

# FY22 Through FY 26 Capital Improvement Program

## Engineering, Highway and Stormwater Requests

Ayer Department of Public Works  
Presented  
December 1, 2020

# DPW Capital Improvement Plan Objectives

- The Ayer DPW continues to be committed to the ongoing maintenance and repair of capital assets, recognizing the critical value of civic infrastructure to the economic, aesthetic and functional viability of the Town
- The Five-Year Capital Improvement Plan includes projects that continue major rehabilitation of Town assets and new investments in capital infrastructure.

# Capital Project Criteria

- Proposed Ayer DPW Capital Improvement Program is based on:
  - Regulatory Requirements
  - Public Safety and Public Health
  - Maintaining Level of Service
  - Reducing Operations Costs
  - Integration With Other Town Projects
  - Implementing resiliency and sustainability in infrastructure
  - Grant Funding Opportunities
  - Promoting Economic Development
  - **IMPROVING THE COMMUNITY**

# DPW Capital Issues

- Due to COVID 19 impacts and upcoming personnel changes, FY22 Capital Plan has been “trimmed”.
- Aging Infrastructure
  - Reliable water supply is critical to our community
  - Water pipes 115 years old
  - Sewer pipes 70 years old
  - Drainage pipes are various ages, materials and sizes
  - Bridges and culverts failing
  - WWTP built in 1982
  - DPW – Highway Garage built in 1970
  - Main Street was reconstructed in 1985
- Road & sidewalk improvements funded with Chapter 90, annual capital budget and other grants

# DPW Capital Issues

- PFAS Contamination of water supply has had a significant on the DPW capital and operating budgets as well as staff time
- New Wastewater Discharge Permit issued by EPA with New Limits and Collection System Requirements
  - WWTP Upgrades
  - Collection System and I/I Improvements
- 2018 Stormwater Permit was issued by EPA
  - Outfall Improvements
  - Drainage Infrastructure
- DPW applies for grants to reduce costs
- DPW Supt and Town Engineer perform in-house engineering and value engineering to reduce costs & save money



# What Did We Do Last Year ?

- Replaced 100 year old water main and drainage system on High Street
- Phase 3 of Washington St improvements with new curbing, sidewalks and paving
- Paved Main Street
- Purchased new front end loader
- Replace 9 streetlights on Main Street
- Constructed new sidewalk on School Street
- Started East Main Street Reconstruction (MassDOT)
- Replaced drainage piping on Willard St
- Constructed rain garden on Oak Ridge Drive

- Began construction of Groton Shirley Rd Water & Sewer improvements
- Completed construction of Grove Pond PFAS Treatment Plant
- Designed and started construction of PFAS Water Treatment Plant at Spec Pond Wellfield
- Replace filter media at Grove Pond WTP
- Completed construction of Phase 2 of wastewater treatment plant upgrade
- Designed Phase 3 of wastewater treatment plant upgrade
- Completed Phase 1 sewer system rehab and design of Phase 2 (for bid this month)
- Obtained grants for sidewalk, energy improvements, PFAS treatment

# FY21 Capital Issue - West Main St Bridge

- West Main St Bridge was bid and was over budget
  - Low bid - \$2,547,000
  - Including engineering and contingencies total funding needed - \$3,170,000
  - Funding available - \$1,700,000 (includes MassDOT Small Bridge Grant)
- DPW is evaluating options
  - Appropriate more funding and rebid as designed
  - Modify design to reduce cost, rebid and appropriate additional funding at future TM



# West Main St Bridge Potential Cost Savings

- Eliminate staged construction (requires detour)– savings \$750K
- Change foundation design – savings \$200k to \$400K
- Alternative designs:
  - Reduce the bridge span – Design is 26 ft and current culvert is 10.5 ft.
  - Steel beam type bridge instead of a precast concrete bridge
  - Deep Pile foundation type design

# FY21 Capital Issue - West Main St MassWorks Grant

- Awarded MassWorks Grant on Nov. 19
- Project includes:
  - New water main from Rogers St to Verbeck Gate
  - Drainage improvements
  - Curbing, sidewalks and repaving
  - Shared use path to Jackson Rd

Category	MassWorks Funds Requested	Match / Other Funding	Total Project Budget	Source of Match / Other Funds
Design / Engineering / Permitting	\$0	\$125,000	\$125,000	Ayer- \$50,000 MassDevelopment \$75,000
Bidding	\$0	\$25,000	\$25,000	Ayer- \$25,000
Construction	\$2,914,201	\$500,000	\$3,414,201	Ayer- \$300,000 MassDevelopment \$200,000
Construction Administration	\$250,000	\$0	\$250,000	
<b>TOTAL</b>	<b>\$3,164,201</b>	<b>\$650,000</b>	<b>\$3,814,201</b>	

