



Town of Harwich,
Massachusetts

October 2013

<p>Comprehensive Cost Recovery Plan for Wastewater Implementation (CPWI)</p>

**Prepared by:
Wastewater Implementation Advisory Committee**

Table of Contents

Introduction and Assessment of Purpose

Section 1 – *Potential Funding Sources and Cost Allocation recommendations*

- 1.1 A Look at the Draft Comprehensive Wastewater Management Plan for Possible Cost Adjustments
 - 1.1.1 Contingency
 - 1.1.2 Flow Calculations
 - 1.1.3 Land Use Management
 - 1.1.4 Storm Water Management Plan
 - 1.1.5 Fertilizer Controls
 - 1.1.6 Purchase of land for Pleasant Bay recharge area
 - 1.1.7 WIAC RECOMMENDATIONS**
- 1.2 Public Grants Funding Sources
 - 1.2.1 Federal Block Grants
 - 1.2.2 Rural Development Grants
 - 1.2.3 Federal Clean Water Act
 - 1.2.4 Massachusetts Bill H.690
 - 1.2.5 WIAC RECOMMENDATIONS**
- 1.3 Resident Funding Sources
 - 1.3.1 Loan Opportunities
 - 1.3.1.1 Rural Development Loans
 - 1.3.1.2 Massachusetts Clean Water State Revolving Fund (SRF)
 - 1.3.2 Betterments
 - 1.3.3 Impact Fees
 - 1.3.3.1 New Construction
 - 1.3.3.2 All Parcel Flat Fee
 - 1.3.3.3 Water Bill Surcharge
 - 1.3.4 Non Property Tax Increases
 - 1.3.4.1 Room Occupancy Tax increase
 - 1.3.4.2 Meals Tax Increase
 - 1.3.5 Property Tax Impacts
 - 1.3.6 Sewer User Fees
 - 1.3.6.1 Operations & Maintenance Fees
 - 1.3.6.2 Hook-up Fees
 - 1.3.7 WIAC RECOMMENDATIONS**

- Section 2 – *Revenue and Cost Flow Chart and the Funding Matrix***
- 2.1 Projecting Finances Over 60 Years
 - 2.2 Purpose of Creating a Revenue and Cost Flow Chart
 - 2.3 Funding Matrix

- Section 3 – *Future Organizational/management Structure***
- 3.1 Background
 - 3.2 Timing
 - 3.3 WIAC RECOMMENDATIONS**
 - 3.3.1 Management
 - 3.3.2 Field Operator(s)
 - 3.3.3 Support (Billing & Clerical)
 - 3.3.4 Conclusion

- Section 4 - *Public Outreach***
- 4.1 The Reason for Public Outreach
 - 4.2 The Four Harwiches
 - 4.3 The Committee on Public Outreach
 - 4.4 Dr. Stanley Kocot Health and Science Prize

- Section 5 – *Executive summary and recommendations***
- 5.1 The Challenge, the Solution
 - 5.2 Public Outreach challenge
 - 5.3 The challenge of financial planning for sixty years
 - 5.3.1 Additional Costs and Revenues
 - 5.4 Dedicated Wastewater Fund
 - 5.5 Regulatory controls and legal implementation
 - 5.6 Recommended changes to DCWMP
 - 5.7 Economic, responsible and affordable growth
 - 5.8 Grant opportunities
 - 5.9 Low interest loans
 - 5.10 Betterments, impact fees and non-property taxes
 - 5.11 General property taxes
 - 5.12 Sewer user fees
 - 5.13 Revenue and cost flow chart
 - 5.14 Wastewater management structure
 - 5.15 Conclusion

Definitions and Glossary of Terms

Appendices

- I – WIAC Charge**
- II – Recommendations to the BOS over concerns of the DCWMP – Nov. 19, 2012**
- III – Pleasant Bay Alliance Letter on Flow Calculations – April 3, 2013**
- IV – 8 Phases of the DCWMP**
- V – Public Outreach – the Four Harwiches**

Comprehensive Cost Recovery Plan For Wastewater Implementation (CPWI)

Introduction and Assessment of Purpose

The underlying principle of the Draft Comprehensive Wastewater Management Plan (DWCMP) which drove many of the recommendations and decisions can be summed up as follows:

More than three-quarters (75-88%) of the problem of too many nutrients (primarily nitrogen) impacting our estuaries and embayments is due to the way in which we currently treat our wastewater as it enters the ground (primarily Title 5 septic systems). The problem is universal. That is, every home and every business is causing the problem and therefore everyone should be involved in paying for the solution. (The remaining 12-25% of the problem is due to storm water runoff and fertilizer use). In addition, everyone benefits from the solution of healthier watersheds including those people who will move into town in the future.

In addition, it is fully understood that the purpose for installing a wastewater system is to solve the excess nutrient problem and ensure healthy harbors and embayments. The purpose is not to enable additional development beyond the significant development allowed under current zoning. Every single additional user of wastewater is causing a greater problem and larger expense.

With that foundation understood, the DCWMP attempted to develop the least expensive solution to meet the state Total Maximum Daily Load (TMDL) thresholds for our five estuaries. This means sewerage the least amount of homes possible by sewerage the areas most densely populated within a watershed and not sewerage areas with lower populations, where it would be very expensive to extend the sewers. In the end, about 60% of the town's parcels are proposed to convert from on-site Title 5 systems to a new central sewer system.

So, money was saved by not sewerage 40% of the town's parcels even though that segment of the population equally causes the nutrient problem and will continue using Title 5 systems with much higher releases of nitrogen into our embayments, therefore continuing to contribute to the problem.

With that understanding, a reasonable solution to cover all capital costs (building a treatment plant, laying the pipes, building pumping stations, etc.) would be to simply divide these costs amongst the entire Harwich population and increase the annual real estate tax accordingly. (You will see this funding alternative included in this report.)

It was at this point that the Board of Selectmen (BOS) created the Wastewater Implementation Advisory Committee (WIAC) to study the many ways in which we might ultimately fund the capital costs and the impacts of various alternatives on our residents.

Addendum I of this report gives the actual Purpose and Charge given to the Wastewater Implementation Advisory Committee (WIAC) in January 2012 by the Board of Selectmen. In summary, we are charged with three primary objectives:

1. Establish a Cost Allocation Policy

Considering the various ways the costs associated with the full implementation might be borne by the tax payers.

2. Explore Potential Funding sources
Sources of grants and loans to assist in reducing the burden on the taxpayer
3. Develop organizational/management structure for the wastewater system
How should sewer management be integrated into town government – who's in charge?

Since our charge was first given to us, the DCWMP has been completed and sent to the state for Massachusetts Environmental Policy Act (MEPA) Office review, Department of Environmental Protection (DEP) review and Cape Cod Commission (CCC) review.

The DCWMP Summary of Costs

The DCWMP proposes a \$180-\$230 million dollar capital project phased in over 40 years as follows:

1. Eight Phases over 40 years (see Addendum III for all impacts through these 8 phases):
 - a. Phase 1 – 3 years - \$2,550,000
 - b. Phase 2 – 5 years - \$24,300,000
 - c. Phase 3 – 5 years - \$21,010,000
 - d. Phase 4a -3 years - \$34,400,000
 - e. Phase 4b-4 years - \$22,300,000
 - f. Phase 5 – 5 years - \$23,200,000
 - g. Phase 6 – 5 years -- \$21,200,000
 - h. Phase 7 – 5 years - \$47,200,200
 - i. Phase 8 – 5 years - \$33,900,000
 - j. Total – 40 years - \$180-\$230 million

There are other costs, in addition to these capital costs, that must be taken into consideration.

2. Annual Operations and Maintenance (O&M) expenses estimated at \$3 million a year at full project implementation.
3. One time Hook-up fees – to connect the sewer from the street to individual homes or businesses – costs vary depending on distance, terrain, landscaping, pavement, etc between the sewer and the house from \$1,500 to more than \$15,000. The DCWMP projects costs for the 4,950 parcels being sewered is \$21,900,000 or an average cost of \$4,424.00.
4. Capital cost connections to the sewer main for land currently undeveloped and within the sewer area

The task of the WIAC was multifaceted to determine recommendations on all of the following:

- Potential non-resident funding sources (grants, etc.)
 - First this meant studying if there were any recommendations we might make to lower the overall estimates of the project. This includes savings that might be had if certain decisions and policies were made by the BOS and other town bodies including:
 - Considering the reasonableness of the contingency factors used in the DCWMP
 - Considering cost savings that might be met with future improved technologies
 - Land Use management policies throughout the town. That is eliminating assumptions of build-out increases beyond what can currently be built and possibly further reducing the overall build-out from current zoning.
 - Storm water management plans

- Fertilizer control policies
 - Then this entailed learning from Bob Ciolek (consultant to the Cape Cod Water Protection Collaborative) and our own studies about the current status of local, county, state and federal funding for wastewater and studying some pending legislation
- Potential resident funding sources (real estate taxes, betterments, impact fees, special assessments, water bill surcharges, low interest loans, etc.)
- Cost Allocation recommendations (who should pay how much for what)
 - This included considering solutions all across the country and specifically across the Cape and New England. It was an exhaustive process reading dozens of examples of ideas that worked and failed.
 - Creating numerous revenue models showing how the costs might be recovered
- Cost Recovery Model
 - When will revenues (taxes, fees, grants, etc.) be received and how does this flow against our expenses including the amortization of bonds.
- Recommend an organizational structure within the town that would manage the sewer system
 - This included discussions with the town administrator, the Highways and Maintenance director and the Water Department to get sense of what each of these potential responsible parties thought might take place
 - We researched many other towns and what they considered
 - We investigated 3rd party investment and management groups as possible partners
 - A study of the time line to determine when we will really need a formal structured “department” based on the actual number of users by phase
- Public Outreach
 - What to recommend to the Water Quality Task Force for how to best educate Harwich voters and to keep the interest and engagement high for a long time.

The following CPWI explains and sources our discussions and poses a number of alternative scenarios for a Cost Allocation Policy, while at the same time making a specific recommendation for a Cost Recovery Plan. We have also created a matrix of all funding sources that might now or in the future be possible for Harwich and noted what outside funding sources might actually be available to Harwich. We have provided our recommendations on Public Outreach. And, finally, the CPWI has an analysis of management alternatives and our recommendations.

Section 1

1. Potential funding sources

As mentioned in the *Introduction and Assessment of Purpose* earlier, the WIAC first looked at the DCWMP to see if we might make any recommendations for lowering the initial price tag for capital costs which is given as a range between \$180-\$230 million dollars.

1.1 A Look at the DCWMP for possible cost savings

The reason for the \$50 million range is explained by the DCWMP as a savings to the town if certain policies are adopted in these areas:

1. Land Use Management – the nitrogen contribution from wastewater Title 5 septic systems in the various watersheds ranges from 75-88%. The DCWMP states that the overall projected value of wastewater flow from current and future build-out flow is about 26% growth. That is, we still have 26% of parcels in town that are undeveloped under current zoning and including some additional increased zoning projections. If through zoning changes we reduce this potential development by half we can save an additional \$25 million via reduced pipelines, conveyance, treatment and effluent recharge.

The DCWMP cannot truly say that it proposes the least expensive solution when part of its solution includes allowance for both increased residential and commercial development beyond current build-out potential. Indeed, if it wanted to offer the least expensive solution it would specifically identify the zoning changes necessary to save the \$25 million that it states can be saved through land use management controls.

2. Storm water Management and Fertilizer Controls – the nitrogen contribution from fertilizer in the various watersheds ranges from 7-16%. Similar by watershed for storm water ranges from 5-9%. These are percentages of controllable nitrogen within a given watershed. Reducing these contributions by about half could potentially save up to \$25 million. That is, if the town adopted a storm water management plan and built modern catch basins that effectively captured storm water runoff before it got into our ponds and estuaries; and if the town adopted a Fertilizer Control Policy that would limit the uses of fertilizer we could save this money from Capital Costs.

Included in this range is the understanding that the practice of “adaptive management” will apply. This means that there are many unknowns in a project like this and therefore we must be prepared to adapt and adjust our projections, scope of work and costs as the project progresses. In other words, the DCWMP has made assumptions based on certain predicted outcomes of each phase, but those predictions are not certain until the impact of each phase is determined by the changes in nutrients in our watersheds.

While the DCWMP has significant science and complex models in its predictions it is literally, by nature, inexact. That is, how nature ultimately reacts to the changes will determine if adjustments to the DCWMP are necessary.

As part of this adaptive management, the DCWMP has built into it a 25% contingency should the predictions fall short of what the town hopes to accomplish. The 25% contingency carried in the cost estimates is to account for unknown design related factors such as not having accurate topographic

survey information, not having utility information, not having final design documents, not having an accurate understanding of the bid climate at the time of implementation, etc.

While the 25% contingency includes how future technologies might cause the project to be more expensive, it does not predict any potential savings should future technologies be more efficient and cause the costs to be less. In other words the effort is made to anticipate worst case scenarios so that we are certain to budget enough, and if it is more than enough then we will adjust as we progress and the project will have cost less.

Finally, we were very concerned about the flow calculations used for commercial use in East Harwich as the DCWMP showed significantly lower flow calculations than expected. The Pleasant Bay Alliance (PBA) sent a letter (November 15, 2012) to the BOS expressing their concern as well.

The WIAC spent significant time reviewing the DCWMP and meeting with Dave Young from CDM Smith (the consulting firm that worked with the town's WQMTF to author of the DCWMP) and Peter de Bakker chairman of the WQMTF, for clarifications on many, many assumptions, conclusions and points of clarity.

1.1.1 Contingency

We have found that in some cases including in Chatham, that the contingency factored in is in fact too high and that the costs overrun would be unlikely to be that great. The WIAC committee recommends that the DCWMP built-in contingency of 25% be reduced to 20% and that an additional 5% be deducted on the very reasonable assumption that new technologies will be developed over the next 40 years that will reduce the costs and therefore a discount factor of 5% ought to be included.

Here is the summary of proposed new costs:

DCWMP range of costs with 25% contingency	- \$180,000,000 -	\$230,000,000
DCWMP range of costs with no contingency	- \$144,000,000 -	\$184,000,000
DCWMP range of costs with 20% contingency	- \$172,800,000 -	\$220,800,000
DCWMP range of costs with 5% discount	- \$164,571,429 -	\$210,285,714
for future technologies rounded up	- \$165,000,000 -	\$211,000,000

As with any project at these multi-million dollar costs and at a 40 plus year time horizon, please keep in mind contingency numbers are problematic and may change significantly over time. Simply put, they must be open to frequent modification including at the outset as we are suggesting.

1.1.2 Flow calculations in East Harwich

In a nutshell, the DCWMP calculates a commercial flow of 35 gallons per day (gpd) per 1,000 square feet (sf) of development. This estimate is significantly less than the average commercial water use of 95 gpd/1,000 sf established by the Massachusetts Estuary Project (MEP). The DCWMP uses the historic numbers generated by flow in this area from MEP.

The Pleasant Bay Alliance (PBA) believes the reasoning seems inadequate as the *“water use in the East Harwich commercial district has been kept low due to the water protection overlay district which has reduced overall commercial development density and restricted water intensive commercial uses such as restaurants. The DCWMP assumes future rezoning of this area to accommodate the addition of 500,000*

square feet of commercial development beyond MEP build-out. It is reasonable to assume that, with sewers in place, the mix of commercial uses would include restaurants and other commercial uses that have been restricted by the water resources overlay district. Accordingly, we request that the Town conduct an assessment of wastewater flows and nitrogen loads based on a commercial water use factor that is more consistent with proposed growth patterns. This will enhance the reliability of wastewater flows and nitrogen loads tied to growth assumptions.”

The WIAC agrees with the PBA.

1.1.3 Land use management

As mentioned earlier in the introduction, the purpose of installing a new wastewater system is to solve the nutrient problems not to enable more development. By new development, we mean land still to be developed within the restrictions of current zoning and any new development should zoning change to allow for more or less development.

It is through Land Use Management that the town can determine whether current zoning accomplishes what is necessary to achieve the needs of the town. In the case of the town’s wastewater project, it means balancing new development with the capital costs and treatment requirements of more development. As explained in the introduction, the decisions on where the sewer will run were based on highest density in an attempt to keep the costs as low as possible.

There are a few ways to lower the system costs through land use management including:

- Stop development
- Protect more open space through land use regulations and acquisition
- Encourage development to move into higher density areas
- Cluster development so they can be sewerred with the least amount of pipe

Residential build-out discussion

The DCWMP uses a report from MEP (Massachusetts Estuary Project) to innumerate what parcels are still undeveloped in town and how many dwelling units (DU) could be developed if all parcels were developed with current zoning laws: build-out. Those numbers do not entirely match a similar analysis done by the town planning department, in part because the MEP numbers are only for development in our watersheds and the planning department’s numbers include development in every part of town.

David Spitz, Town Planner, in his report to the BOS on September 23, 2013 gave updated numbers regarding build-out in town. Here is what he reports on Residential Build-out:

<u>Watershed</u>	<u>Existing DU</u>	<u>Buildable DU</u>	<u>Build-out Total DU</u>
Herring River	3,561	1,039	4,600
Harbors	1,875	318	2,193
Pleasant Bay	1,689	535	2,224
Other	3,711	341	4,052
Total	10,836	2,233	13,069

When considering the town as a whole we can still build 2,233 residential dwelling units under current zoning. This means that 83% of residential development in the town is already built-out and 17% can still be built.

The DCWMP includes a projection that zoning will change in the Pleasant Bay Watershed in East Harwich to allow for 250 more dwelling units within the commercial district in a mixed use, village center concept. That would increase the number of buildable DUs in the Pleasant Bay watershed from 535 to 785 nearly a 50% increase in buildable dwelling units in this watershed.

The WIAC recommends that the planning department make every effort, including zoning changes, to keep the wastewater costs down by creating open space and clustering development to take advantage of the least expensive sewer options. Furthermore, those changes should not have the net effect of allowing more than the 2,233 DUs allowed today. In fact, if the town wished to save even more money we could decrease the 2,233 DUs allowed today and this will lead us toward the \$25 million savings discussed in the DCWMP.

Commercial development build-out discussion

Mr. Spitz also shares the numbers of commercial development to build-out. Here numbers are in square foot of developable land in commercially zoned areas. Mr. Spitz also states that he is not confident the resources he has used for this information are accurate and requires further study. However, they are the only numbers with which we have to work, so while we are less confident in these build-out numbers we will use them to demonstrate build-out until we have better numbers from Mr. Spitz.

<u>Watershed</u>	<u>Existing Sq Ft.</u>	<u>Buildable Sq Ft.</u>	<u>Build-out Total Sq Ft.</u>
Herring River	1,285,912	1,500,060	2,785,972
Harbors	654,810	472,019	1,126,829
Pleasant Bay	510,609	341,561	852,170
Other	287,772	390,274	678,046
Total	2,739,103	2,703,914	5,443,017

Again, when considering the town as a whole we may be able to still build 2,703,914 square feet of commercial space under current zoning. This means that about 50% of commercial development in the town is already built-out and 50% can still be built.

The DCWMP includes a projection that zoning will change in the Pleasant Bay Watershed in East Harwich to allow for 500,000 more square feet of commercial development. That would increase the number of buildable square footage in the Pleasant Bay watershed from 341,561 to 841,561 nearly a 2 ½ times the commercial square footage that can be built in this watershed today. In addition, the DCWMP projects a 25% increase in flow allowance through increased commercial development along the Route 28 corridor between Harwichport and Chatham.

Summary of residential and commercial build-out

It seems apparent (with 2,233 dwelling units and 2,703,914 square footage of commercial space) that our current zoning allows for more than enough dwelling units and commercial space than is likely to be built over the next 40 years based on history from the past 5 years. **The challenge is to locate these buildable dwelling units and commercial space in places of high density rather than scattered around town causing expensive infrastructure to serve them - such as the sewer.**

The idea of clustering 250 dwelling units into the East Harwich commercial district where they can be least expensively tied into the sewer is a sound strategy. So, too, is the idea of increasing commercial square footage in the commercial district. The idea of increasing commercial flow and development

along the Route 28 corridor does not seem like sound strategy. We have seen the affect of commercial development along a long single road like Route 28 across the Cape and it is does not create an exciting commercial environment.

