



**State of Rhode Island and Providence Plantations
Water Resources Board**
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**STRATEGIC PLANNING COMMITTEE
MEETING PROCEEDINGS**
Thursday, December 1, 2005

Members Present:

Daniel W. Varin, Chair
William McKenna*
William J. Penn
Frank Perry
William Stamp, III
June Swallow
Alicia Good
William Parsons

Members Absent:

Timothy Brown
Jon Schock

*Designee

Staff Present:

Juan Mariscal, PE
Kathleen Crawley
Beverly O'Keefe
Elaine Maguire
Tracy Shields

Guests

Eugenia Marks, Audubon Society of RI

I. CALL TO ORDER:

At 1:10 P.M., Chairman Varin called the meeting to order. Lacking a quorum, all action items will be deferred to the full board.

II. PRESENTATION AND DISCUSSION OF RHODE ISLAND'S WATER RESOURCES: AN OVERVIEW (PRIORITIES POSITION PAPER: SEPTEMBER 16, 2005)

Chairman Varin explained that at the last Board meeting, Mr. Griffith had referred the membership to an article in the *New York Times* copies of which had been distributed and referred to the Strategic Committee for a meeting to be held before the Board's regularly-scheduled December meeting.

At this point, the Chairman turned the floor over to the General Manager to take the Board through today's agenda. Mr. Mariscal explained that the article that Mr. Griffith had referred the Board to related to the challenge that small systems will have trying to comply with the requirements of the Safe Drinking Water Act. The *NY Times* article notes the possibility of small systems being privatized because of the requirement to meet these standards, and what might the Board's relationship be with these private systems.

At the same time in September, Chairman Varin, Ms. Crawley, Ms. O’Keefe, and Mr. Mariscal had written a position paper for the Governor’s Office, which documented the priorities facing the Board and the status of water resources within the state. In preparing for this meeting, Mr. Penn had asked Mr. Mariscal to use the table within the priorities paper and add a couple more columns. There are many complex issues involved, and today we will just scratch the surface. Mr. Mariscal saw this as one in what will be a series of meetings to discuss many of the issues, come to some conclusions and determine in which order the issues should be tackled.

Mr. Mariscal noted that he had been in his position for about 100 days and has learned that there is quite a bit to learn regarding these issues. He wanted to note that these issues are complicated even to someone who is dealing with them on a daily basis. Therefore, he viewed today’s meeting as a forum for discussion of some specific issues.

Mr. Mariscal noted the drought (if you will) of paperwork compared with regular Board meetings. He noted that this was a deliberate decision created somewhat by the lack of time to prepare for this meeting, but also to encourage Board members to bring forward their own thoughts as opposed to ratifying staff recommendations.

a. Water Resources Management Program

Mr. Mariscal noted that last night had been the first meeting of the Kent County Water Authority Oversight Commission of the legislature. The first speaker had been Mr. Brown who had done an outstanding job. Mr. Brown did an excellent job explaining not only the issues within Kent County Water Authority but also the water issues statewide. He educated the members as to the issues of water supply, transmission, distribution and the engineering limitations that some systems have—the difficulties of just expanding water supply within Rhode Island.

The Commission intends to have a series of meetings commencing in January and running into March. DEM was asked to appear in mid-December, while the Water Resources Board and the Health Department will be there in early January. They plan to hold public hearings regarding Kent County Water Authority.

It is Mr. Mariscal’s belief that any findings made by this Commission will have statewide impact. This will be a good forum for the water/wastewater reuse that has been identified as a priority by the activities of this Board and in the priorities paper. This commission should serve many useful purposes. Responding to a question from Ms. Swallow, Mr. Perry clarified that this is a joint house and senate committee to look into the operations of the Kent County Water Authority and grew out of the interest from the City of

Warwick.

Mr. Mariscal noted that the first thing to focus on was the priorities paper which was prepared in September was to lay out what the issues are and what the policies are.

Mr. Penn noted his surprise at the amount of water being used for thermoelectric power production. Chairman Varin noted that there were 2 plants: the Manchester Street plant which used the Providence River and the Ocean State Power Plant in Burrillville. Mr. Penn expressed his belief that with today's technology these would be closed systems. Mr. Mariscal noted that was true to some extent, there was some recycling happening. This point was also raised by the Environmental Council membership at their November meeting. This would be a great opportunity for reuse; however, the water has to be of a certain quality for certain uses. Mr. Mariscal added that the power plant in Johnston used the effluent from the Cranston wastewater treatment facility, but this facility does not run on a continuous basis.

Chairman Varin explained that he been on the energy facility siting board when the then Narragansett Electric Company brought in their proposal to "repower" the Manchester Street plant which involved changing the fuel and backup fuel and almost tripling the output of the plant. Their proposal said that they were using 400,000 to 500,000 gallons per day from the Providence system and the new plant would require 1,000,000 from Providence. The first thing the siting board did was require another source other than Providence. They dug a well in Olneyville and on the first or second try found a well that would provide 1,000,000 and they built the pipeline from there to the plant and everything was fine. Then a few months ago, Chairman Varin discovered they were back taking from the Providence system, and he was unsure of whether that came before the energy facility siting board for a modification or whether this is just being done without any further approval.

Mr. Mariscal stated that it was his understanding that there were a number of industries in the Providence area which actually use water from ground water wells to supplement their supply. This would surprise most people—that there is ground water in an urban area. Chairman Varin noted that we were sitting atop a major aquifer. There were questions about its quality, but there was no quantity problem.

e. Regionalization of Systems

Mr. Penn directed a question to Ms. Swallow about whether the Department of Health knew how many of the 480 suppliers were individual homes, restaurants, or home owner associations. Ms. Swallow noted that the Department did keep records of how many service connections there were for every system. Mr. Penn's question concerned the inability to regionalize these small systems. Ms. Swallow stated that if you look at the location of the public water supplies, it becomes apparent that there were "strings" of them

running down some highways. Therefore, there were some places where regionalization of the small systems would be possible. However, there were also very small systems scattered throughout the entire state. Ms. Swallow noted that the DOH has long thought that there should be some statute in the state to require regionalization of failing systems. They drafted legislation similar to that which is in place in Connecticut, which basically involves partnership between the Health Department that is responsible for the Safe Drinking Water Act regulation, the small systems and the Public Utilities Commission. So the DOH would identify which systems are in trouble and then the PUC would determine how to resolve. Basically, a large nearby system would be required to take over a nearby system. The legislation which exists puts the burden of cost on the smaller system being taken over by the larger.

Chairman Varin noted Mr. Sams (former general manager) efforts in Burrillville during the contamination problem. Burrillville has 3 community systems which abut each other and each has its own district, its own management and its own offices, people, vehicles, etc. The Board did approve one of the systems providing service to a small area in another system's territory simply because that was the logical way to reach that area. Mr. Sams received many positive words, which resulted in no action. The same thing also happened in Tiverton although not spurred by a contamination problem. This town has 3 separate community systems and when the third one was created, the State Planning Council did all it could short of demanding that the third area be served by one of the already existing suppliers rather than create another system which went into the bond market and becomes indebted and consequently, it's very difficult to change the structure.

Therefore, regionalization takes more than a lot of hard work and logic. Mr. Mariscal noted that in many cases, these are agencies which do not even supply water to the consumer. In other cases, they are suppliers of water; they have their own resources. In South Kingstown, there are 4 water suppliers: URI, United Water Rhode Island, Kingston and South Kingstown. South Kingstown is actually supplying a very small portion of the town. So, how do we address these things? Is there some kind of incentive the Board can give or will it require changes in our regulations or legislative changes? These are the sort of things that must be considered.

Mr. Mariscal noted that Mr. Brown had noted at the legislative commission last night that even Kent County Water Authority was worried about meeting some of the impending standards. Therefore, if a larger system such as Kent County was worried about these things, how are these smaller systems ever going to handle it? Therefore, how does this Board address this issue?