# West Main St MassWorks Local Share

- Grant is for \$3,164,201 and Ayer is committed to \$375,000 local share (Devens share is \$275K)
- Local share is
  - \$50K for engineering, \$25K for bidding, \$300k for construction
  - Can use water main replacement, stormwater upgrade and road paving funding for local share
  - Request consideration of capital funding
    - \$50K stormwater, \$50K paving, \$100K water main

# DPW General Fund Capital Plan

## Engineering Division

	Item Requested	FY22	FY23	FY24	FY25	FY26
1	Main Street Decorative Street Light Upgrades	\$ 70,000		\$ 70,000		
2	DPW Hybrid SUV (Replace 2010 Ford Escape)		\$ 35,000			
Yearly Totals		\$70,000	\$35,000	\$70,000	\$0	\$0



# Main St Streetlights -\$70,000



# Main St Streetlights - \$70,000

- Original downtown streetlights installed in mid-1980s
- Have replaced about 2/3 of the old lights
- Light Inventory:
  - 6 poles in danger of falling over
  - Total of 15 need replacing
  - FY22 budget is for the 8 next worst poles

# DPW General Fund Capital Plan - Highway Division

	Item Requested	FY22	FY23	FY24	FY25	FY26
1	Road Paving	\$200,000	\$150,000	\$150,000	\$150,000	\$150,000
2	1-Ton Pick up truck w/plow		\$55,000			
3	Salt storage facility				\$400,000	
4	Highway Garage Renovate Existing FY23 Design, FY24 Construction		\$400,000	\$4,700,000		
5	6-Wheel Dump Truck w/plow and spreader				\$250,000	
6	W Main St Bridge Replacement - Additional funds	PLACE HOLDER				
7	Barnum Rd Bridge Repairs (Design / Construction)		\$70,000	\$350,000		
<b>Yearly Totals</b>		<b>\$200,000</b>	<b>\$675,000</b>	<b>\$5,200,000</b>	<b>\$800,000</b>	<b>\$150,000</b>

Revised request to reflect \$50K for MassWorks local share





# Road Repaving ~~\$150,000~~ \$200,000

- Road Paving funding is currently from MassDOT Chapter 90 and Town Capital Appropriation
- Annual Chapt 90 amount - \$240K
- Ayer Pavement Management Study
  - Town wide PCI = 72 (out of 100)
  - Repaving backlog \$4.1M
- Costs range from \$25 to \$75 per foot of road
- Additional funding will allow us to keep up with the Town needs
- Paving projects include High St, Mulberry Circle, Third St, West Main Street



# DPW General Fund Capital Plan

## Stormwater Capital Plan

	Item Requested	FY22	FY23	FY24	FY25	FY26
1	Storm Drain Upgrades	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
1B	W Main St MassWorks **	\$50,000				
2	Stormwater Biofiltration/Outfall Improvements		\$50,000		\$50,000	
3	Culvert Replacements	\$50,000	\$100,000	\$50,000	\$100,000	\$50,000
4	Stormwater Asset / Master Plan Grant Match	\$40,000				
5	Balch Pond Dam Repairs Phase 2- Dam Design & Permitting Phase 3 - Dam Modifications		\$52,000	\$250,000		
<b>Yearly Totals</b>		<b>\$90,000</b>	<b>\$302,000</b>	<b>\$400,000</b>	<b>\$250,000</b>	<b>\$150,000</b>

Recommend moving annual infrastructure improvements from Capital Budget to annual Operating Budget as a recurring cost



# Stormwater Asset / Master Plan Grant Match

- Applied for grant funding for Stormwater Master Plan
- Project will better define existing condition and develop prioritized improvement plan
- Identified as a high priority in Ayer Municipal Resiliency Plan
- Total project cost \$121,250 with \$72,750 grant  
Town share is \$40,000 plus in-kind services



FY22 Through FY 26  
Capital Improvement Program

# Water & Wastewater Requests

Ayer Department of Public Works  
Presented  
December 1, 2020

# Proposed 5 Year CIP

## Water Division

	Item Requested	FY22	FY23	FY24	FY25	FY26
1	Annual Water Main Replacements *	\$250,000	\$300,000	\$300,000	\$300,000	\$350,000
2	West Main Street MassWorks	\$100,000				
3	Utility Truck with Plow	\$60,000				
4	Washington Street Water Tank Painting			\$450,000		
5	Spec Pond Groundwater Supply Development (New Source Approval)		\$120,000			
6	Grove Pond Well 6 Replacement Well				\$120,000	
7	Grove Pond Well 7 Replacement Well					\$120,000
8	Portable Generator - Split with WW			\$75,000		
Yearly Totals		\$160,000	\$420,000	\$825,000	\$420,000	\$470,000

\* Move to Operating Budget as recurring cost





# Annual Water Main Replacements

- Annual Capital request to replace aging water mains with poor rating
- Budget for **\$250K** per year (approx. 2000 ft.)
- FY22 projects include Wright Rd, Rosewood Ave and Whitcomb Ave
- In-house engineering to maximize pipe replacement value
- Continue to apply for grant funding



