existing water and sewer systems in the region in the coming years.

Figure 2: Brockton Workforce Investment Area Average Yearly Employment



Source: Executive Office of Labor and Workforce Development (EOLWD), ES-202, EOLWD Long Term Industry 2012-2022 Projections, UMDI Analysis.

Water Data

Table 2 shows the water supply by municipality in our study area.¹⁰ The majority of towns in our study area supply their water through municipal wells. Stoughton supplies 65 percent of its water

⁸ The Brockton WIA is an area slightly larger than the 10-municipality area of this study. That said, it serves as a good proxy of the regional labor market.

⁹ The above 2022 projection was determined by applying the projected Brockton WIA growth rate to the 2012 ES-202 base employment for the same region.

¹⁰ These data came from the 2013 CDM Smith study of community wastewater needs and did not include Hanson and Holbrook.

through municipal wells, while the other 35 percent comes from the Massachusetts Water Resources Authority (MWRA). As we see, the majority of these towns are currently drawing daily water at a level similar to their permitted volume. While most towns interviewed expressed limited interest in a regional water collaboration, these data at least suggest that any significant gains in population or economic development may lead to towns needing to consider additional permitted volume and/or water supply.

Table 2: Metro South Community Water Supply

| Community | Water Supply Source | Average Daily Water Demand* | Permitted Annual Water Withdraw Volume |
|------------------|--|-----------------------------|--|
| Brockton | 95% from Silver Lake and 5% other source** | 9.2 MGD | 12 MGD |
| Abington | 4 municipal wells | 2.8 MGD | 2.7 MGD |
| Whitman | Brockton | 0.9 MGD | n/a |
| Avon | 7 municipal wells | 0.6 MGD | 0.6 MGD |
| Stoughton | 7 municipal wells and MWRA | 2 MGD | 2.2 MGD |
| West Bridgewater | 7 municipal wells | 0.7 MGD | 1.5 MGD |
| Easton | 6 municipal wells | 2.1 MGD | 2.2 MGD |
| East Bridgewater | 5 municipal wells | 1.1 MGD | 1.2 MGD |

*All towns except Whitman are based on Water Asset Study (WAS) through the Executive Office of Environmental Affairs (EOEA) in 2004. Whitman's information is based on Regional Water Asset Study (WAS) through the Executive Office of Environmental Affairs (EOEA) in 2006.

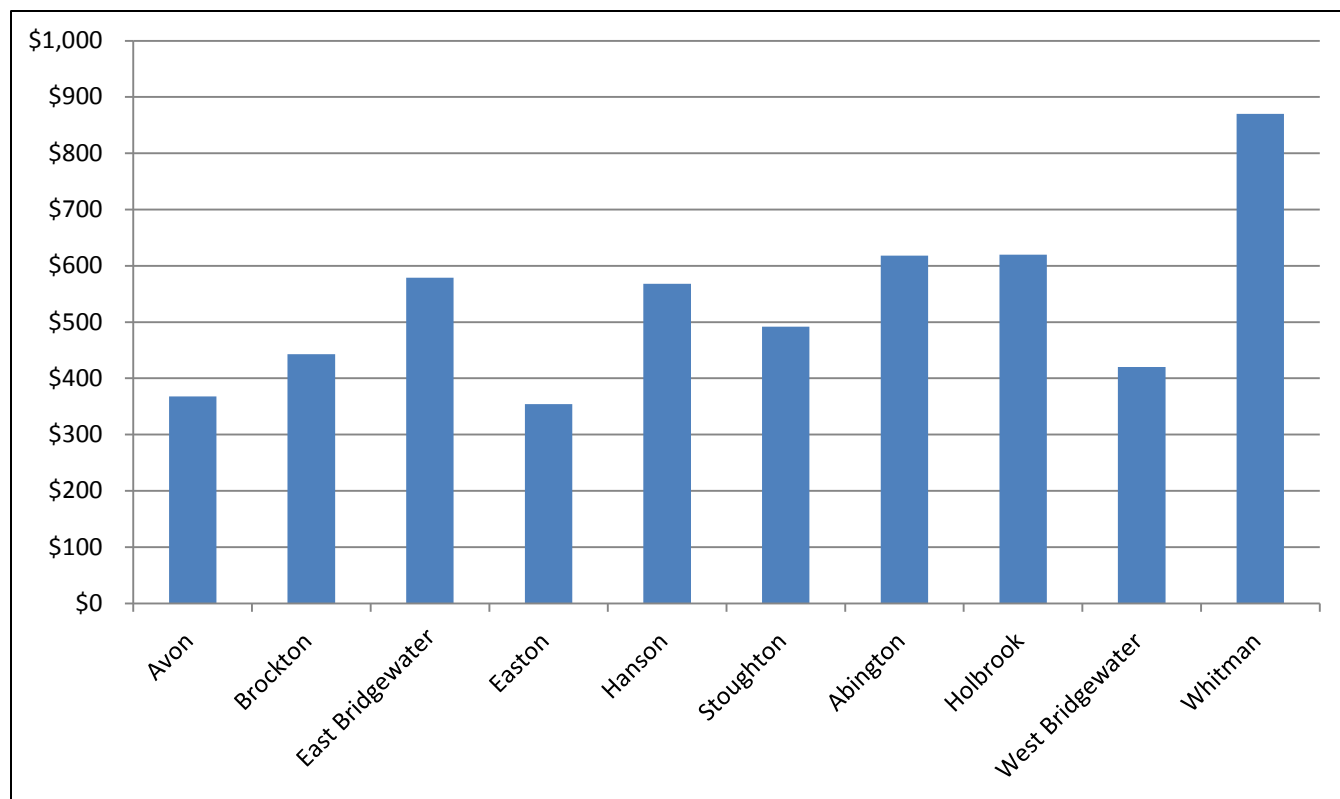
**The other 5% comes from the Brockton Reservoir and Aquaria Water Treatment Plant

n/a – not applicable

Source: Community Wastewater Needs. (2013, June). CDM Smith & Weston and Sampson, Inc.

Thinking next of water rates, we found that generally homeowner water rates have stayed consistent over the last few years in the region. **Figure 3** shows the average annual homeowner water costs by municipality. Easton (\$354) and Avon (\$368) have the lowest average annual water costs for homeowners. Abington has the highest average homeowner water cost at \$618. This rate is new for Abington. In 2009 and 2010 the average for Abington was \$426. In 2012 Abington's town council approved the current rate increase, which is reflected in the current average bill.

Figure 3: Metro South Average Annual Homeowner's 2012 Water Cost



Note: Typical Annual Homeowner's Cost was determined assuming consumption of (12,031 CF = 90,000 gals). Cost accounts for additional service and meter charges.

Source: 2012 Massachusetts Water Rate Surveys. *Tighe and Bond*.

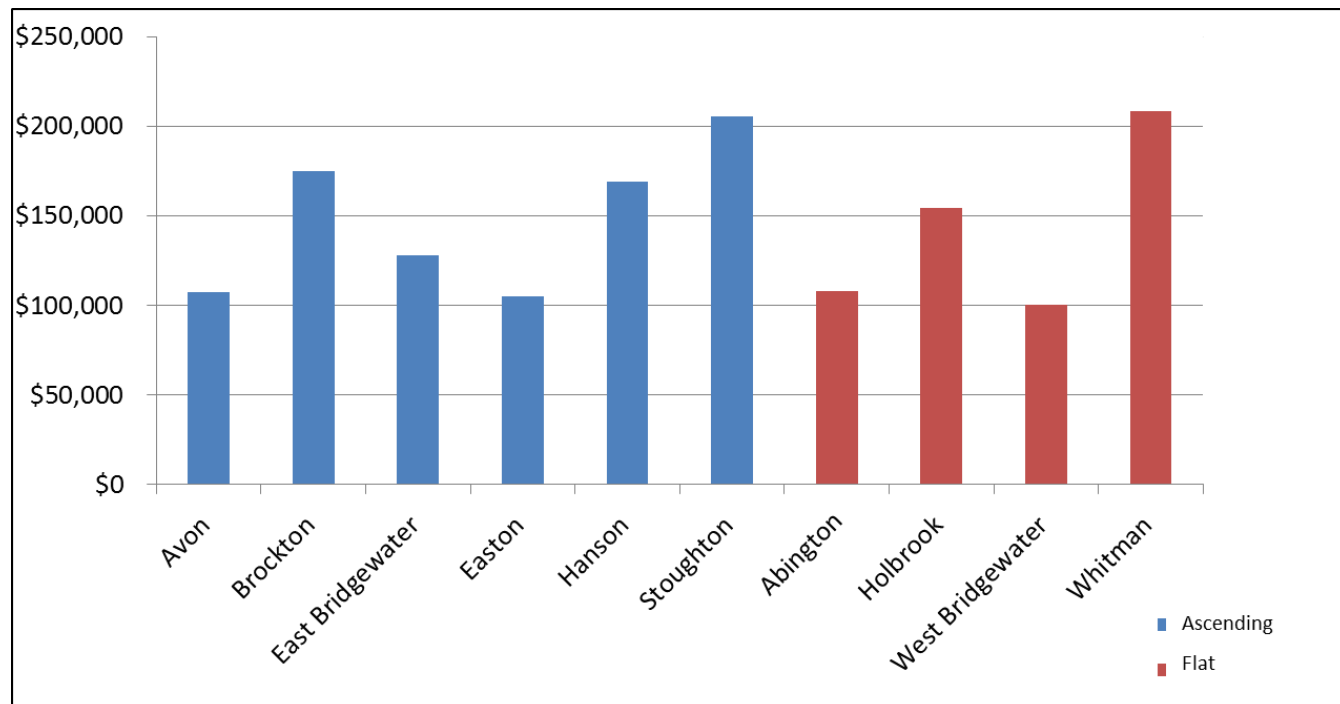
<http://rates.tighebond.com/Downloads/2012MAWATERFINAL.pdf>

Of particular interest to the Metro South Chamber of Commerce is the cost of water on the business community and, in particular, high water users. While most of the towns in our study area do not have a separate commercial water rate¹¹, it was possible for us to estimate the average annual water bill for high water users.¹² From there, we compared the rate difference between those municipalities with a flat fee structure versus those municipalities that had an ascending price structure. As we see in **Figure 4** the annual high water user cost varies from municipality to municipality. However, on average the water bill for high volume users is four percent higher in municipalities using an ascending rate structure than a flat structure (\$148K versus \$143K, respectively).

