HARRISONBURG PUBLIC UTILITIES STRATEGIC ASSET MANAGEMENT PLAN FY2025

March 19, 2025

NARRATIVE

Section 1 provides definitions of terms and acronyms that are frequently used in asset management but may escape or reduce the understanding of the audience.

Section 2 provides an overview to the framework in integrating six (6) steps into a repeating cycle as used by Harrisonburg Public Utilities (HPU) to manage $877M in infrastructure inventory. Some steps are unique to HPU and others such as the annual budget and the five years capital improvement program extend into procedures that are universal to the city practices.

Section 3 conveys the most recent data for each step. This includes inventory, assessment data, CIP & Long-Term Financial Model capital planning, budget capital requests, prioritization of asset replacement, and projects to be completed within the latest budget cycle. The latter slides show priority portfolios (combination of projects) at a master planning level for water and sewer infrastructure retirement and a replacement.

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DEFINITIONS

Asset

What is an Asset?

Anything of material cost such as an area of land, or a building, or an item of plant or equipment or infrastructure that provides service potential or future economic benefits over a period greater than one year".

Asset Management

What is an Asset Management?

Asset management can be defined as managing infrastructure capital assets to minimize the total cost of owning and operating them, while delivering the service levels customer's desire.

ACSO

What is CURRENT ASSET REPLACEMENT COST (CARV)?

= The cost to install and commission the asset in current economic value

What is Net Book Value (NBV)?

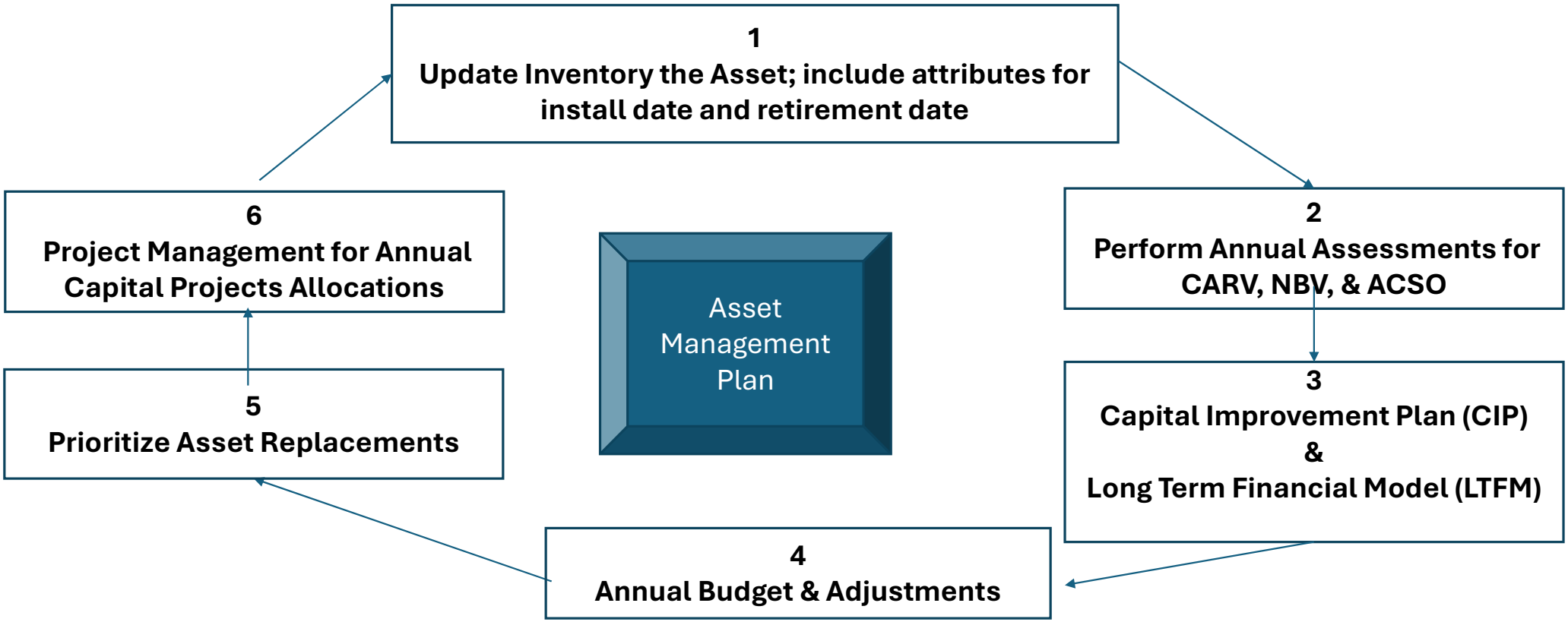
= CARV * % Remaining Useful Life of the asset