This suggests a plan should be put into effect that will better locate where we can build our 2,233 dwelling units and 2,703,914 square feet of commercial space without increasing either of these buildable numbers. **Furthermore, if one watershed is targeted to increase density in one area then that watershed should decrease density elsewhere so the impact within the watershed itself will not change significantly.**

Furthermore, the issue of increasing development in town beyond the 2,233 dwelling units and the 2,703,914 square feet of commercial space currently allowed has sparked a heated debate in town. It seems unwise, from a strategic point of view, for the discussions to approve the DCWMP and the enormous costs residents are likely to assume, to be dragged down by the debate over increased development. If the DCWMP instead only used build-out numbers under current zoning and recommended clustering some of that new development into the commercial district, then it would fit the overall philosophy of the DCWMP and not be in conflict with the debate in East Harwich.

1.1.4 Storm water management plan

The Town of Harwich does not have a formal Storm Water Management Plan as such. Currently the Town Engineer, Bob Cafarelli, coordinates with Lincoln Hooper from Highways and Maintenance to identify areas of greatest concern, such as the run off directly into our harbors. Mr. Cafarelli completes an Annual Report to the state called an MS4 (Municipal Separate Storm Sewer Systems) General Permit, which reports activity undertaken and completed. He also periodically writes grant requests and then works with Mr. Hooper to manage those grants. We understand a Draft Storm water Management program that will increase requirements under the MS4 is under review by EPA and is expected out within the next few years.

1.1.5 Fertilizer controls

The overuse or misuse of fertilizer is a direct contributor to nutrients entering our ponds and embayments. The Pleasant Bay Alliance (PBA) presented a proposed municipal policy to the four towns – Chatham, Harwich, Brewster and Orleans, which all share Pleasant Bay borders – but Harwich has yet to take any action to adopt.

Orleans adopted a municipality policy based on PBA's but expanded to include pesticides. Orleans also passed a town bylaw to control fertilizers. This is similar to one passed by Falmouth. Neither bylaw is overly restrictive, but prohibits application during certain times of the year, and within certain distance of a wetland resource area. While this type of bylaw is tough to enforce, the thinking is that it sends a message that fertilizers can be harmful to water quality and that may alter behaviors.

The problem with the town bylaws is that the state is the only source of regulation on fertilizers. Towns are not legally allowed to regulate fertilizers. The state Attorney General rejected the Falmouth and Orleans bylaws. Falmouth got around this by some language that was put in a recent budget bill, but only they qualify (Orleans and other towns do not).

For this reason, the Cape Cod Commission has approved a District of Critical Planning Concern (DCPC) that would allow towns to adopt fertilizer regulations. There are problems with this too, as the timeline for the DCPC means that the regulations have to be in place by January 2014. That may not be enough

time to develop a bylaw and have it pass Town Meeting, so the fertilizer controls will have to be a regulation which a Board can adopt with a public hearing. The Board best suited for this is likely the Board of Health. In addition, there would be significant expense should Harwich have it pass town meeting in terms of enforcement. The town is fully stretched financially and hiring a new compliance/enforcement officer would be difficult. CDM Smith reports that without some form of compliance program it would be very difficult to receive a nutrient credit from DEP. Most everyone agrees that the immediate and long term solution is public awareness and education so that landowners will control their fertilizer use even before any formal regulations may be put in place – with the hope to reduce the impact of Nitrogen from 15% to 10%.

1.1.6 Purchase of land for Pleasant Bay recharge areas

In the DCWMP, treatment of all waste from the Pleasant Bay Watershed is proposed to be done at the Chatham treatment facility and that the clean water be piped back to be “recharged” into the Pleasant Bay Watershed. The land currently proposed by the DCWMP for this recharge area is within the “Six Ponds District,” designated as a District of Critical Planning Concern (DCPC). A DCPC has many restrictions on the use that can be made of that land. CDM Smith has informed us that they have not considered these potential restrictions when recommending this site for a recharge area.

1.1.7 WIAC recommendations on DCWMP analysis

WIAC recommendations – Contingency

1. Reduce 25% contingency to 20% bringing down the total capital cost range to \$172,800,000 - \$220,800,000.
2. Build into these new numbers an additional discount of 5% that we anticipate will be saved when new technologies are developed over the next 40 years bringing the range down to \$164,571,429 - \$210,285,714.

WIAC recommendations – Flow calculations in East Harwich

1. Should the 500,000 square feet of additional commercial development (over current zoning) continue to be factored into the final CWMP, then the flow calculations need to be adjusted to reflect likely usage at 95 gpd/1,000 sf.
2. Should current zoning be used in this area and the water protection overlay districts remain the historic number of 35 gpd/1,000sf should be used.

WIAC recommendations – Pleasant Bay Watershed recharge area

1. The Town should get an official opinion from the Cape Cod Commission on whether a recharge area can be placed in the planned location as it falls within the Six Ponds DCPC area.
2. Do not make any purchases or guarantees of purchase until this opinion is complete and will allow for a recharge area

WIAC recommendations – Land use management

1. Initiate an effort through the Planning Board to rezone Harwich that will lead to no net-increase in development but will create greater densities and more contiguous open space.
2. Remove the additional commercial development above current zoning in East Harwich and Harwichport if the net effect is to increase development beyond current zoning.

WIAC recommendation(s) – Storm water

1. Continue the town's efforts to identify the most severe locations of storm water problems and install the infrastructure necessary to keep the nutrients out of our watersheds and ground water.

WIAC recommendation(s) – Fertilizer

1. Immediately initiate Fertilizer controls on all town owned public property including our Golf Courses, which have already implemented these controls.
2. Educate the public on the need to control fertilizer and the best practices that should be applied in their homes

The WIAC agrees with the DCWMP that the town should implement policies for Land Use Management, Storm water and Fertilizer controls to save as much as \$25-\$50 million. We are also recommending modifying the DCWMP regarding the contingency calculations and the projection for zoning changes which encourages greater development beyond current zoning which currently allows for 2,233 residential dwelling units and 2,703,914 square feet of commercial development.

With these recommendations on modifying the DCWMP and implementing new town policies, the WIAC is creating a new range of total capital costs to be used as we now consider what sources we have available to us to fund the program. Proposed new capital cost estimates to complete the DCWMP - \$165 - \$211 million. Despite this recommendation, we have designed the Cost Recover Model to recover the full amount (\$180-230 million) with the full 25% contingency.

1.2 Public grants

Outside funding sources refer to funds for which the town may be eligible. That is, they are grants of some sort that do not have to be paid back to anyone and can be applied directly towards the capital costs. They are provided by the federal, state or county government to a local government or agency, typically under a legislated program. They are often highly targeted, highly competitive and invariably subject to significant requirements and restrictions.

The following pages give detailed descriptions of possible and historical grants that Harwich should continue to watch and apply for even though there are no funds currently available for which Harwich is eligible. These include:

- Federal Block Grants
- Rural Development Grants
- Federal Clean Water Act – Section 319 Nonpoint Source Grants
- And some pending legislation – Massachusetts Bill H.690

1.2.1 Federal Block Grants (summarized in the Funding Matrix; Grant Opportunities, #1)

Federal Grants are non-repayable funds disbursed by the federal government to state and local governments. Many of the categorical project grants of the 1960's and 1970's, which helped pay for sewer infrastructure projects in that period, were replaced by federal "revenue sharing" in 1972. Revenue sharing was replaced, in 1986, by a system of "Block Grants" with only general provisions as to the way the grant can be spent. While the amount of money disbursed under these programs is significant, the funds available have already been targeted for specific state and local uses, and relatively little is available for new targeted programs such as sewer construction.

Resource: Block Grants: Perspectives and Controversies, June 26, 2013
A research Report by the Congressional Research Service (CRS). CRS is a branch agency of the Library of Congress, and works exclusively for the United States Congress, providing policy and legal analysis to committees and Members of both the House and Senate, regardless of party affiliation.
Available at: <http://www.fas.org/sgp/crs/misc/R40486.pdf>

The block grant program under which sewer projects are typically funded is the **Community Development Block Grant (CDBG)**, administrated by the **Department of Housing and Urban Development (HUD)**.

Resource: Community Development Block Grant Program
Department of Housing and Urban Development web site
Available at:
http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitdevelopment/programs

The Town of Barnstable is using CDBG funds to provide loans for sewer connection costs to lower income residents.

Resource: Sewer Connection Loan Program (SCLP)
Barnstable Town web site
Available at: <http://www.town.barnstable.ma.us/cdbg/sewer-connection-loan-program.asp>

1.2.2 Rural Development Grants (summarized in the Funding Matrix; Grant Opportunities, #2)

In addition to Block Grants, certain types of categorical grants are administrated by federal departments. The **Department of Agriculture** administers the **Rural Development Grant Assistance** program, which includes “Water and Waste Disposal Direct Loans and Grants.” The grants, however, are targeted to “To develop water and waste disposal systems in rural areas and towns with a population not in excess of 10,000.” Currently, the population of Harwich is about 12,700, so the town does not qualify. There is also a per capita income threshold.

Resource: Water and Waste Disposal Direct Loans and Grants
Department of Agriculture web site
Available at: <http://www.rurdev.usda.gov/UWP-dispdirectloansgrants.htm>

The Town of Chatham, with a population of less than 10,000, has received \$18,501,000 in non-repayable grants from this program for its current sewer project.

Resource: FY 2014 Budget Presentation
Chatham Town web site
Available at:
http://www.chatham-ma.gov/Public_Documents/ChathamMA_Budget/FY%202014%20budget%20Presentaion.pdf (page 17)

1.2.3 Federal Clean Water Act - Section 319 Nonpoint Source Grants (summarized in the Funding Matrix; Grant Opportunities, #3)

The **Massachusetts Department of Environmental Protection** (MassDEP) administers the federal **319 Nonpoint Source Grant Program**. According to the US Environmental Protection Agency (EPA) “The 1987 amendments to the Clean Water Act (CWA) established the Section 319 Nonpoint Source Management Program. Section 319 addresses the need for greater federal leadership to help focus state and local nonpoint source efforts. Under Section 319, states, territories and tribes *receive grant money that supports a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects and monitoring to assess the success of specific nonpoint source implementation projects.*” As such, it is not a source of construction funds, but may provide funding for planning, monitoring, and the other specified activities. Recent federal funding has been modest and decreasing; \$200.9 million in 2010, \$175.5 million in 2011, and \$164.5 million in 2012. The program also requires a 40% match from the grantee.

Resource: Clean Water Act Section 319
Environmental Protection Agency web site
Available at: <http://water.epa.gov/polwaste/nps/cwact.cfm>

Resource: Grant and Loan Programs
MassDEP web site
Available at: <http://www.mass.gov/eea/docs/dep/water/12grntlo.pdf>
(page 6)

1.2.4 Massachusetts Bill H.690 - Pending Legislation, 188th Session (summarized in the Funding Matrix; Grant Opportunities, #4)

Representative Carolyn Dykema (D-Holliston) first introduced a petition (HD03103) calling for the creation of a 10 year \$200 million annual Water Infrastructure Bond to fund local drinking water, wastewater and storm water improvements in 2011. The bill, H.690 of the current (188th) session, would include both grants and loans; it was referred to the committee on Environment, Natural Resources and Agriculture on January 22, 2013.

Resource: Legislation

Massachusetts Representative Carolyn Dykema's official State Representative web site

Available at: <http://www.carolyndykema.com/legislation/>

Resource: Bills

The 188th General Court of The Commonwealth of Massachusetts

Available at: <https://malegislature.gov/Bills/188/House/H690>

1.2.5 WIAC recommendations on all grant opportunities

WIAC recommendations - Federal Block Grants

1. Actively pursue Community Development Block Grants for the project.
2. Initiate and/or participate in lobbying efforts to increase the availability of grants for wastewater projects.
3. Funding Results – since no Federal Block Grants are currently anticipated, the contribution from this source is shown as \$0 in the Funding Matrix.

WIAC recommendations - Rural Development Grants

1. Target for adaptive funding; apply if/when population of Harwich drops below 10,000.
2. Initiate an effort to investigate formation of a sewer district that meets the program's population and per capita income requirements.
3. Funding Results – since no Rural Development Grants are currently anticipated, the contribution from this source is shown as \$0 in the Funding Matrix.

WIAC recommendation(s) - Federal Clean Water Act - Section 319 Nonpoint Source Grants

1. Initiate an effort to investigate this source for partial funding that is consistent with the program and the needs of the project.
2. Funding Results – since no Section 319 Nonpoint Source Grants are currently anticipated, the contribution from this source is shown as \$0 in the Funding Matrix
3. Apply for 604(b) Grant again for natural attenuation projects

WIAC recommendation(s) - Massachusetts Bill H.690

1. Initiate and/or participate in lobbying efforts for the passage of the Bill into law.
 2. Funding Results – since no H.690 Grants are currently anticipated, the contribution from this source is shown as \$0 in the Funding Matrix.
-

1.3 Resident Funding Sources

Once we have exhausted outside funding through grants, we are left with paying for Capital costs by Harwich residents. This can take many forms including loans, which are repayable funds provided by the federal or state government to a local government or agency, typically under a legislated program. They are most often designated for a specific purpose. They may provide all or some portion of the funding for the designated program. Typically, they require repayment, but they often have favorable interest rates, and occasionally, principal forgiveness provisions. Repayments can be made from general property tax revenues and/or other sources of town revenue. Here we consider:

- Rural Development Loans
- Massachusetts Clean Water State Revolving Fund (CWSRF) Loans

This is followed by a detailed look at the following:

- Betterments
- New Construction Impact Fees
- Flat fee on all parcels
- Water bill surcharge
- Room Occupancy Tax Increase
- Meal Tax increase
- General Property Tax increase

In considering all of these potential fees and taxes, the WIAC kept foremost in its mind a sense of balance and fairness across the population. Clearly no one is happy at the prospect of paying for this wastewater project, and in that sense it will be hard for anyone to consider the solution fair as every single person in town is impacted including future residents to the town. Residential and commercial property owners are impacted, specific business uses are affected, tourists and visitors pay a share, people within the sewered area and outside the sewered all pay some portion of the single largest capital expense project ever to come before the town.

By distributing the burden on everyone, though not equally, it provides a balance and justification based on individual situations that make sense and removes massive general real estate tax increases.

1.3.1 Loan Opportunities

1.3.1.1 Rural Development Loans (summarized in the Funding Matrix; Loan Opportunities, #1)

The **Department of Agriculture** administers the **Rural Development Grant Assistance** program which includes “Water and Waste Disposal Direct Loans and Grants.” The loans, however, are targeted to “To develop water and waste disposal systems in rural areas and towns with a population not in excess of 10,000.” Currently, the population of Harwich is about 12,700, so the town does not qualify.

Resource: Water and Waste Disposal Direct Loans and Grants
Department of Agriculture web site
Available at: <http://www.rurdev.usda.gov/UWP-dispdirectloansgrants.htm>

The Town of Chatham, with a population of less than 10,000, has received \$23,349,000 in repayable loans at low interest rates (2.75%) from this program for its current sewer project.

Resource: FY 2014 Budget Presentation

Chatham Town web site

Available at:

http://www.chatham-ma.gov/Public_Documents/ChathamMA_Budget/FY%202014%20budget%20Presentation.pdf

(page 17)

1.3.1.2 Massachusetts Clean Water State Revolving Fund (CWSRF or just SRF) (summarized in the Funding Matrix; Loan Opportunities, #2)

The **Massachusetts Department of Environmental Protection** (MassDEP) administers the **Clean Water State Revolving Loan Fund (CWSRF)**. The CWSRF (sometimes identified as just “SRF”) Program provides low-interest loans to cities, towns, and other local governmental units for wastewater and storm water related infrastructure projects. The fund was established specifically “to provide a low-cost funding mechanism to assist municipalities in complying with federal and state water quality requirements.” According to MassDEP, in recent years the program has operated with \$300 million to \$350 million per year, enabling the financing of 50 to 70 projects annually (an average of just \$4 million to \$6 million per project). Currently the loans are subsidized via a 2% interest rate. This program may be a viable source of funding for a portion of the DCWMP proposal.

SRF loans can also be obtained at a 0% interest rate if a Town meets five specific criteria. These criteria are crafted to assure that the new sewers do not result in explosive growth that would, in turn, result in additional wastewater pollution. Given that the express objective of the DCWMP is to solve a pollution problem, not to stimulate growth, the Committee recommends that SRF loans be sought under the 0% option, which has a 10 year timeframe. It can be argued that the DCWMP is not flow neutral and would not qualify for 0% loan financing. We recommend doing everything we can to be eligible for the 0% financing including proving that we are flow neutral by imposing better zoning restrictions.

The Harwich Water Department recommends that the discussion of potential CWSRF and budgeting for it should also consider that the Town of Harwich is an Economic Justice (EJ) community and could possibly be eligible for principal loan forgiveness. In its 2012 SRF allocation, Congress required states to use a portion of the CWSRF grant (30% of the national grant in excess of \$1B - effectively about 15.7%) towards additional project subsidy for communities that might otherwise be unable to afford to undertake the project. Mass DEP expects a similar requirement for its 2013 SRF grants, and has proposed to allocate that share (approximately \$7.5 million) of its federal grant to subsidize renewable energy generation projects and to fund projects in EJ Communities.

Since the principal forgiveness may make the CWSRF program more appealing to the Town, we recommend the inclusion of the five specific criteria that a community must meet in order to be eligible for the zero percent rates. The criteria are:

1) The project is primarily intended to remediate or prevent nutrient enrichment of a surface water body or a source of water supply;

(2) the applicant is not currently subject, due a violation of a nutrient-related total maximum daily load standard or other nutrient based standard, to a department of environmental

protection enforcement order, administrative consent order or unilateral administrative order, enforcement action by the United States Environmental Protection Agency or subject to a state or federal court order relative to the proposed project;

(3) The applicant has a Comprehensive Wastewater Management Plan approved pursuant to regulations adopted by the Department of Environmental Protection;

(4) The project has been deemed consistent with the regional water resources management plans if one exists;

(5) the applicant has adopted land use controls, subject to the review and approval of the department of environmental protection in consultation with the department of housing and economic development and, where applicable any regional land use regulatory entity, intended to limit wastewater flows to the amount authorized under zoning and wastewater regulations as of the date of the approval of the CWMP.

Resource: Massachusetts Department of Environmental Protection Water Resources Grants and Financial Assistance
MassDEP web site
Clean Water State Revolving Loan Fund Fact Sheet
Available at:

<http://www.mass.gov/eea/agencies/massdep/water/grants/clean-water-state-revolving-loan-fund-fact-sheet.html>

Resource: Massachusetts Department of Environmental Protection Grant and Loan Programs
MassDEP web site
Opportunities for Watershed Protection Planning and Implementation
Available at: <http://www.mass.gov/eea/docs/dep/water/12grntlo.pdf>

Resource: State Revolving Fund 2012 Annual Report
MassDEP web site
Available at: <http://www.mass.gov/eea/docs/dep/water/wastewater/o-thru-v/srf12.pdf>

1.3.2 BETTERMENTS

Betterment Assessments (summarized in the Funding Matrix; Betterments, Impact Fees, and Non-Property Taxes, #1)

Betterments are assessments charged to property owners for public improvements that provide a benefit to their property. The Massachusetts Department of Revenue (DOR) offers a more precise definition: "A betterment or special assessment is a special property tax that is permitted where real property within a limited and determinable area receives a special benefit or advantage, other than the general advantage to the community, from the construction of a public improvement."

Resource: Betterments
Massachusetts DOR web site
Available at: <http://www.mass.gov/dor/docs/dls/publ/misc/betterments.pdf>

A Town's authority to assess betterments is covered in Massachusetts General Law, Chapter 80.

Resource: Betterments and Special Assessments
Chapter 80, Massachusetts General Law
Available at:
<https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXIII/Chapter80>

An excellent description of Massachusetts betterment theory and implementation was crafted by a Massachusetts Town Administrator and an attorney (see Resource below). The paper is located on the web site of a professional services firm, and should be read in that context. It also includes a model Sewer Assessment By-Law.