¹¹ East Bridgewater, West Bridgewater, and Holbrook have commercial water rates. The other seven towns do not.

¹² We defined "high water users" as the average range of commercial water usage as defined by the MWRA. Costs for high/commercial users are based off 12,699 HCF/year.

Figure 4: Metro South 2012 Annual High User's Water Cost



Sources: 2012 Massachusetts Water Rate Surveys. *Tighe and Bond*.
<http://rates.tighebond.com/Downloads/2012MAWATERFINAL.pdf>
<http://www.mwra.com/comsupport/ici/commercialbuildings.htm>.

Sewer Data

Generally speaking, sewer service is not common in the region. The towns of Avon, East Bridgewater, Hanson, and West Bridgewater are septic only towns. Easton is basically a septic only town as well, with less than one percent of the town having sewer service. That said, Easton has recently completed a Comprehensive Wastewater Management Plan (CWMP) that includes increased sewer service in selected commercial districts in town. The CWMP also includes options to connect to wastewater treatment facilities in Brockton and Norton.¹³ **Table 3** shows the sewer versus septic breakdown¹⁴ in our study area, as well as basic information on sewer costs, where applicable.

¹³ Historically, the town of Mansfield has operated the wastewater treatment facility in Norton. This treatment facility serviced the towns of Mansfield, Foxborough, and Norton. Recently the towns of Mansfield, Foxborough, and Norton created a new Wastewater Treatment District. Now, the facility is governed by a board and run by its own staff. Because this is fairly new arrangement and Mansfield once ran the facility, several documents will suggest the waste from Easton would be “sent to Mansfield”. In reality, the waste would actually be sent physically to the town of Norton.

¹⁴ The sewer percentage for each municipality was reported from each respective Department of Public Works or Water Department in phone calls conducted by EPPR staff in August 2014.

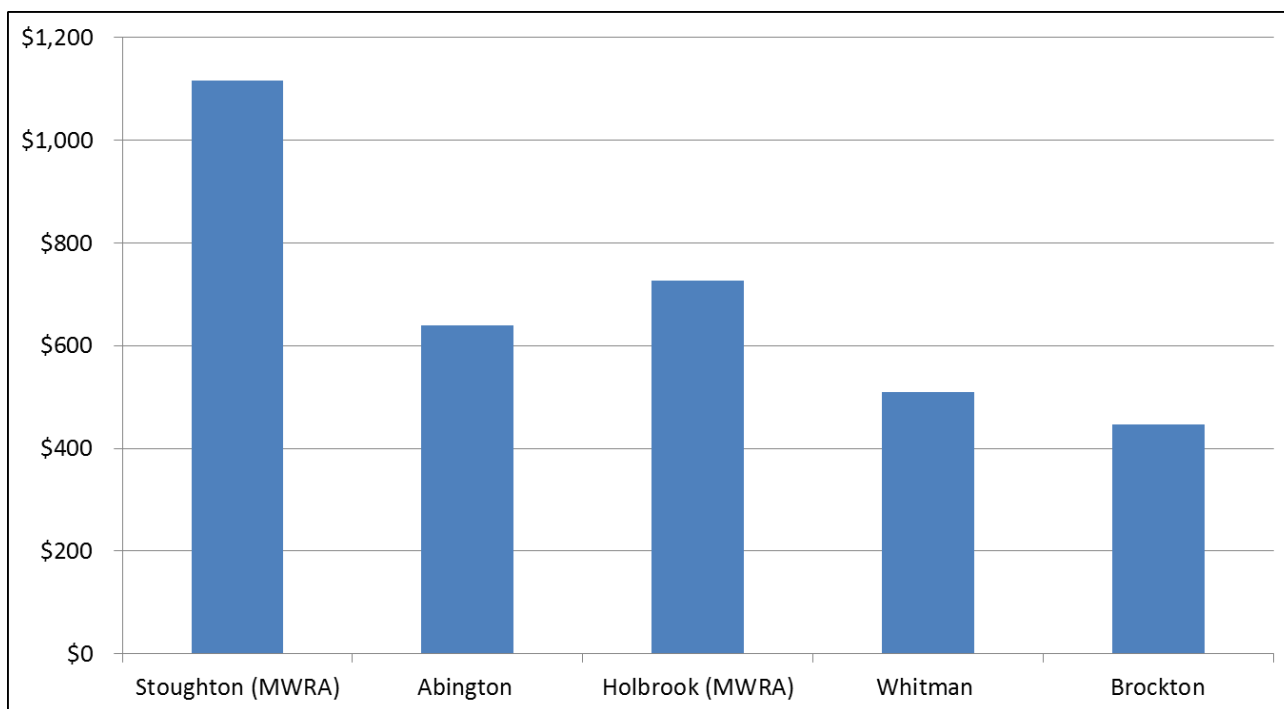
Table 3: Metro South Sewer Services Rate Structure

| Town | Current Percentage of Sewer | 2012 Typical Annual Homeowner's Cost | Rate Structure | Wastewater Treatment Facility |
|------------------|-----------------------------|--------------------------------------|----------------|---|
| Abington | 90% | \$640 | Ascending | 95% to Brockton, 5% to Rockland |
| Avon | Septic Only | - | - | - |
| Brockton | 95% | \$446 | Ascending | Brockton's Oak Hill Way Wastewater Treatment Facility |
| East Bridgewater | Septic Only | - | - | - |
| Easton | 0.9% | - | - | - |
| Hanson | Septic Only | - | - | - |
| Holbrook (MWRA) | 90% | \$726 | Flat | MWRA |
| Stoughton (MWRA) | 60% | \$1,117 | Flat | MWRA |
| West Bridgewater | Septic Only | - | - | - |
| Whitman | 93% | \$510 | Flat | Brockton's Oak Hill Way Wastewater Treatment Facility |

Source: 2012 Massachusetts Sewer Rate Surveys. *Tighe and Bond*.
<http://rates.tighebond.com/Downloads/2012MASEWERFINAL.pdf>

Figure 5 further highlights the price differences in sewer service between municipalities in our study area. In particular, Stoughton and Holbrook's sewer rates are substantially higher than those of Whitman, Abington, and Brockton. Both Stoughton and Holbrook currently receive sewer service through the MWRA.

Figure 5: Metro South 2012 Annual High User's Water Cost



Source: 2012 Massachusetts Water Rate Surveys. *Tighe and Bond*.
<http://rates.tighebond.com/Downloads/2012MAWATERFINAL.pdf>

Wastewater Flows to Brockton – Today and Potential Future Needs

As noted earlier in this interim report, Brockton filed a Notice of Project Change (NPC) with the EPA regarding the permitted capacity of their AWRf. **Table 4** shows the current flow allocations in the Brockton AWRf by municipality, as well as future projected flows assuming a new permit from the EPA with increased capacity. The NPC includes estimated sewage flows from eight of the 10 communities in our study area.¹⁵ Brockton's NPC was supported by the MassDEP.

¹⁵ Holbrook and Hanson were not included as part of the NPC expansion plans for the Brockton AWRf.

Table 4: Current¹⁶ and Projected Wastewater Flows to Brockton

| Community | Total Existing Flow (mgd) ¹ | Near Term Additional Flow Needs ³ | Total Existing & Near Term Flow (mgd) | Total High-end Existing & Future Flow (mgd) |
|--------------------------|--|--|---------------------------------------|---|
| Brockton ² | 15.0 | 0.4 | 15.4 | 18.5 |
| Abington | 1.0 | 0.1 | 1.1 | 1.3 |
| Whitman | 0.9 | 0.1 | 1.0 | 1.3 |
| Avon | -- | 0.2 | 0.2 | 0.31 |
| Stoughton | -- | 0.02 | 0.02 | 0.12 |
| West Bridgewater | -- | 0.1 | 0.1 | 0.2 |
| Easton | -- | 0.1 | 0.1 | 0.55 |
| East Bridgewater | -- | 0.1 | 0.1 | 0.25 |
| Sub-region Totals | 16.9 | 1.2 | 18.0 | 22.5 |

(1) Existing Flows for period 2008-2010

(2) Includes flows from Stonehill College and small flows from Avon, West Bridgewater and Stoughton

Source: Upper Taunton River Regional Wastewater Evaluation Task 2 – Community Needs. (2012, October). CDM Smith & Weston and Sampson, Inc.

