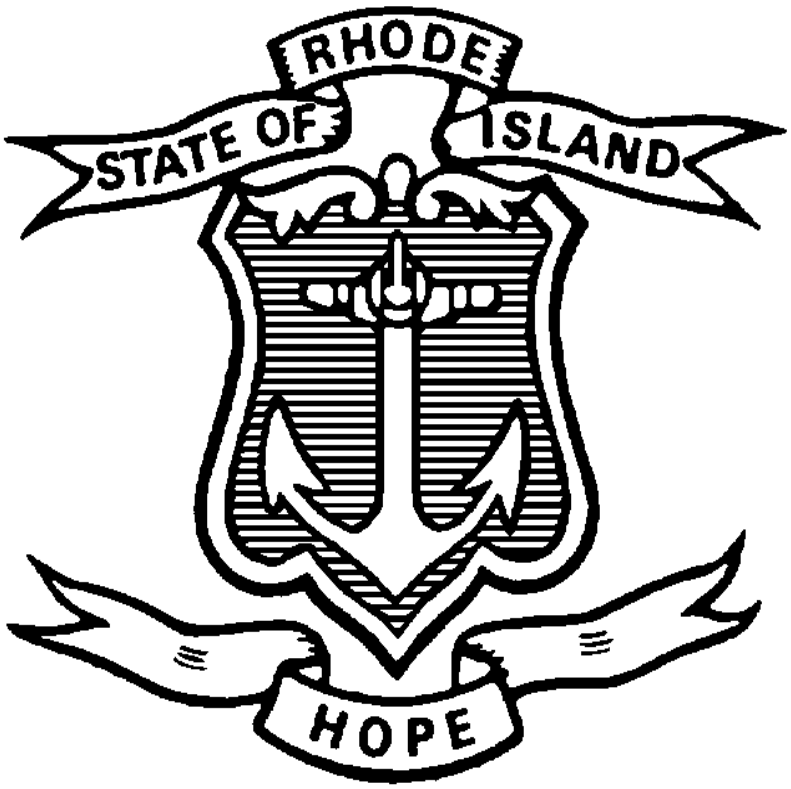

Governor's Task Force on Dam Safety and Maintenance

Final Report

January 2001

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A. Introduction

We are pleased and grateful to be able to present the final report of the Dam Safety and Maintenance Task Force established by Governor Almond in May, 2000. The Task Force has worked hard as a group to meet an ambitious deadline for analyzing complex problems associated with dam safety and developing specific proposals to help resolve them. The process was driven by clear instructions from the Governor, a collective recognition by task force members of the urgency of their mission, and a consistent, high-energy level of participation by task force members (and other interested parties) in a demanding schedule of meetings. It has been a pleasure and privilege for us to serve as co-chairs for this effort, and we are hopeful that the product will enable us, as heads of agencies with special responsibility for dam safety, to do our jobs better.

As the Governor recognized in his Executive Order 00-6, an urgent need exists to address the public safety and environmental risks from potential dam failures in many locations across the State of Rhode Island. More than five hundred dams exist within the State. Several years ago, this Administration took steps to assess the condition of state-owned dams and began to include needed repairs and upgrades in its capital program. Regarding the majority of dams, however, the state of repair is either not known sufficiently or known to be cause for concern; the owners' responsibility for inspection, maintenance and repair has not been enforced effectively; and the cost of needed maintenance and repair has grown in many cases so as to exceed the owners' resources.

Risk from dam failure is not, however, just a function of dam condition. Many communities in the State have experienced growth in the very areas that would be inundated were dams to fail. Downstream hazard potential has thus increased significantly, although it has not necessarily been documented as such. Clearly, surveys and hazard reclassification are needed to better quantify this part of the problem and develop solutions tailored to local and regional conditions.

The Task Force recognized early on that mandating dam owners to solve a problem that in many cases is quite literally beyond their control is not going to work, certainly not by itself. Dam safety has become a community issue and must be addressed as such. Cities and towns must become involved, as they are in other emergency management issues, and will frequently have to join forces to address dam safety issues watershed-wide. Moreover, inspection, maintenance and repair of dams are costly. To encourage communities and dam owners to take on this challenge, more than just new regulations, i.e. a statewide assistance program providing both technical and financial support, is needed. The report contains specific recommendations on these points. In addition, we have attached draft legislation developed by the Task Force (in overtime) to expedite changes to the existing Dam Safety Program.

The report and draft legislation reflect the views of a majority of task force members. Several members consistently questioned the need for a more aggressive inspection

and repair program, and expressed concern with the resulting cost to dam owners. Their views are noted throughout the report in footnotes. We thank all members for keeping the discussions balanced. As a result, we believe these recommendations are neither self-serving nor insensitive to the difficult position many dam owners find themselves in.

We thank the public sector members for taking time out of their very busy schedules, and in particular the private sector members for volunteering their time. We also thank the non-member participants, in particular Kim Spock from Louis Berger & Associates, who provided additional research and other assistance throughout the six-month process. Special thanks goes to Elizabeth Stone from DEM for staffing this effort and helping us keep it on track and on target.

Finally, on behalf of the entire Task Force, we thank Governor Almond for his leadership and direction, without which dam safety might continue to be at best a question mark in the State of Rhode Island.

_____	_____
Major General Reginald Centracchio	Jan Reitsma
Director, RI EMA	Director, RI DEM

B. Governor's Task Force on Dam Safety and Maintenance
Task Force Members

NAME	ORGANIZATION
Box, Karen [1]	Indian Lake Association (South Kingstown)
Centracchio, Major General Reginald *(Co-chair)*	Director, Rhode Island Emergency Management Agency
Cloutier, Ray	Pascoag Upper Dam Association (Glocester)
DelVecchio, Joseph [2]	Director, Natural Resources Conservation Service
Deware, Freeman [3]	Just-A-Stretch of RI
Donaldson, Henry [4]	Cranston Print Works
Dupuis, Pete	Slacks Reservoir Association (Smithfield)
Forgue, Julia	Public Works Director, City of East Providence
General Assembly Members (4): Senator Kevin Breene _ [5] _ [6] _ [7]	 Member, Senate Minority Party Member, Senate Majority Party Member, House Minority Party Member, House Majority Party
Hakanson, Jeff	Tiogue Lake Association (Coventry)
Hammond, Robert [8]	Quidnick Association (Coventry)
Kaczorowski, Philip	Public Works Director, Town of North Smithfield
Michaud, Dennis [9]	State of Rhode Island Budget Office
Reitsma, Jan *(Co-chair)*	Director, Rhode Island Department of Environmental Management
Rubinstein, Kathleen [10]	Indian Lake Association (South Kingstown)
Schock, Jon	Public Services Director, Town of South Kingstown
Simeone, Tony	Executive Director, Rhode Island Clean Water Finance Agency

1. Shared membership with Kathleen Rubinstein.
2. Voting member until November 2000. Sam Ly of NRCS later served as the agency's designee.
3. Official designee of Robert Laferrier (Just-A-Stretch of Rhode Island).
4. Official designee of George Schuster (Cranston Print Works).
5. Member was not appointed.
6. Member was not appointed.
7. Member was not appointed.
8. Robert Hammond served on the Task Force through the end of October 2000. Jonathan Farnum of the Quidnick Association later served in Mr. Hammond's position.
9. Official designee of Stephen McAllister, Executive Director of the Rhode Island Budget Office.
10. Shared membership with Karen Box.

C. Executive Summary

On May 31, 2000, Governor Lincoln Almond issued *Executive Order No. 00-6*, which established the Dam Safety and Maintenance Task Force. The primary impetus behind the creation of the Task Force was a widespread concern with the condition of many of Rhode Island's aging 510 dams. The mandate for the Task Force was to review and make recommendations for improvements to the State's Dam Safety Program including, but not limited to, funding assistance programs, statutory and regulatory changes, dam classification, public awareness initiatives, registration and permitting requirements, inspection criteria, enforcement and program resources. As envisioned by Governor Almond, the process would yield an objective view of the operation of the Dam Safety Program, with an eye towards implementing legislative, regulatory and organizational improvements. These improvements would be aimed at ensuring safe and functional dam operations throughout the entire State.

The Task Force convened in July 2000, with Major General Reginald Centracchio, Director of the Rhode Island Emergency Management Agency, and Jan H. Reitsma, Director of DEM, serving as co-chairmen. Representing a broad range of constituencies, including dam owners, municipal, state, and federal officials, and representatives from numerous Rhode Island dam and reservoir associations, the Task Force developed its recommendations through open discussions and, to the extent possible, consensus building.

The following report is the culmination of six (6) months of extensive review and discussion of existing practices and recommendations for positive change. The Task Force hosted 12 sessions, each lasting approximately two (2) hours. In addition, five (5) task force members and an equal number of ex-officio task force members hosted an additional session which focused entirely on developing a comprehensive dam financing strategy. [1]

The Task Force recognized at the outset that the assignment of reforming the practices and policies of the Dam Safety Program would be a difficult one. Not only would diverse views held by task force members have to be reconciled, but strategies would need to be instituted to ensure that private and public dam owners could adequately finance dam inspections, repairs, maintenance and possibly removal. Probably the most important issue addressed during this effort involved designing a financial mechanism for assisting dams owners with dam repair and maintenance costs.

The Task Force quickly learned that Rhode Island's dam safety and maintenance laws are out-of-date with the dam safety laws of most neighboring states.[2] The State's

[1] A list of 'Actions Taken to Date' can be found in Appendix E.

[2] In 1998, DEM hired Louis Berger & Associates of Providence to review the State's current dam inspections law and make recommendations for possible changes within DEM's Dam Safety Program. The research and materials presented to DEM upon completion of the study highlighted the fact that Rhode Island's dam safety laws are lacking

primary dam inspection law (Chapter 46-19, Inspection of Dams and Reservoirs) was first adopted in 1896 and last amended in 1956. The current law clearly needs to be updated to address the specifics of a comprehensive dam inspection and permitting program. Crucial pieces, such as the definition of a dam and engineering guidelines, which are absent from the current law, need to be developed and included into a comprehensive dam safety and maintenance statute for Rhode Island. In addition, there is no provision within the current law that addresses the fiscal impacts of dam repairs or removal, and the possible need for state financial assistance to help public and/or private dam owners undertake crucial and necessary repairs.

As set forth in Rhode Island General Law, Chapters 46-18 and 46-19, dam owners are responsible for the safe operation of their dam, and are liable for the consequences of accidents or failures of their dams. In general, a dam owner is required to use "reasonable care" in the operation and maintenance of a dam and/or reservoir. This responsibility includes the proper operation, maintenance, repair and rehabilitation of a dam, which are the essential elements in preventing dam failure. The consequences of not properly maintaining dams have sometimes been dramatic – the failure of California Jim's dam (a low-hazard dam) in South Kingstown in 1998 and more recently Mill Pond dam in North Kingstown provide graphic examples.

Under the same law, DEM has the responsibility to inspect dams to determine their condition, to review and approve plans for construction or substantial alteration of a dam or reservoir, and to require the dam owner to make repairs or to take other necessary action to make the dam or reservoir safe. If a dam owner fails to comply with the requirements for repair, and DEM believes that the repairs are necessary to ensure the safe operation of the dam, DEM may judicially enforce its order for repairs.

The recommendations, which include legislative, regulatory, administrative and policy proposals, are designed to protect public safety, create an efficient approach to dam repairs, and ensure a quick response should a community be threatened by a real or possible dam failure. At the same time, they are intended to maintain the integrity of environmental review required for dam maintenance, repair, replacement or removal projects.

The recommendations have been grouped into 4 categories*: policy, statutory, regulatory and administrative.* This report represents the majority opinion of the Task Force, and it should not be assumed that there was complete consensus on each issue addressed by members of the Task Force. Where there were significantly strong minority views, these views have been incorporated into the report through the use of footnotes.

As might be expected, some of the most pressing issues (e.g. funding, inspections and permitting) will be addressed in multiple areas of the report. Highlights of some of the most important task force recommendations are as follows:

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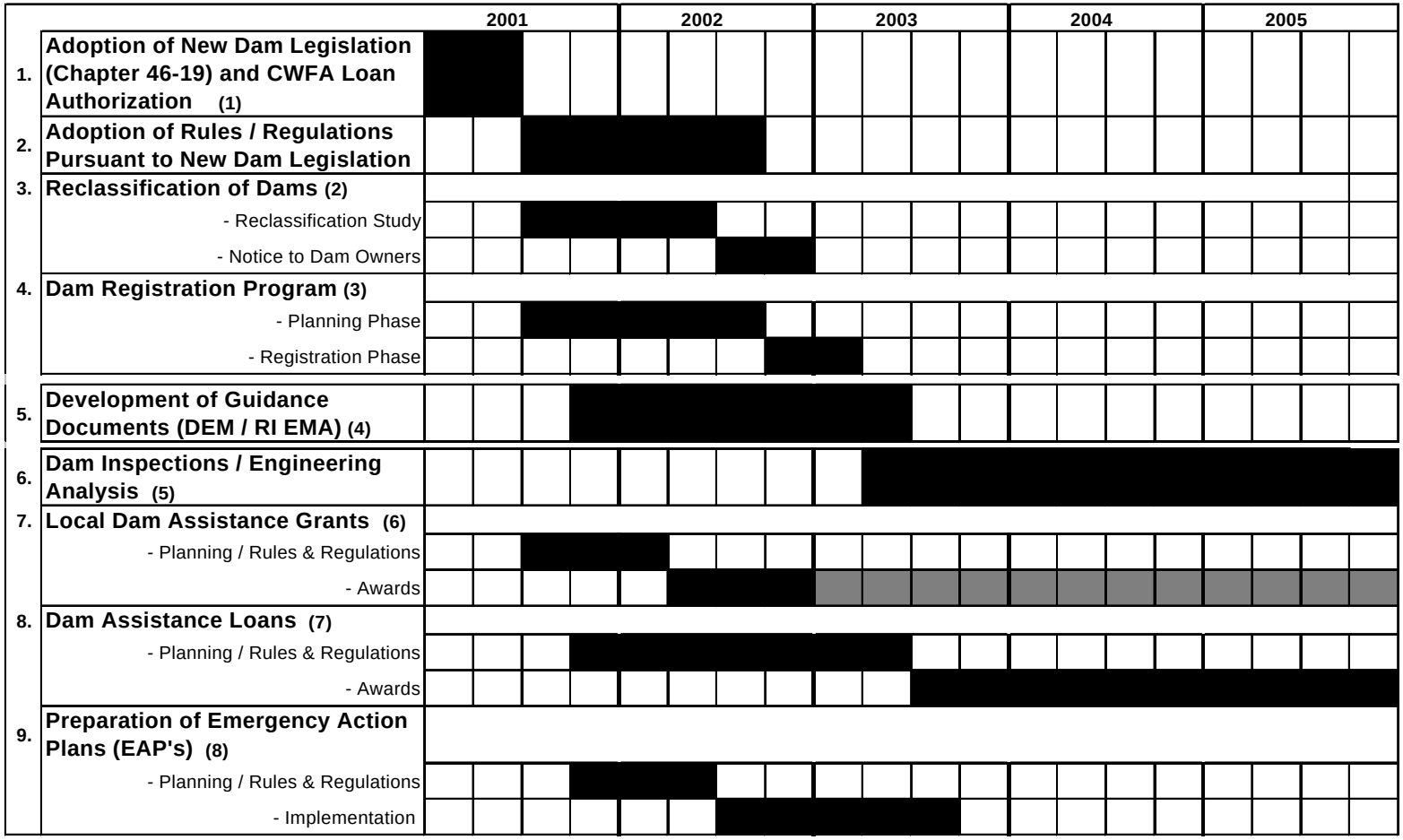
in comparison to most other New England states. The research performed by Louis Berger & Associates (and the resulting report) was a very valuable resource for the Task Force.

- Adopt a formal definition of a dam;
- Adopt a dam hazard classification system;
- Create a formal registration program for dams;
- Require the Rhode Island Emergency Management Agency to coordinate the preparation of *Emergency Action Plans* (EAPs) for all significant and high hazard dams;
- Establish a formal inspection program for dams – responsibility for inspections would lie with both the dam owner and state Dam Safety Program;
- Establish engineering guidelines for dam owners and registered professional civil engineers;
- Establish a streamlined approval process for dam construction, repair and removal projects which include includes review under the Freshwater Wetlands Act (instead of being a process separate from and in addition to, review by DEM's wetlands program);
- Enable and encourage the development of a financial assistance program (grants, loans) for dam owners and municipalities for dam repairs or removal;
- Aggressively pursue funding opportunities to supplement and enhance state support for dam planning, design and improvements; and
- Increase the level of public awareness of the benefits and potential hazards of dams.

