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Mandatory Sewer Connection Program



Amended Approach

William L. Villella, P.L.S., Executive Director

April, 2006

Proposed Mandatory Sewer Connection Program April, 2006

1. WSA Sewerage System: Brief Background and History

The Warwick Sewer Authority was created in 1962 by Rhode Island Public Law 1962, Chapter 254. Section 2 – Sewers and Sewerage – of the Warwick Code of Ordinances incorporates the state enabling legislation for the Warwick Sewer Authority.

In the early 1960s when the City of Warwick (the City) began its planning for a wastewater collection and treatment system, it was the fourth largest City in the state with a population of 68,504. Today, the City of Warwick is Rhode Island's second largest city with a population in the year 2000 of 85,808.

In 1965, the treatment facility and a small core of a sewerage system was completed and brought on-line. The 4.5 million gallon per day secondary treatment facility was located on the banks of the Pawtuxet River on what would later become the western side of Interstate 95. The treatment facility was state of the art in 1965 – an activated sludge secondary treatment facility designed to reduce suspended solids and organic loading to the then heavily-polluted Pawtuxet River.

In the 1979 the Warwick Sewer Authority completed a comprehensive sewer facilities plan. This plan established the basic guide for the WSA sewerage program over the next 10 years.

In 1989, the Rhode Island Department of Environmental Management (RIDEM) determined that the three communities of Warwick, West Warwick, and Cranston, all of which have wastewater treatment facilities that discharge treated sanitary wastes into the Pawtuxet River, to be in violation of their new Rhode Island Pollutant Discharge Elimination System (RIPDES) Permits. These new permits set strict limits on the discharge of metals, nitrogen, phosphorous and other materials that were not attainable with the existing secondary treatment facilities in each of these communities. In 1990, the RIDEM entered into "consent agreements" with each community, directing them to develop a plan and a program to achieve the allowable limits of discharges.

As a result, the Warwick Sewer Authority retained an engineer to prepare a plan and program in accordance with the RIDEM Order. This Facilities Plan updated the 1979 plan and addressed the following:

- Estimate future flows to the treatment facility;
- Identify inflow and infiltration into the City's sewer system;
- Analyze non-point pollution sources to the Pawtuxet River;
- Evaluate advanced (tertiary) treatment to remove phosphorus and nitrogen;
- Evaluate effluent disinfection alternatives;

- Evaluate alternative methods of treatment and disposal;
- Evaluate regional options for tertiary treatment and for outfall locations; and,
- Evaluate sludge management options.

The plan was completed in 1992 and further amended in 1996 and in 2004 to incorporate new issues and projects that were identified. The plan defines the projects that continue to be developed to this day and for the foreseeable future.

In 1992 the RIDEM temporarily closed Greenwich Bay to shellfishing due to high levels of fecal coliform. Realizing the importance of environmental protection and the benefits associated with the use and enjoyment of this coastal resource, including shellfishing, the City drafted a "Greenwich Bay Reclamation Plan." Portions of this plan identified critical sewerage needs of the city in order to address environmental issues in Greenwich Bay.

After several smaller bond issues had been passed in previous years to support the sewer programs and plans, in 1994, the City of Warwick voters approved the authorization of a \$130 million general obligation bond to finance the mandated upgrades at the wastewater treatment facility and to expand the sewer system to virtually all areas of Warwick except those areas specifically excluded by the Facilities Plan (the lower end of Warwick Neck, Cowesett and the non-contiguous portion of Warwick, Potowomut.)

In March, 2002, the Warwick Sewer Authority issued a notice to proceed to its contractor to begin construction on a nearly \$30 million upgrade to its 40 year old wastewater treatment facility. Construction on this advanced wastewater treatment facility was completed in September, 2004 – the first facility on the Pawtuxet River to complete its construction to meet the new mandated stringent discharge limits for nitrogen and phosphorus.

On November 1, 2004, the new RIPDES permit limits became effective for the new wastewater treatment facility.

In late 2004, the City of Warwick and the WSA continued their commitment to reduce water quality impacts on Greenwich and Narragansett Bays with the approval by the City Council of an ordinance authorizing the WSA to issue up to \$50 million in revenue bonds to continue its capital plan. The WSA similarly approved a resolution supporting this revenue bond issuance as well.

Between 2006 and 2011, the WSA will have about 18 sewer construction projects underway in 13 distinct neighborhoods. These projects have a projected cost of about \$45 million. (See **Table 1: Warwick Sewer Authority Construction Projects Preliminary Schedule**)

TABLE 1 (Page 1 of 3)

**Warwick Sewer Authority
 Construction Projects Preliminary Schedule* (4/17/2006)**

Project	2006				2007				2008	
	Jan-06	Apr-06	Jul-06	Oct-06	Jan-07	Apr-07	Jul-07	Oct-07	Jan-08	Apr-08
Strawberry Field II		Bid	Construction			Paving				
Sheraton Park: Main Avenue		Paving								
Conimicut West		Sewers Complete				Paving Complete				
Gov Francis Farm I		Sewers Complete				Paving Complete				
Buttonwoods		Construction				Sewers Complete	Paving Complete			
Claypool/Capron					Bid	Construction				Sewers Com
Warwick Cove IIB					Bid	Construction				Se
Bayside/Longmeadow I					Bid	Construction				Sewers C
Bayside/Longmeadow II									Bid	
Bayside/Longmeadow III									Bid	
Bayside/Longmeadow IV										
Gov Francis Farm II									Bid	
Gov Francis Farm III										
Potowomut					Study					
Northwest Gorton Pond		No schedule established at this time								
Sandy Lane		No schedule established at this time								
Greenwood East		No schedule established at this time								
Sherwood Park		No schedule established at this time								
Misc Sewer Projects Contract "Z"		On-Going				On-Going				On-Going
Misc. Pump Station Projects										
Misc. WWTF Projects										
	Jan-06	Apr-06	Jul-06	Oct-06	Jan-07	Apr-07	Jul-07	Oct-07	Jan-08	Apr-08
<p>* This Preliminary Project Schedule is highly dependent on Approval of WSA Board, Funding Availability, Completion of Design, Issuance of DEM, CRMC and other Permits, Acceptance of Bids, Issuance of Notice To Proceed, Priority Establishment and Project Management Staff Availability. This Preliminary Schedule will be updated as new information becomes available. Additional projects may also be added.</p>										

TABLE 1 (Page 2 of 3)

**Warwick Sewer Authority
 Construction Projects Preliminary Schedule* (4/17/2006)**

Project	2008		2009				2010			
	Jul-08	Oct-08	Jan-09	Apr-09	Jul-09	Oct-09	Jan-10	Apr-10	Jul-10	Oct-10
Strawberry Field II										
Sheraton Park: Main Avenue										
Conimicut West										
Gov Francis Farm I										
Buttonwoods										
Claypool/Capron	Complete	Paving Complete								
Warwick Cove IIB	Sewers Complete			Paving Complete						
Bayside/Longmeadow I	Complete	Paving Complete								
Bayside/Longmeadow II	Construction				Sewers Complete			Paving Complete		
Bayside/Longmeadow III	Construction			Sewers Complete				Paving Complete		
Bayside/Longmeadow IV			Bid	Construction					Sewers Complete	
Gov Francis Farm II	Construction			Sewers Complete		Paving Complete				
Gov Francis Farm III			Bid	Construction				Sewers Complete	Paving Complete	
Potowomut	Design		Design					Bid	Construction	
Northwest Gorton Pond										
Sandy Lane										
Greenwood East										
Sherwood Park										
Misc Sewer Projects Contract "Z"				On-Going					On-Going	
Misc. Pump Station Projects										
Misc. WWTF Projects										
	Jul-08	Oct-08	Jan-09	Apr-09	Jul-09	Oct-09	Jan-10	Apr-10	Jul-10	Oct-10

TABLE 1 (Page 3 of 3)

**Warwick Sewer Authority
 Construction Projects Preliminary Schedule* (4/17/2006)**

Project	2011			
	Jan-10	Apr-10	Jul-10	Oct-10
Strawberry Field II				
Sheraton Park: Main Avenue				
Conimicut West				
Gov Francis Farm I				
Buttonwoods				
Claypool/Capron				
Warwick Cove IIB				
Bayside/Longmeadow I				
Bayside/Longmeadow II				
Bayside/Longmeadow III				
Bayside/Longmeadow IV	Paving Complete			
Gov Francis Farm II				
Gov Francis Farm III				
Potowomut				
Northwest Gorton Pond				
Sandy Lane				
Greenwood East				
Sherwood Park				
Misc Sewer Projects Contract "Z"		On-Going		
Misc. Pump Station Projects				
Misc. WWTF Projects				
	Jan-10	Apr-10	Jul-10	Oct-10

2. Problem Statement

Water quality problems in Greenwich Bay and Narragansett Bay have been documented scientifically and visually for many years. In Greenwich Bay especially, nutrient and fecal coliform levels have contributed to beach and shellfishing closures as well as fish kills.

Warwick is a coastal community with a major percentage of the City being within the Greenwich Bay watershed area (see **Maps 1 & 2**). Other portions of the City drain directly to Narragansett Bay and the Pawtuxet River.

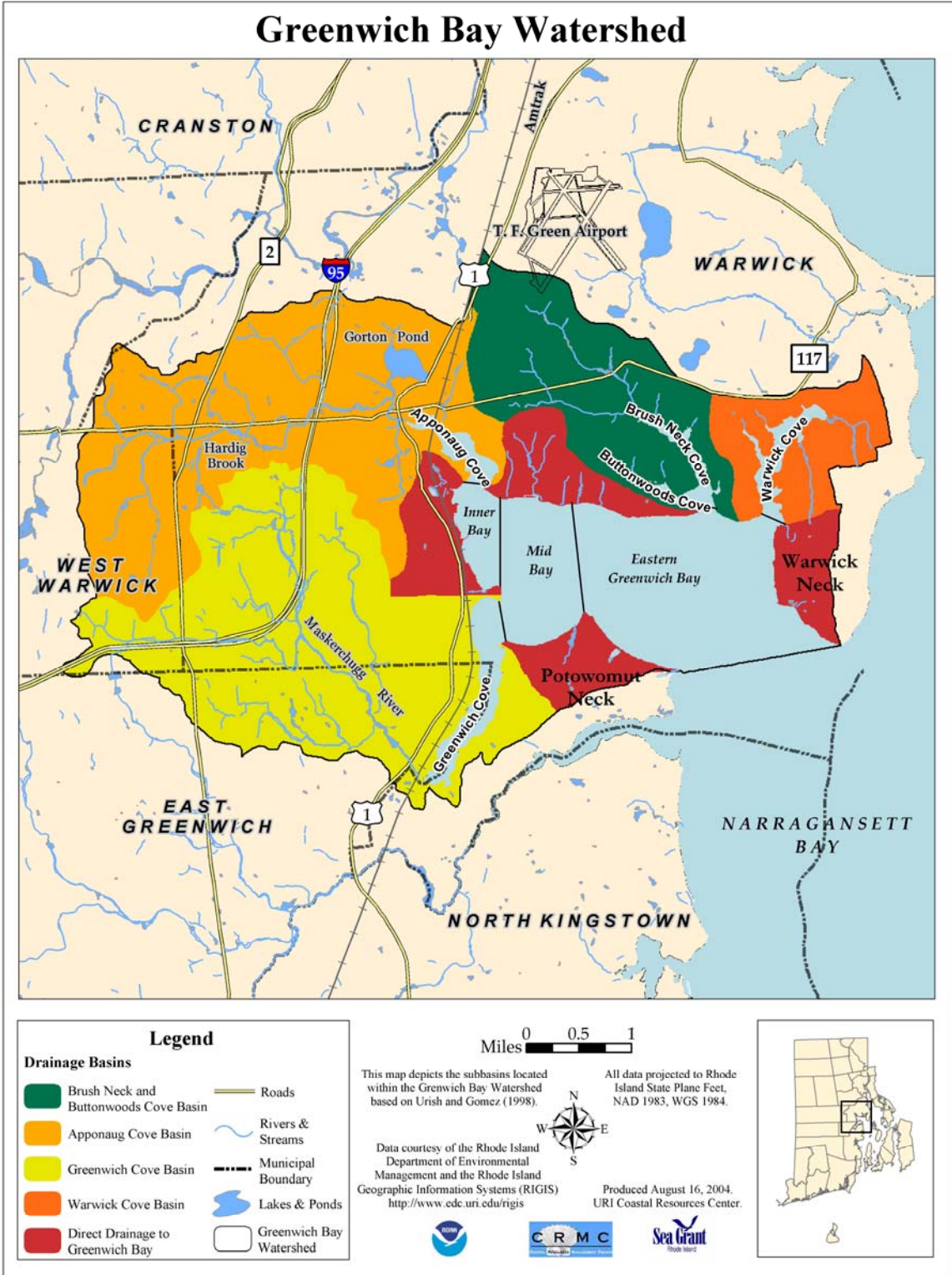
Despite the considerable investment of public funds by the Warwick Sewer Authority over the last 43 years to provide sewer service in the community, in many areas of the City the rate of connection to the sewer system has been modest. In addition, many homes and businesses in Warwick rely on ineffective cesspools and septic systems. The soils conditions in Warwick also do not typically provide much treatment or removal of pollutants from these inadequate systems especially along the critical coastal areas of Warwick.

