

Town of Washington
Wastewater System Feasibility Study

MANAGEMENT PROGRAM FOR A
DECENTRALIZED WASTEWATER SYSTEM

by
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1. INTRODUCTION

The Town of Washington is investigating the feasibility of employing decentralized wastewater systems--each serving one or a small cluster of homes and/or businesses--in place of holding tanks and a centralized treatment station. The types of treatment systems which would be required to provide environmentally sound wastewater management for the site conditions typically encountered on Washington Island have been detailed in a previous report completed for this study. Because such systems are presently unknown to the Wisconsin Department of Natural Resources (DNR) and the Wisconsin Department of Industry, Labor and Human Relations (DILHR), those agencies would require the Town to conduct a program of water quality testing on several "demonstration" systems before giving general approval for their use on Washington Island. [Note: The functions discussed herein that were executed at the time this paper was written by DILHR are now housed in the Wisconsin Department of Commerce.] Beyond that, these agencies would also most likely require that a "routine" water quality monitoring program be executed for each system. Further, since the proposed treatment systems are more complex than "typical" on-site wastewater systems, it is advisable to conduct a program of surveillance on the general operation of the system.

This report explores options for conducting all these management functions. Section 2 explores options for long-term management of the entire system. Activities necessary to assure the long-term viability of the systems are delineated, and options for the conduct of these activities and for ownership of the system hardware are set forth. Following that is a discussion of the management issues as they relate particularly to the Town of Washington. In Section 3, arrangements for managing the design, installation, inspection and monitoring of the "demonstration" systems are proposed.

2. MANAGEMENT ISSUES AND STRATEGIES

2.1 MANAGEMENT SYSTEM FUNCTIONS

A decentralized management system must, above all else, assure that technologies appropriate to the constraints encountered on each site are implemented and that they are properly operated and maintained. In pursuit of this "bottom line" goal, overall management of the entire wastewater system entails several discrete functions. These include:

- * Planning -- The necessity for various actions--both management and technological--must be established, and rules to assure their execution must be promulgated. The agency or agencies with responsibility for each aspect of management must be identified and their capabilities evaluated. Other planning items may include an operations plan, a financial plan, an implementation plan, and coordination with land use planning.
- * Site evaluation -- The importance of this function to the choice of proper technology is obvious. The management system must enforce and facilitate these activities.
- * System design -- Also obvious is that the chosen wastewater system must be properly designed, based upon the site constraints, if it is to function as envisioned. The management system must enforce and facilitate the design process. This may involve development of design standards, provision of design guidance, review and approval of designs, or complete design responsibility.
- * Installation supervision -- The best designs will go for naught if they are not properly installed. The management system must provide for inspection of system construction, and it must also assure that the persons performing the work are qualified and competent to address the technological solution proposed.
- * Operation and maintenance -- Proper execution of this function must be assured if the system is to continue to function as desired. O & M functions include timely pumping of tanks and proper handling of septage, executing treatment and dispersal system repairs when needed, and ensuring that all system components--such as pumps and filters--remain functional. The management system must enforce and facilitate the consistent performance of these activities.
- * System inspection -- To assure that O & M procedures continue to be properly applied, periodic inspection of systems must be provided for by the management system. The frequency and detail of these inspections would be largely determined by the nature of the technologies employed.
- * Financing -- Fiscal resources needed to carry out all functions of the management system must be assured. The management plan must incorporate adequate funding for the agency or agencies carrying out various management functions. This may involve setting of user charges, design fees, inspection fees, etc.
- * Water quality monitoring -- Feedback on actual performance is necessary to evaluate if the technological options being implemented are in fact minimizing water quality degradation. The management system should provide this feedback through a program of water quality monitoring and analysis.

- * Public education -- To rally support for the use of the necessary and proper technological solutions--especially when they may be more costly than conventional practice--and for funding of the required management activities may require education of the public on the benefits of a "better" management system. Also, the potential users of these systems must be educated on their capabilities, limitations, etc. Public education measures may include workshops, seminars, brochures, films, news spots, and school programs.
- * Program coordination -- The aspects of management which are carried out by different "players" must be coordinated to produce the most effective and efficient management program.