Projected Implementation Schedule for
Governor's Task Force on
Dam Safety & Maintenance Recommendations



Footnotes for Projected Implementation Schedule:

1. Legislation to be introduced in 2001 General Assembly Session. See Appendix G for draft legislation (amendments to Chapter 46-19) as proposed by the Task Force.
2. A grant award from the Federal Emergency Management Agency (FEMA) is currently allowing DEM to undertake a hazard re-classification study for a number of the State's dams. The Dam Safety Program is eligible for approximately $45,000 for each of federal fiscal years 2000, 2001 and 2002. DEM was successful in its efforts to secure this funding for fiscal year 2000 and anticipates it will receive similar funding in fiscal years 2001 and 2002. Once the study is complete, affected dam owners will be notified of any changes in the hazard classification ranking for their dam.
3. The Task Force recommends a dam registration program be established for all regulated dams. Pursuant to this recommendation, owners of regulated dams would be required to register their dam(s) with DEM.
4. The Task Force recommends guidance documents be developed by DEM and the RI Emergency Management Agency to assist dam owners and municipalities with the following: registration, inspections, repairs, and the preparation/implementation of Emergency Action Plans (EAPs).
5. Pursuant to the recommendations of the Task Force and the proposed draft legislation, dam owners would be responsible for completing engineering analyses and inspections. In addition, the State would be responsible for additional, follow-up inspections. Additional information on the frequency of owner and state inspections can be found in both the "Statutory Recommendations" and "Regulatory Recommendations" chapters of the report.
6. Pursuant to the recommendations of the Task Force, Local Dam Assistance Grants would be issued on a competitive basis to Rhode Island municipalities. Additional grants will be awarded in 2003, 2004 and 2005 should funding be made available. Additional information on this grant program can be found in the "Statutory Recommendations" chapter of the report and in Appendix C.
7. Pursuant to the recommendations of the Task Force, the Rhode Island Clean Water Finance Agency (CWFA) in coordination with DEM would administer a revolving loan fund. The corpus of the loan fund would be created by either annual appropriation or the proceeds of a Statewide General Obligation Bond. Once the loan program has been authorized, the CWFA will then promulgate loan policies and procedures for the specific purpose intended. These loans are intended to assist local government units, private lake associations and private dam owners in meeting the costs of dam restoration projects. Additional information on this loan program can be found in the "Statutory Recommendations" chapter of the report and in Appendix C.
8. Pursuant to the recommendations of the Task Force, cities and towns would be responsible for completing Emergency Action Plans for all high and significant hazard dams within their jurisdiction. For additional information, see the "Statutory Recommendations" chapter of the report and Appendix H.

D. Issue / Problem Statement

Rhode Island has more than 500 dams of varying age, size and state of repair. DEM's 1999 Annual Report to the Governor states that of the 510 registered dams in Rhode Island, there are currently 16 high hazard dams[3], 41 significant hazards dams[4] and the remaining dams are classified as low hazard dams[5]. The number of dams in each category is based upon hazard classification studies performed in the late 1970's.

The waterbodies created by many of these dams provide great benefits to the citizens of the State: drinking water, flood management, recreational waterbodies, and scenic beauty. These benefits increase the quality of life for many Rhode Islanders. Humans aren't the only beneficiaries. Many dams are surrounded upstream and downstream by valuable wetlands that sustain a wide variety of animal and plant species.

However, many of these manmade dams, both public and private, have not been properly maintained through the years and pose a significant threat to public safety and to the preservation of the State's natural and recreational resources. The failure of California Jim's dam (a low-hazard dam) in South Kingstown in 1998 brought about a heightened concern for dam safety throughout the State.

There are three overlapping issues or categories which, when combined, provide a clear picture of the barriers currently faced by dam owners, municipalities and the State:

1. Outdated dam safety law;
2. State and dam owner financial constraints; and
3. Minimal emergency planning by dam owners and municipalities.

Outdated State Dam Safety Law

Rhode Island's dam safety and maintenance laws are out-of-date compared to the dam safety laws of neighboring states. Rhode Island's dam inspection law was first adopted in 1896 and last amended close to half a century ago. Issues not properly or adequately addressed in statute and/or regulation include:

- Definition of a dam ;
- Hazard classification system for all dams;

[3] High hazard – Failure of the dam would most probably result in the loss of more than a few lives and extensive property damage (current definition used by Rhode Island) . With the adoption of the hazard classification scheme as proposed by the Task Force, the number of high hazard dams in Rhode Island will increase.

[4] Significant hazard – Failure of the dam could possibly result in the loss of life and appreciable property damage (current definition used by Rhode Island). With the adoption of the hazard classification scheme as proposed by the Task Force, the number of significant hazard dams in Rhode Island will increase.

[5] Low hazard – Failure of the dam would result in no apparent loss of life and only minimal or no property damage (current definition used by Rhode Island).

- Responsibilities for inspection and scope of inspection;
- Design criteria and engineering guidelines;
- Financial assistance for repairs to or removal of dams;
- Clear definition of owner and state responsibilities;
- Registration program for dams;
- Proper access to dams for repair, maintenance or removal;
- Repair and maintenance approval process; and
- Planning for real or threatened dam emergencies;

Financial Constraints

Rhode Island currently does not maintain a financial assistance program to help owners repair, remove or maintain dams. Repairs to bring dams up to current safety standards could average as much as $800,000 per dam. Financial constraints and wetlands permitting issues are frequently cited by dam owners as reasons that prevent them from making needed repairs or performing routine maintenance – the result being a continued risk to public safety and public/private property.

Similarly, financial constraints within DEM have prevented the State from fully meeting its inspection requirements as laid out in Chapter 46-19*, Inspection of Dams and Reservoirs*. In January 1999, DEM hired a full-time dam safety inspector, filling a vacancy that had existed since 1996. For nearly three years, DEM was without a full-time dedicated dam safety staff inspector.

Minimal Emergency Planning

Unlike most other states, Rhode Island does not require high and significant hazard dams to have up-to-date *Emergency Action Plans* (EAPs). EAPs are formal documents that identify potential emergency conditions at a specific dam and identify pre-planned actions to be taken to minimize loss of life and property damage.

EAPs generally contain *inundation maps* which indicate critical areas (schools, streets, homes and other structures) likely to be flooded in the event of a real or threatened dam break. These inundation maps are then used to identify evacuation areas within the particular community. In most states, these plans are routinely filed with the state Dam Safety Program or office, the state emergency management agency, and/or the local emergency management coordinator.

The development and implementation of accurate and up-to-date EAPs requires close cooperation between dam owners and municipalities (police, fire and local emergency management coordinators). To date, this level of cooperation is absent in most Rhode Island communities. Dam owners and municipalities should prepare for the possibility of a dam failure by developing plans which provide a systematic means to: 1) identify

emergency conditions threatening a dam; 2) expedite effective response actions to prevent failure; and 3) reduce loss of life and property should failure occur.

E. Policy Recommendations

In response to the issues highlighted in the previous section, the policy recommendations were grouped in the following categories: creation of a dam repair and maintenance funding mechanism; greater involvement from cities and towns; increased emergency preparedness by dam owners and municipalities; statutory and regulatory changes; and a heightened level of awareness about dam safety issues.

Creation of a Dam Repair and Maintenance Funding Program

One of the most important issues addressed by the Task Force is the need for a structured financial assistance program to assist and encourage municipalities and dam owners with necessary and costly repairs. Task Force members examined a host of different financing options and quickly realized that there is no single source of adequate funding or funding assistance for dam repairs. If ignored, however, these dams hold the potential to inflict injury and economic loss upon residents of the Rhode Island.

The cost of repairs to high and significant hazard dams can average $800,000 per dam. Upon consideration of the burden this places on any single dam owner, the Task Force believes that a financial assistance program for the design and construction of dam repair projects would encourage safety improvements that might otherwise not be undertaken.

Greater Involvement from Cities and Towns

Dam owners (public or private) should be aware of and use both direct and indirect means of achieving dam safety. They can monitor and work on factors directly in their control (such as structural integrity and routine maintenance).

However, dam owners cannot and should not operate without the assistance and cooperation of the town or city in which the dam is situated. Town and/or city officials can make decisions to minimize or mitigate risk from dam failures. These include land use decisions (through a municipality's local comprehensive planning process), public dam safety awareness and community warning procedures, and emergency and evacuation planning. All are steps that can minimize life and property loss. By planning ahead, towns and cities will minimize the potential economic and social disruption that can result from floods associated with dam failures.

Increased Emergency Preparedness by Dam Owners and Municipalities

The general purpose of this recommendation is to encourage thorough and consistent emergency action planning to help save lives and reduce property damage in areas that would be affected by a dam failure.

An *Emergency Action Plan* (EAP) is a formal document that identifies potential emergency conditions at a dam and specifies pre-planned actions to be followed to minimize loss-of-life and property damage. If a high or significant hazard dam exists within a community, the local emergency manager should take the lead role in coordinating the community's response protocol. The dam owner should play a significant role in development of the emergency plan.

Specifically, an EAP also outlines the actions a community should take to moderate or alleviate the problems at the dam. It contains procedures and information to issue early warning and notification messages to residents and responsible downstream emergency management authorities about the emergency situation. An EAP also may contain inundation maps to show the emergency management authorities the critical areas for action in case of an emergency. This Task Force believes that all EAPs for all significant and high hazard dams should contain inundation maps.

To improve the ability of the State and municipalities to respond to dam-related emergencies, formal guidelines are needed to help dam owners and municipalities effectively develop and implement EAPs for dams. This process includes coordination, planning, and joint exercises involving the local emergency management authorities and the RI Emergency Management Agency. It is important for all EAPs to be consistent with the existing local hazard mitigation plans of the specific community. The Federal Emergency Management Agency (FEMA) has developed formal guidelines entitled "Federal Guidelines for Dam Safety: Emergency Action Planning for Dam Owners" (revised April 1999). These guidelines should act as the primary tool for local emergency management coordinators, the RI Emergency Management Agency and dam owners to establish meaningful EAPs. [6]

Statutory / Regulatory Changes

Rhode Island's dam inspection law (Chapter 46-19) was last amended in 1956. It appears that there have been little to no changes since that time. The law is in need of updating and should address the following key issues:

- Registration of all low, significant, and high hazard dams;
- Definition of a regulated dam;
- Frequency, responsibility and criteria for inspections;

[6] These federal guidelines can be located at: www.fema.gov/MIT/damsafe/publications.htm

- Streamlined approval process for dam repairs, alterations or removals;
- Preparation of *Emergency Action Plans*;
- Financial assistance strategies to assist dam owners with repair costs;
- Authorize municipalities to create special districts to fund dam repairs and maintenance by assessment of property owners within the district. [7]

Heightened Level of Public Awareness about Dam Safety

The critical need for dam safety is clear and task force members agreed that there is a need to increase the level of awareness about dam safety issues in Rhode Island. This need applies to both the *impact* of dam failures and the *condition* of dams in the State.[8] Many of the task force's specific recommendations revolved around an increased use of the Internet for circulating information about dams and emergency response information. Specific outreach tools included:

- Provide information about dam safety in Rhode Island on the Internet:
    - Inventory of all dams in Rhode Island;
    - Dam safety manuals; and
    - Emergency contact information (police, fire, local emergency response coordinators);
- Utilize local access TV programs and issue public service announcements;
- Issue press releases to honor National Dam Safety Awareness Day; and
- Make dam inundation information and data easily accessible.

[7] Draft legislation authorizing municipalities to create special dam districts can be found in Appendix G.
[8] DEM currently distributes dam safety public awareness brochures published by the Association of State Dam Safety Officials (ASDSO).

F. Statutory Recommendations

The following statutory recommendations have been made for Rhode Island to incorporate into its current dam safety laws: [9]

- **Adopt a Definition of a Dam and a Regulated Dam**

  Rhode Island's dam safety law (Chapter 46-19), unlike almost all other states in New England, does not contain a definition of a dam. The Task Force recommends the following:

  "Dam" means any artificial barrier, including appurtenant works, which impounds or diverts water.

  "Regulated Dam" means any artificial barrier, including appurtenant works, which impounds or diverts water which is: 1) Minimum of 6 feet in height, or 2) minimum of 15 acre-feet of storage capacity, or 3) a significant hazard dam, or 4) a high hazard dam. Regulated dams would continue to be addressed by the Dam Safety Program.

- **Establish a Dam Registration Program**

  Rhode Island currently does not require dam owners to register their dams with the Dam Safety Program. The Task Force recommends that the State establish in statute a formal registration process for the purpose of keeping the State's dam records up-to-date. In addition, the Task Force recommends that no fee be charged for registering a dam with the Dam Safety Program currently housed within DEM. In the event that registration fees are imposed on dam owners in the future, this Task Force recommends that any collected fees be directly fed back into the Dam Safety Program.

- **Establish Responsibility for Inspections**

  Rhode Island's dam safety law (Chapter 46-19) requires the Director of the Department of Environmental Management to inspect every dam and reservoir in the State as often as necessary to keep the Department informed of status of the dams. However, visual inspections, as performed by the Department's Dam Safety Program, do not involve full engineering analyses of the structural integrity of dams. This was a real concern for many task force members. The Task Force recommends making changes in how the State and owners should inspect

[9] Draft legislation as developed by the Task Force can be found in Appendix G.

all low, significant and high hazard dams. Specifically, the Task Force believes that owners and the Dam Safety Program should share inspection responsibilities. [10]

Under this new inspection scheme, the first required inspection would include an engineering analysis to determine the structural integrity of the dam and identify repair needs. This engineering analysis would establish the baseline integrity of the dam and identify the need for future repairs. All owners would then be required to complete a detailed inspection report that outlines the findings of the completed engineering analysis.

This analysis would be the responsibility of the dam owner. Subsequent inspections of the dam by the owner or the Dam Safety Program would not be expected to redo the primary engineering analysis; rather, subsequent inspections would rely on the previously approved engineering analysis to ensure the continued integrity of the dam. A copy of all inspection reports (as performed by a professional engineer experienced in dam design and repair) must be submitted to the Dam Safety Program.

The Dam Safety Program would be responsible for regularly scheduled compliance inspections to assess the status of repairs. These visual inspections would: 1) ensure that repairs have been completed, and 2) possibly identify other problems with the dam. Inspection criteria for both owner inspections and subsequent visual inspections by the Dam Safety Program should be defined in regulation.

- **<u>Establish a Streamlined Approval Process for Dam Repairs, Maintenance or Removals</u>**

  Rhode Island currently does not maintain a specific approval process for alterations, repairs, removal or construction of dams. Rather, dam repair projects must go through a wetlands review, which includes the completion of a full freshwater wetlands permit application. Concerns were raised about the cost and time burdens this process can impose on dam owners who need to make necessary repairs or alterations. Some task force members explained at length the barriers and expense they and their engineers faced in attempting to complete repairs within the scope of the wetlands review process.

  Creating a formal dam repair approval process that *includes but is not driven by a wetlands review process* will ensure that repairs are performed in a manner

[10] A minority of task force members supported a proposal which would have left responsibility for inspections in the hands of the Dam Safety Program, and inspection frequencies would have been as follows: high hazard dams every 2 years; significant hazard dams every 5 years; low hazard dams every 10 years. Inspections would have been visual inspections only, and the Dam Safety Program would have been authorized to order a more extensive dam review at the owners expense if necessary to ensure the integrity of the dam.

which minimizes threats to public safety, the environment (e.g. wetlands resources), and public/private property. The Task Force recommends that the DEM establish a more streamlined and comprehensive dam repair, maintenance and removal approval process – one which allows the Department to balance the need to allow dam repairs to proceed in the name of public safety with the need to protect valuable wetland resources commonly located both up-stream and down-stream from a dam. Through the development of formal guidance documents or regulation, DEM should establish criteria for the preparation of these repair reports.

- **Require the Preparation of *Emergency Action Plans* (EAPs)**

  Unlike most other states, the current dam safety statute does not require high and significant hazard dams to have formal *Emergency Action Plans* (EAPs). An EAP is a prepared and approved set of instructions. The EAP identifies potential emergency conditions at a dam, and prescribes procedures to be followed to help prevent the loss of life and minimize property damage.

  EAPs generally contain inundation maps which indicate critical areas (schools, streets, homes and other structures) likely to be flooded in the event of a real or threatened dam break. In most states, these plans are filed with the state Dam Safety Program or office, the state emergency management agency, and/or the local emergency management coordinator. [11]

  The Task Force recommends that municipalities be required to prepare for (with the direct assistance of dam owners) the possibility of dam failures by developing plans which provide a systematic means to: 1) identify emergency conditions threatening a dam; 2) expedite effective response actions to prevent failure; and 3) reduce loss of life and property should failure occur (see Appendix H for an outline of an EAP). Through the development of formal guidance documents or regulation, the Rhode Island Emergency Management Agency in cooperation with DEM should establish criteria for the preparation and review of these plans.

[11] There was some disagreement among task force members about whether municipalities and dam owners should be responsible for coordinating the development of new inundation maps OR could they rely upon best available information (existing flood maps and dam breach analyses). The average cost of developing new, up-to-date inundation maps is approximately $5,000 per dam and this cost may increase if dams are located in close enough proximity to each other such that mapping must consider the failure of other up-stream dams. The majority of the Task Force believes that new inundation mapping should be performed for inclusion in an EAP. A minority of Task Force members believed that (when available) current dam breach and flood analyses should be utilized to help reduce the financial impact on dam owners and municipalities.

- **Establish the Authority of the Department of Environmental Management and the Clean Water Finance Agency (CWFA) to Issue Planning Grants and Loans for Dam Repairs**[12]

Local Dams Assistance Grant Program

Provide direct financial assistance to municipalities for the preparation of comprehensive management plans for both publicly and privately owned high or significant hazard dams within their jurisdiction. Municipalities would be eligible to receive grants for targeted purposes such as, but not limited to, dam design, re-construction, administrative costs (legal, surveys, easements, etc) and the completion of *Emergency Action Plans*. Municipalities which participate in the grant program and complete the necessary planning activities (e.g. preliminary engineering plans, comprehensive dam management plans or *Emergency Action Plans)* would be eligible to receive State Revolving Funds for dam design, repair, re-construction, or removal as described below.