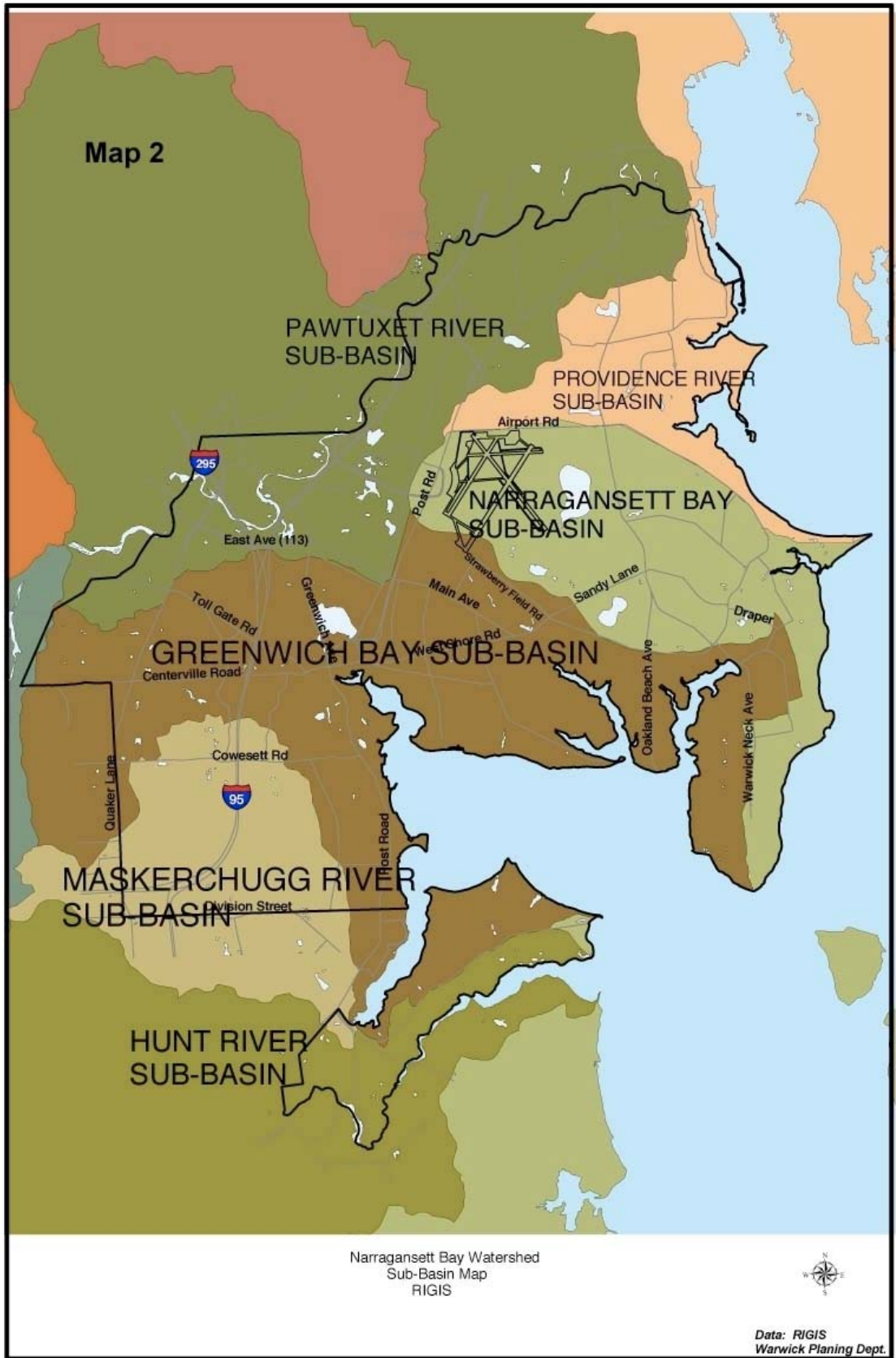
At present the WSA has about 14,086 billing accounts. It is estimated that about 45% of Warwick's population is connected to the sewer system while roughly 2/3rd of the geographic area is served by sewers. Dependent on the source of the data, about 45 – 60% of those properties with sewer service are connected to the sewer system. This overall connection percentage rate can be misleading since some areas of the city have had sewer service for over 40 years and other sections have only recently have had sewers installed in their neighborhood. Typically after sewers are installed, about 30% of those served connect to the sewers within the first year. The annual connection rate typically drops off considerably after the first year. Those that want to or need to connect to the sewer system do so quickly.

Connection rates to the sewer system are compiled and shown by Plats on **Map 3**.

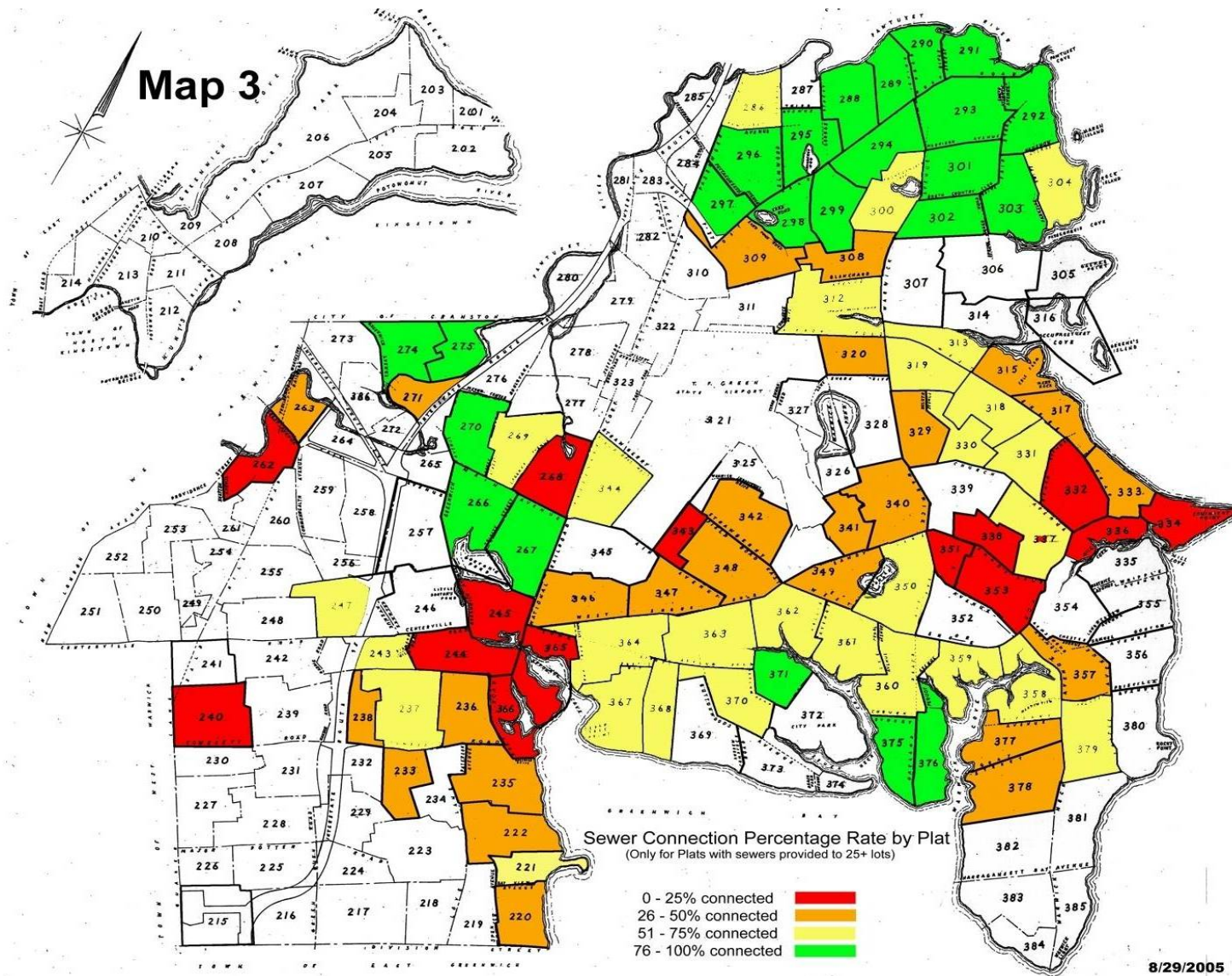
This combination of factors has had negative impacts on the rivers, streams, lakes and Greenwich and Narragansett Bays. DEM has estimated that about 50% of the nutrient pollution in Greenwich Bay is from cesspools and septic systems. Connection to the public sewer system will remove the major source of nutrient and bacterial pollution to these waters. (see **Graph 1: Watershed Nitrogen Sources to Greenwich Bay**, source: DEM TMDL)

MAP 1

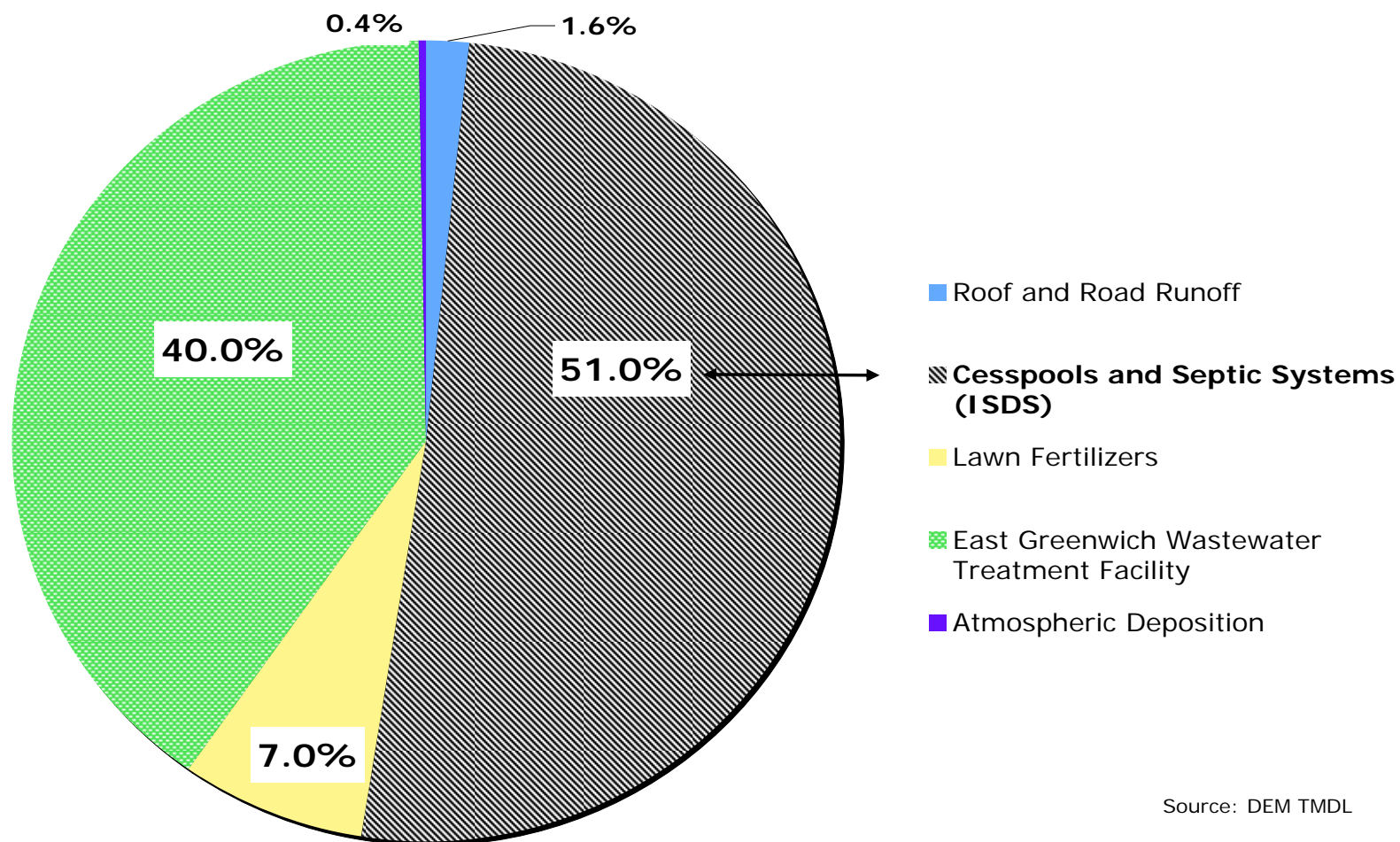




Warwick Sewer Authority
 Amended Mandatory Sewer Connection Program: April, 2006



Graph 1 Sources of Nitrogen to Greenwich Bay



3. CRMC Assent: Mandatory Sewer Connection Program Requirement

On July 6, 2000, the Rhode Island Coastal Resources Management Council issued an Assent (see **Appendix: Assent File Number: 00-4-50, Assent Number: A00-4-50**) to the Warwick Sewer Authority for a sewer construction project in the Conimicut area of Warwick. Included in this Assent were the following requirements and schedule:

Within 60 days of the granting of this assent, the Warwick Sewer Authority will meet with the Council's staff, during which the staff will set the parameters of a plan and implementation schedule for mandatory sewer tie-ins. This plan for mandatory sewer tie-ins should address for residential and commercial development in all areas which drain to Narragansett Bay and Greenwich Bay.