¹⁶ As noted earlier in this report, the total “existing flows” attributed to towns using the facility is 16.88 MGD, however, several local experts interviewed suggested the facility actually treats less sewage per day than its permitted amount. Estimates of actual daily flow through the treatment facility ranged from 10-14 MGD.

Case Studies

EPPR staff surveyed best practices of regional water and sewer collaborations around the U.S., with a focus on the northeast region. In particular, we were interested in examining instances where multiple locally-controlled and managed systems converted or consolidated in to a single integrated collaboration to deliver water and/or sewer service. In these case studies, we explore the impetus and conditions for collaboration, the lessons learned, benefits, and costs of these initiatives. EPPR developed three in depth case studies of regional water and/or sewer collaboration: The Greater New Haven Water Pollution Control Authority, the South Central Connecticut Regional Water Authority, and the Mansfield-Foxborough-Norton (MFN) Regional Wastewater District. Each case study included a scan of existing literature and news stories related to the organization, as well as interviews with current staff members of the organization in question.

The Greater New Haven Water Pollution Control Authority (GNHWPCA)

Introduction

Greater New Haven Water Pollution Control Authority (GNHWPCA) was created in 2005 to provide services to the municipalities of New Haven, Hamden, East Haven and Woodbridge. Prior to the creation of the GNHWPCA, the Water Pollution Control Authority (WPCA) of the City of New Haven provided regional wastewater services and treatment to the same municipalities through inter-local agreements. In 1996, issues regarding the interlocal agreements arose, including disputes over inaccurate meter readings and municipal payment discrepancies. The GNHWPCA was created to help streamline services, improve system performance, and assure effective wastewater management and services.

Background

The WPCA provided wastewater collection and treatment services on a retail basis to 22,000 customers in the City of New Haven, and 25,000 customers to the towns of Hamden, East Haven and Woodbridge through inter-local agreements.¹⁷ Before the Greater New Haven Water Pollution Control Authority, each town had their own individual water pollution control authority. New Haven would sell wastewater services to East Haven, Hamden, and Woodbridge at a wholesale price. In 1996, discussions around a regional wastewater authority commenced, due to budgeting concerns between the municipalities. Each town benefited from collaborating with the new Authority because the bonds that were released to the GNHWPCA cleared the towns of their individual debt and provided the opportunity for the towns to receive other loans with decreased interest payments. Each community ended up with a cash infusion as a result of the Authority.

¹⁷ Greater New Haven Water Pollution Control Authority Cost of Service Study. (2011, March 31). *RSM McGladrey, Inc.* Retrieved September 3, 2014, from http://gnhwPCA.com/Userfiles/financial_reports/GNHWPCA_2011_COSS_Report_03-31-11.pdf

The regional authority took nearly 10 years to generate support and enabling legislation. There were many actors involved that needed to approve the regional authority. One concern that local environmentalists had was the possible degrading of water quality in the New Haven Harbor. As a result of this concern the New Haven Green Fund, Inc., a 501c(3) non-profit corporation was incorporated in 2006 to support public and environmental health initiatives.¹⁸ The constituent municipalities of the GNHWPCA agreed to establish the fund of \$1,000,000 when they purchased the Water Pollution Control Authority from the City of New Haven.¹⁹

As shown in **Table 5**, the total population served by the system is approximately 229,000 people. Almost half the customer accounts reside in the City of New Haven, where Hamden has 31% of the accounts, and East Haven with 21% of the accounts.

Table 5: Population and Customers of the Authority

| Member Town | Population ¹ | Active Authority Customer Accounts ² | | | | | |
|-------------|-------------------------|---|-------|---------|--------|--------|------|
| | | Resid. | Comm. | Indust. | Public | Total | % |
| New Haven | 129,779 | 20,418 | 2,123 | 77 | 231 | 22,849 | 46% |
| Hamden | 60,960 | 14,602 | 846 | 39 | 61 | 15,548 | 31% |
| East Haven | 29,257 | 10,139 | 307 | 7 | 31 | 10,484 | 21% |
| Woodbridge | 8,990 | 404 | 104 | 0 | 3 | 511 | 1% |
| Total | 228,986 | 45,563 | 3,380 | 123 | 326 | 49,392 | 100% |

(1) 2010, U.S. Census Bureau

(2) Authority billing data as of March 17, 2011

Source: Greater New Haven Water Pollution Control Authority Cost of Service Study. (2011, March 31). RSM McGladrey, Inc.

East Shore Water Pollution Abatement Facility

The Authority utilizes the East Shore Water Pollution Abatement Facility, the same treatment facility used by the WPCA. The facility's maintenance, operations, collection processes, and sludge disposal have been contracted out to private companies since the mid-1990s.²⁰ The treatment plant is located on the southern coast of New Haven, and can process up to 40 MGD on dry weather days. The treatment plant's average daily flow is approximately 33 MGD (**see Table 6**). The facility is the second largest wastewater treatment plant in Connecticut.²¹

¹⁸ New Haven Green Fund, <http://gnhgreenfund.org/content/background>

¹⁹ Ibid.

²⁰ Greater New Haven Water Pollution Control Authority Cost of Service Study. (2011, March 31). RSM McGladrey, Inc.

²¹ Nakamura, J, et al. Water and Waste. *A Peoples Guide to Infrastructure in New Haven*.

<http://infrastructurenewhaven.commons.yale.edu/waste-and-water/#Greater-New-Haven-Water-Pollution-Control-Authority-2>

Table 6: Summary of Wastewater System

| Summary of GNHWPCA Wastewater System | |
|--------------------------------------|--------------|
| Service Area | 53,000 acres |
| Treatment Plant Capacity | 40 MGD |
| Average Daily Flow | 33 MGD |
| Pump Stations | 30 |
| Siphons | 8 |
| Sewer Collection System | 510 miles |
| Combined Sanitary/Storm Sewers | 50 miles |
| Manholes | 14,000 |
| Average Age of Collection System | 40 years |

Source: About GNHWPCA. *Greater New Haven Water Pollution Control Authority*. Retrieved September 3, 2014.
http://www.gnhwpca.com/about_gnhwpca.aspx

Governance

All business of the Authority is managed by a nine-member Board of Directors. Each Director has one vote. There are four Directors from New Haven appointed by the Mayor and approved by the Board of Aldermen; two Directors appointed from East Haven by the Mayor of East Haven, with the approval of the Town Council; two Directors from Hamden appointed by the Mayor and approved by the Town Council; and one Director appointed from Woodbridge appointed by the town's First Selectman and approved by the Board of Selectmen.²²

The Directors are appointed to staggered three year terms. In any single year, no more than three Directors' terms are scheduled to expire at one time.²³ According to the bylaws, a majority vote of the Directors is required to approve all Authority business transactions. Some major issues require a 2/3rds vote, such as the removal of a Director or entering in to a new inter-local agreement.

Management and Staff

The Authority is led by an Executive Director, who is responsible for the technical and administration operations of the Authority, as well as ensuring the implementation of programs, policies, and procedures determined by the Board of Directors. As of March 2011, there were 37 full and part time private entity employees responsible for the sludge management and operations of the Authority.

Lessons Learned

The creation of the regional water pollution control authority is a slow process. Some of the lessons learned that were noted by the engineering department of the GNHWPCA was the need to

²² Greater New Haven Water Pollution Control Authority Cost of Service Study. (2011, March 31). *RSM McGladrey, Inc.* Retrieved September 3, 2014. http://gnhwpca.com/Userfiles/financial_reports/GNHWPCA_2011_COSS_Report_03-31-11.pdf

²³ Ibid.

understand and communicate how the authority will impact each individual community. In addition, the authority needs to develop long-term plans for dealing with significant environmental issues in the region. For example, the Greater New Haven area has wastewater, storm water, and snow all flowing in the same piping system. This kind of system needs to have plans for dealing with overflow issues.

One assessment that must be made prior to the establishment of the regional wastewater authority is understanding the demands of the surrounding towns. For municipalities that do not want increased economic development and are septic only, it would not be practical for that municipality to buy into the regional authority. However, if the municipality were considering joining in the future, it would be more cost effective for the town to buy in initially rather than joining an already established authority.

Benefits

One benefit of the regional collaboration in Greater New Haven was cost saving to the participating communities, including local businesses. Prior to the regional authority, each town's water authority would be responsible for funding staff for operation and maintenance, billing and collection, and working with state regulators to ensure quality compliance. By consolidating into a quasi-governmental entity, the communities would not have to compete with other departments for funding. The GNHWPCA divided costs among the existing communities and allowed for the entire organization to be solely focused on the regional wastewater system. Participating towns also shared in the cost of upgrading and repairing leaky pipes through the wastewater system. The Authority also standardized regional billing, as all customers of the Authority are charged under the same usage rate.

Many towns rely on the Department of Public Works (DPW) to provide wastewater needs. This often overwhelms the DPW, as there are many other responsibilities that the DPW has such as road maintenance, trash collection, snow removal, property maintenance, and municipal electrical systems. As a result, the attention that the wastewater system needs often gets neglected. The GNHWPCA relieved pressure from the surrounding town's local departments and, in turn, increased the quality of the regional wastewater system.

Costs

The primary capital funding for the Authority comes from tax-exempt bonds. In addition, the Authority can apply for financing from the Clean Water Fund, a state revolving fund that provides low-interest loans.²⁴ In 2010, the net cash flows from the user charges were \$11.9M and the total debt service payments (with principal and interest) were \$9.9M making the debt service coverage ratio 1.20. This indicates that the authority is generating enough cash flow to meet its debt obligations.

