



**THE GENERAL COURT
OF
NEW HAMPSHIRE
CONCORD 03301**

CHUCK MORSE
PRESIDENT OF THE SENATE

TERIE NORELLI
SPEAKER OF THE HOUSE

SB60, Chapter 245:1, Laws of 2009

(New Title) establishing a commission to study water infrastructure sustainability funding.

FINAL REPORT

November, 2013

The above-named Joint Legislative Study Commission selected to study how to sustainably fund water infrastructure, having duly met offers the following final report:

Duties of the Commission: "The commission's review shall include, but not be limited to, an assessment of the state's need to construct and maintain infrastructure to protect its water resources, taking into consideration public health issues, ecosystem and habitat protection, and economic factors including tourism. The commission shall consider the information, conclusions, and recommendations presented in the New Hampshire water resources primer published in December 2008, which evaluates how to improve the long-term sustainability of New Hampshire's water infrastructure and its funding."

Commission Members:

Senator Martha Fuller Clark (chair)

Representative Thomas Buco

Representative Pamela Hubbard

Representative Adam Schroadter

Harry Stewart, New Hampshire Department of Environmental Services (NHDES)

David Bernier, Granite State Rural Water Association

Rachel Roulliard, Piscataqua Region Estuaries Partnership

Keith Robinson, United States Geological Survey

John Boisvert, New Hampshire Water Works Association

Peter Rice, New Hampshire Water Pollution Control Association

Kurt Blomquist, New Hampshire Public Works Association

John Webster, Granite State Hydro Power Association, Inc.

David Danielson, New Hampshire Association of Regional Planning Commissions

William Brown, American Council of Engineering Companies

Peter Kulbaki, New Hampshire Rivers Association

Tom O'Brien, New Hampshire Lakes Association

Stephen Hickey, New Hampshire Business and Industry Association

Commission Activity:

The Joint Legislative Study Commission to Study Water Infrastructure Sustainability Funding (the "Commission") met thirty-one times since originally established in 2009. A summary table of Commission meetings is provided in Appendix A.

The Commission first heard from several experts about water infrastructure (i.e. municipal wastewater and stormwater systems, public drinking water systems and municipal and state-owned dams.) and water infrastructure financing. Then, the Commission examined, and made decisions on, the following topics:

- Is investment in water infrastructure that serves New Hampshire's communities important?
- How does water infrastructure investment benefit the state?
- What amount of investment is needed in the next decade?
- Should the state of New Hampshire continue its historical role of providing aid for local water infrastructure investment?
- What are the most appropriate mechanisms for state assistance?
- What revenue sources for state assistance programs have a good nexus to the water services water infrastructure provides?

- What conditions for state funding would be appropriate to ensure sustainable local investment in water infrastructure to minimize the future need for state investment?

FINDINGS AND RECOMMENDATIONS

The key Commission findings and recommendations are summarized below followed by more detailed explanations of each.

Summary of Findings and Recommendations

- 1. Water infrastructure is critical and beneficial to New Hampshire's economy and quality of life.**
- 2. Substantial investment is needed to maintain or make necessary improvements to municipal wastewater and stormwater systems, public drinking water systems, and municipal and state-owned dams (i.e., approximately \$2.9 billion dollars over the next decade).**
- 3. In addition to ratepayers, the state of New Hampshire benefits directly and indirectly from reliable water infrastructure and the state should create a Water Trust Fund to ensure adequate annual investment in water infrastructure by providing:**
 - **Assistance with local debt service (similar to the historic state aid grant programs) on water infrastructure projects to provide incentive for local borrowing and to keep rates reasonably affordable**
 - **State match required to receive federal loan fund dollars**
 - **Funding for state-owned dam asset renewal**
- 4. A new revenue source must be found to create the Water Trust Fund and the Commission finds that a charge on beverage containers is the best available alternative¹.**
- 5. State funding for water infrastructure must be contingent on implementation of measures by water infrastructure system owners that will ensure proper and adequate future operation and asset management.**

¹ Note: The Commission envisions that this would not be a "container redemption fee" such as exists in other states. Rather, it would be a charge collected at the wholesale level that would provide a reliable dedicated revenue stream to support the proposed trust fund.

6. **Ongoing education and outreach will be necessary to ensure New Hampshire’s leaders and citizenry understand the critical importance of water infrastructure investment.**

Description and Justification of Findings and Recommendations²

1. **Water infrastructure is critical and beneficial to New Hampshire’s economy and quality of life.**

The Commission finds that water infrastructure benefits New Hampshire families, businesses and environment by allowing enough, and not too much, clean water to be where it is needed, when it is needed. In general, public drinking water, municipal wastewater and stormwater systems, and municipal and state owned dams throughout the state are critical to the quality of life and economy in New Hampshire (Appendix B contains maps showing the location of water infrastructure (NHDES. (2008). New Hampshire Water Resources Primer)). This infrastructure makes New Hampshire a great place to live, work and visit. Water infrastructure is essential for public health and safety. This infrastructure supports recreational and scenic opportunities that are integral to year-round tourism, New Hampshire’s second largest industry. Water infrastructure also increases local tax revenues derived from the more densely populated residential and commercial centers served by drinking water, wastewater and stormwater systems, and the waterfront property created by dams. Water infrastructure also creates jobs by ensuring that safe, clean water is available for commercial and industrial enterprises, as well as tourism. The specific benefits and beneficiaries for each type of water infrastructure are described below and presented in the chart provided in Appendix C.

² The Commission’s work extended over a five year period. As a result, Commission membership changed over time, particularly those members appointed to represent the New Hampshire Senate and House of Representatives (see Appendix A). Consequently, not all members attended the majority of meetings, heard all the experts or reviewed all the available materials. The report findings and recommendations represent a strong consensus of the 2013 Commission members. However, not all former and current members have necessarily reviewed or concur with every finding and recommendation.

Public Drinking Water System³ Infrastructure: New Hampshire has over 700 community public water systems that are regulated under the state and federal Safe Drinking Water Acts. These systems range in size from a small privately-owned 11 unit manufactured housing development to the City of Manchester's system which serves a total population of just over 100,000. The wells, surface water intakes, pumps, water distribution pipes, and treatment plants and storage facilities that comprise public water systems are found in virtually all New Hampshire communities. These systems:

- Deliver safe drinking water to the taps of New Hampshire's families, businesses, workers and visitors.
- Enable municipalities to have more densely developed residential, commercial and industrial centers. These centers provide economic engines across the state and increased tax revenues for both the host communities and the state.
- Ensure capacity for growth to sustain New Hampshire's future economic health.
- Provide fire protection to New Hampshire's urban and suburban areas which have major municipal public water supplies.
- Support many New Hampshire businesses and industries that require safe, reliable water supply. These range from industries that need potable water for industrial processes to businesses in the tourism industry, such as hotels and restaurants.
- Help residents and businesses to maintain lawns and landscaping by delivering water for irrigation. For example, water consumption for many public drinking water systems actually doubles in the summer to provide water for irrigation.