- *Within six (6) months from the granting of this assent, the Warwick Sewer Authority will provide the Council with the outline of the plan, for requiring sewer tie-ins for the Council's approval.*
- *Within one (1) year from the granting of this assent, the Warwick Sewer Authority shall provide the Council with the plan for sewer tie-ins, including location maps, draft ordinance language, enforcement provisions, and implementation schedule, for the Council's approval.*
- *Within one (1) year after completing the required improvements, needed to meet the Department of Environmental Management's requirements for treatment capacity, for the areas that currently have sewers and the sewer system approved under this permit, the Warwick Sewer Authority will implement a mandatory sewer tie-in program, for the areas within the drainage basin of Narragansett Bay and Greenwich Bay.*

4. WSA Responses To CRMC Order

I. Status Report

On April 8, 2003, then Executive Director Dennis Vinhateiro submitted a status report (see **letter in Appendix**) to the CRMC on the WSA progress toward the implementation of a mandatory sewer connection program. In that report, Mr. Vinhateiro outlined that:

- a) The WSA had initiated a \$27 million upgrade of the WSA Wastewater Treatment Facility which was anticipated to be completed by September, 2004;
- b) The WSA had hired the University of Rhode Island Cooperative Extension Service to produce an environmental analysis and ranking of sub-watershed areas in the city to establish a priority ranking in the city to guide implementation of the mandatory connection program in order to achieve optimum water quality improvements. A public hearing was held on the findings of this report in April, 2003;

- c) The WSA staff was reviewing existing municipal ordinances and possible amendments to WSA regulations;
- d) A summary and commentary on the number of sewer connection permits issued in 2002;
- e) The WSA has created an internal database to track sewer connection permits and connections to the sewer system; and
- f) Cautionary notes regarding the various factors that will affect the success of the mandatory sewer connection program including the availability of drainlayers, weather, scheduling and WSA inspector staffing levels.

II. Sewer Connection Permitting

Sewer connection permitting records from 1993 through July, 2005 have been compiled and reviewed. (see **Table 2: Sewer Connections, Totals by Month**)

In 1993, only 164 sewer connection permits were issued. In 2004, that number had grown by nearly 700% to 1,255. For the 12-month period ending July 31, 2005, there were 1,424 permits issued.

The rates of permitting and connections are also tied into the WSA's financial model for revenues for FY2006 - FY2009 with an assumed annual connection rate of a minimum of 1,600 each year. This connection rate defines the permit fee and user fee revenue estimates for each of these four fiscal years.

A rough estimate of the total number of accounts when a 100% connection rate is achieved for sewers in all areas contemplated by the DEM-approved facilities plan is about 28,000 – 30,000. At present, there are about 14,086 active sewer user accounts with a total number of assessed accounts at 21,775.

III. Environmental Priorities Defined

As noted previously, the WSA hired the URI Cooperative Extension (URI CE) to analyze the problem and develop a prioritization plan based on numerous objective environmental, social and geographic criteria. These criteria included: population and housing density, soil characteristics, wetlands, sewer connection rate and shoreline characteristics.

This study evaluated 18 sub-watershed areas in the City and presented an order of priority for 15 of those areas for mandatory sewer connections. Generally, the study concluded that the areas immediately adjacent to Greenwich Bay had the highest priority for mandatory connections.

Warwick Sewer Authority
Sewer Connections, Totals By Month

Table 2

	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993
January	49	27	13	57	29	13	40	18	13	8	28	4	5
February	57	19	24	127	28	14	29	26	24	19	9	1	5
March	56	85	63	152	65	35	49	49	55	15	27	6	10
April	142	110	106	174	84	27	65	57	43	42	26	15	16
May	154	114	103	183	122	46	54	51	67	65	58	19	13
June	166	131	105	132	72	38	58	58	61	65	53	25	25
July	131	100	96	109	109	50	27	59	60	31	28	27	24
August (through 7/12)	42	151	105	109	87	39	40	88	36	38	55	25	18
September		146	114	97	83	48	37	81	41	22	51	109	14
October		149	119	104	104	87	41	62	51	25	26	104	15
November		114	91	85	92	86	38	68	28	19	35	63	10
December		109	70	42	68	78	29	53	26	29	28	41	9
Totals - Calendar Year	797	1,255	1,009	1,371	943	561	507	670	505	378	424	439	164
Year Over Year increase		24%	-26%	45%	68%	11%	-24%	33%	34%	-11%	-3%	168%	
Fiscal Year	FY2005	FY2006	FY2003	FY2002	FY2001	FY2000	FY1999	FY1998	FY1997	FY1996	FY1995	FY1994	
Total Permits Issued: Fiscal Year		1,081	960	1,368	788	385	706	501	427	437	570	160	
Year Over Year Change		13%	-30%	74%	105%	-45%	41%	17%	-2%	-23%	256%		
January - July	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993
Total Permits Issued: 7-Month Period	755	586	510	934	509	223	322	318	323	245	229	97	98
Year Over Year Change	29%	15%	-45%	83%	128%	-31%	1%	-2%	32%	7%	136%	-1%	
Last 12 Month Period Ending	7/31/05	7/31/04	7/31/03	7/31/02	7/31/01	7/31/00	7/31/99	7/31/98	7/31/97	7/31/96	7/31/95	7/31/94	
Total Permits Issued: 12-months	1,424	1,085	947	1,368	847	408	674	500	456	440	571	163	
Year Over Year Change	31%	15%	-31%	62%	108%	-39%	35%	10%	4%	-23%	250%		
August - December	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993
% of Calendar Total		669	499	437	434	338	185	352	182	133	195	342	66
Year Over Year Change		53%	49%	32%	46%	60%	36%	53%	36%	35%	46%	78%	40%
		34%	14%	1%	28%	83%	-47%	93%	37%	-32%	-43%	418%	

The top five areas, in order of priority, identified by the URI CE study are:

1. **Brush Neck Cove**- With the highest risk in almost all indicators, Brush Neck Cove is the obvious choice for first priority. It is by far the densest study area leading to Greenwich Bay. High intensity land use as a percentage of total area is extremely high at 85%.
2. **Apponaug Cove**- Similar to Brush Neck Cove, indicators are highest-risk in almost all areas. Sewer hookup rate is even lower at 12%.
3. **West Watersheds North**- While not extremely high-risk in all indicators, this area has intense development along Post Road immediately adjacent to Greenwich Bay. It also has a fair amount of soils that are very poor for onsite sewage disposal.
4. **Warwick Cove and Warwick Neck** - Although most risk indicators are medium, this area has the most convoluted shoreline in Warwick Cove area, suggesting very poor flushing. It also has a large amount (62%) of soils that are very poor for septic systems.
5. **Buttonwoods Cove** - This area is the last coastal sub watershed, and also has a high-risk in most indicators, especially nutrient loading.

(see **Appendix: Executive Summary, recommendation and associated mapping from this study**)

In addition, as part of this study, URI CE used an existing WSA database and other City databases that tracks sewer connections and sewer assessments to plot the location of properties connected to the sewer system. (see **Appendix: Analytical Procedure**)

5. CRMC Special Area Management (SAM) Plan: Greenwich Bay

In 2005, after a considerable number of public meetings, discussion and development, the CRMC adopted its SAM Plan for Greenwich bay. This 476-page Plan is available as a PDF document download from:

<http://www.crmc.state.ri.us/samp/greenwichbay.html>

The Greenwich Bay SAMP Plan has among it many conclusions:

- Greenwich Bay's water quality makes it an unhealthy place to fish and swim during certain times of year, particularly following storms.
- In 2004, high fecal bacteria levels prompted closure of over 90 percent of Greenwich Bay proper to shellfishing, primarily after storm events, and all of Greenwich Bay's coves.
- From 1998-2004, high fecal bacteria levels closed Oakland Beach, Goddard Memorial State Park Beach, and Warwick City Beach to swimming an average of 15 days per beach per year during the summer.
- Poor water quality conditions also lead to fish kills and other nuisance conditions

during the summer months.

- High nutrient inputs, primarily nitrogen, contribute to these conditions and prevent the growth of valuable eelgrass.
- The largest source of fecal bacteria is storm water, which carries the bacteria from septic systems, cesspools, pets, and wildlife.
- Septic systems, cesspools, and the East Greenwich wastewater treatment facility are large nitrogen sources within the Greenwich Bay watershed
- Requiring sewer tie-ins, phasing out cesspool use, implementing storm water best management practices, establishing vegetated buffers, and continuing efforts to require advanced nitrogen treatment technology at wastewater treatment facilities are key actions to reduce fecal bacteria and nitrogen loads

One of the Goals (Section 120) of the SAM Plan is:

- To Improve Greenwich Bay's water quality so that it is a safe place to fish and swim.

To meet this Goal, the SAM Plan also identifies the following Objectives (section 120.2A):

- **By 2008**, 50 percent of the properties with sanitary sewers available are tied in;
- **By 2012**, 75 percent of the properties with sanitary sewers available are tied in;
- **By 2015**, 100 percent of the properties with sanitary sewers available are tied in;

The SAM Plan also identifies "Priority Actions to improve Greenwich Bay's water quality so that it is a safe place to fish and swim." The top two priority actions are:

- To ensure all homes and businesses tie-in to available sanitary sewers and
- To Phase out cesspool use in the Greenwich Bay watershed.

6. Existing WSA Legal Authority and Regulations

The WSA has the basic legal authorities to address, implement and enforce a mandatory sewer connection program.

The WSA enabling legislation (Public Law 1962, ch. 254) is also incorporated into the City of Warwick Code of Ordinances as Chapter 2. Section 2.17 of the City Code of Ordinances is titled: "Authority to order connection to sewer; order cesspool to be filled up, etc." This section reads in part:

The sewer authority with the advice and consent of the mayor in the interest of public health and safety is authorized to order any abutting owner or occupant of land upon any street in which there is a sewer or in which a sewer may hereafter be constructed, to connect the sewage of such premises with such sewer, and to order any owner or occupant to fill up and destroy any cesspool, privy vault, drain or other arrangement on such land for the reception of sewage. Upon the service of any such order,

or copy thereof, upon any such order or occupant, to connect the sewage as aforesaid, or to fill up or destroy any cesspool, privy vault, drain or other arrangement for the reception of sewage, such owner or occupant shall comply therewith within thirty (30) days from the time of service of such order.

(see Appendix: WSA Enabling Legislation excerpts relating to requiring connections and connect capable fees.)

The WSA also has adopted Regulations that provide an additional basis for the WSA requiring connections to the sewer system. Of particular note is Regulation 51 that reads as follows:

**WSA REGULATION 51
COMPELLING CONNECTION**

***(Originally Approved and Adopted MAY 6, 1971)
(Revision Approved and Adopted JANUARY 5, 1989)***

In the interest of public health and safety, any abutting owner or occupant of land upon any street in which there is a sewer or in which sewer may hereafter be constructed, shall be ordered to connect the sewerage of such premises with such sewer within six months from the date that such sewer is constructed.

After said connection is completed, such owner, or occupant, shall thereupon be ordered to fill up and destroy any cesspool, privy vault, drain or other arrangement for the reception of sewage on such land. Such owner or occupant shall comply with said order within thirty days from the time of service of such order, or he shall be fined not less than \$25.00 (twenty five dollars) nor more than \$100.00 (one hundred dollars) for each subsequent 24 hours during which he shall neglect or refuse to comply therewith.

If such neglect or refusal shall continue for sixty days after the service of such order, the Warwick Sewer Authority shall cause such cesspool, privy vault, drain, or other arrangement for the reception of sewage which is the subject of such order to be filled up, and destroyed, and the sewerage from such land to be connected with a common sewer.

The pendency of any appeal from any such order shall not affect the power of the Authority after the expiration of said sixty days, to cause such cesspool, privy vault, drain, or other arrangement for the reception of sewage to be forthwith filled up and destroyed.

7. Proposed Approach and Recommendations:

Components of a mandatory connection program include:

I. Legislative Authority

As noted previously, the WSA has the basic legislative and regulatory authority to require connections to the sewer system.

It is recommended, however, that WSA legal counsel work with the City Solicitor to draft an ordinance and/or amendment to the WSA Enabling Legislation for the consideration by the WSA to provide an additional implementation tool to the WSA:

- **Connection Required On Transfer of Ownership of Property:** When a property is sold, if public sewer are available and the property is not connected, a condition of the sale would be that a connection to the sewer system be made prior to closing or within a certain timeframe after closing. An appropriate escrow of funds for this purpose could be considered also.

It is also recommended that WSA legal counsel review the WSA enabling legislation and regulations in light of the recommendations herein to assure that the WSA has the ability and legal authority to implement the recommendations.