Resource: Implementing Effective Betterment Policy for Wastewater Projects: Walking the Labyrinth (sic)
City Point Partners LLC web site
Available at:
<http://www.citypointpartners.com/wp-content/uploads/2011/01/Implementing-Effective-Betterment-Policy-for-Wastewater-Projects.pdf>

Betterments have been used recently to fund sewer projects on Cape Cod. Residents of the Stewart's Creek area in Barnstable will be assessed a betterment of approximately \$7,496 each, to be paid over 20 years, to pay for an extension of the sewer system into their community. The betterment assessments were reported to cover 50% of the cost of the project, part of which was paid for by American Reinvestment and Recovery Act funds.

Resource: STEWART'S CREEK: A Primer - Betterments
Barnstable Patriot web site
Available at:
http://www.barnstablepatriot.com/home2/index.php?option=com_content&task=view&id=32245&Itemid=30

In Harwich, two recent projects will result in the assessment of betterments:

- *Allen Harbor Dredging* – At the 2011 annual Town Meeting, residents of Harwich approved a \$2.9 million 10-year debt exclusion to dredge Allen Harbor to remove approximately 40,000 cubic yards of accumulated sediment; the project will be completed in 2013. The cost will be shared among the Town of Harwich (60%), businesses surrounding the harbor, and abutting residents. Betterments to businesses and residences will be apportioned based on the number of cubic yards of sediment removed near each property.
- *Paving of Skinequit Road* – In the Harwich Finance Committee of March 6, 2013, the paving of Skinequit Road was discussed. This private road had been patched for many years and Chris Nickerson, Highway Department, advised that it could no longer be patched. Chris recommended that the residents of Skinequit Road apply for funding in the form of a loan under the Road Betterment program. The residents on Skinequit Road supported the idea, and the project is underway. The Town will fund the road repairs and the 11 residents of Skinequit Road will repay that loan over a period of 10 years – 2%

surcharge and 5% interest. The cost of the project is approximately \$172,000; this cost will be apportioned equally among the property owners.

Advantages and disadvantages of betterments

The presentation to the Cape Cod Water Protection Collaborative by Robert J. Ciolek in 2012 clearly outlined the global Advantages and Disadvantages of using betterments to fund sewer infrastructure improvements:

Advantages:

- Town may lien property and place charges on tax bills, thus reasonably insuring it will be paid by property owners
- Appearance of fairness as is believed to be for the receipt of a property benefit
- Relatively low interest rate: 5% or 2% over underlying debt interest rate
- Generally accepted practice for funding capital improvements

Disadvantages:

- Narrow base of funding for wastewater capital program
- Mismatch between benefits of program and those obligated to pay betterments as many system beneficiaries will pay nothing
- Sewer betterment assessments may be inequitable as assessment based on cost of each neighborhood sewerage projects – assessment may vary significantly
- Not tax deductible
- If EDU formula used, commercial betterments on Cape Cod could be confiscatory
- Not used for cost of constructing wastewater treatment facilities and other assets

Betterments timeline

It is important that the Betterment assessment is collected from the homeowners when the pipe is laid on their street and is ready to be connected to the home. Once the home is actually eligible for connection, it is then important that the town be flexible, reasonable and fair when considering how much time a homeowner is given to connect to the sewer. We are recommending that each homeowner be given 3 years to connect understanding that some will connect immediately and there may be other exceptions for the town to consider longer than 3 years due to extenuating circumstances.

Betterments and the Harwich DCWMP

The concept of betterment of individual properties from the Harwich Wastewater effort is not as clear as it is in the preceding examples for the Barnstable sewer and the Harwich road and harbor. The primary motivation of the Harwich Wastewater effort is the global (Town-wide, Cape-wide, Region-wide) issue of pollution of water by nutrients from human activity. Arguably, all property owners contribute to this problem, and clearly all property owners are responsible, to some extent, for its resolution.

On the other hand, at least some “special benefits” accrue to property owners who will be connected to the system. While this might not be in the form of immediate, direct, and observable increases in property value, there are, at a minimum, some ancillary financial benefits for those properties that are able to connect to the system. For example:

- *Septic System Upgrade and Replacement Costs* – Properties connected to the sewer system will avoid future costs for replacing existing septic systems. Those properties that have not upgraded to Title 5 standards will avoid that cost as well.
- *Periodic Maintenance Costs* - Properties connected to the sewer system will avoid future costs for inspections, pumping, and similar periodic maintenance items.
- *Property Development Opportunities* – There are some properties in Harwich which cannot be developed because of constraints on wastewater disposal. Most communities do not allow a parcel to become buildable just by connecting to a sewer. This is part of growth management. Only those that could support a Title 5 system are allowed to connect. We agree with CDM Smith and recommend Harwich adopt this approach. Those properties that do become developable as a result of the municipal sewer system have clearly been “bettered” according to the definition.

Of additional importance is the actual application of betterments. As pointed out in Mr. Ciolek’s presentation, betterment assessments cannot be used to fund the Town-wide treatment facilities and related assets; only construction of sewer lines and assets related thereto (pumping stations, for example) can be identified as betterment costs. A strong case can be made for the entire Town bearing the expense of building the treatment facilities required to remove nutrients; a similar case can be made for betterments used to fund some or all of the expense of extending sewer lines to properties that will benefit. Note that Betterment fees can only be assessed when the project (or phase thereof) is complete and the sewer line is ready to serve the abutting properties.

Betterments – Establishing cost equivalence (single family home)

The WIAC approach to Betterments was to establish a betterment fee that was more or less equivalent to the costs that a single family home with a sewer would avoid over a 20 year period versus having a Title 5 septic system. This fee would also be equivalent to the costs that same property without a sewer would incur over a 20 year period. This will establish parity for the total costs incurred by sewerred and non-sewerred single family property owners.

Betterments - Financial analysis (single family home)

The basic framework for the analysis of Betterments was adapted from the work done by the Town of Orleans for its 2010 CWMP. Orleans utilized a cost equivalence concept similar to that of the WIAC. The Orleans chart that resulted was used by the WIAC as its model.

Resource: EQUIVALENT ANNUAL COSTS FOR TYPICAL RESIDENTS – Table 11-9
Town of Orleans CWMP, Section 11, page 56: Town of Orleans web site:

Assumptions:

- 1) *Betterment Assessment* – A betterment fee of \$7,000, financed over 20 years at 5%, would cost \$562/year. This is a **WIAC Recommendation**.
- 2) *Sewer Connection Cost* – The DCWMP estimated sewer connections would average \$4,424 each (\$21,900,000 total cost for 4,950 parcels). Financed over 20 years at 5%, this would cost \$355 annually.
- 3) *Septic System Replacement* – The WIAC sought Title 5 septic system replacement costs from several sources. No standard cost emerged, since the cost of these systems varied significantly by site configuration, soil conditions, proximity to bodies of water, and other variables. Based on quoted ranges, the committee chose a typical Title 5 septic system replacement cost of \$18,000.
- 4) *Septage Pumping* - The Massachusetts Department of Environmental Protection (MassDEP) recommends that homeowners pump out septic systems every three years. The WIAC estimated typical pump out charges at \$250.
- 5) *Operating and Maintenance Fee* - From the Harwich DCWMP, Table 13-9; 4,950 sewered parcels would pay \$3,000,000 in annual O&M costs at build-out, an average of \$606 per parcel.

BETTERMENT ANALYSIS

Annual Costs of Served and Unserved Single Family home Parcels

Cost Item	Equivalent Annual Cost, \$/year, 20 years	
	Typical Sewered Home	Typical Unsewered Home
1. Betterment Assessment	\$562	\$0
2. Sewer Connection Cost	\$355	\$0
3. Septic System Replacement	\$0	\$1,444
4. Septage Pumping	\$0	\$83
5. Annual Operating and Maintenance Fee	\$606	\$0
<u>Total</u>	<u>\$1,523</u>	<u>\$1,528</u>

Betterments - Financial analysis (subdivisions over 5 homes, apartments in a village center, commercial complexes, etc.)

Today Harwich requires any subdivisions of more than 5 single family homes to have an Innovative Alternative (IA) septic system installed rather than a Title 5 septic system for each home. Similar regulations are in place for commercial development. The size and therefore the costs for these systems varies tremendously and does not allow us to calculate an equivalent annual cost for being on a sewer rather than on an IA system. However, once a subdivision is proposed, the Board of Health will have determined the septic system requirements, which will determine the costs. A similar analysis (to what we have done above for a single family home) can then be done to determine what the cost savings are to the developer for being on the sewer system and that number should then be used as the one-time Betterment Assessment.

We feel this is the fairest way to determine betterment assessment rather than one Equivalent Dwelling Unit (EDU) of measure. The DCWMP uses a “parcel” as their EDU, and it works well for their purpose. However, for the cost recovery financing, we felt this was the most accurate and fair for all property owners – large and small, residential and commercial.

Betterments – Base financial analysis

The DCWMP plans for 4,946 parcels to be on the sewer. Some of these parcels are as small as single family home lots and some are large enough for large subdivisions and substantial commercial development. We have based our revenue projections on the least number of single family homes that can be built, which would be 4,946 at a Betterment fee of \$7,000 per home for a total of \$34,622,000. The additional homes that can be built or already exist in future subdivisions, and so on, will only add to the Betterment revenue above this base.

1.3.3 Impact Fees

1.3.3.1. Impact Fees for new construction (summarized in the Funding Matrix; Betterments, Impact Fees, and Non-Property Taxes, #2)

CDM Smith reports that impact fees are “one time charges against new development to raise new revenue for new or expanded public facilities necessitated by new development.” There is much case law in Massachusetts regarding use of impact fees and often a community will seek Special Legislation to clarify the use of the proposed fee. Courts have established three characteristics of fees that distinguish them from taxes. They include (1) the fee be charged in exchange for a particular government service benefiting those paying the fee in a manner not shared by the public; (2) the fee is paid by choice, in that those paying them have an option of avoiding them; and (3) the fee is collected to compensate the governmental entity for its expenses.

Historic Construction Pace in Harwich

A comprehensive analysis of construction in Harwich over the last five years as reported in the town’s annual reports was completed by the Committee. A summary of the results appears below:

CONSTRUCTION IN HARWICH	
Description	5 Year Average FY 2008 to FY 2012
RESIDENTIAL	
New Construction	
Single Family	31.6
Multi Family	2.2
Condo Type	1
Total New Units	34.8
Accessory Buildings	13
Additions	189.8
Alterations	292.8
New Construction	12.6
Other New Construction	48.6
Various Others	22.4
COMMERCIAL	
New	3.6
Alterations	17.2
Other	0.4
Total Estimated Cost of Annual Construction Permitted	\$37,490,250

The impacts of new residential construction

All new residential construction increases the nutrients that are released into the Harwich groundwater, which eventually migrates to the ponds and estuaries. The Town has a major problem with wastewater contamination already, and all new construction will make it worse. As a result, the Town is facing a huge capital outlay to solve its contamination problem, a capital outlay that must anticipate the build-out of residences for which zoning has already created a potential. Similarly, additions to residences that add bedrooms add to the potential for increased release of nutrients. The same arguments can be made for new and altered commercial buildings.

Build-out potential, new dwelling units

Town Planner, David Spitz, reports (Sept. 23, 2013) that under current zoning there are 10,836 dwelling units (DU) existing in town and an additional 2,233 can be built. The past 5 years shows (admittedly an economically weak period) an average of 34.8 DU built each year. Over 40 years that represents 1,392 new DU or just over 62% of build-out under current zoning (2,233 Dwelling Units).

Proposed fee schedule – Residential construction

A careful review of the economic considerations of new construction, additions, and alterations suggests that the following Impact Fees would generate significant revenue without adversely affecting the pace of construction.

Construction Fee Schedule	
Single Family/Home	\$18,000
Multi Family/Bedroom	\$6,000
Condo Type/Bedroom	\$6,000
Additions/Bedroom	\$6,000
Apartments/Bedroom	\$6,000

The Health Department recommends that the definition of a “bedroom” will need more thought and clarification from the regulatory departments in town. Specifically, how this is defined by the Planning Department, Assessing, Building Department, etc. will all determine how it is charged and ultimately enforced.

To help guide that conversation, it should be understood that our purpose in using bedrooms as a unit of measure, is that it has been found to be the most accurate way to determine how many people live in a home and are likely to use the bathrooms within.

In this way, all new construction will have this impact fee equally regardless of where the home is located. Those in the sewered area, however, will also be paying the \$7,000.00 betterment fee.

Single family homes – These are the most common residential construction in Harwich far outdistancing multifamily homes, condominiums, apartments, senior living communities, etc. Under traditional sub-division development patterns they are also our largest creators of wastewater problems and the most expensive to sewer. In Harwich, the Board of Health estimates the average number of bedrooms is 3 per home.

Multifamily homes – These are not at all common in town, though the proposals for greater density in commercial districts attracting new residential development may well spur growth from this sector. In Harwich, the Board of Health estimates the average number of bedrooms is 2 per family.

Condominiums – In Harwich, the Board of Health estimates the average number of bedrooms is 2 per condo. Once again this may increase with higher density zoning incentives.

Additions – This represents adding a bedroom to an existing home.

The impacts of new commercial construction

Commercial construction impacts on nitrogen in our embayments can be looked at from three sources in Harwich:

1. Commercial establishments with bedrooms – hotels, motels, cottage rental colonies, bed & breakfasts, nursing homes, assisted living complexes, etc. The nitrogen impact can be measured in bedrooms similarly to residential development.

2. Manufacturing and industrial construction, which can best be measured by water usage
3. Retail and office space which can best be measured by public and employee bathroom.

Each of these has different impacts from their wastewater usage, and therefore we are treating differently in the fee schedule.

All commercial properties will have a water surcharge fee and you can see this broken down in the section below - 1.3.3.3.

In addition, the following fee schedule pertains to all commercial development:

Proposed fee schedule – Commercial construction: new and changes/additions

1. Commercial construction that includes bedrooms such as Hotels, motels, B&B's and other lodging establishments will have an impact fee \$6,000 per bedroom – whether new or additions.
2. All other commercial construction will have a \$3,000 fee per bathroom – whether public or for employees
3. All commercial construction will also have the water surcharge fee discussed below in section 1.3.3.3

1.3.3.2 All Parcel Flat Fees (summarized in the Funding Matrix; Betterments, Impact Fees, and Non-Property Taxes, #4)

The Committee proposes that an annual Flat Fee of \$250 be imposed on all taxed Harwich parcels, irrespective of assessed valuation. The fee would be assessed for 10 years. Similar to the Betterment fee, it would not be assessed against tax exempt or unbuildable parcels.

The premise behind this proposed Flat Fee is the theory that all property owners will benefit equally from the Wastewater program. The occupants of a moderately priced home will have the same improved harbors and waterways as the occupants of a more expensive property. Also, in a great many situations, the year-round occupants of a modestly priced home may, in fact, contribute more to the Wastewater problem than those whose use of an expensive property is a partial year.

Some of these taxed properties are currently undeveloped. Should the owner decide to build at a later date, then they would get credit for any portion of the flat fee that has been paid. That credit could be used against the proposed "Impact Fee for Construction".

Also, this method may be adapted to encompass the tax-exempt properties from which we may be prohibited from levying a betterment. These properties would include religious institutions, some charitable organizations and some other non-profit enterprises. This would involve adopting the Massachusetts Model Water and Sewer Commission Act, which expressly permits the assessment of sewer fees to exempt properties.

1.3.3.3 Water bill surcharges (summarized in the Funding Matrix; Betterments, Impact Fees, and Non-Property Taxes, #5)

The Harwich Water Department reported that it had 9,887 service connections at the end of 2012. Of these, about 1% are municipal, according to the Department; the balance are residential, institutional, commercial, and agricultural. The Department sends bills for water on a semi-annual basis.

Resource: Town of Harwich
Town of 2012 Annual Report
Finance Report, page 264
Available at:

http://www.harwich-ma.gov/Public_Documents/HarwichMA_Admin/Town%20Reports/Harwich2012TownReport.pdf

The primary medium that carries nitrogen and phosphorous into groundwater is house effluent that originates as water piped in through the town system. Assessing a modest town-wide charge on all water users would recover a significant fraction of the project costs.

In order to implement this surcharge, the Harwich Water Department recommends further study of the regulatory framework of the existing Harwich Water Department be done. This framework is outlined in Section 1.2 of the Draft Utilities Reorganization Study prepared by Louison, Costello, Condon and Pfaff, LLC and Polaris Consultants. In accordance with the Town Charter through its reference to Chapter 165 of the Acts of 135, the Harwich Water Department is required to “do such things as may be necessary for the establishment and maintenance of a complete and effective water work (Section 2 of the Acts)”. Section 6 of the Acts further states that the water enterprise fund is established “sufficient to pay the annual expense of operating its water works.” The existing enterprise is sufficient for meeting the requirements of the Town Charter, Acts of 1935 and existing State regulations.

It will need to be determined if the new surcharges are allowed to fall within the current regulatory framework or if the town will need to establish new regulations or amending Town charter and filing legislation to amend the Acts to allow for the sewer surcharge.

The Water Department reported revenues from Water Rates and Recurring Services of \$2,947,219 in 2012. Residential billing represents \$2,691,892 and commercial billing represents \$255,326 of the total. The average annual residential bill is approximately \$289 and the average commercial bill is approximately \$685. We propose a 35% water surcharge for both residential and commercial water customers, which would equal approximately \$100 on average for all residential customers and \$236 for all commercial customers. This would raise approximately \$37,244,000 from residential customers and \$3,532,459 from commercial over the forty year period of the project for an approximate total water surcharge revenue of \$40,776,459. This represents 17-23% of the project capital costs.

1.3.4 Non property tax increases

1.3.4.1 Occupancy tax increase (summarized in the Funding Matrix; Betterments, Impact Fees, and Non-Property Taxes, #6)

The State of Massachusetts imposes a room occupancy tax on hotel, motel, and similar occupancy sales. The State tax rate is 5.7%. Local municipalities may add their own occupancy tax, which is collected by the State and rebated to the municipality. Currently Harwich adds a tax of 4% to the State tax, making the total occupancy tax in the town 9.7%. Recent Harwich receipts from the occupancy tax were:

	<u>2012</u>	<u>2011</u>
469901 HOTEL TAX	\$500,138.32	\$446,821.47

Resource: Town of Harwich
Town of 2012 Annual Report
Finance Report, page 338
Available at:

http://www.harwich-ma.gov/Public_Documents/HarwichMA_Admin/Town%20Reports/Harwich2012TownReport.pdf

Recently enacted legislation, St. 2009, c. 27, §§ 51, 52, increases the maximum rate of the local option room occupancy excise from 4% to up to 6%, provided that each city or town votes to accept the increased rate in accordance with the provisions of G.L. c. 64G, § 3A.

Increasing the Town occupancy tax rate from 4% to 6% (the statutory maximum) would increase the tax collected annually by approximately \$250,000.

1.3.4.2 Meal tax increase (summarized in the Funding Matrix; Betterments, Impact Fees, and Non-Property Taxes, #7)

The State of Massachusetts imposes an excise tax on meals. The State tax rate is 6.25%. Local municipalities may add their own meals tax, which is collected by the State and rebated to the municipality. Currently Harwich adds a tax of .75% to the State tax, making the total meals tax in the town 7.0%. Recent Harwich receipts from the meal tax were:

	<u>2012</u>	<u>2011</u>
469906 MEALS TAX	302,086.93	220,685.42

Resource: Town of Harwich
Town of 2012 Annual Report
Finance Report, page 338
Available at:

http://www.harwich-ma.gov/Public_Documents/HarwichMA_Admin/Town%20Reports/Harwich2012TownReport.pdf

Massachusetts municipalities, under the provisions of the so-called "Home Rule," may petition the legislature for, among other things, additional taxing authority.

Resource: State of Massachusetts
Department of Revenue

DOR web site

Available at:

<http://www.mass.gov/dor/docs/dls/mdmstuf/technical-assistance/best-practices/homerule.pdf>

Increasing the Town meals tax rate from .75% to 1.0% would increase the tax collected annually by approximately \$100,000.

