

**Five Year Department Submissions
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FY2013 - FY2017**

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Town of Needham
Capital Improvement Plan
January 2012

Department Capital Request CIP-DCR								
Title	Drain System Improvements – Water Quality (EPA)	Department	Sewer - Drains					
Parameters						YES	NO	NA
1.	Is this a stand-alone capital request?						X	
2.	Is this a multi-year capital replacement/upgrade request?					X		
3.	Is this a request in response to a documented public health or safety condition?						X	
4.	Is this a request in response to a Court, Federal, or State order?					X		
5.	Is this a request for a study or long range plan?					X		
6.	Is this a request to purchase office or school equipment (other than technology)?						X	
7.	Is this a request to purchase specialty equipment?						X	
8.	Is this a request to purchase technology or wireless communication system?						X	
9.	Is this a request to purchase vehicles or other rolling stock?						X	
10.	Is this a request to purchase apparatus/equipment that is intended to be permanently installed at the location of its use?						X	
11.	Is this a request to improve or make repair to extend the useful life of a public building?						X	
12.	Is this a request to improve or replace public infrastructure: bridges, culverts, drainage, intersection, roads, sidewalks, sewers or water systems?					X		
13.	Is this a request to repair or otherwise improve public property which is NOT a building or infrastructure?						X	
14.	Will any other department be required to provide resources (other than fulfilling its responsibilities) at any point during the process in order to complete the project?						X	
15.	Are there recommendations or costs indentified by other departments that are NOT factored into the request?						X	
16.	Are there additional costs to purchase, install, implement, and/or use (except future year operating costs) that are NOT included in this request?						X	
17.	Are there additional costs to bid, design, construct, complete, and/or use (except future year operating costs) that are NOT included in this request?						X	
18.	Will the requested project increase the annual operating costs for ANY department?						X	
19.	Will the requested project require an increase in the operating budget of any department the year it is approved for funding?						X	
20.	If the requested project is funded, will there be a need for ongoing assistance from outside contractors at an added expense to the Town which is NOT already budgeted?						X	
21.	Will additional permanent staff be required if the request is approved?						X	
22.	If the project is approved is the current operating budget insufficient to cover the operating costs of the requested project?						X	
23.	If the requested project is funded, will it reduce the requesting department's operating costs?						X	
24.	Does the request support activities to produce new revenue for the Town?						X	
25.	If the request is not approved will existing Town revenue sources be negatively impacted?						X	
26.	Have other non-capital investment options been explored before submitting this request?						X	
27.	Is specialized training or annual licensing required that the Town will need to pay in order to use the asset (beyond the initial purchase/installation)?						X	
28.	If applicable, will the items being replaced be retained by the Town?						X	
29.	Does this request qualify for funding from Community Preservation Act (CPA)?						X	
30.	Are there any appendix forms with this funding request?						X	

Town of Needham
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Department Capital Request CIP-DCR										
Title	Drain System Improvements – Water Quality (EPA)				Department	Sewer - Drains				
Useful Life	V	Primary Reason		2	Operating Budget Impact			C		
Requested Funding Years & Amounts	Column A		Costs Components	Column B		*Other Expenses		Column C		
FY2013	\$ 68,500		Intangibles							
FY2014	\$ 73,500		Equipment							
FY2015	\$ 110,000		Design & Engineering	\$ 288,500						
FY2016	\$ 2,000,000		Construction Expenses	\$ 2,073,500						
FY2017	\$ 110,000		Other Expenses*							
Total	\$ 2,362,000		Total	\$ 2,362,000		Total	\$			
Attached Schedules										
	CF		CX		LS		SI		SS	
Description and Justification										
<p>In 1995 the DPW was under order from the EPA to embark on a stormwater discharge investigation for all illicit discharges to the Charles River. Illicit discharges identified in this investigation were pursued and improvements undertaken to eliminate them in 1996 and 1997. This investigation resulted in the Town entering into a Memorandum of Understanding (MOU) with the EPA to commence a Town-wide investigation and to the development of a Stormwater Master Plan. This Master Plan was completed in 2002. Incorporated into this Stormwater Master Plan are improvements to the Stormwater Drainage System to upgrade the quality of the water discharged to the Charles River in Needham. Further investigation and sampling continues year to year.</p> <p>When the 2003 EPA NPDES Stormwater Discharge Permit took effect, it incorporated several requirements identified in the MOU. There were a number of projects proposed to manage stormwater quality effectively. The second permit to be issued by the EPA is overdue and is expected in the current fiscal year.</p> <p>Past projects completed to improve stormwater discharge with a variety of methods are</p> <ul style="list-style-type: none"> • Town Library • High School • Chestnut Street Reconstruction • High Rock School • Lake Drive <p>Design completed, awaiting construction</p> <ul style="list-style-type: none"> • DPW Drainage improvements • Sportsmen’s Pond/Rosemary Glen <p>FY13 – Water Shed Management Plan \$68,500</p> <p>FY14 - DPW Facility SWMP, Construction \$73,500</p>										

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Department Capital Request CIP-DCR			
Title	Drain System Improvements – Water Quality (EPA)	Department	Sewer - Drains
FY15 – Rosemary Lake Sediment Removal – Engineering & Design \$110,000 The DPW is investigating whether the Rosemary project is eligible for Community Preservation funding.			
FY16 – Rosemary Lake Sediment Removal – Construction \$1,000,000 to \$2,000,000			
FY17 - Sportsmen’s Pond/Rosemary Glen - Engineering & Design \$110,000			

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Department Capital Request CIP-DCR								
Title	Public Works Infrastructure Program	Department	Public Works					
Parameters						YES	NO	NA
1. Is this a stand-alone capital request?						X		
2. Is this a multi-year capital replacement/upgrade request?						X		
3. Is this a request in response to a documented public health or safety condition?							X	
4. Is this a request in response to a Court, Federal, or State order?							X	
5. Is this a request for a study or long range plan?							X	
6. Is this a request to purchase office or school equipment (other than technology)?							X	
7. Is this a request to purchase specialty equipment?							X	
8. Is this a request to purchase technology or wireless communication system?							X	
9. Is this a request to purchase vehicles or other rolling stock?							X	
10. Is this a request to purchase apparatus/equipment that is intended to be permanently installed at the location of its use?							X	
11. Is this a request to improve or make repair to extend the useful life of a public building?							X	
12. Is this a request to improve or replace public infrastructure: bridges, culverts, drainage, intersection, roads, sidewalks, sewers or water systems?						X		
13. Is this a request to repair or otherwise improve public property which is NOT a building or infrastructure?						X		
14. Will any other department be required to provide resources (other than fulfilling its responsibilities) at any point during the process in order to complete the project?							X	
15. Are there recommendations or costs identified by other departments that are NOT factored into the request?							X	
16. Are there additional costs to purchase, install, implement, and/or use (except future year operating costs) that are NOT included in this request?							X	
17. Are there additional costs to bid, design, construct, complete, and/or use (except future year operating costs) that are NOT included in this request?							X	
18. Will the requested project increase the annual operating costs for ANY department?							X	
19. Will the requested project require an increase in the operating budget of any department the year it is approved for funding?							X	
20. If the requested project is funded, will there be a need for ongoing assistance from outside contractors at an added expense to the Town which is NOT already budgeted?							X	
21. Will additional permanent staff be required if the request is approved?							X	
22. If the project is approved is the current operating budget insufficient to cover the operating costs of the requested project?							X	
23. If the requested project is funded, will it reduce the requesting department's operating costs?							X	
24. Does the request support activities to produce new revenue for the Town?							X	
25. If the request is not approved will existing Town revenue sources be negatively impacted?							X	
26. Have other non-capital investment options been explored before submitting this request?						X		
27. Is specialized training or annual licensing required that the Town will need to pay in order to use the asset (beyond the initial purchase/installation)?							X	
28. If applicable, will the items being replaced be retained by the Town?						X		
29. Does this request qualify for funding from Community Preservation Act (CPA)?							X	
30. Are there any appendix forms with this funding request?							X	

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Department Capital Request CIP-DCR									
Title	Public Works Infrastructure Program				Department	Public Works			
Useful Life	3	Primary Reason		5	Operating Budget Impact			C	
Requested Funding Years & Amounts	Column A		Costs Components	Column B		*Other Expenses	Column C		
FY2013	\$ 600,000		Intangibles			Borrowing Cost	\$ 80,000		
FY2014	\$ 1,216,400		Equipment						
FY2015	\$ 1,241,400		Design & Engineering	\$ 254,800					
FY2016	\$ 1,324,000		Construction Expenses	\$ 5,387,000					
FY2017	\$ 1,340,000		Other Expenses*	\$ 80,000					
Total	\$5,721,800		Total	\$ 5,721,800		Total	\$ 80,000		
Attached Schedules									
		CF		CX		LS		SI	SS
Description and Justification									
<p>Street Resurfacing: This program is essential to improve the structural and surface integrity of the Town's 123 linear miles of accepted streets. The primary strategy of this program is asphalt paving and incidental work. Incidental work may include asphalt berm curb, new grass shoulders, corner reconstruction including handicapped ramps, minor drainage improvements, street sign replacement, traffic markings and signs.</p> <p>Applying this repair strategy in a timely manner will extend the useful life of the roadway for up to 15 years. Installing a monolithic asphalt berm curb usually placed with the paving operation better defines the edge of road, improves drainage and protects the shoulder from erosion.</p> <p>The requested street resurfacing funding in FY13 is \$296,000, FY14 is \$456,000, FY15 is \$200,000, FY16 is \$320,000 and FY17 is \$400,000. The average useful life for asphalt paving is 15 years; the proposed 5 year capital request is \$1,672,000.</p> <p>Traffic Signal & Intersection Improvements:</p> <p>The costs are estimated by Engineering and require conceptual scope of work for project level costs that have not yet been determined. This program will fund Traffic Signal Improvements & Intersection Improvements and new traffic signal installations where none currently exist.</p> <p>FY13 - No funding requested</p> <p>FY14 - Great Plain Avenue @ Greendale Avenue, this intersection has been identified as requiring intersection improvements and potentially the replacement of traffic signals, Engineering & Design - \$88,400.</p> <p>FY15 - Great Plain Avenue @ Greendale Avenue, Construction - \$540,000</p> <p>FY16 - Forest Street @ Central Avenue, Engineering & Design - \$135,000</p>									