All these activities must occur in order to properly manage decentralized on-site/small-scale systems so as to avoid water quality degradation and to maximize cost efficiency of the entire system. Those functions which are not explicitly assumed or assigned by an organized management entity will fall by default to system users, installers, etc., on an ad hoc basis, or they will be neglected.

The above descriptions indicate that "players" other than the Town government may be involved in the complete management system. The figure on the following page illustrates how services, the users and suppliers of those services, and the regulatory structure may interact. This makes it clear that there are alternative organizational schemes for accomplishing the management functions. For example, under the present system of on-site wastewater management, the private sector and the county government jointly conduct site investigations, the private sector executes system designs, county government and state agencies review designs and issue approvals, the user is solely responsible for financing the project, and so on. Thus, the form, content, powers and duties of any management program is subject to how many of these functions each management entity chooses to assume. This leads to consideration of options for the management structure.

2.2 MANAGEMENT STRUCTURE OPTIONS

Two basic options for the management structure can be identified. One is to continue with a "DILHR-type" structure, with Door County continuing to assume responsibility for assuring proper site inspection, system design and installation, and ongoing surveillance. To accommodate the technologies proposed for use on Washington Island under this structure would require the promulgation of new regulations to mandate and/or encourage the desired actions. That would entail enacting the appropriate rules and regulations, making contracts necessary to execute them in practice, obtaining authority not currently granted (e.g., right of entry for ongoing inspection and monitoring), hiring personnel technically competent to deal with the proposed technologies, and providing the appropriate policy direction as required to implement the new management functions and/or strengthen existing ones. It would probably also imply some consideration of how to fund the new or revamped activities.

If, in the future, similar technological solutions are implemented in other parts of Door County, it would make sense to retain the current county-level management structure. In the short term, however, it is doubtful that the changes required for the county to properly manage the Washington Island systems could be implemented in a timely manner. At this point, there is no indication that the

county would be willing to entertain this possibility. To arrive at a consensus upon this issue will require that the pros and cons of that proposition be explored and debated by county government officials and their constituents. Before those pros and cons can even be properly elucidated, however, the prospects for broadscale implementation of the technologies proposed for use on Washington Island must be clarified.

This "Catch 22" situation makes it imperative that, for the present at least, the focus be on the second basic option for a management structure. This approach is to create a management district which may partially or completely replace the activities of Door County and/or provide functions not currently addressed in an organized fashion. Issues impacting upon how such a district is organized are outlined below.

2.2.1 Form and Powers of a Management District

A management district for on-site wastewater systems may be a governmental body, a quasi-governmental body, or a private entity. It appears that, in Wisconsin, towns are granted adequate powers to execute or assign (oversee the execution by private parties) all the required management functions. Separate bodies, such as a sanitary district, may also have the required powers. Private water and sewer suppliers or home-owner's corporations may provide some of the management functions through contracts, articles of incorporation and/or deed restrictions.

Whatever its form, the management entity should be guaranteed permanency and continued fiscal solvency. It should also possess specific rights, including:

- * Authority to own, purchase, lease and rent both real and personal property;
- * Right of access to the systems it governs by covenant, ordinance, or other suitable instrument running with the land;
- * Eligibility for loans and grants for construction of facilities;
- * Ability to enter into contracts and to undertake debt obligations, either by borrowing or issuing stocks or bonds;
- * Authority to set and collect charges for system usage and/or oversight, set the value of such benefit, and assess or collect the cost from each property owner that is benefited;
- * Power to make rules and regulations regarding use of on-site systems; and
- * Power to require the abatement of malfunctioning systems.

2.2.2 Functional Organization of a Management District

The choice of management entity is further predicated upon a definition of the management functions it must perform. Two distinct types of districts can be entertained:

- * Maintenance districts, which only control installed systems, assuring their continued proper function, while leaving the governance of system choice, design, installation, etc., to the usual permitting processes; and
- * Total management districts, which oversee design, etc., as well as assuring continued proper functioning.