Ms. Swallow added that she did not believe these concerns were centered so much on the Safe Drinking Water Act standards, but rather on plain old infrastructure replacement costs. Mr. Mariscal agreed. Therefore, should there be consolidation within the state and if so, how can this be accomplished. Mr.

Penn noted on Block Island there is a small municipal water system, but most of the Island is on wells and those home owner associations which have common wells are defined as a water supplier. How do we handle that situation?

Mr. Mariscal explained that this was the purpose of this exercise. To determine what the issues are and brainstorm on some solutions. Mr. Penn thought that perhaps a strategy would be to define regionalization in several tiers. Tiverton and Burrillville are classic examples of where regionalization should be pushed, but when you try to combine a restaurant or local homeowners association that gets very murky. Mr. Perry agreed. He explained that he was aware of 2 larger systems, forgetting restaurants and homeowner associations—there are at least 2 larger systems within the Kent Country Water Authority service area, but they are currently not reachable.

In response to a question from Mr. Stamp, Ms. Swallow noted the definition of public water system was one which served 25 or more people, 60 or more days a year.

Mr. Penn noted that as on Block Island there would be places that served 25 or more people, but not for 60 days or more. Mr. Perry added that would apply to areas such as camp grounds. Mr. Stamp noted that we were running down a path of impossibility. No one objected to this observation. Ms. Swallow explained that most of the camp grounds do fall within the public water supply definition; however, fair grounds are not included.

Mr. Mariscal asked if there were any examples within the state where a larger public water supplier, i.e., Kent County or even a smaller one such as Burrillville actually has a management responsibility for a smaller system which is not connected by pipe to the public supplier. Ms. Swallow noted there was: Nasonville—trailer park. Mr. Mariscal noted that this was one situation which we might want to promote because there could be examples where there are water supply agencies that cover a geographic area, but then there's a public supplier that serves 35 homes just outside of this area. Ms. Swallow noted that when the Department runs into managerial capacity issues with small systems, the Department will require a management company with certified operators. There is actually a company within the state which manages a few of the suppliers. In response to a question from Mr. Stamp, Ms. Swallow explained that either the small system sets its own price or there was no price. Mr. Penn clarified that the cost would be part of the annual homeowners' association fee. Ms. Swallow answered that the individual system would be liable for problems in response to another question by Mr. Stamp. However, if a condo association were not to do what was necessary to repair the problem, the DOH could revoke its license and it would no longer have a potable water system.

This discussion was a good lead into the inability of these small systems to manage their activities. Mr.

Parsons thought that perhaps these associations shouldn't be allowed to provide water. Ms. Swallow explained that there were a few organizations in this situation and what the DOH requires is that they be put under professional management, which naturally increases their costs and then they require them to have appropriate bylaws and enable them to turn off the water. Ms. Good pointed out that these were older situations and were not typically being seen now. Mr. Perry explained that these operations involve people on mid- to upper-income scales, but there is always someone in that group that likes management and they are therefore fairly well run. However, in the lower income situations, they do not typically have someone with the requisite management skills.

Mr. Penn wanted to return to the 480 as an issue. There are 28 defined as large systems, then there is another level which is comparable to the Burrillville or Tiverton situations, and then homeowner associations or restaurants is another category. All of which are unique situations.

Mr. Perry explained that there had been a situation where a "block" of homes ran into water well problems and the Kent County Water Authority extended their lines to these homes, but the people had to pay. In another situation, the town put money toward this project and was able to obtain a grant for this project as well, but the individuals also had to pay. Per PUC restrictions, the Authority cannot pay to extend lines to new customers.

Mr. Stamp acknowledged that a solution to each individual situation wouldn't be possible, so he wanted to determine a funding system which would penalize those that do not "do the right thing" and rewards those that do.

Chairman Varin agreed with Mr. Penn that this would have to be done on a 3-4 tier basis. He also acknowledged that the DOH's approach in requiring a management company be brought in was probably the simplest solution available. Ms. Swallow pointed out that having the smaller systems near each other was not necessarily a problem; however, when a problem arises and regionalization is the logical solution, it should be required somehow. Mr. Parsons stated his belief that it was a problem of infrastructure and money. Mr. Stamp expressed a belief that if an incentive to consolidate were available this would help. Mr. Perry explained that often times it's a case of non-cooperation. He specifically mentioned Quonset Development Corporation and Kent County Water Authority; they've spoken occasionally and ultimately this merge will happen. Chairman Varin explained that the solution would have to be one which fits the level of the problem. Up to now, the worry was about those which fall below the biggest systems, the examples of Burrillville and Tiverton would be on the next tier down. You have a system which serves an urban community or part of it, and they have very few resources but for some reason they just do not want to get together. Mr. Mariscal areas where regionalization might make sense could be identified, but there was nothing driving the Water Resources Board to do a management study of 2 systems and say here are

the advantages of consolidation, and even if the Board took it upon itself to do such a study, there is nothing in the Board's powers which would enable it to require the 2 systems to combine.

Mr. Stamp asked if the systems in Tiverton were financially unstable. Chairman Varin explained that he believed that the situation was that if a problem arose requiring serious money, then they would have the problem. But, all they have to do is deliver water on a daily basis. Mr. Penn stated that the situation in Tiverton was that there were 3 systems that are duplicating everything and if they consolidated there would be cost savings. Mr. Parsons asked if it would be in the public interest for them to consolidate and all agreed; he wondered if legislation could be developed. Mr. Mariscal related the option of having the legislation give the Board the authority to require management studies to determine where efficiencies could be gained. Or perhaps give the Board the authority to mandate consolidation. However, as things stand now, neither this Board nor the DOH nor DEM has such authority.

It was noted that currently the PUC only regulates 7 systems. Ms. Good noted that it would create economic efficiency since there was no contamination, supply, quantity or other such problem. Mr. Stamp asked who would rescue these systems if something happens, and Chairman Varin and Ms. Good noted the State would provide technical support. Mr. Stamp correctly observed that these small systems had nothing to lose by "living on the edge." Ms. Swallow clarified that there is not always someone there to protect them. Chairman Varin noted that in the majority of these situations where there are 3 systems like the 2 towns mentioned, overhead could probably be financed by any 1 of the 3 and get rid of the other 2. The budget of the 1 might increase slightly to take on the management of the other 2, but that wouldn't be a serious problem. However, what is serious is that once 1 of these systems gets created legislatively, gets a service area established legislatively, they borrow money. And once they are in the financial markets, it is very difficult to do anything. Mr. Penn explained that small systems would not have access to the capital markets and that may allow the Board to use an incentive through Board Corporate as a mechanism to provide capital to these smaller systems on a pooled basis as opposed to individual basis. Ms. Swallow noted that they do have access to the State Revolving Fund (SRF) and take advantage of it on a very limited basis.

Mr. Mariscal explained that as he understood it Pascoag was still getting water from Harrisville and they do not even talk to each other; Harrisville believes they have adequate supply to continue to supply Pascoag into the future. However, at the same time, Pascoag is exploring the development of new wells. Mr. Stamp noted his concern with these systems accessing the bond market but not having any constraints from the market on the product itself. This is a good analogy for why privatization would push these systems into consolidation and regionalization. Mr. Mariscal came back to the Pascoag situation and explained that sooner or later their plans would have to be approved and maybe they would be looking for funding from us or SRF and that should trigger some type of management evaluation regarding what is happening.

Mr. Mariscal explained that the current eligibility list for Drinking Water Protection Bond money should be reevaluated to determine what should stay, what should go, and what needs to be added. Chairman Varin explained that the first well Pascoag drilled in an effort to disconnect from Harrisville cost \$125,000. So these are not cheap operations. Chairman Varin noted that there was never agreement on what the one community would pay the other for the water. An attorney went to court and got a court order stating that Harrisville had to supply Pascoag with water, but the cost and who would pay for so doing was not considered in the decision. Ms. Swallow explained that the customers owned the Pascoag wells.