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Department Capital Request CIP-DCR			
Title	Public Works Infrastructure Program	Department	Public Works
<p>FY17 – Forest Street @ Central Avenue, Construction - \$320,000</p> <p>Future Intersection to be considered but not yet prioritized: Highland Avenue @ West Street</p> <p>The average useful life is 25 years; the proposed 5 year capital request is \$1,083,400.</p> <p>Combined Sidewalk Program: This Program requires funding for the Town to address the failing network of sidewalks throughout the community. There are over 160 miles of accepted sidewalks in Needham. Over half of the Town’s sidewalks do not comply with current standards and require significant improvements including the installation of handicapped ramps. Sidewalk improvements must comply with Federal and State laws and construction standards. The cost for sidewalk rehabilitation and reconstruction can vary significantly. Current estimates have identified over \$20,000,000 in backlogged sidewalks in need of repair.</p> <p>Fiscal year 2012 contract pricing to reconstruct one mile of asphalt sidewalk including handicapped ramps is \$200,000 per mile (\$38/lf). Contract pricing to install a mile of granite curb with minor drainage improvements is \$237,000 per mile (\$45/lf). These costs do not include engineering, design, tree removal and replacement, major drainage improvements or major public or private property adjustments.</p> <p>The requested Combined Sidewalk Program funding in FY13 is \$279,000, FY14 is \$552,000, FY15 is \$450,000, FY16 is \$575,000, FY17 is \$500,000. The average useful life for asphalt sidewalk is over 30 years; the proposed 5 year capital request is \$2,356,000.</p> <p>Sidewalks to be considered, but not yet prioritized: Harris Avenue from Dedham Avenue to Bradford Street (both sides). Linden Street from Sylvan Road to High Rock Street (one side). High Street from Webster Street to Greendale Avenue (one side). Harris Avenue from Bradford Street to Coulton Park (both sides), Grant Street from Dedham Avenue to Junction Street (one side), Lincoln Street from School Street to Garfield Street (both sides) and Marked Tree Road from Central Avenue to Great Plain Avenue. Enslin Road (one side), Doane Avenue (one side), Grosvenor Road (one side), May Street from Webster Street to Highland Avenue (both sides), May Street from Garden Street to Nehoiden Street (one side) Garden Street from Great Plain Avenue to Nehoiden Street (both sides) and Oak Street from Chestnut Street to Marked Tree Road (both sides). Rosemary Street from Hillside Road to Parish Road (one side), Pinewood Road (one side), Ellicott Street (one side), Powers Street from Webster Street to Ellicott Street (one side), Edgewood Street (one side), Holmes Street from Page Street to Washington Avenue (one side) and Pickering Street from Great Plain Avenue to May Street (both sides).</p> <p>Storm Drain Capacity Improvements: This program provides funding to improve roadway drainage capacity. The March 2002 Stormwater Master Plan, identified a number of areas throughout Needham where improvements are required to resolve flooding problems and illicit discharge. Locations for improvements have</p>			

Town of Needham
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Department Capital Request CIP-DCR			
Title	Public Works Infrastructure Program	Department	Public Works
<p>been prioritized within the plan. The funding request also includes but is not limited to the installation of additional storm drains and to replace, increase capacity and extend storm drains on Manning Street, Hoover Road, Concord Road and Burnside Road. Since the issuance of this report numerous multi-unit developments have been built or planned in the Town of Needham. These developments incorporate new roads with drainage structures and roof or sump connections which are then connected to existing Town systems. These new connections have increased the load on the Town's drainage system and causes flooding in some areas.</p> <p>FY13 - No Funding requested FY14 - No Funding requested FY15 - Taylor Street / Central Avenue - Engineering \$31,400 FY16 - No Funding requested FY17 - Taylor Street / Central Avenue - Construction \$174,000</p> <p>The average useful life is 60 years; the proposed 5 year capital request is \$205,400.</p> <p>Future Areas to be considered, but not yet prioritized: Carey Road (area 2) - Engineering \$42,800 Carey Road (area 2) - Construction \$156,800 Foxhill Rd., Canterbury Lane, South St., and X-Country (Area 10) - Eng. 41,800 Lower Hunnewell Drainage improvements Eng. & Construction 305,000 Foxhill Rd., Canterbury Lane, South St., and X-Country (Area 10) - Construction Concord St., Greendale Ave., Woodbine Cir. System (Area 4) - Eng. 100,000 Oak St. (Area 8), Mackintosh Ave. (Areas 3 & 7), Oxbow Rd. (Area 9), West St. (Area 11) Fairfield St., Elmwood Rd. (Area 5)</p> <p>Brooks and Culverts – Repair and Maintenance:</p> <p>The severe storms of October 1996, June 1998, June 2006, July 2008 and March 2010 have resulted in numerous complaints and subsequent investigations of the Town's brooks, streams and culverts. The conditions observed were significant. The DPW has developed a repair and maintenance program which is a combination of contracted work and use of town forces. It is the intention of the DPW to expend Capital Funds to address the issue of flooded and poor draining brooks, streams, waterways and culverts throughout the Town that have been severely damaged by heavy rains/storms for many years. Prior funding has funded cleaning and debris removal. Flooding in March 2010 has caused the failure of retaining walls, loss of soils behind the walls, and brooks have become silted allowing the overgrowth of vegetation that has impacted the level of the water flows. This neglect has resulted in the loss of useable abutting property and flooded basements. The current conditions are beyond the means of DPW equipment and personnel. It will require a detailed investigation, a plan of recommended improvements, a design drawing and specifications, environmental permitting and bidding of construction to be overseen by the Town's Engineering Division. This will return the waterways to a condition that the DPW will be able to maintain.</p>			

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Department Capital Request CIP-DCR			
Title	Public Works Infrastructure Program	Department	Public Works
<p>Environmental Protection Agency (EPA) is currently finalizing stronger requirements for stormwater and permitting under the NPDES permit. The Town will need to continue to demonstrate its efforts regarding cleaning and improvements to water quality of brook and culverts to avoid fines from the EPA.</p> <p>FY13 – Continued wall repair along Rosemary Brook - Construction \$25,000. FY14 – Continued wall repair along Rosemary Brook – Construction \$100,000. FY15 - No Funding requested. FY16 - Continued wall repair along Rosemary Brook – Construction \$100,000. FY17 – Wall repairs at various locations to be determined – Construction \$100,000.</p> <p>The annual funding request is \$100,000</p> <p>Future Projects include, but are not limited to, the following locations: Winding River Locust Lane Fuller Brook Oxbow Road Webster & Howland Streets Brookside Road & Forest Street Chestnut Street & Carriage Lane Emerson Place Pennsylvania Avenue</p> <p>Prior projects funded include:</p> <p>Cleaning of Hurd Brook and culverts, from Central Avenue to the Wellesley line and a portion of Alder Brook. FY09 - Brook cleaning from Chestnut Street to Maple Street was completed FY11 - MBTA culvert replacement FY12 – Rosemary Brook at Mallard Road, Perry Gorge</p>			

Town of Needham
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Department Capital Request CIP-DCR						
Title	Sewer Service Connections	Department	Public Works-Sewer			
Parameters			YES	NO	NA	
1.	Is this a stand-alone capital request?			X		
2.	Is this a multi-year capital replacement/upgrade request?		X			
3.	Is this a request in response to a documented public health or safety condition?			X		
4.	Is this a request in response to a Court, Federal, or State order?			X		
5.	Is this a request for a study or long range plan?			X		
6.	Is this a request to purchase office or school equipment (other than technology)?			X		
7.	Is this a request to purchase specialty equipment?			X		
8.	Is this a request to purchase technology or wireless communication system?			X		
9.	Is this a request to purchase vehicles or other rolling stock?			X		
10.	Is this a request to purchase apparatus/equipment that is intended to be permanently installed at the location of its use?			X		
11.	Is this a request to improve or make repair to extend the useful life of a public building?			X		
12.	Is this a request to improve or replace public infrastructure: bridges, culverts, drainage, intersection, roads, sidewalks, sewers or water systems?		X			
13.	Is this a request to repair or otherwise improve public property which is NOT a building or infrastructure?			X		
14.	Will any other department be required to provide resources (other than fulfilling its responsibilities) at any point during the process in order to complete the project?			X		
15.	Are there recommendations or costs indentified by other departments that are NOT factored into the request?			X		
16.	Are there additional costs to purchase, install, implement, and/or use (except future year operating costs) that are NOT included in this request?			X		
17.	Are there additional costs to bid, design, construct, complete, and/or use (except future year operating costs) that are NOT included in this request?			X		
18.	Will the requested project increase the annual operating costs for ANY department?			X		
19.	Will the requested project require an increase in the operating budget of any department the year it is approved for funding?			X		
20.	If the requested project is funded, will there be a need for ongoing assistance from outside contractors at an added expense to the Town which is NOT already budgeted?			X		
21.	Will additional permanent staff be required if the request is approved?			X		
22.	If the project is approved is the current operating budget insufficient to cover the operating costs of the requested project?			X		
23.	If the requested project is funded, will it reduce the requesting department's operating costs?			X		
24.	Does the request support activities to produce new revenue for the Town?			X		
25.	If the request is not approved will existing Town revenue sources be negatively impacted?			X		
26.	Have other non-capital investment options been explored before submitting this request?			X		
27.	Is specialized training or annual licensing required that the Town will need to pay in order to use the asset (beyond the initial purchase/installation)?			X		
28.	If applicable, will the items being replaced be retained by the Town?			X		
29.	Does this request qualify for funding from Community Preservation Act (CPA)?			X		
30.	Are there any appendix forms with this funding request?			X		