1.3.5 General property taxes

When all of the various betterments and fees are totaled they will represent a percentage of all capital required on an annual basis and over the term of 60 years of funding. Whatever percentage, less than 100%, will then be applied to the general property taxes. Depending on what fees are ultimately set will determine the impact on the general property tax. The WIAC has drawn up scenarios in which the betterments and impact fees are high enough that there is no increase in the general property tax and also the scenario where there are no betterments or fees and 100% is paid for by general property tax. This is, of course, the most critical consideration the town leadership has to make in determining final cost allocations and the necessary Cost Recovery Model based on the allocations.

1.3.6 Sewer User Fees (non capital costs)

All homes which are connected to the sewer will have the following additional fees to be paid based on their water usage and the distance from their home to the sewer at the street.

1.3.6.1 Operations & Maintenance Fees (O&M)

These are the monthly fees paid based on the amount of water used and are for the general operations and maintenance of the wastewater system. These are not fees for capital costs.

1.3.6.2 Hook-up or Connection fees

This is a one-time fee to connect to the sewer at the street. There is a wide range of potential costs for this as it varies from distance to the street, terrain covered, and other complications. The average cost is estimated at \$4,424.00 per connection.

1.3.7 WIAC recommendations on resident funding options

LOANS

a. Rural Development Loans

1. Target for adaptive funding; apply if/when population of Harwich drops below 10,000.
2. Initiate an effort to investigate formation of a sewer district that meets the program's population requirements.
3. Funding Results – since no Rural Development Loans are currently anticipated, the contribution from this source is shown as \$0 in the Funding Matrix.

b. Massachusetts Clean Water State Revolving Fund

1. Initiate an effort to pursue SRF loans for the project; develop/improve contacts and program expertise, consider using a grant writer.
2. Initiate and/or participate in lobbying efforts to increase the availability of SRF loans.
3. Seek SRF loans under the 0% interest option as we do not intend to use the sewers to increase development beyond current zoning. As this also requires a “flow neutral” scenario the DCWMP will need to be adjusted to remove the increased flow it assumes above that allowed under current zoning. We should plan for the same restrictions as currently allowed under Title 5 restrictions throughout the town regardless of whether a home or business is connected to the sewer.
4. Funding Results – since SRF loans are currently given in small amounts and its future as a viable funding source is uncertain, the contribution from this source is shown as \$0 in the Funding Matrix.

BETTERMENTS

The Betterment Fees cannot go into effect until the sewer is constructed and a property is eligible to connect.

a. Betterment assessments

1. Single Family Homes: Assess a Betterment Fee of \$7,000 for properties that can be connected to the sewer.
2. Subdivisions over 5 homes, apartments in a village center, commercial complexes, etc: Assess a Betterment Fee, to the developer, equal to the cost savings of the Innovative Alternative System that would otherwise have to be installed.
3. The Betterment Fee would be assessed when the property is eligible to be connected.
4. We recommend requiring property owners to connect to the sewer within one (1) year of it being available. The Board of Health can determine the need for exceptions to allow for more time.
5. Establish financing options for the Betterment Fee to minimize the impact on property owners.
6. Funding Results –The financial contribution from this source of revenue is approximately \$52,798,550 (includes 20 year financing at 5% rates on total betterment fee of \$34,622,000) from single family homes, as shown in the Funding Matrix. This would cover between 22% and 29% of the project cost.

IMPACT FEES

We recommend that all Impact Fees go into effect as soon as possible and not wait for the full approval process for the CWMP. The more money we have collected in the dedicated Wastewater fund at the time we need to seek approval for additional funding the less money we will have to seek and the more momentum will have been created.

a. New Residential Construction Fees

- a. Establish a one-time fee structure for all residential construction – both new and remodeled – that adds a bedroom to the number of dwelling units in town as follows:

Residential Construction Fee Schedule	
Single Family/Home	\$18,000
Multi Family/Bedroom	\$6,000
Condo Type/Bedroom	\$6,000
Additions/Bedroom	\$6,000
Apartments/Bedroom	\$6,000

b. New Commercial Construction Fees

- a. *Establish a fee for all establishments with bedrooms – hotels, motels, B&B's, rental cottages, nursing homes, assisted living complexes, etc. – of \$3,000.00 per bedroom, whether for new constructions or additions/modifications*
- b. Establish a one-time fee on all other commercial construction – both new and remodeled – that is equivalent to \$3,000 per bathroom built.
- c. All commercial properties will also be subject to the increase in the water bill as discussed below.

Funding Results of all construction fees – residential and commercial: – The financial contribution from this source of revenue is approximately \$48,984,000 as shown in the funding Matrix. This would cover between 20% and 27% of the project cost.

c. All Parcels Flat Fees

1. Assess an annual Flat Fee of \$250 against all taxed parcels.
2. Assess the annual Flat Fee for a period of 10 years.
3. The fee would be assessed against all developed and buildable parcels; it would not be assessed against tax exempt or unbuildable parcels.
4. Establish financing options for the Flat Fee to minimize the impact on property owners.
5. Funding Results –The financial contribution from this source of revenue is approximately \$28,265,000, as shown in the Funding Matrix. This covers between 12% and 16% of the project cost.

d. Water Bill Surcharges

1. Establish an annual surcharge on the water bill representing a 35% increase based on water use.
 - i. For residential use this would be an average of approximately **\$50** semi-annual surcharge (**\$100/year**) on all Harwich water bills as soon as possible.
 - ii. For commercial use this would be an average of approximately **\$118** semi-annual surcharge (**\$236/year**)
2. Establish a special fund for the additional receipts, dedicated to amortizing wastewater project capital costs.
3. Funding Results –The financial contribution from this source of revenue, over 40 years, is approximately **\$40,776,459**, as shown in the Funding Matrix. This would cover between **17%** and **23%** of the project cost.

NON PROPERTY TAXES

a. Occupancy Tax Increase

1. Propose an increase to the local option room occupancy tax of 2% at the next Town Meeting.
2. Establish a special fund for the additional tax receipts, dedicated to amortizing wastewater project capital costs.
3. Funding Results –The financial contribution from this source of revenue, over 40 years, is approximately \$10,000,000, as shown in the Funding Matrix. This would cover between 4% and 6% of the project cost.

b. Meals Tax Increase

1. Propose a Home Rule petition to increase the local option meals tax to 1% at the next Town Meeting. This would be an increase of .25% as it is currently .75%.
2. Establish a special fund for the additional tax receipts, dedicated to amortizing wastewater project capital costs.
3. Funding Results –The financial contribution from this source of revenue, over 40 years, is approximately \$4,000,000, as shown in the Funding Matrix. This would cover approximately 2% of the project cost.

PROPERTY TAXES RECOMMENDATIONS

Based on the recommendations of the above Impact Fees and other forms of revenue, there is no impact on the general property taxes until year 2043 (32 years from now). Between 2045 and 2072 the impact on property taxes ranges from \$120-\$582 per tax payer in those years after 2043.

Section 2

Revenue and Cost Flow Chart and the Funding Matrix

2.1 Projecting Finances Over 60 Years

No town government expects projections they make today to be fully accurate beyond the first 7-10 years if that. However, we felt it was responsible to look down the road and create a model that would be effective if the 60 year projections were to actually hold during that length of time. This is especially true of the wastewater project as it is founded on the principal of “adaptive management,” where the impacts of one phases work may change the project requirements for the next phase as we track the impact of each phase on the level of nutrients in our soil.

Add to this, changing economic conditions over 60 years and the base assumptions may very well change throughout the life of this project many times. It is the responsibility of the town’s financial leadership to track this each year and make the adjustments necessary to reforecast on an ongoing basis. Wisely, the Capital Outlay Committee works only 7 years into the future as there are so many variables that can affect both costs and revenues from year to year. The Town Manager, Town Accountant, Board of Selectmen, Capital Outlay Committee and Finance Committee each will have their part of managing these projections as one phase leads into another.

2.2 Purpose of Creating a Revenue and Cost Flow Chart

The purpose of a Revenue and Cost Flow Chart is to show how revenues (whatever the source) will cover the costs of the project including any lending/bonding required and the interest on those loans/bonds. Our first calculations then are to understand our costs completely. This is given to us in the DCWMP as a range of \$180-\$230 million in 8 phases over 40 years. Knowing the capital requirements in each phase allows us to anticipate when a bond needs to be issued to cover the costs needed for each phase. Each bond issued is assumed to have a 20 year payment term that includes principal and 3% interest. Due to the length of the bonds and the shortness of the phases oftentimes we are paying for more than one bond at a time and as many as four (4) at a time. Since our final bond takes place in the final phase the actual time it takes to pay off all of our bonds will extend our payments beyond 40 years to 60 years.

In a typical model where all these costs are to be borne by a general increase in real estate tax, the town would simply ask Town Meeting to increase our tax rate enough each year to cover these anticipated costs.

As mentioned earlier our primary task was to find some creative solutions beyond the general real estate taxes to help cover these capital costs. Those funding solutions generate specific revenues at specific times, which we can chart against the expense side and see how our revenues match up to the expenses through all 8 phases and 60 years of bonding.

Please see the actual Revenue and Cost Flow Chart in Section 5.13 in the Executive Summary

2.3 Funding Matrix

The Funding Matrix below shows the source of funds, the amount we anticipate coming from that source and the percentage of the total project costs each funding source will cover.

OPTION	DESCRIPTION	ANTICIPATED TOTAL FUNDING	PERCENT OF TOTAL
<u>Grant Opportunities:</u>			
1. Federal Block Grants (HUD)	Non-repayable funds disbursed by the federal government	\$0	0.0%
2. Rural Development Grants (USDA)	Non-repayable funds. Available "To develop water and waste disposal systems in rural areas and towns with a population not in excess of 10,000."	\$0	0.0%
3. Federal Clean Water Act Section 319 Nonpoint Source Grants (administered by Mass. DEP)	Non-repayable funds made under Clean Water Act Section 319, primarily targeted to provide "technical assistance, financial assistance, education, training, technology transfer, demonstration projects and monitoring to assess the success of specific nonpoint source implementation projects."	\$0	0.0%
4. Massachusetts Bill H.690 (pending legislation - 188th Session)	A petition (HD03103) calling for creation of a 10 year \$200 million annual Water Infrastructure Bond to fund local drinking water, wastewater and storm water improvements was introduced in the Massachusetts House by Representative Carolyn Dykema (D-Holliston) in 2011. A bill (H.690) creating this capability is currently pending; includes provisions for some non-repayable funds.	\$0	0.0%
<u>Loan Opportunities:</u>			
1. Rural Development Loans (USDA)	Repayable funds. Available "To develop water and waste disposal systems in rural areas and towns with a population not in excess of 10,000."	\$0	0.0%
2. Massachusetts Clean Water State Revolving Fund (CWSRF or just SRF - Mass. DEP)	Repayable funds. A program run by the Massachusetts Department of Environmental Protection. The SRF Program provides low-interest loans to cities, towns, and other local governmental units for drinking water and wastewater-related infrastructure projects.	Use as available in lieu of issuing municipal bonds.	NA

**Betterments,
Impact Fees
and Non-
Property
Taxes:**

1. Betterment Assessments	Betterment Fee imposed on all parcels served by the sewer system. Imposed after the sewer is available to the parcel. Financed by the Town over 20 years. These fees are not tax deductible. Total includes annual interest at 5%.	\$52,798,550	22.0%	to	29.3%
2a. Impact Fees - new residences	Fees imposed on construction of new single family residences. Imposed on all new construction in sewerred and non-sewerred areas. These fees are not tax deductible.	\$22,752,000	9.5%	to	12.6%
2b. Impact Fees - new multi-families	Fees imposed on construction of new multi-family residences. Imposed on all new construction in sewerred and non-sewerred areas. These fees are not tax deductible.	\$2,112,000	0.9%	to	1.2%
2c. Impact Fees - new condos	Fees imposed on construction of new condominiums. Imposed on all new construction in sewerred and non-sewerred areas. These fees are not tax deductible.	\$480,000	0.2%	to	0.3%
2d. Impact Fees - Additions	Fees imposed on additions made to residences. Imposed on all new additions in sewerred and non-sewerred areas. Based on number of new bedrooms added. These fees are not tax deductible.	\$22,776,000	9.5%	to	12.7%
2e. Impact Fees - New Commercial	Fees imposed on construction of new commercial buildings. Imposed on all new construction in sewerred and non-sewerred areas. These fees are not tax deductible.	\$864,000	0.4%	to	0.5%
3. "All Parcel Flat Fee"	Annual town wide flat fee imposed on all parcels for a limited period. These fees are not tax deductible.	\$28,265,000	11.8%	to	15.7%
4. Water Bill Surcharge	Approximately 9,800 water bills are sent to Harwich property owners. A "Wastewater Fee" could be added to these bills. Such a surcharge would not be tax deductible.	\$40,776,459	17.0%	to	22.7%

5. Occupancy Tax Increase	The Town is permitted to raise the local Occupancy Tax from 4% to 6%. (The total Occupancy Tax, including the State tax, is now 9.70%)	\$10,002,766	4.2%	to	5.6%
6. Meal Tax Increase	The Town may be able, under Home Rule, to raise the local Meals Tax, which is currently .75% (The total Meals Tax, including the State tax, is now 7.00%)	\$4,027,826	1.7%	to	2.2%

Other Sources:

1. Special Debt Exclusion (under Massachusetts Law MGL C.59, Section 21C(n))	Not a funding source, but a legislative grant of authority to shift costs from ratepayers to taxpayers.	\$0	0.0%		
2. Model Water and Sewer Commission Act	Not a funding source as such; permits the inclusion of otherwise exempt properties in the betterment and other funding options. Probably requires Town Meeting approval and the establishment of a Water/Sewer Board.	\$0	0.0%		
TOTAL NON-PROPERTY TAX REVENUE OVER THE LIFE OF THE PROJECT:		\$184,854,601	80.4%	to	102.7%

**\$230,000,000 or \$180,000,000
DCWMP Adjusted**

If all of the above funding alternatives are adopted:

Residual Project Funding Required From General Property Taxes:	Taxes that must be collected <i>ad valorem</i> , i.e., based on the assessed value of real estate or personal property, over the life of the project and bond repayment period. These taxes would be tax deductible.	\$45,145,399	-\$4,854,601	-19.6%	2.7%
		DEFICIT	SURPLUS		

Section 3

Future Organizational/Management Structure

This part of the WIAC charge is intended to anticipate what type of organizational and management structure might be best for the Town of Harwich. Currently all matters relating to wastewater are being managed by committees in town with some staff support. Their work has resulted in the DCWMP. With the anticipation of the approval of the DCWMP and start of major capital expenditures these committees no longer have the expertise to manage the work.

Our investigations led us to several alternative solutions and we began discussing many alternatives including the following:

- 1) Should the Sewer Department be a separate entity reporting to the Town Administrator?
- 2) Should the existing Water Department and the new Sewer Department be combined?
- 3) Should both the existing Water and proposed Sewer Departments report to the Department of Public Works?
- 4) Should a combined Water and Sewer Department be created as its own Water and Sewer District?
- 5) Should an outside firm be considered to manage whatever department is created?
- 6) Should an outside firm be contracted with who would provide the capital investment and the management?
- 7) At what point should the structure be formalized and how should it be managed until then?

This section of our report will address these questions.

3.1 Background

One of our earliest meetings was with Town Administrator Jim Merriam. He has extensive experience with successful and failed wastewater management and structural solutions. In his experience having the Water and Sewer Departments fall under the Department of Public Works was the best. Mr. Merriam felt that oversight by the Town Administrator and ultimately the Board of Selectmen and Town Meeting was a strong system. In addition, he felt that this would be the best way to coordinate public projects so that potential duplication of efforts by two departments would be lessened. For example, coordinating pavement of roads with laying of sewer pipes along those same roads.

We then met with the Harwich Water Department which engaged a firm during 2012 to study these organizational topics as well as a broader spectrum of issues which may come into play as the wastewater project continues to develop. The result was a Utilities Reorganization Study prepared by Louison, Costello, Condon & Pfaff, LLP along with Polaris Consultants, LLC dated August 20, 2012. *A copy of this study can be provided by the Water Department.*

This study was an exhaustive analysis of seven different wastewater management scenarios encompassing options from a range including a standalone Harwich Sewer department to the creation of independent Water and Sewer Districts. The recommendation of this third party firm was for their “Option 3 – Combined Water and Sewer Department.” This option (found under Section 7.3 of their report) envisions a combined water and sewer department with the following elements:

- Governing commission would be expanded to five members to include two new elected members with sewer qualifications (to include regulatory compliance familiarity)

- Two new positions for sewer treatment and testing
- Two new positions for sewer collection system maintenance

We also met with Lincoln Hooper the Director of the town's Highway and Maintenance Department (Harwich does not currently have a Department of Public Works). Mr. Hooper expressed his willingness to work within any new organizational structure recognizing that whatever the solution all work ought to be well coordinated to be as efficient as possible.

Having met with these three principal parties, we took all of their ideas under advisement and researched what has worked and not worked in many other towns taking into consideration Harwich's size and political structure.

In addition we considered privatization of the wastewater project, where a private company would invest the capital to build the system and operate it including setting rates. This also included considering a management company similar to what Chatham has done, where the company is hired by the town to handle the day to day operations and is under the direct supervision of the town itself.

Regardless of which direction the Town chooses, it will most likely involve Charter changes and we must be prepared to take those steps in order to achieve the most cost efficient as well as effective result in this huge endeavor.

3.2 Timing

With this background, we then considered how the timing of the DCWMP implementation might affect our recommendations. Proposed management changes with respect to the creation of a new or expanded department will obviously be the subject of intense debate in the Town. A great many individuals and issues may be affected by the ramifications of any changes. Therefore, the timing of any move of this nature is very important.

The DCWMP tells us that staffing levels needed for operation of the project within the framework of the whole DCWMP is as follows:

<u>Phase</u>	<u>Time Range</u>	<u>Operation</u>	<u>Added Staffing Requirement Projection</u>
1	2013 – 2015	Muddy Creek Construction & Hinckley's Pond Restoration # Homes connected = 0	None
2	2016 – 2020	Pleasant Bay South area system Construction # Homes connected = 600	Project Manager answering to Town Administrator with billing assistance from Water Dept and possibility of one employee for field issues and support
3	2021 – 2025	Pleasant Bay North area system Construction & Chatham Plant Upgrade # Homes connected = 440 (Total now 1,040)	Use of same staff as in Phase 2 above

4A	2026 – 2028	New Harwich Treatment Plant Construction # Homes connected = 0	None
4B	2029 – 2032	Herring River Collection System (Northeast) # Homes connected = 700 (now 1,740)	To be determined
5	2033 – 2037	Herring River Collection System (Northwest) # Homes connected = 730 (now 2,470)	To be determined
6	2038 – 2042	Herring River Collection System (Southeast) & Allen and Wychmere Harbor Watershed sewerage # Homes connected = 650 (now 3,120)	To be determined
7	2043 – 2047	Herring River Collection System (Southwest) & Harwich Treatment Facility upgrade # Homes connected = 760 (now 3,880)	To be determined
8	2048 – 2052	Install remaining sewers where needed to meet TMDLs including final Pleasant Bay areas, Campground and Great Sand Lakes # Homes connected = 1,066 (now 4,956)	To be determined
Total Homes connected = 4,950 rounded			

As seen above, it will be at least 15 years (2028) until we have substantially more than 1,000 homes connected to the sewer system and realistically, between dealing with funding and construction issues, it may be considerably longer than that.

Another important consideration in this project is that we are currently in the process of seeking a new Town Administrator. The Town Administrator's vision for the structure of this endeavor will be of significant value. In fact, fifteen years from now, we may have changed Town Administrators more than once.

3.3 WIAC RECOMMENDATIONS

3.3.1 Management

Since the DCWMP is still in its review stages and then should receive significant public outreach including adoption by Town Meeting, we are still a long ways from approval for the project. As the complexion of the project can change so much during the start-up years, WIAC recommends that the Town maintain as much flexibility as possible. Rather than set a precedent by having structured and staffed department, WIAC recommends that we out-source this management responsibility and contract with an individual or firm to fill the role for at least the first several years of the program and likely through 2028, when we still have so few users of the system and when construction begins on the HR-12 treatment plant in the Herring River watershed.