Site inspection and system design, permitting and inspection could be accommodated under current DILHR procedures. However, each system would essentially be addressed as a "one-off" experimental system, since the technological solutions being proposed are, at present, totally outside of existing codes. Each potential user would have to hire consultants conversant with the options being proposed to advance the experimental permit application, including design of the system and justification for that design. Further, it would be left to users to independently "broker" any arrangements for small-scale collective systems or off-site facilities.

Under a "total management" approach, a management district may be able to address all these processes on behalf of the users. Once the proposed technological solutions are "proved up" through the "demonstration" program, the management district might unilaterally adopt standards for site qualification and system design. Some central authority with the powers outlined previously would also be capable of making arrangements for collectivizing treatment and/or dispersal systems. There may be many situations where this strategy would allow "on-site" management for sites not capable of accommodating an environmentally sound dispersal field and/or where this strategy would provide more cost efficient management.

Another dichotomy which can be identified deals with ownership of system hardware:

- * The systems may be privately owned, but publicly managed. The owner would pay user charges to the management district, which performs the necessary surveillance and monitoring, and perhaps also performs maintenance functions for the owner. System rehabilitation or replacement would usually be the owner's responsibility under this mode. This scheme could be employed equally well in either a maintenance district or a total management district.
- * The systems may be publicly owned and managed. All management activities, including rehabilitation or replacement, would be performed by the management district. Various arrangements for funding these activities could be entertained--e.g., a "regular" user charge for routine surveillance, monitoring and maintenance, and a "special" assessment for major repairs or system replacement. While one could envision a system where the owner bears responsibility for original construction of the system, then turns it over to a maintenance district, this mode is much better suited to a total management district.

Various "hybrids" of these general scenarios are possible, of course. For example, the management entity might specify designs, oversee installation and provide surveillance, monitoring,

and maintenance--and perhaps even have title to the completed system, but require the owner to independently engage and pay contractors for all construction.

The choice of district type and scope of authority has implications for user costs, due to the type and extent of administrative system and labor force which must be established. If it is assumed that all management functions must be supplied--and paid for--regardless of whether responsibility is left with the owner or is assumed by the management district, then there would be a tradeoff between what the owner pays for directly vs. what he/she pays for indirectly through user charges, permit fees, inspection fees, etc. One's feelings about the efficiency and quality of publicly sponsored activities vs. regulated private sector activities will undoubtedly influence which approach is preferred.

2.3 WASHINGTON ISLAND MANAGEMENT SYSTEM

DNR would prefer that a "total management" approach be taken, that the management district be the Town of Washington, and that the Town government be the management entity--in short, that the wastewater system be operated as a "municipal" system. The previous discussions indicate that there appears to be a great deal of merit to that strategy.

It appears that the Town already possesses many--if not all--of the powers necessary to execute and/or assign the necessary management activities. The only other existing entity which may possess the required powers appears to be Door County. For reasons detailed previously, the county government is unlikely to be able to accommodate all required management functions for the time being. There does not appear to be any advantage to creating a new entity, such as a sanitary district, solely for the purpose of addressing decentralized system management in the Town of Washington.

It can be questioned whether the Town has the authority to unilaterally promulgate standards for site qualification and design of on-site systems within its jurisdiction. However, approval for broadscale implementation of the proposed technologies after completion of the "demonstration" phase implies that eventually the statewide codes would "catch up" with what is technologically possible and practical, so that the Town would not, in fact, be imposing these standards unilaterally in the long term. Thus, there is merely a "window of uncertainty" regarding how the permitting process would be addressed until state codes were appropriately modified.

If it is accepted that the Town would undertake implementation of a "total management" system, it remains to define which functions the Town would execute with its own forces, and which would be executed by the private sector, subject to Town review and approval. Issues which may determine the preferred course of action are reviewed below.