Town of Needham
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Department Capital Request CIP-DCR									
Title	Sewer Service Connections				Department	Public Works-Sewer			
Useful Life	V	Primary Reason		4	Operating Budget Impact			C	
Requested Funding Years & Amounts	Column A		Costs Components	Column B		*Other Expenses		Column C	
FY2013	\$ 0	Intangibles							
FY2014	\$ 0	Equipment							
FY2015	\$ 50,000	Design & Engineering							
FY2016	\$ 50,000	Construction Expenses		\$ 150,000					
FY2017	\$ 50,000	Other Expenses*							
Total									
Total	\$ 150,000		Total	\$ 150,000		Total	\$		
Attached Schedules									
	CF		CX		LS		SI		SS
Description and Justification									
<p>There are homes in Needham that are not connected to the Sewer System, because they have chosen not to. The purpose of this request is to provide the lateral sewer line from the sewer main to the property line so that the homeowner can connect should they choose to or should their septic system fail. The lateral sewer line is to be added prior (at least one year) to a road reconstruction/paving project. The cost for these service installations are typically not included in road construction estimates. In the case of Chapter 90 Projects, these are not considered as a reimbursement eligible expense. These expenses are included in local road reconstruction estimates. There is a corresponding request for water service connections.</p> <p>There are also houses that need to be prioritized for sewer service connection because they are within DEP's Zone II areas. These homes are being looked at as part of a future sewer service connections project.</p>									

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Department Capital Request CIP-DCR								
Title	Sewer Pump Station Improvements	Department	Public Works-Sewer					
Parameters						YES	NO	NA
1.	Is this a stand-alone capital request?					X		
2.	Is this a multi-year capital replacement/upgrade request?					X		
3.	Is this a request in response to a documented public health or safety condition?						X	
4.	Is this a request in response to a Court, Federal, or State order?						X	
5.	Is this a request for a study or long range plan?						X	
6.	Is this a request to purchase office or school equipment (other than technology)?						X	
7.	Is this a request to purchase specialty equipment?						X	
8.	Is this a request to purchase technology or wireless communication system?						X	
9.	Is this a request to purchase vehicles or other rolling stock?						X	
10.	Is this a request to purchase apparatus/equipment that is intended to be permanently installed at the location of its use?						X	
11.	Is this a request to improve or make repair to extend the useful life of a public building?						X	
12.	Is this a request to improve or replace public infrastructure: bridges, culverts, drainage, intersection, roads, sidewalks, sewers or water systems?					X		
13.	Is this a request to repair or otherwise improve public property which is NOT a building or infrastructure?						X	
14.	Will any other department be required to provide resources (other than fulfilling its responsibilities) at any point during the process in order to complete the project?						X	
15.	Are there recommendations or costs indentified by other departments that are NOT factored into the request?						X	
16.	Are there additional costs to purchase, install, implement, and/or use (except future year operating costs) that are NOT included in this request?						X	
17.	Are there additional costs to bid, design, construct, complete, and/or use (except future year operating costs) that are NOT included in this request?						X	
18.	Will the requested project increase the annual operating costs for ANY department?						X	
19.	Will the requested project require an increase in the operating budget of any department the year it is approved for funding?						X	
20.	If the requested project is funded, will there be a need for ongoing assistance from outside contractors at an added expense to the Town which is NOT already budgeted?						X	
21.	Will additional permanent staff be required if the request is approved?						X	
22.	If the project is approved is the current operating budget insufficient to cover the operating costs of the requested project?						X	
23.	If the requested project is funded, will it reduce the requesting department's operating costs?						X	
24.	Does the request support activities to produce new revenue for the Town?						X	
25.	If the request is not approved will existing Town revenue sources be negatively impacted?						X	
26.	Have other non-capital investment options been explored before submitting this request?						X	
27.	Is specialized training or annual licensing required that the Town will need to pay in order to use the asset (beyond the initial purchase/installation)?						X	
28.	If applicable, will the items being replaced be retained by the Town?						X	
29.	Does this request qualify for funding from Community Preservation Act (CPA)?						X	
30.	Are there any appendix forms with this funding request?						X	

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Department Capital Request CIP-DCR										
Title	Sewer Pump Station Improvements				Department	Public Works-Sewer				
Useful Life	V	Primary Reason		4	Operating Budget Impact			C		
Requested Funding Years & Amounts	Column A		Costs Components	Column B		*Other Expenses		Column C		
FY2013	\$0		Intangibles							
FY2014	\$0		Equipment							
FY2015	\$ 602,400		Design & Engineering	\$ 373,700						
FY2016	\$ 2,828,000		Construction Expenses	\$ 3,401,700						
FY2017	\$ 345,000		Other Expenses*							
Total	\$ 3,775,400		Total	\$ 3,775,400		Total	\$			
Attached Schedules	CF		CX		LS		SI		SS	
Description and Justification										
<p>As part of the Wastewater System Master Plan, several of the wastewater pumping stations were evaluated to assess their physical condition, capacity, evaluate current and future flow projections. The Master Plan recommended that at least 7 of the 10 stations be upgraded. These included major improvements and replacement of the Reservoir St. "B" Station (this is the 2nd oldest station in the system). The station has been designed and construction is due to begin in the Spring of 2012.</p> <p>The Kendrick St. Station had been renovated to accommodate some of the initial redevelopment currently underway in the New England business district and the 350 residential units at 300 Second Avenue (Charles River Landing) tributary to this station. The West Street Station was completed 2000. The Great Plain Avenue Station was completed in 2010.</p> <p>Canister pump stations at Lake Drive, Cooks Bridge (Milo Circle), Warren Street and Reservoir "A" are at or beyond their design lives. Constant maintenance and emergency shutoffs occur more frequently and require greater amounts of personnel time and emergency funds to keep running. The canister station at Richardson Drive was eliminated when gravity sewer construction was completed in the spring of 2010.</p>										
FY13	No Funding Requested									
FY14	No Funding Requested									
FY15	Cooks Bridge - Engineering & Design				\$280,700					
	Reservoir St. "A" - Engineering, Design & Construction				\$321,700					
FY16	Cooks Bridge - Construction				\$2,828,000					
FY17	Lake Drive - Engineering, Design & Construction				\$345,000					

Town of Needham
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Department Capital Request CIP-DCR								
Title	Sewer Alarm System Upgrade Study	Department	Public Works-Sewer					
Parameters						YES	NO	NA
1.	Is this a stand-alone capital request?					X		
2.	Is this a multi-year capital replacement/upgrade request?						X	
3.	Is this a request in response to a documented public health or safety condition?						X	
4.	Is this a request in response to a Court, Federal, or State order?						X	
5.	Is this a request for a study or long range plan?					X		
6.	Is this a request to purchase office or school equipment (other than technology)?						X	
7.	Is this a request to purchase specialty equipment?						X	
8.	Is this a request to purchase technology or wireless communication system?						X	
9.	Is this a request to purchase vehicles or other rolling stock?						X	
10.	Is this a request to purchase apparatus/equipment that is intended to be permanently installed at the location of its use?						X	
11.	Is this a request to improve or make repair to extend the useful life of a public building?						X	
12.	Is this a request to improve or replace public infrastructure: bridges, culverts, drainage, intersection, roads, sidewalks, sewers or water systems?						X	
13.	Is this a request to repair or otherwise improve public property which is NOT a building or infrastructure?						X	
14.	Will any other department be required to provide resources (other than fulfilling its responsibilities) at any point during the process in order to complete the project?						X	
15.	Are there recommendations or costs indentified by other departments that are NOT factored into the request?						X	
16.	Are there additional costs to purchase, install, implement, and/or use (except future year operating costs) that are NOT included in this request?						X	
17.	Are there additional costs to bid, design, construct, complete, and/or use (except future year operating costs) that are NOT included in this request?						X	
18.	Will the requested project increase the annual operating costs for ANY department?						X	
19.	Will the requested project require an increase in the operating budget of any department the year it is approved for funding?						X	
20.	If the requested project is funded, will there be a need for ongoing assistance from outside contractors at an added expense to the Town which is NOT already budgeted?						X	
21.	Will additional permanent staff be required if the request is approved?						X	
22.	If the project is approved is the current operating budget insufficient to cover the operating costs of the requested project?						X	
23.	If the requested project is funded, will it reduce the requesting department's operating costs?						X	
24.	Does the request support activities to produce new revenue for the Town?						X	
25.	If the request is not approved will existing Town revenue sources be negatively impacted?						X	
26.	Have other non-capital investment options been explored before submitting this request?						X	
27.	Is specialized training or annual licensing required that the Town will need to pay in order to use the asset (beyond the initial purchase/installation)?						X	
28.	If applicable, will the items being replaced be retained by the Town?						X	
29.	Does this request qualify for funding from Community Preservation Act (CPA)?						X	
30.	Are there any appendix forms with this funding request?						X	