II. Defined regulations

As noted previously, the WSA has the basic legislative and regulatory authority to require connections to the sewer system.

III. Policies To Guide Mandatory Connection Program Implementation:

It is recommended that the WSA adopt the following policies to guide the implementation of the Mandatory Sewer Connection Program:

Recommended General WSA Policy

It is the Policy of the Warwick Sewer Authority to provide sanitary sewer service to all parts of Warwick that are within in the DEM-approved facilities plan and for which doing so is economically and technically feasible.

As a condition of providing sewer service the WSA requires all property owners to connect, where technically and economically feasible as determined by the WSA, to the public sewer system in order to protect the public health and environment and to restore our rivers, streams, ponds and Greenwich and Narragansett Bays.

All connections to the sewer system must be done in accordance with established Regulations of the WSA.

**Recommended Policy:
Mandatory Sewer Connection For Projects In Service in 2006 & Beyond**

If a project meets RIDEM guidelines for the Interceptor Bond Fund, then, at the discretion of the WSA, the WSA may instruct all developed properties therein to connect within 12 months of notice.

IV. Approach, Defined Area to be Affected and Schedule

The Greenwich Bay and tributary water bodies (coves, streams, rivers, etc.) watersheds have been identified as the priority areas for mandatory connection based on beneficial environmental impact (see **Appendix: URI Report: Executive Summary**).

Based on these identified priority areas, **it is recommended that** the first notices for mandatory connection be sent in the order depicted in **Map 4**.

The CRMC Greenwich Bay SAM Plan has the following phased objectives for sewer connections:

- **By 2008**, 50 percent of the properties with sanitary sewers available are tied in;
- **By 2012**, 75 percent of the properties with sanitary sewers available are tied in;
- **By 2015**, 100 percent of the properties with sanitary sewers available are tied in;

As previously noted, at present about 45 - 60 percent of properties within the sewered areas of Warwick are connected to the sewer system. The 2008 objective may have been achieved by the WSA. However, to assure that the WSA has sufficient flexibility to implement a mandatory sewer connection program and can meet these objectives **it is recommended** that the WSA program implementation be defined in three phases.

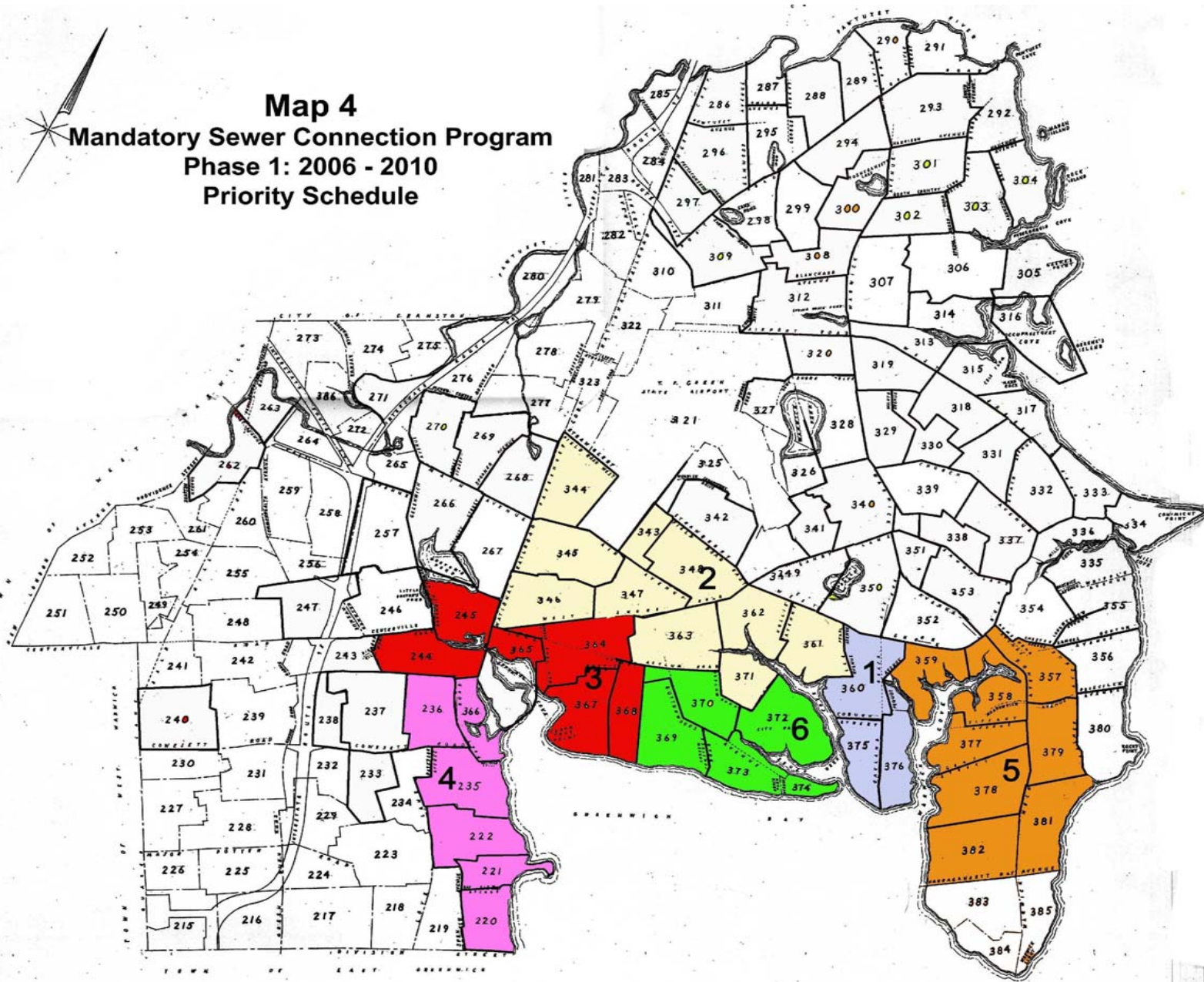
For the first phase, it is recommended that the WSA address mandatory connections for the Greenwich Bay ring area as shown in **Map 4** and in the **Phase 1 Schedule**.

It is estimated that, at the present time, for the areas with existing sewers in **Phase 1** there are a total of 3,123 potential connections.

To facilitate management and inspection of these connections, **it is recommended**, as shown in the **Phase 1 Schedule** and **Map 4**, that beginning in January, 2006, mandatory connection orders be issued to areas on a staggered three-month interval basis. These connection orders will be issued at no more than 200 per interval. For the existing sewer areas, connection timeframes will be 12 months.



Map 4
Mandatory Sewer Connection Program
Phase 1: 2006 - 2010
Priority Schedule



Warwick Sewer Authority
Amended Mandatory Sewer Connection Program: April, 2006

Mandatory Sewer Connection Program, Phase I, 2006 - 2010				Approximate Mailings per Quarter						
Sequence	Impacted Area	Area/ Neighborhood/Plat	Total Connections NEEDED	Jan-06	Apr-06	Jul-06	Oct-06	Jan-07	Apr-07	Jul-07
1	Brushneck Cove	Oakland Beach: Plat 360, 375, and 376	71	71						
2	Brushneck Cove	Plat 343, 344, 345, 346, 347, 348, 361, 362, 363, and 371	1,100		200	200	200	200	200	100
3	Greenwich Bay	Plat 244, 245, 364, 365, 367, and 368	792							100
4	Greenwich Bay	Plat 220, 221, 222, 235, 236, and 366	493							
5	Warwick Cove	Plat 357, 358, 359, 377, 378, 379, 381, and 382	575							
6	Greenwich Bay	Plat 369, 370, 372, 373, and 374	92							
		Sub Total	3,123	71	200	200	200	200	200	200
Recently Completed or Future Projects										
	Narra/Green Bay	Old Warwick	240							
	Brushneck Cove	Strawberry Field	704							
	Greenwich Bay	Sheraton Park	352							
	Greenwich Bay	Arnold's Neck	120							
	Greenwich Bay	Chepiwanoxet	80							
	Greenwich Bay	Division Road Area / East Greenwich Line	60							
	Narra/Green Bay	Conimicut West	850							
	Greenwich Bay	Buttonwoods	180							
	Greenwich Bay	Capron Farm	180							
	Warwick Cove	Warwick Cove IIB	200							
	Narragansett Bay	Governor Francis Farm (phase I)	260							
		Sub Total	3,226							
Other Connections: Non-Mandated Areas			3,690	90	300	300	210	90	300	300
Total Connections per Three Month Period				161	500	500	410	290	500	500
Previous 12 month Total Connections							1,571	1,700	1,700	1,700
Note: All number are approximate										

Warwick Sewer Authority
Amended Mandatory Sewer Connection Program: April, 2006

Mandatory Sewer Connection Program, Phase I, 2006 - 2010			Approximate Mailings per Quarter							
Sequence	Impacted Area	Area/ Neighborhood/Plat	Oct-07	Jan-08	Apr-08	Jul-08	Oct-08	Jan-09	Apr-09	Jul-09
1	Brushneck Cove	Oakland Beach: Plat 360, 375, and 376								
2	Brushneck Cove	Plat 343, 344, 345, 346, 347, 348, 361, 362, 363, and 371								
3	Greenwich Bay	Plat 244, 245, 364, 365, 367, and 368	200	200	200	92				
4	Greenwich Bay	Plat 220, 221, 222, 235, 236, and 366				100	200	193		
5	Warwick Cove	Plat 357, 358, 359, 377, 378, 379, 381, and 382							200	200
6	Greenwich Bay	Plat 369, 370, 372, 373, and 374								
		Sub Total	200	200	200	192	200	193	200	200
Recently Completed or Future Projects										
	Narra/Green Bay	Old Warwick								
	Brushneck Cove	Strawberry Field								
	Greenwich Bay	Sheraton Park								
	Greenwich Bay	Arnold's Neck								
	Greenwich Bay	Chepiwanoxet								
	Greenwich Bay	Division Road Area / East Greenwich Line								
	Narra/Green Bay	Conimicut West								
	Greenwich Bay	Buttonwoods								
	Greenwich Bay	Capron Farm								
	Warwick Cove	Warwick Cove IIB								
	Narragansett Bay	Governor Francis Farm (phase I)								
		Sub Total								
Other Connections: Non-Mandated Areas			210	90	300	300	210	90	300	300
Total Connections per Three Month Period			410	290	500	492	410	283	500	500
Previous 12 month Total Connections			1,700	1,700	1,700	1,692	1,692	1,685	1,685	1,693
Note: All number are approximate										

Warwick Sewer Authority
Amended Mandatory Sewer Connection Program: April, 2006

Mandatory Sewer Connection Program, Phase I, 2006 - 2010						
Sequence	Impacted Area	Area/ Neighborhood/Plat	Oct-09	Jan-10		Totals, 2006 - 2010
1	Brushneck Cove	Oakland Beach: Plat 360, 375, and 376				71
2	Brushneck Cove	Plat 343, 344, 345, 346, 347, 348, 361, 362, 363,				1,100
2	Brushneck Cove	and 371				
3	Greenwich Bay	Plat 244, 245, 364, 365, 367, and 368				792
4	Greenwich Bay	Plat 220, 221, 222, 235, 236, and 366				493
5	Warwick Cove	Plat 357, 358, 359, 377, 378, 379, 381, and 382	175			575
6	Greenwich Bay	Plat 369, 370, 372, 373, and 374		92		92
		Sub Total	175	92		3,123
Recently Completed or Future Projects						
	Narra/Green Bay	Old Warwick				
	Brushneck Cove	Strawberry Field				
	Greenwich Bay	Sheraton Park				
	Greenwich Bay	Arnold's Neck				
	Greenwich Bay	Chepiwanoxet				
	Greenwich Bay	Division Road Area / East Greenwich Line				
	Narra/Green Bay	Conimicut West				
	Greenwich Bay	Buttonwoods				
	Greenwich Bay	Capron Farm				
	Warwick Cove	Warwick Cove IIB				
	Narragansett Bay	Governor Francis Farm (phase I)				
		Sub Total				
Other Connections: Non-Mandated Areas			210	90		3,690
Total Connections per Three Month Period			385	182		
Previous 12 month Total Connections			1,668	1,567		
Note: All number are approximate					Average per year	1,668
					Total Number of Connections during Phase I	6,813

This timing results in a 12-month connection rate that ranges from 1,567 - 1,700 between now and 2010. This connection rate of 1,567 – 1,700 includes connections from non-mandated areas. The average annual connection rate for the four-year period (2006 - 2009) is 1,668. This average does not take into consideration projects that meet RIDEM requirements for the Interceptor Bond Fund and are, upon completion, mandated to connect by the WSA.

V. Resources needed

The prime resources to implement this program include: WSA staffing and drainlayer and master plumbers. Without either one of these resources, permits cannot be issued, connections made and/or inspected. This permitting and connection process also provides necessary revenues from permit fees and sewer user fees from the resulting new customers.

It is recommended that the WSA evaluate its staffing needs for this program on an annual basis.

VI. Incentives

The City of Warwick through its Community Development Program has initiated a sewer connection grant program for low to moderate-income families.