Mr. Mariscal believed this was a good discussion because it touched on one of the priorities, but not one of the high priorities. In looking at the agenda, he reconfigured everything can take things out of order and touch upon other items.

c. Stream Flow Gages

The basic point with the stream flow gages is that they are under funded. We've had problems with even the ones which have been funded and the best example is the Pawtuxet River gage that had been most recently funded by the RI Emergency Management Agency. That funding was no longer available and the USGS in July notified everybody they were going to pull it for lack of funding. At a meeting, Mr. Mariscal stated that we could provide funding for the next year, but beyond that we would have to discuss. We rescued it in the short term. The good news is in the longer term by putting all the eggs in one basket—the Narragansett Bay Watershed Rivers Coordination Team that the Water Resources Board is a member of and Mr. Mariscal sits as a member on that team as does our associated function the RI Rivers Council. It's putting together a list of projects and programs to request funding from the General Assembly and the Governor. Stream flow gages were one of the top 3 priorities for funding, and should be funded out of this effort.

Mr. Stamp inquired as to the importance of the gages. Mr. Mariscal explained that it provides basic information about what is happening in the rivers. It is the way of determining quantity and availability. From a wastewater viewpoint, RIPDES permits are based on concentrations—that's why it's a priority to the Bay Coordination Team—because it affects Narragansett Bay. In speaking about water withdrawals, we need to know how much water is in the stream to begin with. Ms. Good pointed out that it allows for predictive measurements for floods. Mr. Stamp could not see the relevancy to this agency specifically for funding of these gages.

Ms. Crawley explained that in the discussion of the stream flow gages was a network of ground water observation wells—many of which have been in place since 1940. This allows us every month to look at current conditions for drought predictions, but it also allowed us to do the basin studies. Without this data,

we wouldn't have been able to make calculations about how much water is available in the state. It is very useful for that reason. It is also allowing us to develop a stream statistics program, so that in between those areas that are actually gauged, we can have some good mathematical calculations of what we estimate to be happening in between. On the ground, the management decisions that can change around that are: response times for pumping; can you change your storage, can you move wells? Understanding the dynamic of what is happening in your ground water wells and streams . . . Stream flow is base flow at any given point. The understanding that ground water and surface water are one resource, and really beginning to understand the connections between those two, is the foundation of being able to better manage withdrawals.

In response to a question from Mr. Penn, Ms. Crawley noted there are about 22 stream gages and 40 observation wells. She continued that there are also project wells and part of those recommendations about what gets added and what are priorities are based partially on whether or not we have enough information in an area, and also on whether or not we can reactivate the project gages. So for example we did the Big River optimization and modeling work, there were some 300 + observation well points that were drilled so we were able to calculate impacts. There are project gages set up in the Blackstone; the Big River area; the Usquapaug-Queen—every time we've done a detailed study, we've put in observation wells, aquifer tests and stream gauging.

Chairman Varin explained that the value of the data collected from stream gages or observation wells is directly related to the length of time that you have data—the longer the period, the better the numbers. If that process is interrupted even for a year, you lose some of the value of the information even if the gage is reactivated. Ms. Good noted that if there is a watershed gage, you can use that data to go back and apply it to the other smaller streams. You don't need every single stream gauged. In the recommendations of the study, and the determination of where we needed gages that was a major consideration—covering watersheds which are not covered at all yet. As Ms. Good stated, it all comes down to being able to make better management decisions.

Mr. Stamp believed this was an expensive effort compared to the quality of information received. Mr. Penn noted that looking at the larger picture talking about 60 stream gages and monitoring wells that have an annual operating cost between \$10,000 and \$15,000, we are talking between \$600,000 and \$900,000—in the scheme of things—it's relatively insignificant. Mr. Mariscal concurred and noted that within the Bay Coordination Team, the number was in the \$200,000 - \$250,000 range. Mr. Mariscal responded that the Board is paying \$75,000 per year and DEM is paying about \$125,000, so on top of that we need about \$200,000 to \$250,000 more to both establish and maintain the gages going forward. In the scheme of things it's not a lot of money, but now that you've raised money that is probably the biggest priority we have because I came here thinking this was the land of milk and honey, water and money, and it isn't!

We're lucky we have enough money to make it through the fiscal year, and get as much done as we are able. Mr. Penn interjected that the point of this meeting was to begin thinking about whether or not we need to be doing everything we are doing. Mr. Mariscal noted he wanted to address that, but money was a basic issue and would affect all other issues. He continued by explaining that he had attended a legislative meeting last night with everyone being in agreement that more water is needed in the state and more water is needed to spur economic development and everyone points to the Big River Reservoir, and the paper said one legislator said it was a "pipe dream" because of the costs. And I look at the other alternative—ground water development and then at the Water Resources Board Capital Budget for the next 5 years and I have to say, "What's wrong with this picture?" Four of us, Mr. Varin, Ms. Crawley, Ms. O'Keefe and myself put together this priority list and we came up with 3 items which relate to Big River: trash dumping at Big River; how much ground water can be developed at Big River and actually developing it for ground water supply. Then I look at our capital budget plan for the next 5 years and there's no money in it for developing those wells. So I have to ask, "How did it suddenly become a priority?" Well, it's always been a priority, but the fact is as I learned today that for the last 3 years, the agency's been advised by the Budget Office that you cannot put in any capital projects—period. Mr. Penn stated that there were 2 sources of funds, and he agreed with Mr. Mariscal regarding the capital budget—it's been severely curtailed and it needs political capital to change. However, Mr. Penn continued that he was talking about the operating side. If we come up with priorities, and stream gage funding is a priority, then there is something else that we are doing and should not be doing and should divert those funds to support the gages. Mr. Mariscal responded that he didn't do the exercise himself because he felt it better to show it "live" to the membership. The money we get is already tied up in current projects and or staff time. Therefore, many things cannot be done without new sources of money. One of the big realizations that I've had since I came here is that we actually have a very healthy cash infusion into the Board through Board Corporate. However, we don't see much of that money. About \$5 million a year is generated from that penny per hundred surcharge, but it goes directly to the general fund of the State of Rhode Island. If you go back to the legislation, that is not exactly what it was meant for. The point is that if that money were made available to the Water Resources Board and available for the water projects, we would be able to accomplish many things that everyone in the state, from the highest point on down, will say is a major priority for the state. Yet, we are going begging for revenue or sources of funding for projects. To me, that is our biggest priority. When I broach this subject, everyone agrees we are right. Our associated function, the Rhode Island Rivers Council, goes begging every year to get funded. They get a \$100,000 grant from the legislature, it's a one time only shot, and they go out and get money from the Rhode Island Foundation or other grant sources. Every year, it's the same process. Yet, I'm looking at this \$5 million dollars being used for other purposes. Mr. Penn explained that the Board has tried to fight that battle for years, ever since the restricted receipts were eliminated. These accounts were set up all over the state which were established specifically for certain purposes.

Mr. Mariscal then stated that we should focus on the Big River projects and not the funding situation. If we looked at the item in the checklist, the second item, “Establish variable and sustainable levels of withdrawals of the ground water in the Big River Management Area.” What do we have in the budget this year available to advance that project? Well, the Board was under the understanding that they had approved \$190,000 for a USGS study of ecological impacts. Well, after the Budget Office subtracts numbers from us and tells us we don’t have money for certain projects, we’re really looking at only having \$31,000 available to us. Remember I said I was going to fund the Pawtuxet River gage, I said I’ll take \$10,000 of the \$190,000 because we haven’t defined that work at this point and we probably won’t be able to spend it all in this fiscal year, so let’s spend something. Big River is in the Pawtuxet River basin—makes sense to me, and let’s also put in a gage at Zeke’s Bridge on the Big River because we’re going to need that information as well. So, there’s \$20,000, but we’re not actually going to have the \$190,000 to do the ecological study because of other subtractions that the Budget Office makes. There are other things we’ll have to do before we break ground out there to develop the wells. We’re probably going to need to do engineering studies, we’ll probably need a design study, and we’ll probably need to do some management studies. It’s not identified anywhere in the capital project plan and it’s not identified this year in our budget for us to be able to do it. So, our biggest priority—development of water supply in the Big River Management Area—has very limited funding.