2.3.1 Ownership

This is one of the most fundamental choices which must be made. Because of its impacts upon other factors, there may be a strong sentiment for retaining private ownership of the system hardware. A critical factor regarding this choice is the method by which system construction would be financed. Obviously, if system construction is financed by the users directly, private ownership of system

hardware is a credible choice. However, if the Town decides to use Clean Water Fund monies (whether a grant or a loan), then the Town must directly pay for construction of the system hardware. This is because, in practice, those monies are remitted only in response to submittal of invoices for work billed to the Town. Whether this arrangement implies that the Town must then own these facilities fee simple is a legal question which must be resolved.

In cases where off-site dispersal fields and/or small-scale collective systems are employed, an argument could be made that Town ownership of off-site or shared facilities is the preferred approach. Alternatively, the Town could simply "broker" the granting of an easement by the owner of land used for off-site facilities to the system user(s). And, in the case of shared facilities, it should be possible to make legal arrangements for shared ownership and/or easement rights among the co-users. This "private sector" approach assumes, of course, that all participants are willing to enter into such agreements. How practical those measures are found to be would probably determine if direct Town ownership is necessary to make these arrangements workable.

2.3.2 Design

Under current procedures for permitting on-site systems, the owner hires soil testers, engineers, plumbers, etc.--who operate as independent contractors--to perform required site investigations, propose the type of system, execute system design, and obtain the permit. Except upon change of ownership--at which time the county conducts an inspection--this process is initiated by the owner. One of these contractors--typically an engineer or plumber--may also make arrangements on behalf of the owner for construction of the system, and may also inspect system construction to ensure that it is executed properly.

It is conceivable that, even under a Town-sponsored "total management" system, this current arrangement could be maintained. However, it should be more efficient for the Town to handle all these duties directly. And, of course, if fee simple ownership of the system remains with the Town, it would be highly desirable from the Town's perspective to control this process, regardless of its relative efficiency. Also, by "centralizing" these processes, the Town is more assured that the persons selected to execute these functions are conversant with the full range of options available, whether or not they are currently code-compliant.

It is further noted that DNR expects the Town to "ferret out" in some manner all currently failing systems, without regard to a change in ownership, and execute appropriate corrective action in every case. The Town--rather than each user individually--is therefore the logical agent for initiating and executing the site investigations and proposing the appropriate corrective action. Any or all of these functions could be performed by Town employees, or the Town could contract for their execution.

2.3.3 Construction

As noted above, implicit in Clean Water Fund financing of the project is that the Town must directly pay for system construction, regardless of who retains fee simple ownership of the facilities. Questions such as who chooses each contractor, which contractor works on which system, etc., are of concern to the Town, the users, and the contractors. This raises the issue of to what extent the Town intervenes in what have historically been direct relationships between construction tradesmen and individual owners. In planning for the centralized pump & haul system previously proposed for Washington Island, the Town's position was that it did not wish to intervene in dealings between pumping contractors and system users. Would there be a similar reluctance to dictate to individual users and to contractors the arrangements for construction of the decentralized systems?

If the Town rather than the system owner chooses the contractor, then even if fee simple ownership remains with the user, there may be an implicit responsibility on the Town's part to directly execute and pay for any system repairs or rehabilitation. This then may foreclose the option of privatizing any of the O & M functions. Also, an owner may believe that a certain contractor's work is not as good as others. If, through whatever process the contractor is chosen, the Town awards construction of that owner's system to that contractor, how would such conflicts be resolved? The contractors would also be quite concerned with the basis upon which those awards are made. In particular, their ability to cope with the institutional arrangements, which may diverge greatly from present "customs" of conducting such business operations on Washington Island, may prevent some or all local contractors from competing for these projects.

It could be explored whether the Town can be reimbursed from Clean Water Fund monies if, rather than being directly invoiced by the system contractor, the construction costs are disbursed on a sort of "voucher" system to the owner, who then uses these funds to directly employ the contractor of his/her choice. This would preserve the historic relationship between the owner and construction tradesmen, and it also implies that the user rather than the Town could logically be assigned the fiscal responsibility for repairs or rehabilitation. Further, it would allow the owner to schedule the work at his/her and the contractor's mutual convenience, while a Town-sponsored contract might not be able to accommodate such flexibility.