State Revolving Funds (SRF)

The primary funding mechanism for the repair, maintenance, or re-construction of dams within Rhode Island should occur through a state revolving loan fund administered jointly by the Department of Environmental Management and the Rhode Island Clean Water Finance Agency (CWFA). The corpus of the loan fund would be created by either annual appropriation or the proceeds of a Statewide General Obligation Bond. Once the loan program has been authorized, the CWFA will then promulgate loan policies and procedures for the specific purpose intended. These loans are intended to assist local government units, private lake associations and private dam owners in meeting the costs of dam restoration projects. All significant and high hazard dams would be eligible for these loans. [13]

- **Enable Cities and Towns to Create Special Districts**

Similar to the concept of waste water management districts, the Task Force recommends adopting enabling legislation which would authorize municipalities to create special districts to fund dam related projects (maintenance, repairs, re-construction or removal) by assessment of property owners within the district (See Appendix G for draft legislation).

[12] For additional information, please refer to the attached 5-Year Fiscal Note in Appendix C.

[13] Certain task force members believed that a funding mechanism for repairs based primarily on low-interest loans administered by the Clean Water Finance Agency would not be sufficient to help dam owners cover the costs of dam repairs, maintenance or removal. The Task Force held discussions on the possibility of financing a portion of the costs for dam restoration through grants in addition to low-interest loans.

- **Repairs Must be Performed Under the Supervision of a Professional Engineer**

  In order to ensure the integrity of dam repair projects and protect dam owners who contract the services of professional engineers to perform work on their dam(s), the Task Force recommends that all dam repair, maintenance, construction or removal projects be performed *under the supervision of a registered professional engineer.* This measure will help ensure that only qualified engineering professionals are employed by any party undertaking a dam repair, maintenance, construction or removal project.

- **Establish an Access Mechanism for Dam Alterations**

  Maintaining proper access to dams (private, municipal, and state owned) for repairs, maintenance and emergency response is a crucial component of any Dam Safety Program. It was clear to the Task Force that some public and private dam owners have experienced great difficulty gaining access to their dam if proper access involves passing over abutting private property. Some dams do not have clear routes of access defined in land evidence records, or challenges have been mounted against property easements that were established in years past.

  In light of this not uncommon problem, and the potential public safety risks associated with not gaining proper access to dams for repairs, the Task Force recommends that statutory language be adopted which grants the State (through the Director of the Department of Environmental Management) the authority to ensure that dam owners have access to their dam(s), when necessary, for needed repairs and maintenance.

- **Mandate for DEM to Re-Classify Rhode Island's Dams**

  As is indicated in the 'Problem/Issue Statement' potion of the report, most dams in Rhode Island have not been re-classified in nearly two decades – the result being that a dam which was classified a low hazard dam twenty years ago might now actually be a high hazard dam. Many areas of the State have experienced significant growth in the very areas that would be flooded were dams to fail. The potential for downstream destruction and loss of life should a failure occur, has thus increased considerably, although it has not been documented as such. The Task Force, therefore, recommends that the State undertake a comprehensive effort to re-classify its dams. This effort will then lead to more accurate emergency preparedness, prevention and response strategies in all municipalities.

G. Regulatory Recommendations

The Task Force recommends the following issues and topics be addressed through the regulatory and rulemaking process:

- **Requirements for Registration of a Dam**

  - The Task Force recommends that the following type of registration information be submitted to the Dam Safety Program:

    - Owner name, mailing address, telephone number and emergency contact information;
    - Location of dam, including city / town, plat / lot of property number on which dam is located, and copy of deed;
    - Dimensions of the dam (height, length, etc.);
    - Type of structure (earthen, concrete, etc.) and current purpose of dam;
    - Drainage area, pond area and storage capacity of dam;
    - Dam's design storm peak runoff;
    - Dam's design discharge capacity (spillway and gated outlets);
    - Plan and cross section sketch of the dam, showing outlet works, structural dimensions and embankment slopes;
    - Engineering plans for dam, including any modifications (voluntary submittal, if available, to update existing files);
    - Whether the owner has access to the dam - if owner maintains legal access, owner responsible for identifying point of access;

    The owner would also be responsible for providing updated information within 30 days of change (change of owner, contact, etc.). Failure to register a dam may subject the owner to administrative enforcement action including penalties.

- **Adopt a formal hazard classification system (closely modeled on the FEMA hazard classification system).** [14]

DAM HAZARD	LIFE LOSS	ECONOMIC LOSS
LOW	Not Probable	Low
SIGNIFICANT	Not Probable	Major
HIGH	Probable	Yes *(but not necessary)*

[14] A minority of task force members favored a 4 tiered system which divided the high hazard classification under consideration into 2 tiers (major and minor).

- **Establish Frequencies of Inspections by Dam Owners and Dam Safety Program**

  A) Dam owners would be responsible for having their dams inspected according to the following schedule:

HAZARD CLASSIFICATION OF DAM	INSPECTION / ANALYSIS REQUIREMENTS[15] (Owner)
HIGH HAZARD	First inspection/analysis within 1 year, subsequent inspections every 5 Years [16]
SIGNIFICANT HAZARD	First inspection/analysis within 1 year, subsequent inspections every 8 years
LOW HAZARD	Not subject to inspection by the dam owner

  B) The Dam Safety Program would be responsible for compliance inspections to assess the status of repairs according to the following schedule:

HAZARD CLASSIFICATION OF DAM	INSPECTION REQUIREMENTS (State) [17]
HIGH HAZARD	Every 2 years
SIGNIFICANT HAZARD	Every 2 years
LOW HAZARD	Every 5 years (for reclassification purposes) *

***** Low hazard dams will be inspected to determine if development downstream from the dam has occurred. Downstream development may result in the reclassification of the dam.

- **Adopt Inspection Criteria**

  In order to ensure that repairs are performed in a consistent manner, DEM should develop a dam inspection manual or regulatory guidelines. Any engineering analysis and/or inspection of a dam performed by a registered

[15] DEM will develop guidance documents for dam owners who are undertaking an inspection of their dam.
[16] The draft legislation attached in Appendix G allows for an extension of the first major inspection analysis beyond 1 year if it is deemed necessary by the Director of DEM.
[17] A minority of task force members favored an inspection system that would have required state visual inspections of all regulated dams regardless of hazard classification ranking. A majority of task force members voted against this proposal believing it is not necessary to inspect low hazard dams every 2 years – once every 5 years (primarily for the purpose of monitoring downstream development) would be sufficient.

professional engineer would be required to follow the inspection guidelines as detailed in the manual or regulation. All engineering and inspection reports (as performed by a professional engineer experienced in dam design and repair) must be submitted to DEM for review and approval.

- **Develop Engineering Guidelines**

  DEM should develop regulations and/or guidance materials which speak to the framework and principles that engineers would have to adhere to in developing and performing a dam construction or alteration project in order to adequately protect public safety, the surrounding environmental resources, and public and private property.

- **Develop Guidelines for the Development of EAPs**

  The RI Emergency Management Agency, in coordination with DEM, should develop standards for the development of *Emergency Action Plans*. These plans, once complete, must be filed with the town or city in which the dam is located, DEM and the Rhode Island Emergency Management Agency.

- **Streamline Wetlands Regulations**

  DEM should revise Rhode Island's freshwater wetlands regulations so dam owners do not need to regularly prepare a full wetlands application for dam repair, maintenance or removal projects. The concept of a streamlined process is to ensure that necessary dam alterations are performed, while not compromising the integrity of the surrounding wetland resources. DEM should internally coordinate a wetlands review of the proposed dam project based upon information provided by the dam owner and/or his engineer, and issue a Letter of Approval for repairs.[18]

[18] A minority of task force members believed that dam repair projects should be evaluated solely based son the need to repair/maintain a dam, and that wetlands impacts should not be incorporated into a dam repair approval process.

H. Administrative Recommendations

- **Improve Access to Information on Dams via the Internet**

  The majority of public outreach recommendations involved accessing information on Rhode Island's dams via the Internet. Specifically, the Task Force recommends that dam safety information should be kept on the RI EMA and DEM websites. Examples of materials to be placed on the Internet include:

  - An inventory of all low, significant and high hazard dams;
  - Copies of guidance documents created by DEM and RI EMA;
  - Information on dam inundation areas; and
  - Emergency contact information.

- **Develop Guidance Documents**

  Dam owners, municipalities, and the Dam Safety Program recognize the need and benefit of creating user-friendly manuals and guidance documents for dam inspections, repairs, maintenance procedures, and the preparation of *Emergency Action Plans*. DEM and the RI Emergency Management Agency should develop specific guidelines and/or performance criteria for:

  - Inspection and engineering procedures;
  - Dam repair, maintenance and removal approval process;
  - Developing an effective Emergency Action Plan; and
  - Proper registration of a dam.

- **Encourage DEM, RI EMA to Meet Regularly with the Regulated Community**

  The Task Force encourages DEM and the RI Emergency Management Agency to meet regularly with dam owners, dam associations and municipal officials and other interested parties. These meetings should allow for open discussions about the effectiveness of the up-dated dam safety law (and pursuant regulations) and provide an avenue for affected parties to positively influence the direction Rhode Island's Dam Safety Program.

- **Stress the Need for Internal Cooperation Between DEM's Dam Safety and Wetlands Programs for Approval of Dam Repair Projects**

  The Task Force recommends that DEM establish a coordinated, streamlined and comprehensive dam repair, maintenance or removal approval process - one

which allows dam repairs to move forward in the name of public safety while minimizing impacts on the State's valuable wetland resources up-stream and down-stream from a dam.

- **Open Communication and Cooperation Among Interested Parties**

  The Task Force recommends that DEM, RI EMA, the Rhode Island Statewide Planning Program, affected municipalities, dam associations and all dam owners dedicate themselves to implementing open lines of communication about the State's aging dam infrastructure and the financial needs of both public and private dam owners. Recommendations include the appointment of one member of each agency, town, city or dam association (as listed above) as the official point of contact for that organization, agency or municipality for all dam safety and maintenance related matters.

I. Conclusions

The Task Force realizes the urgency of the dilemma currently facing most communities in Rhode Island. As long as emergencies remain un-planned for, development continues with minimal thought of threats posed by dams, and repairs are not made, the risk to pubic safety and the environment will continue to increase.

Thus, it should be clear that reforming the practices and policies of those parties in control of dams and dam safety procedures is of utmost importance. However, only altering how the State and municipalities approach the issue of dam safety is not enough. An affordable mechanism must be developed to address the simple fact that for most dam owners, the costs for repair and routine maintenance have grown so as to exceed the owners' financial resources. The single most important issue addressed by the Task Force was to provide for the creation of a financial mechanism for dam repairs.

Clearly, this report is just a first step to help provide the appropriate attention and response that the issue of dam safety rightfully deserves. It creates as many questions as it attempts to answer. The Task Force strongly urges all parties to commit their support and energy to developing comprehensive practices, polices and procedures that continue to answer many remaining questions. With answers will come solutions, and with solutions will come an increased sense of security for all citizens of this State which may at one point in time be impacted by one of the State's dams.

EXECUTIVE ORDER

00-6

May 31, 2000

CREATION OF DAM SAFETY
AND MAINTENANCE TASK FORCE

WHEREAS, the Department of Environmental Management has conducted a full review of the State's regulation of the State's private and publicly owned dams; said review and evaluation having been reported in the September, 1999 study entitled, Dam Safety Program Review and Evaluation, by Louis Berger Associates, Inc.; and

WHEREAS, the review has indicated a need to develop, in partnership with dam owners, a mechanism to assist dam owners in making dam repairs and to promote a more effective dam safety program; and

WHEREAS, the successful development of an effective dam safety program will be greatly advanced by the continued involvement and support of dam owners, be they private entities, dam associations, municipalities or state agencies; and

WHEREAS, continued deterioration of the inventoried dams throughout the State poses a significant threat to public safety and to the preservation of the State's natural and recreational resources.

NOW, THEREFORE, I, LINCOLN C. ALMOND, by virtue of the authority vested in me as Governor of the State of Rhode Island and Providence Plantations, hereby order as follows:

1. There is hereby created a Dam Safety and Maintenance Task Force that shall consist of dam owners, dam associations and representatives of municipalities, the state and federal government.

2. The Task Force shall consist of 18 members, appointed by the Governor, as follows: the Director of the Department of Environmental Management or designee; the Director of the Rhode Island Emergency Management Agency or designee; two (2) members of the Rhode Island Senate, consisting of one (1) member of the majority and one (1) of the minority; two (2) representatives of the Rhode Island House of Representatives, consisting of one (1) member of the majority and one (1) member of the minority; the State Budget Officer or designee; the Executive Director of the Rhode Island Clean Water Finance Agency or designee; three (3) representatives of municipal government to be recommended by the League of Cities and Towns; two (2) private dam owners or their designees; a representative of the Pascoag Reservoir Association; a representative of the Slacks Reservoir Association; a representative of the Indian Lake Association; a representative of the Quidneck Reservoir Association; and a designee of the Natural Resource and Conservation Service of the United States Department of Agriculture. The Directors of the Department of Environmental Management and the Emergency Management Agency shall serve as the co-chairs.

3. The Department of Environmental Management will provide such professional staff as is necessary for the successful implementation of this order.

4. The Task Force shall make its written recommendations to the Governor and the General Assembly for the improvement of Rhode Island’s Dam Safety and Maintenance Program by December 31, 2000, including, but not limited to, recommendations for one or more funding assistance programs, statutory and regulatory

changes, classification of dams, as well as public education, registration and permitting requirements, inspection criteria, enforcement and program resources.

This Executive Order shall take effect immediately upon the date hereof.

So Ordered:

_____
Lincoln C. Almond

Dated:_____

DAM NAME (HIGH HAZARD)	STATE ID	NEAR-TOWN	RIVER	OWNER TYPE
PASCOAG RESERVOIR UPPER	016	BURRILLVILLE	BRANDY BROOK	PRIVATE
FLAT RIVER RESERVOIR	167	COVENTRY	PAWTUXET RIVER - SOUTH BRANCH	LOCAL GOVERNMENT
CRANSTON PRINT WORKS POND	172	CRANSTON	POCASSET RIVER	PRIVATE
PAWTUCKET RESERVOIR	078	CUMBERLAND	ABBOTT RUN	LOCAL GOVERNMENT
DIAMOND HILL RESERVOIR	077	CUMBERLAND	BURNT SWAMP BROOK	LOCAL GOVERNMENT
JAMES V TURNER RESERVOIR	407	EAST PROVIDENCE	TEN MILE RIVER	LOCAL GOVERNMENT
OLNEY POND	102	LINCOLN	THREADMILL BROOK	STATE
WOONSOCKET RESERVOIR #3	068	NORTH SMITHFIELD	CROOKFALL BROOK	LOCAL GOVERNMENT
WESTCONNAUG RESERVOIR	163	SCITUATE	WESTCONNAUG BROOK	LOCAL GOVERNMENT
GAINER MEMORIAL	161	SCITUATE	PAWTUXET RIVER - NORTH BRANCH	LOCAL GOVERNMENT
GEORGIAVILLE POND	126	SMITHFIELD	WOONASQUATUCKET RIVER	LOCAL GOVERNMENT
SPRAGUE UPPER RESERVOIR	120	SMITHFIELD	STILLWATER RIVER - TR	PRIVATE
STILLWATER RESERVOIR	108	SMITHFIELD	WOONASQUATUCKET RIVER	STATE
ARCTIC	148	WEST WARWICK	PAWTUXET RIVER - SOUTH BRANCH	PRIVATE
NATICK POND	145	WEST WARWICK	PAWTUXET RIVER	PRIVATE
HARRIS POND DAM	073	WOONSOCKET	MILL RIVER	LOCAL GOVERNMENT

High Hazard Dams in Rhode Island

DAM NAME (SIGNIFICANT HAZARD)	STATE ID	NEAR-TOWN	RIVER	OWNER TYPE
PRATT	062		BLACKSTONE RIVER	LOCAL GOVERNMENT
UNION MILL POND	015	BURRILLVILLE	PASCOAG RIVER	PRIVATE
CENTRAL FALLS	064	CENTRAL FALLS	BLACKSTONE RIVER	PRIVATE
VALLEY FALLS POND	063	CENTRAL FALLS	BLACKSTONE RIVER	PRIVATE
HAPPY HOLLOW POND	082	CENTRAL FALLS	ABBOTT RUN	LOCAL GOVERNMENT
MILL POND	152	COVENTRY	PAWTUXET RIVER - SOUTH BRANCH	PRIVATE
QUIDNICK POND UPPER	151	COVENTRY	PAWTUXET RIVER - SOUTH BRANCH	PRIVATE
WASHINGTON POND UPPER	153	COVENTRY	PAWTUXET RIVER - SOUTH BRANCH	PRIVATE
CURRAN LOWER RESERVOIR	198	CRANSTON	CLARKE BROOK	STATE
CURRAN UPPER RESERVOIR	166	CRANSTON	CLARKE BROOK	STATE
MANVILLE	059	CUMBERLAND	BLACKSTONE RIVER	LOCAL GOVERNMENT
GREENWICH BLEACHERY POND	403	EAST GREENWICH	MASKERCHUGG RIVER	STATE
CLARKVILLE POND	556	GLOCESTER	MARY BROWN BROOK	PRIVATE
BURLINGAME RESERVOIR UPPER	018	GLOCESTER	BRANDY BROOK	STATE
PONAGANSET RESERVOIR	165	GLOCESTER	PONAGANSET RIVER	LOCAL GOVERNMENT
WYOMING UPPER	216	HOPKINTON	WOOD RIVER	STATE
LOCUSTVILLE POND	262	HOPKINTON	BRUSHY BROOK	PRIVATE
ALMY RESERVOIR	169	JOHNSTON	DRY BROOK	LOCAL GOVERNMENT