What is Annual Cost of Sustainable Operations (ACSO)?

= Sum of CARV for all years under evaluation / # years under evaluation, where
CARV must be inflated to the year of scheduled replacement

FRAMEWORK

HPU PROGRAMS INTEGRATION



PROCEDURAL STEPS

1: ASSET INVENTORY

ASSET TYPE	INVENTORY
Water Pipe (miles)	298.5
Water Valves (#)	4,735
Water Hydrants (#)	1,968
Water Air Valves (#)	370
Water Large Meters (#)	507
Water Small Meters (#)	16,010
Water Pump Stations (#)	15
Water Storage Tanks (#)	12
Water Control Valves (#)	37
SCADA Remote Sites	24
Water Intakes	4
Water Treatment Plant (#)	1

ASSET TYPE	INVENTORY
Gravity Pipes (miles)	186
Pressure Pipes (miles)	
Manholes (#)	5,415
Pump Stations (#)	6
SCADA Sites (#)	9

2: ANNUAL ASSESSMENTS

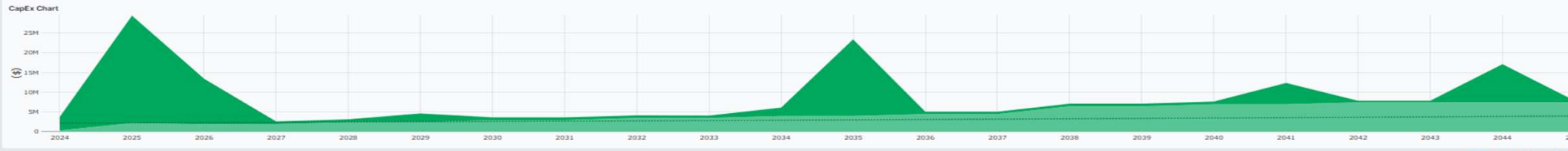
CIP CODE	W-CARV	W-NBV	W-ACSO	S-CARV	S-NBV	S-ACSO
Western Source	$59,012,517	$25,651,700	$44,093	n/a	n/a	n/a
Eastern Source	$39,519,470	$33,539,284	$0	n/a	n/a	n/a
Rural Potable	$47,415,464	$14,853,767	$360,229	n/a	n/a	n/a
City Potable	$346,303,189	$173,888,139	$4,582,156	n/a	n/a	n/a
Pumping	$34,671,783	21,894,085	$335,131	n/a	n/a	n/a
Treatment	$22,057,178	$13,213,811	$92,951	n/a	n/a	n/a
Metering	$3,275,145	$1,084,935	$64,652	n/a	n/a	n/a
Total Water	**$552,254,746**	**$284,125,721**	**$5,479,212**	**n/a**	**n/a**	**n/a**
Interceptor	n/a	n/a	n/a	$50,881,206	$29,458,292	$102,859
Collection	n/a	n/a	n/a	$268,394,362	$152,271,484	$1,690,034
Pumping	n/a	n/a	n/a	$1,864,624	$956,317	$41,527
Metering	n/a	n/a	n/a	$3,275,145	$2,770,431	$64,652
Total Sewer	**n/a**	**n/a**	**n/a**	**$324,415,337**	**$185,456,524**	**$1,899,072**