Municipal Wastewater System Infrastructure – New Hampshire has 71 municipal wastewater systems that discharge to surface waters, and, therefore, are regulated under the federal Clean Water Act National Pollution Discharge Elimination System (NPDES) Program, There also 27 municipal treatment facilities that discharge to groundwater that are permitted under New Hampshire's Groundwater Protection Act. These systems collectively serve New Hampshire's major municipalities and urban centers. In contrast, individual privately owned septic systems

³ As defined in the federal Safe Drinking Water Act, "public water system" means "a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year." A "community public water system" is a public water system that serves a permanent residential population year round.

serve New Hampshire's smaller, less densely populated communities. Municipal wastewater systems:

- Provide for the removal and effective treatment of wastewater from sinks, toilets and drains prior to discharge to surface waters (e.g. rivers, estuaries or the ocean) and groundwater, to comply with federal and state permit requirements to ensure acceptable water quality, especially in areas where on-site (septic) systems do not work properly or there are too many people and businesses.
- In conjunction with the public water supplies, enable municipalities to have more densely developed residential, commercial and industrial centers. These centers provide economic engines across the state that generate jobs as well as increased tax revenues for both host communities and the state.
- Ensure capacity for growth for a vibrant economy.
- Maintain clean water for water-related recreation, such as swimming, fishing and boating that are critical to the quality of life of New Hampshire's citizens and a healthy tourist economy.

Stormwater Infrastructure— Most of New Hampshire's municipal stormwater infrastructure was constructed decades ago with the primary objective of flood prevention by the rapid removal of stormwater from developed areas. Water quality impacts were not a consideration when most of these systems were constructed. These original systems typically included catch basins, storm gutters, pipes and ditches to collect and transport stormwater directly to nearby surface waters. Systems in newer developments may also include stormwater storage basins to better manage peak discharges as well as other treatment to improve water quality or promote groundwater recharge. Properly constructed and maintained stormwater systems:

- Minimize flood damage and erosion for both private and publicly owned properties.
- Minimize water quality impacts from the stormwater.
- Encourage the local recharge of rain and snow to groundwater, where appropriate.

Stormwater infrastructure exists in all communities. In large suburban and urban municipalities discharges to surface water from stormwater infrastructure requires an NPDES permit. Since the 1980s, stormwater infrastructure installed in association with large land disturbances also requires state permitting.

State and Municipally Owned Dams – Lake Winnepesaukee, Squam Lake, Newfound Lake, and Lake Sunapee are among the largest of many lakes in New Hampshire with water levels and, in some cases, downstream river flows that are controlled by dams owned and operated by the state or municipalities. The state owns 278 dams and there are 358 municipally-owned dams. Most state- and municipally-owned dams were originally constructed to provide water for hydropower during the Industrial Revolution. Now, the primary purposes for almost half of these dams is recreation while others store water for hydropower, water supply and some limited flood control. The NHDES Dam Program is responsible for permitting and inspecting publically and privately owned dams. NHDES also removes, manages, maintains, repairs and, when appropriate, removes state owned dams. Dam-controlled water bodies provide:

- Shore front property owners with benefits from recreation, higher property values and higher quality of life (e.g. scenic and recreational values).
- Municipalities with higher property taxes from lakefront properties.
- The state of New Hampshire with higher revenues through rooms and meals taxes from the water-based tourist industry.
- For some dams, protection of low-lying population centers and transportation infrastructure from flooding by storing water during minor and moderate flooding events.
- Substantial local economic benefits. A study conducted in 2002 determined that New Hampshire lakes, rivers, streams and ponds contributed up to \$1.5 billion annually in total sales to the state's economy and boosted property tax revenues by an estimated \$247 million per year (Shapiro & Kroll. (2003). *Estimates of select values of New Hampshire lakes, rivers, streams and ponds.*).

Economic and Job Creation Benefits of Water Infrastructure Investment: Many national studies have been performed to document the economic and job creation benefits that result from investment in water infrastructure. Three of the most widely used statistics (National Water Associations Letter to Congress. 12/6/2012. Re: Future of America's Clean and Safe Water at Risk.) include:

- The U.S. Conference of Mayors reports that each public dollar invested in water infrastructure increases private long-term GDP output by \$6.35.

- The National Association of Utility Contractors estimates that \$1 billion invested in water and wastewater infrastructure can create over 26,000 jobs.
- The Department of Commerce estimates that each job created in the local water and wastewater industry creates 3.68 jobs in the national economy and each public dollar spent yields \$2.62 dollars in economic output in other industries.

2. Substantial investment is needed to maintain or make necessary improvements to municipal wastewater and stormwater systems, public drinking water systems, and municipal and state-owned dams (approximately \$2.9 billion dollars in the next decade).

The Commission finds that substantial investments are needed to maintain the viability and reliability of New Hampshire's water infrastructure. In New Hampshire, community growth, prosperity and quality of life over the past century were made possible by major investments in water infrastructure systems. Existing infrastructure has served New Hampshire's communities and businesses very well for decades. However, much of this infrastructure is old, at capacity or out of compliance with new regulatory standards and requires upgrading or replacement.

The water infrastructure industry is very capital intensive. In New Hampshire, most water infrastructure was built over the last century and a half, most recently with some significant state and federal grants. For example, most existing wastewater treatment facilities were originally constructed in the 1970s and 1980s to meet new federal Clean Water Act requirements. These investments were typically funded with 75% federal grants, 20% state grants and 5% local share supported by user fees or property taxes. The good news is that water infrastructure systems last a long time. However, many components of these systems are approaching life expectancy and will require major investments to maintain system reliability (up to \$2.9 billion over the next decade). *The Commission has concluded that New Hampshire has a significant backlog of asset renewal projects and that efforts and progress must be ramped up to get on a more sustainable path forward.*

Every four years, the American Society of Civil Engineers (ASCE) provides an assessment of the nation's major infrastructure systems and releases a report card (ASCE. (2012). *Report Card for America's Infrastructure.*). Since 1998, water infrastructure grades have been near failing, with New Hampshire receiving an average grade of "D", due to underinvestment. Improvement will require substantially higher user rates for water services, wiser asset management practices going forward and adequate state investment to create necessary incentives for local borrowing and keep local rates reasonably affordable. For dams and stormwater, identification and establishment of better mechanisms for beneficiaries to support needed capital investment and operations is also necessary.

Investment in water infrastructure is also necessary to meet demand growth (caused by population growth that has occurred since most systems were built); to achieve regulatory compliance objectives for public health, public safety and environmental improvements (many new regulations have been adopted since this infrastructure was built); and to respond to changes in climate (which have put stress on many water infrastructure systems). The need to maintain and improve water related infrastructure resulting from all these cost drivers was a key finding of the recent Governor's Water Sustainability Commission (New Hampshire Water Sustainability Commission. (2012). *New Hampshire Lives on Water.*).