Significant Hazard Dams in Rhode Island

ALBION	060	LINCOLN	BLACKSTONE RIVER	PRIVATE
WATSON, HAROLD E, RESERVOIR	485	LITTLE COMPTON	PACHET BROOK	LOCAL GOVERNMENT
BELLEVILLE POND	553	NORTH KINGSTOWN	ANNAQUATUCKET RIVER	LOCAL GOVERNMENT
WENSCOTT RESERVOIR	084	NORTH PROVIDENCE	WEST RIVER	LOCAL GOVERNMENT
GREYSTONE	131	NORTH PROVIDENCE/JOHNSTON	WOONASQUATUCKET RIVER	PRIVATE
SLATERSVILLE RESERVOIR UPPER	043	NORTH SMITHFIELD	BRANCH RIVER	PRIVATE
WOONSOCKET RESERVOIR #1	070	NORTH SMITHFIELD	CROOKFALL BROOK	LOCAL GOVERNMENT
FORESTDALE POND	048	NORTH SMITHFIELD	BRANCH RIVER	PRIVATE
SLATERSVILLE RESERVOIR MIDDLE	046	NORTH SMITHFIELD	BRANCH RIVER	PRIVATE
PAWTUCKET UPPER	065	PAWTUCKET	BLACKSTONE RIVER	PRIVATE
LAWTON VALLEY RESERVOIR	395	PORTSMOUTH	LAWTON VALLEY BROOK	LOCAL GOVERNMENT
CANADA UPPER POND	093	PROVIDENCE	WEST RIVER-TR	LOCAL GOVERNMENT
BARDEN RESERVOIR	164	SCITUATE	PONAGANSET RIVER	LOCAL GOVERNMENT
HOPE	160	SCITUATE	PAWTUXET RIVER - NORTH BRANCH	PRIVATE
SLACK RESERVOIR	115	SMITHFIELD	STILLWATER RIVER - TR	PRIVATE
WATERMAN LAKE	111	SMITHFIELD	STILLWATER RIVER	PRIVATE
STILLWATER POND	109	SMITHFIELD	WOONASQUATUCKET RIVER	PRIVATE
PEACE DALE POND	426	SOUTH KINGSTOWN	SAUGATUCKET RIVER	PRIVATE
FRUIT OF THE LOOM	144	WARWICK	PAWTUXET RIVER	PRIVATE
ARKWRIGHT POND	158	WEST WARWICK	PAWTUXET RIVER - NORTH BRANCH	PRIVATE

Significant Hazard Dams in Rhode Island

HARRIS POND	157	WEST WARWICK	PAWTUXET RIVER - NORTH BRANCH	PRIVATE
CENTERVILLE POND	149	WEST WARWICK	PAWTUXET RIVER	PRIVATE
WOONSOCKET FALLS	056	WOONSOCKET	BLACKSTONE RIVER	LOCAL GOVERNMENT

DAM NAME (LOW HAZARD)	STATE ID	NEAR-TOWN	RIVER	OWNER TYPE
ECHO LAKE	570	BARRINGTON	MUSSACHUCK CREEK - TR	PRIVATE
RHODE ISLAND COUNTRY CLUB POND	592	BARRINGTON	MUSSACHUCK CREEK	PRIVATE
STATE STREET POND	409	BRISTOL	UNNAMED STREAM	LOCAL GOVERNMENT
AMERICAN MILL POND	011	BURRILLVILLE	PASCOAG RIVER	PRIVATE
BARKER FARM POND	490	BURRILLVILLE	CLEAR RIVER - TR	PRIVATE
MAPLEVILLE POND	010	BURRILLVILLE	CHEPACHET RIVER	PRIVATE
BUCK HILL POND	496	BURRILLVILLE	LEESON BROOK	STATE
GILLERAN POND	035	BURRILLVILLE	CHEPACHET RIVER	PRIVATE
GRANITEVILLE POND LOWER	007	BURRILLVILLE	PASCOAG RIVER	PRIVATE
GREEN SHODDY MILL POND	005	BURRILLVILLE	CLEAR RIVER	LOCAL GOVERNMENT
HARRISVILLE POND	008	BURRILLVILLE	PASCOAG RIVER	LOCAL GOVERNMENT
KNIBB FARM POND	429	BURRILLVILLE	PASCOAG RIVER - TR	PRIVATE
LAFERRIER FARM POND	524	BURRILLVILLE	CLEAR RIVER - TR	PRIVATE
LAPIERRE FARM POND	534	BURRILLVILLE	ALDRICH BROOK	PRIVATE
LITTLE ROUNDTOP POND	501	BURRILLVILLE	ROUNDTOP BROOK	STATE
AKELA POND	014	BURRILLVILLE	PASCOAG RIVER	
PREMIER MILL POND	006	BURRILLVILLE	CLEAR RIVER	PRIVATE
BLACK HUT POND	512	BURRILLVILLE	UNNAMED STREAM	STATE
PRENDERGAST MILL POND	004	BURRILLVILLE	CLEAR RIVER	LOCAL GOVERNMENT
ROSS POND	565	BURRILLVILLE	CLEAR RIVER - TR	PRIVATE
ROUND TOP PONDM	042	BURRILLVILLE	ROUNDTOP BROOK	STATE
SHIELDS FARM POND	506	BURRILLVILLE	LELAND BROOK - TR	PRIVATE
SPRING LAKE	039	BURRILLVILLE	HERRING BROOK	PRIVATE
SUCKER POND	027	BURRILLVILLE	SUCKER BROOK	PRIVATE
TROUT POND	036	BURRILLVILLE	TROUT POND BROOK	PRIVATE
WALLUM LAKE	001	BURRILLVILLE	CLEAR RIVER	PRIVATE
WILSON RESERVOIR	003	BURRILLVILLE	CLEAR RIVER	PRIVATE
WOONSOCKET SPORTSMEN'S CLUB POND	463	BURRILLVILLE	TARKILN BROOK - TR	PRIVATE
OAKLAND POND	037	BURRILLVILLE	BRANCH RIVER	PRIVATE
ROBIN HOLLOW POND	081	CENTRAL FALLS	ABBOTT RUN	LOCAL GOVERNMENT
KING TOM POND	576	CHARLESTOWN	UNNAMED STREAM	PRIVATE

Low Hazard Dams in Rhode Island

CAROLINA POND	252	CHARLESTOWN	PAWCATUCK RIVER	PRIVATE
MCLEOD FARM POND	441	CHARLESTOWN	PASQUISET BROOK - TR	PRIVATE
INDIAN CEDAR SWAMP	279	CHARLESTOWN	CEDAR SWAMP BROOK	PRIVATE
OLAF FARM POND	493	CHARLESTOWN	CEDAR SWAMP BROOK	PRIVATE
CLAUSEN FARM POND	457	CHARLESTOWN	POQUIANT BROOK - TR	STATE
BURLINGAME RESERVATION	423	CHARLESTOWN	POQUIANT BROOK - TR	STATE
GOBEILLE POND	487	CHARLESTOWN	CEDAR SWAMP BROOK	PRIVATE
HOPKINS FARM POND	498	COVENTRY	PAWTUXET RIVER - SOUTH BRANCH	PRIVATE
SALISBURY POND LOWER	376	COVENTRY	BOYD BROOK	PRIVATE
NYE FARM POND	500	COVENTRY	BUCKS HORN BROOK	PRIVATE
MIDDLE POND	187	COVENTRY	NORTHRUP BROOK	LOCAL GOVERNMENT
MCCUSTER POND UPPER	379	COVENTRY	MCCUSTER BROOK	PRIVATE
MCCUSTER POND LOWER	378	COVENTRY	MCCUSTER BROOK	PRIVATE
MANNI FARM POND	495	COVENTRY	BIG RIVER - TR	PRIVATE
LUTHER FARM POND	517	COVENTRY	MOOSUP RIVER - TR	PRIVATE
LONGRIDGE WILDLIFE MARSH #1	529	COVENTRY	QUIDNICK BROOK - TR	PRIVATE
BLACK ROCK ICE POND	370	COVENTRY	BLACK ROCK BROOK - TR	PRIVATE
OLNEY-MATHEWSON MILL POND	380	COVENTRY	PINE SWAMP BROOK	PRIVATE
ANDERSON FARM POND	433	COVENTRY	BEAR BROOK - TR	PRIVATE
ARNOLD POND	561	COVENTRY	ROARING BROOK	PRIVATE
HAVENS POND	377	COVENTRY	MCCUSTER BROOK	PRIVATE
GREAT GRASS POND	593	COVENTRY	ROARING BROOK	PRIVATE
CROMPTON POND UPPER	194	COVENTRY	PAWTUXET RIVER - SOUTH BRANCH	PRIVATE
COVENTRY RESERVOIR	176	COVENTRY	QUIDNICK BROOK	PRIVATE
COVENTRY CENTER POND LOWER	191	COVENTRY	QUIDNICK BROOK	PRIVATE
COVENTRY CENTER POND	190	COVENTRY	QUIDNICK BROOK	
LONGRIDGE WILDLIFE MARSH #2	528	COVENTRY	QUIDNICK BROOK - TR	PRIVATE
WHITFORD	562	COVENTRY	ROARING BROOK	PRIVATE
SALISBURY POND UPPER	375	COVENTRY	BOYD BROOK	PRIVATE
SEARLES CAPWELL POND	197	COVENTRY	NORTHRUP BROOK	
SNOW FARM POND	477	COVENTRY	BEAR BROOK	
ROPEWALK POND	083	COVENTRY	TIOGUE RIVER - TR	LOCAL GOVERNMENT
SPRING LAKE	178	COVENTRY	MISHNOCK RIVER	

TIOGUE LAKE	177	COVENTRY	TIOGUE RIVER	PRIVATE
UPPER POND	186	COVENTRY	NORTHRUP BROOK	LOCAL GOVERNMENT
WATERMAN POND	563	COVENTRY	WARWICK BROOK	PRIVATE
PEARCE POND	371	COVENTRY	BLACK ROCK BROOK	PRIVATE
QUIDNICK RESERVOIR	175	COVENTRY	QUIDNICK BROOK	PRIVATE
NEWMAN FARM POND	543	COVENTRY	MOOSUP RIVER - TR	PRIVATE
RUSACK FARM POND	503	COVENTRY	QUIDNICK BROOK - TR	PRIVATE
POOR FARM POND	374	COVENTRY	POOR FARM BROOK	
QUIDNICK POND LOWER	195	COVENTRY	PAWTUXET RIVER - SOUTH BRANCH	PRIVATE
SARGENT'S POND	341	CRANSTON	FURNACE HILL BROOK	PRIVATE
STONE POND	320	CRANSTON	FENNER BROOK	PRIVATE
R.I. PRINTWORKS POND	337	CRANSTON	MESHANTICUT BROOK	PRIVATE
WOOD'S MILL POND	343	CRANSTON	FURNACE HILL BROOK	PRIVATE
SPECTACLE POND	173	CRANSTON	MASHAPAUG BROOK	PRIVATE
COLVIN POND	338	CRANSTON	MESHANTICUT BROOK	PRIVATE
FERRY POND	326	CRANSTON	RANDALL BROOK - TR	
FENNER POND	301	CRANSTON	MASHAPAUG BROOK	PRIVATE
FEDOROWICZ FARM POND	505	CRANSTON	LIPPITT BROOK	PRIVATE
BELLEFONTE POND	299	CRANSTON	MASHAPAUG BROOK	PRIVATE
JUDGE FARM POND	461	CRANSTON	MESHANTICUT BROOK	PRIVATE
ARROW LAKE #1	335	CRANSTON	MESHANTICUT BROOK	PRIVATE
CRANSTON BRAID MILL POND	199	CRANSTON	POCASSET RIVER	PRIVATE
ANGELL'S POND	339	CRANSTON	MESHANTICUT BROOK	LOCAL GOVERNMENT
CLARKE'S POND UPPER	373	CRANSTON	CLARKE BROOK	PRIVATE
CLARKE'S POND LOWER	372	CRANSTON	CLARKE BROOK	PRIVATE
MARSELLA FARM POND	510	CRANSTON	MESHANTICUT BROOK - TR	PRIVATE
MESHANTICUT PARK POND	340	CRANSTON	MESHANTICUT BROOK	STATE
POWERS POND	342	CRANSTON	FURNACE HILL BROOK	PRIVATE
ARROW LAKE #2	336	CRANSTON	MESHANTICUT BROOK	PRIVATE
DELFINO'S POND	333	CRANSTON	CEDAR SWAMP BROOK - TR	PRIVATE
HOWARD POND	080	CUMBERLAND	ABBOTT RUN	PRIVATE
ARNOLD MILL POND	297	CUMBERLAND	ABBOTT RUN	LOCAL GOVERNMENT
ASHTON	061	CUMBERLAND	BLACKSTONE RIVER	PRIVATE

Low Hazard Dams in Rhode Island

RAWSON POND	079	CUMBERLAND	ABBOTT RUN	PRIVATE
THORNLEY FARM POND	427	CUMBERLAND	ABBOTT RUN - TR	PRIVATE
CRANBERRY BOG- VERIFY	399	CUMBERLAND	ABBOTT RUN - TR	LOCAL GOVERNMENT
DUHALLOW POND	350	CUMBERLAND	BURNT SWAMP BROOK	LOCAL GOVERNMENT
KER-ANNA POND	076	CUMBERLAND	BURNT SWAMP BROOK	LOCAL GOVERNMENT
MISCOE LAKE	074	CUMBERLAND	MISCOE BROOK	PRIVATE
LAS BRISAS PARK POND	515	EAST GREENWICH	MASKERCHUGG RIVER	PRIVATE
HANNAH FARM POND	492	EAST GREENWICH	FRY BROOK	
GALE FARM POND UPPER	432	EAST GREENWICH	MASKERCHUGG RIVER - TR	PRIVATE
KROIAN FARM POND	541	EAST GREENWICH	FRY BROOK	PRIVATE
PAINE'S POND	589	EAST GREENWICH	MASKERCHUGG RIVER	PRIVATE
GALE FARM POND LOWER	432	EAST GREENWICH	MASKERCHUGG RIVER - TR	PRIVATE
FRENCHTOWN PARK POND #1	557	EAST GREENWICH	FRENCHTOWN BROOK	LOCAL GOVERNMENT
SCHOLEFIELD POND	488	EAST GREENWICH	MOWNEY BROOK	PRIVATE
STANDARD OIL POND	410	EAST PROVIDENCE	RUNNINS RIVER	PRIVATE
OMEGA POND	406	EAST PROVIDENCE	TEN MILE RIVER	PRIVATE
WILLETT POND LOWER	591	EAST PROVIDENCE	WILLETT BROOK	LOCAL GOVERNMENT
WILLETT POND UPPER	590	EAST PROVIDENCE	WILLETT BROOK	LOCAL GOVERNMENT
CENTRAL POND	404	EAST PROVIDENCE	TEN MILE RIVER	LOCAL GOVERNMENT
BLACKSTONE VALLEY SEWER COMM. PD.	446	EAST PROVIDENCE	SEEKONK RIVER - TR	PRIVATE
HUNTS MILL POND VERIFY	405	EAST PROVIDENCE	TEN MILE RIVER	LOCAL GOVERNMENT
KEACH POND	554	EAST PUTNAM, CN	KEACH BROOK	STATE
EDWARD'S POND	238	EXETER	QUEEN RIVER	PRIVATE
FROSTY HOLLOW POND	469	EXETER	BREAKHEART BROOK	STATE
DOLLY POND	243	EXETER	SODOM BROOK	PRIVATE
DEXTER POND	208	EXETER	WOODY HILL BROOK	PRIVATE
WARWICK SPORTSMEN'S ASSOC. POND	448	EXETER	QUEEN RIVER - TR	PRIVATE
GRINNEL'S SAWMILL POND	400	EXETER	LOCKE BROOK	PRIVATE
GRINNELL LOWER POND	242	EXETER	FISHERSVILLE BROOK	PRIVATE
HALLVILLE POND	571	EXETER	SODOM BROOK	PRIVATE
YORKER MILL POND	240	EXETER	CHIPUXET RIVER	PRIVATE
SLOCUM RESERVOIR	239	EXETER	CHIPUXET RIVER	PRIVATE
SHERMAN SHINGLE MILL POND	244	EXETER	LOCKE BROOK	PRIVATE