3: LTFM-CAPITAL

WATERWORTH | Budget 2026 Mid-Year Review (3.5%) Scenario | Notes

LFM Actuals & Budget **Capital Expenses** | Description

CapEx Chart



$ | % | Excel

Id	Item Descriptor	Category	Inflation	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
2	Capital Outlay	Capital Expansion	3.00%	110,661	504,000	376,000	387,280	398,898	410,865	423,191	435,887	448,964	462,433	476,306	490,595	505,313	520,472	536,086	552,169	568,734	585,796	603,370	621,471	640,115	659,318	679,098	699,471	720,455	742,069
4.1	Western Raw Water Source- R & R	Capital Improvements	0.00%	25,639	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.2	Western Raw Water Source-Anode	Capital Expansion	0.00%	29,264	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.3	Western Raw Waterline - Phase 3.1	Capital Expansion	0.00%	57,718	2,894,272	1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.4	Western Raw Waterline - Phase 3.2	Capital Expansion	0.00%	0	0	0	0	0	1,500,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.4a	Western Raw Waterline - Phase 3.3	Capital Expansion	0.00%	0	0	0	0	0	0	0	0	0	0	1,500,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.5	Western Raw Waterline - Phase 4	Capital Expansion	0.00%	0	0	0	0	0	0	0	0	0	0	0	17,300,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.6	Western Raw Waterline - Intake Screens - DRI/NRI	Capital Expansion	0.00%	0	1,000,000	7,500,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.7	WRWL North River ACSO	Capital Improvements	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Eastern Source Development	Capital Expansion	0.00%	2,231,268	20,606,234	2,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.1	Rural Potable - R & R	Capital Improvements	0.00%	0	780,000	30,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229	360,229
6.2	Rural Potable - Risk Management Loops (535)	Capital Expansion	0.00%	0	40,000	40,000	40,000	40,000	40,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.3	Rural Potable - DEZ 16" Conversion (WRL P3) (571)	Capital Expansion	0.00%	0	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.3a	Rural Potable - DEZ 16"Services (WRL P3) (571/565)	Capital Expansion	0.00%	0	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.4	Rural Potable - DEZ 16" Conversion (WRL P4) (571)	Capital Expansion	0.00%	0	0	0	0	0	0	0	0	0	0	0	250,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.4a	Rural Potable - DEZ 16" Services (WRL P4) (571/565)	Capital Expansion	0.00%	0	0	0	0	0	0	0	0	0	0	0	250,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.5	Rural Potable - CMZ 10" Replacement (502)	Capital Expansion	0.00%	0	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	0	0	0	0	0	0	0	0	0	0
6.5a	Rural Potable - CMZ 10" Services Transition (502/565)	Capital Improvements	0.00%	0	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	0	0	0	0	0	0	0	0	0	0
6.6	Rural Potable - Services Transition (565)	Capital Improvements	0.00%	9,813	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	0	0	0	0	0	0	0	0	0	0
7	Pumping, Storage & Transfer Assets - Bond	Capital Expansion	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,000,000	0	0	0	0	0	0	0	0	0
7	Pumping, Storage & Transfer Assets - R & R	Capital Improvements	0.00%	92,860	80,709	200,000	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131	335,131
8	Transmission & Distribution Assets - Expansion	Capital Expansion	0.00%	1,000,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
8	Transmission & Distribution Assets R & R	Capital Improvements	0.00%	117,312	1,171,262	1,450,000	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156	4,582,156
9	Water Treatment Assets - R & R	Capital Improvements	0.00%	56,270	21,000	100,000	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951	92,951
9	Water Treatment Assets - Expansion	Capital Expansion	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,200,000	0	0	0	0	0	0
10	Metering Assets - R & R	Capital Improvements	0.00%	67,947	100,000	50,000	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652	64,652
10	Metering System AMI - Expansion	Capital Expansion	0.00%	0	1,300,000	100,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Facilities R&R	Capital Improvements	0.00%	0	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
15	Facilities - Expansion	Capital Expansion	0.00%	8,791	329,490	36,531	0	0	0	0	0	0	0	0	1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	IT Strategic Plan	Capital Expansion	0.00%	1,300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Raw Water Supply Drought	Capital Improvements	0.00%	0	0	50,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Contributions from Field Utilities	Capital Expansion	0.00%	0	0	0	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000	-250,000
20	Projects deferred, Funds already appropriated	Capital Improvements	0.00%	0	0	0	-3,500,000	-3,000,000	-3,000,000	-2,500,000	-2,500,000	-2,000,000	-2,000,000	-1,500,000	-1,500,000	-1,000,000	-1,000,000	1,000,000	1,000,000	1,500,000	1,500,000	2,000,000	2,000,000	2,000,000	2,000,000	2,500,000	2,500,000	2,500,000	3,000,000
21	Back-load Capital Funding	Capital Improvements	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22		Capital Improvements	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