Few municipalities have saved sufficiently to meet asset renewal needs much less for the funding to address unanticipated issues such as new regulations and climate change. *The Commission has concluded that local sustainable funding practices must be improved (see Finding/Recommendation #5), climate change adaptation must occur, and every effort must be made to improve regulatory certainty. Today's reality, however, is that New Hampshire heavily depends on the presence of reliable water infrastructure and the need over the next decade for infrastructure investment is tremendous (approximately \$2.9 billion).*

Infrastructure investment need for the next decade is estimated as follows:

Water Infrastructure Funding Needs⁴

⁴ These data came from a variety of sources. The wastewater and stormwater need is based on an in-depth needs survey conducted every two years (most recently in 2012) in association with receiving a federal grant for New Hampshire's Clean Water Act Revolving Loan Fund. The drinking water estimate comes from a New Hampshire specific study done in 2011 (Wright-Pierce 2011. *Drinking Water Infrastructure in New Hampshire: Capital Investment Needs Analysis*). The state-owned and municipally-owned dam estimates were derived from data

Infrastructure Type	10 Year Need
Wastewater	\$1,710,000,000
Stormwater	\$272,000,000
Drinking Water	\$857,000,000
Dams – State Owned	\$18,000,000
<u>Dams- Municipal</u>	<u>\$40,000,000</u>
<i>Total</i>	<i>\$2,897,000,000</i>

Analysis was performed to quantify the portion of this overall need that should reasonably come from the state, as a beneficiary of water infrastructure, on an annual basis (see Appendix D) to fund the activities specified in Finding /Recommendation #4. The estimated need for state investment is about \$40 million dollars per year. At this funding level, the following could be provided:

- Funding for the water supply and wastewater state aid grant programs to make projects more affordable to users and provide needed incentive for local investment
- Support for the required state match for federal grants for the Clean Water (wastewater and stormwater) and Drinking Water State Revolving Funds for low interest loans
- Support for major repairs or, where appropriate, removal of state owned dams.

The Commission finds that without a significant increase in infrastructure investment, we will be at risk of reversing decades of progress in public health, environmental protection, economic development and quality of life.

3. In addition to ratepayers, the state of New Hampshire benefits directly and indirectly from reliable water infrastructure and the state should create a Water Trust Fund to ensure adequate annual investment in this critical infrastructure.

The benefits to the state of New Hampshire derived from water infrastructure were discussed under the Commission’s Finding #1. These benefits have historically been recognized through a

provided by the NHDES Dam Bureau. The state owned dam estimate is based on the current asset renewal/dam removal schedule and the municipal dam estimate was extrapolated.

biennial appropriation in the state general fund to support the state aid grant programs for municipal wastewater facilities and public drinking water supplies as authorized by RSA 486 and RSA 486-A⁵, respectively. These grant programs have typically provided municipalities with 20% to 30% grants to reduce local debt service payments, provide incentive for local borrowing and make these projects more affordable to users. In recent years, state aid grant program appropriations have been frozen to levels that only meet existing obligations with no funds for new projects that would have historically been eligible for funding. Also, the state capital budget historically provided state matching funds needed to obtain federal grants that support New Hampshire's Clean Water and Drinking Water (low interest) State Revolving Loan Funds. Funding the state match through the capital budget has also been reduced in recent years.

The Commission finds that state general fund appropriations can no longer be considered a sustainable, reliable funding source for these programs. The Commission also finds that the state must continue, and increase, its role in investing in New Hampshire's water infrastructure. Specifically, a new revenue source(s) is needed to create a dedicated Water Trust Fund that will support annual state expenditures of about \$40million for water infrastructure investment (see Appendix C)).

The Water Trust Fund should at a minimum provide:

- Annual grant assistance with local debt service to provide support for payments (similar to the existing state aid grant programs administered by NHDES) for projects that maintain or provide needed improvements to existing wastewater and stormwater systems, community public water systems, and municipal dams. The Commission recommends 20% grants for all such improvements in the state. For wastewater, stormwater and drinking water projects that exceed affordability thresholds; up to 30% grants are envisioned. Although there are adequate loan dollars available in New Hampshire for local water projects (primarily from the state revolving funds, the municipal bond bank, rural development and private banks) and communities are the primary stewards of local water infrastructure, *the Commission finds that grants have been and will be necessary for at least the next decade to prompt local investment, keep rates affordable and provide the time necessary to enable water*

⁵ RSA 486: Aid to Municipalities for Water Pollution and Control. RSA 486-A: Aid to Public Water Systems.

infrastructure systems to become more self-sustaining (see Finding #6) . The Commission recommends expansion of the existing state aid grant program administered by NHDES to make more drinking water improvements eligible and to include municipal dams. As with the existing state aid grant program, eligible projects would only include maintaining and improving existing infrastructure or to address water quality impairments.

- *Annually provide required state match for federal loan fund dollars. Specifically, The Commission finds that New Hampshire should use the Water Trust Fund to provide the 20% match needed to obtain federal loan dollars for the clean water and drinking water state revolving funds. Providing this match brings millions of dollars of loan funds to New Hampshire communities to use on wastewater, stormwater and drinking water infrastructure. For instance, in 2013 a \$1.6 million dollar state match brought New Hampshire \$8 million in federal low interest loan dollars for New Hampshire’s public drinking water systems.*
- *Provide annual funding for state-owned dam asset renewal. Historically, funding for asset renewal relied primarily on hydro-power generation fees. Those fees have diminished significantly over time so, in recent years, dam maintenance, repair and removal has required significant general fund appropriations. In the interest of public safety and reduction of state liability for property destruction, the Commission finds that state-owned dam asset renewal needs a stable funding source that ensures timely improvements. The Commission also believes additional work must be done to identify additional beneficiaries of these impoundments and to create a sustainable contribution towards needed improvements. Accordingly, the Commission believes the Water Trust Fund should be a source, but ultimately not the only source, of sustainable funding to ensure the integrity of state-owned dams.*

The Commission focused its work on the most critical state investment needed to ensure water infrastructure sustainability. In the course of this work, other important needs were discussed such as funding regional water infrastructure planning. *To the extent that a dedicated revenue source is established that generates more revenue than what is required for the three critical needs described above, funding other important water related needs should also be considered.*

4. A new revenue source must be found to create a Water Trust Fund and the Commission finds that a beverage container charge (not a “bottle bill” involving a redemption fee) is the best alternative.

The Commission finds that a new dedicated revenue source will be needed to establish the Water Trust Fund described above. Further, the Commission recommends that this funding source should be related to water, such as a fee on an activity that impacts water quality or relies on municipal wastewater and/or public drinking water services. Over the last few years, difficulty in funding the existing state aid grant program, match for state revolving loan fund dollars, and asset renewal at state-owned dams has demonstrated that these critical needs cannot be reliant on uncertain general fund or capital budget appropriations. Instead a new revenue source to support a dedicated Water Trust Fund is needed.

The Commission researched a variety of potential funding sources and reviewed reports on options employed by other states. In addition, a UNH graduate student conducted a survey of potential funding sources for the Commission (Appendix E contains a bibliography of all materials and approaches reviewed). In addition to a beverage container charge, many potential revenue sources were discussed and evaluated for this purpose including as (1) fees on products related to water pollution such as toilet paper, pharmaceuticals and personal care products, (2) a state-wide water tax, (3) increases to waterfront property taxes and (4) an increase to rooms and meals taxes. All of these could be economically linked to the value of clean water. However, the Commission ultimately determined that these were all less feasible than a container charge for various reasons, including low potential revenues, collection problems, and existing funding commitments.