JAMES POND	231	EXETER	BEAVER RIVER	PRIVATE
PRATT POND	205	EXETER	PARRISS BROOK	
MT. TOM WILDLIFE MARSH	532	EXETER	WOODY HILL BROOK	PRIVATE
METCALF WILDLIFE MARSH	527	EXETER	LOCKE BROOK	PRIVATE
GRINNELL UPPER POND - VERIFY	241	EXETER	FISHERSVILLE BROOK	
AUSTIN FARM POND	218	EXETER	ROARING BROOK	PRIVATE
BARBERVILLE MILL POND	220	EXETER	ROARING BROOK	STATE
AUSTIN UPPER POND	382	EXETER	ROARING BROOK	PRIVATE
BREAKHEART POND	214	EXETER	BREAKHEART BROOK	STATE
BOONE LAKE	219	EXETER	ROARING BROOK	PRIVATE
DEEP POND VERIFY	209	EXETER	WOODY HILL BROOK	PRIVATE
GORHAM FARM POND	507	FOSTER	HEMLOCK BROOK	PRIVATE
GORHAM, N. FARM POND	526	FOSTER	MOOSUP RIVER - TR	PRIVATE
MANTON SPORTSMEN'S CLUB POND	453	FOSTER	MOOSUP RIVER - TR	PRIVATE
PORTER POND	564	FOSTER	MOOSUP RIVER - TR	PRIVATE
SPENCER FARM POND #2	518	FOSTER	PONAGANSET RIVER - TR	PRIVATE
HARRINGTON FARM POND	489	FOSTER	MOOSUP RIVER - TR	PRIVATE
HAWKINS FARM POND	516	FOSTER	WILBUR HOLLOW BROOK - TR	PRIVATE
SPEAR POND	349	FOSTER	HEMLOCK BROOK	PRIVATE
YOUNG'S POND	347	FOSTER	SHIPPEE BROOK	STATE
CRANSTON FISH & GAME ASSOC. POND	358	FOSTER	DOLLY COLE BROOK	PRIVATE
SPENCER FARM POND #1	502	FOSTER	PAINE BROOK - TR	PRIVATE
HOPKINS MILL POND	180	FOSTER	PONAGANSET RIVER	LOCAL GOVERNMENT
HUTCHINSON POND	348	FOSTER	PAINE BROOK	PRIVATE
LILY POND	356	FOSTER	DOLLY BROOK	PRIVATE
BASSETT FARM POND	478	FOSTER	WEST MEADOW BROOK - TR	PRIVATE
KNOWLES FARM POND	459	FOSTER	QUADUCK BROOK - TR	PRIVATE
HOPKINS AXE FACTORY POND	357	FOSTER	DOLLY COLE BROOK - TR	PRIVATE
HEBERT FARM POND	522	FOSTER	TURKEY MEADOW BROOK	PRIVATE
PECKHAM POND #1	383	GLOCESTER	PECKHAM BROOK	PRIVATE
KEECH POND	022	GLOCESTER	CHEPACHET RIVER	PRIVATE
FACTORY MUTUAL RESEARCH CTR LWR POND	392	GLOCESTER	SHADY OAK BROOK	PRIVATE
MANN POND	442	GLOCESTER	WINDSOR BROOK	PRIVATE

FACTORY MUTUAL RESEARCH CTR UPR POND	392	GLOCESTER	SHADY OAK BROOK	PRIVATE
LAKE WASHINGTON	401	GLOCESTER	MARY BROWN BROOK	PRIVATE
LAKE ALDERSGATE	514	GLOCESTER	MOSQUITOHAWK BROOK - TR	PRIVATE
PECKHAM POND #5	387	GLOCESTER	PECKHAM BROOK - TR	PRIVATE
PECKHAM POND #4	386	GLOCESTER	PECKHAM BROOK	PRIVATE
PECKHAM POND #2	384	GLOCESTER	PECKHAM BROOK	PRIVATE
THOMPSON POND	414	GLOCESTER	TARKILN BROOK - TR	PRIVATE
MOWER POND	029	GLOCESTER	SPRING GROVE BROOK	PRIVATE
MOWRY POND	025	GLOCESTER	CHEPACHET RIVER	PRIVATE
OLD MILL POND	031	GLOCESTER	SPRING GROVE BROOK	PRIVATE
HAWKINS POND	555	GLOCESTER	MARY BROWN BROOK	PRIVATE
WRIGHT, T. FARM POND	587	GLOCESTER	CHEPACHET RIVER - TR	PRIVATE
MOWRY-PAINE POND	052	GLOCESTER	PAINE BROOK	PRIVATE
O'REILLY POND	398	GLOCESTER	SAUNDERS BROOK - TR	PRIVATE
NEW POND	397	GLOCESTER	SPRING GROVE BROOK - TR	PRIVATE
PECKHAM POND #3	385	GLOCESTER	PECKHAM BROOK	PRIVATE
CHERRY VALLEY POND	021	GLOCESTER	CHEPACHET RIVER	PRIVATE
SWEET'S MILL POND	019	GLOCESTER	BRANDY BROOK	STATE
SUCKER BROOK BRIDGE POND	381	GLOCESTER	SUCKER BROOK	PRIVATE
VALENTINE MILL POND	026	GLOCESTER	CHEPACHET RIVER	
STEERE'S SAWMILL POND	028	GLOCESTER	SUCKER BROOK	PRIVATE
STEERE'S POND LOWER	033	GLOCESTER	CHEPACHET RIVER	PRIVATE
BOWDISH RESERVOIR	566	GLOCESTER	MARY BROWN BROOK	STATE
BURLINGAME RESERVOIR LOWER	017	GLOCESTER	BRANDY BROOK	STATE
SPRING GROVE POND	030	GLOCESTER	SUCKER BROOK	PRIVATE
CAMP ALDERSGATE POND	586	GLOCESTER	MOSQUITOHAWK BROOK	PRIVATE
SMITH + SAYLES RESERVOIR	023	GLOCESTER	CHEPACHET RIVER	PRIVATE
DURFEE HILL WILDLIFE MARSH #2	499	GLOCESTER	CADY BROOK	STATE
CLEMENCE FARM POND	538	GLOCESTER	TARKILN BROOK - TR	PRIVATE
SHINGLE MILL POND UPPER	024	GLOCESTER	STINGO BROOK - TR	PRIVATE
WILBUR POND	572	GLOCESTER	MARY BROWN BROOK	PRIVATE
SANDY BROOK POND #1	352	GLOCESTER	PEEPTOAD BROOK	PRIVATE
DAVID KING FARM POND	594	GLOCESTER	SPRING GROVE BROOK	PRIVATE

DAVIS FARM POND	434	GLOCESTER	SPRING GROVE BROOK - TR	PRIVATE
SANDY BROOK POND #2	353	GLOCESTER	PEEPTOAD BROOK	PRIVATE
COOMER LAKE	354	GLOCESTER	PEEPTOAD BROOK	LOCAL GOVERNMENT
SNAKESKIN POND	032	GLOCESTER	SPRING GROVE BROOK	PRIVATE
BROWNING MILL POND	221	HOPKINTON	ROARING BROOK	STATE
LABRECQUE FARM POND	508	HOPKINTON	GLADE BROOK - TR	PRIVATE
ASHVILLE POND	227	HOPKINTON	BLUE POND BROOK	LOCAL GOVERNMENT
HOPE VALLEY MILL POND	245	HOPKINTON	WOOD RIVER	STATE
LONG POND	287	HOPKINTON	BLUE POND BROOK	STATE
SMITH'S ICE POND	272	HOPKINTON	PARMENTER BROOK	PRIVATE
BLUE POND	229	HOPKINTON	BLUE POND BROOK	PRIVATE
MAPLE LAWN FARM POND	472	HOPKINTON	ASHAWAY RIVER - TR	PRIVATE
YAWGOOG POND	226	HOPKINTON	WINCHECK BROOK	PRIVATE
CENTERVILLE POND	223	HOPKINTON	MOSCOW BROOK	PRIVATE
HARRIS POND	274	HOPKINTON	TOMAQUAG BROOK - TR	
LOWER MILL POND	228	HOPKINTON	BLUE POND BROOK	PRIVATE
SKUNK HILL MARSH #1	598	HOPKINTON	DAWLEY BROOK	STATE
LANGWORTHY POND	285	HOPKINTON	BRUSHY BROOK - TR	PRIVATE
WYOMING POND LOWER	217	HOPKINTON	WOOD RIVER	LOCAL GOVERNMENT
WOODVILLE POND	246	HOPKINTON	WOOD RIVER	PRIVATE
BETHEL POND	264	HOPKINTON	ASHAWAY RIVER	PRIVATE
MOSCOW POND	222	HOPKINTON	MOSCOW BROOK	STATE
POTTER HILL	254	HOPKINTON	PAWCATUCK RIVER	PRIVATE
ROCKVILLE POND	224	HOPKINTON	WINCHECK BROOK	PRIVATE
LINEWALK POND	275	HOPKINTON	CANONCHET BROOK	PRIVATE
HOXIE FARM POND	440	HOPKINTON	CANONCHET BROOK - TR	PRIVATE
SILLMAN WILDLIFE MARSH	530	HOPKINTON	BLUE POND BROOK - TR	PRIVATE
BARBERVILLE POND	215	HOPKINTON	WOOD RIVER	PRIVATE
LEWIS, DONALD WILDLIFE MARSH	533	HOPKINTON	TOMAQUAG BROOK - TR	PRIVATE
PINEDALE MILL POND	286	HOPKINTON	MOSCOW BROOK	PRIVATE
KNAPP POND	276	HOPKINTON	KNAPP BROOK	PRIVATE
ASHAWAY LINE POND	266	HOPKINTON	ASHAWAY RIVER	PRIVATE
ASHAWAY SPORTSMAN'S CLUB MARSH	560	HOPKINTON	GLADE BROOK - TR	PRIVATE

JAMES FARM POND	494	HOPKINTON	TOMAQUAG BROOK - TR	PRIVATE
GRASSY POND	289	HOPKINTON	BRUSHY BROOK - TR	PRIVATE
WINCHECK POND	225	HOPKINTON	MOSCOW BROOK	PRIVATE
COTTRELL FARM POND	430	HOPKINTON	ASHAWAY RIVER - TR	PRIVATE
ASHAWAY MILL POND	265	HOPKINTON	ASHAWAY RIVER	PRIVATE
UNION POND	288	HOPKINTON	BLUE POND BROOK	PRIVATE
JAMESTOWN RESERVOIR	574	JAMESTOWN	JAMESTOWN BROOK	LOCAL GOVERNMENT
JAMESTOWN LOWER RESERVOIR	575	JAMESTOWN	JAMESTOWN BROOK	LOCAL GOVERNMENT
HUGHESDALE POND LOWER	312	JOHNSTON	DRY BROOK	PRIVATE
POCASSET POND	310	JOHNSTON	POCASSET RIVER	LOCAL GOVERNMENT
BROWN SAWMILL POND	311	JOHNSTON	POCASSET RIVER	PRIVATE
STAMP FARM POND	523	JOHNSTON	REAPER BROOK	PRIVATE
NAUTACONKANUT DISTRIBUTION RES.	321	JOHNSTON	CITY (PROVIDENCE) PIPELINE	LOCAL GOVERNMENT
CAESARVILLE POND	323	JOHNSTON	ASSAPUMPSET BROOK	PRIVATE
OAK SWAMP RESERVOIR	168	JOHNSTON	DRY BROOK	LOCAL GOVERNMENT
SIMMONS LOWER RESERVOIR	171	JOHNSTON	CEDAR SWAMP BROOK	LOCAL GOVERNMENT
HUGHESDALE POND UPPER	313	JOHNSTON	DRY BROOK	PRIVATE
COLWELL POND	309	JOHNSTON	POCASSET RIVER - TR	PRIVATE
SAMPSON-ALMY POND	307	JOHNSTON	POCASSET RIVER - TR	PRIVATE
PIERCE POND LOWER	315	JOHNSTON	SIMMONS BROOK	PRIVATE
DEXTER FARM POND	504	JOHNSTON	POCASSET RIVER - TR	PRIVATE
SIMMONS UPPER RESERVOIR	170	JOHNSTON	CEDAR SWAMP BROOK	LOCAL GOVERNMENT
ALLENDALE POND	133	JOHNSTON	WOONASQUATUCKET RIVER	PRIVATE
BELKNAP POND	127	JOHNSTON	ASSAPUMPSET BROOK	PRIVATE
MEMORIAL PARK POND	422	JOHNSTON	POCASSET RIVER	LOCAL GOVERNMENT
BRIDLEWOOD POND	408	LINCOLN	MOSHASSUCK RIVER - TR	PRIVATE
HANDY POND LOWER	390	LINCOLN	HANDY BROOK	PRIVATE
STUMP HILL RESERVOIR- VERIFY	420	LINCOLN	THREADMILL BROOK - TR	LOCAL GOVERNMENT
MEMORIAL PARK	465	LINCOLN	MUSSEY BROOK	LOCAL GOVERNMENT
PEACE POND	098	LINCOLN	MOSHASSUCK RIVER	PRIVATE
HANDY POND UPPER	391	LINCOLN	HANDY BROOK	PRIVATE
GOLDFISH POND	100	LINCOLN	MOSHASSUCK RIVER - TR	STATE
MEADER POND	086	LINCOLN	MUSSEY BROOK	PRIVATE

LIMEROCK RESERVOIR	295	LINCOLN	MOSHASSUCK RIVER	LOCAL GOVERNMENT
MOFFETT POND	099	LINCOLN	MOSHASSUCK RIVER	PRIVATE
BARNEY POND	101	LINCOLN	MOSHASSUCK RIVER	LOCAL GOVERNMENT
BLEACHERY POND	104	LINCOLN	MOSHASSUCK RIVER	PRIVATE
BUTTERFLY POND	097	LINCOLN	MOSHASSUCK RIVER	LOCAL GOVERNMENT
SHERER POND	483	LITTLE COMPTON	UNNAMED STREAM	PRIVATE
SIMMONS POND	474	LITTLE COMPTON	COLD BROOK	PRIVATE
RICHMOND FARM POND	445	LITTLE COMPTON	DUNDERY BROOK - TR	PRIVATE
NELSON POND	582	MIDDLETOWN	PARADISE BROOK	LOCAL GOVERNMENT
WANUMETONOMY POND	475	MIDDLETOWN	UNNAMED STREAM	PRIVATE
GARDINER POND	583	MIDDLETOWN	MAIDFORD BROOK	LOCAL GOVERNMENT
EASTON POND NORTH	584	MIDDLETOWN	BAILEY BROOK	LOCAL GOVERNMENT
CROOKED BROOK POND	509	NARRAGANSETT	CROOKED BROOK	LOCAL GOVERNMENT
MAINELLI FARM POND	545	NARRAGANSETT	DEAD MAN BROOK	PRIVATE
WESQUAGE POND	419	NARRAGANSETT	BONNET SHORES BROOK	LOCAL GOVERNMENT
HART'S POND	483	NEW SHOREHAM	UNNAMED STREAM	PRIVATE
BLOCK ISLAND ROD + GUN CLUB POND	424	NEW SHOREHAM	MILL TAIL BROOK	PRIVATE
EASTON POND SOUTH	585	NEWPORT	BAILEY BROOK	LOCAL GOVERNMENT
OLD FORGE MILL POND	296	NORTH KINGSTOWN	POTOWOMUT RIVER	STATE
DAVISVILLE MILL POND	569	NORTH KINGSTOWN	SAND HILL BROOK	PRIVATE
WERTZ + VIALL POND	471	NORTH KINGSTOWN	WANNACHECOMECUT BROOK	STATE
MILL POND	536	NORTH KINGSTOWN	DUCK COVE BROOK-TR	LOCAL GOVERNMENT
MAYO FARM POND	439	NORTH KINGSTOWN	PETTAQUAMSCUTT RIVER - TR	PRIVATE
POTOWOMUT POND	551	NORTH KINGSTOWN	POTOWOMUT RIVER	STATE
BALD HILL NURSERY POND	497	NORTH KINGSTOWN	MATTATUXET RIVER - TR	PRIVATE
TAYLOR POND	552	NORTH KINGSTOWN	SAND HILL BROOK	PRIVATE
SILVER SPRING LAKE	444	NORTH KINGSTOWN	MATTATUXET RIVER	STATE
CARR POND	513	NORTH KINGSTOWN	MATTATUXET RIVER	PRIVATE
HAMILTON RESERVOIR	550	NORTH KINGSTOWN	ANNAQUATUCKET RIVER	PRIVATE
SHIPPEE POND	095	NORTH PROVIDENCE	SHIPPEE BROOK	PRIVATE
GENEVA SPORTSMEN'S CLUB POND	085	NORTH PROVIDENCE	WEST RIVER	PRIVATE
LYMANSVILLE	134	NORTH PROVIDENCE	WOONASQUATUCKET RIVER	PRIVATE
TARKILN MILL POND	049	NORTH SMITHFIELD	TARKILN BROOK	PRIVATE

Low Hazard Dams in Rhode Island

TODD'S POND	067	NORTH SMITHFIELD	CHERRY BROOK	PRIVATE
O'HARA POND	053	NORTH SMITHFIELD	TROUT BROOK	PRIVATE
TARKILN POND	050	North Smithfield	TARKILN BROOK	LOCAL GOVERNMENT
MINGOLA POND	417	NORTH SMITHFIELD	WOONASQUATUCKET RIVER	PRIVATE
PRIMROSE POND LOWER	107	NORTH SMITHFIELD	WOONASQUATUCKET RIVER	PRIVATE
NICHOLS POND	051	NORTH SMITHFIELD	TARKILN BROOK	PRIVATE
FORT FARM POND #1	539	NORTH SMITHFIELD	TROUT BROOK	PRIVATE
LAKE BEL AIR	054	NORTH SMITHFIELD	RANKIN BROOK	PRIVATE
CESARIO POND	418	NORTH SMITHFIELD	WOONASQUATUCKET RIVER	PRIVATE
SLATERSVILLE RESERVOIR LOWER	047	NORTH SMITHFIELD	BRANCH RIVER	PRIVATE
CHESTER ST. POND	599	NORTH SMITHFIELD	UNNAMED STREAM	LOCAL GOVERNMENT
NASONVILLE POND	041	NORTH SMITHFIELD	BRANCH RIVER	PRIVATE
GARDNER FARM POND	460	NORTH SMITHFIELD	WOONASQUATUCKET RIVER	PRIVATE
PRATT POND	055	NORTH SMITHFIELD	DAWLEY BROOK	STATE
WINSOR FARM POND	491	NORTH SMITHFIELD	RANKIN BROOK	PRIVATE
FORT FARM POND #2	540	NORTH SMITHFIELD	WOONASQUATUCKET RIVER - TR	PRIVATE
PAWTUCKET LOWER	066	PAWTUCKET	BLACKSTONE RIVER	PRIVATE
TEN MILE RESERVATION	294	PAWTUCKET	TEN MILE RIVER	STATE
HIRSCH FARM POND	438	PORTSMOUTH	UNNAMED STREAM	PRIVATE
ST MARYS POND	581	PORTSMOUTH	LAWTON VALLEY BROOK	LOCAL GOVERNMENT
PORTSMOUTH ABBEY POND	546	PORTSMOUTH	BARKER BROOK	PRIVATE
SISSON POND	580	PORTSMOUTH	LAWTON VALLEY BROOK	LOCAL GOVERNMENT
WANSKUCK POND	091	PROVIDENCE	WEST RIVER	PRIVATE
GENEVA POND	089	PROVIDENCE	WEST RIVER	PRIVATE
MASHAPAUG POND	174	PROVIDENCE	MASHAPAUG BROOK	LOCAL GOVERNMENT
RISING SUN POND	140	PROVIDENCE	WOONASQUATUCKET RIVER	PRIVATE
ATLANTIC MILLS POND	138	PROVIDENCE	WOONASQUATUCKET RIVER	LOCAL GOVERNMENT / PVT
CUNLIFF POND	300	PROVIDENCE	MASHAPAUG BROOK	LOCAL GOVERNMENT
WHIPPLE POND	090	PROVIDENCE	WEST RIVER	PRIVATE
PARAGON POND	139	PROVIDENCE	WOONASQUATUCKET RIVER	PRIVATE
MANTON MILL POND	135	PROVIDENCE	WOONASQUATUCKET RIVER	PRIVATE
CANADA LOWER POND	094	PROVIDENCE	WEST RIVER	PRIVATE
SHANNOCK MILL POND	250	RICHMOND	PAWCATUCK RIVER	PRIVATE