3: LTFM-Five year CIP

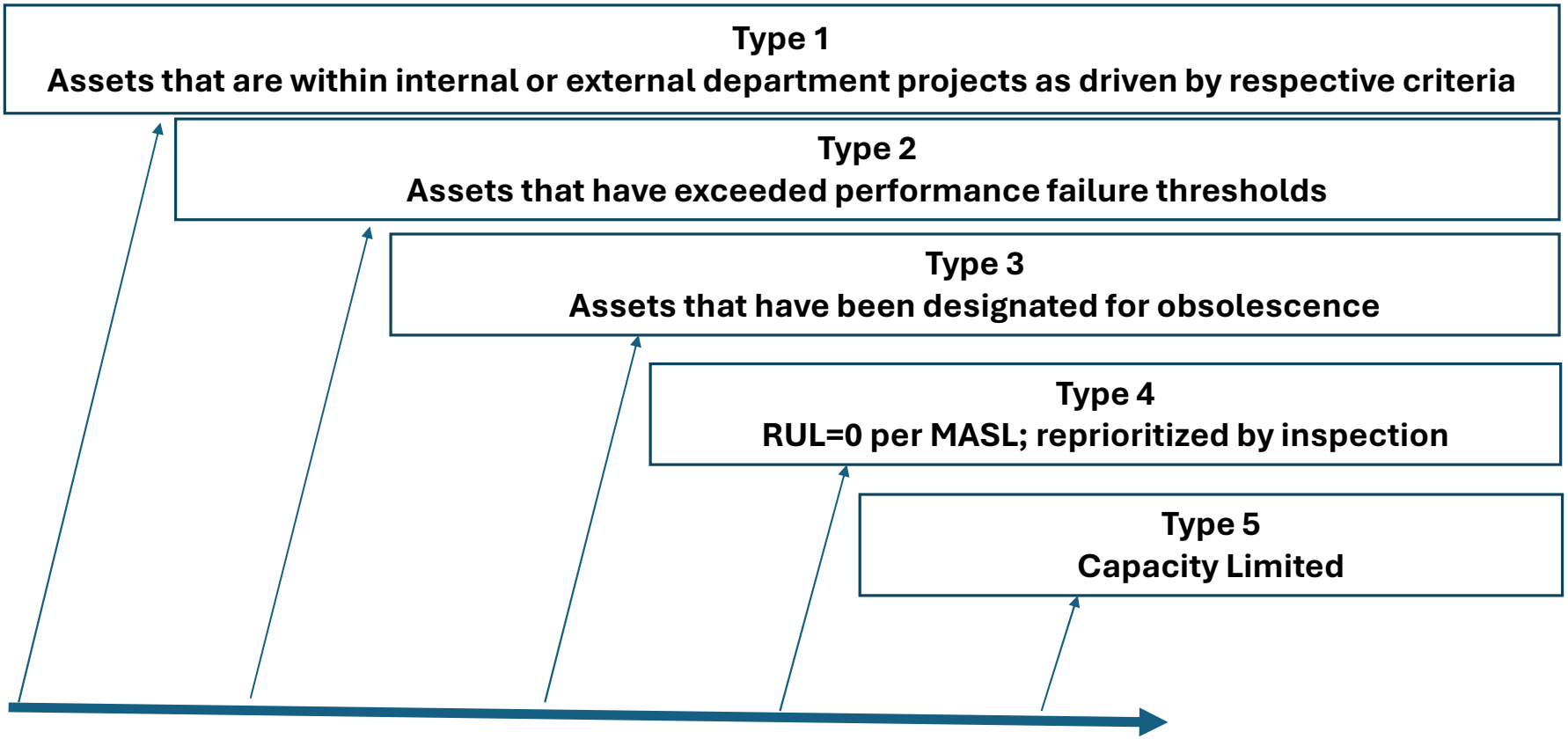
RATE INCREASE SCHEDULE LTFM		
YEAR	**W-%**	**S-%**
2026	5.00%	2.25%
2027	5.00%	2.00%
2028	3.50%	2.00%
2029	3.50%	2.00%
2030	3.50%	2.00%
2031	3.50%	2.00%
2032	3.50%	2.00%
2033	2.50%	2.00%