Mr. Penn stated he agreed that it would not be available through traditional funding through the state government. However, if there were the potential for 4 mgd minimum and 12 mgd maximum, we could privatize it. Mr. Mariscal responded that this was a philosophical decision for the Board to make. But, even in an effort to discuss it, Mr. Mariscal would argue that management consultants would be needed to try to define. He stated that in 1996 the Board had hired Beta Engineering to do a business plan for the Big River Area. It’s not on target anymore—even that initial effort would have to be redone. So we need to spend money to make money. What is interesting here is that the Budget Office is asking the question: When will we see money from Big River?

Mr. McKenna stated that it was his understanding that Paul Sams had viewed Big River as a revenue generator with 2 basic options: one would be drilling ourselves; or having Kent County Water Authority do the drilling. He also noted that there were statewide financial problems, and would be very interested in hearing what you have to say about bringing more revenue into the state. Perhaps you should put together a plan and meet with Rose about this, because we would love to have more revenue incoming.

Mr. Mariscal explained that he was trying to fund a civil engineer position and was having difficulty with that. He continued his point was with bringing more revenue into the state, there’s something wrong with that concept. The thought should be bringing revenue into the Water Resources Board to advance water protection, water supply programs and projects within the state. I think this is in the state’s best interest

because the state uses these projects for economic development purposes and without these projects, there is not going to be any economic development. We heard that very eloquently last night from Tim Brown that they are reaching the end of the water very quickly. Quonset also has their water problems.

Mr. Parsons stated that he did not believe that the water problems at Quonset were what they have been described as—that's his personal opinion. Chairman Varin noted that it has always been his belief that it's quite likely that we could get the ground water development in Big River done by one or more water systems or some agency other than the Board or the state. But, we must do a little preliminary work. We have to write an intelligent request for proposals from people who would be interested in doing that. It's not just a matter of putting a small ad in the paper saying, "come and get it." It's a little more complicated than that. Mr. Perry explained that one of the things that needed to be defined was "what can you get?" That's where the study that's on the table hasn't started yet really has got to determine. We have to define what is there. But, from looking at this over a period of time, I think very honestly, I don't see this system as a revenue generator for the state. He sees this system as a resource for the state that the state needs to develop the commercial base that it needs to enhance its revenue. But, this in itself, if the state is looking at this as if they are going to sell water for profit out of this, they will be pricing the water so high that no one is going to buy it. Chairman Varin noted that was something to be considered, and it's one of many things we are trying to decide how to take the next step in this operation. But, before you leave the operating budget, last week someone told the Chairman what the budgeted amount is to pay the conservation officers, the police, the . . . Mr. Mariscal noted that currently the Board pays DEM about \$3,000 per year on their enforcement officers to patrol the area—probably less than some spend on office space. The Board also spends \$8,500 per year to the Department of Corrections for clean up of the area every year. Therefore, we are spending more on clean up than we are on surveillance, and we also spend \$11,280 per year on general maintenance at the Field Office. The Chairman said the reason he brought it up was because the last time a dead body was found in Big River, the following year we asked for more money for more law enforcement protection in that area. Asking for an increase may have then been \$3,000 or some other miniscule number—asking for that money was just viewed as outrageous. We had no success at all.

Mr. Mariscal explained that one thing the Board had approved recently was to give money to Woonsocket to provide security fencing around their reservoir, and as we are approving that, I'm thinking, I'd love to have that fencing in Big River, and we do have fences and gates, but they are damaged and we don't even have the ability to replace those gates quickly when they are damaged. We almost have it set up down there that we provide adequate notice to the public of where the best dumping spots are. Because what we have are these little cutouts in the roadways where you can pull your car to and just throw the trash over the fencing, and that's what we are seeing down there all the time. You can go down the street on Tuesday and there's nothing there, but you go down the same street on Wednesday and there's 10 bags on the other side of the fence. We don't even have the ability to take those 10 bags and properly dispose of them. If it's

hazardous waste, we can get DEM to come in and dispose of it. We are lucky recently we had DEM, State Police arrest someone for hazardous waste dumping and someone else arrested for doing a little more than just using his ATV out there. So, the DEM security detail works well and we have a new person with DEM who is energetic and wants to do a lot of work out there, but he's one person. So, we don't even have enough resources to properly manage the property we have. Mr. Mariscal noted his concern about the roads that are traversed everyday in the Management Area and what would happen if an oil truck were to overturn and discharge oil into the watershed area. As we go forward to develop this into a water supply area, we will have to become more and more vigilant. We have a land use study that's ongoing right now and Ms. Crawley could elaborate.

Mr. Penn noted that he wasn't sure we had exhausted this issue of developing ground water in Big River. He continued that Mr. Perry had made a very good point that it's needed to continue to spur economic growth in South County. To me, that's sprawl and an alternative is to recycle the buildings that we have and where there is already infrastructure rather than providing new. This is the whole concept of smart growth. Mr. Parsons asked where those sites were; he didn't believe there were any left in Rhode Island. He continued that you can't knock down every building; every time you try to knock down a building you have historic issues, every time, unless you want everything to be a condominium, which is a different issue. However, if we don't start going into the suburbs . . . He did agree with Mr. Penn that we had enough land at Quonset, and he asked if Mr. Penn thought there was actually excess that we need to build on. Mr. Penn noted that there were different uses: industrial, commercial and residential. How much of Kent County's use is residential versus industrial/commercial. Mr. Perry ventured an educated guess to be 35 percent is industrial/commercial—a big part of it is residential. Mr. Penn asked if the Board were to provide 12 mgd from Big River on a 7 month basis that increases the supply by almost 10 percent which means we could have 10 percent more new houses in Kent County.

Chairman Varin wasn't convinced it did really mean that because those houses will be there whether or not we provide the water. Mr. Stamp noted that everyone is absolutely right; you need economic development and where are you going to put it, we need to think conservation, we need to prevent urban sprawl, but how do you do that? Price the product and then to stop urban sprawl, provide incentives for people to keep land in agriculture. Landowners are taxed to capacity. Having the community pay the true cost of water would encourage people to conserve. Try to encourage redevelopment instead of more development. Chairman Varin commented that he had been on 3 or 4 taskforces of committees that looked at the property tax and the conclusions are always the same. It's the worst possible way to raise money and has all sorts of unintended consequences that are no mystery; we know about them—we've talked about some of those. It's a bad system and it ought to be changed, but it is never changed. Mr. Perry explained that the alternatives are not clear or easy to attain. Mr. Stamp noted his belief in user fees.

Mr. Mariscal stated that one thing we had going for us right now is that the state is updating the state's land use plan and we've been very active in working with Statewide Planning in trying to insert into the plan references to water because the view right now is that when developments occur, they don't take into consideration water availability. The development just happens and they expect the water to be there. We have that situation in Kent County as some great examples. Over the last couple of days we've met with Statewide Planning to recommend some changes to the plan. I think we've made some substantive inroads into how planning will be looked at in the future and should be reflected in the draft plan. The draft should be going out to public hearing sometime in the future. Ms. Crawley clarified that the plan would be going to the State Planning Council sometime in December. Mr. Mariscal continued that this is one component because everything translated—all of the goals of the state get translated into the cities and towns comprehensive planning process. So, there will be some changes in the way people approach development in the future.