Low Hazard Dams in Rhode Island

HABEREK FARM POND	458	RICHMOND	DIAMOND BROOK	PRIVATE
WHITE'S POND	261	RICHMOND	WHITE BROOK	PRIVATE
TANNER POND	280	RICHMOND	WHITE BROOK	PRIVATE
CAROLINA TROUT POND	476	RICHMOND	DIAMOND BROOK	STATE
TUG HOLLOW POND	232	RICHMOND	BEAVER RIVER	PRIVATE
ALTON POND	247	RICHMOND	WOOD RIVER	STATE
DUCK POND	466	RICHMOND	WHITE BROOK	PRIVATE
HORSESHOE FALLS	249	RICHMOND	PAWCATUCK RIVER	PRIVATE
DECAPPETT POND	230	RICHMOND	BEAVER RIVER	PRIVATE
WELLS POND	260	RICHMOND	WHITE BROOK - TR	PRIVATE
WOOD RIVER JUNCTION	273	RICHMOND	MEADOW BROOK	STATE
LILLIBRIDGE POND	259	RICHMOND	WHITE BROOK	PRIVATE
KENYON MILL POND	248	RICHMOND	PAWCATUCK RIVER	PRIVATE
ABNER'S POND	332	SCITUATE	WILBUR HOLLOW BROOK	PRIVATE
POTTERVILLE POND	330	SCITUATE	WILBUR HOLLOW BROOK	LOCAL GOVERNMENT
POTTER POND	331	SCITUATE	WILBUR HOLLOW BROOK	PRIVATE
MATHEWSON POND	364	SCITUATE	BRANDY BROOK	PRIVATE
KING POND	367	SCITUATE	KING BROOK	PRIVATE
KIMBALL RESERVOIR	346	SCITUATE	MOSWANSICUT BROOK	LOCAL GOVERNMENT
MOSWANSICUT POND	162	SCITUATE	MOSWANSICUT BROOK	LOCAL GOVERNMENT
BURTON POND	329	SCITUATE	WILBUR HOLLOW BROOK	LOCAL GOVERNMENT
JORDAN POND	345	SCITUATE	WESTCONNAUG BROOK	LOCAL GOVERNMENT
DUCK POND	363	SCITUATE	BRANDY BROOK	PRIVATE
BURLINGAME POND	567	SCITUATE	BURLINGAME BROOK	PRIVATE
BRUSH MEADOW POND	355	SCITUATE	DOLLY COLE BROOK	PRIVATE
HORSESHOE	360	SCITUATE	PAWTUXET RIVER - NORTH BRANCH	LOCAL GOVERNMENT
PINE SWAMP RESERVOIR #2 (AUX TO #1)	362	SCITUATE	UNNAMED STREAM	LOCAL GOVERNMENT
PINE SWAMP RESERVOIR #1	361	SCITUATE	BRANDY BROOK	LOCAL GOVERNMENT
PEEPTOAD POND	351	SCITUATE	PEEPTOAD BROOK	LOCAL GOVERNMENT
PECK FARM POND	511	SCITUATE	WILBUR HOLLOW BROOK - TR	PRIVATE
PEABODY RESERVOIR LOWER	344	SCITUATE	WESTCONNAUG BROOK	LOCAL GOVERNMENT
KEEBLER FARM POND	542	SCITUATE	COLVIN BROOK - TR	PRIVATE
HOPKINS POND	116	SMITHFIELD	SLACK RESERVOIR BROOK	PRIVATE

ESMOND MILL LOWER POND	130	SMITHFIELD	WOONASQUATUCKET RIVER	PRIVATE
ESMOND MILL MIDDLE POND	129	SMITHFIELD	WOONASQUATUCKET RIVER	PRIVATE
ESMOND MILL UPPER POND	128	SMITHFIELD	WOONASQUATUCKET RIVER	LOCAL GOVERNMENT
GOULD POND	096	SMITHFIELD	WEST RIVER	PRIVATE
GRANITE MILL POND	122	SMITHFIELD	REAPER BROOK	PRIVATE
GREENVILLE MILL POND	112	SMITHFIELD	STILLWATER RIVER	PRIVATE
CONNETTI FARM POND	435	SMITHFIELD	STILLWATER RIVER - TR	PRIVATE
HAWKINS POND	123	SMITHFIELD	REAPER BROOK	PRIVATE
LOCKWOOD FARM POND	456	SMITHFIELD	STILLWATER RIVER - TR	PRIVATE
KNIGHT MILL POND	113	SMITHFIELD	STILLWATER RIVER	PRIVATE
MOUNTAINDALE RESERVOIR	125	SMITHFIELD	REAPER BROOK	LOCAL GOVERNMENT
REAPER POND	124	SMITHFIELD	REAPER BROOK	PRIVATE
SEBILLE POND	119	SMITHFIELD	HAWKINS BROOK'	STATE
SPRAGUE LOWER RESERVOIR	121	SMITHFIELD	STILLWATER RIVER - TR	PRIVATE
STILLWATER MILL POND	114	SMITHFIELD	STILLWATER RIVER	PRIVATE
HARRIS POND	142	SMITHFIELD	HARRIS BROOK	PRIVATE
COMSTOCK FARM POND	428	SMITHFIELD	WOONASQUATUCKET RIVER - TR	PRIVATE
CONNER FARM POND	451	SMITHFIELD	WOONASQUATUCKET RIVER - TR	PRIVATE
MOWRY POND	117	SMITHFIELD	SLACK RESERVOIR BROOK	PRIVATE
ADLER'S FARM POND #1	520	SMITHFIELD	STILLWATER RIVER - TR	PRIVATE
CAPRON POND	110	SMITHFIELD	WOONASQUATUCKET RIVER	PRIVATE
GREAT SWAMP GOOSE MARSH	531	SOUTH KINGSTOWN	PAWCATUCK RIVER	STATE
PEACEDALE RESERVOIR	578	SOUTH KINGSTOWN	ROCKY BROOK	LOCAL GOVERNMENT
HEFLER FARM POND	525	SOUTH KINGSTOWN	ROCKY BROOK	PRIVATE
GLEN ROCK RESERVOIR	236	SOUTH KINGSTOWN	USQUEPAUG RIVER	PRIVATE
GLEN ROCK MIDDLE POND	234	SOUTH KINGSTOWN	GLEN ROCK BROOK	PRIVATE
GLEN ROCK LOWER POND	233	SOUTH KINGSTOWN	GLEN ROCK BROOK	PRIVATE
WAKEFIELD POND	425	SOUTH KINGSTOWN	SAUGATUCKET RIVER	PRIVATE
WILD LIFE MARSH	521	SOUTH KINGSTOWN	ROCKY BROOK	STATE
GLEN ROCK UPPER POND	235	SOUTH KINGSTOWN	GLEN ROCK BROOK	PRIVATE
ASA POND	549	SOUTH KINGSTOWN	ROCKY BROOK	LOCAL GOVERNMENT
INDIAN LAKE	537	SOUTH KINGSTOWN	SAUGATUCKET RIVER	PRIVATE
BARBER'S POND	257	SOUTH KINGSTOWN	CHICKASHEEN BROOK - TR	PRIVATE

BISCUIT CITY POND	278	SOUTH KINGSTOWN	WHITE HORN BROOK	PRIVATE
ROCKY BROOK RESERVOIR	579	SOUTH KINGSTOWN	ROCKY BROOK	LOCAL GOVERNMENT
KENYON FARM POND	449	SOUTH KINGSTOWN	UNNAMED STREAM	FEDERAL
YAWGOO POND	290	SOUTH KINGSTOWN	CHICKSHEEN BROOK	PRIVATE
CONGDON FARM POND	447	SOUTH KINGSTOWN	USQUEPAUG RIVER	PRIVATE
WAKEFIELD POND	481	THOMPSON, CT.	BLACKMORE BROOK	PRIVATE
NONQUIT POND	396	TIVERTON	BORDEN BROOK	LOCAL GOVERNMENT
MILL POND	467	TIVERTON	ADAMSVILLE BROOK	PRIVATE
WARREN RESERVOIR UPPER	480	WARREN	KICKAMUIT RIVER	PUBLIC UTILITY
WARREN RESERVOIR LOWER	479	WARREN	KICKAMUIT RIVER	PUBLIC UTILITY
MANCHESTER POND	443	WARREN	KICKAMUIT RIVER - TR	PRIVATE
KEITH FARM POND	450	WARWICK	HARDIG BROOK - TR	PRIVATE
GORTON POND	559	WARWICK	APPONAUG BROOK	LOCAL GOVERNMENT
CRANBERRY BOG	548	WARWICK	PAWTUXET RIVER - TR	PRIVATE
CAMP WARWICK POND	462	WARWICK	HARDIG BROOK - TR	PRIVATE
FEIRING FARM POND	544	WARWICK	MASKERCHUGG RIVER	PRIVATE
PAWTUXET RESERVOIR LOWER	143	WARWICK	PAWTUXET RIVER	STATE
VALLEY COUNTRY CLUB POND	431	WARWICK	HARDIG BROOK - TR	PRIVATE
CARR POND	184	WEST GREENWICH	CARR RIVER	STATE
RATHBON POND	181	WEST GREENWICH	CONGDON RIVER	STATE
R.I. FISH & GAME PROT. ASSOC.	519	WEST GREENWICH	NOOSENECK RIVER	PRIVATE
KNOX FARM POND	212	WEST GREENWICH	ACID FACTORY BROOK	PRIVATE
BRADLEY POND	369	WEST GREENWICH	NOOSENECK RIVER	PRIVATE
MISHNOCK POND	179	WEST GREENWICH	MISHNOCK RIVER	LOCAL GOVERNMENT
EISENHOWER LAKE	207	WEST GREENWICH	ACID FACTORY BK	STATE
CAPWELL MILL POND	281	WEST GREENWICH	CARR RIVER	STATE
ROBIN HOLLOW POND	328	WEST GREENWICH	RACCOON BROOK	PRIVATE
TIPPECANSETT POND	206	WEST GREENWICH	PARRIS BROOK	PRIVATE
OLD MILL POND #1	210	WEST GREENWICH	WOOD RIVER	STATE
TANNERS MILL POND	204	WEST GREENWICH	KELLEY BROOK	PRIVATE
LEYDEN WILDLIFE POND	597	WEST GREENWICH	ACID FACTORY BROOK - TR	PRIVATE
MILLBROOK POND	188	WEST GREENWICH	CONGDON RIVER	PRIVATE
YARD POND	189	WEST GREENWICH	NOOSENECK RIVER	PRIVATE

Low Hazard Dams in Rhode Island

MONEY SWAMP POND	182	WEST GREENWICH	CONGDON RIVER	PRIVATE
TARBOX POND	183	WEST GREENWICH	CARR RIVER	STATE
WICKABOXET POND	202	WEST GREENWICH	CONEY BROOK	PRIVATE
KASELLA FARM POND	468	WEST GREENWICH	BREAKHEART BROOK	PRIVATE
HUDSON POND	203	WEST GREENWICH	KELLEY BROOK	PRIVATE
OLD MILL POND #2	211	WEST GREENWICH	PHILLIPS BROOK	STATE
HAZARD POND	200	WEST GREENWICH	FALLS RIVER	PRIVATE
TILLINGHAST POND	201	WEST GREENWICH	CONEY BROOK	PRIVATE
BLACK ROCK RESERVOIR	185	WEST WARWICK	BLACKROCK BROOK	PRIVATE
RIVERPOINT POND UPPER	147	WEST WARWICK	PAWTUXET RIVER - SOUTH BRANCH	PRIVATE
RIVERPOINT POND LOWER	146	WEST WARWICK	PAWTUXET RIVER - SOUTH BRANCH	PRIVATE
RIVERPOINT MILL POND DAM	155	WEST WARWICK	PAWTUXET RIVER - NORTH BRANCH	PRIVATE
BOUCHAR FARM POND	455	WEST WARWICK	HARDIG BROOK	PRIVATE
CLYDE POND	154	WEST WARWICK	PAWTUXET RIVER - NORTH BRANCH	PRIVATE
CROMPTON LOWER	150	WEST WARWICK	PAWTUXET RIVER - SOUTH BRANCH	PRIVATE
DI MARTINO FARM POND	535	WEST WARWICK	MESHANTICUT BROOK	PRIVATE
PHENIX MILL POND	156	WEST WARWICK	PAWTUXET RIVER - NORTH BRANCH	PRIVATE
LOMBARDI FARM POND	473	WEST WARWICK	PAWTUXET RIVER - NORTH BRANCH	PRIVATE
WOODY HILL RESERVOIR	454	WESTERLY	PERRY HEALY BROOK	STATE
BRADFORD POND	253	WESTERLY	PAWCATUCK RIVER	PRIVATE
MISQUAMICUT COUNTRY CLUB POND	547	WESTERLY	UNNAMED	PRIVATE
WHITE ROCK	255	WESTERLY	PAWCATUCK RIVER	PRIVATE
SYLVESTER POND	389	WOONSOCKET	IRONMINE BROOK	LOCAL GOVERNMENT
CASS PARK POND	388	WOONSOCKET	IRONMINE BROOK	LOCAL GOVERNMENT
SOCIAL PARK POND LOWER	486	WOONSOCKET	MILL RIVER	LOCAL GOVERNMENT
JENCKESVILLE POND LOWER	071	WOONSOCKET	PETERS RIVER	PRIVATE
JENKESVILLE POND UPPER	298	WOONSOCKET	PETERS RIVER	PRIVATE

Five Year Dam Safety Financing Plan

Dam Assistance Grant Program

Dam Assistance Program grants in the amount of $15,000 to $20,000 would be issued to approximately 10 - 12 Rhode Island municipalities per year. These funds would be targeted at the State's high and significant hazard dams.[1] Eligible projects under the dam planning grant program would include, but not be limited to: preliminary engineering analyses, the preparation of disaster preparedness strategies, and comprehensive dam management plans. By the end of this five-year plan, it is estimated that approximately 60 of the State's high and significant hazard dams would have gone through the Dam Assistance Grant Program.

Dam Assistance Loans

Design Needs

The primary funding mechanism for the repair, maintenance, or re-construction of high and significant dams within Rhode Island should occur through a state revolving loan fund administered by the Rhode Island Clean Water Finance Agency (CWFA). [2] Either annual appropriations or the proceeds of a Statewide General Obligation Bond would create the corpus of the loan fund. These loans are intended to assist local government units, private lake associations and private dam owners in meeting the costs of dam repair projects. Funds would be awarded to eligible *local government units* and eligible *private dam owners*, as co-applicants with local government units, in the form of low-interest loans.

Once a preliminary engineering study for a particular dam is complete and areas in need of repair are identified, that dam is eligible to move into the final engineering design phase. In this phase, each dam, at an approximate cost of $80,000[3] per dam, would be reviewed by a professional engineer, and a repair strategy would be identified for that dam. In Years 2 through 5, it is estimated that between 40 and 48 dams would have gone through the engineering design phase (10 to 12 dams per year) at a cost of approximately $3 to $4 million.

Repair and Re-Construction Needs

The last stage of this comprehensive plan to address the repair needs of the State's high and significant hazard dams involves repair costs. For purposes of this analysis, it is assumed that repair costs, on average, will be $800,000 per dam. It is unreasonable to assume that all 10 to 12 dams which went through the engineering design stage in Year 2 would be ready for repairs in Year 3. Instead, the analysis assumes that approximately 4 dams would move into the construction phase in Year 3. In Year 4 and Year 5, after additional design studies have been completed, one can assume that an additional 20 to 24 dams would have moved into the final construction phase (10 to 12 dams per year).

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[1] Under the current dam safety law and hazard classification system, Rhode Island has 57 high and significant hazard dams. This number will rise if the draft legislation proposed by the Task Force is adopted.

[2] DEM would act as the regulatory partner for the CWFA in issuing these loans.

[3] Engineering designs on average equal 10% of the total repair costs. This analysis assumes that dam repair costs will average $800,000 per dam. Therefore, engineering design costs will average $80,000 per dam.

Estimated Outcome at End of Each Fiscal Year: [4]

Year 1: 12 dam assistance grants would be issued to for 12 individual dam projects.
Total need = $200,000.