WATER DEFER CAPITAL $	
2026-2027	
2028-2029	**-$2,250,000 / YR.**
2030-2033	**-$2,000,000 / YR.**
2034-2035	**-$1,000,000 / YR.**
2036	
2037-2038	+$2,250,000 / YR.
2039-2042	+$2,000,000 / YR
2043-2044	+$1,000,000 / YR.

54: ANNUAL BUDGETS & ADJUSTMENTS

CIP CODE	EXPANSION	ACSO FUNDED	CIP FUNDED	ACSO TARGET
Western Source	$1,080,000		$1,080,000	$44,093
Eastern Source	$500,000		$500,000	$0
Rural Potable		$360,229	$360,229	$360,229
City Potable	$50,000	$1,450,000	$1,500,000	$4,582,156
Pumping		$200,000	$200,000	$335,131
Treatment		$100,000	$100,000	$92,951
Metering		$50,000	$50,000	$64,652
Raw Water Supply Drought	$50,000		$50,000	
Building	$36,531	$10,000	$46,531	
Total Water	**$1,692,031**	**$2,220,229**	**$ 3,886,760**	**$5,479,212**
Interceptor	$100,000	$100,000	$200,000	$102,859
Collection	$50,000	$1,700,000	$1,750,000	$1,690,034
Pumping		50,000	$50,000	$41,527
Metering	$1,000,000	$65,000	$1.065,000	$64,652
Facility	$200,000	$10,000	$210,000	
Total Sewer				**$1,899,072**

5: PRIORITIZE ASSET REPLACEMENTS



4: PRIORITIZE ASSET REPLACEMENTS

CIP CODE	PROJECTS	FAILURES	OBSOLESCENCE	MASL	CAPACITY	EXPANSION	Total
Western Source	$80,000	$0	$0	$350,633	$300,000	$7,500,000	$8,230,633
Eastern Source	$0	$0	$0	$0	$0	$1,500,000	$1,500,000
Rural Potable	$0	$300,000	$20,000	$1,164,001	$0	$90,000	$1,554,001
City Potable	$1,240,000	$649,860	$0	$17,668,949	$0	$50,000	$18,991,852
Pumping	$0	$20,000	$0	$1,143,948	$0	$0	$1,163,948
Treatment	$0	$0	$0	$220,906	$0	$0	$220,906
Metering	$0	$0	$0	$1,255,642	$0	$100,000	$1,355,642
Total Water	**$1,080,000**	**$320,000**	**$0**	**$22,076,981**	**$300,000**	**$9,240,000**	**$33,016,981**
Interceptor	$0.00	$0.00	$0.00	$1,276,490.01	$0.00	$0.00	$1,276,490.01
Collection	$0.00	$200,000.00	$0.00	$18,966,804.09	$0.00	$50,000.00	$19,216,804.09
Pumping	$0.00	$0.00	$0.00	$123,544.28	$0.00	$0.00	$123,544.28
Metering							
Total Sewer	**$0.00**	**$200,000.00**	**$0.00**	**$20,366,838.38**	**$0.00**	**$50,000.00**	**$20,616,838**