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Department Capital Request CIP-DCR										
Title	Sewer Alarm System Upgrade Study				Department	Public Works-Sewer				
Useful Life	III	Primary Reason	4	Operating Budget Impact	C					
Requested Funding Years & Amounts	Column A	Costs Components	Column B	*Other Expenses	Column C					
FY2013	\$ 30,000	Intangibles								
FY2014		Equipment								
FY2015		Design & Engineering	\$ 30,000							
FY2016		Construction Expenses								
FY2017		Other Expenses*								
Total	\$ 30,000	Total	\$ 30,000	Total	\$					
Attached Schedules	CF	CX	LS	SI	SS					
Description and Justification										
<p>This request was formerly for a sewer Supervisory Control and Data Acquisition (SCADA) system. The goal is to provide a communication and alarm system to improve the current system that is outdated and unreliable. Currently there is no linked communication between or among pump stations. The goal is to collect data from the nine sewage pumping stations, then communicate that data to a central location (West Street Pump Station), allowing for efficient management and control of the sewer pumping operations. This system will alert the appropriate emergency response for on-call personnel to remotely access the system making changes to pump stations as necessary. The current alarm call system uses either an outdated Verbatim call box at the four major sewage pumping stations or a light and siren system at the five smaller stations. The Verbatim system is programmed to call the Police Department dispatcher when an alarm condition has occurred, who then alerts the Sewer Division on-call person. The five smaller stations rely on the neighbors to call the Fire/Police Department when an alarm occurs.</p> <p><u>FY13</u> Study to determine the best mode of communication for the SCADA system. \$ 30,000</p> <p><u>Future Projects:</u> To be determined after the study is complete.</p>										

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Department Capital Request CIP-DCR						
Title	Sewer System Inflow & Infiltration Removal	Department	Public Works-Sewer			
Parameters			YES	NO	NA	
1.	Is this a stand-alone capital request?		X			
2.	Is this a multi-year capital replacement/upgrade request?		X			
3.	Is this a request in response to a documented public health or safety condition?			X		
4.	Is this a request in response to a Court, Federal, or State order?		x			
5.	Is this a request for a study or long range plan?		X			
6.	Is this a request to purchase office or school equipment (other than technology)?			X		
7.	Is this a request to purchase specialty equipment?			X		
8.	Is this a request to purchase technology or wireless communication system?			X		
9.	Is this a request to purchase vehicles or other rolling stock?			X		
10.	Is this a request to purchase apparatus/equipment that is intended to be permanently installed at the location of its use?			X		
11.	Is this a request to improve or make repair to extend the useful life of a public building?			X		
12.	Is this a request to improve or replace public infrastructure: bridges, culverts, drainage, intersection, roads, sidewalks, sewers or water systems?		X			
13.	Is this a request to repair or otherwise improve public property which is NOT a building or infrastructure?			X		
14.	Will any other department be required to provide resources (other than fulfilling its responsibilities) at any point during the process in order to complete the project?			X		
15.	Are there recommendations or costs indentified by other departments that are NOT factored into the request?			X		
16.	Are there additional costs to purchase, install, implement, and/or use (except future year operating costs) that are NOT included in this request?			X		
17.	Are there additional costs to bid, design, construct, complete, and/or use (except future year operating costs) that are NOT included in this request?			X		
18.	Will the requested project increase the annual operating costs for ANY department?			X		
19.	Will the requested project require an increase in the operating budget of any department the year it is approved for funding?			X		
20.	If the requested project is funded, will there be a need for ongoing assistance from outside contractors at an added expense to the Town which is NOT already budgeted?			X		
21.	Will additional permanent staff be required if the request is approved?			X		
22.	If the project is approved is the current operating budget insufficient to cover the operating costs of the requested project?			X		
23.	If the requested project is funded, will it reduce the requesting department's operating costs?			X		
24.	Does the request support activities to produce new revenue for the Town?			X		
25.	If the request is not approved will existing Town revenue sources be negatively impacted?			X		
26.	Have other non-capital investment options been explored before submitting this request?			X		
27.	Is specialized training or annual licensing required that the Town will need to pay in order to use the asset (beyond the initial purchase/installation)?			X		
28.	If applicable, will the items being replaced be retained by the Town?			X		
29.	Does this request qualify for funding from Community Preservation Act (CPA)?			X		
30.	Are there any appendix forms with this funding request?			X		

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Department Capital Request CIP-DCR										
Title	Sewer System Inflow & Infiltration Removal				Department	Public Works-Sewer				
Useful Life	V	Primary Reason			2	Operating Budget Impact			N/A	
Requested Funding Years & Amounts	Column A	Costs Components		Column B	*Other Expenses		Column C			
FY2013	\$ 550,000	Intangibles			CCTV work		\$500,000			
FY2014	\$ 600,000	Equipment		\$ 310,000						
FY2015	\$ 0	Design & Engineering		\$ 340,000						
FY2016	\$ 0	Construction Expenses								
FY2017	\$ 0	Other Expenses*		\$500,000						
Total	\$ 1,150,000	Total		\$ 1,150,000	Total		\$ 500,000			
Attached Schedules										
		CF		CX		LS		SI	SS	
Description and Justification										
<p>The Town of Needham, along with numerous other communities, is under Administrative Orders from the DEP to identify and remove Infiltration and Inflow (I/I) in existing sewer systems. Infiltration is defined as groundwater or storm water runoff that enters the system thru deteriorated pipe or manhole structures that by definition need to be repaired. As a result of this order, I/I studies have been undertaken to determine the locations and volumes of I/I entering the sanitary sewer system. The I/I analysis (1985 & 1989) and the Sewer System Evaluation Survey (SSES) (1991) have identified, by flow measurement, the areas of the collection system which are contributing high volumes of I/I to the system. On the basis of volumes of flow and knowledge of local sewer system overflows (SSO) or basement flooding, an order of priority has been established to determine the scheduling of the engineering, design and remediation work. The highest priorities relate to locations of known surcharging with sewage overflow or release or basement flooding. The remediation proceeds in stages starting with the preliminary engineering, followed by the rehabilitation design and concluding with the rehabilitation construction.</p> <p>Work in prior years has been undertaken in Areas 11, 14, 19-1, 22, 3, 4, 30, 31, 2, 24, 21L, 1, 16. The priority was based on areas that the I/I analysis had recorded the highest levels of infiltration. The field work was conducted in 1984, and supplemented in 1986 and 1987. The study results are now approaching 25 years old. The earliest repair work that was undertaken is approaching 20 years old, and the remaining sections identified in the original study show significantly less I/I per length of sewer main. There is a strong probability that the original high leakage areas are contributing greater amounts of infiltration than the remaining sections left to repair identified in the original study. The study must be updated at this time to effectively expend resources to address current infiltration and inflow. The components of the first phase of the study will include engineering (\$240,000), permanent and portable flow meter installation (\$210,000), and rented flow meters (\$100,000). The components of the second phase will include engineering (\$100,000) and closed circuit TV services (\$500,000).</p> <p><u>INFILTRATION</u> The work to date has focused on infiltration removal. This program will continue as an infiltration removal effort. A separate program is being presented for Inflow removal</p>										

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Department Capital Request CIP-DCR			
Title	Sewer System Inflow & Infiltration Removal	Department	Public Works-Sewer
<u>Previously Funded Areas</u>			
FY08 - Engineering, Design & Construction (Various Locations)		1,740,300	
Infiltration Construction - Area 2, 24 & 21(L)			
Area 22(Prelim. Design - Infiltration)		<u>66,500</u>	
		1,806,800	
FY09 and FY10 No funding requested			
FY11 - Area 16 and 22 Started		155,000	
FY12 - Area 16 - Area 22 - Construction (continuation)		575,000	
<u>Proposed Funded Areas</u>			
FY13 – Phase I I/I Feasibility Study and Cost Benefit Analysis		550,000	
FY 14 – Phase II I/I Townwide System Master Plan		600,000	
FY 15 – FY17 Area Determined by Study			
<u>INFLOW</u>			
<p>Inflow is defined as clean, non-septic water, which is introduced to the system. This water is generally produced by residential sump pumps that drain basements. The inflow removal program is being presented separately from the infiltration removal program. Much of this work could address inflow to include extending or expanding the storm drain system to accept groundwater from household sump pumps. Needham's most significant problem is believed to be from these private sources. The program will initiate with an education and information campaign to inform and prepare the homeowners as to the nature of the problem. The cost impacts to the community, the legal implications, the likely solutions and the responsibilities of the homeowner and the potential enforcement actions by the Town, the MWRA, the DEP and the EPA will need to be communicated. The preliminary engineering will likely take the form of smoke testing and flooded dye testing to determine any direct or indirect interconnections between the sewer and the storm drain system. It also includes a door-to-door investigation of households to determine where violations are occurring. Typical violations include, but are not limited to, sump pumps or open clean-outs where non-sanitary flow is discharging directly to the sewer system as well as foundation drains, yard drains, roof leaders and other cross connections.</p>			