²⁴ Ibid.

The South Central Connecticut Regional Water Authority (SCCRWA)

Introduction

The South Central Connecticut Regional Water Authority (SCCRWA) was established in 1980 after local municipalities received bonds to purchase the New Haven Water Company. The New Haven Water Company was under regulatory pressure created by the Safe Drinking Water Act of 1974 and decided to sell land to raise capital to improve treatment plants. Much of the land that the New Haven Water Company was selling consisted of open space with the potential for community recreation areas. Public outcries to preserve the land against private development were heard by local municipalities. As a result, the City of New Haven, along with 16 surrounding towns jointly created the SCCRWA.

Background

The New Haven Water Company was established in 1849, providing water to 17 towns in the Greater New Haven area. Stricter federal regulations ushered in with the passing the Safe Drinking Water Act of 1974 placed significant capital pressure on the New Haven Water Company to upgrade and improve water treatment facilities. In 1976 the Water Company estimated expenditures far exceeding the total cost of the existing utility plant.²⁵ With the company exceeding their borrowing power, the only option was to increase water rates two to three times, in addition to selling land assets. This was not received well by local residents and stakeholders. Suburban communities feared that the land would be sold to a private-investor who would create multi-family units and not preserve recreational opportunities to residents.

In 1976, the state legislation established a commission to study the feasibility of establishing a regional water authority.²⁶ The commission had 17 members; one from each town served by the New Haven Water Company or that had company land within its boundaries. The commission issued its report in January 1978, recommending formation of the Authority.²⁷ The company was purchased through Water System Revenue Bonds and the Authority was created in 1980.

Operations of the official regional water Authority began in 1982, shortly after the acquisition. The initial towns that were provided with water and other services included portions of Bethany, Branford, Cheshire, Derby, East Haven, Hamden, Milford, New Haven, North Branford, North Haven, Orange, West Haven and Woodbridge.²⁸ In 2007, the Regional Water Authority purchased Birmingham Utilities and Birmingham Water Services and took the water customers from the towns of Ansonia, Seymour, and Derby.²⁹

²⁵ Dorothy S. McCluskey and Claire Bennitt, *Who Wants to Buy a Water Company?*, (Rutledge Books, Inc, 1996), pg. 9

²⁶ Kevin McCarthy. *Formation of Regional Water Authorities*. ORL Research Report. (November 1999).

<http://cga.ct.gov/PS99/rpt%5Colr%5Chtm/99-R-1222.htm>

²⁷ Ibid.

²⁸ The total number of towns here is less than the number of towns listed above. The reason is some towns are a part of the Authority without receiving any services. These are towns where the Authority has land holdings.

²⁹ Bloomberg. *Birmingham Utilities Announces Sale of Company to South Central Connecticut Regional Water Authority*.

http://www.bloomberg.com/apps/news?pid=newsarchive&sid=ac8dma_mA398

Governance

The Water Authority is governed by two boards. There is a Regional Water Authority Board and a Representative Policy Board. The Regional Water Authority Board is a five-person board of directors that oversee annual operating and capital budgets and provide strategic direction to management. The Representative Policy Board is composed of one representative from each of the 20 municipalities in the regional watershed plus one member appointed by the Governor of Connecticut.³⁰ The Board votes are weighted based on the number of customers and the amount of land that is owned in each municipality. The board is the economic regulator that oversees sales and acquisitions of land, reviews capital expenditures over \$2 million, approves proposed water rates, and appoints members to the Board.

Lessons Learned

The most notable theme was the public influence in land purchasing. The private water company was faced with significant expenses to upgrade secondary and tertiary filtration systems, along with the operating costs associated with stricter clean water regulations. The private water company's plan to sell the majority of their land led to public opposition that the land would be developed. In response to public opposition, the Mayor of New Haven and local legislators imposed a moratorium on the land sales and proposed public ownership of the water works.³¹ The response of public opinion on a local, municipal basis helped contribute to the successful creation of a public Water Authority.

Benefits

The watershed management approach that was initiated by the SCCRWA is a beneficial result of the Authority's creation. The watershed management plan is focused on protecting the watershed, which spans across several communities in south central Connecticut. The Regional Water Authority has an active program for policing the watersheds. The Authority mandated 25,000 acres for recreational use at the time of acquisition. The Authority has maintained quality drinking water, as well as allowing large parcels of land for recreational fishing and hiking.

Mansfield-Foxborough-Norton (MFN) Regional Wastewater District

Introduction

In 1985, the towns of Mansfield, Foxborough, and Norton entered into an Inter-municipal Agreement (IMA) to share a wastewater treatment facility located in Norton, but operated by Mansfield.³² Initially, this plant was intended to be a regional facility, receiving 80 percent of its funding from the federal government, 10 percent from the Commonwealth, and 10 percent from local sources. Ultimately, Foxborough and Norton decided against joining the regional district.

³⁰ FY2015-FY2020 Strategic Plan. *South Central Connecticut Regional Water Authority*. Retrieved September 23, 2014. <http://www.rwater.com/media/25419/Strategic-Plan-FY2015-FY2020-no-appendices.pdf>

³¹ Dorothy S. McCluskey and Claire Bennitt. *Who Wants to Buy a Water Company?*. (Rutledge Books, Inc, 1996). 1-171

³² Mortimer, F. (2009, April 2). New sewer plan would be optional. *Foxboro Reporter*. Retrieved August 28, 2014, from <http://www.foxbororeporter.com/articles/2009/04/07/news/4668490.prt>

Mansfield decided to go ahead with building a smaller version of the original wastewater treatment facility. The town ended up selling treatment capacity to both Foxborough and Norton.

The IMAs between the towns expired in 2005. The facility continued to operate under the old agreements while a committee made up of representatives of the three towns explored key wastewater issues facing the region, as well as the condition of the treatment facility. In particular, the plant faced capacity issues and was in need of basic maintenance and upgrades.

What resulted was the development of the Mansfield-Foxborough-Norton (MFN) Regional Wastewater District, which was official launched in July 2014. This agreement will expand the current wastewater facility by 1.0 million gallons per day (MGD). Mansfield will increase its current flow allocation by 0.67 MGD, while Foxborough and Norton will each get an additional 0.17 MGD.³³ In exchange for the increased financial commitment from Foxborough and Norton to upgrade and expand the existing facility, Mansfield agreed to relinquish ownership and control of the treatment plant. Instead, a new Wastewater District Commission consisting of two members each from Foxborough and Norton and three members from Mansfield, would be responsible for managing the treatment facility.³⁴ This new arrangement gave greater control and input to Foxborough and Norton than existed under the old IMAs. It is anticipated that the expanded treatment facility will be fully operational in 2019.

Table 7: Existing Flow Capacity Allocation

| Member Town | Current Flow Allocation (MGD) | Anticipated Flow Allocation (MGD) | Future Flow Allocation (MGD) |
|--------------------|--------------------------------------|--|-------------------------------------|
| Mansfield | 1.98 | 0.67 | 2.65 |
| Foxborough | 0.66 | 0.17 | 0.83 |
| Norton | 0.50 | 0.17 | 0.67 |
| Total | 3.14 | 1.00 | 4.14 |

Source: Agreement for Regional Wastewater District 2014

Background

A “perfect storm” of wastewater issues emerged in the Mansfield, Foxborough, and Norton region to ultimately lead to the development of a wastewater district. First, while the existing wastewater treatment plant in Norton is still functional, the facility is aging and is operating near capacity. Second, as mentioned earlier, the IMAs between Mansfield and the other two towns have expired. Any new agreements between these towns would necessitate dealing with issues of facility maintenance and capacity. The issue of capacity is particularly salient as each of these towns see the lack of sewer capacity as inhibiting economic development and delaying public building upgrades. To expand capacity though needs buy in from all three member towns. An additional problem was that any increase in wastewater capacity at the Norton facility would

³³ Agreement Establishing The MFN Regional Wastewater District (2014)

http://www.mansfieldma.com/Agreement_Establishing_the_MFN_Regional_Wastewater_District.pdf

³⁴ All commission members will be appointed by the respective town Water & Sewer Commission except one of Norton’s seats, which will be appointed by its Board of Selectmen. For more information see the Agreement Establishing The MFN Regional Wastewater District (2014) http://www.mansfieldma.com/Agreement_Establishing_the_MFN_Regional_Wastewater_District.pdf

require finding a new place to discharge treated waste. Currently, the Norton facility discharges in to the Three Mile River, but State regulations prohibit any new treatment flows in to the river.³⁵ Lastly, septic system failures and environmental concerns led to town leadership wanting to explore expanded sewer capacity.