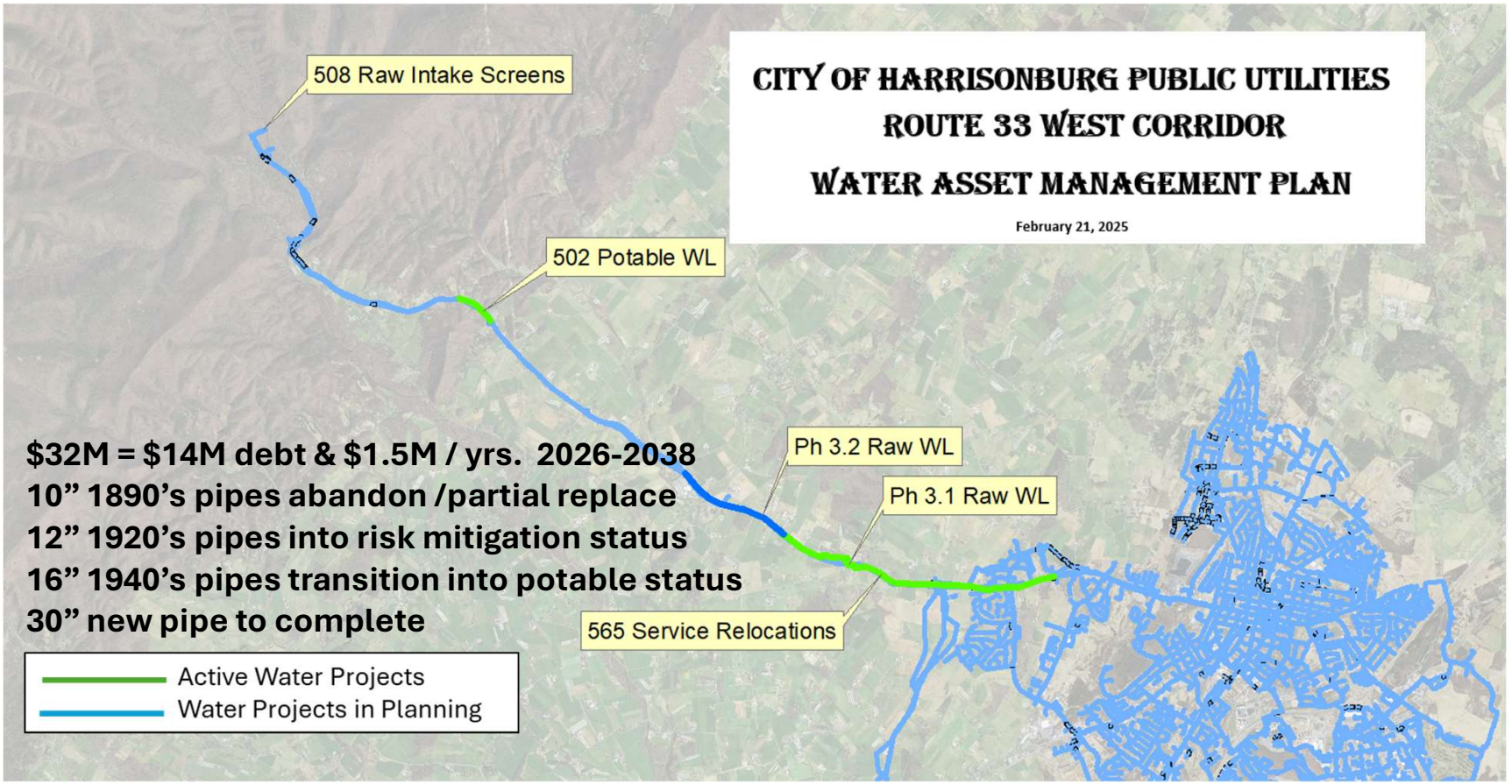
Fund Managers complete this schedule for the budget process; provide itemization of assets