The WIAC recommends that the town hire an outside qualified person (not as a town employee) or contracted firm in charge of the project (Project Manager) who is not burdened with managing other Town departments or town politics and is responsible to the Town Administrator or BOS when Town Administrator is unavailable. The project is too costly to have it suffer from management time constraints, which might occur if either the Highway Department or Water Department were given this assignment. However, during the startup years, there will most likely be “lag” times in the project due to a variety of reasons including everything from regulatory approval to funding issues to construction delays.

Certainly Harwich will have its consulting firm CDM Smith involved, who will be able to work well with the Project Manager. We do not want a highly paid Town-employed manager sitting idle during lag times, but having a wholly qualified party representing Harwich’s interests alone would be extremely desirable.

We do not believe this function can be accomplished by a combination of a committee working with CDM as that method would seem to have some inherent risks in terms of the committee members’ qualifications as well as the responsibility and clear authority to deal with the public, the regulatory agencies and the construction issues. It would seem more prudent, despite the cost of the position, to have a committee in place to support the Project Manager as well as to be available for continuing public education/outreach and advice as the project advances.

3.3.2 Field operator(s)

During this period, particularly after year 2018, homes will be starting to connect to the system in the Pleasant Bay area. It will start to become necessary for the Project Manager to develop a team to respond to the public in terms of overseeing and/or inspecting hookups. It will also be necessary to have someone available in the field to answer the public as directed in terms of malfunctions, questions and complaints as well as to perform sewer collection system maintenance.

The skill level and hourly time required for this employee would have to be determined by the Project Manager and Town Administrator in charge of the project during this time.

We must remember that should any major irregularities arise during this startup period (field problems), this individual would require the support of other existing Town departments (Water, Highway and Public Safety).

3.3.3 Support (billing & clerical)

As to billing for sewer charges for the individual homes connected, there are two obvious ways to go, either use an adaptation of the existing Water department billing software or create/purchase a new system.

a) Add-on to water department billing software (WIAC recommendation)

No matter what the makeup of the final Sewer department organizational structure is, it would seem an obvious choice to have the billing for usage handled by the same software system and staff (Water Dept) as currently handles home water usage. Many communities employ that method and use the water-in, water-out accountability strategy. (Adaptations exist for those who want to have special metering adjustments so that they will not be charged sewer rates for the volume of water used for maintaining lawns or filling pools.)

This method would only require some expenses to enhance the Water Department's existing software and a review of the impact on billing and financial staff hours.

The Harwich Water Department concurs with this approach and notes that the MUNIS billing software has a sewer module that can be linked to the amount of water to be billed and, in the early years of the program, funds can be directed into a standalone Sewer Fund or to the general fund.

In order to keep Town-wide costs to a minimum, different meter options would have to be investigated. Whether the proposed Sewer Department is ultimately standalone or part of another department, it makes sense to use meters that can handle both functions and be read at the same time (by drive-by or other automated method).

Note: We assume that some charges for hook-ups and/or betterments and impact fees would be handled through the Assessor's office as those fees would most likely be attached to the homeowners' property tax bills. The impact on the Assessing Office staff and the Treasurer/Collector's Office staff would also have to be reviewed.

b) Standalone billing (not recommended)

In theory, if the proposed Sewer Dept is a standalone department, then separate billing might be considered. Every aspect of this operation needs to be explored, but it seems unlikely that the duplicity of hardware, software and employee time inherent in this method would be a viable option.

c) Clerical support

Once homes start to connect to the system (Phase 2), there will have to be some form of clerical support to answer calls from the public and assist the Project Manager with the paperwork necessary to run the startup operation. Since the startup years will involve just a few hundred homes, it is hoped that this function could be handled by a part-time employee or by adding to the hours of an employee(s) in another department.

3.3.4 CONCLUSION

When the timing of the DCWMP is analyzed, it would seem that most Town-employed staffing needs do not come into play for many years. This is not an attempt to "kick the can down the road." It doesn't make sense to enter into a protracted debate about combining or altering existing Town departments

when the actual need is 15 or more years out. When Harwich is closer to that reality, the requirements of the structure of the proposed department will be far easier to evaluate. By that time, many current Town employees will become more versed in the nature of the duties involved.

WIAC would recommend that the trigger for development of this department would be the planning for the Harwich Treatment Plant construction currently estimated circa 2028. After that Plant is built, we will need a staff to run it, and we will be on the threshold of building a sewer collection system for the designated Herring River areas. During the process of implementing a collection system in this area (Herring River), we will then be anticipating already 1,000 homes connected from the Pleasant Bay area and adding approximately another 2,500 homes in the 4 phasing sections of the DCWMP's Herring River timeline.

For the 12 years until the planning of the construction of the Harwich Treatment Plant begins, WIAC would recommend the following actions to be undertaken to prepare for the appropriate levels needed for Town management and staffing:

- 1) Develop a job description for a contractual position to be filled by a single individual or firm. This party would act as the Town's Project Manager and would answer to the Town Administrator and/or the Board of Selectmen. That role for an individual or a contracted firm would be built into the FY16 Budget for presentation at the May 2015 Town Meeting and would become effective during FY16 or thereafter to coincide with the construction of the Pleasant Bay South area sewer collection system (Phase 2).
- 2) Develop a job description for a field operator to assist the Project Manager in duties of the startup operation. This employee's duties would have to include responding to complaints, questions and malfunctions as directed by the Project Manager. The employee would also perform sewer collection system maintenance.

During the startup years, there will undoubtedly be a need for some assistance from other departments (e.g. Water, Highway), but grooming an employee to be knowledgeable in wastewater systems will prove beneficial as the plan develops, so one new employee devoted to this startup department seems advisable.

- 3) Investigate what measures would be needed to add the sewer usage billing to the existing software used by the Water department. Investigate what impact this change would have to the Water department's staff. Also analyze what impact would be felt by the Assessing and Treasurer/Collector's staff should choices be made concerning betterments and/or impact fees.

An additional and very important reason for holding off on permanent changes to department structures is that different funding opportunities may be available for different types of organizations, such as Enterprise fund departments and districts. The Town needs to keep itself poised to be able to take advantage of any funding assistance that might become available. Constraining ourselves into a specific structure at this early time can only hurt this endeavor and whatever gain may come from that action will seem very small when compared to the possibility of missing outside funding opportunities.

Section 4

Public Outreach

4.1 The reason for education

It has been said by those looking at our wastewater proposal that we don't have a sewer problem we have a marketing problem. Once the BOS have carefully reviewed the recommendations contained within this report it becomes incumbent of them and our wastewater leadership to successfully have town meeting support the funding.

In order to implement this project the various phases requiring funding must pass town meeting authorization. This requires the largest public outreach campaign in the town's history as this is its largest capital expense in history. Voters need to be fully educated with full transparency on several levels:

- ✓ What is the reason we are considering a central sewer solution?
- ✓ What are risks of law suits?
- ✓ Why are sewers the correct solution?
- ✓ Why is the cost so high?
- ✓ What is the impact on tax payers financially?

We feel it is very important to have Town Meeting approve the DCWMP once it is in final form and fully accepted by MEP. This high level of transparency will force leadership to create the educational experience necessary for a large portion of the public to understand.

Each of these topics has multiple levels of education required.

4.2 The four Harwiches

The WQTF is the committee tasked with educating the public and creating sufficient support for all funding and planning articles to pass Town Meeting. They asked for our insights and we provided them with a document attached to this CPWI as Addendum 5.

We suggest that there are 4 major groups within the town that need to be educated in their own unique ways. And within each of these groups the more we can drill down into smaller and smaller interests the more valuable our message will be:

1. Those who understand everything and have a strong position to support – small group
2. Those who are fully opposed regardless of what they are told – small group
3. Those who are disengaged and know very little and don't particularly care yet – large group
4. Those who are engaged and care but do not understand things well or are misinformed – large group.

It is these last two groups that need to be highly targeted with as many unique messages as possible. To encourage more people to be engaged and to help those who care become better educated is the ultimate solution to passing Town Meeting.

In summary, just as the solutions to implementation are complex, we believe the ways to educate the public are equally complex. The traditional approach of a three-fold flier, bright lawn signs, a beautiful insert into water bills, or large public meetings have limited success. Building public trust and support requires thoughtful, customized, and well-constructed messages which address diverse and complex audiences.

4.3 Committee on public outreach

Harwich has recently established a public outreach partnership with the Commission. They have engaged their professional staff to accelerate our efforts on a variety of levels. Further, they believe in the systematic development of informed consent (as created by Hans Bleiker, Institute for Participatory Management and Planning). Their current use of watershed-based focus groups will inform the type and timing of a two-way communications strategy. We are encouraged by the commission's activity in the water quality area, and are looking forward to deepening collaborative relationships.

A member of the WIAC sits on the committee that has been formed to solve the educational issue.

This is a huge project as the general public is largely unaware of the reasons we are considering central sewerage. The magnitude of the project, the resulting protections to our watersheds and embayments, the capital costs, the annual O&M costs and the timeframe are all matters that require this committee's attention.

As this is a 40 year project most of those who are currently guiding the effort will not be around to continue their leadership. It is incumbent upon this marketing effort to engage the current students in Harwich. Dr. Stanley Kocot, the chairman of the Board of Health, has expressed his concern about this for years and we fully agree.

4.4 Dr. Stanley Kocot Health and Science Award

In fact, we would like to recommend that a new prize be created in Dr. Kocot's name to be awarded to a Monomoy or Tech Public High School student each year of \$1,000.00 to be drawn from the dedicated Wastewater Fund. This prize would be called the **Dr. Stanley Kocot Health and Science Award.**

Section 5

Executive Summary

5.1 – The Challenge, the Solution

Harwich consists of five watersheds. These are land masses that each drain into a single body of water. In Harwich, these watersheds (and bodies of water) are Herring River, Pleasant Bay, Allen Harbor, Wychmere Harbor and Saquatucket Harbor. As these watersheds drain into our estuaries, bays and harbors, we need to control what drains into the watersheds to ensure the full estuary system remains healthy. Today, due to the drain from traditional Title 5 septic systems, there is too much nitrogen getting into the watersheds, which, in turn, brings too many nutrients into our bays and harbors. These nutrients cause growth that disturbs the balance for healthy embayment systems.

The state of Massachusetts has determined a daily threshold for the amount of nitrogen that can safely be drained into watersheds called Total Maximum Daily Loads (TMDLs), which we have exceeded in all of our watersheds. The problem is serious now, and it will only get worse as we continue to drain our waste through Title 5 septic systems.

For swimmers, boaters, lovers of natural beauty and those who appreciate the importance of balance in nature this is a matter to be taken very seriously.

After much study of several alternatives, it has been determined that a central sewer system that captures the necessary waste to return our watersheds to a proper balance is the best solution. That study is explained in the Draft Comprehensive Wastewater Management Plan (DCWMP), which was completed last spring and is being reviewed by the state's Massachusetts Environmental Policy Act (MEPA) and Department of Environmental Protection (DEP) and the Cape Cod Commission.

Understanding the problem and the solution may not be enough to implement the solution. The sewerage plan is projected to cost between \$180-230 million over the next 40 years. This is going to require the entire Harwich community to come together to fully understand the problem and the solution and in the end manage the funding needed to implement the project.

5.2 – Public outreach challenge

This leads us to a new challenge: A public relations challenge. We believe that the final CWMP (including this report) needs to be accompanied by a successful public outreach strategy to all Harwich voters including those less engaged today. The key to town-wide support is complete transparency in a strategic public outreach program. Part of this strategy should be to bring the CWMP before town meeting to be approved by the voting public.

It is good that the Cape Cod Commission has reached out to Harwich and offered their resources and funding to help with the outreach program. It requires strong leadership and a detailed plan to make certain that all of Harwich becomes informed and can make an educated choice going forward. The Commission will need Harwich leaders to help guide them even as we use their resources and funding.

The relationship with the Commission is especially important as they are working towards a regional wastewater solution for the entire Cape, and Harwich is already acting on a regional solution by using the Chatham treatment plant for the Pleasant Bay watershed and the Herring River plant can likely be regionalized with parts of Dennis. The county may also be very instrumental in securing future grants and low interest loans to help fund the project.

5.3 – The challenge of financial planning for sixty years

The DCWMP calls for eight phases over a forty year period to complete all the capital requirements. If bonding is required in the final phase, then it will take an additional twenty years to pay off – hence sixty years.

On the cost side, each phase anticipates a specific cost associated with the work that needs to be done during that phase. The costs for each of these phases is subject to change at any time as the results of each phase is measured, nature reacts to what has taken place, and we become more familiar with all the variables that will impact the costs. This type of management is appropriately named “adaptive management.” This is one reason it is difficult to have accurate projections over such a long period of time with so many variables that can affect costs. By working in 5-7 year phases adjustments can be made regularly.

On the revenue side, it is equally challenging to predict more than 7-10 years in advance. Having said that, we decided to look at all sixty years of revenue and expenses based on what we know today. We understand that revenues are as subject to change as costs such as changes in population base, construction pace, water use rates and so on.

Although our modeling does show all sixty years, we anticipate the first 10-15 years as being the most accurate. It will be the responsibility of the town’s financial leadership to track this each year and make the adjustments necessary to reforecast on an ongoing basis. Wisely, the Capital Outlay Committee works only seven years into the future as there are so many variables that can affect both costs and revenues from year to year. The Town Manager, Town Accountant, Board of Selectmen, Capital Outlay Committee and Finance Committee each will have their part of managing these projections as one phase leads into another.

5.3.1 – Additional Costs and Revenues

The DCWMP, as with most municipal finance projections, is using today’s dollar value through the entire project and does not adjust for any Cost of Living increases or inflationary predictions. We have continued that practice and have not anticipated any additional costs due to likely changes in costs of living throughout the life of the project.

Regarding additional revenues, we have fixed our fees and charges on today’s population base. While we anticipate more than 30 single family homes being built each year, we do not actually scale our revenues to show population increases from year to year in betterments, impact fees or taxes. We also have not included the betterment fees for subdivisions greater than 5 homes, apartments in a village center, commercial complexes, etc., whose betterment fee would be based on the costs of the Innovative Alternative septic system they would otherwise have to install by Board of Health regulations.

5.4 – Dedicated Wastewater Fund

The Wastewater Implementation Advisory Committee (WIAC) has worked hard to create a balanced and fair approach to funding the project and has created a cost recovery model that will save millions of dollars.

Our cost recovery model includes many sources of revenue:

- Betterments – a special fee just for those homes and businesses connected to the sewer equal to the cost of their savings for no longer maintaining or adding Title 5 or Innovative Alternative systems.
- Impact Fees
 - General fee for every Harwich property owner
 - Water surcharge fee
 - Construction fee
 - Occupancy hotel/motel rooms tax
 - Meals tax
- General Property tax

Together all of these fees and taxes will pay for the capital costs of the project. It is imperative that these revenues be dedicated to the wastewater capital costs.

1. WIAC RECOMMENDATION

We recommend the town establish a dedicated fund, to hold all capital revenues that cannot be used for any other purpose.

5.5 – Regulatory controls and legal implementation

Ultimately our recommendations will involve future decisions by various regulatory bodies. For example: The Planning Board to propose any zoning changes to town meeting; the Board of Health to define bedrooms in such a way that the Building department can enforce the rules; and so on. In addition, the town accountant, assessor and attorney may need to consider amending the town charter and filing legislation to amend the acts.

We have reviewed all of our recommendations with the relevant town staff for input into the final draft of this report including:

- ✓ Town Administrator (interim)
- ✓ Town Accountant
- ✓ Town Assessor
- ✓ Town Health Director
- ✓ Town Planner
- ✓ Natural Resources Officer
 - As well as CDM Smith - the consultant authoring the DCWMP
 - And the Coordinator of the Pleasant Bay Alliance
- ✓ Superintendent of the Town Water Department
- ✓ Director of Highways and Maintenance
- ✓ Town Engineer

Our report does not get involved in any of the specifics that each staff person might need to undertake to meet all of these recommendations. We feel this direction is best given by the Town Administrator or Board of Selectmen. We feel the staff are the professionals and will know the best way to handle each of their department's responsibilities.

5.6 – Recommended changes to DCWMP

This Comprehensive Cost Recovery Plan for Wastewater Implementation (CPWI) is a plan to financially implement the Draft Comprehensive Wastewater Management Plan (DCWMP). We have spent considerable time reviewing the DCWMP to see if there are any changes we might advise the Board of Selectmen (BoS) to make to the DCWMP. All of the recommendations we are making are intended to find a less expensive solution for the same sewer coverage throughout all of our watersheds. After all, the DCWMP states that its intention is “to develop the least expensive solution to meet the state Total Maximum Daily Load (TMDL) thresholds for our five estuaries.”

Here are our recommendations:

1. Section 1.1.1 – Lower the contingency factors

a. Understanding Contingency Factors

One thing you will read throughout the CPWI and DCWMP is that it is extremely difficult to predict what things will cost over a period as long as 40 years. You will also note that it is very difficult to predict how nature will react to the solutions we try as we move through the eight phases of the wastewater plan. Due to this, it is common to have high contingency factors (as high as 33%) built-in so that a town does not fall short of its financial requirements. Our DCWMP uses a contingency factor of 25%. Our research has shown us that contingencies of 20% are more than adequate. In addition, we feel it is reasonable to assume that new technologies will come forward in the near future to help mitigate the high costs of sewerage, and that we should further discount the contingency factor by 5%.

b. WIAC RECOMMENDATION

Anticipate that the true range of costs will not be \$180-230 million and instead plan for \$165-211 million. This is still a very substantial sum that will continue to be adjusted through the DCWMP’s Adaptive Management strategy.

2. Section 1.1.2 – Calculate commercial wastewater flow more accurately

a. Understanding “flow” calculations

There is a formula used to calculate the cost of wastewater that will flow from a building. That figure is based on the number of gallons per day (gpd) that are flushed out of the building. To measure commercial property, one measures gpd per 1,000 square feet. The Massachusetts Estuaries Project (MEP) has recorded these flows historically throughout our watersheds. As these are historic, they show the actual usages. In the East Harwich Commercial District, these historic usage numbers reflect an area heavily protected with protective water overlay districts including a District of Critical Planning Concern (DCPC), which severely limits business uses. The DCWMP does not anticipate that the presence of sewers will allow for commercial uses with greater wastewater needs – such as restaurants and lodging establishments.

b. WIAC RECOMMENDATION

We recommend that the flow calculation of 35 gpd/1,000 square feet be increased to a minimum of 95 gpd/1,000 square feet and that costs for this additional flow be calculated and included in the final CWMP.

3. Section 1.1.3 – Better land use management/controls

a. Understanding build-Out

The Planning Department reports that if the town were to build all residential and commercial development as allowed under today's zoning, we could build 2,233 dwelling units/residences (we have already built 10,836) and 2,703,914 more square feet of commercial space (we have already built 2,739,103).

It is understood that the sewer may allow for new development opportunities especially in higher density areas like village centers throughout the town, but the town must still be mindful to offset these increases in development so as to maintain the town's character and natural resources while controlling infrastructure costs.

b. DCWMP allowances for more development

The DCWMP anticipates all of that development and also allows for an additional 250 dwelling units and 500,000 square feet of commercial space in East Harwich; and it allows for an additional 25% more wastewater flow from commercial development along Route 28 in Harwichport.

c. **WIAC RECOMMENDATIONS**

- i. Initiate an effort through the Planning Board to rezone Harwich that will lead to no net-increase in development but will create greater densities and more contiguous open space.**
- ii. We also recommend that these more densely populated areas allow for more affordable housing options than is currently available in Harwich.**
- iii. Remove the additional commercial development above current zoning in East Harwich and Harwichport if the net effect is to increase development beyond current zoning.**
- iv. We believe that today's zoning allows for more than enough residential and commercial development in town for at least the next 50 years.**

4. Section 1.1.6 – Research the purchase of land for the Pleasant Bay recharge area

a. Understanding the Pleasant Bay recharge area

In the DCWMP, treatment of all waste from the Pleasant Bay Watershed is proposed to be done at the Chatham treatment facility and that eventually the clean water be piped back to be "recharged" into the Pleasant Bay Watershed. The land currently proposed by the DCWMP for this recharge area is within the "Six Ponds District," designated as a District of Critical Planning Concern (DCPC). A DCPC has many restrictions on the use that can be made of that land. CDM Smith has informed us that they have not considered these potential restrictions when recommending this site for a recharge area.

b. **WIAC RECOMMENDATIONS**

- i. The Town should get an official opinion from the Cape Cod Commission on whether a recharge area can be placed in the planned location as it falls within the Six Ponds DCPC area.**
- ii. The Town should not make any purchases or guarantees of purchase until this opinion is complete and will allow for a recharge area**

5.7 – Economic, responsible and affordable growth

CDM Smith and the DCWMP state that \$25 million can be saved from wastewater capital costs if we were to limit our current potential growth by half. That is, instead of zoning for the 2,233 residences that can be built today, we could implement new zoning that would effectively limit that residential growth to 1,116 residences (and similarly with commercial growth) and we could save \$25 million in capital costs. While this would represent a substantial savings it would severely limit our population growth. A no-growth policy is a flawed policy.