Issues of sewer capacity began presenting themselves in the Mansfield-Foxborough-Norton region several years ago. For example, Foxborough reached flow capacity in 1999 and could not connect any additional homes or businesses to the treatment facility.³⁶ In both Mansfield and Norton, numerous development projects, including affordable housing, public facilities, and local school expansions all preferred connecting to sewer service as a cheaper alternative to septic.³⁷

While each of the three towns saw increased sewer capacity as necessary to push forward development, the current wastewater facility was functioning near capacity.³⁸ In addition, since the region is predominately serviced by private septic systems, all three towns had to adhere to Title V State regulations. Title V is the Commonwealth's inspection and certification process for regulating septic systems. These regulations also determine the amount of sewage flow to sewer treatment facilities. This proved to be problematic for Foxborough and Norton as the existing IMAs were developed based on Title V regulations rather than actual wastewater flow. In reality, neither Foxborough nor Norton were actually using their full capacity. However, Title V restrictions prohibited these towns from "reusing" the difference. For example, Foxborough currently has over 600,000 gallons per day of treatment capacity in the existing facility, but actually only uses 400,000 gallons per day. Because Title V restrictions are not based on actual wastewater flow, about 200,000 gallons per day of capacity is "lost". The new sewer district would not be using the old Title V capacity restrictions for Foxborough and Norton, thereby immediately freeing up unused Title V capacity. Foxborough officials estimate that the sale of the unused Title V capacity to neighboring towns could produce \$8-to-\$10 million in revenues. This would help offset the town's financial commitment in upgrading the current wastewater facility. After upgrades to the plant are completed, Foxborough will receive an additional 170,000 gallons per day of capacity, which could produce an additional \$7.5-to-\$9.5 million in revenues from selling this excess supply.³⁹

Politics and Governance

Re-negotiating IMAs that existed for 30 years between self-interested towns can be a complicated political process. In particular, tensions existed over plant management and Title V flow

³⁵ Interbasin Transfer Act (2003)

³⁶ Mortimer, F. (2009, April 2). New sewer plan would be optional. *Foxboro Reporter*. Retrieved August 28, 2014, from <http://www.foxbororeporter.com/articles/2009/04/07/news/4668490.prt>

³⁷ Mello, K. (2012, November 15). Wastewater Management Plan Could Cost \$38M. *Norton Patch*. Retrieved September 3, 2014, from <http://patch.com/massachusetts/norton/wastewater-management-plan-could-cost-38m#.VAc7CGMXN8F>

³⁸ State law requires towns to develop Comprehensive Wastewater Management Plans (CWMP) when treatment capacity reaches its limits. These plans need to be approved by the State before any changes in treatment service can begin. CWMPs also need to be in place for cities and towns to apply for federal funding to help subsidize infrastructural improvements. All three town individually completed CWMPs as part of the plan for developing the wastewater district.

³⁹ Libon, D. (2013, October 18). Roger Hill: Why Does Foxboro Need to Join the IMA Sewer District?. *Foxborough Patch*. Retrieved September 4, 2014, from <http://patch.com/massachusetts/foxborough/roger-hill-why-does-foxboro-need-to-join-the-ima-sewer-district#.VAhiHmMXN8E>

regulations. Key leadership in developing the wastewater district in the region came from elected state officials, most notably State Representative Jay Barrows of Mansfield.

In 2010, State Representative Barrows, with support from other regional representatives such as former State Representative Steven D'Amico and State Senator James Timilty, put together a bill to establish a regional wastewater district. The bill was passed by the State Legislator and subsequently approved by each of the member towns. This bill outlined the roles, responsibilities, and duties of district management, including the establishment of a seven-person commission for running the district (two members each from Foxboro and Norton and three from Mansfield). The bill also allows the district to issue bonds and conduct eminent domain purchases. The bill outlined that the District would own and operate the treatment facility. Each member town would continue to own, maintain and pay for their own piping, lift stations and in-town systems. Each town will also pay the wastewater district for facility staffing and equipment, proportionally based on municipal flow and usage.⁴⁰

Benefits

According to Roger Hill, Director of Foxborough's Department of Public Works, the town has previously rejected plans to expand the wastewater system primarily because the expansion cost were to be covered by betterment charges on all abutters to the town's sewer lines.⁴¹ To Hill, the new plan for expanding sewer coverage in Foxborough and the creation of the wastewater district is clearly in the best interests of the town and its residents. Each town would have been responsible to help pay for upgrades to the facility regardless of the new agreement. These mandatory improvements would not have included new capacity, meaning the towns would not be able to service new consumers.

Under the new agreement, the town would receive increased sewer capacity, thus giving Foxborough a larger revenue stream to help pay for the town's share of expansion costs. One important point Hill makes is the new District's financing plan eliminates betterment charges and places almost the entire expansion cost to the sale of capacity to new users. People already abutting existing or proposed sewer lines are not required to connect or pay betterment fees, unlike previous sewer expansion plans for the town.

On July 1, 2014 the MFN Regional Wastewater District was officially adopted and implemented. The total cost of upgrading and expanding the plant is estimated to be a little over \$36 million.⁴² Comparatively, simply repairing the old facility without expanded capacity would have cost approximately \$18M. Capital costs of the expansion of the facility are apportioned among the member towns based on flow allocation.

It is expected that member towns will receive increased tax revenue with the new wastewater district. For example, Mansfield's Five Year Strategic Plan highlights the importance of the new sewer district in maintaining the town's infrastructure and economic vitality.⁴³ New sewer capacity will help to fill vacant commercial land, upgrade public buildings, and help expand

⁴⁰ Mortimer, F. (2014, March 20). Sewer deal near?. Foxboro Reporter. Retrieved September 4, 2014, from <http://www.foxbororeporter.com/articles/2014/04/07/news/14935066.txt>

⁴¹ Hill, R. (2013, October 31). GUEST COLUMN: Why Foxboro needs to join IMA sewer district. *The Sun Chronicle*.

⁴² Laidler, J. (2014, August 14). Three communities form regional wastewater district. *The Boston Globe*.

⁴³ Mullin, J.R. (2012). *Towards the Implementation of Mansfield's Five Year Strategic Plan: The Priorities*. Mansfield, MA.

business opportunities along Routes 140 and 1. An example of potential economic development includes the redevelopment of Foxfield Plaza along the Mansfield-Foxborough line. Local officials argue the shopping center is hampered by septic system installation and maintenance costs.⁴⁴ Local officials also argue that they are better positioned to compete for federal funding and grants as a regional collaboration. For example, the wastewater district recently completed an application for a Community Innovation Challenge Grant Program.

This commission was established to both create greater transparency in plant management, while at the same time granting more power and decision making authority to Foxborough and Norton, who were effectively “customers” in the old model. Previously, Mansfield had the largest responsibility and power as it owned and operated the wastewater treatment facility. While Mansfield still is the largest shareholder, this new agreement spreads responsibility among the member towns. In addition, the decision to renovate the facility together helped to lower the per gallon cost of expansion.

Costs of Initiative

Payment for the wastewater treatment facility will come from a variety of sources. The first will be increased rates among member communities. This will include increased fees to new users connecting to the sewer system. It is not anticipated at this moment that member communities will include betterment fees to help pay for the new facility. The second is the Massachusetts Water Pollution Abatement Trust, a low interest loan for wastewater facilities from a state revolving fund. When the treatment facility is complete, member towns have the opportunity to sell their excess capacity to other non-member communities. For example, Easton’s CWMP includes purchasing capacity at the MNF treatment facility. As mentioned previously, town leaders believe the regional collaboration will better position the wastewater treatment district to compete for federal grant funding opportunities as well.

⁴⁴ YouTube. (2012, November 14). Foxboro Biz: Inter-municipal Wastewater Treatment Agreement [Video file]. Retrieved from <https://www.youtube.com/watch?v=4lm9yveHXt8>

Limitations and Suggestions to Regionalization in Metro South

The EPPR group has identified necessary factors that need to be addressed prior to the success of a regionalized sewer and/or water system in the Greater Brockton region. There are various barriers that continue to prohibit the development of a regional collaboration. These factors range from local planning constraints to federal permitting barriers. Some of these barriers to regional development can be mitigated and some are beyond the control of local officials.

Permitting of Wastewater Treatment Facilities

An updated permit that reflects an increased flow capacity for the Brockton AWRF stands as one barrier to wastewater regionalization in the Greater Brockton area. As mentioned earlier in this report, any plan to create a regional water and/or sewer collaboration centers around the Brockton AWRF. The treatment facility has operated over the last two years with an expired NPDES permit. Recently, a new draft permit was released, but does not increase the flow capacity for the plant. The Brockton AWRF may run in challenges with new connections due to the limit of flow capacity.

As mentioned earlier in this report, in October 2012 the City of Brockton submitted a Notice of Project Change (NPC) with the EPA for the AWRF. Included in this NPC was a request to increase permitted discharge from the facility. Currently, the facility is permitted to treat 18 MGD of sewage. The total “existing flows” attributed to each town using the facility is just under 17 MGD. The City requested a renewed license with expanded sewer capacity to 20.5 MGD. This expanded service would allow Brockton to sell more sewer capacity to existing users, as well as connect other potential users in the region. However, the new permit does not allow for much room to connect additional users.

Having expanded permitted capacity for the Brockton AWRF could open up a host of economic development opportunities for the region. Several surrounding communities in the region (most notably Easton, West Bridgewater, East Bridgewater, and Avon) stated in interviews with UMDI staff that sewer capacity in their towns would help with growing and retaining their respective commercial and industrial bases, particularly in industrial park areas (we will discuss these issues further later in this report).

In short, a permit with increased capacity is a critical first step in regionalizing wastewater service in the Metro South region. However, this increase may be hard to obtain as the review process has moved slowly with the EPA. It took nearly two years after the expiration of the permit for the EPA to issue a draft permit. Although, recently the City of Brockton and regulatory authorities have made substantial progress in the permitting process. The public notice for the draft permit was formally released on February 20, 2015. There will be an opportunity for public comment at a community meeting. Although this new development is a substantial first step, there is much more work that needs to be done between Brockton and MassDEP in order to reach regulations to allow an increase in flow. The increase in permitted flow is a critical component in the AWRF being able to accommodate additional communities in the future.