6: ANNUAL CIP & PROJECTS

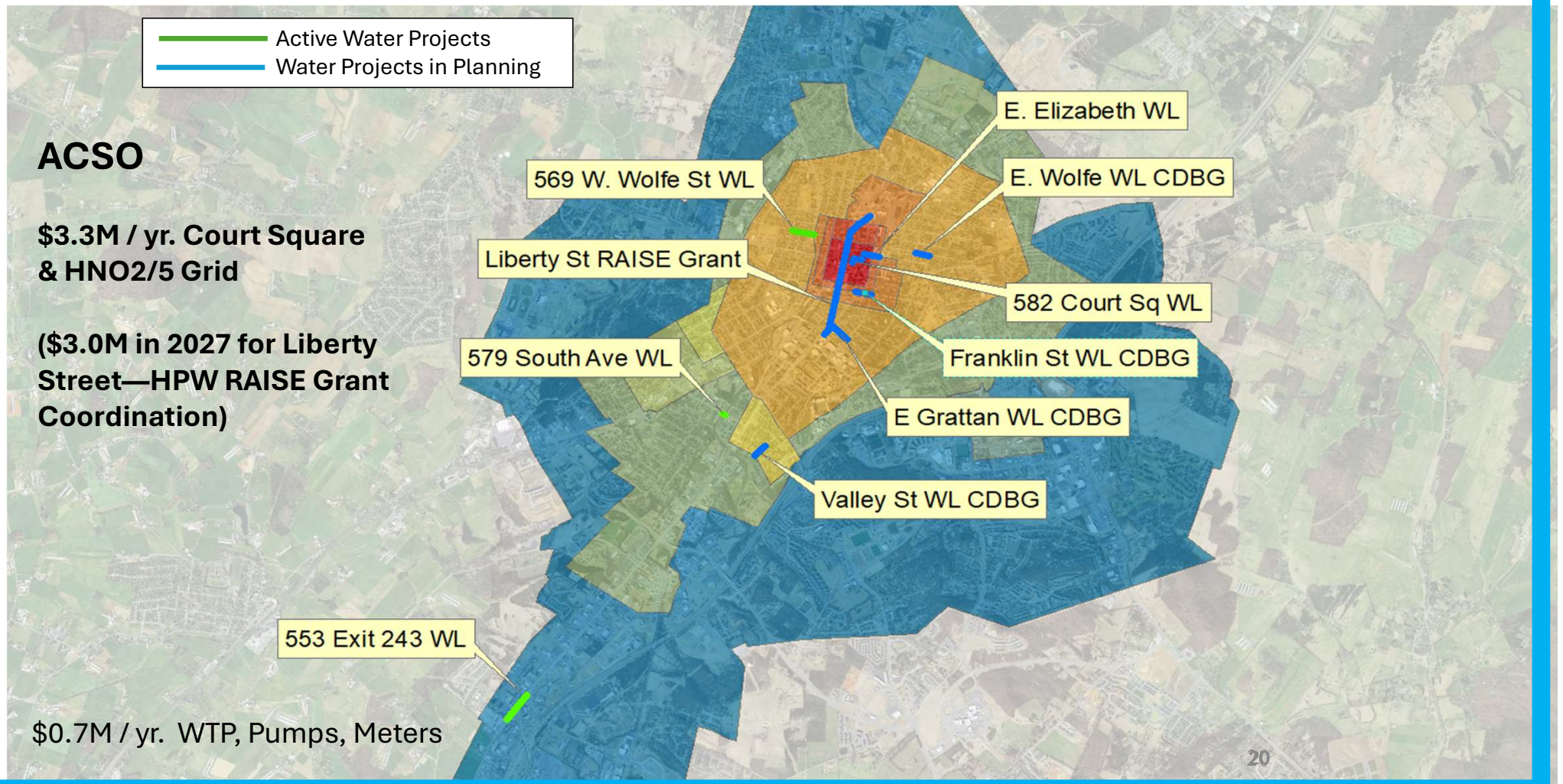
CIP CODE	PROJECT 1	PROJECT 2	PROJECT 3	PROJECT 4	PROJECT 5	Total
Western Source	478 Anodes - $80,000	Ph 3.2 - $300,000	508 Screens - $7,500,000			
Eastern Source						
Rural Potable	502 CMZ - $300,000	535 Loop - $40,000	571 (16” WL) – $50,000	565 Services - $20,000		
City Potable	Liberty St - $1,000,000	582 Ct. Sq. - $181,000	579 South Ave. - $34,000	578 Lead - $25,000	Extensions - $50,000	MTBF - $649860
Pumping						
Treatment						
Metering						
Total Water						
Interceptor						
Collection	R&R - $200,000	Extensions - $50,000				
Pumping						
Metering						
Total Sewer						