It may be brought to question, however, whether system construction would be addressed in the most cost effective manner under such an arrangement. If the owner would be reimbursed for a significant portion of the system cost, his/her incentive to "shop" for the best quality at the lowest price would be reduced. In the end, such an arrangement might lead to "gold-plating" of these projects. Therefore, some provisions for cost containment must be included in the arrangements. Perhaps a "standard" allowance for a system of a given size could be derived.

On the other hand, it may be found to be most workable--and perhaps even in the best interests of all concerned--for the Town to directly control system construction, regardless of whether or not the Town retains fee simple ownership of the hardware. This type of arrangement usually works well for a more typical municipal wastewater system. Individual lot owners have little direct say regarding who is awarded the contract for construction of sewers and treatment plants. Of course, people may feel they should have more say about facilities built on their own property, for the reasons set forth previously.

2.3.4 Monitoring

In the long term, it is to be expected that the technologies proposed for use on Washington Island would gain a status similar to currently code-compliant on-site systems, which implies that no "routine" water quality monitoring would be required. For the foreseeable future, however, DILHR is likely to require that a monitoring program be conducted, though at a far less "intensive" level than during the "demonstration" phase. And in any case, given the more complex systems involved, an ongoing program of surveillance of general operation would be required.

Here again, the Town may conduct surveillance, sample collection, and lab analysis with its own forces, or it may privatize any or all of these functions by contracting for their execution. It was assumed in the cost effectiveness analysis that there would be about 130 systems serving permanent residences and about 257 systems serving seasonal residences. If it is assumed that quarterly inspections would be required, this implies an average of about 6.5 inspections per day in the summer, and about 2 inspections per day in the winter. It appears that at least a "seasonal full-time" employee would be justified for this function, so it may be most cost efficient for the Town to execute surveillance and sample collection with its own forces.

It may also be practical for the Town to establish its own lab on the island. This may greatly decrease the costs of lab analysis for the water quality monitoring program, since shipping cost would be high if an off-island lab were used, regardless of how favorable a price for analysis could be obtained. The availability of competent personnel and the certification requirements for a lab on the island would be critical factors determining the appropriate course of action.

2.3.5 Maintenance

From time to time, system inspections will reveal problems which must be attended to. Two distinct modes of operation can be entertained in regard to this function. One is for the Town to inspect the systems and inform the user of any maintenance needed. The owner would then directly arrange for the work to be done, perhaps even performing it personally. Except for pump failures, it is expected that the exact timing of any required maintenance would not be critical, so such a system might be workable, assuming there are provisions made for immediate replacement of failed pumps. A protocol which calls for follow-up inspections after the work is completed could be implemented in order to ensure that the work is done properly.

The other mode is for the Town to directly execute required maintenance. This may provide greater assurance that these functions would be completed properly and in a timely manner. This work could still be privatized by using independent contractors rather than Town employees to do it. This would probably require that these contractors have some sort of "retainer" arrangement with the Town, so that they would be "on call" to complete the work in a timely fashion.

It was noted that pump failures are a special case. Since design theory assumes that a failed pump would be replaced within 24 hours after the alarm goes off, provisions must be made to ensure that action. The procedure is very simple, and it is routinely executed by the system owner for other types of on-site systems which incorporate a pump (mounds, LPD, etc.). It is proposed to design both

the electrical and plumbing hookups of the pumps so that the replacement can be easily accomplished. Therefore, the physical process of pump replacement should not be a great problem, even if it is left to the owner to do. However, the Town must take steps to assure that an adequate supply of pumps are readily available on the island. This implies that, whatever arrangements are made to execute pump replacement, the Town should maintain an inventory of each size of pump being employed in the systems. Again, this activity could be privatized by requiring as a condition of service that a contractor "retained" to execute system maintenance rather than the Town directly stock an inventory of these pumps.