The WIAC believes strongly in the economic and cultural vitality of Harwich. We believe in the kind of growth that will benefit the community, growth that:

- ✓ Welcomes a diverse population of many interests and backgrounds;
- ✓ Encourages residents to start businesses, and to locate their businesses and families in Harwich;
- ✓ Offers the types of jobs that are personally satisfying, well paid, with good benefits and that make Harwich a better place to live;
- ✓ Attracts people who respect our history and care about the preservation of our natural resources;
- ✓ Invites developers who understand our purpose and will build toward that goal;
- ✓ Brings new residents to town that will contribute their ideas, their time and their resources to making Harwich vibrant, exciting and attractive to residents and visitors.

This means adopting policies in town that will encourage this kind of growth. It means creating exciting places to locate a business. This includes some smart growth principles of creating village centers with a range of commercial choices and housing options with walkable neighborhoods, while preserving open space and our natural beauty throughout town.

We also believe that good growth is not simply adding to the population, it is adding to the community. After all, simply adding people for the tax revenue also adds a burden that is likely greater than the tax revenues such as costs for schools, police, fire and other town services. It is a net-loss proposition unless the growth we encourage benefits the community in other ways, especially economically. This responsible growth will bring much needed vibrancy to the community and more affordable and workforce housing options for current and future residents. The ability to build over two thousand new residences and hundreds of thousands of square feet of commercial space is more than enough, when coupled with responsible town wide policies, to create all of this exciting growth. Growth beyond that is costly, irresponsible and unnecessary.

5.8 – Grant opportunities - Section 1.2.1-1.2.4

Naturally, we considered grant money for funding wastewater as a high priority in our investigations.

- ✓ Federal Block Grants
- ✓ Rural Development Grants
- ✓ Federal Clean Water Act
- ✓ Massachusetts Bill H.690 – Pending legislation

Unfortunately, whether federal, state or county there are very limited funds available in any of the current grant programs. However, we feel it is critical that future wastewater and financial leadership of the town stay on top of these developments. History has shown us that funds can become available at any time, and we should be as prepared as possible. In all cases, a mature plan with well thought out solutions and community support has the greatest chance of being awarded a grant. So, it is important to move forward with plans to fund this through town revenues and take advantage of future grants should they become available.

5.9 – Low interest loans – Section 1.3.1 & 1.3.2

We identified two low-interest loan sources for wastewater:

- ✓ Rural Development Loans
- ✓ Massachusetts Clean Water State Revolving Funds (SRF)

The Rural Development Loan requires a rural population of less than 10,000 people, which Harwich exceeds. The SRF funds have several requirements outlined in section 1.3.2. While there may be some funds available at either 0% or 2% financing, they will be minimal, and we have not factored in any loans as sources of funding.

5.10 – Betterments, Impact Fees and Non-property Taxes

As we are not counting on any grants or loans, all of the money to fund the Wastewater plan must come from town resources – tax payers, residents, visitors, etc.

1. Section 1.3.2 – Betterment Assessments

a. Understanding betterments

Massachusetts Department of Revenue defines Betterment as: *“A betterment or special assessment is a special property tax that is permitted where real property within a limited and determinable area receives a special benefit or advantage, other than the general advantage to the community, from the construction of a public improvement.”*

The WIAC approach to Betterments was to establish a betterment fee that was more or less equivalent to the costs that a single family home with a sewer would avoid over a 20 year period versus having a Title 5 septic system. This fee would also be equivalent to the costs that same property without a sewer would incur over a 20 year period. This will establish parity for the total costs incurred by sewer and non-sewered single family property owners.

b. WIAC RECOMMENDATIONS

- i. Single family homes: Assess a Betterment Fee of \$7,000 for properties that can be connected to the sewer.**
- ii. Subdivisions over 5 homes, apartments in a village center, commercial complexes, etc: Assess a Betterment Fee, to the developer, equal to the cost savings of the Innovative Alternative System that would otherwise have to be installed.**
- iii. The Betterment Fee would be assessed when the property is eligible to be connected.**
- iv. We recommend requiring property owners to connect to the sewer within one (1) year of it being available. The Board of Health can determine the need for exceptions to allow for more time.**
- v. Establish financing options for the Betterment Fee to minimize the impact on property owners.**
- vi. Funding Results –The financial contribution from this source of revenue is approximately \$52,798,550 (includes 20 year financing at 5% rates on total betterment fee of \$34,622,000) from single family homes, as shown in the Funding Matrix. This would cover between 22% and 29% of the project cost.**

2. Section 1.3.3.1-1.3.3.4 – Impact Fees

a. Understanding Impact Fees

We define Impact fees in two ways. The first are one time charges against new development to raise new revenue for new or expanded public facilities necessitated by new development. The second are annual fee charges representing a fee to compensate the town for its capital expenses with a time limit imposed on when the fee is removed. The WIAC looked at many possible impact fees and settled on the following recommendations:

b. WIAC RECOMMENDATIONS

i. New residential construction fees

Establish a one-time fee structure for all residential construction – both new and remodeled – that adds a bedroom to the number of dwelling units in town as follows:

Residential Construction Fee Schedule	
Single Family/Home	\$18,000
Multi Family/Bedroom	\$6,000
Condo Type/Bedroom	\$6,000
Additions/Bedroom	\$6,000
Apartments/Bedroom	\$6,000

ii. New commercial construction fees

- 1. Establish a fee for all establishments with bedrooms – hotels, motels, B&B's, rental cottages, nursing homes, assisted living complexes, etc. – of \$3,000.00 per bedroom, whether for new constructions or additions/modifications***
- 2. Establish a one-time fee on all other commercial construction – both new and remodeled – that is equivalent to \$3,000 per bathroom built.***

iii. Funding results for all residential and commercial construction fees

The financial contribution from this source of revenue is approximately \$48,984,000 as shown in the funding Matrix. This would cover between 20% and 27% of the project cost.

iv. All parcels Flat Fee

- 1. Assess an annual Flat Fee of \$250 against all taxed parcels.***
- 2. Assess the annual Flat Fee for a period of 10 years.***
- 3. The fee would be assessed against all developed and buildable parcels; it would not be assessed against tax exempt or unbuildable parcels.***
- 4. Establish financing options for the Flat Fee to minimize the impact on property owners.***
- 5. Funding Results –The financial contribution from this source of revenue is approximately \$28,265,000, as shown in the Funding Matrix. This covers between 12% and 16% of the project cost.***

v. *Water bills surcharges*

1. Establish an annual surcharge on the water bill representing a 35% increase based on water use.
 - a. For residential use this would be an average of approximately \$50 semi-annual surcharge (\$100/year) on all Harwich water bills as soon as possible.
 - b. For commercial use this would be an average of approximately \$118 semi-annual surcharge (\$236/year)
2. Establish a special fund for the additional receipts, dedicated to amortizing wastewater project capital costs.
3. Funding Results –The financial contribution from this source of revenue, over 40 years, is approximately \$40,776,459, as shown in the Funding Matrix. This would cover between 17% and 23% of the project cost.

1. *Section 1.3.4.1 & 1.3.4.2 – Non-property taxes*

a. Understanding non-property taxes

This is a general category we created to represent new taxes that are not related to property taxes. Specifically there are two being recommended as increases over current taxes for lodging occupancy tax and meals tax. These two taxes will effectively impose a tax on visitors who are also responsible for wastewater discharge in our watersheds. The meals tax will also impact residents dining out.

b. *WIAC RECOMMENDATIONS*

c. *Occupancy Tax Increase*

1. Propose an increase to the local option room occupancy tax of 2% at the next Town Meeting.
2. Establish a special fund for the additional tax receipts, dedicated to amortizing wastewater project capital costs.
3. Funding Results –The financial contribution from this source of revenue, over 40 years, is approximately \$10,000,000, as shown in the Funding Matrix. This would cover between 4% and 6% of the project cost.

d. *Meals Tax Increase*

1. Propose a Home Rule petition to increase the local option meals tax to 1% at the next Town Meeting. This would be an increase of .25% as it is currently .75%.
2. Establish a special fund for the additional tax receipts, dedicated to amortizing wastewater project capital costs.
3. Funding Results –The financial contribution from this source of revenue, over 40 years, is approximately \$4,000,000, as shown in the Funding Matrix. This would cover approximately 2% of the project cost.

5.11 – General property taxes

All of the above recommended Betterments and Impact Fees are intended to bring a balance to who is paying for what for this project. We felt this was a fairer method than simply putting the full burden on the general property taxes where only tax payers would be paying and all based on the value of their property as opposed to the wastewater/water usage and other methods. Nevertheless, it is anticipated that over sixty years of capital costs and financing, we will still have some costs to cover through the general property taxes. The Revenue and Cost Flow Chart shows that this would not begin until well after accurate financial predictions can be made in the year 2043. Then between 2043 and 2072 (when all capital costs will have been recovered) the average increase on the average annual property tax bill will range from \$120-\$582.

1. Section 1.3.5 General property taxes

WIAC RECOMMENDATION

We recommend using the General Property Taxation method to recover capital costs as the last source of funds once all Betterments, Impact Fees, Non-property taxes, and Grants are fully implemented and collected.

5.12 – Sewer User Fees

All of the funding mentioned so far is to explain our recommendations on how we can recover all capital costs. The other costs that sewers bring are the costs borne by the sewer users. That is, annual Operations and Maintenance (O&M) costs and one-time hook-up or connection costs.

1. Section 1.3.6 Sewer User Fees

a. Understanding Operations & Maintenance Fees

These are the monthly fees paid based on the amount of water used and are for the general operations and maintenance of the wastewater system. These are not fees for capital costs.

b. Understanding Hook-up or Connection fees

This is a one-time fee to connect to the sewer at the street. There is a wide range of potential costs for this as it varies from distance to the street, terrain covered, and other complications. The average cost is estimated at \$4,424 per connection.

c. WIAC RECOMMENDATION

We recommend that both the O&M costs and the connection fees be costs passed on to those properties connected to the sewer and that financing be made available for the hook-up costs as needed.

5.13 – Revenue and cost flow chart

The following chart assumes we will finance our capital costs through 20 year bonds at 3%. Those payments are shown in each of the sixty years of the project (forty years for the project and an additional twenty years to pay off the final bond for phase 8). The next columns show the revenues in each individual year. The next two columns show the money being stored in the Dedicated Wastewater Fund and how that fund looks on an annual basis as well as the fund balance each year. The final column shows when/if the fund runs out and we need to tax residents on their annual property tax bill.

YEAR	ANNUAL BOND PAYMENT S	ANNUAL REVENUE				ANNUAL SURPLUS OR DEFICIT	FUND BALANCE		PROPERTY TAX	
		Betterments	Flat Fees	OTHER	TOTAL				IMPACT	
									\$4,391,786,550	= Base
										=
									11,306	Parcels
									(average tax impact per parcel)	
2013	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
2014	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
2015	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
2016	\$204,000	\$0	\$2,826,500	\$2,594,776	\$5,421,276	\$5,217,276	\$5,217,276			\$0
2017	\$200,175	\$0	\$2,826,500	\$2,594,776	\$5,421,276	\$5,221,101	\$10,438,378			\$0
2018	\$196,350	\$0	\$2,826,500	\$2,594,776	\$5,421,276	\$5,224,926	\$15,663,304			\$0
2019	\$192,525	\$0	\$2,826,500	\$2,594,776	\$5,421,276	\$5,228,751	\$20,892,055			\$0
2020	\$2,132,700	\$420,000	\$2,826,500	\$2,594,776	\$5,841,276	\$3,708,576	\$24,600,631			\$0
2021	\$2,092,425	\$409,500	\$2,826,500	\$2,594,776	\$5,830,776	\$3,738,351	\$28,338,983			\$0
2022	\$2,052,150	\$399,000	\$2,826,500	\$2,594,776	\$5,820,276	\$3,768,126	\$32,107,109			\$0
2023	\$2,011,875	\$388,500	\$2,826,500	\$2,594,776	\$5,809,776	\$3,797,901	\$35,905,010			\$0
2024	\$1,971,600	\$378,000	\$2,826,500	\$2,594,776	\$5,799,276	\$3,827,676	\$39,732,687			\$0
2025	\$1,931,325	\$367,500	\$2,826,500	\$2,594,776	\$5,788,776	\$3,857,451	\$43,590,138			\$0
2026	\$3,571,850	\$665,000	\$0	\$2,594,776	\$3,259,776	-\$312,074	\$43,278,064			\$0
2027	\$3,500,060	\$646,800	\$0	\$2,594,776	\$3,241,576	-\$258,484	\$43,019,580			\$0
2028	\$3,428,270	\$628,600	\$0	\$2,594,776	\$3,223,376	-\$204,894	\$42,814,687			\$0
2029	\$3,356,480	\$610,400	\$0	\$2,594,776	\$3,205,176	-\$151,304	\$42,663,383			\$0
2030	\$3,284,690	\$592,200	\$0	\$2,594,776	\$3,186,976	-\$97,714	\$42,565,669			\$0
2031	\$3,212,900	\$574,000	\$0	\$2,594,776	\$3,168,776	-\$44,124	\$42,521,546			\$0
2032	\$7,677,110	\$1,045,800	\$0	\$2,594,776	\$3,640,576	-\$4,036,534	\$38,485,012			\$0
2033	\$7,520,270	\$1,015,350	\$0	\$2,594,776	\$3,610,126	-\$3,910,144	\$34,574,868			\$0
2034	\$7,363,430	\$984,900	\$0	\$2,594,776	\$3,579,676	-\$3,783,754	\$30,791,114			\$0
2035	\$7,206,590	\$954,450	\$0	\$2,594,776	\$3,549,226	-\$3,657,364	\$27,133,751			\$0
2036	\$6,922,250	\$924,000	\$0	\$2,594,776	\$3,518,776	-\$3,403,474	\$23,730,277			\$0

YEAR	ANNUAL BOND PAYMENT S	ANNUAL REVENUE				ANNUAL SURPLUS OR DEFICIT	FUND BALANCE	PROPERTY TAX IMPACT
		Betterments	Flat Fees	OTHER	TOTAL			
2037	\$6,769,235	\$893,550	\$0	\$2,594,776	\$3,488,326	-\$3,280,909	\$20,449,368	\$0
2038	\$8,472,220	\$1,374,100	\$0	\$2,594,776	\$3,968,876	-\$4,503,344	\$15,946,025	\$0
2039	\$8,284,405	\$1,330,875	\$0	\$2,594,776	\$3,925,651	-\$4,358,754	\$11,587,271	\$0
2040	\$6,881,590	\$1,077,650	\$0	\$2,594,776	\$3,672,426	-\$3,209,164	\$8,378,107	\$0
2041	\$6,730,225	\$1,044,925	\$0	\$2,594,776	\$3,639,701	-\$3,090,524	\$5,287,583	\$0
2042	\$6,578,860	\$1,012,200	\$0	\$2,594,776	\$3,606,976	-\$2,971,884	\$2,315,700	\$0
2043	\$8,123,495	\$1,434,475	\$0	\$2,594,776	\$4,029,251	-\$4,094,244	\$0	\$362
2044	\$7,940,330	\$1,390,375	\$0	\$2,594,776	\$3,985,151	-\$3,955,179	\$0	\$350
2045	\$7,757,165	\$1,346,275	\$0	\$2,594,776	\$3,941,051	-\$3,816,114	\$0	\$338
2046	\$6,523,500	\$1,148,175	\$0	\$2,594,776	\$3,742,951	-\$2,780,549	\$0	\$246
2047	\$6,371,850	\$1,111,775	\$0	\$2,594,776	\$3,706,551	-\$2,665,299	\$0	\$236
2048	\$9,996,200	\$1,607,375	\$0	\$2,594,776	\$4,202,151	-\$5,794,049	\$0	\$512
2049	\$9,773,750	\$1,557,675	\$0	\$2,594,776	\$4,152,451	-\$5,621,299	\$0	\$497
2050	\$9,551,300	\$1,507,975	\$0	\$2,594,776	\$4,102,751	-\$5,448,549	\$0	\$482
2051	\$9,328,850	\$1,458,275	\$0	\$2,594,776	\$4,053,051	-\$5,275,799	\$0	\$467
2052	\$6,271,400	\$1,163,575	\$0	\$2,594,776	\$3,758,351	-\$2,513,049	\$0	\$222
2053	\$8,846,000	\$1,872,325	\$0	\$2,594,776	\$4,467,101	-\$4,378,899	\$0	\$387
2054	\$8,657,750	\$1,816,220	\$0	\$2,594,776	\$4,410,996	-\$4,246,754	\$0	\$376
2055	\$8,469,500	\$1,760,115	\$0	\$2,594,776	\$4,354,891	-\$4,114,609	\$0	\$364
2056	\$8,281,250	\$1,704,010	\$0	\$0	\$1,704,010	-\$6,577,240	\$0	\$582
2057	\$8,093,000	\$1,647,905	\$0	\$0	\$1,647,905	-\$6,445,095	\$0	\$570
2058	\$6,744,750	\$1,336,300	\$0	\$0	\$1,336,300	-\$5,408,450	\$0	\$478
2059	\$6,591,300	\$1,292,970	\$0	\$0	\$1,292,970	-\$5,298,330	\$0	\$469
2060	\$6,437,850	\$1,249,640	\$0	\$0	\$1,249,640	-\$5,188,210	\$0	\$459
2061	\$6,284,400	\$1,206,310	\$0	\$0	\$1,206,310	-\$5,078,090	\$0	\$449
2062	\$6,130,950	\$1,162,980	\$0	\$0	\$1,162,980	-\$4,967,970	\$0	\$439
2063	\$4,917,500	\$892,150	\$0	\$0	\$892,150	-\$4,025,350	\$0	\$356
2064	\$4,795,850	\$860,195	\$0	\$0	\$860,195	-\$3,935,655	\$0	\$348

YEAR	ANNUAL BOND PAYMENT S	ANNUAL REVENUE				ANNUAL SURPLUS OR DEFICIT	FUND BALANCE		PROPERTY TAX IMPACT
		Betterments	Flat Fees	OTHER	TOTAL				
2065	\$4,674,200	\$828,240	\$0	\$0	\$828,240	-\$3,845,960	\$0		\$340
2066	\$4,552,550	\$796,285	\$0	\$0	\$796,285	-\$3,756,265	\$0		\$332
2067	\$4,430,900	\$764,330	\$0	\$0	\$764,330	-\$3,666,570	\$0		\$324
2068	\$1,949,250	\$466,375	\$0	\$0	\$466,375	-\$1,482,875	\$0		\$131
2069	\$1,898,400	\$447,720	\$0	\$0	\$447,720	-\$1,450,680	\$0		\$128
2070	\$1,847,550	\$429,065	\$0	\$0	\$429,065	-\$1,418,485	\$0		\$125
2071	\$1,796,700	\$410,410	\$0	\$0	\$410,410	-\$1,386,290	\$0		\$123
2072	\$1,745,850	\$391,755	\$0	\$0	\$391,755	-\$1,354,095	\$0		\$120
TOTALS :	\$302,528,900	\$52,798,550	\$28,265,000	\$103,791,051	\$184,854,601				

5.14 – Wastewater management structure

One of the most important questions to address, once a central sewer system has been deemed necessary and when the funding has been approved, is to determine how the management of this new, large and important service in town will be structured.