Year 2: 12 dam assistance grants would be issued to for 12 individual dam projects. Between 10 and 12 dams would move into the design phase. No dams would be ready to move into the repair and re-construction phase.
Total need = $1,050,000 to $1,300,000.

Year 3: 12 dam assistance grants would be issued to for 12 individual dam projects. Between 10 and 12 dams would move into the design phase. Approximately 4 dams would have moved into the repair and re-construction phase.
Total need = $3,550,000 to $4,500,000.

Year 4: 12 dam assistance grants would be issued to for 12 individual dam projects. Between 10 and 12 dams would move into the design phase. Approximately 10 to 12 dams would have moved into the repair and re-construction phase.
Total need = $8,050,000 to $11,300,000.

Year 5: 12 dam assistance grants would be issued to for 12 individual dam projects. Between 10 and 12 dams would move into the design phase. Approximately 10 to 12 dams would have moved into the repair and re-construction phase.
Total need = $8,050,000 to $11,300,000.

Five-Year Dam Safety Financing Plan				
YEAR	GRANTS	LOANS		SUM OF COST RANGES
	Dam Assistance Grant Program Needs	*Design Needs (Range)*	*Repair and Re-Construction Needs (Range)*	
YEAR 1	$200,000	0	0	$200,000
YEAR 2	$300,000	$750,000 - $1,000,000	0	$1,050,000 - $1,300,0000
YEAR 3	$300,000	$750,000 - $1,000,000	$2,500,000 - $3,200,000	$3,550,000 - $4,500,000
YEAR 4	$300,000	$750,000 - $1,000,000	$7,000,000 - $10,000,000	$8,050,000 - $11,300,000
YEAR 5	$300,000	$750,000 - $1,000,000	$7,000,000 - $10,000,000	$8,050,000 - $11,300,000
TOTAL	*$1,400,000*	*$3,000,000 - $4,000,000*	*$16,500,000 - $23,200,000*	*$20,900,000 - $28,600,000*

The above estimates reflect a 5-year outlook about the State's dam repair and re-construction needs. The dam repair and re-construction projects undertaken within these first 5 years would likely address the State's most pressing dam needs. Additional funding will be necessary to address the needs of the State's entire dam infrastructure after these initial 5 years. The affordability of these projects will be determined through the Capital Budget Development Plan, not unlike infrastructure programs for water and sewer projects.

[4] These estimates would be re-evaluated after the first year of the plan based upon more complete data about the repair and re-construction needs.

Final Report Component Outline and Recommendations
Dam Safety Program Review and Evaluation
to the
Rhode Island Department of Environmental Management
September 14, 1999

Presented by:
Louis Berger & Associates, Inc.
295 Promenade Street
Providence, Rhode Island

I. EXECUTIVE SUMMARY

A. BACKGROUND

Louis Berger & Associates, Inc. (Berger) was hired by the Rhode Island Department of Environmental Protection (RIDEM) to provide engineering consulting services related to the review and evaluation of the State's current regulations and engineering standards regarding dam maintenance and safety.

The purpose of this effort is to assist the RIDEM in evaluating its current regulations and engineering standards regarding dam safety to determine whether there are specific changes which should be made to provide for more effective regulation of dams. The primary impetus for this effort is to take pre-emptive action to allow adequate protection of life and property which could be impacted upon a partial or complete failure of hazardous dams in the State.

The evaluation consists of a review of the existing regulations in comparison to the neighboring states who have more well developed Dam Safety regulatory programs. The results of the review will assist the RIDEM in determining the critical regulatory components should be added to the State's current regulations and learn from the experience of the neighboring states what problem components to avoid.

B. EXISTING DAM INSPECTION PROGRAM

Rhode Island's Dam Inspection Law was adopted in 1896 and last amended in 1956. It appears as though there have been little to no changes since that time. The law is in need of updating and does not address any specifics of the dam inspection program.

Currently the dam safety program consists of one full-time inspector. The inspector is responsible for inspecting all inventoried dams in the state. There are 510 dams that have the status of "active inventoried dams". Of the 510 dams, 16 of them have been classified

as High Hazard downstream potential, 41 have been classified as Significant Hazard downstream potential, and the remaining are classified as Low Hazard or they have not been classified at all. A total of 195 dams have been classified and they were classified in the 1970's. The High Hazard dams were last inspected in 1998.

C. PROJECT APPROACH

Berger has completed its evaluation of Rhode Island's current regulations regarding dam maintenance and safety. This workshop is the culmination of that effort and includes preliminary recommendations as to specific program components which Rhode Island should incorporate into their Dam Safety Program.

Berger's evaluation consisted of reviewing the existing regulations and guidance documents and comparing them to the regulations of neighboring states. In order to do this, Berger obtained copies of the dam regulations and guidance documents of eight neighboring states: Connecticut; Maine, Massachusetts, New Hampshire; New Jersey; New York; Pennsylvania; and Vermont. In addition, Berger referred to the "Model State Dam Safety Program" publication written by the Association of the State Dam Safety Officials (ASDSO) for additional recommendations.

Upon completion of the review of the existing regulations obtained, Berger developed an outline of critical (key) components common to neighboring states. Berger found that Rhode Island's program was lacking almost all of the critical components common to the neighboring state's programs and had the least developed and comprehensive regulations/program of all the states.

Berger also prepared a questionnaire which was sent to all eight neighboring states. The purpose of this questionnaire was to allow neighboring states to discuss the successes of their program, what changes they would incorporate into their program if they could, and suggestions they had for Rhode Island. Of the numerous recommendations that were made by the eight states, two were identified as additional components that Rhode Island should consider incorporating into their program: (1) a loan program to assist dam owners in making repairs; and (2) a registration program.

On July 15, 1999, a Public Workshop was held to present Berger's preliminary findings and recommendations. The presentation was followed by public questions and comments. Comments were also sent via mail and copies of the comments received are included in this report.

RIDEM opened the Workshop and indicated that they were interested in establishing a partnership with both public and private dam owners to develop mechanisms to fund dam repairs and to develop a more effective dam safety program. RIDEM also indicated that they are in the process (or going to be) of developing as part of their program, mechanisms which allow some dam owners to remove their dams and a loan program to assist dam owners in making the necessary repairs to their dams. In general, the

comments received were favorable and supportive of RIDEM efforts to improve their Dam Safety Program.

Of the numerous comments that were made at the Workshop and received via mail, three were identified that should be incorporated into Rhode Island's program: (1) Require owners to maintain access to their dam when selling or transferring property around their dam; (2) Acknowledge that other regulatory agencies' regulations such as FERC and USACOE may take primacy over Rhode Island's regulation for some dams within the state; and (3) Require owners to include in their Emergency Action Plan, steps (including contacts) and pre-emptive measures that they should take to determine if their dam's condition is potentially dangerous.

Based on the results of the Public Workshop, the questionnaire, the review of the existing regulatory programs as well as numerous discussions with RIDEM, twenty-one preliminary recommendations were made to the state to incorporate into their program. The highlights of these recommendations include establishing what dams fall under the state's jurisdiction and establishing a dam inspection program where the owners are primarily responsible for inspections.

D. NEXT STEPS

The efforts of this evaluation are presented in this report which will be submitted to the Director of the RIDEM and the Director of the Department of Administration (DOA).

Internally, RIDEM will review this report. Up until now, the evaluation process has consisted of a consultant (Engineer) and a small RIDEM committee. Upon review of this report, RIDEM will determine how best to respond to the recommendations presented. RIDEM's review will involve the following:

~ Possible amended legislation, if necessary;
~ New administrative language;
~ Funding alternatives (public/private partnership, grants, loans, etc.) and;
~ Continued public input.

Actions Taken to Date

1996 to Present

Since 1996, the State has been implementing a restoration and repair program for a number of State-owned dams. These funds have been provided through the statewide Capital Development Process. DEM, along with other state agencies, submits annual requests to the Capital Development and Planing Oversight Committee. This committee then makes recommendations to the Governor for the 5-year capital improvement plan.

Approximately $1.3 million has been invested in repairs at two particular dams - Olney Pond Dam in Lincoln, and for improvements to the Bowdish Dam in Glocester. In addition, an estimated $3.3 million in repairs are planned for the Stillwater Dam in Smithfield.

1998

In 1998, DEM hired Louis Berger & Associates to provide engineering consulting services related to the review and evaluation of the State's current dam safety law (Chapter 46-19) and engineering standards regarding dam safety and maintenance. Rhode Island's current dam safety law was first adopted in 1896 and last amended in 1956.

January 1999 - DEM Hires a Dam Inspector

In January 1999, the Department of Environmental Management hired a full-time dam inspector, filling a vacancy that had existed since 1996. Initial tasks included reviewing and organizing the dam files, and developing an action plan that outlined the dams in need of inspection. Since early 1999, the Department has focused on issuing inspection reports for those dams that pose the greatest risk to the environment and public safety.

July 1999 - Dam Safety Program Public Workshop

In July 1999, Louis Berger & Associates of Providence presented the preliminary findings and recommendations of its study begun in 1998. Many of the firm's recommendations were based upon a review of other states' dam safety laws, regulations and policies (primarily in the New England region). In total, approximately 40 interested parties attended the workshop, many of which were later active in the Governor's Task Force on Dam Safety and Maintenance.

September 1999 - Louis Berger & Associates Report Issued and Adopted by DEM

In September of 1999, Louis Berger & Associates issued its final report entitled Dam Safety Program Review and Evaluation which underscored the need to reform Rhode Island's Dam Safety Program. In their report, Louis Berger & Associates identified many of the critical issues that would later be addressed by the Governor's Task Force. This report served as a very valuable resource guide for task force members on topics such as: defining a dam, creating a hazard classification system, establishing inspection criteria for dam owners, developing formal registration and permitting processes within the Dam Safety Program, planning for potential and real dam emergencies, increasing public awareness of the risks associated with dams, and establishing a mechanism to fund dam repair and removal.

A major finding of the Louis Berger & Associates report was that the state lacks a structured financial assistance program to assist and encourage dam owners with needed repairs. This shortcoming was noted by many of the forty (40) participants who attended the public workshop.

January 2000 - FEMA Grants for FY 2000, 2001 and 2002

In January 2000, the Department formally applied for a grant from the Federal Emergency Management Agency (FEMA). The Dam Safety program is eligible for approximately $45,000 for each of federal fiscal years 2000, 2001 and 2002. DEM was successful in its efforts to secure this funding for fiscal year 2000 and anticipates it will receive similar funding in fiscal years 2001 and 2002. The Department plans on using this funding to retain an engineering consultant to update the downstream hazard classification ratings of certain Rhode Island dams. These classification ratings, which were originally established nearly 20 years ago, rate dams based upon the expected downstream damage (loss of life and property damage) in the event of a dam failure.

May 2000 – Dam Safety Program Annual Report

In May of 2000, DEM submitted the *1999 Annual Report to the Governor* on the activities of the Department's Dam Safety Program. This report was prepared in accordance with Chapter 46-19-1 of the General Laws which requires the completion of an annual report. The report included a discussion on the history of the Rhode Island Dam Safety Program, the current dam inspection program, professional associations of the program, and an outline of the key tasks accomplished by the program during 1999.

May 2000 – Governor Almond Issues Executive Order Creating Task Force

On May 31, 2000, Governor Lincoln Almond issued *Executive Order No. 00-6*, which formally established the Dam Safety and Maintenance Task Force. The Task Force convened in July 2000.

September 2000 – Providence Hosts National Dam Safety Conference

The Association of State Dam Safety Officials (ASDSO) is a not-for-profit organization formed in 1984 in response to several major dam failures across the United States during the previous decade. In September 2000, the Association chose Providence, RI as the site for its 17th Annual Dam Safety Conference. The conference, which routinely draws over 600 professionals from all over the United States and several foreign countries, featured technical sessions presented by a comprehensive lineup of experts in areas such as dam rehabilitation and risk management. This year, conference attendees were treated to a tour of three Rhode Island dams: Stillwater Dam in Smithfield, Gainer Dam in Scituate, and Olney Pond Dam at Lincoln Woods.

Current Dam Law: 46-19 (Inspection of Dams and Reservoirs)

46-19-1 Periodical inspection required – Records and reports. – The director of environmental management shall cause to be made a thorough inspection of every dam and reservoir in the state as often as may be necessary to keep him or herself informed of the condition thereof; and shall make and keep a record of the result of the inspection, with whatever knowledge the director shall obtain in reference to each dam or reservoir, and shall make an annual report of his or her doings in his or her office in the month of January to the governor.

46-19-2 Description and plans furnished by owner. – Every person owning, maintaining, or having control of any dam or reservoir shall, upon written request therefor, furnish to the director of environmental management as full, true, and particular description of the dam or reservoir as may be practicable; and shall, as soon as may be after the request, cause to be made all the necessary surveys, plans, and drawings thereof as may be required by the director.

46-19-3 Approval of plans for construction or alteration. – No dam or reservoir shall be constructed or substantially altered until plans and specifications of the proposed work shall have been filed with and approved by the director.

46-19-4 Investigations and orders as to unsafe dams and reservoirs. – The director of environmental management, on application made to him or her in writing by any person owning or representing property liable to injury or destruction by the breaking of any dam or reservoir, or on an application made by any mayor or city council of any city, or by the town council of any town, on account of danger of loss of life or of injury to any highway or bridge therein, from the breaking of any dam or reservoir, or, without the complaint, whenever he or she shall have cause to apprehend that any dam or reservoir is unsafe, shall forthwith view and thoroughly examine the dam or reservoir, or cause the dam or reservoir to be viewed and examined. And if in the judgment of the director the dam or reservoir be not sufficiently strong to resist the pressure of water upon it, or if from any other cause the director shall determine the dam or reservoir to be unsafe, or if in his or her judgment there is reasonable cause to believe that danger to life or property may be apprehended from the unsafe dam or reservoir, the director shall determine whether the water in the reservoir shall be drawn off in whole or in part, and what alterations, additions, and repairs are necessary to be made to the dam or reservoir to make the dam or reservoir safe, and shall forthwith in writing under his or her hand notify the owner or person having control of the dam or reservoir to cause the additions, alterations, and repairs in the dam or reservoir to be made within a time to be limited in the notice; and may order the water in the reservoir to be drawn off, in whole or in part, as the director may determine.

46-19-5 Judicial enforcement of order to make dam or reservoir safe. – If the owner or person having the control of any dam or reservoir, who shall be required to draw off the water, or a portion of the water, in any reservoir, or to make alterations in any reservoir, or repairs thereon or additions thereto, in the manner prescribed in § 46-19-4, shall not forthwith proceed to comply with the requirement, or shall not prosecute the work, when commenced, with reasonable expedition, the director of environmental management shall make out a complaint in which he or she shall set forth the condition of the dam or reservoir, and the steps he or she has taken to cause

the water to be drawn off therefrom and for the alteration or repair thereof, or to have additions made thereto to secure the safety of the dam or reservoir, and the default of the owner or person having control thereof in drawing off the water, repairing, altering, or in making an addition to the dam or reservoir, and that the safety of life and property is endangered by the default, and shall subscribe the default, and deliver the complaint to the attorney general or to an assistant attorney general, who shall present the complaint to the supreme court or the superior court, with a petition in the nature of an information ex officio, praying that the person owning or controlling the dam or reservoir may be required and ordered forthwith to comply with the requirements of the director of environmental management theretofore made in the premises, or with such other orders as may be made by the court, to secure all persons having reasonable cause to apprehend injury to life or property from the unsafe condition of the dam or reservoir. Upon the filing of the petition, a citation shall issue to the person controlling or owning the dam, commanding him or her to appear at a time and place therein named, to show cause, if any exists, why the relief prayed for shall not be granted; and the court shall summarily proceed to hear the cause, and upon hearing the parties, or by proceeding ex parte, if the respondent fail to appear, the court may pass such order and decree in the premises as will effectually secure the persons interested from danger or loss from the breaking of the dam or reservoir complained of; and the court may enforce the orders and decrees by injunction, process for contempt, by sequestration, or by such other process as may be applicable in those cases.

46-19-6 Access of agents to private property. – The director and the director's duly authorized agents may, in the discharge of his or her or their duties, enter upon and pass over private property without rendering him or herself or themselves liable in an action for trespass.

46-19-7 Employment of consulting engineer. – The director of environmental management may employ a consulting engineer in any specific case in which the exigencies of the case may require it. The compensation of the consulting engineer shall be allowed by the director, and shall be paid upon the order of the state controller out of any money in the treasury appropriated therefor.

46-19-8 Appropriations and disbursements. – The general assembly shall annually appropriate such sum as it may deem necessary, to pay all necessary expenses incurred by the director of environmental management in the discharge of the director's duties; and the state controller is hereby authorized and directed to draw his or her orders on the general treasurer from time to time for such sums as may be necessary, upon the presentation of properly authenticated vouchers.

Amendments to 46-19: Inspection of Dams and Reservoirs

46-19-1 Findings and purpose
46-19-2 Definitions
46-19-3 Registration and notification
46-19-4 Hazard classification
46-19-5 Construction, repair, alteration or removal of dams
46-19-6 Inspections, repairs and maintenance
46-19-7 Emergency action plans
46-19-8 Immediate compliance orders for unsafe dams
46-19-9 Access to dams
46-19-10 Enforcement
46-19-11 Employment of consulting engineers
46-19-12 Appropriations and disbursements
46-19-13 Dam assistance grants
46-19-14 Regulations
46-19-15 Annual report
46-19-16 Severability

SECTION 1. Chapter 46-19 of the General Laws entitled 'Inspection of Dams and Reservoirs' is hereby amended by striking sections 46-19-1 through 46-19-8 inclusive, and inserting in place thereof, the following:

46-19-1. Findings and purpose. – The General Assembly recognizes and declares that: (a) Rhode Island has more than 500 dams of varying age, size and state of repair; (b) the waterbodies, reservoirs, lakes and ponds created by many of these dams provide great benefits to the citizens of this state; (c) many of these manmade dams, both public and private, have not been properly maintained through the years and pose a significant threat to public safety and to the preservation of the state's natural and recreational resources; (d) to

protect public safety and real property within the state, preserve and enhance the scenic beauty of cities and towns and the conservation of fish and wildlife within the state, and preserve recreational facilities for the safe use and enjoyment of the public, all public and privately owned dams must be properly maintained and repaired; (e) it is in the best interest of the state, the cities and towns of the state, and the citizen's thereof, for the state to maintain a safe dam infrastructure and a dam emergency prevention, preparedness and response program.