Based on the Commission’s research, a beverage container charge was selected as the most appropriate potential new revenue source for the following reasons:

- Nearly all beverage manufacturers rely on public drinking water as an ingredient and generate waste streams discharged to municipal wastewater facilities (either in New Hampshire or elsewhere).

- A beverage container charge has the potential to raise enough annual revenues to meet the state's portion of the annual need and would be relatively straight forward to collect at the wholesale level.
- The potential for citizen acceptance is high because the relationship between beverage containers and water use is direct and easy to understand. Also, most people are familiar with paying redemption fees on beverage containers in other states.
- There is room for a beverage container charge in New Hampshire, while generally maintaining a competitive advantage in the regional beverage marketplace, because the surrounding states all have redemption fees.

The Commission estimated that a charge of about four cents per container could raise the annual state share of the state-wide infrastructure investment based on data from the Container Recycling Institute (see Appendix E)

5. State funding for water infrastructure from the Water Trust Fund must be contingent on implementation of measures by water infrastructure system owners that will ensure proper and adequate future investment and asset management.

The Commission, having concluded that the state of New Hampshire is a beneficiary of well-maintained and adequately-funded water infrastructure, also finds that the state has an obligation to ensure that public funds (state grants and loans) used to invest in new water infrastructure or to re-invest in existing (aging) infrastructure are invested wisely and efficiently. State investment should be one of the means to raise water infrastructure systems to a minimum level of service but must be accompanied by sustainable practices on the part of the owner of the infrastructure. Accordingly, state funding must come with conditions that drive infrastructure systems to self-sustainable operations in the future. The conditions for sustainability proposed by the Commission are not new. In fact, similar conditions were required for municipalities to receive construction grants to upgrade wastewater treatment plants under the Clean Water Act during 1970s and 1980s but were not fully embraced by industry and infrastructure owners in general. In 2013, industry leaders are now embracing these concepts as a means to sustainable

operation, as federal and state grant funds are no longer readily available and there is continued downward pressure on user rates, user fees, and taxes from rate payers and public officials.

Conditions of Funding

- *Adoption of Sustainable Asset Management Practices:* A major condition of funding recommended by the Commission is that infrastructure owners adopt sustainable “Asset Management” practices. Asset Management has many different meanings. The concept includes identifying all a systems asset, determining the condition and importance of those assets, and creating a plan and prioritized schedule for needed maintenance or improvements (i.e., asset renewal or replacement). There is broad agreement that water infrastructure owners (i.e. local stewards) need to embrace the concept of Asset Management. Therefore, the Commission finds that water infrastructure owners seeking state investment should be required to institute an appropriate level of Asset Management suitable for a system’s or asset’s size, criticality, public purpose and environmental benefit to ensure life cycle benefits are maximized and life cycle costs are minimized.
- *Demonstration of Institutional Capacity:* The Commission believes that ownership of water infrastructure requires appropriate management capacity, technical expertise, and the necessary financial resources (i.e., institutional capacity) to ensure safe and reliable operation of these critical systems. This is of particular importance for small community public water systems. To secure state funding, water infrastructure systems must demonstrate that the appropriate level of managerial, technical and financial resources are present to protect the state’s investment and to allow self-sustaining operation into the future.
- *Adoption of Responsible Financial Management Practices:* The Commission believes that water infrastructure owners will need to adopt responsible financial management practices to get on a more sustainable path moving forward and that adoption of such practices should be a prerequisite for receiving state grant funding. One of the reasons infrastructure owners today have a large backlog of infrastructure asset renewal work to accomplish with limited available funds, is that utility owners have historically charged users of these services less than the full cost of operation. Responsible financial management includes things such as:
 - Full cost budgeting, including an appropriate depreciation allowance to fund long term asset renewal costs.

- Cost recovery of the full cost through equitable user fee systems.
 - Dedicated and protected asset renewal accounts to preserve asset renewal allowances for that purpose.
 - Dedicated accounts for system expansion funded by impact fees and betterment assessment sorts of funding vehicles.
- *Cost-effective/Priority Projects:* The Commission recommends that the projects eligible for state funding be limited to asset renewal, capacity and regulatory compliance projects with the lowest life cycle costs and that have been identified as a top priority project through asset management and system master planning studies. The Commission recommends that growth related projects (i.e., expansion of infrastructure systems to accommodate new development) not be eligible for state funding. Instead, growth related projects should be supported by the beneficiaries of these projects through funding vehicles such as impact fees and betterment assessments.

In summary, the Commission believes that water infrastructure sustainability will only be achieved by infrastructure owners adopting comprehensive asset and financial management practices and therefore recommends that the adoption of such practices be a grant condition.

The Commission acknowledges that it will take additional dialog among the stakeholders; (the Department of Environmental Services (NHDES), the Public Utilities Commission, the municipal stewards of water infrastructure, professional organizations, etc.) to identify what specific requirements should be in place for the different infrastructure types and sizes. It also recommends working with the existing organizations that represent municipal public works and the wastewater and drinking water industry to achieve more sustainable future behavior of local stewards so that less future state investment is necessary. In addition to the mechanisms for increased sustainability discussed above, behaviors such as optimizing operations, communicating level of service goals, and negotiating compliance schedules should be promoted by the NHDES and associations toward the goal of sustainable local funding. Finally, the Commission urges NHDES to work with stakeholders to look for ways to improve the ability of small public water systems to be sustainable.

6. Ongoing education and outreach will be necessary to ensure New Hampshire's leaders and citizenry understand the critical importance of water infrastructure investment.

The Commission finds that investment by the state of New Hampshire in water infrastructure is as important to New Hampshire's future as investment in areas such as transportation infrastructure. Unlike roads and bridges, most water infrastructure is underground and, therefore, is out of sight and out of mind. *The Commission recommends that the member organizations that comprise the Commission work together over the next year to educate New Hampshire's leaders and citizens about the importance of water infrastructure investment to the state's economy, public health and environment.* This time should also be used to further refine the concept of a Water Trust Fund, how this fund should be structured and administered, and how a charge on beverage containers (and/or other identified revenue source with nexus to water) could be used to support such a fund.

Respectfully Submitted,

A handwritten signature in blue ink that reads "Martha Fuller Clark". The signature is written in a cursive, flowing style.