In FY2005, \$1,200 grants were given to 120 property owners. In FY2006, \$800 grants are expected to be given to about 190 homeowners. This grant should provide about 50% of the average cost of a sewer connection to these property owners. This money is dependent upon government funding and is therefore subject to change.

At present, the WSA is actively pursuing other avenues of funding for the grant program.

The WSA has a 1995 legal opinion (see **Appendix: Letter from Partridge, Snow and Hahn**) that general obligation bonds of the city could be used to fund a sewer connection loan program. **It is recommended** that this legal opinion be reviewed and updated to determine if general obligation bonds could be used to supplement the Community Development sewer connection grant funds.

VII. Exemptions

All regulatory programs need to address the inevitable legitimate situations whereby exemptions should be granted. The mandatory sewer connection program also needs to define the basis for exemptions from the requirements and possible penalties for non-compliance.

There are two basic reasons for an exemption from the mandatory sewer connection program: a connection may not be technically possible and a financial hardship.

All requests for a deferment must be made in writing on forms provided by the WSA and submitted to the Executive Director for review and approval or denial. For each

approval and denial, the Executive Director must provide specific reasons for the denial or approval.

Deferments may be granted as follows:

- **Technically Not Feasible:** When, in the opinion of the Executive Director, connection to the public sewer system is not technically feasible an exemption from the mandatory connection requirement may be granted.
- **Non-Occupiable Building:** Where a building has been deemed to be condemned for demolition and/or cannot be occupied due to severe building or other code deficiencies and such condition is documented in federal, state or city legal order or document, a deferment may be granted.
- **Economic Hardship:** Property owners who have been approved as part of the City of Warwick's "Circuit Breaker" Program may be eligible for a limited-term deferment from connection to the sewer system. This deferment will only remain in effect for those properties that are occupied by the property owner.

Any deferment issued will be immediately revoked if the existing individual subsurface disposal system (cesspool or septic system) is determined to have failed by the DEM, the CRMC, the City Building Official and/or the Warwick Sewer Authority. In addition, if the property is sold or otherwise changes ownership, the deferment will cease. The new owner may re-apply for the deferment, if the technical situation identified is still applicable and approved by the Executive Director.

For non-resolvable technical issues, it is recommended that the Warwick Sewer Authority grant a limited-term deferment from the Program. It is suggested that a five-year deferment be granted. The deferment would be reviewed at the end of five years. No deferment should be granted to properties that are served by a cesspool system.

It is recommended that the WSA establish exemptions considering the above.

VIII. Management of Program Implementation

It is recommended that the following basic implementation management steps be instituted:

- A general meeting on the overall program requirements should be held.
- Once sewers are available in a neighborhood, the WSA shall give notice to the property owner of the availability of the sewers and the required mandatory schedule for connection. (**see Appendix: Sample Letter**).
- The initial notice should be by certified letter, return receipt required.
- Reminder letters to property owners should also be issued during the compliance period
- A database should be maintained to track compliance and to document progress;

- On a monthly basis, a progress report should be made at the WSA Board meeting, noting the status of the program providing statistics, noting issues, etc.
- On at least a quarterly basis, a similar report should be made to the Rhode Island Coastal Resources Management Council. Any potential changes to the plan should be identified in these reports;

IX. Enforcement of Mandatory Sewer Connection Program

It is recommended that once the deadline for connection has passed and prior to enforcement of the mandatory sewer connection program, the WSA notify the property owners by certified mail, return receipt required, of their failure to meet the WSA's requirements to connect to the sewer system. To ensure continuation of the program and to ensure equitable treatment of all property owners, an enforcement response must be taken. After the period of time (to be defined) has passed for a property to connect to the sewer system, the WSA may:

- Notify the property owner and place them on a compliance schedule with stipulated penalties for continued non-compliance;
- Impose a civil monetary penalty
- Connect the property to the sewer system and bill the property owner
- Impose a connect capable fee;
- Take whatever action is legal and appropriate to remedy the non-compliance

See also recommendations for Legal Authority and Regulations.

This report is the product of discussions at meetings of the Warwick Sewer Authority and was written by Juan Mariscal, P.E., Executive Director of the Warwick Sewer Authority (2004- 2005).

Fred Sullivan, WSA Board member, Charles Labbé, WSA Program Planner and Eric Manchester, WSA Intern also compiled and analyzed the data as well as assisted in the development of the concepts and recommendations.

GIS Mapping Assistance (done separately from this report) was also provided by Dan Geagan of the City Planning Department.

Report was amended April 2006 by Charles B. Labbé under the direction and supervision of William L. Vilella P.L.S., Executive Director of the Warwick Sewer Authority (2005-Present)

Special Thanks to Mr. James Boyd, Coastal Policy Analyst for CRMC, for providing the Greenwich Bay Watershed map

APPENDIX



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

COASTAL RESOURCES MANAGEMENT COUNCIL

Oliver H. Stedman Government Center
4808 Tower Hill Road, Suite 3
Wakefield, R.I. 02879-1900

(401) 783-3370
FAX: (401) 783-3767

ASSENT

File Number: 00-4-50 Assent Number: A00-4-50

Whereas,

WARWICK SEWER AUTHORITY

125 Arthur W. Devine Road

of

Warwick, RI 02888

has applied to the Coastal Resources Management Council for assent to: Construct a system of Sanitary Sewer lines in the Conimicut area of Warwick associated with "Contract 68A". Most of the work will occur within existing paved roadways including: Frontier Road, Twin Oak Drive, Rainbow Court, Westonia Lane, Pine Edge Court, Delwood Road, Glenwood Drive, Faroe Court, Sarah Teft Drive, Circuit Court and West Shore Road. The project also includes miscellaneous improvements to the municipal water line and hydrant installation; and represents that They are the owner(s) of the riparian rights attached to the property involved and submitted plans of the work to be done.

Now, said Council, having fully considered said application in accordance with all the regulations as set forth in the Administrative Procedures Act does hereby authorize said applicant, subject to the provisions of Title 46, Chapter 23 of the General Laws of Rhode Island, 1956, as amended, and all laws which are or may be in force applicable thereto: Construct a system of Sanitary Sewer lines in the Conimicut area of Warwick associated with "Contract 68A". Most of the work will occur within existing paved roadways including: Frontier Road, Twin Oak Drive, Rainbow Court, Westonia Lane, Pine Edge Court, Delwood Road, Glenwood Drive, Faroe Court, Sarah Teft Drive, Circuit Court and West Shore Road. The project also includes miscellaneous improvements to the municipal water line and hydrant installation; located at plat 313, 315 & 319; Conimicut Area of Warwick, RI, in accordance with said plans submitted to this Council and approved by this Council. All work being permitted must be completed on or before **July 6, 2003**, after which date this assent is null and void, (unless written application requesting an extension is received by CRMC sixty (60) days prior to expiration date).

Applicant agrees that as a condition to the granting of this assent, members of the Coastal Resources Management Council or its staff shall have access to applicant's property to make on-site inspections to insure compliance with the assent.

Licensee shall be fully and completely liable to State, and shall waive any claims against State for contribution or otherwise, and shall indemnify, defend, and save harmless State and its agencies, employees, officers, directors, and agents with respect to any and all liability, damages (including damages to land, aquatic life, and other natural resources), expenses, causes of action, suits, claims, costs (including testing, auditing, surveying, and investigating costs), fees (including attorneys' fees

and costs), penalties (civil and criminal), and response, cleanup, or remediation costs assessed against or imposed upon Licensee, State, or the Property, as a result of Licensee's control of the Property, or Licensee's use, disposal, transportation, generation and/or sale of Hazardous Substances or that of Licensee's employees, agents, assigns, sublicensees, contractors, subcontractors, permittees, or invitees.

Nothing in this assent shall be construed to impair the legal rights of this granting authority or of any person. By this assent the granting authority by no manner, shape, or form assumes any liability or responsibility implied, or in fact, for the stability or permanence of said project; nor by this assent is there any liability implied or in fact assumed or imposed on the granting authority. Further, the granting authority by its representatives or duly authorized agents shall have the right to inspect said project at all times including, but not limited to, the construction, completion, and all times thereafter.

This Assent is granted with the specific proviso that the construction authorized therein will be maintained in good condition by the owner thereof, his heirs, successors, or assigns for a period of fifty (50) years from the date thereof, after which time this permission shall terminate necessitating either complete removal or a new application.

Permits issued by the CRMC are issued for a finite period of time, confer no property rights, and are valid only with the conditions and stipulations under which they are granted. Permits imply no guarantee of renewal, and may be subject to denial, revocation, or modification.

A copy of the legal decision from the full Council proceeding may be acquired by contacting the CRMC office in writing.

A copy of this Assent shall be kept on site during construction.

Application for future alteration of the shoreline or other construction or alteration within the CRMC jurisdiction shall be submitted to the CRMC for review prior to commencing such activity.

All applicable policies, prohibitions, and standards of the RICRMP shall be upheld.

All local, state or federal ordinances and regulations must be complied with.

Please be advised that as a further conditions of this Assent, it is hereby stipulated that you and/or your agents shall comply at all times with Federal and State Water Quality Standards and other State standards and regulations regarding water quality, and shall exercise such supervision over and control of these facilities to prevent the dumping or discarding or refuse, sanitary wastes and other pollutants in the tidal waters, either from vessels docked at said facilities or from land adjacent thereto.

No work that involves alteration to wetlands or waters of the United States, shall be done under this Assent until the required Federal Permit has been obtained.

Non-compliance with this assent shall result in legal action and/or revocation of this permit.

CAUTION:

The limits of authorized work shall be only for that which was approved by the CRMC. Any activities or alterations in which deviate from the approved plans will require a separate application and review. If the information provided to the CRMC for this review is inaccurate or did not reveal all necessary information or data, then this permit may be found to be null and void. Plans for any future alteration of the shoreline or construction or alteration within the 200' zone of CRMC jurisdiction or in coastal waters must be submitted for review to the CRMC prior to commencing such activity.

ATTENTION: ALL STRUCTURES AND FILLED AREAS IN THE TIDAL, COASTAL, OR NAVIGABLE WATERS OF THE STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS ARE SUBJECT TO:

1. The Superior Property Rights of the State of Rhode Island and Providence Plantations in the Submerged and Submersible Lands of the Coastal, Tidal, and Navigable Waters;
2. The Superior Navigation Servitude of the United States;
3. The Police Powers of the State of Rhode Island and the United States to regulate Structures in the Tidal, Coastal, or Navigable Waters.

THE SUBMERGED AND SUBMERSIBLE LANDS OF THE TIDAL, COASTAL, AND NAVIGABLE WATERS OF THE STATE ARE OWNED BY THE STATE AND HELD IN TRUST FOR THE PUBLIC. CONVEYANCE OF THESE LANDS IS ILLEGAL; TITLES PURPORTING TO TRANSFER SUCH LANDS ARE VOID. ASSENTS THAT INVOLVE THE FILLING OR USE OF THE STATES SUBMERGED LANDS ARE GRANTED WITH THE PROVISIO THAT IT IS SUBJECT TO THE IMPOSITION OF A USAGE FEE TO BE ESTABLISHED BY THE COASTAL RESOURCES MANAGEMENT COUNCIL.

SPECIFIC STIPULATIONS OF APPROVAL

General Stipulations

A. The applicant shall record this assent in its entirety in the land evidence records of the City of Warwick within thirty (30) days of the date of assent issuance. Certification by the Town Clerk's office that this stipulation has been complied with shall be furnished to Coastal Resources Management Council by the applicant within fifteen (15) days thereafter. Failure to comply with provision will render this assent null and void.

B. The approved sewer system plans shall be those entitled "City of Warwick, Rhode Island, System of Sewers, contract no. 68-A, Conimicut North sewer system...", by Gordon R. Archibald, Inc., dated May, 2000. Except as stipulated or modified herein, all details and specifications thereon shall be strictly adhered to. Any and all changes require written approval from this office.

C. The applicant shall notify CRMC staff at least one week in advance of the approximate date of the start of construction.

D. Since the project plans do not show the specific limits of coastal features and/or freshwater wetlands, nor have the location of these feature been confirmed by field inspection, absolutely nor work shall occur beyond that specifically shown on the approved plans without prior CRMC review and approval.

E. No alterations (vegetative or otherwise) or activities are allowed on the coastal feature(s) or in the waterway adjacent to the site.

F. No changes in stormwater drainage are authorized by this permit.

G. Within 60 days of the granting of this assent, the Warwick Sewer Authority will meet with the Council's staff, during which the staff will set the parameters of a plan and implementation schedule for mandatory sewer tie-ins. This plan for mandatory sewer tie-ins should address for residential and commercial development in all areas which drain to Narragansett Bay and Greenwich Bay.

Within six (6) months from the granting of this assent, the Warwick Sewer Authority will provide the Council with the outline of the plan, for requiring sewer tie-ins for the Council's approval.

Within one (1) year from the granting of this assent, the Warwick Sewer Authority shall provide the Council with the plan for sewer tie-ins, including location maps, draft ordinance language, enforcement provisions, and implementation schedule, for the Council's approval.