Updating Comprehensive Wastewater Treatment Plans

Comprehensive Wastewater Management Plans (CWMPs) or specific engineering reports are essential to planning and managing wastewater services in a municipality. CWMPs are a more expansive, all-inclusive document compared to an engineering report. Municipalities will develop CWMPs when contemplating additions or changes to its wastewater systems. A CWMP evaluates and estimates the necessary costs and infrastructure needed for a project. The MassDEP encourages these documents be completed with engineering reports for proposed projects. These documents also help towns receive zero percent interest loans when applying for specific funding. Currently, the only towns in the Greater Brockton region that have recently completed CWMPs are Easton (2014), East Bridgewater (2006), and Brockton (2009). For example, the Easton CWMP includes plan for wastewater districts in the town, as well as options for connecting to wastewater treatment facilities in Brockton and Norton. A CWMP is necessary for towns to identify the most critical areas of need and where the funding for municipal sewer service would be most efficient and equitable.

In order for a more expanded regional wastewater treatment facility to be realized in Greater Brockton, more towns in the Metro South area will need to create or update CWMPs. These plans will be important in answering critical logistical, engineering, planning, and cost issues associated with building the necessary infrastructure to connect towns to the Brockton AWRF. This is particularly critical in towns that are mainly or totally on septic systems, as there would be little infrastructure already in place for connect the town to AWRF.

Advantages and Disadvantages of Collaboration

Although collaborations are known to come with decreased costs and improved quality for the participating entities, there are negatives associations with regionalization as well. Some of these negatives include increased pressure on water resources and more stringent and complex regulations.⁴⁵ In order to accurately assess whether a regional sewer and/or water authority, the pros and cons must be exposed and evaluated.

As discussed earlier in this report, concerns over governance, autonomy, and control were brought up frequently in the key informant interviews. In particular, how would decision making be made in a regional collaboration? How much influence would individual municipalities have? Would some municipalities have more influence than others? Currently, most of the municipalities in the Metro South region exhibit a fair amount of autonomy and control in water delivery to its resident, mainly through municipally owned wells. The key to collaboration would be supplementing the current supply of water to avoid shortages to summer months. One possible source of such water would be the Aquaria desalination plant. Currently, Brockton is considering buying the plant. If it does, this could be an additional water source for local communities. However, any efforts to collaborate on water would require a fundamental change in a municipalities decision making and autonomy as it relates to water delivery.

In regards to sewer service, Brockton currently owns and operates the wastewater treatment facility. Any arrangement to regionalize service would need to contend with the issue of

⁴⁵ American Water Works Association. "Regional Collaboration Report." (2012).

ownership and control. Would a regional authority take control of the wastewater treatment plant? If so, it would likely be necessary for Brockton to be compensated for its ownership and investment in the facility over the years.

The issues of over governance, autonomy, and control have been stumbling blocks in previous attempts to regionalize water (and other services) in the Metro South. One key aspect already alluded to above is the fact that Brockton either owns or *would own* the key infrastructure needed to regionalize water and sewer service in Metro South. Moreover, of the 10 municipalities considered for this study (Abington, Avon, Brockton, East Bridgewater, Easton, Hanson, Holbrook, Stoughton, West Bridgewater, and Whitman), Brockton is by far the largest. In fact, if the 10 municipalities are thought of as a region, Brockton would make up approximately 43 percent of the total population. Together, these issues point to Brockton's unique position in the community and the complexity of developing a plan that is beneficial to all participating communities. In particular, for a regional collaboration to work, Brockton will likely need to relinquish some level of control over the existing infrastructure. Any governing structure would need balanced decision making across each participating municipality. The fact that Brockton is the population and jobs center for the region, it would make sense that Brockton's voice would be weighted heavier than the other municipalities (a model that was used in each of the three case studies highlighted earlier in this report). In addition, and as mentioned previously, measures will likely need to be taken to address the history of Brockton's financial investment to the current water and sewer infrastructure. These political tensions will likely be present if a water or sewer reclamation authority were to materialize. However, the issue of governance and control could be mitigated with the assistance of an authority outside of local municipal government, such as Metro South Chamber of Commerce, state government, or Old Colony Planning Council (OCPC).

One potential benefit to regionalized wastewater service is increased economic development and improved environmental conditions in the Metro South region. The vast majority of towns in the study area are mainly on septic. The cost and capacity issues associated with septic systems are significant barriers to economic development, especially in central business districts and industrial parks. Expanded sewer service in the smaller towns of the Greater Brockton region, even if only in selected areas, can enhance economic development opportunities and, thereby, local tax revenues. In addition, septic system failures can be a significant environmental concern. Expanded sewer options in smaller towns around Metro South can help to limit these potential problems.

A potential benefit to a shared water system is the decreased capital and operating costs and prices (through gallon of finished water produced) through increased economies of scales.⁴⁶ Currently, the towns of Avon, West Bridgewater, East Bridgewater, Easton, Holbrook, and Hanson have to pay for all the capital and operating costs associated with the towns' water service. If there was a centralized distribution system, even if only for supplemental water capacity, these costs would be spread across all the participating municipalities and would decrease individual town costs. That said, it is unclear at this time what water from the Aquaria plant would cost municipalities. It is possible that digging an additional municipal well may be cheaper than buying water from the desalinization plant. This is an additional complicating factor to water regionalization.

⁴⁶ Environmental Protection Agency (EPA) Office of Water. "Gaining Operational and Managerial Efficiencies Through Water System Partnerships." (2009).

Another potential benefit of a shared water system is improved management of any potential water shortages in the future. Currently, most of the towns interviewed by UMDI staff expressed limited concern about water supply. Only Avon and East Bridgewater expressed direct interest in supplementing their current water supplies. That said, this region has a long history of concerns over water bans and shortages. Although the lack of droughts in recent years, coupled with improved infrastructure and conservation have led to limited water shortages, local officials should still consider the long range water needs for the region.

In particular, can the set of municipal wells in the region accommodate future regional water needs, particularly in the event of significant increases in population or economic development? This is an important concern, as the prime reason most local communities want expanded sewer service is to increase commercial development. Supplemental water supplies may be necessary to accommodate any increases in economic development associated with increased sewerage in the Greater Brockton region.

Another important benefit from the creation of a regional water and/or sewer collaboration is the potential to access capital for operational, environmental, and infrastructural improvements. There are several federal and state programs that place funding preferences towards different types of regional collaborations (we discuss some of these sources in the next section). A partnership can help raise the capital needed for infrastructure improvements. From an engineering perspective, partnerships can improve operational performance through a more comprehensive use of trained operators and advanced treatment technologies.⁴⁷ A regional system can also enhance environmental protection, resource conservation, and planning for scarcity and emergencies through increased coordination and integrated planning. These benefits can be acquired through a well-operated and organized water and sewer collaboration.

Time Factor

Regional collaboration has shown to be a lengthy process in the Metro South region, as discussions around regionalization of water and/or wastewater began nearly a decade ago (after several failed attempts over the last few decades). The permitting, political, and planning barriers prove to make the process of forming a regional collaboration challenging. Even after the initial political and planning phases, the finalization of a regionalization plan among the community can be very time consuming. This can be seen through one of the case studies shown previously in the report. The Greater New Haven Water Pollution Control Authority took nearly 10 years to gain the necessary public and legislative support.

Funding Options and Other Resources

As noted earlier, there are a number of state funding opportunities and other resources that the Greater Brockton region can try and leverage in establishing regional water and/or wastewater collaborations. Several of these programs place preference on regional collaborations when making funding decisions. Below is a list of potential opportunities.

⁴⁷ Ibid.

Community Innovation Challenge Grant

Administered out of the Massachusetts Executive Office of Administration and Finance, this grant encourages and incentivizes regionalization. An ideal project that would qualify under this grant would show potential for great impact, high levels of innovation, and provide substantial cost savings and better cash flow for municipalities. The applicant must demonstrate ability to self-sustain within a year of the grant award. The justification for the grant is for exploiting economies of scale and preventing the need for local businesses to install septic systems as they grow. Locally, the Mansfield-Foxborough-Norton (MFN) Regional Wastewater District applied for one of these grants to fund their regionalization efforts.

Technical Assistance from the Division of Local Services

Administered out of the Massachusetts Division of Local Services, this award is for municipalities can seek assistance for the exploration of feasibility of regionalization and consolidation of services. This assistance also incentivizes community collaboration.

Direct Local Technical Assistance Programs

This funding allows regional planning agencies (in this case, the Old Colony Planning Council) to assist towns and cities with projects that support collaboration among communities to develop and implement regional plans and programs. This funding can be used to establish and launch municipal partnerships that encourage towns to work together to achieve and enhance effective service delivery.

Massachusetts Office of Public Collaboration and Dispute Resolution

This is a neutral forum and technical resource for municipalities, regional governments, and state agencies assisting with conflict resolution and public engagement on complex, regional and multi-town issues.

MassWorks

Administered out of the Massachusetts Executive Office of Housing and Economic Development (EOHED), this funding is to support housing production, economic development and job creation. One example of where this funding helped communities was in Oxford, Dudley, and Webster. These towns successfully gained funding to install a sewer extension that opened up previously developed and undeveloped areas for economic growth and development. Another example of where this grant was applied is the Easton sewer district.