Mr. Mariscal noted the other issue that was being raised by the legislators last night is reuse and recycle. One of the conversations he had with the RI Environment Council was when they were looking at the numbers here, no one really spoke out against the development of ground water at Big River, which somewhat surprised him. However, the point that was made by a number of people is that the expectation is that the water that is being used now, the water that's available now be used as efficiently as possible. Mr. Mariscal noted that currently this is not being done in Rhode Island, not just in Rhode Island, but not being done in many areas. This provides the opportunity for a quick and easy water source. The tricky part is getting that to happen. There are some good examples in Rhode Island like the golf course in Jamestown, which uses wastewater from the treatment plant, the power plant in Johnston which uses the Cranston treatment plant. One of the tenets of the state land use plan is for public buildings—that there be an emphasis on so called "green buildings." There have been a few that have been developed in the Providence area where water is captured on the roof and used in toilets and so forth. Mr. Penn added that there was a national effort to do this—it's the green building council, there's more and more redevelopment of brown fields are going down for certification for the energy star. It's voluntary right now, but I can tell you the project I'm working on in Fairfield County, we are getting a benefit—a boost—in the value of the development because it's "green." If people want green, they are willing to pay that premium. Mr. Penn explained that "green" was a whole concept, not just water use; it was wastewater, energy-efficiency, building materials, etc. Mr. Parsons asked if anyone had seen the Save the Bay building and Chairman Varin noted it was worth visiting. Mr. Penn explained that now it was a voluntary program, but if "teeth" could be put into it, the real estate developer has to go to the green building council and get into the program and get certified.

Mr. Mariscal explained that one of the requirements that the Board has for the water suppliers is a technical assistance program. He continued that he knew that Kent County used to work with URI _____

Prevention Center. He believed this was an opportunity for us to push that program as much as possible. Again, it goes back to money—let's try to provide incentives for people to do this. We give out money for watershed protection, but maybe we could be giving the money for conservation or to encourage reuse or recycle, which might go further than some of these other projects. So that would be a change in the way we give money, but I don't know if it requires legislative changes, bond changes or other changes. Both Mr. Stamp and Chairman Varin voiced agreement. Mr. Penn added that we are generating excess money in the 4th quarter from the penny on a monthly basis that exceeds the debt service. So funds are available, and they are isolated in Board Corporate. Therefore, if we can develop some creative ways of using those funds for these sorts of projects, the cash flow is there. The question is how we get at it.

Mr. Mariscal explained that he has had discussions with Mr. Patenaude over the last month or so discussing regulations that DEM had been working on a number of years ago before he was diverted to Fiscal Fitness activities, and this is supposed to surface once again, and we had a committee that was looking at this under the water allocation program of which I was actually the chair. So I was thinking maybe we might want to establish another committee—a smaller committee with a couple of different departments. The Health Department has some very valid concerns about cross contamination across connections. We would want DEM obviously since they are composing regulations and some water suppliers as well as some wastewater folks to see if we can establish something. Ms. Good added that this had been on the DEM radar screen for awhile, and noted that if Mr. Patenaude had not been diverted perhaps they would be further along. Ms. Good continued that DEM was coming up with regulations more from the Jamestown issue—if a wastewater treatment plant is going to divert their water elsewhere, we have to do something. Ms. Good was quick to note that it doesn't all have to be regulation, and it doesn't have to go all through DEM. It was simply that DEM was going to start with it that way. She agreed there were many other things that could be done to promote development such as was done at the Wrentham Mall or what Foxboro Stadium did—they have their own self-contained use and reuse.

Mr. Mariscal continued that in recent discussions with some Amgen officials, they have a great interest in introducing the reuse of their wastewater. They are prohibited by FDA from using their plant water back into their process line, but they do a lot of recycle/reuse in other areas, and believe they have very clean effluent that goes to the West Warwick Treatment Facility.

Mr. McKenna added that Mr. Penn had noted sprawl and that might be driven in part by the volume of water that's needed for economic development, but also with the proximity to water lines and infrastructure. Are there thoughts of developing water at Big River and perhaps tapping into Kent County Water Authority or any other water systems—would the Board have wells which would pump it into the KCWA system or would it in essence be a new system that we create? Mr. Perry explained that what has been discussed so far is that it must go where it's needed. It's not to develop a new water system so we can

develop the area; it's to feed areas of demand that already exist. Kent County has an existing transmission distribution system that is sitting right there. You could feed it through the Kent County system to Quonset because they have an interconnection with North Kingstown.

Mr. Penn explained that the Beta Report came back with 2 options: 1) we get into the water business; or 2) we just supply water as a wholesaler—just connect to a pipe. His feeling is with the long term capital constraints that we have to deal with that the second alternative makes sense because we're privatizing. We're using private capital to drill and connect the wells, and we're getting efficiency of using an existing treatment plant and an existing distribution system. Chairman Varin noted that regardless of how we do it, we can certainly control how and where it's used. Mr. Perry noted that from Kent County's standpoint what would happen if a source came online from our southern extremity, what the Authority would do is reduce our draw on the Scituate Reservoir thereby freeing more of the Scituate water for flow elsewhere. Scituate water is already going across the Bay to Barrington, Bristol, and Warren—to Bristol County. Therefore, it would just free up more water to go that way.

Mr. Perry continued that it would be expensive water if it were to be treated as break even. Chairman Varin added that in looking at how sprawl occurs, you can say that these people will go down and build mansions on 5-acre lots in Exeter and West Greenwich with no idea whether or not there is any water there. But, it's hard to beat them up when Amgen puts an addition on their plant which required another 1 mgd without finding out whether or not the water is available. Brooks is doing the same thing with their headquarters. Mr. Parsons and Mr. Perry explained that this did happen with Amgen; however, Brooks had asked. Amgen went on an agreement—they received conditional approval back when they started that KCWA would be able to supply them with that quantity of water based upon the Mishnock well field being in production by the time they needed it—but it is not and they have been so notified. Chairman Varin noted that they have been to see the Governor and they will get the water some way or other. Mr. Perry added that there is a lot of interest and the Authority wants to provide them with the water, and we are working flat out to get our existing wells in Mishnock back in operation and that will bring in 2 mgd at least and when we feed that into our system—that will be our breakeven. We are working on pulling a little bit more water off the Warwick connection and if we can get that worked out, we will be able to feed that into that service area. The problem is not the whole system, but that high service gradient that they happen to be in—that area along Route 95, along the southern boundaries of our system that are in the higher elevations that we have difficulty getting the water to.

Mr. Stamp stated that education was needed to teach consumers how to use water correctly, and communities should take the opportunity to make people recognize the cost involved, and make them look at the cost in a small system and look at regionalization. This Board can certainly find some solutions, but if we put it into the general fund, they will only want more. Mr. Perry noted that Mr. Stamp had just

touched on an issue that was also brought up at the hearing last night and that is the differentials in the cost of water in various parts of the state. Mr. Perry acknowledged Mr. Stamp's understanding and desire to educate others in wise use of water. Mr. Perry noted that KCWA had come to this Board several times and said this Board needs to take a role in this. There needs to be some sort of statewide umbrella—guidance, regulation—on water conservation. Right now companies that are producing water cheaply are making money selling water. These companies are very reluctant to do anything to reduce their revenue flow by encouraging any type of conservation or restriction on the use. Companies like Kent County who have a distribution problem are forced to implement restrictions on use partly because of supply, but primarily because of distribution. The rest of the companies in South County have many, many restrictions because of supply. The same thing happens down in the Newport area. Supply requires them to institute restrictions. We face this problem every day in Warwick. We say you can only water every other day (odd/even), but then we receive complaints because, "The guy across the street can water every single day because he gets his water from the City." The City gets their water from Providence and it's cheaper. There are many reasons for this: age of the systems; cost of maintenance of the infrastructure; cost of distribution. When you have a system that just flows by gravity from the Reservoir, you don't have to pump it, but you're competing with the guy next door who has to pump everything because he's at a higher elevation—it's more expensive. Mr. Perry noted that he was not saying the state must level the expense, but he was saying it needed to level the regulation. You must put everyone under the same rule—that reservoir is not infinite. They come pretty close to their maximum capacity on treatment.