Senator Martha Fuller Clark

REFERENCES

NHDES. (2008). *New Hampshire Water Resources Primer*

Shapiro & Kroll, (2003). *Estimates of select economic values of New Hampshire lakes, rivers, streams and ponds.*

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Wright-Pierce. (2011). *Drinking Water Infrastructure in New Hampshire: Capital Investment Needs Analysis*

COMMISSION TO STUDY WATER INFRASTRUCTURE SUSTAINABILITY FUNDING
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APPENDICES

APPENDIX A: Summary of SB 60 Meetings – November, 2013

APPENDIX B: Water Infrastructure Maps

APPENDIX C: Water Infrastructure Benefits and Beneficiaries Chart

APPENDIX D: Analysis of Annual Funding Need for New Hampshire Water Trust Fund

APPENDIX E: Bibliography of Materials and Approaches Reviewed Concerning Water
Infrastructure Funding Sources

APPENDIX A: Summary of SB 60 Meetings – November, 2013

APPENDIX A: SB60 Commission to Study Water Infrastructure Sustainability Funding

Summary of SB60 Meetings – November, 2013

Date	Agenda Items	Guest Speakers	Handouts	Purpose Served
9/17/2009	-Organizational meeting.			Senator Fuller Clark was elected chair; The purpose of the Commission was reviewed.
10/1/2009	-Overview of Water Infrastructure Needs; -Clean Water and Drinking Water State Revolving Funds.	-Harry Stewart, NHDES member and Water Division Director; -Sharon Nall and Paul Heitzler, Wastewater Engineering Bureau at NHDES; - Sarah Pillsbury, NHDES Drinking Water; -Rick Skarinka, NHDES Drinking Water; -Steve Doyon, NHDES Dam Bureau.	-New Hampshire Resources Primer; -Water Infrastructure Needs in NH; -Final Report of the Commission to Study the Effects of Electric Utility Restructuring; -State Owned Dams in Need of Repair List.	An overall review of state infrastructure needs for wastewater, stormwater, water supply, dam improvements and an explanation of funding available through NH's federally funded water related state revolving funds.
10/22/2009	- Rural Development Agency (RDA); - Housing and Urban Development – Community Development Block Grants (CDBG); - New England Interstate Water Pollution Control Commission (NEIWPC); -District Army Corp of Engineers (ACE).	-Gregg MacPherson, RDA; -Katharine Bogle-Shields, CDBG; -Ron Poltak, NEIWPC; -Chris Hatfield, (ACE).	-Minnesota Clean Water Fund Activities; -Creating a Sustainable Solution for Pennsylvania.	Identified other Federal funding sources that are available.
11/5/2009	- Public Water Supply Capacity Assurance; - Pennichuck Waterworks /Small Systems; -Portsmouth Case Study.	Sarah Pillsbury, NHDES Drinking Water; John Boisvert, Member; Peter Rice, Member.	-Case Sample Presentations; -GAO Report – Clean Water Infrastructure; -NARC/ARRA; -Outline for a Water Trust Fund; -Financing Water Infrastructure.	Unique issues related to small public water systems identified. Regulatory uncertainty/change as a driver of costs considered.
11/19/2009	-NH Coastal Program; -National Oceanic and Atmospheric Agency.	-Ted Diers, NHDES Coastal Program; -Betsy Nicholson, NOAA.		Identified federal funding available on the seacoast.

Date	Agenda Items	Guest Speakers	Handouts	Purpose Served
12/3/2009	-Environmental & Resource Economics, UNH; -Draft SB60 report outline.	-Dr. John Halstead, UNH.	-Draft report outline.	Identified connections between infrastructure and economic development; Began discussion of a UNH survey related to funding infrastructure; Began discussion of final report.
12/17/2009	-State Owned Dams; -Full Cost Pricing; -Questions for UNH Grad Students.	-Jim Gallagher, NHDES Dam Bureau; - William Brown, Member.	-State owned dam power point presentation. -Full cost pricing power point presentation.	An explanation was provided concerning funding for Dam maintenance and repair (i.e. the historical revenue connected to hydro-electric power generation has significantly diminished and there will be no funding for state-owned dams by Spring 2011); A gap analysis for drinking water and wastewater infrastructure was discussed; The gap between need and revenues available with affordable, full cost pricing and existing funding sources was considered.
1/21/2010	-Private and Municipal Dams.	-Jim Gallagher, NHDES Dam Bureau; -Richard Norman, Granite State Hydropower Association (GSHPA).	-GSHPA handout	The status of municipal and privately owned dams was provided; An explanation by GSHPA was provided which explained it is unlikely that significantly more hydropower dams would be located in NH.
3/3/2010	- Water and sewer gap analysis approach; - Funding needs for SRF match and deferred grants; - UNH research update; - Report outline; - John Boisvert's list of questions for consideration.	None	- Comparison chart on municipal water and sewer rates, median household income and tax rates (draft); -Information on Funding needs for SRF match; - John Boisvert's list of questions e-mailed prior to the meeting.	Agreed on report outline/structure; Reported outcomes from meeting with UNH researchers.
4/15/2010	-Funding Gap Analysis; -Funding Alternatives; -UNH Research.	None	-Draft approach for estimating funding gap; -Draft UNH survey.	Consensus on how to use a gap analysis to estimate funding needs for drinking water and wastewater; Discussion of UNH survey.

Date	Agenda Items	Guest Speakers	Handouts	Purpose Served
5/21/2010	- Preparation for Joint Commission Meeting; - Gap Analysis Update.	None		Review of work and findings to date.
6/8/2010	-Discussion of Joint Commission Meeting; -Identification of demand reduction recommendation for final report.	None	-Handout from Joint Commissions meeting and draft minutes; -UNH Presentation.	Identification of financial demand reduction recommendations for report; Draft schedule for report production.
6/22/2010	- Small drinking water system recommendations report; - Discussions of needs to include in final report; -Draft funding entity concept.	None	-Summary of research completed by Groundwater Commission on user fees; - John Boisvert's funding entity concept diagram.	Identification of small drinking water system recommendations for report; Decision to limit report to critical drinking water, wastewater, stormwater and dam infrastructure needs.
8/12/2010	-Funding Issues for State Owned Dams; -Report Status; -Case Studies.	-Jim Gallagher, NHDES Dam Bureau.	- Funding Alternatives for the Maintenance & Repairs of State-Owned Dams.	Reiterated need for funds to keep state owned dams safe as of Spring 2011; Reviewed unsuccessful 2010 legislation that had proposed a fee on impoundment shoreline property owners; Identification of case studies for final report: Portsmouth, Jaffrey, Birch Hill and Keene
9/23/2010	- Final report/draft chapters; - Need for extension and/or interim report; - Upcoming joint meeting of all the water development related commissions.		-Draft report chapters.	Consensus on extending the Commission; Determined the need for and the content of an interim report.
10/27/2010	- Reviewed interim report; - Reviewed/edited UNH Survey; - Reviewed more complete gap analysis.		-Draft interim report; -Gap Analysis for Wastewater Joint meeting of Commissions handout.	Consensus on gap analysis approach and assumptions; Recommendations for finalizing interim report and UNH survey.