3. MANAGEMENT OF THE "DEMONSTRATION" PHASE

Regardless of how the capital costs of the proposed decentralized systems would be funded in the long term, the basis of the "demonstration" phase is that the design, construction and evaluation of those systems would be covered in large part by a Clean Water Fund loan/grant, and/or other "public" funds. Therefore, regardless of how the "production" phase decentralized systems would be managed in the long term, it is only logical that the Town directly arrange for and control to the maximum practical extent the activities required to complete the "demonstration" phase. This section discusses how this phase can be managed so that both the fiscal and physical management systems could readily transition to whatever long-term arrangements are finally adopted by the Town.

First, regarding the capital costs of the "demonstration" systems, two factors dictate that there be some cost participation by each user:

- (1) It is not settled whether "production" systems would be publicly funded in part or paid for entirely by the users. If it turned out that future owners who install systems in the "production" phase would have to pay all the capital costs, it would probably be objectionable for the participants in the "demonstration" phase to have gotten a "free ride" through total public funding of their systems.
- (2) The "demonstration" systems are formally viewed as "experiments" by the regulatory agencies. Some fund must be generated to replace the "demonstration" systems with code-compliant alternatives if, at the end of the "demonstration" phase, the regulators decide that the "experiments" have failed.

To address these issues, it is proposed that each participant in the "demonstration" phase pay some portion of the capital costs of his/her system. It is suggested that the amount of this payment be the estimated cost of installing a new holding tank to serve that particular user. This would create the fund noted in item (2) above.

Further, it is suggested that it be understood that the eventual cost to each participant in the "demonstration" phase would be "equalized" with the cost participation finally accruing to owners who install systems in the "production" phase. If no public funding is obtained for "production" systems, then each participant in the "demonstration" systems would have to pay the remainder of the capital costs of his/her system. If the costs of "production" systems turn out to be partially grant-

funded, each "demonstration" system participant would be refunded an appropriate portion of the amount he/she had originally paid, so that the percent of total capital cost finally incurred would be equal to that incurred by grant-funded "production" systems.

For the purposes of the "demonstration" systems, it is proposed that the Town undertake all arrangements to install the systems and pay the capital costs. The users would remit the payments discussed above to the Town, which would deposit it in a fund to be used to replace the "demonstration" systems, to refund the owners for the portion of the cost covered by grant funds, or to refund the state for part of the Clean Water Fund monies, as appropriate.

The Town would then directly hire contractors to install the systems. In this manner, it would be directly invoiced for the work, so that reimbursement could be obtained from Clean Water Fund monies. This would require that some thought be given to how the Town would deal with the contractors. There is a desire to use local tradesmen to the maximum practical extent and to distribute the work among competing contractors on some equitable basis.

A potential problem in this regard is a requirement that the Town put out for bids any construction contract with an estimated value of \$10,000 or greater. It is preliminarily suggested that the Town might act as the "contractor" for the overall project and "subcontract" specific functions. While construction of all the "demonstration" phase treatment and dispersal systems may cost well in excess of \$100,000, and any one system may cost more than \$10,000, the expected costs of each specific function--e.g., excavation, tank construction, pump installation, field construction--for any given system are all well below \$10,000. It may be that the Town would be free to let a series of contracts for each function on each system without violating the bidding requirement. This would allow the Town to meet its desires regarding use of local contractors and distribution of work among them.

Another barrier to being able to distribute work among local tradesmen in this manner is the code requirement that a master plumber maintain oversight of the entire project, which implies that the Town might have to contract all construction activities through a plumber. It is expected that this problem can be circumvented for purposes of the "demonstration" systems, however. DILHR has given a verbal commitment that it would allow this oversight and certification responsibility to be assigned instead to the engineer hired by the Town to design the systems and inspect their construction.

As noted in the last section, it must be determined whether, if the Town pays for construction, it must then own the facilities fee simple. It is proposed that, in the general case, the Town would not retain fee simple ownership of the system hardware. Each owner would grant the Town a blanket easement to enter the property at all reasonable times for the purposes of conducting any surveillance, monitoring, maintenance or repairs as are deemed appropriate by the Town. Each owner must also agree that if, upon commencement of the "production" phase, it has been decided that the Town would own the systems, ownership of the hardware would be passed to the Town. But, of course, it must be investigated what the legalities of such a scenario would be.