Mr. Stamp stated that the Board could be the catalyst for offering conservation practices. Mr. Penn stated that it would take more than education. The consuming public sees one water system with restrictions and another without and is saying this doesn't compute. Mr. Perry added that they had restrictions, but if his consumers had to go to Block Island and live with those restrictions, they would think they were in hell.

Mr. Mariscal continued that 2 of the priorities identified were: excessive use on a residential basis and the other has to do with education and public outreach. The only funding that we have beside staff time would be a grant. Ms. O'Keefe just put in a grant application to EPA for \$15,000 for a public education program. You might recall that with the Water Allocation program, we had concluded that no one agency could do it all—a collaborative approach working with the nonprofits, the water suppliers and try to come up with a uniform message that could put out there. But, sometimes it takes money to do that.

Mr. Perry added that it must be done. He noted that with the establishment of Phase IV, we must really look at some of the things which have been deemed eligible, and we need to see if we can fit some of the things we're discussing into that eligible list. He continued that there is just not a lot of land left out there to buy, and we must look at realistic programs that are going to protect our water supply. Chairman Varin explained that restrictions could be placed on the grants made to the water systems. Mr. Perry

acknowledged that was one thing which could be done, but also spending money on things needed to encourage people to conserve, i.e., helping to fund some recycling water projects, helping to fund regulations. Ms. Swallow noted her observation that while the list of eligible projects were good, it could be better. She noted that pipe relining was deemed eligible, but it was something that would most likely be done regardless of whether the supplier received money from the Board. She believed it could be distributed more strategically and with more discipline towards things that will truly protect water supply.

Mr. Penn made 2 suggestions: 1) let's review the legislation to see if it needs to be broadened or tightened. 2) Review the bond itself and see where we may have to broaden or tighten it as well. Mr. Perry believed the revision was needed to the bond language, but he believes there are a couple of more things which could be put in there. He noted things like the stream gages which were important to the well head protection program. They are all part of the program. Mr. Perry asked if we could fund stream gages out of this money. Mr. Penn replied that this question had been put to bond counsel and we were told no, but only because the bond language doesn't allow it now. New language for a new phase could include this. Mr. Penn explained that much of the money just sits in an administrative fund and the Board gets to use it only when it reaches critical mass for another phase. However, in the meantime, it's a couple of million dollars just sitting there. Ms. Good noted that perhaps the Board should generate the list of eligible projects it would like to see focused on and then go forward. She believes that the land protection aspect was critical and should be retained.

Mr. Mariscal explained that sometimes we have a high priority in one part of the state which has already used its allotment, and he believed that the distribution of the funds should be considered. Mr. Penn noted that would be done through legislation. Mr. Perry explained that he would like to see some of the money come directly to the Board for Board projects rather than company projects. For instance funding stream gages should be decided by the Board and not by any one entity. Chairman Varin stated that he believed we could do that relatively easily by putting together a list of what we would like to see done and then giving it to bond counsel to review and let him tell us which of the projects we can do, which would require changes to the bond indenture, and which require legislative change. He believed the list was the place to start. Mr. Penn noted that it would be a lot easier to issue a new bond indenture under the new guidelines than to modify the established bond.

Mr. Penn noted Mr. Mariscal's statement that the goal was to reduce consumption to 65 gpd per person from 100 gpd. He noted that was a 35 percent reduction, and should solve all our water problems. Mr. Mariscal explained that this goes back to the efficiency in water use and this is why he's saying we need money for education. Mr. Perry noted this was one problem—how you calculate consumption. It used to be in RI that we had a lot of industry, particularly in the Providence area, but in other cities that were intense water users and we had a high per capita consumption. However, industry today has really reduced

its water consumption—all the big consumers are gone. Therefore, the per capita usage went down, but the home usage is going up and that is where we need to be careful how is that defined. You can go into West Greenwich, you would probably find this huge per capita usage because there is a very small number of public water users in West Greenwich, but you have Amgen using 700,000 gpd—it distorts the numbers. Mr. Parsons noted that pharmaceutical manufacturers require a lot of water, which Mr. Perry was not disputing, but the numbers get distorted because of situations like this. Mr. Perry explained if his system is taken as a whole, the average changes because you have residential areas and a lot of commercial which use very little. A lot of commercial has low usage—even hotels; Super Wal-Mart only uses 7,000 – 8,000 gpd. This is nothing. Mr. Mariscal noted that many commercial establishments these days are taking steps to reduce consumption. Chairman Varin noted that this was more driven by the cost of sewage disposal than the cost of water—which was also fine.

Mr. Parsons asked how usage could be monitored. Mr. Mariscal noted that one of the water allocation recommendations was to get better data. We haven't yet imposed that requirement on water suppliers, but we intend to do that in the next few months. We will have to bring in the water suppliers and explain what we are asking for and work with them to ensure we get the data in the best form possible, so we can better understand what is going on out there. From that data, determine what opportunities are available. Mr. Perry explained that with relatively moderate effort, KCWA could give the Board data. It records data on residential, commercial, and industrial categories. So with moderate effort, they could provide a per capita residential use or a per capita water use by looking at everything together. The thing that is difficult is getting the “capita” in the per capita because we know how many connections we have, but we don't know exactly how many people are there. We have to go with population—we could have a residential use as 200 people because it's a condo. Mr. Perry noted that where he lives there are 500 homes hooked up to a single meter.

Chairman Varin noted that with all the methods involved, a secondary source of information was needed. Mr. Perry noted that just going to the water company is a big problem they would have a hard time telling the Board the exact number of people there. That is the problem. We know we have 29,000 + customers, but we estimate that we service 70,000 people. When Mr. McKenna asked if it was known what was driving the increase in residential use, he was greeted by a chorus stating outside uses—lawn watering and swimming pools. Mr. Perry noted that it was going into newer areas. In older areas, the seasonal fluctuations are relatively small, which means that they have small yards, they would never think of watering their grass even if they had any lawn. However, go into East Greenwich, they had a customer who had a \$4,000 water bill for one quarter. He was upset.

Mr. Mariscal noted that one of the significant points here is that it is seasonal and it is a peaking issue, which is what makes it difficult to supply water—when you have these extremes. Mr. Perry explained that

KCWA's next goal (and he believed others would follow) is to replace aged meters with radio reading meters and go to monthly reads. Once we can get the monthly reads, they will look very hard at seasonal rates. Prompted by a question from Mr. McKenna, it was explained that there is a way to monitor outside water usage. Mr. Mariscal noted that in the NBC coverage area and in Warwick, there was abatement allowed for outside water use and the way to obtain that abatement was to install an outside water use meter. Mr. Perry explained that sprinkler systems were not allowed in Kent County's high service area and when someone asked how to stop it, he explained that the customer signs an agreement and if the Authority finds one being used, the service is shut off—nothing gets their attention better than not having the water they expect.

Mr. Mariscal observed that basically everything that staff had wanted to cover had been covered. However, there were 2 things that Ms. Crawley and Ms. O'Keefe wanted to add. Ms. Crawley explained that there was a 1996 Big River land use study and shortly before that Big River had been designated as open space. The Board decided to update the land use study. This work really falls into 2 categories. One involves getting out there and updating the detail—particularly the GIS coverages in the Big River area and what are the habitats, where are the trails, doing some classification of the trails. We actually have had a CD delivered to us with all that updated information by Brown University—Lynn Carlson and a couple of graduate students worked most of the summer on this project. Ms. Crawley explained that on Monday, December 5, she was expecting the draft report. Additionally, Dr. Anne Veeger from URI has taken the USGS modeling, the optimization work and she's been looking at 10-year contributing times and actually trying to identify the well protection areas around the 5 wells which are most likely to be developed in the Big River Basin. As you know, the Big River Management Area has 3 basins—the Carr, the Mishnock and the Big. The area of least impact would be the Big River, and there are 5 wells that were tested and as a combination would be a good first phase for the Board. Those wells are wells that have been tested and were run in 28 different scenarios with different assumptions being made and have been analyzed in more depth by Dr. Veeger with the modeling data. The idea was to get us a little bit closer to some of that vernal pool information, wetlands information, what's connected and what's not connected, what do the 10-year contributing times look like, what are the response times between the wells and the streams, and what are the areas that we need to protect from a land use perspective in the Big River Management Area. A rough draft of the report is expected and getting this out to the Property Committee—ideally some time in January depending on what the rough draft looks like. If it takes us a little longer, it might be a February-March timeframe.