# West Main St MassWorks Funding

- Grant requires \$300K for local share. Request \$100K for water main (total est. cost \$850K)
- Replace 3200 ft of 6 & 8 inch unlined cast iron pipe
- Pipe has significant hydraulic restrictions and water quality complaints
- Second interconnection with Devens will improve emergency water supply capacity
- Will improve redevelopment opportunities for West Main Street



# Proposed West Main Street Water Main



# Water Utility Truck (replace 2003 Chevy)

- 1 Ton Pickup Truck with Utility Body and Plow
- Replaces a 2003 Chevy Utility Truck with 128K miles
- Utilized for the operation and maintenance of the water system
- Front-line plow vehicle
- Upgrade aging fleet
- Ensure reliability in response to emergency repairs and snow plowing operations
- Purchase off State Bid



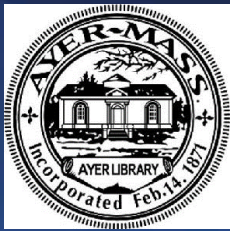
# Proposed 5 Year CIP

## Wastewater Division

	Item Requested	FY22	FY23	FY24	FY25	FY26
1	Inflow/ Infiltration Repairs	\$750,000	\$750,000	\$750,000	\$750,000	\$750,000
2	WWTP Upgrades	\$3,800,000		\$3,500,000		\$3,300,000
3	Portable Generator - Split with Water			\$75,000		
4	Central Ave / Main Pumping Station Valve & Piping Upgrades	\$100,000				
Yearly Totals		\$4,650,000	\$750,000	\$4,325,000	\$750,000	\$4,050,000

# Sewer Collection System Inflow / Infiltration Removal - \$750,000

- I/I investigation evaluated most of the pipes in the system
- Problems included high inflow, roots, structural damage
- I/I can add over 1 million gallons of flow to WWTP
- Bid 1<sup>st</sup> contract for sewer rehab in 2019 - \$350K for relining 3800 feet of sewer and sealing 12 manholes



# Sub-area 2 CCTV Major Defects





# Sewer Pipe Rating 5 = very bad

Sub-Area	NASSCO Ranking Breakdown (LF)							Gravity Sewer Not Inspected (LF)	Gravity Sewer Total (LF)
	5	4	3	2	1	0	Total Inspected		
Sub-Area 2	833	11,013	5,231	5,966	773	3,044	26,860	2,770	29,630
Sub-Area 3	1,120	9,192	2,702	10,040	1,848	3,280	28,182	1,507	29,689
Sub-Area 5	1,550	5,623	228	-	-	999	8,400	6,664	15,064
Sub-Area 6	405	317	259	267	-	5,214	6,462	12,115	18,577
Sub-Area 9	720	3,624	241	1,229	195	1,733	7,742	8,340	16,082
Sub-Area 10	1,519	1,831	1,359	2,036	1,165	10,997	18,907	7,684	26,590
Remaining Areas	-	-	-	-	-	-	-	86,373	67,466
Total	4,628	29,769	8,661	17,502	2,816	14,270	77,646	125,452	203,098

Percentage of System	2%	15%	4%	9%	1%	7%	38%	62%	100%
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# I/I Costs

Phase	Pipeline Rehabilitation Construction Cost	Manhole Rehabilitation Construction Cost	Total Rehabilitation Construction Cost
Sandy Pond Road	\$ 1,895,970	\$ 37,455	\$ 1,933,425
Phase 1	\$ 799,613	\$ 40,572	\$ 840,184
Phase 2	\$ 737,217	\$ 36,263	\$ 773,480
Phase 3	\$ 745,454	\$ 92,428	\$ 837,881
Phase 4	\$ 624,839	\$ 47,823	\$ 672,662
Phase 5	\$ 586,116	\$ 16,601	\$ 602,717
Phase 6	\$ -	\$ 187,770	\$ 187,770
<b>Total</b>	<b>\$ 5,389,209</b>	<b>\$ 458,911</b>	<b>\$ 5,848,120</b>

# Main and Central Ave Valve Replacements

- Pumping Stations have several large “check Valves that are reaching the end of useful life (leaking)
- Replaced one valve in Main Pump Station last year at cost of \$40K



# Wastewater Treatment Plant Upgrades

- FY17 – FY21 Improvements are complete
- Projects included
  - Building systems upgrades (Building structure, HVAC, Electrical, Fire Sprinkler)
  - Electrical Room Climate Control
  - SCADA Upgrades
  - Tankage repairs
  - Grit removal system upgrade
  - Demolition of old equipment
  - Construction of sludge dewatering room
  - Chemical feed upgrade(required by EPA)
- FY22-FY26 include:
  - Sludge dewatering system
  - Sludge pump replacement
  - Aeration blower and system upgrade
  - Instrumentation and controls
  - Architectural repairs
  - Wastewater Division garage





# Thank You for Your Consideration of These Important Town Infrastructure Projects