Within one (1) year after completing the required improvements, needed to meet the Department of Environmental Management's requirements for treatment capacity, for the areas that currently have sewers and the sewer system approved under this permit, the Warwick Sewer Authority will implement a mandatory sewer tie-in program, for the areas within the drainage basin of Narragansett Bay and Greenwich Bay.

Earthwork Stipulations

H. All stormwater catch basins shall be protected by appropriate soil erosion and sedimentation controls as described by the Rhode Island Soil Erosion and Sediment Control Handbook (ref. Chapter 5, Storm Drain Protection). Should sediment enter the drainage system, additional protection measures shall be employed (beyond the hay-bale protection detail shown on the approved plans). The Warwick Sewer Authority shall assure that all contractors are aware of this requirement.

If site monitoring conducted by CRMC staff shows that appropriate soil erosion and sediment controls are not being utilized and properly maintained, a notice of violation and notice of administrative fine may be issued directly to the contractor. Any violation notices, fines and required corrective actions shall be the contractor's sole responsibility.

I. The standards and specifications set forth in the most recent RI Soil Erosion and Sediment Control Handbook (RISESCH) shall be strictly adhered to.

J. Prior to initiation of any grading, construction, or earthwork activity appropriate erosion controls shall be installed.

K. Upon successful stabilization of exposed soils all haybales and stakes shall be removed from site and disposed of at a suitable, legal upland location.

L. All catch basins and drains in the area, into which sediment laden waters may flow shall be ringed with haybales staked and toed in 4 inches or protected per Standard "SD" of the RISESCH. These controls shall be properly maintained by timely removal of accumulated sediment and replacement of bales as needed.

M. All discharges which result from dewatering operations, must flow into sediment traps consisting of haybale rings enclosing crushed stone to disperse inflow velocity. These devices shall be maintained by removal and proper disposal of accumulated sediments and by replacement of bales and stone as needed. The devices shall not be located on any coastal feature nor in any designated coastal buffer zone. If necessary, a matting device shall be used below the traps. These devices must be completely removed upon completion of dewatering operations.

N. There shall be no stockpiling or disposal of soils, construction materials, debris, etc., on the coastal feature, within 200 feet of the inland edge of the coastal feature, in coastal waters, or in any areas designated as a CRMC setback or coastal buffer zone.

O. All excess excavated materials, excess soils, excess construction materials, and debris shall be removed from the site and disposed of at an inland landfill or a suitable and legal upland location outside of CRMC jurisdiction. No materials shall be deposited on the coastal feature, within 200 feet of the inland edge of the coastal feature, in coastal waters, or in any areas designated as a CRMC setback or coastal buffer zone.

P. All excavated material shall be cast on the upslope side of the excavation so as to minimize sedimentation.

Q. All fill materials shall be clean, free of debris and rubble, and free of materials which may cause pollution of surface waters or groundwater.

R. All areas of exposed soil which are disturbed by construction and related activities shall be revegetated as immediately as is physically possible so as to minimize erosion and sedimentation. If the season is not conducive to immediate revegetation, all exposed soils shall be temporarily stabilized with hay mulch, jute mat netting or similar erosion control materials. Soil stabilization methods shall be employed during, as well as after, the construction phase to the maximum extent possible.

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July 6, 2000
Page Six

S. Excavation and grading shall be limited to the area approved. Excess earthwork beyond that authorized by this assent is not permitted.

T. There shall be no discharge or disposal of hazardous wastes or hazardous materials which may be associated with construction machinery, etc. on the site or in the waterway. All used oil, lubricants, construction chemicals, etc. shall be disposed of in full compliance with applicable State and Federal regulations.

In Witness Whereof, said Coastal Resources Management Council have hereto set their hands and seal this 6th day of July in the year two-thousand.



Grover J. Fugate, Executive Director
Coastal Resources Management Council

/lam



WARWICK SEWER AUTHORITY
125 ARTHUR W. DEVINE BLVD., SUITE B
WARWICK, RHODE ISLAND 02886

TEL 401-739-4949

April 8, 2003

Grover Fugate, Executive Director
Rhode Island Coastal Resources Management
Council Oliver Stedman Government Center
4808 Tower Hill Road
Wakefield, RI 02879

Dear Mr. Fugate:

This letter is intended to update the Council on the progress being made by the Warwick Sewer Authority to comply with General Stipulation "G" as set forth in the Council's Assent Number A00-4-50. The stipulation requires the Warwick Sewer Authority to implement a citywide program to mandate connection to the City's public sewer system.

As you know, implementation of a mandatory connection program in Warwick hinges on completion of on-going improvements to the City's Wastewater Treatment Facility designed to provide sufficient treatment capacity for our current and future service area. Those improvements are part of a \$27 million dollar contract scheduled for completion in September 2004. The Contractor has been aggressively pursuing this work and the Authority is cautiously optimistic that it will have beneficial use of necessary components of the treatment train to begin implementation of a mandatory connection program in the spring of 2004.

The Authority, through the auspices of the University of Rhode Island Cooperative Extension Service, has produced an analysis and ranking of watershed areas within the City as a systematic means of prioritizing mandatory connections to achieve optimum results in terms of water quality improvement. Copies of the Executive Summary, Maps and "Risk Matrix" contained in the report have been forwarded to you electronically. A copy of the full report can be obtained from Mr. James Lucht, currently at the Providence Plan. The Authority has scheduled the first "Public Informational Meeting" to disseminate this information to the public for April 16, 2003, at 7:00p.m. at the Authority's Office.

The Authority's staff has collected and is reviewing existing municipal and regional ordinances/regulations dealing with the issue of mandatory connection to public sanitary sewers and will be developing language for consideration by the Authority over the course of the next six months. The Authority will provide copies of draft regulations as

they are developed. Any amendments to the Authority's regulations require a Public Hearing prior to adoption.

In preparation of developing an implementation schedule, the Authority has been tracking the number of permits issued and inspections performed to establish a baseline of how many connections can be accomplished on an annual basis. In calendar year 2002, the Authority issued 1,251 sewer connection permits. This number of permits was fifty percent greater than the previous highest year (2001) and approximately three hundred percent higher than the Authority's forty-year average. Given the mild winter of 2001-2002, it is our opinion that 2002 represents some number close to a maximum number of connections that can realistically be realized in any given twelve month period.

Obviously, the number of connections that can physically be accomplished in a given year is a function of a number of factors, only one of which is under the Authority's direct control. Those factors outside the control of the Authority include the weather and the number of individuals or businesses interested and qualified to perform the required service. The Authority's capacity to inspect connections, the one factor under the Authority's control, will be met regardless of the number of connections.

The other factor influencing scheduling is the number of properties remaining to be connected in any given watershed. The Authority has developed a database that tracks all properties with available public sewer service and their connection status.

The Authority will continue to track all of these various factors this year and will be in a better position to develop a predictive implementation scenario as we get closer to an implementation date. hope this information is sufficient for your purposes at this time. If you need additional information or further clarification, please feel free to contact me at 468-4718.

Sincerely,

Dennis Vinhateiro
Executive Director

c: Mayor Scott Avedisian
Thomas P. Stone, Vice Chairman, WSA

EXECUTIVE SUMMARY

Analysis of Environmental Threats and Prioritization of Mandatory Sewer Connections for the City of Warwick, Rhode Island

The Problem

Greenwich Bay and nearby coves have been increasingly impacted by intense human activity both on the bay itself and within its watershed. Dense residential and commercial development, accelerating in the 1950's and continuing to the present day, has significantly degraded water quality. Increased nutrients from stormwater and septic systems have caused undesirable algal growth, choking out other life. The Bay's shallow, poorly flushed coves have been hardest hit, and much of the Bay has been closed to shellfishing on and off for a decade.

Working Towards Solutions

The closure to shellfishing due to bacterial contamination in 1992 was probably the most significant single event that raised public awareness of Greenwich Bay's degradation. In response, a coalition of advocacy organizations and government agencies called The Greenwich Bay Initiative was formed to identify issues and work towards solutions.

One of the most obvious problems identified was lack of wastewater management. The City of Warwick had been installing sewers in certain areas since the 1960's, but many key coastal areas are only now receiving them. Most significantly, Warwick has never required residents and businesses to connect to sewers. The percentage of sewer hookups in many areas is small - some lower than twenty percent.

In response to this, Save the Bay, the Coastal Resources Management Council, and the Rhode Island Department of Environmental Management (DEM) are forcing the Warwick Sewer Authority (WSA) to mandate sewer connection in all areas where sewers are available. Recognizing that it is impossible for all areas to hook up at once and that greater environmental benefit would be gained by tying in certain areas first, the WSA commissioned URI Cooperative Extension (URI CE) to analyze the problem and develop a prioritization plan.

Study Area

The study area contains the whole City of Warwick as well as areas of the Greenwich Bay watershed in the towns of East and West Greenwich. There are eighteen distinct study areas – thirteen subwatersheds of Greenwich Bay and five other small watersheds and direct drainage areas.

Methodology

In order to gauge overall human impact and natural vulnerability, URI CE used an indicator-based assessment method called MANAGE (Method for Assessment, Nutrient-loading, And Geographic Evaluation). MANAGE uses a variety of data in a Geographic Information System (GIS) to quantify a series of key indicators (**Table 1**). Data sources were the Rhode Island Geographic Information System (RIGIS), Census 2000, the Warwick Assessor's office, and the Warwick Sewer Authority.

Indicators were assembled into a matrix and color-coded for easy comparison (**Table 2**). Colors indicate the level of threat or vulnerability: Red for High, Yellow for Medium, and Green for Low. Study areas with the largest number of "High" indicators were given the highest priority for mandatory sewer connection. In addition, study areas leading to Greenwich Bay were prioritized separately from those leading to other areas.

Table 1: Assessment Indicators

Indicator	Explanation
<i>Human Impact</i>	
Population & Housing Density	Density of persons and dwellings is closely related to pollution from stormwater runoff and septic systems
Sewer Connections	Units connected as percent of potential connections (assessed units where sewer is available) - indicates low hookup rates
Unsewered Units per Acre	An important measure of septic effluent and related impact
Land Use / Impervious Surface	Percent of study area covered by intense development (high-density residential, commercial, industrial) and high impervious surface, both having an adverse impact on water quality
Modeled Nutrient Loading	Estimated nitrogen loading to surface and ground waters based on MANAGE model output
<i>Natural Vulnerability</i>	
Soil Characteristics	Proportion of study area that has either excessively permeable soils that allow rapid movement of septic effluent to groundwater, or impermeable soils that contribute to "surface breakout" septic system failure
Wetlands	Wetlands can potentially remove nutrients, lessening the impact of runoff and septic effluent
Shoreline Characteristics	Convolutated shoreline and shallow depth increase time required to flush pollutants

Once study areas were prioritized according to the indicators, they were then categorized according to where sewer is presently available and where and when sewer construction is planned. Large-scale residential developments were also mapped so economy of scale in connecting them could be realized.

Findings

Results are summarized below for fifteen of the eighteen areas. North and South Potowomut and West Watersheds South were not prioritized because Potowomut is not slated for sewers and East Greenwich is out of the Warwick Sewer Authority's control. Potowomut South did have high nutrient loading, however, and West Watersheds South has very high population density and intense land use.

Study areas are listed below in order of priority:

Greenwich Bay

6. **Brush Neck Cove**- With the highest risk in almost all indicators, Brush Neck Cove is the obvious choice for first priority. It is by far the densest study area leading to Greenwich Bay. While not the lowest hookup rate at 16%, it still has the highest number of unsewered units per acre in both the whole study area and within a 200-foot buffer to streams, ponds, and coastline. High intensity land use as a percentage of total area is extremely high at 85%.
7. **Apponaug Cove**- Similar to Brush Neck Cove, indicators are highest-risk in almost all areas. Sewer hookup rate is even lower at 12%.
8. **West Watersheds North**- While not extremely high-risk in all indicators, this area has intense development along Post Road and only 1% of potentially sewered units are hooked up. It also has a fair amount of soils that are very poor for onsite sewage disposal. Great benefits could be achieved by hooking in large apartment complexes.

9. **Warwick Cove and Warwick Neck**- Although most risk indicators are medium, this area has the most convoluted shoreline, suggesting very poor flushing. It also has a large amount (62%) of soils that are very poor for septic systems.
10. **Buttonwoods Cove**- This area is the last coastal subwatershed, and is also high-risk in most indicators, especially nutrient loading.
11. **Gorton Pond**- Highest priority for inland subwatersheds draining to Greenwich Bay, this area also quickly drains to highly impacted Apponaug Cove.
12. **Lower Hardig**- Despite mostly medium indicators, high percentage of intense land uses and proximity to Apponaug Cove raise its priority.
13. **Upper Hardig**- High population density, low sewer hookup rate, and a lot of high intensity land use are issues in this area, but it is relatively far inland compared to the above study areas. Could potentially be a higher priority, especially because it has been mostly sewered for some time.
14. **Lower Maskerchugg**- All indicators here are medium to low except nutrient loading due to lack of sewers and moderate population density.
15. **Upper Maskerchugg**- Lowest risk indicators of all areas draining to Greenwich Bay.