This project was funded through general revenue. Chairman Varin acknowledged that the Board has done reasonably well in getting the Budget Office to respond to our requests, and on a comparative basis, most departments would rather be in our shoes than the ones they are in because we do comparatively better. But there are real limitations and it's very hard to conduct any new activity.

Mr. McKenna asked if any white papers had been submitted to the Governor's Office, and Mr. Mariscal explained that hadn't been done yet because we need additional funding. Mr. McKenna asked about in-house appeals and Mr. Mariscal explained that had been done and that was where the new revenue for Big River came up—the expectation on the part of the State.

Mr. Penn explained that before we ask for more money, we must look at everything we are doing now and determine whether everything being done now needs to be done.

Ms. O'Keefe spoke at the request of Mr. Mariscal and noted her love of the discussion about education. She noted that she is a master gardener and does landscaping. She explained that she had submitted a grant to the EPA to further our education initiative, and next Friday she would be trained to be a speaker at the Master Gardeners' Speakers Bureau to instruct people on healthy landscapes and how to use less water. It's just a little effort, but it is something to move this discussion on education forward. The other part she is proud of in the master gardener world is that she wrote a chapter in the Master Gardener Training Manual that's been published this year—just came out—about sustainable use of water in the landscape. Her idea was to train the trainers, and they go out and train people to use less water.

Back to water allocation, what we called the water allocation program. The name now really is water management system, and as you will recall—she noted she had 2 memos—one to Mr. Mariscal from Ms. O'Keefe talking about what we have accomplished in the last year, and in reference to that is the second memo, which is the water allocation program recommendations. As you will recall the Board has 6 priority recommendations:

- 1) To adopt a priority water use policy;
- 2) Create the water management system that is in the watershed approach;
- 3) Expand the water use data reporting (we've covered a lot of this in today's conversation);
- 4) Establish a water allocation implementation team;
- 5) Continue the DEM/USGS partnership on stream flow (our discussion about stream gages);
- 6) Develop the education and outreach program

In looking back and determining what we have accomplished and determining what we want to do next, look at the mission and goals that was submitted to the Governor's Office. What did we tell them we were going to do? How does it relate to our priority recommendations? We have almost completed our water use and availability studies. USGS has told us that the final 3 studies will be submitted no later than April of 2006. At the same time, they are creating a statewide summary of water use and availability. Again, much of this is based on the wells, the stream gages and all that detailed work that needs to be done to bring the data forward to us.

We are in the process of translating the USGS studies—that's part of the work of the implementation team. Mr. Penn wanted to know what "translation" meant. Ms. O'Keefe explained that there was a lot of technical information provided by USGS—a lot of scientific information. But, we need to be able to walk into a municipality and we need to say because of all of this analytic work which has gone on, it is estimated that your town resides within 2 basins (for Block Island—one basin) and there is just about this amount of water in your area. Now we have also calculated how much water is used on Block Island and when the summer folks come in, your water use increased to this much. Now, given you've used this much and we think you have this much, it looks like this much more is available. Now in terms of land use planning, in terms of economic development, these figures could be useful for your planning.

In the meeting of the implementation team, we tried to work out technical details, the watershed basin definitions down to a simplistic level, so people could begin to understand. Finally, we tried to develop guidance. OK, given that all land is located within a watershed, given that you have this much water right now, given that you use this much, OK, what can we the Board tell you about what needs to be done. Do you put in more pipes, more infrastructure, do we continue to create sprawl, or do you indeed start to find ways to conserve water? And, what do we do when we tell—what kind of guidance can we provide on how to do that. We know there are best management practices for business; we know there are bmp's for residential—how can we translate that easily, so that the town or economic development group, how can they convey that to a potential developer and then require various land uses, designs so we do get more water conservation, so we do reduce water usage and are indeed conserving water. So we have continued our scientific studies. We are going to get a few products out of USGS using this data: a digital atlas which will make it a little easier for towns to understand their position within a watershed, to understand water availability and use—a visual picture which we believe will be important. There is a NEWUDS database and there is also a RI database and we are beginning to merge those two things together. Important to the work of the water management system is the assessment of the water management options in the critical areas, and those studies are again underway and Ms. Crawley referred to them.

Drought management program is under the water management system umbrella and as you know we convened the drought steering committee because of agricultural impacts that were caused by lack of precipitation, and because there were lowered stream flows and increasing water demand. We plan to do more work in that area in the spring of this year. Again, that heads down the road toward conservation. That's pretty much it; the stream gages and well sites already were discussed. Hopefully, the EPA will come around and fund this little mini-proposal that we requested they fund, so we can convene a statewide water conservation and education summit, which will bring together all the groups that work with the environment, that want to preserve and conserve the environment, provide educational programs. Bring them together and try to establish a unified message—maybe develop a stewardship philosophy for the state.

Mr. Penn asked about enforcement. It sounds like what we will be doing is providing advice to government entities, but if those entities do not have the political will to take our advice what happens. Chairman Varin noted that he believed that this system would have to be implemented through the comprehensive planning, zoning and subdivision laws. By getting this kind of information into the State Guide Plan and then following up and making sure that the cities and towns are using it in making their land use decisions and allocations of areas to commerce and residential development and so forth. This is in there now; it's in the regulations, but in the first round of comprehensive plans and the Chairman was still working when that started, the planners and the water suppliers by and large did not talk to each other. Those plans do not reflect in their development of allocations how much water they have available to them, and at least in one case, the planner's response was, "what do I care? We get it from Scituate—what do I care where it comes from as long as it comes". We are going to be in a position first to make the information available. You can't expect people to make decisions without information. I think they are enforceable decisions because the communities are required to do those allocations and zoning and what have you in accordance with the State Guide Plan. Now that's a second hand approach, but it doesn't take any legislation, it's nothing new in concept. It's new in application because the information was not available 5 or 10 years ago when the first round of plans was drawn up. I think the communities generally will respond well to information that they find credible and gives them a better basis for making these land use allocations and decisions. I don't think there will be a tremendous amount of resistance to that, but then you have to get them to stick to it. You must get them to do what they said they will do. The enforcement will not be easy, but the Chairman believes the mechanism is there.

Ms. Swallow wanted to add 2 thoughts to this. One was water supply planning at the local level, it makes tremendous sense that we have both the wastewater and the ISDS and the public water review and approval at the state level, but it has left towns without local health departments and a local voice for both wastewater and drinking water. It's often discussed at the Health Department, how can we get that local voice for drinking water and wastewater appropriate treatment into the zoning, someone who is actually at those zoning meetings reminding everyone, once again, reminding everyone that there is a wastewater issue or whatever the issue might be. The other thought mentioned by Mr. Penn—how do we enforce? This is not a decision that the Board has made, and the Board has to make this decision, but we could under the water allocation program go to permitting—an enforceable type of program. It is something to think about.