Date	Agenda Items	Guest Speakers	Handouts	Purpose Served
12/9/2010	Reviewed final draft of report; Discussed the future in light of 3 of 4 elected members not being re-elected and the number of new legislators.		Draft final report.	Determined recommendation to extend the commission should be in the final report; Discussed how a sponsor might be found to file a bill to extend the Commission; Agreed UNH research should be focused on potential revenue sources; Agreed work to date should be thoroughly documented regardless of the outcome of the legislation to extend the commission.
12/15/2011	Organizational meeting for extended commission with new members: Senator Gallus and Representatives Pettingill and Kapler.		-2010 Interim Report.	Senator Gallus elected chair; New members briefed on the need for the Commission and prior work.
2/13/2012	Strategy session on how to move forward to complete the Commission's report.		-Massachusetts Water Infrastructure Finance Commission Report "Toward Financial Sustainability"; -Draft report outline.	New Co-Chairs elected at the request of Senator Gallus: Peter Rice and Kurt Bloomfield; Prior work reviewed; 4 Subcommittees established; Funding needs/gap analysis, funding sources, writing, and solutions/education and outreach.
3/19/2012	Review of MA and PA Reports on sustainably funding infrastructure; Committee updates.		-UNH Infrastructure Funding Survey Results; -Talking points from Spring meeting with other water commissions.	Discussion of findings from PA and MA reports and their applicability to NH; Discussion of subcommittee's work.
4/16/2012	Committee updates.		-Draft benefits chart.	A draft Water Infrastructure Benefits chart was discussed; Work of the funding needs/gap analysis committee and the Solutions/education and outreach committee discussed.

Date	Agenda Items	Guest Speakers	Handouts	Purpose Served
5/14/2012	Committee updates; Presentation on Governor's Commission on Water Sustainability.	John Gilbert, Chair, Governor's Commission on Water Sustainability.		-Committee updates; -Discussion on how the work of the two committees fits together.
8/15/2013	Organizational meeting for extended commission with new members: Senator Fuller Clark and Representatives Hubbard, Bucu and Tom O'Brien, representing NH Lakes Association.		-2 Articles from Bill Brown: Agenda talking points and Summary thoughts about Themes for the Water Infrastructure Sustainability Funding Commission Report.	Senator Fuller Clark elected as chair; Discussed sustainable funding models identified by the commission to date.
8/28/2013	-Community Loan Fund presentation; -Existing Funding Models.	Rick Minard, Community Loan Fund.		Discussed existing financing agencies in NH and the state aid grant model.
9/4/2013	-CDFA and CDBG Presentation.	Kathy Bogle-Shields and George Huntoon, Community Development Finance Authority and CDBGs.	-CDBG handout; -Draft report outline; -State aid grant materials; -Affordability Report (AWWA and WEF. 2013); -Vermont 2013 funding report.	Discussed CDFA model; Discussed Commission's goals; Reviewed existing report outline and decided to reformat around key goals: identifying funding source with nexus to water, identifying structure for funding.
9/11/2013	Presentation from State Treasurer.	Catherine Provencher, State Treasurer	-New report outline that identifies key tasks and questions that must be answered; -Production schedule	Discussed need for dedicated fund, i.e. Water Trust Fund; Discussed draft report outline structured around key finding and recommendations; Discussed funding vehicle and consensus was reached to use the historical state-aid grant model with changes in eligibility and adding conditions for funding.
9/25/2013	-Funding vehicle; -Eligibility.		-HB388 and HB397 (retained by RR&D).	Discussed eligibility for state aid grant; Funding of state-owned dams through the Water Trust Fund.

Date	Agenda Items	Guest Speakers	Handouts	Purpose Served
10/9/2013	-Water Trust Fund annual need analysis; -Revenue sources.		-Harry Stewart's analysis of needs and potential revenues; -UNH Infrastructure Funding Survey Summary Report; -Full VT Report (2013) on funding water quality improvements; -John Boisvert's Conditions of Funding Chart.	Discussed annual funding need for the Water Trust Fund to support envisioned state aid grant program; Discussed potential revenue sources.
10/16/2013	-Conditions of state funding through the Water Trust Funds; -Review of Draft Final Report Outline.		-Report outline.	Reviewed conditions of funding to ensure that municipalities, as the primary stewards of infrastructure, are performing and contributing appropriately; Identified a beverage container fee as a likely source of funding for the Water Trust Fund; Decided on including recommendation/finding on the need for education and outreach.
10/23/2013	-Final Report review.		-Draft final report.	Began review of draft final report.
10/30/2013	-Final Report review.		-Revised draft final report.	Completed review of draft final report.

APPENDIX B: Water Infrastructure Maps
(NHDES. (2008). New Hampshire Water Resources Primer.)

New Hampshire Public Water Supply Sites

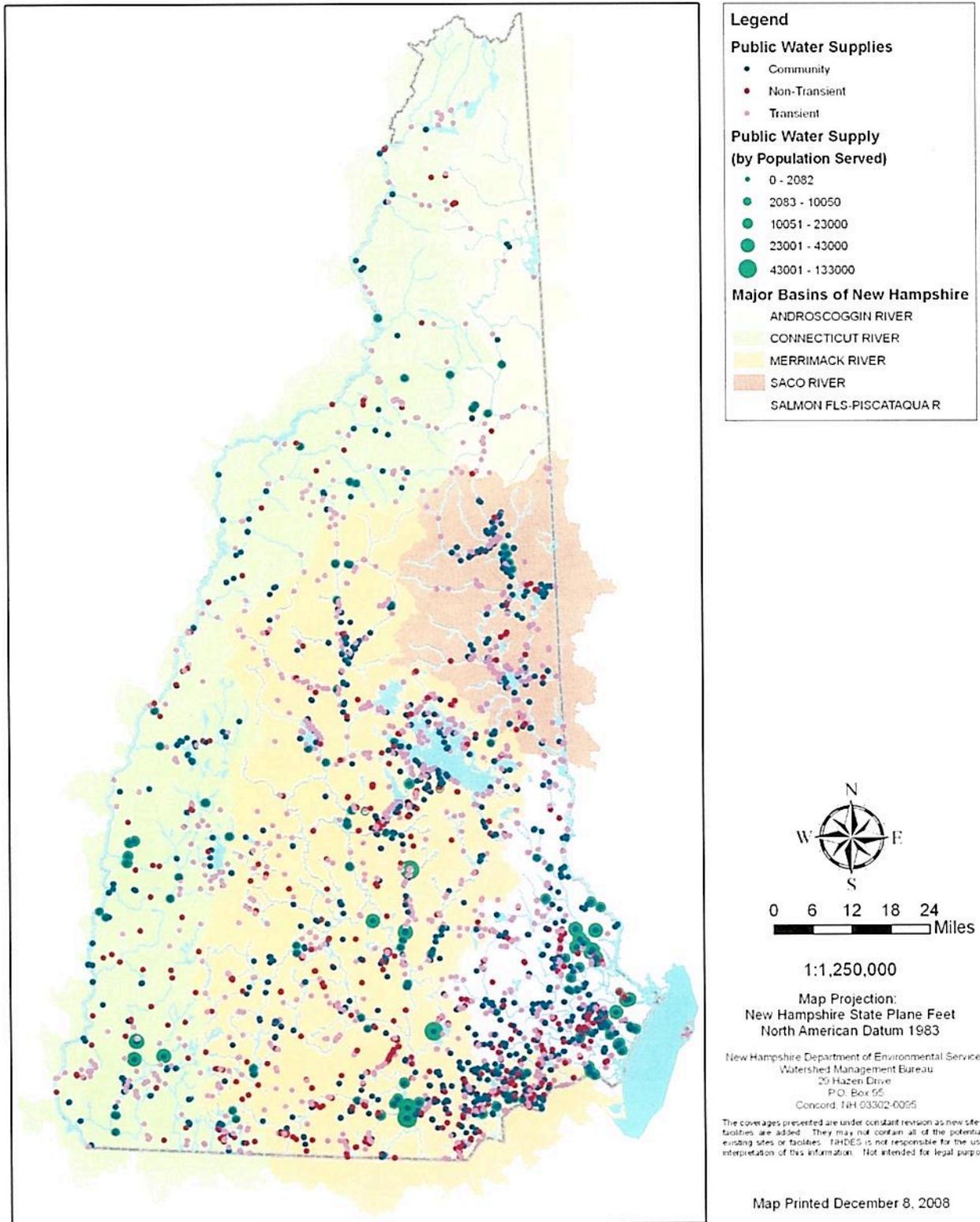


Figure 1-14. New Hampshire public water systems.