Implicit in that arrangement is that the Town would assume responsibility for all system maintenance and repairs for the duration of the "demonstration" phase. For the long term, it may be decided that the Town would only inspect and leave maintenance and repairs to the owners. In that case, some arrangements must be made to "transition" the system to owner control. There needs to be some sort of agreement that, when a "demonstration" system is granted "production" status, the Town would execute all repairs, rehabilitation, modifications, etc., necessary to deliver to the owner's control a system which would be, to the maximum practical extent, "equivalent" to the "production" systems being installed at that time. Since it is not known what system modifications may be indicated as a result of observations made during the "demonstration" phase, there must be a bit of "good faith" between the Town and the owners on this matter.

Just as will be the case in the long term, the Town--in consultation with the affected owners--must determine the desirability of Town ownership of off-site and/or shared facilities for "demonstration" systems. Presently, it is anticipated that this issue would have to be dealt with on at least two systems. All the issues impacting on this which were discussed previously in this paper must be taken into consideration.

In one of these two systems, the land in question is already owned by the Town, which really brings to a head the issue of whether it is preferable for the Town or a user to own the land fee simple. The choices on this matter appear to be:

- * Straight up Town ownership of the dispersal field and at least that part of the treatment system which is located on Town land;
- * Retain Town ownership of the land and grant an easement to the user(s) allowing him/her/them to construct part of the treatment system and/or the dispersal field on it;
- * Sell the land fee simple to one or more users.

If the last option is chosen, it must then be determined how multiple users would relate to each other. How would a fair value of an easement granted by one user to another be determined, especially when all users would be participating in a collective treatment and dispersal system for their mutual benefit?

In the other case, the Coast Guard would probably be served in a collective system with one or two other users, one of whom owns multiple facilities as well as the land on which treatment and dispersal facilities would probably be located. Again, all these users would join into a collective treatment and dispersal system for their mutual benefit. In such a case, how would the users determine the value of easements, etc., and how would they relate to each other regarding direct costs? Here too it must be considered if it would not be much "cleaner" for the Town to assert more positive control.

In each of these cases, it would have to be determined how the electric bill for operating the pumps and other operating costs would be partitioned. For the "demonstration" phase, it is proposed that users not be subject to any O&M charges (other than electricity) in consideration of the intrusion represented by the fairly intensive monitoring and surveillance program anticipated. But for the long

term, a fair method of dividing these costs among users of collective systems must be devised. It would appear practically imperative to feed the treatment system pumps through a separate electric meter, so that the appropriate charges to be divided could be determined. It should be determined if Town ownership offers any advantages in terms of equitably dividing both the capital and operating costs among the users of collective systems.

The problem, of course, with assuming Town ownership of any facilities during the "demonstration" phase is that it complicates matters in case the Town decides to minimize its role when the "production" phase begins--e.g., opting for a maintenance district strategy of management. However, there may be many situations where the Town could help to accommodate more environmentally sound and cost efficient management through "assisting" in the creation of collective systems. The current situations may provide good "laboratories" for determining the advantages and disadvantages of Town ownership and/or a generally more "proactive" role by the Town. It is to be expected that, if it comes to that, arrangements could be made to "privatize" these systems at the end of the "demonstration" period.

5. SUMMARY

As detailed herein, there are many uncertainties regarding exactly how best to structure a management system for decentralized treatment and dispersal systems on Washington Island. However, a range of structural and functional options for such a management system are available. The "bottom line" appears to be that all required management actions could be accomplished through one strategy or another.

Through implementation and management of the "demonstration" phase, the Town will have the opportunity to observe and refine the technical function of the treatment and dispersal systems proposed for use on Washington Island. This same process will afford them the opportunity to analyze the advantages and disadvantages of various management strategies.

The Town of Washington could, at one extreme, undertake to unilaterally address all management functions from planning through program coordination, directly controlling all major activities. Or it could rely to the maximum practical extent on existing institutional arrangements, providing only the level of oversight and guidance necessary to assure that systems are installed and are operated and maintained in a proper manner. It is to be expected that somewhere between these extremes, the Town would find the strategy which best serves their needs.