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Department Capital Request CIP-DCR			
Title	Sewer System Inflow & Infiltration Removal	Department	Public Works-Sewer
<p><u>Previously Funded Areas</u></p> <p>FY09 and FY10 – No funding requested</p> <p>FY11 – Area 19-1 Study 70,000</p> <p><u>Proposed Funded Areas</u></p> <p>FY13 –No Funding Requested 0</p> <p>Beginning in FY 1996, the MWRA assessment included a component that reflects the volume of wastewater discharged. The total I/I has been measured to be as much as 60% of Needham's total wastewater flow. Normal daily wastewater volume is approximately 3.0 million gallons per day (mgd) with peak I/I; the volume can exceed a rate of 15.0mgd. These spikes are attributable to the inflow component and can total as much as 300 mgd annually in a typical rainfall year. The remaining 75% is flow that occurs throughout the year as infiltration and can approach 1 billion gallons per year. This is approximately 25% of the total I/I in the system</p>			

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Department Capital Request CIP-DCR						
Title	Water Service Connections	Department	Public Works-Water			
Parameters			YES	NO	NA	
1. Is this a stand-alone capital request?			X			
2. Is this a multi-year capital replacement/upgrade request?			X			
3. Is this a request in response to a documented public health or safety condition?			X			
4. Is this a request in response to a Court, Federal, or State order?				X		
5. Is this a request for a study or long range plan?				X		
6. Is this a request to purchase office or school equipment (other than technology)?				X		
7. Is this a request to purchase specialty equipment?				X		
8. Is this a request to purchase technology or wireless communication system?				X		
9. Is this a request to purchase vehicles or other rolling stock?				X		
10. Is this a request to purchase apparatus/equipment that is intended to be permanently installed at the location of its use?				X		
11. Is this a request to improve or make repair to extend the useful life of a public building?				X		
12. Is this a request to improve or replace public infrastructure: bridges, culverts, drainage, intersection, roads, sidewalks, sewers or water systems?			X			
13. Is this a request to repair or otherwise improve public property which is NOT a building or infrastructure?				X		
14. Will any other department be required to provide resources (other than fulfilling its responsibilities) at any point during the process in order to complete the project?				X		
15. Are there recommendations or costs indentified by other departments that are NOT factored into the request?				X		
16. Are there additional costs to purchase, install, implement, and/or use (except future year operating costs) that are NOT included in this request?				X		
17. Are there additional costs to bid, design, construct, complete, and/or use (except future year operating costs) that are NOT included in this request?				X		
18. Will the requested project increase the annual operating costs for ANY department?				X		
19. Will the requested project require an increase in the operating budget of any department the year it is approved for funding?				X		
20. If the requested project is funded, will there be a need for ongoing assistance from outside contractors at an added expense to the Town which is NOT already budgeted?				X		
21. Will additional permanent staff be required if the request is approved?				X		
22. If the project is approved is the current operating budget insufficient to cover the operating costs of the requested project?				X		
23. If the requested project is funded, will it reduce the requesting department's operating costs?				X		
24. Does the request support activities to produce new revenue for the Town?				X		
25. If the request is not approved will existing Town revenue sources be negatively impacted?				X		
26. Have other non-capital investment options been explored before submitting this request?				X		
27. Is specialized training or annual licensing required that the Town will need to pay in order to use the asset (beyond the initial purchase/installation)?				X		
28. If applicable, will the items being replaced be retained by the Town?				X		
29. Does this request qualify for funding from Community Preservation Act (CPA)?				X		
30. Are there any appendix forms with this funding request?				X		

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Department Capital Request CIP-DCR									
Title	Water Service Connections				Department	Public Works-Water			
Useful Life	V	Primary Reason		3	Operating Budget Impact			C	
Requested Funding Years & Amounts	Column A		Costs Components	Column B		*Other Expenses		Column C	
FY2013	200,000		Intangibles						
FY2014	200,000		Equipment						
FY2015	200,000		Design & Engineering						
FY2016	200,000		Construction Expenses	1,000,000					
FY2017	200,000		Other Expenses*						
Total	\$ 1,000,000		Total	\$ 1,000,000		Total		\$	
Attached Schedules									
	CF		CX		LS		SI		SS
Description and Justification									
<p>The primary purpose of this program is to remove old iron pipe water services that may contain lead from the water distribution system. Old water services are to be replaced prior (at least one year) to a road reconstruction/paving project. If this project is not funded it leaves an element of the subsurface infrastructure susceptible to failure before the useful life of the reconstructed roadway has been realized. Prior appropriations are currently under contract with water service connection replacements estimated to be one and a half years ahead of the road resurfacing program. The FY 2013 funding will provide approximately one year's value of water service replacements, which will fall in line with the road resurfacing program schedule.</p>									

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Department Capital Request CIP-DCR								
Title	Water SCADA System Upgrade	Department	Public Works - Water					
Parameters						YES	NO	NA
1.	Is this a stand-alone capital request?					X		
2.	Is this a multi-year capital replacement/upgrade request?						X	
3.	Is this a request in response to a documented public health or safety condition?						X	
4.	Is this a request in response to a Court, Federal, or State order?						X	
5.	Is this a request for a study or long range plan?						X	
6.	Is this a request to purchase office or school equipment (other than technology)?						X	
7.	Is this a request to purchase specialty equipment?						X	
8.	Is this a request to purchase technology or wireless communication system?						X	
9.	Is this a request to purchase vehicles or other rolling stock?						X	
10.	Is this a request to purchase apparatus/equipment that is intended to be permanently installed at the location of its use?					x		
11.	Is this a request to improve or make repair to extend the useful life of a public building?						X	
12.	Is this a request to improve or replace public infrastructure: bridges, culverts, drainage, intersection, roads, sidewalks, sewers or water systems?						X	
13.	Is this a request to repair or otherwise improve public property which is NOT a building or infrastructure?						X	
14.	Will any other department be required to provide resources (other than fulfilling its responsibilities) at any point during the process in order to complete the project?						x	
15.	Are there recommendations or costs indentified by other departments that are NOT factored into the request?						X	
16.	Are there additional costs to purchase, install, implement, and/or use (except future year operating costs) that are NOT included in this request?						X	
17.	Are there additional costs to bid, design, construct, complete, and/or use (except future year operating costs) that are NOT included in this request?						X	
18.	Will the requested project increase the annual operating costs for ANY department?						X	
19.	Will the requested project require an increase in the operating budget of any department the year it is approved for funding?						X	
20.	If the requested project is funded, will there be a need for ongoing assistance from outside contractors at an added expense to the Town which is NOT already budgeted?						X	
21.	Will additional permanent staff be required if the request is approved?						X	
22.	If the project is approved is the current operating budget insufficient to cover the operating costs of the requested project?						X	
23.	If the requested project is funded, will it reduce the requesting department's operating costs?						X	
24.	Does the request support activities to produce new revenue for the Town?						X	
25.	If the request is not approved will existing Town revenue sources be negatively impacted?						X	
26.	Have other non-capital investment options been explored before submitting this request?						X	
27.	Is specialized training or annual licensing required that the Town will need to pay in order to use the asset (beyond the initial purchase/installation)?						X	
28.	If applicable, will the items being replaced be retained by the Town?						X	
29.	Does this request qualify for funding from Community Preservation Act (CPA)?						X	
30.	Are there any appendix forms with this funding request?						X	

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Department Capital Request CIP-DCR											
Title	Water SCADA System Upgrade					Department	Public Works - Water				
Useful Life	III	Primary Reason			4	Operating Budget Impact			C		
Requested Funding Years & Amounts	Column A		Costs Components		Column B		*Other Expenses		Column C		
FY2013			Intangibles								
FY2014		\$ 335,000	Equipment			\$ 310,000					
FY2015			Design & Engineering								
FY2016			Construction Expenses			\$ 25,000					
FY2017			Other Expenses*								
Total		\$ 335,000	Total			\$335,000	Total			\$	
Attached Schedules											
	CF		CX		LS		SI		SS		
Description and Justification											
<p>SCADA is an acronym that stands for Supervisory Control and Data Acquisition (SCADA). The Town's Water SCADA system collects data from various sensors at the Charles River Water Treatment Facility (CRWTF) as well as remote locations through out the system. The data is then sent to a central computer which efficiently manages and controls the operations of the entire Water System.</p> <p>The data communicated through out the current SCADA system is by outdated copper communication lines owned and serviced by Verizon. The dedicated copper lines have become more unreliable resulting in an increase in communication failures over time. One goal of implementing a new means of communications throughout the system would allow the Town to become less reliant on outside utilities, and make the SCADA system more reliable and efficient. Lack of an upgrade will result in increased corrective maintenance and emergency response costs associated with system failures. For example in August of 2011, Hurricane Irene affected the Needham area leaving us without communications for 4 days causing additional labor expenses to monitor tank levels and operate the equipment.</p> <p>The SCADA system relies on the information provided by Remote Terminal Units (RTU). RTU's consist of a programmable logic converter (PLC). The PLC's were installed at the CRWTF when constructed in 1998. The Water SCADA PLC's are approaching their expected useful life. This request is to replace PLC's located throughout the system and any other SCADA equipment within the operations of the treatment plant.</p> <p>A request for the funding of a design for the SCADA system was approved at the May 2011 Annual Town Meeting. The scope of a study is being developed with engineering firms to determine the design. The cost estimate for the implementation of the new SCADA system is an estimate only.</p> <p>In addition to the upgrades this request will also add video monitoring equipment at all water distribution facilities. The new video monitoring system will provide remote site response, real time information collected at the Charles River Water Treatment Facility, and aid with homeland security concerns.</p>											