State Revolving Fund

This fund provides low interest loans for investments in water and sanitation infrastructure. The average interest rate is 1.7 percent (about half the national average). Communities looking for funding of sewer or wastewater infrastructure through the State's Revolving Fund (SRF) usually create a CWMP. Funding and prioritization depends on the project rating which is determined by the following:

- Demonstrable water quality benefits;
- Eliminates or mitigates risk to public health;

- Is needed to achieve or maintain compliance with applicable discharge permits or water pollution requirements; and
- Borrower supports Commonwealth Sustainable Development Initiative as evidenced by its Commonwealth Capital Score.

Water Infrastructure Bill

This bill incentivizes connections and/or contracts with existing water and wastewater systems. Administered by the MassDEP, the Grant provides a dollar-for-dollar match for communities that want to connect to regional efforts. Any investment made by local government for regionalization is matched, which significantly reduces burden/disincentive for municipalities.

The Edward J. Collins, Jr. Center for Public Management

Located in the McCormack Graduate School of Policy and Graduate Studies at the University of Massachusetts Boston (UMass Boston), the Collins Center provides consulting services aimed at improving efficiency, effectiveness, and accountability within state and local government. Part of the work at the Collins Center includes strategy around regionalization and collaboration, such as the development of inter-municipal agreements and feasibility studies for shared services.

Detailed Action Scenarios

The EPPR group has assessed possible scenarios and has recommended potential short-term and long-term efforts around water and wastewater regionalization in the Greater Brockton area.

Short-Term Efforts

The following efforts would be the water and/or sewer collaboration options that are the most easily attainable for the region.

Sewer Only

While most key informants expressed some reservations about regional water and wastewater in Greater Brockton, it does appear that a “sewer only” option is something that could be implemented in the region in the short term. Currently, only a few of the municipalities in the Greater Brockton region have sewer service. Brockton’s wastewater treatment facility provides services through contract to the towns of Abington and Whitman. For municipalities interested in increased economic development, connecting the Brockton AWRF is an attractive option. Providing sewer to these towns would create the potential to increase economic growth as well as retain/grow the commercial and industrial tax base.⁴⁸ This could also provide an opportunity to create a regional sewer authority which would decrease costs and maximize quality.

One notable collaboration point is the Town of Easton. Easton has completed a CWMP and already opened a 50,000 gallon a day wastewater treatment plant that serves North Easton Village and roughly 100 homes. There is a second plant being built for Queset Commons to accommodate planned mixed use development. This plant will have similar capacity as the one at North Easton Village. Easton’s CWMP includes plans for connecting part of northern and eastern parts of town with the Brockton AWRF.

Another notable collaboration point is the towns of Holbrook and Stoughton. The MWRA currently serves these towns. As seen earlier in this report, these towns are paying much higher rates with MWRA than the communities connected to the Brockton AWRF. Only 60 percent of Stoughton is sewered at this time (90 percent of Holbrook is sewered). In theory, these towns could connect with the Brockton AWRF instead of MWRA to provide sewer service to septic parts of town.

Of course, EPA permitting considerations are a critical factor for increased regionalization of wastewater service. The new permit would technically need an increase allowed capacity flow for the Brockton AWRF to connect additional municipal users, otherwise the limit would be reached without additional capacity for Brockton’s future needs. The easiest path forward in this situation may be through similar IMAs as those currently used between Brockton and Abington and Whitman. Although the City must be cautious on the allowed flow capacity for additional users. The limit of 18 MGD may be easily exceeded if the facility is not vigilant.

⁴⁸ The septic only towns include Avon, East Bridgewater, Hanson, and West Bridgewater.

Regional Water Efforts

Some local leaders and administrators expressed need for regional water services as well. According to the key informant interviews, the towns of East Bridgewater and Avon are having difficulty reaching the water demand during certain times of the year. Easton potentially could be interested in additional water as well, especially if economic development efforts associated with increased sewer capacity are successful.

Currently, East Bridgewater needs to carefully monitor its water system during June and July. They pump 1.3 million gallons a day out of their five wells at maximum capacity to meet demand. The strain on water demand is exacerbated by the towns growing population. With their population increasing and the rapid development across the municipality there is a significant strain on the water supply. The town is open to investigating the possibility of connecting to the Brockton water source, though, has reservations about the need for a true “water authority”.

The town of Avon is another Metro South municipality that was interested in receiving additional water from an external source. Currently, the town’s water needs are met through strict management and conservation. The key informant interviewed for the town expressed concern of not reaching the water demand in the future. There is a groundwater contaminant plume nearby the town which has not moved or caused any issues, but could produce problems down the road. The town is interested in looking into opening another source of water via ground wells. They expressed concern with the rates of water if it were to come from the Aquaria desalination plant or the MWRA.

Overall, there was no consensus on the creation of a water authority from our local interviews. Most local officials felt their respective towns had an adequate water supply. It may be possible for IMAs to be reached between towns in the Greater Brockton area to help supplement municipal water supplies in the short run. This could include using Aquaria as a supplemental water source for towns that need additional water. However, the sale of Aquaria, the infrastructural needs for water delivery, and the necessary benefit-cost analyses of such arrangements make it unlikely that such an arrangement could be struck in the short term, and is perhaps more of a long-term goal.

Further Areas for Study and Consideration

The towns that are interested in sewer services want additional connections for their industrial parks and commercial districts. To create these connections, planning must be done and potential infrastructure costs need further study. Although this particular study did not focus on infrastructure cost estimates, we have identified some types of costs that would factor into the decision making process of a regional water and/or sewer authority.

Operating under the assumption that Brockton will help provide water services to Metro South communities that request additional water, existing town connections must be identified. Presently, there are active connections from Brockton to Whitman, Hanson, Pembroke, and Halifax that are metered. There are non-metered connections to East Bridgewater and Abington (through Whitman). Brockton previously had connections with Avon, East Bridgewater and Stoughton, which could potentially be restored with the necessary infrastructural updates. The communities that do not have connections would need to put in infrastructure. Fortunately, the Commonwealth has many funding options that incentivize collaboration and regionalization. The funding options

previously discussed could be applied to Metro South communities that want to regionalize services, and would help make infrastructural improvements towards regionalization more possible. Additional feasibility studies and investigations need to be conducted in order to assess the exact amount of funding needed to connect the Metro South communities to a regional water supply.

Long Term Efforts

The EPPR group has identified long term efforts that may be possible but the path forward is less readily apparent.⁴⁹

Water and Sewer Combination

This option would be for towns without an immediate need for water, but could potentially benefit from additional supply. Since most towns in the Metro South communities identified in this study have strong water departments and are more interested in regional sewer service, the possibility of creating a regionalized sewer and water collaboration seems less attainable. However, since most have expressed the need for sewer and some have expressed the need for water, a combined regional system may be the most efficient in terms of long-term planning for the region. This is particularly true since the primary reason for a regional sewer collaboration is for increased economic development opportunities. If increased sewer service is successful in increasing economic development, then it is reasonable to consider what this impact might have on local water supply. As noted earlier, this combined option may not be the optimal short-term option due to the political and regulatory constraints. If the Greater Brockton communities were determined to create a combined regional authority then proactive steps can be taken to ensure the progress of a regional project. One of these steps would be to pursue the MassDEP and the EPA to collectively solve any environmental concerns that may be in the way of receiving a new permit for increased capacity.

A fully regionalization collaboration likely requires an updated permit that grants the permission of increased flow and operations. This would allow Brockton to open up the possibility of connecting more towns to their sewer system through inter-municipal agreements (IMAs). A permit with increased capacity is needed to include the number of towns being considered in the collaboration as well. At this time it appears that the EPA will not grant the Brockton AWRP a permit with increased capacity. This will limit the degree to which Brockton can expand the service base for the facility. If regionalization is to move forward in the community, local officials will need to work with the MassDEP to understand how they can get the Brockton facility to reach necessary regulatory requirements to increase sewage capacity.

⁴⁹ One additional local water issue is the recent revitalization of the Central Plymouth County Water District. The Central Plymouth County Water District has been dormant for at least 10 years. The district was established under the Acts of 1964 which allowed for the formation of an advisory council and a three-member commission to study available sources of water and water supply needs. The district mostly has operational control over the quality of Silver Lake, Monponsett Pond, Furnace Pond, Jones River, Stump Brook and Herring Brook, and has the legal authority to divert water when necessary. It is unclear at this time what role the district has in regional water issues, but could be a possible player in any efforts to share resources from the water sources listed above. The board currently has two members and holds monthly meetings.

Further Areas for Study and Consideration

Water supply is one area of study that would require further in-depth analysis. EPPR has identified the average daily water demand for each prospective municipality in Phase I; however, the water supply for each town has yet to be determined. To fully assess the cost savings associated with a regional water or sewer authority, the water supply and demand must be estimated.