1. Section 3 – Future Organizational/Management Structure

Since the DCWMP is still in its review stages and then should receive significant public outreach including adoption by Town Meeting, we are still a long ways from approval for the project. As the complexion of the project can change so much during the start-up years, WIAC recommends that the Town maintain as much flexibility as possible. Rather than set a precedent by having a structured and staffed department, WIAC recommends that we out-source this management responsibility and contract with an individual or firm to fill the role for at least the first several years of the program and likely through 2028, when we still have so few users of the system and when construction begins on the HR-12 treatment plant in the Herring River watershed.

a. WIAC RECOMMENDATIONS

- a. The WIAC recommends that the town hire an outside qualified person (not as a town employee) or contracted firm in charge of the project (Project Manager) who is not burdened with managing other Town departments or town politics and is responsible to the Town Administrator or BOS when Town Administrator is unavailable. The project is too costly to have it suffer from management time constraints, which might occur if either the Highway Department or Water Department were given this assignment. However, during the startup years, there will most likely be “lag” times in the project due to a variety of reasons including everything from regulatory approval to funding issues to construction delays.**
- b. Certainly Harwich will have its consulting firm CDM Smith involved, who will be able to work well with the Project Manager. We do not want a highly paid Town-employed manager sitting idle during lag times, but having a wholly qualified party representing Harwich’s interests alone would be extremely desirable.**
- c. We do not believe this function can be accomplished by a combination of a committee working with CDM as that method would seem to have some inherent risks in terms of the committee members’ qualifications as well as the responsibility and clear authority to deal with the public, the regulatory agencies and the construction issues. It would seem more prudent, despite the cost of the position, to have a committee in place to support the Project Manager as well as to be available for continuing public education/outreach and advice as the project advances.**

5.15 – Conclusion

This Cost Recovery report represents a unique way of considering how to finance the town's most expensive single project in its history. In our deliberations, we considered as many opposing views as possible so that we could craft something that might address each side:

➤ Those on the sewer	vs	Those remaining on Title 5 systems
➤ Large property owners	vs	Small and single lot property owners
➤ Wealthy residents	vs	Moderate and disadvantaged residents
➤ Taxpaying properties	vs	Tax exempt properties
➤ Properties on town water	vs	Properties on private wells
➤ Large users of town water	vs	Small users of town water
➤ Residential development	vs	Commercial development
➤ Residents	vs	Visitors
➤ Frequent users of restaurants	vs	Infrequent users of restaurants
➤ Property already developed	vs	Property to be developed in the future
➤ Economic development	vs	No growth advocates
➤ Advocates for open space	vs	Advocates for maximum development
➤ Properties in dense areas	vs	Remote Properties outside town centers
➤ Properties in our watersheds	vs	Properties outside our watersheds

In the end, as in the beginning, we recognized that every one of these groups is responsible for the excess nitrogen (or future nitrogen) draining into our watersheds, and every one of these groups will benefit by having healthier estuary systems with the future of our harbors and bays looking brighter.

This assortment of fees and taxes involves all of those above. The prospect of having to fund a project of this magnitude can seem overwhelming and can cause anger, resentment and divisiveness in a small community like Harwich. We know our neighbors well, we know the people with whom we do business, we know our elected and appointed officials, and we all want to be treated fairly. When everyone understands the reason for the project and understands that no one is exempt from paying their share of the expenses, then, perhaps, we can all agree on a solution such as proposed in this document.

Respectfully submitted,

The Wastewater Implementation Advisory Committee

WIAC Committee:

Hugh Drummond	– Representing the Harwich Tax Payers Association
Danette Gonsalves	– Representing the Water Quality Task Force
Chris Harlow	– Representing the Capital Outlay Committee
Ted Nelson	– Chairman
Bob Steiner	– Clerk
Allin Thompson	– Representing the Harwich Water Department

Liaison and Staff members:

Noreen Donahue	– Liaison to the Finance Committee
Larry Ballantine	– Liaison to the Board of Selectmen
Dave Ryan	– Town Accountant and Staff support
Jim Merriam	– Ex-Town Administrator and Staff support

Special thanks to:

Val Peter, Frank Sampson and Pete Watson for their early service on the committee

Definitions and Glossary of Terms

1. **ACEC** – Area of Critical Environmental Concern. ACEC designations highlight areas where special management attention is needed to protect, and prevent irreparable damage to important historical, cultural, and scenic values, fish, or wildlife resources or other natural systems or processes; or to protect human life and safety from natural hazards.

(From: BLM Manual 1613 – Areas of Critical Environmental Concern)

2. **Accessory Dwelling Unit (ADU)** – A structure which is attached to a single-family home, or detached garage with living facilities for one individual or family separate from the primary single-family.

3. **Accessory Building** - A detached building, the use of which is customarily incidental and subordinate to that of the principal building and which is located on the same lot as that occupied by the principal building.

4. **Accessory Building, Residential** - A detached structure located on the same lot with the principal residential structure to which it is accessory. Such structures include, but are not limited to, tool shed, boathouse, playhouse, shelter for domestic pets, private swimming pool and one private garage for not more than three automobiles. A residential accessory building may contain bedrooms but not a kitchen.

5. **Adaptive Management** – The impacts of sewers in place and other natural attenuation efforts taking place at any given time can impact the location of future sewer lines, so that the lines drawn today may not remain the same throughout the 8 phases of the DCWMP. (Draft Comprehensive Wastewater Management Plan, Harwich)

6. **AMP** – Adaptive Management Plan

7. **ANSI** – American National Standards Institute

8. **ASTM** – American Society for Testing and Materials

9. **Attenuation** – "Reduction in mass or concentration of a compound in groundwater over time or distance from the source of constituents of concern due to naturally occurring physical, chemical, and biological processes, such as; biodegradation, dispersion, dilution, adsorption, and volatilization." - American Society for Testing and Materials, 2003

10. **AWWA** – American Water Works Association

11. **Bedroom** - Any room used or intended to be used for sleeping purposes. For the purpose of determining the number of bedrooms in a proposed multifamily dwelling unit, all rooms which meet the minimum size requirements for habitable rooms under this bylaw other than a kitchen, bathroom and living/dining room shall be considered as bedrooms.

12. **Betterment** -The proportionate share of sewer system cost, assessed by the Town to each Property which is connected to the sewer system. This assessment is to cover the cost of the design and construction of the entire sewer collection, treatment and disposal system.

13. **Building Drain** -The pipe that extends from a user's facilities and connects to the Building Sewer.
14. **Building Sewer** - The extension from the building drain to the public sewer or other place of disposal.
15. **Build-Out Conditions**-The future condition in which all the vacant lots in a town have been developed, and redevelopment of existing properties has occurred, both to the maximum extent allowed under the zoning bylaw.
16. **CAC** – Citizens Advisory Committee
17. **Condominium** -
18. **Converted Dwelling** – means a structure which, due to interior alterations, has been modified to increase the number of individual dwelling units.
19. **CFR** – Code of Federal Regulations
20. **CPWI** – Comprehensive Cost Recovery Plan for Wastewater Implementation
21. **CWA** – The Federal Clean Water Act was enacted on October 18, 1972. The goal of the Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters (Environmental Law Reporter 1988). To meet this objective, the CWA requires states to develop information on the quality of the Nation's water resources and report this information to the U.S. Environmental Protection Agency (EPA), the U.S. Congress, and the public.
22. **CWMP** – Comprehensive Wastewater Management Plan. It is a comprehensive plan that addresses nitrogen loading to the local embayments along with other issues such as drinking water supply protection, growth management and support of local planning and development initiatives.
23. **DCPC** – Districts of Critical Planning Concern are generally **nominated by a town**, once nominated, a moratorium on certain development or types of activities may go into effect
24. **DCWMP** – Draft Comprehensive Wastewater Management Plan
25. **DRI** – District of Regional Impact
26. **Dwelling Unit (DU)** - A building or portion thereof consisting of one or more rooms containing cooking and sanitary facilities and designed for human habitation by one family independent of other facilities.
27. **Dwelling, multifamily** - A detached building containing three or more dwelling units, including an apartment house, garden apartment house, townhouse or row house.
28. **Dwelling, Single-Family** - A single, separate dwelling unit designed for occupancy by one family only.

29. **Dwelling, Two-Family** - A building containing two dwelling units, whether side by side, over each other or in any other combination, provided that there is a common roof or a series of roofs connecting the dwelling units.

30. **Dwelling, One-Family With Accessory Apartment** - An owner-occupied residential dwelling containing a principal dwelling unit, either attached or detached, one of which has a net floor area not exceeding 1/2 of the net floor area of the principal dwelling unit but in no event more than 900 square feet and includes not more than two bedrooms, a kitchen, living room and bath which are separate from and not used in common with the principal dwelling. The principal dwelling and the detached accessory apartment must share a common septic system. For the purpose of this definition, such dwelling shall be deemed to be owner-occupied if either dwelling unit is occupied by the property owner of record on a year-round basis, except for bona fide temporary absence during which the owner's unit is not rented.

31. **DWF** – Designated Wastewater Funding

32. **Eelgrass** – Eelgrass has roots and even flowers underwater. An important purpose of eelgrass is to provide underwater shelter for species of fish, and shellfish, especially scallops. Young scallops that attach to eelgrass are less susceptible to bottom predators like crabs and starfish. Eelgrass is very sensitive to poor water quality and eelgrass beds are now declining due to poor water quality.

33. **Effluent**- Effluent is defined by the United States Environmental Protection Agency as “wastewater - treated or untreated - that flows out of a treatment plant, sewer, or industrial outfall. Generally refers to wastes discharged into surface waters”.

34. **Embayment** – an indentation of a shoreline larger than a cove but smaller than a gulf

35. **EOEEA** – (Mass) Executive Office of Energy and Environmental Affairs

36. **Eutrophication** – Excessive amounts of nutrients to an ecosystem is called eutrophication. Algal growth in salt water is fueled by nitrogen. It is a slow aging process during which a bay, estuary, lake, river, stream, or other shallow body of water deteriorates into a bog or marsh, and eventually 'dies.' Nutritive pollution (containing nitrogen and phosphorous compounds) generated by human activities is a major factor in eutrophication because it causes an explosive growth of algae. Decaying algae consumes the oxygen dissolved in water, thus suffocating fish and other aquatic plant and animal life.

37. **FWPCA** - The legal acronym for the Federal Water Pollution Control Act originally enacted in 1948 and amended on October 18, 1972, becoming known as the Clean Water Act.

38. **I/A** – Innovative Alternative On-Site/Cluster septic system. Before any I/A technology can be used in Massachusetts, it must be reviewed and approved by the Department of Environmental Protection (MassDEP). Before it can be installed at a particular site in a given community, the local board of health needs to review and approve plans prepared by a qualified designer who is either a registered professional engineer or a registered sanitarian.

39. **Impact fees** – Impact fees are municipal assessments, typically imposed upon developers or builders at the time a town issues a building permit, to finance the capital improvements and expansion of capital facilities necessitated by new development.

40. **Improvement Fees** – Any new uses allowed due to the existence of a sewer, which are not allowed under current zoning will cause an increase in the value of the property and therefore should be considered for an improvement fee.

41. **m-** meter

42. **Man-holes** - Man holes are the openings constructed on the alignment of a sewer line to enable a person to enter the sewer for inspection, cleaning and flushing.

43. **MBR** – Membrane bioreactors (MBR) combine activated sludge treatment with a membrane liquid-solid separation process. The membrane component uses low pressure microfiltration and eliminates the need for clarification. The membranes are immersed in the aeration tank. One of the key benefits of an MBR system is that it effectively overcomes the limitations associated with poor settling of sludge in conventional activated sludge (CAS) processes. The cost of building and operating an MBR is often higher than conventional methods of sewage treatment.

44. **MCL** – are [standards](#) that are set by the [United States Environmental Protection Agency](#) (EPA) for [drinking water](#) quality. An MCL is the legal threshold limit on the amount of a substance that is allowed in [public water systems](#) under the [Safe Drinking Water Act](#). The limit is usually expressed as a [concentration](#) in milligrams or micrograms per liter of water.

45. **MEP** – Massachusetts Estuaries Project

46. **MEPA** – Massachusetts Environmental Policy Act.

47. **MGD** - million gallons per day

48. **mg/L**-milligram per liter

49. **Mixed Use** – A development in which a single building includes both residential and commercial uses.

50. **ml** – milliliters

51. **Motel** – A building or complex of buildings providing transient lodging accommodations with separate outside entrances for each unit. The individual units do not have cooking facilities.

52. **Multiple-Occupancy Building** – means a single structure housing more than one retail business, office, or commercial venture.

53. **New Development** – all undeveloped land today-June 30 2013 (whether under current zoning or with any changes to current zoning) that will need to be sewered to meet town regulations if developed in the future. New development includes new uses in commercial districts that are not allowed under current zoning but might be deemed allowable with a sewer in place.

54. **Nitrogen** – Nitrogen is present in the environment in a wide variety of chemical forms including organic nitrogen, ammonium (NH₄⁺), nitrite (NO₂⁻), nitrate (NO₃⁻), nitrous oxide (N₂O), nitric oxide (NO) or inorganic nitrogen gas (N₂). Organic nitrogen may be in the form of a living organism, humus or

in the intermediate products of organic matter decomposition. The processes of the nitrogen cycle transform nitrogen from one form to another. Human wastewater is the most significant source of nitrogen. For most of the estuaries, wastewater is the source of more than half the annual nitrogen input. Septic systems allow nitrogen to pollute our drinking water and travel with groundwater to the beaches, rivers and harbors degrading water quality, and marine life. Fertilizer and the atmosphere are other sources. Excess nitrogen entering a salt pond or bay in the form of nitrate leads to: Algae blooms, decline of eelgrass beds, increase in decayed plant material at bottom, decrease of shellfish such as scallops and clams, odors from decay of excess vegetation. As the density of housing development increases, so does the risk of nitrates contaminating nearby wells.

55. **NSA** – Nitrogen Sensitive Area is a regulatory designation of an area that meets specified criteria under 310 CMR 15.215

56. **Ox Ditch Tech (OD's)** – An oxidation ditch is a modified activated sludge biological treatment process that utilizes long solids retention times (SRTs) to remove biodegradable organics. This technology is very effective in small installations, small communities, and isolated institutions, because it requires more land than conventional treatment plants.

57. **Pathogen** – A pathogen is a disease causing microorganism such as bacteria, fungi, and viruses, commonly found in sewage, and run-off water.

58. **Phosphorus** – (phosphates) Excess phosphates from household wastewater connects with the groundwater and flows to our freshwater lakes and ponds where it encourages: plant growth, depletion of oxygen, and decay at the bottom. As the density of housing development increases, so does the risk of nitrates and phosphates contaminating nearby wells. Phosphorus sources include wastewater, street runoff, and soil erosion. It is found in many automatic dishwasher detergents.

59. **Pleasant Bay Alliance (PBA)** – a municipal organization formed by the Towns of Orleans, Chatham, Harwich and Brewster to coordinate the resource management plan for the Pleasant Bay ACEC and watershed. The Alliance's projects, programs and studies promote healthy natural resources and safe public access throughout Pleasant Bay.

60. **PPB** – parts per billion.

61. **PPM** – parts per million

62. **PPT** - parts per thousand

63. **Private Wastewater Collection, Treatment and Disposal Facilities**- Any system not owned and/or controlled by the Town of Harwich Sewer Department used for the collection, treatment, and disposal of wastewater from one or more properties.

64. **Public Sewer** – A sewer in which all owners of abutting properties have equal rights and is controlled by the Town of Harwich.

65. **SBR** - A Sequencing Batch Reactor (SBR) is a wastewater treatment technique consisting of an activated sludge system which operates sequentially in time rather than space. In other words, the steps in the process take place one after another in the same tank. Usually a multiple tank system is

used, thus allowing the incoming flow to be switched to the empty tank while the other is in operation. In order to keep microorganisms to treat the influent, a SBR is never completely emptied and retains a portion of the settled solids to provide starter microorganisms for the next batch.

66. **Shared Housing for Elderly** – A dwelling unit which contains not more than six bedrooms and not more than six occupants who shall and must be 65 years of age or older and may have separate sanitary facilities but share common living space and kitchen facilities.

67. **Sewage** - A combination of the water-carried wastes from residences, business buildings, institutions, and industrial establishments, together with such ground, surface, and storm waters as may be present; also referred to as Wastewater.

68. **Sewer** - A pipe or conduit for carrying sewage.

69. **Sewer Appurtenances** – Sewer appurtenances are the various accessories on the sewerage system and are necessary for the efficient operation of the system.

70. **Sewer Collection System** - Public sanitary sewers and appurtenances, including pump stations, grinder pumps and valve pits

71. **SRF** – Stands for State Revolving Loan Fund, a state fund from which Massachusetts municipalities borrow funds for capital projects.

72. **TMDL** – Total Maximum Daily Load. A Total Maximum Daily Load (TMDL) is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources.

73. **TRC** – Technical Review Committee

74. **TSS** – Total Suspended Solids

75. **Watershed** – Cape Cod watersheds are the contributing areas to surface water bodies, and groundwater wells. They are defined by the movement of groundwater, and do not follow town boundaries. (Allen Harbor, Wychmere Harbor, Saquatucket Harbor, Pleasant Bay-Round Cove, Pleasant Bay-Muddy Creek, Pleasant Bay, Herring River. Watershed - Any region or area measured in a horizontal topographic divide which directs water runoff from precipitation, normally by gravity, into a stream, a body of impounded surface water, or a coastal embayment, or any region or area measured by a groundwater divide which directs groundwater into a stream, a body of impounded surface water, or a coastal embayment.

76. **wMVP** – Watershed Multi Variance Planner. The Cape Cod Commission's "WatershedMVP" combines interactive mapping, land use data, water use data, and cost data in a flexible application that allows accurate exploration of possible solutions to achieve successful wastewater management in any selected area on Cape Cod.

77. **User** - The party who is **billed**, for sewer services.

78. **User Charge** - The charge paid by each user to defray, at a minimum, the operating and maintenance cost of the sewer system. There will be a supplemental charge for inspection and control of grease traps installed at the user's location.

79. **WIAC** – Wastewater Implementation Advisory Committee and author of this Comprehensive Plan for Wastewater Implementation

80. **WMS** – Wastewater Management Subcommittee

81. **WQMTF** – Water Quality Management Task Force

82. **ZOC** – Zone of Contribution. Zone II or Zone of Contribution -That area of an aquifer which contributes water to a well under the most severe pumping and recharge conditions that can realistically be anticipated, as defined in Massachusetts Drinking Water Regulations, 310 CMR 22.02.

83. **Zone 1** – The 100 to 400 foot protective radius around a public water system well or well field which must be owned by the water supplier or controlled through a conservation restriction.

84. **Zone 2** –Each public supply well is fed by groundwater from a defined recharge area, also referred to as a Zone II, or Wellhead Protection Area. Land use within the recharge area can affect water quality.

Appendix I

Summary of Purpose and Charge of the WIAC from the Board of Selectmen

As a result of the efforts of the Town Wide Water Quality Task Force & the Citizen's Advisory Committee for Waste Water, the causes, effects and potential remediation associated with Harwich's water resources are becoming clearer. In the very near future plans for design, construction and operation of significant wastewater infrastructure will evolve to the implementation stage. Although the final determination of the solutions and the timing of the construction are developing it is very clear that implementation will require the most significant set of capital expenditures ever experienced by the Town of Harwich. In addition the operation and maintenance of the resulting systems and equipment may be on a scale which overwhelms the existing organizational structure of Town government. It is time to proactively initiate an effort to effectively plan for the implementation and to manage the results.

SCOPE

The Wastewater Implementation Committee shall undertake the following:

- 1. Establish a cost allocation policy for presentation at town meeting**
 - a. Keep up to date with the Water Quality Task Force designs & recommendations.
 - b. Define options for paying the debt, maintenance and annual operating costs. This includes but is not limited to real estate taxes town wide, water rate surcharges, user / connection assessments and/or some combination.
- 2. Explore potential funding sources**
 - a. Consolidate the solutions, associated capital expenditures, operational costs and timing / scheduling into a comprehensive financial plan.
 - b. Determine and evaluate potential external sources of funding for construction, operation and maintenance of the system.
 - c. Recommend capital funding methods.
 - d. Define scenarios which estimate total system costs by year for the life of the debt service.
- 3. Develop organizational/management structure for the wastewater system**
 - a. Evaluate and recommend the integration of the wastewater system into the organizational structure of the Town of Harwich.
 - i. Should this be a separate entity reporting to the Town Administrator?
 - ii. Should the Water Department and the Wastewater system be integrated into Water In- Water Out department?
 - iii. Should both functions report into a Department of Public Works?
 - b. Develop position descriptions and skills required for key personnel.
 - c. Develop and submit to the Board of Selectmen a Comprehensive Plan for Wastewater Implementation no later than June 30, 2013.