Chairman Varin agreed the Board could do it, but would rather not, and make it work some other way. Ms. Good noted that the water availability studies were a good first step to link into the land use planning at the municipal level. But there is still a pretty broad based look at water availability in a watershed from a municipality. Even a municipality that has an established drinking water supply, they are not going to know if they can supply the whole region just by the location of those wells. The watershed might have plenty of water there, but if you are taking it from the wrong location or lower in the watershed, you may

not have that. We haven't looked at all of the environmental implications of the withdrawals and things like that, so it is still broad brushed, but it will give a municipality an idea what they are overtaxing or coming close to overtaxing and what they have available. We have to have caveats in the information that we give them, because I don't want to send the message that the ones which look like they are way over have plenty of allocation available that they truly do because they may not depending on where they are getting the water from.

Mr. Penn explained that in his community (Block Island), the comprehensive plan is something that is on a shelf in town hall and decisions are being made at the zoning table. In certain situations, if it's a water district or sewer district there is a 3rd party. But, how many communities at the day-to-day, monthly meetings are thinking about this kind of information? Mr. Perry explained that 9 times out of 10, the comprehensive plan only enters the picture if someone is objecting and they raise the issue that it is not in conformance with the comprehensive plan. Then they send the planner to get the plan to show the board. Chairman Varin acknowledged that even that is a tremendous advance over where things were 10 years ago and explained that this was only an example repeated many times. We asked the Warwick Zoning Board how they used Warwick's Comprehensive Plan, not a single member of the board knew there was one or had ever looked into it. Mr. Perry stated that he would not be surprised if a very high percentage of boards today, particularly zoning boards were still the same. The Chairman noted that he believed this had changed, but Mr. Perry stated he did not agree—it may have changed with respect to planning boards, but he did not believe it had changed with zoning boards.

Chairman Varin continued that the Providence Zoning Board had met the night before and had 12 applications on the agenda. There was no recommendation from the planning department on one of the applications. The board tabled it saying they would await that recommendation. Mr. Perry continued that they are waiting for the planning department, but as far as the individual members being familiar with the plan . . . What he was saying was that if there is no objection—even if the item does not conform to the comprehensive plan—it will get through. Chairman Varin again noted his belief that this is changing.

Ms. Crawley noted that the Board was taking some very important first steps and if we don't do anything more than coordinate the water systems supply plans and the community comprehensive plans and ensure that water is considered in 3 elements instead of 2—land use, services and facilities, and also natural resources—we have made a huge leap forward doing that. If we also do our build out analysis in our communities which every land use element in the community comprehensive plan does and we start to think about what the demand for water is as part of that build out, we have taken a huge step forward. For all of those reasons, it gives us as a Board some ways to better evaluate where we think the pressures are, and where we think we are running into problems potentially in the future. It may mean that further on down the line, we are looking at regional water planning initiatives or regional conservation initiatives, but

that's the kind of information we need to be able to assess that moving forward. It's part of the whole translation effort that's underway. Chairman Varin noted that the term "translation" as he understood it was that the scientific studies are great, but local officials cannot use them as they are published; they cannot understand them. They must be translated into terms that they use daily in making decisions.

Mr. Perry continued that the other thing that definitely needs to be done is note that the studies are not accurate. For instance one study says that Kent County has nothing to worry about because it has enough water to supply demand on the "average day." Unfortunately, no one is concerned with the "average day," they are concerned with the maximum day. He continued that the studies have a university seal and then everyone cites them as Gospel. It keeps coming back to us and saying you have plenty of water—here's the study that says you have plenty of water. Chairman Varin acknowledged that there may never be an "average day."

Chairman Varin noted that he had discussed Tiverton's 3rd water system before—that happened a couple of decades ago—when that proposal came into Statewide Planning, the division started to look at why a 3rd system. Well, this eastern part of the town is having problems. The wells are no good anymore. We found an engineering study that the town had paid for which told them don't allow development in that area because the water supply won't hold up. They ignored it. Maybe the study wasn't in the right terminology; the recommendation was certainly strong enough. I think we have a better way particularly through the water supply systems management plans now to first allow us to watch the situation. Second, we can notify localities when things are looking strange. Mr. Perry noted that some of that relates to continuity. Studies get done and the people that were there when they were done are gone, the studies are sitting on the shelf, but how many studies can you read?

Mr. Stamp noted that he did not like to talk planning; he prefers someone being a catalyst of thought. He has a farm and when he is producing a crop, he always appreciates it when someone out there is doing something to see how I can change things to better provide for the community. He believes this is the tone that is needed. We need people who do research and look at things and they have to teach and provide opportunities and look at alternatives, so the communities can manage themselves. You need to create an awareness of water and its usage and how to use it conservatively in order to maintain it for all in the community. It takes the initiative of people to educate and to help people learn how to do it on their own. Communities don't want to be controlled; they want to be taught. Chairman Varin concluded that they will use the information if it is brought to their attention. Mr. Stamp continued that not only was it the people in the venue of leadership—in the councils, and the boards—it's the individuals who build houses, it's the individuals who farm, it's the individuals who take care of the sewer system, it's the individuals who provide the water—it's everybody. When you can get that holistic approach going forward, then you can get the community to go forward because they understand what's going on and try to keep everyone going

forward at once. The aspect of too much control turns a lot of people off because they feel that what their knowledge is is worth less than the person that sits behind all those technical figures as the all-knowing authority and I don't agree.

Ms. O'Keefe offered 2 concluding points. The last year has been spent working on these documents especially the technical and guidance document because we want to provide an ideal solution. We want them to think about areas that they think are important areas in their city or town. We want to give them ideas. She had reviewed a document from Texas a couple of days ago, and their guidance is 300 pages. I don't think we want to do 300 pages because I think it will get lost. But, we have to make a simple, clear statement to help people. Finally, we spent 2 days working with statewide planning this week asking them to incorporate the word "water" into the land use plan—land and water use. Just the idea of getting "water" inserted in the plan where people think, "oh, and let me think about water?"

Mr. Mariscal noted that an excellent study was done, Supplemental Water Study Phase I, which outlined a number of different alternative water sources—develop or redevelop where there were abandoned wells and so forth. I look at that—I have a schematic next to my desk and I look at it everyday and say, "So what do we do now with all of this?" That is something that the Board needs to think about and we will have to come back to that at some point. There was a lot of good thinking and a lot of good work getting that done, so now what projects from that should be pursued.

Mr. Penn noted that on the wellhead protection program, we have an allocation of state G.O. bonds sitting there unspent; therefore, we should be trying to spend that money. Mr. Mariscal responded that the staff is—Mr. Rivero is concentrating on this and he and Mr. Mariscal spent a day down in South County, so Mr. Rivero could educate Mr. Mariscal about where all the sites were and all the possibilities. We do have a number of sites we are going forward with in the near future. We have a site for which we want to go to the State Properties Committee to get approval from them and this will be on the PDWP's agenda next Tuesday. So, we are moving on that as well.

Mr. Mariscal noted that there were certainly many "to do's" which resulted from today's meeting. We will go back and try to make some sense of this and come back to you and probably have another meeting in January with some specific action items for your approval.

Mr. McKenna noted his appreciation for the well-written priorities memorandum. Chairman Varin noted that there had been several drafts of the memo as well as several contributing authors. He added that he believed the Board should have more meetings like this where every member is a member and can choose whether or not to attend, they are always open to the public, but we don't want to overload your time any more, but today's discussion was worthwhile. There are many more issues, as well as following up on the

ones we discussed today, and we need to get together on these issues from time to time and talk.

Chairman Varin concluded by noting that he had recently begun to read a book called, *Water Follies*, which was a companion of an older book, *The Cadillac Desert*. The latter deals with surface water, primarily in the western states, but nationwide. *Water Follies* deals with ground water, again, primarily in the western states, but also nationwide. For example, the disappearance of the Ipswich River in Massachusetts is discussed as well as other horror stories about rivers disappearing never to return. It is a paperback and if anyone is interested, he'll find out who the author is and who sells it.

Respectfully submitted,

Tracy Shields
Personnel Aide

**Note: The full proceeding of this meeting is available on audiotape by request.*

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