Other Areas

- A. **Passeonquis Cove**- High-risk indicators, poor flushing, and high population and housing density make this area a top priority. Nutrient loading is not as high as Occupessatuxet because of a higher hookup rate, but other indicators make up for this.
- B. **Occupessatuxet Cove**- A close second to Passeonquis for similar reasons.
- C. **Old Mill Creek Cove**- High in population density, intense land use, and nutrient loading, but having direct drainage to a poorly flushed cove ensures higher priority.
- D. **Warwick Neck Direct Drainage**- Sewer hookup rate is poor here, as are the soils, but direct drainage to Narragansett Bay lower its priority in comparison to cove subwatersheds.
- E. **Pawtuxet Direct Drainage**- Lowest risk indicators of all areas not draining to Greenwich Bay. Warwick and West Warwick sewerage treatment facilities drain into the Pawtuxet.

The results of the above prioritization are depicted graphically using a red-yellow-green color scheme in **Figure 1**. The sewer construction schedule (with study area boundaries) is shown in **Figure 2**. By using both of these maps together, one can determine what high priority areas can immediately be connected to sewer, giving the greatest environmental benefit.

Large format versions of the construction schedule/study area map are available at the Sewer Authority office as well as Warwick Planning Department.

Questions about this study can be directed to:

Jim Lucht
 Planner / GIS Specialist
 University of Rhode Island Cooperative Extension
 jlucht@providenceplan.org
 401 455-8880

Method for Determining Existing Sewer Hookup Rate

The Warwick Sewer Authority keeps a database of assessments and hookups coded by Plat-Lot-Unit. There are 18,207 records, each corresponding to a single assessment and potentially multiple units (such as for a multi-family dwelling). The database contained only limited data on land use type (Residential or Commercial) and number of units.

In order to get a more accurate land use classification and unit count, we joined City of Warwick Assessor's data to the WSA database using Plat-Lot-Unit as the common identifier. WSA records were then coded using the standard two-digit assessor land use classification.

WSA unit data were then compared to the land use classification. Where the WSA unit number was greater than 0 or 1, that unit number was kept. Otherwise, unit figures were assigned using the assessor land use classification. For example, in a record where the WSA unit number was 4 and the assessor's code was 06 (Commercial II), we assumed that 4 was an accurate count of units. Those with code 01 (Single-Family Residential) were assigned one unit, and code 02 (Two to Five Family Res.) were assigned 2.5 units as a reasonable estimate. Code 03 (Apartments) all had unit entries greater than one and were assumed accurate.

These new unit data were then summarized by plat by hookup status by land use (either Residential or Commercial-Industrial).

We then assembled a table containing data for each plat as follows:

PLATNUMS	U_TOT	U_PHU	U_HU	<i>U_HU_</i>	<i>U_HU_X</i>
City of Warwick Plat number 220-382	Total number of units according to Warwick Assessor's database.	Total number of assessed units ("Potential Hookups") according to WSA database.	Number of hooked up units according to WSA database.	Percentage of units that could hook up that are connected.	Percentage of total units in Plat that are connected.

Note: Residential and Commercial unit numbers and hookup calculations were kept separate throughout the process.

This table was then joined to the Warwick Plat data layer created for this project and mapped to display hookup status.

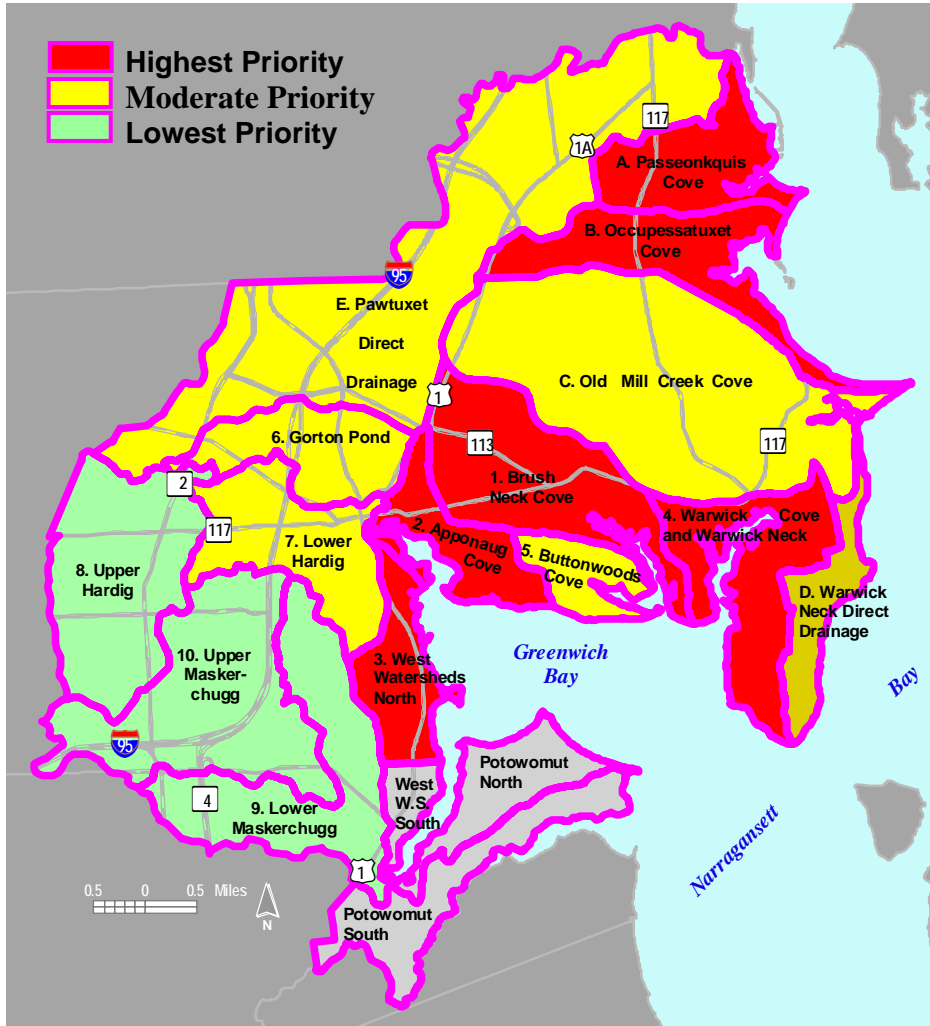


Figure 1: Study Area Risk Prioritization
 Color scheme denotes overall risk rating determined by combining indicators of natural vulnerability and human impact. Study areas are bounded in purple.

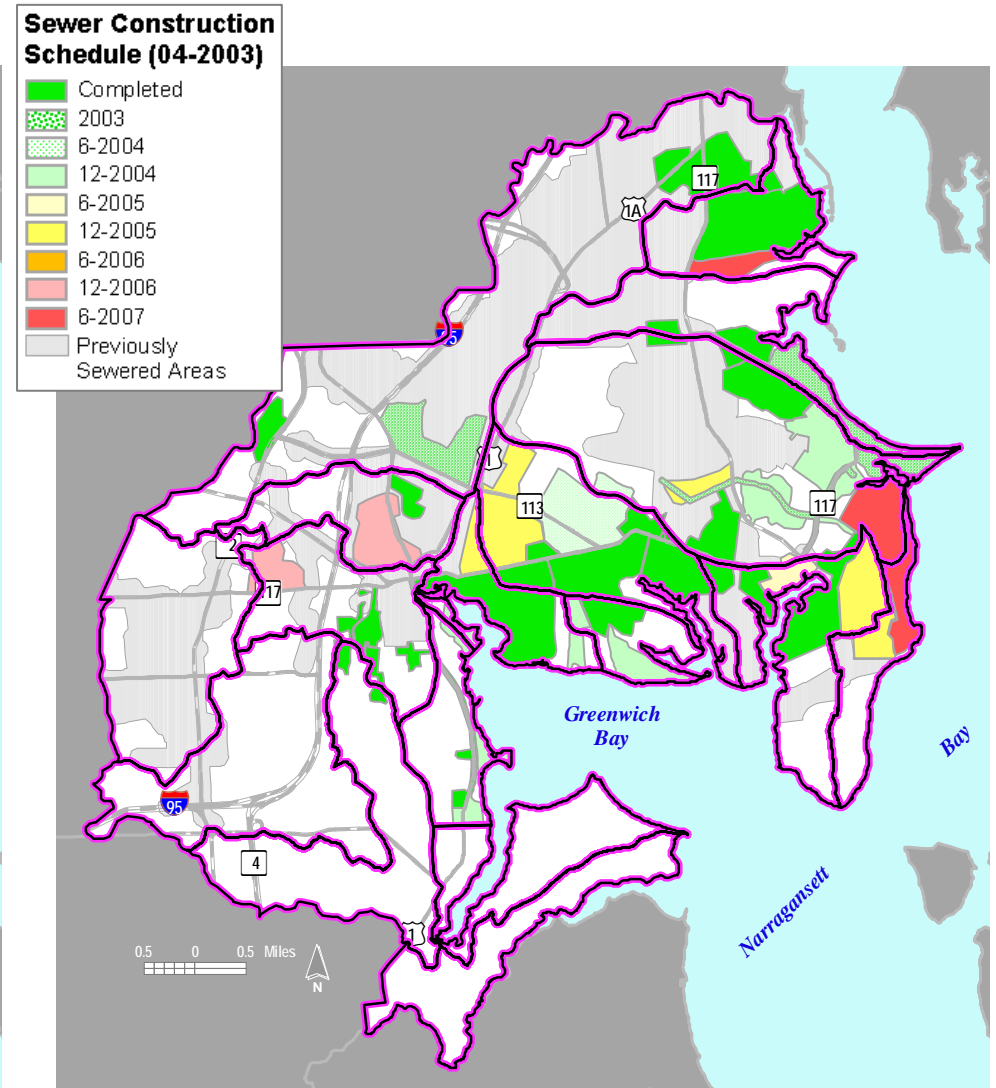


Figure 2: Sewer Construction Areas and Schedule
 Color scheme denotes completion status. Combine with Risk Prioritization in Figure A to determine which areas should connect to sewer first.

Table 2: Warwick Sewer Hookup Study- Indicator Matrix

R a n k i n g	Indicators >	Source	Comment	Human Impacts								Natural Vulnerability					
				Population and housing density		Proportion of homes hooked up within each planning area.	Unsewered Units per Acre Whole Watershed v. Buffer		High intensity land use (%)- Whole v. Buffer		Modeled nutrient loading data		Soil Characteristics		Wetlands (%)	Cove Shoreline Characteristics	
				US Census 2000 Block data	Based on WSA Hookup, Warwick Assessor, and Census 2000 Block Data		1995 RIGIS Land Use/Cover		RIGIS, population, sewer hookup, and water use data		RIGIS Soils		RIGIS Wetlands and land use/cover data	RIGIS, NOAA Charts, other sources			
				Regulator to minimum lot size.	Based on hookup or percentage of sewer (not total) only, & proportion of total units would be sewer smaller percentage.	Integrator Density and Hookup rate and Riparian Area	High intensity land use (%)- Whole v. Buffer		RIGIS, population, sewer hookup, and water use data		Soils are classified for likelihood of ISDS treatment failure and hydraulic failure.		Certain wetlands have high nitrogen removal potential in shallow ground-water flow.	Based on depth and convolution of shoreline.			
	Size in Acres	Total Persons	Total Housing Units	Personal Acre	Household Acre	Whole W.S.	Buffer Only	Whole W.S.	Buffer Only	N to Surface Water (kg/yr/acre)	NO3 to Ground Water (kg/yr/acre)	X-Permeable (Hydro Group A)	Restrictive				
1	Brush Neck Cove	1,654	10,499	4,266	6.35	2.58	16%	2.2	1.8	85%	61%	5.6	39.2	79%	0%	2.6%	2.54
2	Apponaug Cove	713	3,351	1,440	4.70	2.02	12%	1.7	1.3	67%	48%	4.8	32.7	76%	0%	6.6%	2.34
3	West Watersheds North	700	2,780	1,314	3.97	1.88	1%	1.4	1.7	24%	26%	5.0	30	36%	30%	6.2%	na
4	Warwick Cove and Warwick Neck	1,301	5,536	2,145	4.26	1.65	40%	1.1	0.5	37%	14%	5.2	21.7	27%	62%	9.4%	3.00
5	Buttonwoods Cove	462	1,754	806	3.80	1.74	0%	2.1	2.0	60%	53%	4.7	37.2	87%	0%	3.5%	1.86
6	Gorton Pond	937	2,068	905	2.21	0.97	51%	1.7	1.3	60%	50%	4.9	10.0	51%	1%	5.4%	na
7	Lower Hardig	1,244	4,321	2,074	3.47	1.67	47%	0.9	0.8	58%	51%	5.4	15.8	38%	7%	4.7%	na
8	Upper Hardig	1,805	8,259	3,826	4.58	2.12	4%	0.9	0.4	57%	23%	5.8	16.6	10%	13%	9.4%	na
9	Lower Maskerchugg	1,689	4,880	1,914	2.89	1.13	0%	1	0.6	24%	12%	4.3	20.5	21%	16%	12.7%	na
10	Upper Maskerchugg	2,115	1,787	974	0.84	0.46	0%	0.2	0.1	28%	18%	4.3	5.3	3%	14%	12.6%	na
A	Passeonkquis Cove	958	6,698	2,974	6.99	3.10	50%	1.6	1.1	76%	28%	6.3	27	85%	0%	7.2%	2.01
B	Occupessatuxet Cove	1,204	6,191	2,753	5.14	2.29	24%	1.8	1.2	71%	36%	5.0	32.4	88%	0%	9.0%	1.67
C	Old Mill Creek Cove	3,863	16,794	6,761	4.35	1.75	40%	1.1	0.6	72%	34%	5.0	21.2	77%	5%	10.0%	2.57
D	Warwick Neck Direct Drainage	532	1,317	564	2.22	0.95	5%	0.5	0.5	31%	27%	6.0	19.8	0.04%	76%	6.0%	na
E	Pawtuxet Direct Drainage	4,452	17,304	7,699	3.89	1.73	61%	0.8	0.4	75%	54%	5.1	13.6	69%	2%	8.0%	na
NA	Potowomut North	697	723	330	1.04	0.47	0%	0.5	0.8	17%	23%	2.4	3.9	89%	0%	2.4%	na
NA	Potowomut South	942	1,432	552	1.52	0.59	0%	0.7	0.5	37%	21%	3.3	20.5	77%	0%	15.4%	na
NA	West Watersheds South	217	1,994	1,176	9.19	5.42	85%	1.7	1.2	91%	61%	5.0	2	100%	0%	0.1%	na

= High Indicator
 = Medium Indicator
 = Low Indicator
 = N/A
 = High X-Perm. Soils
 = ISDS Failure Risk

Warwick Sewer Authority
Enabling Legislation References to Mandatory Sewer Connections

Sec. 2.17. Authority to order connection to sewer; ordering cesspool, etc., to be filled up, etc.