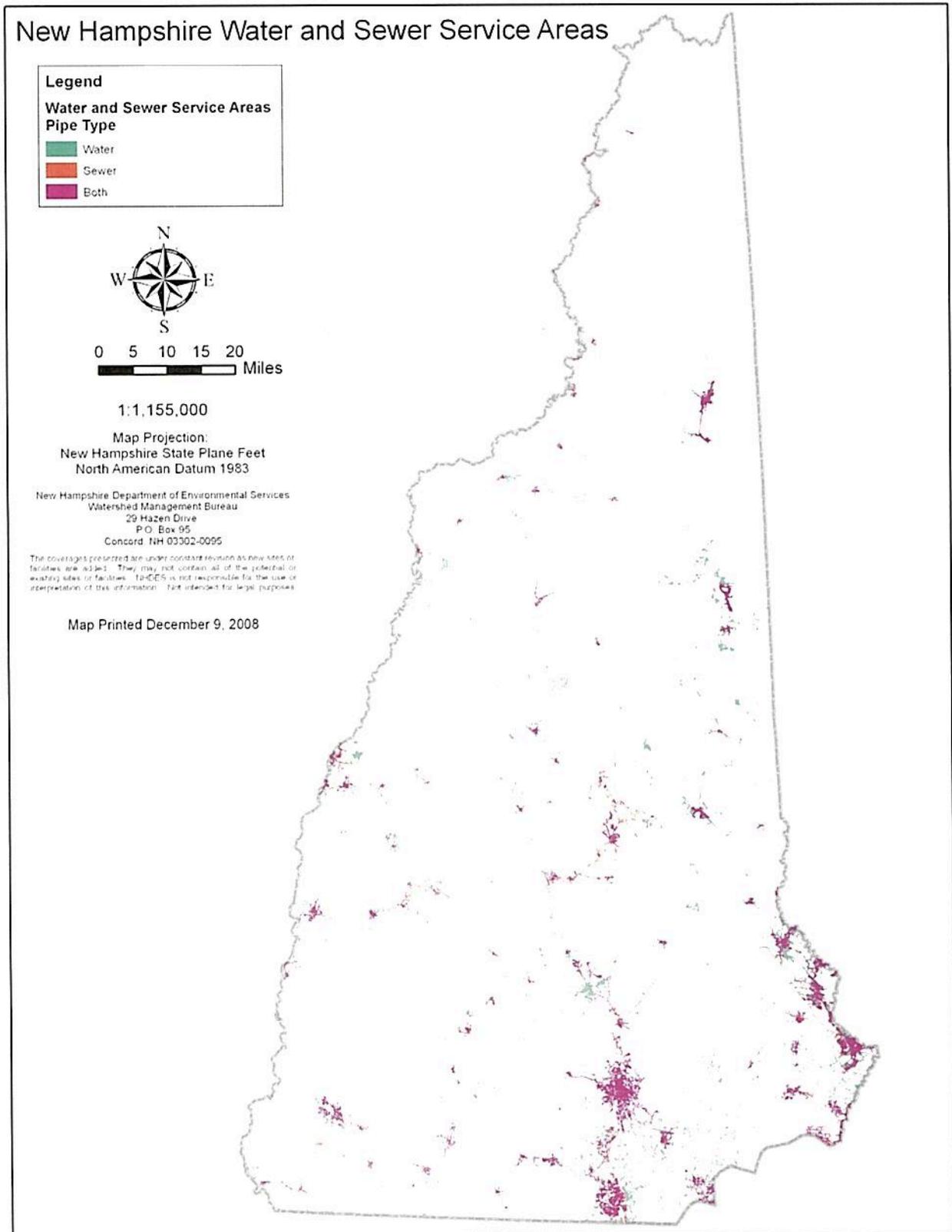


Figure 1-15. New Hampshire's water and sewer infrastructure.