46-19-2. Definitions. – For the purposes of the following chapter, the following definitions shall apply:

(i) "Dam" means any artificial barrier, including appurtenant works, which impounds or diverts water.

(ii) "Department" means the department of environmental management.

(iii) "Director" means the director of the department of environmental management, or his or her designee.

(iv) “Emergency action plan” or "EAP" means a formal document that identifies potential emergency conditions at one or more regulated dams and specifies pre-planned actions to be followed to minimize loss of life and property damage.

(v) "High hazard dam" means a dam assigned the high hazard potential classification where failure or mis-operation will probably cause loss of human life.

(vi) "Low hazard dam" means a dam assigned the low hazard potential classification where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

(vii) “Owner” means the person or persons, including any individual, firm, partnership, association, syndicate, company, trust, corporation, municipality, agency, political or

administrative subdivision of the state or any other legal entity of any kind holding legal title to the dam.

(viii) "Probable loss of human life" means likely to occur; or, reasonably or realistically expected. This definition does not include persons who are only temporarily in the potential inundation area downstream of a dam.

(ix) “Registered professional civil engineer” means a professional civil engineer fully registered in the State of Rhode Island who is experienced with dam design, construction, and repair.

(x) “Regulated dam” means any artificial barrier, including appurtenant works, which impounds or diverts water that is 6 feet or more in height; or has 15 acre-feet or more of storage capacity; or is a high hazard dam; or is a significant hazard dam.

(xi) "Significant hazard dam" means a dam assigned the significant hazard potential classification where failure or mis-operation results in no probable loss of human life but can cause major economic loss, environmental damage, disruption of lifeline facilities or impact other concerns.

(xii) "Unsafe dam" means a dam whose present condition, as determined by the director, is such that it poses an imminent threat to the environment, and/or public health, safety or welfare.

46-19-3. Registration and notification. – (a) The owner of a regulated dam shall file with the department on or before July 1, 2002 a fully completed registration form as prepared by the department. The registration form shall include all information needed by the department to assess the safety risk posed by the regulated dam.

(b) The owner of any regulated dam shall notify the director of the transfer of legal title of such dam or a change in the mailing address, emergency contact person, or telephone number

not later than thirty (30) days after the date of such transfer or change and provide to the director the new name, mailing address, telephone number, and/or emergency contact person.
(c) The director shall send a certificate of registration approval to the owner showing that the dam is properly registered, identifying the proper name, registration number, and current hazard classification of the dam.

46-19-4. Hazard classification. – (a) The director and/or his or her designees shall classify each regulated dam in the state as a high hazard dam, significant hazard dam, or low hazard dam consistent with any regulations adopted pursuant to this chapter and pursuant to title 42, chapter 35.
(b) The director shall cause to be examined each regulated dam as often as he or she shall deem necessary to assess the downstream development from the dam and determine whether the dam warrants reclassification. For the purposes of this section, each low hazard dam shall be examined every five (5) years.

46-19-5. Construction, repair, alteration or removal of dams. – (a) Every owner, before altering, repairing, constructing or removing any regulated dam, shall apply to the director for approval of such work, which approval the director may grant with modifications, limitations, or changes as in his or her judgement may be necessary for the protection of life and property. Applications for approval shall be accompanied by plans, specifications, and related documents as prepared by a registered professional civil engineer. Repair or alteration of a regulated dam shall not require the submittal of a freshwater wetlands application under the Freshwater Wetlands Act. The director shall establish a dam approval process for repair or alteration of regulated dams that includes a determination of compliance with the Freshwater Wetlands Act.

(b) Any owner constructing a new dam or removing an existing regulated dam shall submit a freshwater wetlands application in accordance with the Freshwater Wetlands Act.

(c) Alteration, repair, construction or removal of a regulated dam shall be performed under the supervision of a registered professional civil engineer retained by the owner. The director may require said engineer to submit periodic construction or repair reports during or upon completion of the work. The registered professional civil engineer shall certify, upon completion of the work, that the dam has been repaired, altered, constructed or removed in accordance with the approval of the director. The director shall issue a certificate of alteration, repair, removal or construction approval after he or she is satisfied that the work was completed in accordance with the approval issued by the department.

46-19-6. Inspections, repairs and maintenance. – (a) The owner of a regulated dam shall file with the director within one (1) year of the director's issuance of a certificate of registration an engineering analysis report of the dam. The engineering analysis report shall present the findings of a thorough examination of the dam to assess its present condition; provide an action plan for repairs necessary to ensure the safety of the dam; and provide a schedule to complete the repairs. The owner of the regulated shall file with the director every five (5) years thereafter for high hazard dams and eight (8) years thereafter for significant hazard dams a maintenance inspection report. The maintenance inspection report shall present the findings of a visual inspection of the regulated dam to assess its present condition; provide an action plan for further studies or repairs necessary to ensure the safety of the dam; and provide a schedule to complete the studies or repairs. The engineering analysis report and the maintenance inspection report shall be prepared and signed by a registered professional civil engineer. The director may, at his or her discretion, waive all or

part of these inspections if, in his or her opinion, the department has sufficient information to assess the present condition, safety, and adequacy of the dam.

(b) The director shall develop technical guidance documents that shall be followed by the registered professional civil engineer in his or her examination of the dam and/or preparation of any technical reports, engineering plans, and/or specifications to ensure that each dam is examined, constructed, and/or repaired consistent with established dam engineering standards.

(c) The director shall perform a compliance inspection of each regulated dam as often as he or she deems necessary to keep him or herself informed of the condition of the dam and any repairs to such dams that are authorized by the director; and shall make and keep a record of the result of the inspection, with whatever knowledge the director shall obtain in reference to each dam. Notwithstanding this provision, the director shall cause to be inspected each high hazard dam and significant hazard dam every two (2) years to assess the status of any repairs to such dams that are authorized by the director.

46-19-7. Emergency action plans. – (a) By January 1, 2003, an emergency action plan shall be prepared for each significant or high hazard dam by the city or town wherein the dam lies. The Rhode Island Emergency Management Agency, as established in chapter 15 of title 30, shall develop guidelines for the preparation of emergency action plans. The department shall cooperate with the Rhode Island Emergency Management Agency in developing the guidelines.

(b) Emergency action plans shall be updated on an annual basis, and shall be filed with the Rhode Island Emergency Management Agency, the department, and the local city or town emergency management official.

46-19-8. Immediate compliance orders for unsafe dams. – (a) Whenever the director determines that the dam is not sufficiently strong to resist the pressure of water upon it, or if from any other cause the director shall determine the dam to be unsafe, or if in his or her judgement there is reasonable cause to believe that danger to life or property may be apprehended from the unsafe dam, he or she may, pursuant to § 42-17.1-2(u), issue an immediate compliance order stating the existence of the unsafe condition and the action he or she deems necessary. The director may order the water in the reservoir to be drawn off, in whole or in part, as the director may determine. The compliance order shall become effective immediately upon service or within such time as is specified by the director in such order.

(c) Any emergency action taken by the owner of a dam pursuant to the director's order or any emergency action taken by the director shall be reported to the city(s) or town(s) in which the dam and impounded reservoir lies.

(d) If water has been drawn off or the structure has been altered pursuant to an order by the director, the impoundment shall not be refilled without approval of the director.

SECTION 2. Chapter 46-19 of the General Laws entitled “Inspection of Dams and Reservoirs” is hereby amended by adding thereto the following sections:

46-19-9. Access to dams. – (a) For the purposes of this chapter, including access to repair dams, the director, if necessary, may, to protect the environment and/or public, health, safety or welfare, take by eminent domain or acquire by purchase, gift, device or otherwise, in the name and for the benefit of the state or its assigns, such land, water rights, easements, and other property or interests in property, public and private, on such terms and conditions as the director may determine necessary to ensure the safety of the dam.

(b) The director may charge a dam owner with any costs associated with a taking under this chapter for the purpose of obtaining access over private lands for maintenance and repair of a dam required under this chapter if the dam owner is unable to obtain such access.

(c) In the exercise of the director's power of eminent domain under this chapter, the director shall be subject to the provisions of chapter 6 of title 37.

(d) The director and the director's duly authorized agents may, in the discharge of his or her duties, enter upon and pass over private property to the extent necessary to gain access to a dam without rendering him or herself or themselves liable in an action for trespass.

46-19-10. Enforcement. – (a) The director shall have the authority to give notice of an alleged violation of law to the person responsible therefor whenever the director determines that there are reasonable grounds to believe that there is a violation of any provision of this chapter or of any rule or regulation adopted pursuant to authority granted to him or her, unless other notice and hearing procedure is specifically provided by that law. Nothing in this chapter shall limit the authority of the attorney general to prosecute offenders as required by law. The director shall exercise this authority pursuant to §42-17.1-2 (u).

(b) The director shall have the authority to impose administrative penalties in accordance with the provisions of chapter 17.6 of title 42.

46-19-11. Employment of consulting engineers. – (a) The director may employ a consulting engineer in any specific case in which the exigencies of the case may require it. The compensation of the consulting engineer shall be allowed by the director, and shall be paid upon the order of the state controller out of any money in the treasury appropriated therefor.

46-19-12. Appropriations and disbursements. – (a) The general assembly shall annually appropriate such sum as it may deem necessary, to pay all necessary expenses incurred by the director in the discharge of the director's duties under this chapter.

46-19-13. Dam assistance grants. – (a) Consistent with the provisions of this chapter and the rules and regulations promulgated pursuant thereto, the department, with the assistance of the Rhode Island Emergency Management Agency, shall establish a competitive dam planning grant program. The purpose of this grant program shall be to reduce the numerous risks to public safety, property, the environment, and local water quality from all private and municipally owned high and significant hazard dams. Eligible projects under the dam planning grant program shall include, but not be limited to: the preparation of preliminary engineering analyses for dams, the preparation of disaster preparedness strategies, and comprehensive dam management plans. All cities and towns within the state of Rhode Island are eligible to receive grants pursuant to this section. The general assembly shall annually appropriate any sum it may deem necessary for the purposes of the dam assistance grant program.

46-19-14. Regulations. – Pursuant to title 42, chapter 35, the department shall promulgate rules and regulations as may be necessary to implement and carry out the provisions of this chapter.

46-19-15. Annual report. – The director, with the assistance of the Rhode Island Emergency Management Agency, shall prepare an annual report on the activities of the dam safety program and said report shall be submitted annually to the Governor in the month of January.

46-19-16. Severability. – If any provision of this chapter or any rule, regulation, or determination made under this chapter, or the application of this chapter to any person, agency, or circumstance, is held invalid by a court of competent jurisdiction, the remainder of this chapter, or the rule, regulation, or determination, and the application of those provisions to other persons, agencies, or circumstances shall not be affected. The invalidity of any section or sections or parts of any section or sections of this chapter shall not affect the validity of the remainder of this chapter.

SECTION 3. This act shall take effect upon passage.

Dam Management Districts

45-58-1 Legislative findings
45-58-2 Declaration of purpose
45-58-3 Powers of councils
45-58-4 Lien of district taxes
45-58-5 Indemnification
45-58-6 Powers of state agencies retained

SECTION 1. Title 45 of the General Laws entitled "Towns and cities" is hereby amended by adding thereto the following chapter:

45-58-1. Legislative findings. – The General Assembly recognizes and declares that:
Many manmade dams, both public and private, constructed in the state no longer serve their original purpose of waterpower, electrical generation and/or water supply. To protect public safety and real property values within the state; preserve and enhance the scenic beauty of cities and towns and the conservation of fish and wildlife within the state; and preserve recreational facilities for the safe use and enjoyment of the public, dams must be properly operated, maintained, repaired or removed. Therefore, to help avoid dam deterioration and breaches and to protect public safety and to help preserve the ecosystems, all public and privately owned dams must be properly maintained and to prevent their malfunction and/or failure.

45-58-2. Declaration of purpose. – The purpose of this chapter is to authorize the cities and towns of the state to adopt ordinances creating dam management districts ("district") for dams, the boundaries of which may include all or part of a city or town as specified by the ordinance. These ordinances shall be designated to prevent threats to public safety caused by the failure or breach of dams and to protect the ecosystems surrounding dams through the implementation of dam repairs, reconstruction, proper maintenance or removal.

45-58-3. Power of councils. – (a) Any city or town council in the state, by itself or pursuant to chapter 43 of this title, and in accordance with the purposes of this chapter, is authorized to adopt ordinances creating a district for dams within their jurisdiction.

(b) The creation of a district by the city or town may empower, pursuant to the ordinance, the following:

(1) Provide for passage of city, town, state or district officials onto private property when necessary for the periodic inspection, maintenance and repair of dams and appurtenant facilities;

(2) Provide for the district to perform supervision, control, maintenance, repairs and/or reconstruction of the dam and shall include activities relating dam removal. The city, town or state is authorized to perform supervision, control, maintenance, repairs and/or reconstruction of the dam in the cases of non-performance by the district or dam owner.

(3) Establish a public education program to educate new residents and update members of the district on new information or procedures for proper maintenance and operation of dams and the implications for failing to operate and maintain their dams in a manner which meets generally accepted dam safety practices;

(4) Raise funds for the administration, operations, contractual obligations and services of the district by:

(i) Assessing property owners for taxes and/or annual fees; and
(ii) Borrowing, and for that purpose, by issuing notes or bonds of the city or town; and
(iii) Provide for the borrowing of funds by district officials.

(5) Hire personnel and expend funds necessary to carry out the functions of the district and purposes of this act;

(6) Purchase, acquire, sell, transfer or lease real or personal property;

(7) Receive grants and loans for the maintenance, repair, removal and/or reconstruction of the dam;

(8) Adopt a common seal, sue and be sued, and enjoy the powers generally incident to corporations; and

(9) Provide for an appeal process from the decision of the district under the provisions of the Rhode Island Administrative Procedures Act, chapter 35 of title 42. An aggrieved party has the right to appeal to the district court.

45-58-4. Lien of district taxes. – All taxes assessed against any person in any district pursuant to this act shall constitute a lien upon that person's real estate in the district for the space of three (3) years after the assessment, and, if the real estate is not alienated, then until the taxes are collected.

45-58-5. Indemnification. – Any elected or appointed district official, employee or member of the district is entitled to all the rights and benefits of indemnification, as provided under the provisions of § 45-15-16 of chapter 35 of title 42 entitled "Actions by and against towns".

45-58-6. Powers of state agencies retained. – The department of environmental management shall retain all of its existing authority regarding all dams in the state.

SECTION 2. This act shall take effect upon passage.

Emergency Action Plans (EAPs)

Definition: "A formal document that identifies potential emergency conditions at a dam and specifies pre-planned actions to be followed to minimize property damage and loss of life."

FEMA, National Dam Safety Report
to Congress, 1998/1999.

Dams are innately hazardous structures. Failure or mis-operation can result in the release of the reservoir contents causing negative impacts upstream or downstream or at locations remote from the dam. Negative impacts of primary concern are loss of human life, economic loss including property damage, environmental damage (i.e. damage to wetlands and drinking water supplies).

For these reasons, all municipalities should prepare the following types of action plans to address both dam failures (breach or collapse of a dam) and potential dam failures (the discovery of a condition which may cause a dam to fail). It is strongly recommended that all EAPs be similar and consistent in format to eliminate confusion in the event that an EAP is activated.

The EAP policy outlined here specifies the actions dam owners and municipalities should take to moderate or alleviate dangerous circumstances at a dam. Early detection and coordination between dam owners and the appropriate response agencies/departments should be emphasized.

Pursuant to the recommendations of the Dam Safety and Maintenance Task Force, the following outline addresses the specific features all municipalities should include in a Dam Failure Emergency Action Plan:

1. Statement of Purpose

2. Inventory of Dams – A list of all high and significant hazard dams within the town/city, and the following specific information for each dam:

   - Dam owner
   - Controller of the dam
   - Emergency contact information (for both owner and controller)

3. Chain of Notification – A hierarchical list of state and city/town departments to be contacted in the event that any of the previous listed dams should fail or threaten to fail.

4. Event Response – A list of assigned emergency response duties for the following town departments:

- Fire Department
- Police Department
- Local Emergency Management Coordinator (if available)
- Town Manager
- Water authority
- Department of Public Works
- Sewer authority (if available)

5. Inundation Areas – Maps and other documents which indicate critical areas in the event of a potential or actual failure. These plans should also be used should there be a need to evacuate affected areas.

6. Site-specific Concerns - A list of any site-specific concerns that have not already been addressed in another portion of the EAP.[1]

7. Preparedness - Preparedness actions are taken to moderate or alleviate the effects of a dam failure or operational spillway release and to facilitate response to emergencies. *This section identifies actions to be taken before any emergency.*

These plans are to be kept on file with the local emergency management authority, police, and fire, as well as RI Emergency Management Agency and the RI Department of Environmental Management.

[1] For example, the location of nursing homes, schools, or major evacuation routes which may be impacted by the breach of a particular dam.