Appendix II

Recommendations to the Board of Selectmen regarding concerns over the DCWMP

MEMO

To: Board of Selectmen (BOS)
Date: November 19, 2012
From: Ted Nelson
Chair Wastewater Implementation Advisory Committee (WIAC)

RE: Comments on the Draft Comprehensive Wastewater Management Plan (CWMP)

One of the charges of the WIAC is to advise the Board of Selectmen on options and recommendations for funding our future wastewater management plan. The Draft CWMP before you tonight is, financially speaking, a daunting prospect. Whether viewed as a single cost of \$230 million, or when phased in more gently over 40 years, it is nevertheless the largest expenditure to come before Harwich voters in the history of Harwich.

Our objective in reviewing the CWMP was to focus on the cost side of things, with the hope that we might be able to find ways to reduce the \$230 million number before we confront how we are going to pay for it all. The \$230 million cost represents a program that meets current water standards and the proposed TMDLs at build out based on the MEP reports and local input. The Water Quality Task Force (WQTF) and their consultant CDM Smith (CDM) has stated that we can lower these costs by as much as \$50 million to \$180 million if other items recommended in the CWMP are successfully implemented to reduce the nitrogen impacts. Those programs include fertilizer management, storm water best management practices, land use controls (zoning, land acquisition, less development) and continued monitoring of nitrogen during the 40 year implementation. This adaptive management approach should begin immediately by implementing some of these strategies to reduce nitrogen impacts.

Having said that, we would like to give you our comments, which have a direct impact on costs and when taken together may have some significant impact.

Contingency Costs:

As we understand it there are two types of contingency factors built into the Draft CWMP: Unknown Factors and general contingency.

1. Unknown factors:

CDM states that a project of this magnitude has many “unknowns.” These can be unknown design related factors such as not having accurate topographic survey information at this time. Not having utility information, not having final design documents, not having an accurate understanding of the bid climate at the time of implementation, etc. There are things that may change as each phase of the project is completed and measurements can be made of the resultant changes in nitrate levels in the various watersheds.

The CWMP has calculated the final costs of these unknowns by factoring in a 25% contingency. As there are many unknowns, this can add up to a very significant amount of money that, in the end, may not need to be spent. CDM reports this is a standard industry contingency carried for planning level costs and that some in the industry may go as high as 33% for projects with more unknowns.

We have not had enough time with the CWMP to investigate similar wastewater plans to determine if these contingencies are reasonable for the Harwich plan. Therefore, we cannot make specific recommendations on how to perceive these factors except to suggest to you, that together they can represent a significant part of our projected costs and without which the Harwich taxpayers may not have to endure such a burden as proposed of \$230 million.

2. General Contingencies:

Further, we have been told by the WQTF and CDM, that when comparing known factors such as the total costs of the optional scenarios – 3A, 4A, 5A – that costs on an equivalent annual cost basis (that consider capital and operating costs) that are within 10% of each other should be considered equal.

This 10% contingency goes directly to the final cost analysis and represents a potential \$23 million contingency factored into the decisions on which scenarios to choose.

Here again, we have not had time to investigate whether similar wastewater plans utilize such a large contingency and if in the end, it is actually an unrealized contingency or is likely to actually be necessary to meet the project goals.

In summary, the WIAC is very concerned that the sum total of all of these contingencies may represent a very large amount of money that may or may not need to be budgeted for. We would, therefore, urge the BOS to investigate the necessity for these contingencies in order to determine if we might realistically be able to reduce the overall cost projections within the current CWMP draft.

Land Use Controls:

The WQTF and CDM have stated that changes made to zoning to increase open space or open space acquisitions would reduce the overall sewer collection costs.

1. The less we contribute to the nitrogen problem the less expensive the wastewater solution.
2. If the Town can create a no-net increase in nitrogen loading into our watersheds through zoning for much of our undeveloped lands and remove some dependence on Title V septic systems in place today, then we can expect a significant decrease in wastewater implementation costs.
3. If the Town can do this and still balance economic growth in increased density, then we will have increased economic development without increasing nitrogen loading.
4. Contrary to this concept, the CWMP, includes provisions for net-positive increases in nitrogen in two commercial districts – the East Harwich Commercial District and the Route 28 corridor between Harwich Port and Chatham – leading to increased wastewater costs.
5. While we agree a denser commercial district in East Harwich would invite important economic development, it should be balanced with off-sets to that increased density to create a no-net increase in nitrogen to that particular watershed (Pleasant Bay). The increases along the Route 28 corridor appear to impact several watersheds (Allen, Wychmere and Saquatucket) and are therefore likely more complex but should be balanced in a similar manner.

The WIAC recommends to the BOS that the town should heed the CWMP recommendations and use Land Use Management as a planning tool. Increased densities for economic development which increase nitrogen into a watershed can and should be off-set to create no-net increases in nitrates into specific watersheds. This requirement should be demanded of all town departments who have impact on the regulatory process – Planning, Health Department, etc. – and that the East Harwich Commercial

District and the Route 28 corridor are prime examples of ways to save on wastewater costs with this kind of planning tool.

Flow Calculations:

We agree with the Pleasant Bay Alliance's analysis over the calculations used to measure flow. Since the new build-out calculations include changes in zoning that have not yet been enacted, then the flow calculations should include the level, which will be allowed if the zoning is enacted and the water protections overlay districts are lifted. The flow rates upon which the calculations are made should be the same whether including the additional build-out or not. In this instance, the difference could be as much as 2 ½ times the current flow calculations in the Draft CWMP. We have not been told what the increase over \$230 million would be if the larger flow calculations were used, but at a difference of 2-3 times the calculation used, it should be of concern.

Already CDM estimates the increase in flow with the additional build out will cost \$1.5 to \$2 million in collection and treatment. If a larger flow number is used for the original build out and the additional build out this will only increase these costs.

So, the WIAC recommends to the BOS that the flow analysis be given serious review to be certain it accurately reflects the potential flow from the projected zoning changes.

Conclusion Comments:

The WIAC recommends to the BOS that everything should be done to bring down the projected costs for wastewater management in the town without creating an unrealistically low number that would have to be increased at a later date. We believe the most responsible action that town leadership should take is to use every tool available to us to keep the financial impact as low as possible for our residents. We have identified some areas to be considered carefully. As many of these controls as possible should be implemented immediately to bring the initial price tag down and not just implemented over 40 years. Some of these controls are a matter of policy and could be enacted immediately.

While we will continue to do some more review of the CWMP over the next 6-8 months, our primary focus will be to create a comprehensive recommendation of a financing strategy to the BOS based on the numbers finally determined in the Approved CWMP.

Respectfully submitted,

Ted Nelson
Chairman
Wastewater Implementation Advisory Committee

Appendix III
Pleasant Bay Alliance Letter



Richard K. Sullivan, Jr.
Secretary, EOEEA
100 Cambridge Street
Suite 900 (9th Floor)
Attn: MEPA Office c/o Anne Canaday
Boston, MA 02114

April 3, 2013

Mr. Paul Niedziewicki
Executive Director
Cape Cod Commission
PO Box 226
Barnstable, MA 02630

Re: Town of Harwich Draft Comprehensive Wastewater Management Plan (DCWMP)
(EEA No.15022)

Dear Secretary Sullivan and Mr. Niedziewicki:

I am writing on behalf of the Pleasant Bay Alliance to provide comment on the above referenced project. The Alliance is the inter-municipal organization of Orleans, Chatham, Harwich and Brewster formed to implement the management plan for the Pleasant Bay Area of Critical Environmental Concern (ACEC) and watershed.

The Alliance wishes to congratulate the Town of Harwich on reaching this significant milestone in its efforts to protect estuarine and groundwater resources from the effects of nutrient overloading. Reduction of nitrogen loads from watershed sources is a major priority outlined in the Pleasant Bay Resource Management Plan (1998) and subsequent Plan Updates (2003, 2008, 2013.) One of the priority actions outlined in the plan is to continue to facilitate watershed-based collaboration to address nutrient loading.

The Alliance communities work cooperatively to pursue a comprehensive bay-wide assessment of nutrient loading and related resource conditions under the Massachusetts Estuaries Project (MEP.) We believe that the Technical Report upon which Total Maximum Daily Loads (TMDLs) for Total Nitrogen for Pleasant Bay are based was strengthened by the system-wide approach to the analysis and the depth of monitoring data collected throughout our multi-town water quality monitoring program. It is in the same spirit of coordination and cooperation demonstrated by these efforts that we submit the following comments for consideration.

Phasing and Regionalization

It is our understanding that phase 1 of the project includes construction of the Muddy Creek Restoration Bridge. The Alliance worked closely with the Towns of Harwich and Chatham, Massachusetts Division of Ecological Restoration and Cape Cod Conservation District to evaluate alternatives for restoring tidal flow in Muddy Creek. These studies document that the proposed bridge will significantly improve water quality, and restore wetlands and habitat in Muddy Creek. The studies provided the basis for the decision by the Towns of Chatham and Harwich, respectively, to proceed with this project. Appendix A of the DCWMP refers to the Alliance as the “champion” of the bridge project. However, the Towns of Chatham and Harwich have signed a Memorandum of Agreement to undertake the bridge project as a joint municipal project. The Towns have formed a Project Oversight Committee and recently hired a firm to begin bridge design and permitting. The Alliance supports the bridge project and will participate as a commenter in the project design and permitting phases. The Alliance supports the Phase 1 waiver requested by the Town of Harwich for the DCWMP as it would allow the Muddy Creek Bridge project to move forward on its own path.

It is noteworthy that a motivation for addressing nitrogen loads in Pleasant Bay prior to other watersheds in town is the opportunity for regional cooperation with the Town of Chatham. The Alliance supports such cross-town cooperative arrangements for their efficiency and cost savings in achieving TMDLs. Accordingly, wastewater from the Pleasant Bay watershed will be piped to the Chatham wastewater plant for treatment. In the short term, the treated wastewater also will be discharged at the Chatham site. Any impacts to groundwater resulting from relocation of wastewater out of the Pleasant Bay watershed should be identified and fully examined in light of any potential changes in water use factors or other assumptions that may increase or decrease estimated wastewater flows and nitrogen loads from future development in the watershed, as discussed below.

In the long term it is anticipated that Chatham will need to retain disposal capacity and at that time treated wastewater from Harwich would be returned to Harwich for disposal at the PB3 site. The PB3 site is within the Pleasant Bay watershed and is within a Zone 2 to the public water supply. It is vital that treated wastewater disposed of at the PB3 site achieve a level of treatment appropriate for a Zone 2 and watershed to a nitrogen sensitive embayment.

Non-Structural Approaches (Growth Management, Fertilizer, Stormwater)

Non-structural measures have the potential to reduce wastewater flows, nitrogen loads and, thereby, lower the costs of wastewater treatment required to meet thresholds. Lowering the cost of a wastewater system capable of achieving necessary nitrogen reductions increases the chances of that system being implemented. An added benefit is that many non-structural alternatives also may be implemented in less time than it takes to build treatment capacity. In light of these benefits, the Pleasant

Bay Resource Management Plan supports full exploration of non-structural approaches in order to supplement necessary wastewater treatment. The Alliance has developed and is implementing the *Pleasant Bay Fertilizer Management Plan* that identifies actions that could reduce nitrogen loading from fertilizers by up to 5% across the watershed. The 2013 resource management plan update supports measures to reduce nutrients from stormwater, which accounts for 9% of nutrient loading watershed-wide. Perhaps the greatest nitrogen reductions achievable through non-structural means are those made possible through changes in land use. The Alliance supports land acquisition and Smart Growth land use strategies such as the Natural Resource Protection District adopted in Brewster as tools to reduce and manage nutrient loading. In addition to their potential to reduce nitrogen load, these strategies protect open space and sensitive natural resources areas and provide cost effective opportunities for wastewater management. The DCWMP identifies a potential cost savings of \$50 million due to the reduction of nutrient loads from fertilizer controls, smart growth, and stormwater management. However, little detail is provided as to the role each of these programs could play, particularly in the Pleasant Bay watershed, which has the highest projected growth potential in the Town. The Alliance encourages the Town to fully analyze and pursue these non-structural alternatives for their ability to reduce wastewater flow, nitrogen load and costs, and to provide this analysis and information to citizens and stakeholders. Analysis that shows the relationship between different land use scenarios and their effect on wastewater flows, nitrogen loads and wastewater system costs would help inform the Town's land use management discussion and help build a case for the CWMP.

Water Use Assumptions

The Alliance notes that assumptions in the DCWMP with regard to commercial water use in the Pleasant Bay watershed may underestimate wastewater flow and nitrogen load that is likely to be generated by future commercial development. Questions about water use assumptions were expressed in a letter from the Alliance to the Harwich Water Quality Task Force (November 15, 2012).

The DCWMP assumes that commercial development would generate wastewater at a rate of 35 gallons per day (gpd) per 1,000 square feet (sf) of development. A significantly higher factor of 236 gpd/1,000 sf is used for other commercial areas in town. MEP technical reports for other Cape Cod watersheds contain commercial water use factors of 80-120 gpd/1,000 sf, including 98 gpd/1,000 sf for Namskaket Marsh watershed in Orleans. It has been explained that the current assumption of 35 gpd/1,000 sf is based on historic water use in the commercial district. However, water use in the East Harwich commercial district has been kept low due to the water protection overlay district which has reduced overall commercial development density and restricted water intensive commercial uses such as restaurants. The DCWMP assumes future rezoning of this area to accommodate the addition of 500,000 square feet of commercial development beyond MEP build-out. It is reasonable to assume that, with sewers in place, the mix of commercial uses would include restaurants and other commercial uses that have been restricted by the water resources overlay district. Accordingly, we request that the Town conduct an assessment of wastewater flows and nitrogen loads based on a commercial water use factor that is more consistent with proposed growth patterns. This will enhance the reliability of wastewater flows and nitrogen loads tied to growth assumptions.

Thank you for your consideration of these comments.

Sincerely,
For the Steering Committee

A handwritten signature in blue ink that reads "Allin Thompson". The signature is fluid and cursive, with the first name "Allin" and the last name "Thompson" clearly distinguishable.

Allin P. Thompson, Jr., Chairman

Cc: Harwich Board of Selectmen
Harwich Water Quality Task Force
Harwich Wastewater Implementation Committee
Brian Dudley, MassDEP
Dr. Robert Duncanson, Town of Chatham

Appendix IV
IMPACT BY PHASE

	Table 13-14		Table 13-12	Table 13-11			Table 13-13
Phase	Calendar Year	Duration	Total Capital Costs	Parcels served	Build out units served	WW Flow gpd	Use of funds for CWMP
1	2013-2015	3	2,550,000	0	tbd	0	1) PB-3 Recharge facility land purchase; 2) Hinckley's Pond Restoration; 3) Cold Brook Attenuation Study; 4) Muddy Creek Attenuation Bridge Project
2	2016-2010	5	24,300,000	600	tbd	153,000	1) Design and Construction of Pleasant Bay Collection system (South); 2) Cold Brook Attenuation Project
3	2021-2025	5	21,010,000	440	tbd	112,000	1) construction of Pleasant Bay Collections System (North); 2) Design and construction of Chatham WPCF Upgrade; 3) Seymore Pond restoration
4	2026-2032	7	56,700,000	700	tbd	178,000	Design and Construction of Harwich Treatment Facility - HR-12; 2) Design and Construction of Herring River Collection System (Northeast)
5	2033-2037	5	23,200,000	730	tbd	186,000	Design and Construction of Herring River Collection System (Northwest)
6	2038-2042	5	21,200,000	650	tbd	165,000	1) Design and Construction of AWS and Herring River (SE) Collection System; 2) Bucks Pond Restoration; 3) John Joseph Pond restoration
7	2043-2047	5	47,200,000	760	tbd	193,000	1) Design of Harwich WWTF Upgrade and Design and Construction of Herring River Collection System (Southwest); 2) Construction of Harwich Treatment Facility Upgrade
8	2048-2052	5	33,900,000	1,066	tbd	270,000	Design and construction of Campground Area, GSL and Final Pleasant Bay Area to Meet TMDL
Totals	40 Years	40	230,060,000	4,946	0	1,257,000	

Appendix V

PUBLIC OUTREACH – THE 4 HARWICHES



Public Involvement Our Critical Next Step

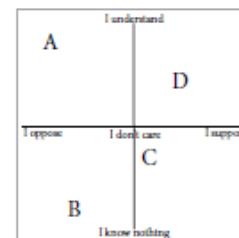
July 2013

As with many community infrastructure projects, public involvement in Harwich wastewater issues has been 'modest' during these lengthy initial stages. As we now move toward implementation, we must significantly and effectively expand this.

- ☑ Public involvement seeks to build strong links with key constituencies – citizens, of course, but also the Harwich business community, local government agencies, neighboring towns and the Cape Cod Commission.
- ☑ Public involvement means information flowing out from the Town AND input flowing in from the Community. It is an active process that solicits questions, seeks expression of concerns, and nurtures a healthy and informing debate.
- ☑ Public involvement means a systematic process of building informed consent¹ across our community.
- X Public involvement does NOT mean smothering the community in a propaganda campaign to sell an ill-understood project (however worthy the intent).

In tackling this, we face two key challenges:

1 There are multiple "publics" ... and each needs a customized involvement strategy. It is easy to think of THE Harwich "public" monolithically, but this would be a serious mistake. We've noted one dimension of this above (citizens, businesses, agencies, etc.). Here is another one – in essence, a matrix in which we view a person's level of support for the project, and his/her understanding of it. Let's briefly consider four different profiles:



A Knowledgeable Opponents: Our challenge here is to understand the source of the opposition, and find arguments for meeting/mitigating them.

B Uninformed Naysayers: Our challenge is first to build a personal connection to the issue of wastewater ("hmmm, this does impact me") and then overcome a (likely) bias against government solutions.

C Luke-warm Fence-standers: Our challenge is to engage these folks, building both understanding and tapping into an incipient well-spring of hope for civic action.

D Potential evangelists: Our challenge is to deepen their understanding, and help them become effective agents of change within our community.

2 We need to better understand these 'publics' – BEFORE we take action. This is traditionally labeled a 'needs assessment,' and consists of building understanding along dimensions such as:

- Demographic factors: Are there useful patterns (in terms of levels of support and understanding) based upon factors such as age, gender, income or length of residence in Harwich?
- Belief structures: What do individuals (and organizations) believe about wastewater (not-an-issue-here < — > serious issue)? about who is responsible for 'fixing it' (the public or private sector? If the public, at what level: Harwich? Barnstable county? Massachusetts? federal EPA?)? about what has already been done in the Harwich planning work (from nothing to well-informed)? about awareness of available roles going forward (again, from nothing to well-informed)?

Based upon this we have three recommendations at this point:

- ▶ Hire a professional Communications Manager with experience in building informed consent (this is NOT the stereotypical "public relations" manager!).
- ▶ Through the Communications Manager, conduct a useful needs assessment, and build an "informed consent" strategy for each of the relevant 'publics.'
- ▶ In the meantime, build a Response Capability, with both "Hot-Line" (respond to inquiries within one business day, complaints within 4 hours) and "Media Monitoring" (to rapidly correct misinformation) dimensions.

Some Advice from Others

- Involve the public; confront concerns early and often.
- Meet the public where they are on the learning curve.
- Listen thoughtfully to critics and skeptics; build an environment of trust, competence, fairness, empathy.
- Build a sense of team – open conflict among governmental department and/or non-governmental groups undermines confidence.
- Recognize the needs of the media (which may focus more on politics than the issues, and artificial simplicity more than reasoned understanding).
- "One size does not fit all ..."

¹ This concept ("a systematic approach to building informed consent") lies at the heart of the work done by the Institute for Participatory Management and Planning as they work with public sector agencies and staff to become more effective