The sewer authority with the advice and consent of the mayor in the interest of public health and safety is authorized to order any abutting owner or occupant of land upon any street in which there is a sewer or in which a sewer may hereafter be constructed, to connect the sewage of such premises with such sewer, and to order any owner or occupant to fill up and destroy any cesspool, privy vault, drain or other arrangement on such land for the reception of sewage. Upon the service of any such order, or copy thereof, upon any such order or .occupant, to connect the sewage as aforesaid, or to fill up or destroy any cesspool, privy vault, drain or other arrangement for the reception of sewage, such owner or occupant shall comply therewith within thirty (30) days from the time of service of such order. In case the owner or occupant to whom any such order is directed shall neglect or refuse to comply therewith within thirty (30) days after the service thereof upon him, he shall be fined not less than one hundred dollars (\$100) nor more than five hundred dollars (\$500) for each subsequent twenty-four (24) hours during which he shall neglect or refuse to comply therewith and in case such neglect or refusal shall continue for sixty (60) days after the service of such an order, the authority may cause such cesspool, privy vault, drain or other arrangement for the reception of sewage which is the subject of such order to be filled up and destroyed and the sewage from such land to be connection [connected] with a common sewer. The pendency of any appeal from any such order shall not affect the power of the authority, after the expiration of said period of sixty days, to cause such cesspool, privy vault, or other arrangement for the reception of sewage to be forthwith filled up and destroyed.

Whenever the authority shall cause any cesspool, privy vault, or other arrangement for the reception of sewage to be filled up and destroyed ,or the sewage of any land to be connected with a common sewer, it shall keep careful account of the cost of such work and of any expense caused the city by reason of the neglect or refusal of the owner or occupant of such land to comply with the order of the authority issued as aforesaid, and upon the completion of such work the authority shall file statement of such cost and expense with the director of finance and thereupon the amount of such cost and expense shall be a lien upon the land, including improvements thereon, for which such cost and expense was incurred and the same shall be collected in the same manner as other assessments and charges are collected under this act. (P.L. 1962, ch. 254, § 17; P.L. 1988, ch. 479, § 17; P.L. 1991, ch. 86, § 17)

Sec. 2.1. Authority to plan, etc., sewage works; definitions; bonding authorized; sewer charge, assessment authorized.

The sewer authority shall provide that annual charges shall be made upon the owners of the lands using the sewer works and that sewer assessments shall be made upon the owners of lands for which the use of sewage works is available. The sewer authority may further provide that connect capable charges shall be made upon property owners whose property is abutting on that portion of any highway in which a common sewer is laid, while said property remains unconnected to the city's sewage system. The receipts from annual charges, sewer assessments and connect capable charges shall be appropriated for and applied to the payment of the charges and expenses incident to the planning, construction, financing, operation, maintenance, renewal and replacement costs of the sewage works, and to the payment of principal and interest costs for any bonds or notes issued or outstanding for the sewage works, and any deficiency of said receipts in any year for said purposes shall be made by the city tax pending the authority in the next fiscal year eliminating said deficiency and reimbursing the city for any moneys advanced through the increasing of the rates established for annual charges and/or connect capable charges.

(P.L. 1962, ch. 254, § 1; P.L. 1988, ch. 479, § 1; P.L. 1991, ch. 86, § 1; P.L. 1998, ch. 39, § 1 (1))

Sec. 2.9. Apportionment of costs; sewer assessments and charges; enforcement of charges and assessments.

The authority, with the advice and consent of the mayor, shall prescribe just and equitable sewer assessment rates on account of the construction costs, to be levied against owners of property abutting on that portion of any highway in which a common sewer is laid under this act and also rates of annual and connect capable charges on account of operation and maintenance costs renewal and replacement funding and the cost of principal and interest for any bonds or notes issued for sewage works, to be levied against owners of property which is or could be connected to a common sewer.

Such assessments, annual and connect capable charges herein referred [to] shall be paid by every property owner or institution whose property is or can be connected to the city sewage works, in a manner prescribed by the authority, with the approval of the mayor and the finance director.

...

Annual charges shall be levied upon every property owner or institution whose property is connected to the city's sewage system. The change will be computed

based upon water consumption or other factors deemed equitable by the sewer authority. The annual charge should be set at a level sufficient to support operation and maintenance costs of the wastewater treatment plant, the renewal and replacement fund and the principal and interest for any bonds or notes issued for sewage works. The revenues to be raised by annual charges will be reduced by revenues generated by sewer assessments and connect capable fees.

Connect capable charges may be levied upon every property owner or institution whose property is abutting on that portion of any highway in which a common sewer is laid while said property is not connected to the aforementioned sewerage system, but is capable of doing so. The charge will be established at a level determined by the sewer authority to recover an equitable portion of the principal for any bonds or notes issued for sewerage works and renewal and replacement funding, and shall be subject to consent by the mayor and the Warwick City Council.

Sec. 2.9.1. Renewal and replacement account.

The city finance director shall establish in a separate account for renewal and replacement. The purpose of the account is to provide for the future renewal or replacement of the current and future physical assets of the wastewater treatment plant whose cost is in excess of ten thousand dollars (\$10,000.) with an economic life of at least five (5) years. The renewal and replacement account will be funded annually through annual charges and connect capable fees, as determined by the sewer authority, in an amount equal to total gross depreciation expense as computed under generally accepted accounting principals, including the amortization of local and nonlocal contributed capital. Interest earned on monies deposited in the renewal and replacement fund will be credited to the account. Withdrawals from the account, subject to the aforementioned limitations of cost and economic life, must be approved by the sewer authority."

(P.L. 1988, ch. 479, § 9.1)

Sec. 2.10. Receipts from annual charges and assessments.

The receipts from annual charges, sewer assessments and connect capable charges, as provided for in section 9 [2.9] of this act, should be separately accounted for by the finance director; at the close of each fiscal year the city treasurer shall transfer from such funds to the treasury a sum sufficient to repay the sums appropriated and paid from the treasury during the fiscal year then close on account of the principal and interest of all borrowing for the purpose of this act and for the payment of charges and expenses incident to the operation, maintenance, renewal and replacement fund and repair of said sewage works or to the extension thereof. At the end of a fiscal year, if the finance director determines that the revenues referred to above as well as prior year fund balances were not sufficient to cover operation and maintenance costs, renewal and replacement funding and principal and interest for any bonds or notes issued for sewage works, thereby creating insufficient end of year balances, charge shall be adjusted in the next fiscal year to assure sufficient balances in the sewer

fund. If the receipts from said charges and assessments amount in any year to more than will be required for the aforesaid purposes, the surplus shall be added to the receipts of the next succeeding year.

(P.L. 1962, ch. 254, § 10; P.L. 1988, ch. 479, § 10; P.L. 1998, ch. 39, § 1 (10))

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THOMAS J. TUTTECHAEVERS

September 19, 1995

Via Fax: 276-6611

Stephen D. Zubiago, Esq.
Edwards & Angell
2700 Hospital Trust Tower
Providence, RI 02903

Re: City of Warwick, RI Sewer Authority

Dear Steve:

This will confirm the advice I rendered to you the other day over the telephone concerning a new program contemplated by the City of Warwick and its Sewer Authority. As I understand the program, the City is concerned that certain low-income property owners in the City do not have the financial wherewithal to tie their houses into adjacent lateral sewers in the street. For environmental and other reasons, the City wishes to encourage as many tie-ins as possible.

In order to assist these low-income property owners, the City desires to establish a program whereby qualified low-income property owners could in essence borrow the money from the City for the construction of the tie-in. The City would have an approved list of contractors who would bid on the tie-in. If the low-income property owner chose a contractor who was not the lowest bidder, the City would loan only up to the amount of the lowest bid, and the property owner would have to pay the balance to the contractor. Disbursements of loaned amounts by the City would be made directly to the contractor. The low-income property owners would sign promissory notes, but the loan would not be secured.

The source of monies for the loan program would be tax-exempt bonds issued pursuant to Chapter 223 of the 1994 Rhode Island Public Laws. That chapter permits the City

BOSTON OFFICE 101 FEDERAL STREET, SUITE 1900, BOSTON, MASSACHUSETTS 02110

Stephen D. Zubiago, Esq.
September 19, 1995
Page 2

to employ bond proceeds "for sewer system improvements, including, without limitation, the planning, construction, maintenance, extension and improvement of sewerage and sewage collection, disposal, and treatment systems." The structure outlined above could cause the bonds to become taxable private activity bonds under the Internal Revenue Code of 1986, as amended. Generally speaking, this could be triggered if more than five percent of the proceeds of the bonds were employed for the loan program. We understand that it is not anticipated the loan program would approach using five percent of bond proceeds since the bulk of the bond monies would be spent on the sewer treatment plant and the construction of laterals and other traditional sewer capital costs of the City. We also understand that the loans to the low-income property owners will not be made at an interest rate which is in excess of the yield on the bonds. Payments made by low-income property owners on the loans would not be earmarked to pay debt service on the bonds but would be commingled with the general funds of the City or the Sewer Authority for general sewer purposes.

Assuming that the program is as outlined above and properly administered and assuming that there are no other "private user" aspects to use of the remaining bond proceeds, the loan program in and of itself should not negatively impact the tax exemption of the bonds for federal income tax purposes. We caution that the five percent is not necessarily computed as five percent of the total of \$130,000,000 in bonds which were authorized by Chapter 223 of the 1994 Rhode Island Public Laws but is based on five percent of each particular bond issue. In addition, calculation of the maximum allowable amount for loans is not necessarily five percent of the principal amount of the bonds, but will vary slightly depending upon the reoffering price of the bonds and other factors.

We suggest that when we undertake each bond financing involving use of monies for the loan program, we compute as part of the closing documents for that bond issue the amount properly allocable to the loan program.

We trust this answers your inquiry, but if you or any City officials should have any questions concerning the foregoing or need any further assistance, please do not hesitate to call.

Very truly yours,



Normand G. Benoit

NGB/rma
cc: Mr. Peder A. Schaefer (Via Fax)

CERTIFIED MAIL

<<DATE>>

Property Owner name
Mailing Address
City, State ZIP

Re: Property Plat, Lot
Property Address

Dear Property Owner:

The Warwick Sewer Authority has implemented a Mandatory Sewer Connection Program. This program was developed in accordance with the Coastal Resources Management Council's July 2000 Assent requiring WSA to implement mandatory connections. The program will begin in neighborhoods abutting Brushneck and Warwick Coves. As a property owner in the environmentally sensitive area of Oakland Beach, you are hereby advised of this connection requirement.

You must connect the above referenced property to the available sewer system by <<Date>>. If connection is not made within one year of this notice, a connect capable fee will be imposed on a quarterly basis until connection is made. The proposed fee is \$500.00 per quarter, pending City Council approval.

Understanding that there is a cost involved in connecting to the sewer system, property owners are directed to speak with the Community Development Office (738-2000, ext. 6376) to see if they qualify for financial assistance through available grant programs.

We thank you for your cooperation in complying with the Warwick Sewer Authority's Mandatory Sewer Connection Program. If you have any questions, please contact the WSA at (401) 468-4718.

Sincerely,

WARWICK SEWER AUTHORITY

William L. Vilella, PLS
Acting Executive Director

WLV/lfo
Encl.: WSA MSCP Brochure