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Department Capital Request CIP-DCR								
Title	Water Supply Development E & D	Department	Public Works - Water					
Parameters						YES	NO	NA
1.	Is this a stand-alone capital request?					X		
2.	Is this a multi-year capital replacement/upgrade request?						X	
3.	Is this a request in response to a documented public health or safety condition?						X	
4.	Is this a request in response to a Court, Federal, or State order?						X	
5.	Is this a request for a study or long range plan?						X	
6.	Is this a request to purchase office or school equipment (other than technology)?						X	
7.	Is this a request to purchase specialty equipment?						X	
8.	Is this a request to purchase technology or wireless communication system?						X	
9.	Is this a request to purchase vehicles or other rolling stock?						X	
10.	Is this a request to purchase apparatus/equipment that is intended to be permanently installed at the location of its use?						X	
11.	Is this a request to improve or make repair to extend the useful life of a public building?						X	
12.	Is this a request to improve or replace public infrastructure: bridges, culverts, drainage, intersection, roads, sidewalks, sewers or water systems?						X	
13.	Is this a request to repair or otherwise improve public property which is NOT a building or infrastructure?						X	
14.	Will any other department be required to provide resources (other than fulfilling its responsibilities) at any point during the process in order to complete the project?						X	
15.	Are there recommendations or costs indentified by other departments that are NOT factored into the request?						X	
16.	Are there additional costs to purchase, install, implement, and/or use (except future year operating costs) that are NOT included in this request?					X		
17.	Are there additional costs to bid, design, construct, complete, and/or use (except future year operating costs) that are NOT included in this request?					X		
18.	Will the requested project increase the annual operating costs for ANY department?						X	
19.	Will the requested project require an increase in the operating budget of any department the year it is approved for funding?						X	
20.	If the requested project is funded, will there be a need for ongoing assistance from outside contractors at an added expense to the Town which is NOT already budgeted?						X	
21.	Will additional permanent staff be required if the request is approved?						X	
22.	If the project is approved is the current operating budget insufficient to cover the operating costs of the requested project?						X	
23.	If the requested project is funded, will it reduce the requesting department's operating costs?						X	
24.	Does the request support activities to produce new revenue for the Town?						X	
25.	If the request is not approved will existing Town revenue sources be negatively impacted?						X	
26.	Have other non-capital investment options been explored before submitting this request?						X	
27.	Is specialized training or annual licensing required that the Town will need to pay in order to use the asset (beyond the initial purchase/installation)?						X	
28.	If applicable, will the items being replaced be retained by the Town?						X	
29.	Does this request qualify for funding from Community Preservation Act (CPA)?						X	
30.	Are there any appendix forms with this funding request?						X	

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Department Capital Request CIP-DCR									
Title	Water Supply Development E & D				Department	Public Works - Water			
Useful Life	V	Primary Reason		4	Operating Budget Impact			B	
Requested Funding Years & Amounts	Column A		Costs Components		Column B		*Other Expenses		Column C
FY2013	0		Intangibles						
FY2014	0		Equipment						
FY2015	\$ 250,000		Design & Engineering		\$ 250,000				
FY2016	0		Construction Expenses						
FY2017	0		Other Expenses*						
Total	\$ 250,000		Total		\$ 250,000		Total		\$
Attached Schedules									
	CF		CX		LS		SI		SS
Description and Justification									
<p>The funding request in FY 2015 is for the application to Mass Department of Environmental Protection (MassDEP) for the engineering, design, test well drilling, and water quality testing for an additional well at the Charles River Well Field. A feasibility study was completed in FY 2011 that supports the development of an additional well in the Town's existing well field. If the application to MassDEP is accepted and permit is granted, construction will be approximately 7 to 10 years from start of permitting. Construction estimates are projected to be 1.8 million dollars.</p> <p>The development of an additional well within the Well Field will allow the Town to better manage its production of water within the Well Field. A new well would preserve the ability to maximize the currently permitted withdrawal volume during routine service and maintenance of the wells as well as during periods of drought. The development of an additional well may also result in less need for well rehabilitation, which costs \$25,000 to \$30,000 per year.</p>									

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Department Capital Request CIP-DCR						
Title	Irrigation Supply Design	Department	Public Works - Water			
Parameters			YES	NO	NA	
1.	Is this a stand-alone capital request?		X			
2.	Is this a multi-year capital replacement/upgrade request?			X		
3.	Is this a request in response to a documented public health or safety condition?			X		
4.	Is this a request in response to a Court, Federal, or State order?			X		
5.	Is this a request for a study or long range plan?			X		
6.	Is this a request to purchase office or school equipment (other than technology)?			X		
7.	Is this a request to purchase specialty equipment?			X		
8.	Is this a request to purchase technology or wireless communication system?			X		
9.	Is this a request to purchase vehicles or other rolling stock?			X		
10.	Is this a request to purchase apparatus/equipment that is intended to be permanently installed at the location of its use?			X		
11.	Is this a request to improve or make repair to extend the useful life of a public building?			X		
12.	Is this a request to improve or replace public infrastructure: bridges, culverts, drainage, intersection, roads, sidewalks, sewers or water systems?			X		
13.	Is this a request to repair or otherwise improve public property which is NOT a building or infrastructure?			X		
14.	Will any other department be required to provide resources (other than fulfilling its responsibilities) at any point during the process in order to complete the project?			X		
15.	Are there recommendations or costs identified by other departments that are NOT factored into the request?			X		
16.	Are there additional costs to purchase, install, implement, and/or use (except future year operating costs) that are NOT included in this request?		X			
17.	Are there additional costs to bid, design, construct, complete, and/or use (except future year operating costs) that are NOT included in this request?		x			
18.	Will the requested project increase the annual operating costs for ANY department?			X		
19.	Will the requested project require an increase in the operating budget of any department the year it is approved for funding?			X		
20.	If the requested project is funded, will there be a need for ongoing assistance from outside contractors at an added expense to the Town which is NOT already budgeted?			X		
21.	Will additional permanent staff be required if the request is approved?			X		
22.	If the project is approved is the current operating budget insufficient to cover the operating costs of the requested project?			X		
23.	If the requested project is funded, will it reduce the requesting department's operating costs?			X		
24.	Does the request support activities to produce new revenue for the Town?			X		
25.	If the request is not approved will existing Town revenue sources be negatively impacted?			x		
26.	Have other non-capital investment options been explored before submitting this request?			x		
27.	Is specialized training or annual licensing required that the Town will need to pay in order to use the asset (beyond the initial purchase/installation)?			x		
28.	If applicable, will the items being replaced be retained by the Town?			x		
29.	Does this request qualify for funding from Community Preservation Act (CPA)?			X		
30.	Are there any appendix forms with this funding request?			X		

Town of Needham
Capital Improvement Plan
January 2012

Department Capital Request CIP-DCR									
Title	Irrigation Supply Design				Department	Public Works - Water			
Useful Life	V	Primary Reason		4	Operating Budget Impact			B	
Requested Funding Years & Amounts	Column A		Costs Components	Column B		*Other Expenses		Column C	
FY2013			Intangibles						
FY2014	\$ 30,000		Equipment						
FY2015	\$ 84,000		Design & Engineering	\$ 114,000					
FY2016			Construction Expenses						
FY2017			Other Expenses*						
Total	\$ 114,000		Total	\$ 114,000		Total	\$		
Attached Schedules									
	CF		CX		LS		SI		SS
Description and Justification									
<p>The Water System Master Plan identified all of the sources of water which supply the Town. The Plan acknowledged that the use of the original supply serving the Town prior to the development of the Charles River Street Well Field had been discontinued. This supply known as the Needham Reservoir/Dedham Avenue pump station had been discontinued as an active supply in the 1950's. It has since been formally decommissioned in 1995 but it has not been completely deactivated. It consists of 2-8' + diameter shallow wells (30'+) deep, which were originally connected through piping under the reservoir to the pump house. The reservoir was constructed as an earth dam impoundment to serve as a recharge for the wells. Its capacity was 400,000 - 500,000 gallons per day. The report recommended that this supply be explored as an alternate for irrigation purposes for the DeFazio Complex, the Pollard School Fields and the Needham Golf Club. Combined consumption for the 3 possible uses of this water supply is 8 million gallons of water per 4 month period. Using this source for these seasonal demands could lessen the impact upon the Charles River Well Field or the MWRA water system. The work would involve installing pumping equipment and controls at or near the wells, piping to connect to the irrigation systems and disconnection from the potable water supply. The first phase for this project is for well pump testing to determine the capacity and usability of the wells. Phase two for this project is for the design the infrastructure from the well to the irrigation users.</p> <p>Construction costs can not yet be determined.</p>									