Fund Managers complete this schedule for the budget process; provide itemization of assets

SAMP: Water Infrastructure Management



SAMP: Water Infrastructure Management



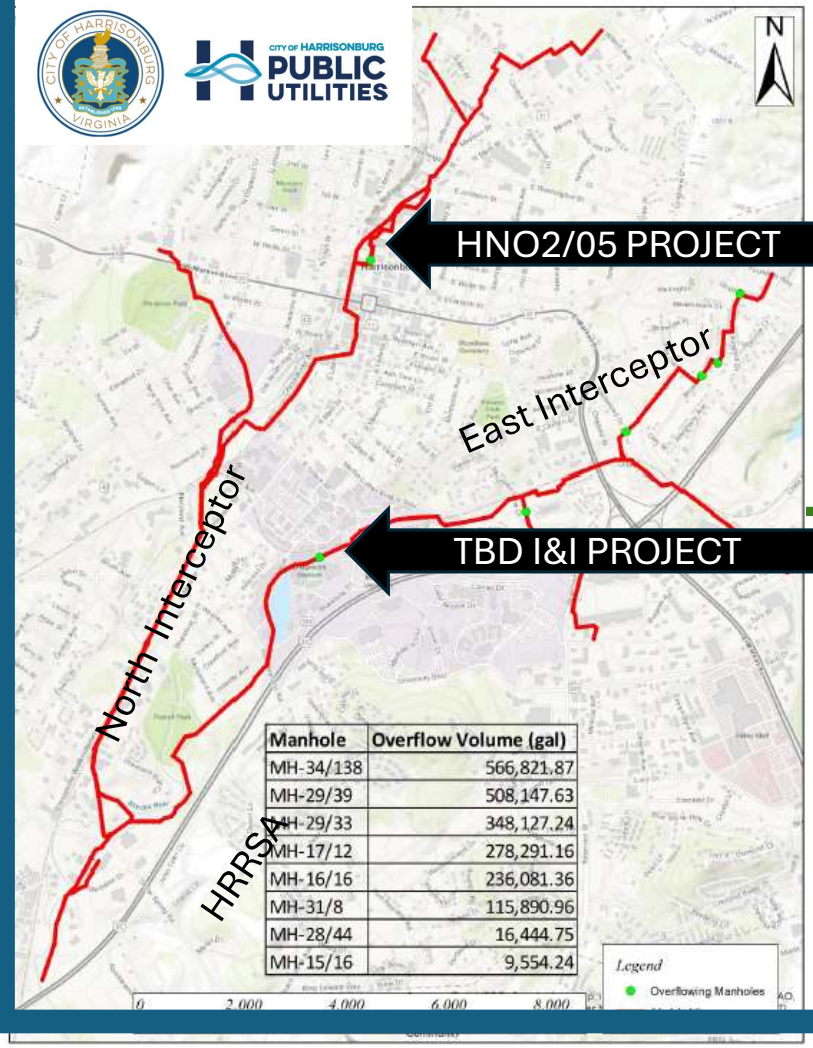
ACSO

$3.3M / yr. Court Square & HNO2/5 Grid

($3.0M in 2027 for Liberty Street—HPW RAISE Grant Coordination)

$0.7M / yr. WTP, Pumps, Meters

SAMP: Sewer Infrastructure Management



Manhole	Overflow Volume (gal)
MH-34/138	566,821.87
MH-29/39	508,147.63
MH-29/33	348,127.24
MH-17/12	278,291.16
MH-16/16	236,081.36
MH-31/8	115,890.96
MH-28/44	16,444.75
MH-15/16	9,554.24

ACSO

$1.7M / yr. **Projects**

North Interceptor

HPU will target the removal of 757 GPM of RDII (15% reduction) in a select area above Wolfe Street

East Interceptor

HPU will target the removal of 256 GPM of RDII (3% reduction) in a select area above Bridge-forth Stadium

$0.3M / yr. Interceptors ,Pumps, Meters

SAMP: Sewer Infrastructure Management