Another piece of information that would require further study is estimating future water and sewer demand. In Phase I, the average daily water demand was estimated; however, these estimates are referenced by the Executive Office of Environmental Affairs (EOEA) from the Water Asset Study (WAS). The estimates from the WAS were not intended to be a projection for a particular timeframe. Rather, it spoke to the “build out condition” – or the condition under which all land use was developed according to its existing zoning (on the books at the time of the analysis, which was completed between the years 1999 and 2002). The idea was less to serve as an actual projection, but rather to paint a picture of the end point of development according to a business-as-usual approach to land use planning. Therefore, further investigation of the current and actual demand needs to be determined. Another pressing issue to conduct further analysis on is the future increase in water and sewer demand. If a regional water and/or sewer system is established there will be more economic growth opportunities within each participating community. Put in another way, public sewer and water services encourage business growth, which would place more strain on the water and sewer system. At the same time, this could also lead to more resources for local communities as increased economic development would result in more customers to the water and sewer system. This aspect of the regional water and sewer system will require careful consideration going forward in order to prepare the infrastructure and facilities to meet the future water and sewer demand.

Another important aspect that requires further study and consideration is cost planning. For water supply, presumably the water will come from the Aquaria water desalination plant. No particular cost estimate was determined for each town as this would require investigating the amount/cost of infrastructure needed to connect participating municipalities. The City of Brockton has been working on a deal to purchase the Aquaria desalination plant. The proposed purchase has the potential to save \$1 million annually. The cost savings if Brockton purchased the plant could be reinvested in the current crumbling water infrastructure. The Commission, City Council and State Legislature all have to approve the deal. However, the most recent news from September 2014 has indicated the process is still on-going and no votes have been made. The Commissioners said that more due diligence and a public hearing would be required.⁵⁰ The purchasing process is stalled but with further investigation the City may ultimately purchase the plant.

Infrastructure cost estimates must be determined in order to assess the long-term cost savings of a water and sewer collaboration project. Each town will likely need a variety of infrastructural improvements to connect to a regional water and/or sewer supply. Along with infrastructure planning, there are other costs and factors to consider, including the replenishment of local water supplies and aquifer balance issues. The water and/or sewer source, service demand, available supply, and infrastructure improvements must be determined in order to fully account for the full

⁵⁰ “In brief: Massachusetts Water Commissioner declined to vote.” (2014). <http://www.desalination.com/wdr/50/36-10>

set of costs associated with regionalization. All of these aspects require further study and investigation.

Governance Structures

EPPR has identified some case examples of regional service governance structures that could be adopted for a water and/or sewer collaboration in the Greater Brockton area. The case studies conducted in Phase I of this research identified three different water and/or sewer collaborations (the Greater New Haven Water Pollution Control Authority, the South Central Connecticut Regional Water Authority, and the Mansfield-Foxborough-Norton Regional Wastewater District) all of which set up a governance structures where authority was distributed, to some extent, proportionally based on the size of the communities participating in the collaboration. These structures can be illustrative to the Metro South region as the size of Brockton relative to the other towns, as well as its current or potential ownership over key water and sewer infrastructure, is often identified as a potential political barrier to collaboration.

In addition, in 2012 the American Water Works Association developed a regional collaboration report, entitled “National Inventory of Regional Collaboration Among Water and Wastewater Utilities” that highlighted various aspects of regional water and sewer collaborations throughout the U.S. The report identified several typical governance structures in regional collaborations, varying in their degree of formality. Some of the most common governing structures are informal collaborations, contractual assistance, joint powers agencies, and ownership transfers. Informal cooperation occurs when an entity coordinates with other systems without contractual obligations. Activities can include sharing equipment, bulk supply purchases, or mutual aid arrangements. In contrast, contractual assistance is when an entity signs a utilities contract with another system or service provider, but the contract is under the entity’s control. Common examples are contracts for purchasing water or engineering. In a joint powers agency, a new entity is created that is designed to serve the systems that form it. These normally occur when entities share things such as system management, operators or source water. Lastly, during ownership transfer, control is taken over by an existing or newly created entity. Ownership transfers are associated with acquisition, physical interconnection, satellite management, and transfer of privately owned systems to new or existing public entities. Examples of difference governance structures are outlined below.

Informal Collaborations

Informal collaborations involve entities coming together to work and share information without any formally binding agreements. An informal collaborative can allow participants to more easily communicate ideas and concerns, ensuring that the collaborative is relevant and engaged. Another benefit is there are minimal to no collaboration costs, which are often a negative consequence of more formal structures. Although informal collaborations are easy to start without strong leadership, they are easy to dissolve. Additionally, in the absence of a legally binding agreement, actions are difficult to enforce, and thus, the collaboration is highly dependent on the trust between participants.

One example of an informal collaboration is the Lake Erie Water Quality Collaborative, a loose network of utilities that share information on best practices. This particular collaborative has no

real decision making process or policy measures. There is only a verbal understanding that utilities will be proactive about sharing information roughly once a month. The collaborative provides quicker responses to water quality and supply issues of Lake Erie, an expanded knowledge base, and improved anticipation of conditions to better manage plant operations.⁵¹

Formal Collaborations

Formal collaborations, on the other hand, are easier to enforce and maintain, but lack the flexibility of informal agreements. The most common governing structure for formal collaborations is contractual assistance. This structure is when a public or private entity contracts with another government authority or service provider, and the contract is under the public or private entity's control. This is likely the most common structure because it provides a legally binding agreement but still allows for local control.

One example is the creation of the Jordan Lake Partnership, which was motivated by water supply issues. Chatham County, North Carolina had a short term need for water supply and was limited by its water treatment plant's capacity. The City of Durham, in the wake of a severe drought, wanted to enhance its reliability. The final governance structure was based on a memorandum of understanding (MOU) for inter-local cooperation. The activities and management of the cooperation is guided by a team of managers from each signatory, which is chaired by the manager of the lead agency (City Manager of Durham). The team meets annually and with each representative allotted one vote on all issues, with decisions made by a simple majority vote. The partnership defines Jordan Lake's role in a long term, sustainable and secure regional water supply. This particular governance structure allows regional water supply planning, environmental stewardship, mutual and collective benefit, and financial sustainability.⁵²

Also common for formal collaborations is a joint powers agency (JPA). These collaborations have been used in many cases involving, but not limited to, sharing system management, operations, or source water. There is however a drawback; JPA's are less responsive to local needs than other governing structures. One example of a JPA is the Bay Area Clean Water Agencies (BACWA) which collects data on aquatic life and water quality as well as assessing the effects of pollution on the San Francisco Bay System. The JPA contains members from each of the 54 participating agencies as well as consultant support when needed. The five largest water pollution control agencies in the San Francisco Bay Area are the signatory members. A five-member Executive Board, with an Executive Director and several technical committees govern the JPA. The Board meets each month to consider recommendations from committees, manage the activities of BACWA and approve expenditures. Additionally, if one of the signatory members withdraws, the JPA will dissolve, which incentivizes the Board members to cooperate.⁵³

In ownership transfers, a new regional entity takes over the tasks, assets and ownership of existing separate entities. This structure is very common for regionalization but also is the least responsive to local needs for that reason. One local example of a successful ownership transfer is the Brockton Area Transit Authority (BAT). The BAT connects neighboring communities and the Central Business District in Brockton, as well as major industrial parks, medical facilities, shopping

⁵¹ American Water Works Association. "National Inventory of Regional Collaboration Among Water and Wastewater Utilities." (May 2012).

⁵² Ibid.

⁵³ Ibid.

centers, area commuter rails and three colleges. Control is maintained through an advisory board that is chaired by the Mayor of Brockton and also consists of a member from each of the other nine communities served. The Advisory Board is responsible for providing policy decisions for and general oversight of the BAT's administrative operations.⁵⁴ Decisions are made by a simple majority vote. This particular structure of governance may be achievable for a water and/or sewer authority due to the history this structure has had in the region.

⁵⁴ Bump, Suzanne. "Official Audit Report - Brockton Area Transit Authority." Audit, 2011.

Findings and Observations

Overall, there are many issues and uncertainties that create barriers for a regional water and sewer collaboration in the Metro South region. Based on data analysis and research conducted, EPPR has identified possible scenarios that could likely occur under particular circumstances. The discussion of a regional system has been circulated for numerous years now, and this project has clearly outlined steps that can be taken to ensure progress towards a regionalized water and sewer effort. The short-term and long-term options that have been identified in the report leave room for possible scenarios and alternatives that can be considered. Communities throughout the Metro South region have different opinions on participating in regionalized efforts. The main underlying focus recommended is to pursue a regional effort with deep consideration of what communities are looking for and ensure that all communities can be satisfied with the outcome and process of collaboration.

Main findings and observations from the research conducted by EPPR in evaluation of a regional water and sewer effort in the Metro South region include:

- There are various economic development opportunities that comes with sewer expansion. It is clear that local officials see sewer service as important for economic growth and retaining/growing the commercial and industrial tax base.
- There are potential cost reductions and efficiencies to be gained from a regional collaboration. There are economies of scale from one central authority handling water and/or sewer service rather than each town providing services on their own. In addition, collaboration around water could help the region prepare for potential water shortages in the future.
- There would be upfront work to establishing a regional entity, but such an entity could eliminate frequent negotiations and political tensions created through inter-municipal agreements.
- Regional entities have a better ability to go after state and federal funding (each provide incentives for regional efforts) thus helping attract outside funding to implement capital projects.
- There are numerous economic, environmental, and operational benefits with regionalizing water and sewer services, but many communities only are interested in sewer efforts. Fewer are interested in water connections.
- There are significant short-term and long-term planning and cost estimates required before initiating a regional water and sewer effort.
- Limitations such as a permit with increase flow capacity and CWMP development are creating delays in the regionalization process and must be address by local municipal leaders.
- There are various governance structures and funding opportunities for communities interested in a regional approach, but the issue of control must first be addressed.