Town of Needham
Capital Improvement Plan
January 2012

Department Capital Request CIP-DCR						
Title	Fire Flow Improvements	Department	Public Works - Water			
Parameters			YES	NO	NA	
1.	Is this a stand-alone capital request?		X			
2.	Is this a multi-year capital replacement/upgrade request?			X		
3.	Is this a request in response to a documented public health or safety condition?			X		
4.	Is this a request in response to a Court, Federal, or State order?			X		
5.	Is this a request for a study or long range plan?			X		
6.	Is this a request to purchase office or school equipment (other than technology)?			X		
7.	Is this a request to purchase specialty equipment?			X		
8.	Is this a request to purchase technology or wireless communication system?			X		
9.	Is this a request to purchase vehicles or other rolling stock?			X		
10.	Is this a request to purchase apparatus/equipment that is intended to be permanently installed at the location of its use?			X		
11.	Is this a request to improve or make repair to extend the useful life of a public building?			X		
12.	Is this a request to improve or replace public infrastructure: bridges, culverts, drainage, intersection, roads, sidewalks, sewers or water systems?		X			
13.	Is this a request to repair or otherwise improve public property which is NOT a building or infrastructure?			X		
14.	Will any other department be required to provide resources (other than fulfilling its responsibilities) at any point during the process in order to complete the project?			X		
15.	Are there recommendations or costs indentified by other departments that are NOT factored into the request?			X		
16.	Are there additional costs to purchase, install, implement, and/or use (except future year operating costs) that are NOT included in this request?			X		
17.	Are there additional costs to bid, design, construct, complete, and/or use (except future year operating costs) that are NOT included in this request?			X		
18.	Will the requested project increase the annual operating costs for ANY department?			X		
19.	Will the requested project require an increase in the operating budget of any department the year it is approved for funding?			X		
20.	If the requested project is funded, will there be a need for ongoing assistance from outside contractors at an added expense to the Town which is NOT already budgeted?			X		
21.	Will additional permanent staff be required if the request is approved?			X		
22.	If the project is approved is the current operating budget insufficient to cover the operating costs of the requested project?			X		
23.	If the requested project is funded, will it reduce the requesting department's operating costs?			X		
24.	Does the request support activities to produce new revenue for the Town?			X		
25.	If the request is not approved will existing Town revenue sources be negatively impacted?			X		
26.	Have other non-capital investment options been explored before submitting this request?			X		
27.	Is specialized training or annual licensing required that the Town will need to pay in order to use the asset (beyond the initial purchase/installation)?			X		
28.	If applicable, will the items being replaced be retained by the Town?			X		
29.	Does this request qualify for funding from Community Preservation Act (CPA)?			X		
30.	Are there any appendix forms with this funding request?			X		

Town of Needham
Capital Improvement Plan
January 2012

Department Capital Request CIP-DCR										
Title	Fire Flow Improvements				Department	Public Works - Water				
Useful Life	V	Primary Reason		4	Operating Budget Impact			C		
Requested Funding Years & Amounts	Column A		Costs Components	Column B		*Other Expenses		Column C		
FY2013	\$ 350,000		Intangibles							
FY2014	\$ 5,070,000		Equipment							
FY2015	\$ 100,000		Design & Engineering	\$ 920,250						
FY2016	\$ 470,250		Construction Expenses	\$ 7,160,000						
FY2017	\$ 2,090,000		Other Expenses*							
Total	\$ 8,080,250		Total	\$ 8,080,250		Total	\$			
Attached Schedules										
		CF		CX		LS		SI	SS	
Description and Justification										
<p>The Water System Master Plan has identified a category of improvements for high priority action:</p> <p>1) St. Mary pump station has 4 pumps located within the facility that are designed to pump potable water from the MWRA intended to supplement the Town's demand for water. Only two pumps are operable at the station, resulting in less capacity than permitted (permitted 6.5 million gallons per day (mgd)). The current pump station is equipped with an emergency auxiliary motor. It preferable to have a standby generator similar to other pumping stations and the Charles River Water Treatment Facility. This request will provide the necessary improvements to meet future water demands, and ensure the station has emergency back-up electrical power.</p> <p>The preliminary design of the station has been completed. The DPW is preparing to seek proposals for selection of a designer for the final design and the Owner's Project Manager (OPM) services. The costs of OPM services were not originally included in the budget for the project budget. \$350,000 is being requested to cover the entire design and construction services for the OPM.</p> <p>2) A fire flow adequacy analysis was conducted under maximum daily demand that determined the system is unable to meet the minimum 20 pounds per square inch of pressure (psi) in the higher elevations of Town: Tower Hill and Birds Hill Areas. In other words, the system is unable to provide enough pressure for fire protection during periods of high demand in the higher elevations of Town. In order to meet the minimum 20 psi, the DPW is requesting funding for a feasibility study and engineering cost analysis to analyze and propose a cost-effective solution to the low pressure areas. The goal is to create a high pressure zone in those two areas, potentially supplied by water booster stations.</p> <p>FY13 - St. Mary Pump Station improvements/OPM services - \$ 350,000 FY14 - St. Mary Pump Station improvements/construction - \$ 5,070,000 FY15 - Bird's Hill Tank high service area & Dunster Road Tank high service area / feasibility study - \$ 100,000 FY16 - Bird's Hill Tank high service area & Dunster Road Tank high service area / engineering, design - \$ 470,250 FY17 - Bird's Hill Tank high service area & Dunster Road Tank high service area / construction - \$ 2,090,000</p>										

Town of Needham
Capital Improvement Plan
January 2012

Department Capital Request CIP-DCR						
Title	Filter Media Replacement	Department	Public Works-Water			
Parameters			YES	NO	NA	
1.	Is this a stand-alone capital request?		X			
2.	Is this a multi-year capital replacement/upgrade request?		X			
3.	Is this a request in response to a documented public health or safety condition?			X		
4.	Is this a request in response to a Court, Federal, or State order?			X		
5.	Is this a request for a study or long range plan?			X		
6.	Is this a request to purchase office or school equipment (other than technology)?			X		
7.	Is this a request to purchase specialty equipment?			X		
8.	Is this a request to purchase technology or wireless communication system?			X		
9.	Is this a request to purchase vehicles or other rolling stock?			X		
10.	Is this a request to purchase apparatus/equipment that is intended to be permanently installed at the location of its use?			X		
11.	Is this a request to improve or make repair to extend the useful life of a public building?			X		
12.	Is this a request to improve or replace public infrastructure: bridges, culverts, drainage, intersection, roads, sidewalks, sewers or water systems?			X		
13.	Is this a request to repair or otherwise improve public property which is NOT a building or infrastructure?			X		
14.	Will any other department be required to provide resources (other than fulfilling its responsibilities) at any point during the process in order to complete the project?			X		
15.	Are there recommendations or costs indentified by other departments that are NOT factored into the request?			X		
16.	Are there additional costs to purchase, install, implement, and/or use (except future year operating costs) that are NOT included in this request?			X		
17.	Are there additional costs to bid, design, construct, complete, and/or use (except future year operating costs) that are NOT included in this request?			X		
18.	Will the requested project increase the annual operating costs for ANY department?			X		
19.	Will the requested project require an increase in the operating budget of any department the year it is approved for funding?			X		
20.	If the requested project is funded, will there be a need for ongoing assistance from outside contractors at an added expense to the Town which is NOT already budgeted?			X		
21.	Will additional permanent staff be required if the request is approved?			X		
22.	If the project is approved is the current operating budget insufficient to cover the operating costs of the requested project?			X		
23.	If the requested project is funded, will it reduce the requesting department's operating costs?			X		
24.	Does the request support activities to produce new revenue for the Town?			X		
25.	If the request is not approved will existing Town revenue sources be negatively impacted?			X		
26.	Have other non-capital investment options been explored before submitting this request?		X			
27.	Is specialized training or annual licensing required that the Town will need to pay in order to use the asset (beyond the initial purchase/installation)?			X		
28.	If applicable, will the items being replaced be retained by the Town?			X		
29.	Does this request qualify for funding from Community Preservation Act (CPA)?			X		
30.	Are there any appendix forms with this funding request?			X		

Town of Needham
Capital Improvement Plan
January 2012

Department Capital Request CIP-DCR											
Title	Filter Media Replacement					Department	Public Works-Water				
Useful Life	I	Primary Reason	5	Operating Budget Impact	C						
Requested Funding Years & Amounts	Column A	Costs Components	Column B	*Other Expenses	Column C						
FY2013	\$72,500	Intangibles									
FY2014	\$75,000	Equipment									
FY2015	\$77,500	Design & Engineering									
FY2016		Construction Expenses	\$305,000								
FY2017	\$80,000	Other Expenses*									
Total	\$305,000	Total	\$ 305,000	Total	\$						
Attached Schedules	CF	CX	LS	SI	SS						
Description and Justification											
<p>The filter media (greensand) is used for manganese removal at the Charles River Water Treatment Facility.</p> <p>All four filters at the Treatment Facility were replaced with natural greensand in 2008. This program is intended to establish a five year replacement cycle for the replacement of the filter media, with a new synthetic product called Greensand Plus, a substitute for natural greensand. Greensand Plus is promoted as being able to withstand wider variations in operating conditions and therefore may reduce the frequency of media replacement, and reduce the need for potassium permanganate. The cost savings would be less than \$5,000 per year.</p> <p>FY 2012 is the first year of funding for this program (\$70,000).</p>											