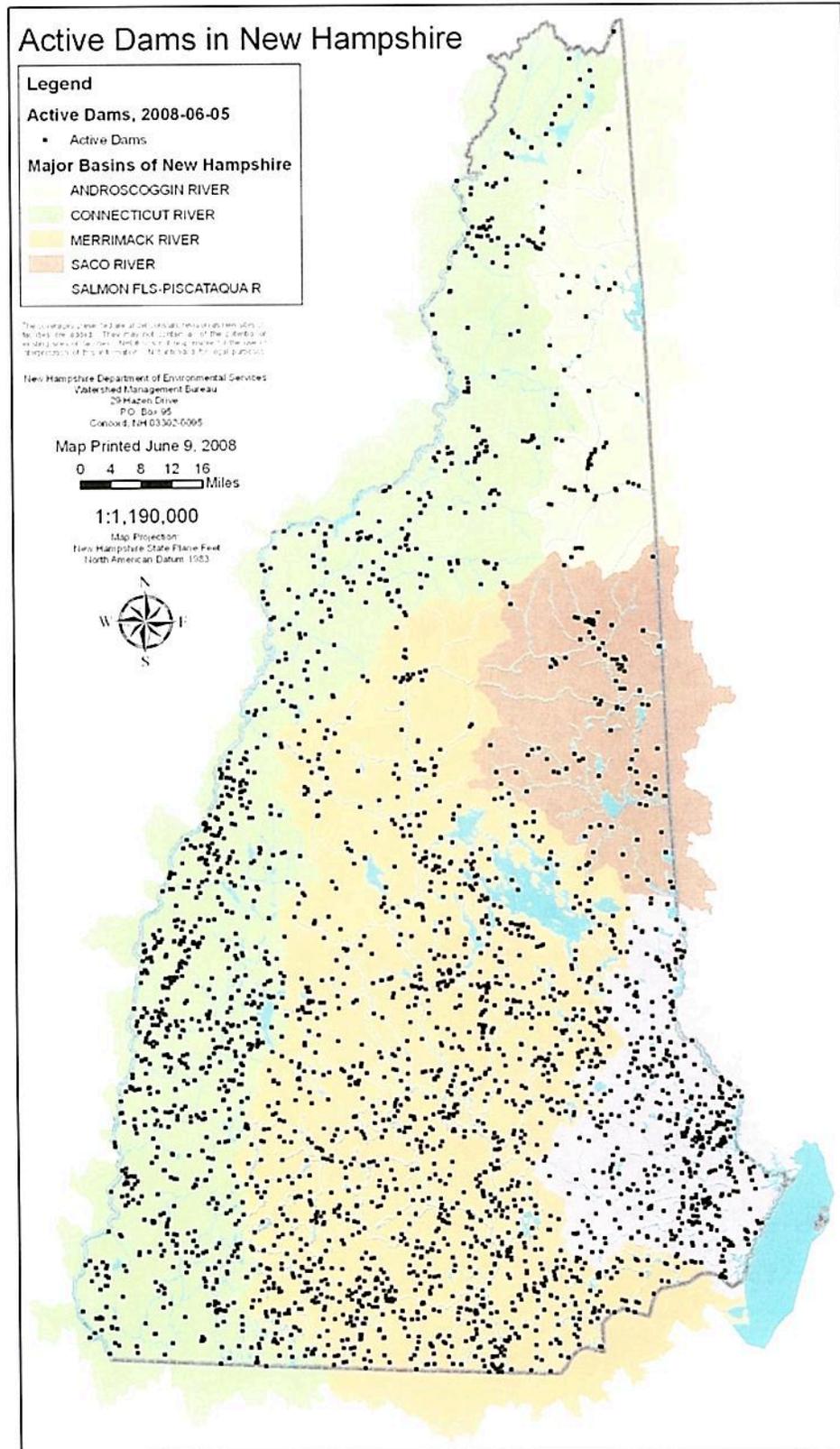


Figure 1-16. New Hampshire's active dams.

**APPENDIX C: Water Infrastructure Benefits and Beneficiaries
Chart**

WATER SERVICES BENEFITS..WHAT ARE THEY AND WHO BENEFITS?

APPENDIX C

Benefits →	Prevent Disease Outbreaks	Support Tourism	Prevents Flooding / Erosion	Retains/Attracts Business	Provides Fire Protection	Healthy Ecosystems...eg. Fish & Wildlife	Quality of Life
Water Services	 	 	 	 	 	 	 
Drinking Water Infrastructure..... 100 large municipal systems (1 private), 600 small systems	 	 	 	 	 	 	 
Wastewater Infrastructure..... 91 public systems, 30 private	 	 	 	 	 	 	 
Stormwater Infrastructure..... All municipal centers, major roads	 	 	  	 	 	 	 
Dams..... State owned (273), Municipally owned (388), @1/2 recreational impoundments, @1/4 agricultural, 1/10th stormwater, <1% flood control retention	 	 	  	 	 	 	 

Direct User = ratepayers or potential stormwater utility customers. Not defined for Dams.

BENEFICIARIES					
					
DIRECT USERS	MUNICIPALITIES	STATE OF NH (R.M., BET)	BUSINESSES	CITIZENS & VISITORS	NATURAL ENVIRONMENT

**APPENDIX D: Analysis of Annual Funding Need for New
Hampshire Water Trust Fund**

**APPENDIX D
ANALYSIS OF ANNUAL FUNDING NEED FOR NEW HAMPSHIRE WATER TRUST FUND**

	Total Estimated 10-year Need	Total Annual Average Cost (5)	State Cost Share (7)	Total Annual Average State Cost
Water Supply (1)	\$857,000,000	\$46,014,264	25%	\$11,503,566
Wastewater (2)	\$1,471,000,000	\$78,981,310	25%	\$19,745,328
Stormwater (2)	\$272,000,000	\$14,604,294	20%	\$2,920,859
State Dams (3)	\$18,000,000	\$966,461	20%	\$193,292
Municipal Dams (4)	\$40,000,000	\$2,147,690	20%	\$429,538
Total Estimated Eligible Projects (if all constructed)	\$2,658,000,000	\$142,714,020		\$34,792,583
Assumed % of Projected Projects Actually Constructed				100%
Estimated Annual Average State Aid Grant Funding Need (5)				\$34,792,583
State Revolving Fund Match (6)				\$5,000,000
Estimate State Fee Collection Cost (8)				\$1,193,777
Estimated Average Annual Revenue Requirements (5)				\$40,986,360

NOTES AND ASSUMPTIONS

- Estimated water supply infrastructure needs are from the report *Drinking Water Infrastructure in New Hampshire: Capital Investment Needs Analysis, as prepared by Wright Pierce Engineers for the New Hampshire Department of Environmental Services (2011)*.
- Estimated wastewater and stormwater needs are from the *Department of Environmental Services 2012 Clean Water Needs Survey as prepared for the U.S. Environmental Protection Agency*. Wastewater needs included estimated costs for treatment plant upgrades, pump stations, projects to address combined sewer overflows and other similar projects. Estimated needs for new sewers (\$239 million) for system expansions were not included as these are ineligible for state aid grants under existing eligibility criteria.
- Estimated 10-year costs for state dam rehabilitation were provided by the DES Dam Bureau staff based on existing dam rehabilitation capital budget plans and rates of rehabilitation.
- Estimated 10-year costs municipal dam rehabilitation were developed by extrapolation of the estimated costs to rehabilitate state-owned dams to the 358 municipally owned dams. It is assumed that the nature and rate of required repairs would be approximately the same because these dams are generally the same age and type as the state dams.
- It is envisioned that these projects would be implemented over a 10-year period and that financing terms for each project would be 20 years at the state revolving fund interest rate at the time of loan issuance. It is also assumed that state payments related to the whole population of these projects would extend over a 30-year period. To approximate the 30-year average state aid grant cost, as a simplifying assumption, it was assumed that the projects would be constructed all at once and financed for 30 years at 3.4% interest. In practice, because these projects would actually be constructed over multiple years, there would be year to year variations in both total annual costs. The assumed average interest rate used to annualize costs was 3.4%. This is the rate that was set by DES for state revolving loan fund 20-year loans in October 2014. This rate is calculated every year in October as 80% of the "11 Government Obligation Bond Index."
- Clean Water and Drinking Water State Revolving Funds state match requirements for federal grants were calculated assuming total annual average federal grants of \$25 million with a 20% match requirement (\$25 million x 20% = \$5 million). In practice, based on past history, actual federal grant amounts, hence state match requirements, would vary from year to year with annual federal budget appropriations.
- For purposes of this analysis, the annual average state share for water supply and wastewater grants is assumed to be based on a 50:50 split between state aid grants of 20% and 30%. It is assumed that half of the state aid grants would be provided to communities that qualify for the higher 30% level based on affordability or household income criteria established by DES. It is also assumed that all state aid grants for upgrades to state and municipal dams and stormwater systems would be funded at the 20% level.
- An administrative charge for collection by a state agency would be required. For purposes of this analysis, it is assumed that this charge would be about 3% of annual revenues.

**APPENDIX E: Bibliography of Materials and Approaches
Reviewed Concerning Water Infrastructure Funding Sources**

APPENDIX D

Bibliography of Materials Reviewed by SB60 Commission to Assess Revenue Sources

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