Town of Needham
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Department Capital Request CIP-DCR								
Title	14 inch Water Main Replacement	Department	Public Works-Water					
Parameters						YES	NO	NA
1. Is this a stand-alone capital request?						X		
2. Is this a multi-year capital replacement/upgrade request?						X		
3. Is this a request in response to a documented public health or safety condition?							X	
4. Is this a request in response to a Court, Federal, or State order?							X	
5. Is this a request for a study or long range plan?							X	
6. Is this a request to purchase office or school equipment (other than technology)?							X	
7. Is this a request to purchase specialty equipment?							X	
8. Is this a request to purchase technology or wireless communication system?							X	
9. Is this a request to purchase vehicles or other rolling stock?							X	
10. Is this a request to purchase apparatus/equipment that is intended to be permanently installed at the location of its use?							X	
11. Is this a request to improve or make repair to extend the useful life of a public building?							X	
12. Is this a request to improve or replace public infrastructure: bridges, culverts, drainage, intersection, roads, sidewalks, sewers or water systems?						X		
13. Is this a request to repair or otherwise improve public property which is NOT a building or infrastructure?							X	
14. Will any other department be required to provide resources (other than fulfilling its responsibilities) at any point during the process in order to complete the project?							X	
15. Are there recommendations or costs indentified by other departments that are NOT factored into the request?							X	
16. Are there additional costs to purchase, install, implement, and/or use (except future year operating costs) that are NOT included in this request?							X	
17. Are there additional costs to bid, design, construct, complete, and/or use (except future year operating costs) that are NOT included in this request?							X	
18. Will the requested project increase the annual operating costs for ANY department?							X	
19. Will the requested project require an increase in the operating budget of any department the year it is approved for funding?							X	
20. If the requested project is funded, will there be a need for ongoing assistance from outside contractors at an added expense to the Town which is NOT already budgeted?							X	
21. Will additional permanent staff be required if the request is approved?							X	
22. If the project is approved is the current operating budget insufficient to cover the operating costs of the requested project?							X	
23. If the requested project is funded, will it reduce the requesting department's operating costs?							X	
24. Does the request support activities to produce new revenue for the Town?							X	
25. If the request is not approved will existing Town revenue sources be negatively impacted?							X	
26. Have other non-capital investment options been explored before submitting this request?							X	
27. Is specialized training or annual licensing required that the Town will need to pay in order to use the asset (beyond the initial purchase/installation)?							X	
28. If applicable, will the items being replaced be retained by the Town?							X	
29. Does this request qualify for funding from Community Preservation Act (CPA)?							X	
30. Are there any appendix forms with this funding request?							X	

Town of Needham
Capital Improvement Plan
January 2012

Department Capital Request CIP-DCR										
Title	14 inch Water Main Replacement				Department	Public Works-Water				
Useful Life	V	Primary Reason		3,5	Operating Budget Impact			C		
Requested Funding Years & Amounts	Column A	Costs Components		Column B	*Other Expenses		Column C			
FY2013	0	Intangibles			Borrowing costs		\$60,000			
FY2014	\$340,000	Equipment								
FY2015	0	Design & Engineering		\$340,000						
FY2016	\$3,460,000	Construction Expenses		\$3,400,000						
FY2017	0	Other Expenses*		\$60,000						
Total	\$ 3,800,000	Total		\$ 3,800,000	Total		\$ 60,000			
Attached Schedules	CF		CX		LS		SI		SS	
Description and Justification										
<p>The total length of the 14" diameter water main is approximately 19,000 linear feet (3.6 miles), extending from Charles River Street, to Pine Street, to Central Avenue, to Marked Tree Road and a section between Oak Street and Chestnut Street, to School Street. The 14" water main dates from 1936 - 1939 and is cast iron with a bitumastic or coal tar lining. Water quality is a concern as the lining breaks down, causing discoloration of the water.</p> <p>In 2008, the 14" water main was relined from the Charles River Water Treatment Facility to Grove Street. In 2010, the second phase of this project replaced the 14" water main with a new 16" water main extending from Grove Street to Central Avenue.</p> <p>The next phase is intended to replace the remaining portion of the old 14" water main. The construction cost has increased since the last Capital Improvement Plan submission due to increased costs of metals for the piping, increased costs of asphalt for the road resurfacing. In addition, the full width of the road will be restored rather than just a trench.</p> <p>FY 2014</p> <p>Funding is proposed for the design of the remaining 11,500 linear feet of water main to be replaced from the intersection of Pine Street and Central Avenue to the intersection of School Street and Chestnut Street. Engineering and Design: \$340,000</p> <p>FY 2016</p> <p>Funding is proposed for the construction of the remaining water main. Construction: \$3,400,000</p> <p>SRF Funding may be available for this project and Public Works will submit an application to complete the project.</p>										

Town of Needham
Capital Improvement Plan
January 2012

Department Capital Request CIP-DCR								
Title	Water System Rehabilitation Program	Department	Public Works-Water					
Parameters						YES	NO	NA
1.	Is this a stand-alone capital request?					X		
2.	Is this a multi-year capital replacement/upgrade request?					X		
3.	Is this a request in response to a documented public health or safety condition?						X	
4.	Is this a request in response to a Court, Federal, or State order?						X	
5.	Is this a request for a study or long range plan?						X	
6.	Is this a request to purchase office or school equipment (other than technology)?						X	
7.	Is this a request to purchase specialty equipment?						X	
8.	Is this a request to purchase technology or wireless communication system?						X	
9.	Is this a request to purchase vehicles or other rolling stock?						X	
10.	Is this a request to purchase apparatus/equipment that is intended to be permanently installed at the location of its use?						X	
11.	Is this a request to improve or make repair to extend the useful life of a public building?						X	
12.	Is this a request to improve or replace public infrastructure: bridges, culverts, drainage, intersection, roads, sidewalks, sewers or water systems?					X		
13.	Is this a request to repair or otherwise improve public property which is NOT a building or infrastructure?						X	
14.	Will any other department be required to provide resources (other than fulfilling its responsibilities) at any point during the process in order to complete the project?						X	
15.	Are there recommendations or costs indentified by other departments that are NOT factored into the request?						X	
16.	Are there additional costs to purchase, install, implement, and/or use (except future year operating costs) that are NOT included in this request?						X	
17.	Are there additional costs to bid, design, construct, complete, and/or use (except future year operating costs) that are NOT included in this request?						X	
18.	Will the requested project increase the annual operating costs for ANY department?						X	
19.	Will the requested project require an increase in the operating budget of any department the year it is approved for funding?						X	
20.	If the requested project is funded, will there be a need for ongoing assistance from outside contractors at an added expense to the Town which is NOT already budgeted?						X	
21.	Will additional permanent staff be required if the request is approved?						X	
22.	If the project is approved is the current operating budget insufficient to cover the operating costs of the requested project?						X	
23.	If the requested project is funded, will it reduce the requesting department's operating costs?						X	
24.	Does the request support activities to produce new revenue for the Town?						X	
25.	If the request is not approved will existing Town revenue sources be negatively impacted?						X	
26.	Have other non-capital investment options been explored before submitting this request?						X	
27.	Is specialized training or annual licensing required that the Town will need to pay in order to use the asset (beyond the initial purchase/installation)?						X	
28.	If applicable, will the items being replaced be retained by the Town?						X	
29.	Does this request qualify for funding from Community Preservation Act (CPA)?						X	
30.	Are there any appendix forms with this funding request?						X	

Town of Needham
Capital Improvement Plan
January 2012

Department Capital Request CIP-DCR											
Title	Water System Rehabilitation Program				Department	Public Works-Water					
Useful Life	V	Primary Reason		3,5	Operating Budget Impact			C			
Requested Funding Years & Amounts	Column A		Costs Components	Column B		*Other Expenses		Column C			
FY2013	\$ 99,300		Intangibles								
FY2014	\$ 715,800		Equipment								
FY2015	\$555,000		Design & Engineering	\$ 193,300							
FY2016	\$ 94,000		Construction Expenses	\$ 2,120,800							
FY2017	\$ 850,000		Other Expenses*								
Total	\$ 2,314,100		Total	\$ 2,314,100		Total	\$				
Attached Schedules											
			CF			CX			LS		
					SI			SS			
Description and Justification											
<u>Previously Funded Projects</u>											
<u>FY12</u>											
Lincoln St. – Construction -				\$684,500							
Funding is being diverted to the Highland Avenue Water Main from Gould Street to Webster Street, due to pending MASSDOT road project											
<u>Future Projects</u>											
<u>FY13</u>											
Grant St./Junction St. to Dedham Ave. – New 8’ (2500 lf) – Eng. & Design				\$99,300							
<u>FY14</u>											
Grant St. – New 8’ (2500 lf) - Construction				\$715,800							
<u>FY15</u>											
Lincoln St. – Construction -				\$555,000							
<i>(The requested appropriation is the balance only needed to complete the project originally funded in FY 12)</i>											
<u>FY16</u>											
Pleasant St./Howland St. to Dedham Ave. – New 8” (1160 lf) – Eng. & Design				\$94,000							
Norfolk St./Warren St. to Webster St. – New 8” (1300 lf) – Eng. & Design											
<u>FY17</u>											

Town of Needham
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Department Capital Request CIP-DCR			
Title	Water System Rehabilitation Program	Department	Public Works-Water
	Pleasant St./Howland St. to Dedham Ave. - New 8" (1160 lf) - Construction Norfolk St./Warren St. to Webster St. - New 8" (1300 lf) - Construction	\$850,000	
	<u>Future Projects after FY17</u>		
	Alfreton Rd./ Highland Ave. to Webster St. New 8" (500 lf) - Eng. & Design Bennington St. / High St. to Concord St. New 8" (650 lf) - Eng. & Design Alfreton Rd./Highland Ave to Webster - Construction Bennington St./High St. to Concord St. - Construction Thorpe Rd./Webster St. to End New 8" (330lf) - Eng. & Design Mills Rd./ Sachem Rd. to Davenport Ave. New 8" (500lf) - Eng. & Design Mayo Ave. Harris Ave to Great Plain Ave New 8" (1060lf) - Eng. & Design Thorpe Rd./ Mills Rd./ Mayo Ave. - Construction Kingsbury St. / Oakland Ave. to Webster St. - Eng. & Design Oakland Ave. / May St. to Highland Ave. - Eng. & Design Fenton Rd. / West St. to Pershing Rd. - Eng. & Design Greenough St. / Pine Grove St. to Avery St. - Eng. & Design Pine Grove St. Hillside Ave to existing 8" - Eng. & Design		