MDC
LTCP and Affordability Analysis

Updated Evaluation

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Presentation Acronyms

- ACS – American Community Survey
- BODR – Basis of Design Report
- CCF – Hundred Cubic Feet
- CCTV – Closed Circuit Television Inspection
- CMOM – Capacity Management Operations & Maintenance
- CIP – Capital Improvement Program
- Cove – Wethersfield Cove – Note: Total elimination of CSOs required
- CSO – Combined Sewer Overflow
- CTDEEP – Connecticut Department of Energy & Environmental Protection
- CWF/SRF – Clean Water Fund/State Revolving Fund
- CWP – Clean Water Project
- CWPC – Clean Water Project Charge (Formerly SSSC – Special Sewer Service Charge)
- EPA – Environmental Protection Agency
- GO – General Obligation
- I/I – Infiltration & Inflow
- IP – Integrated Plan
- LTCP – Long Term Control Plan
- MG/MGD – Million Gallons/Million Gallons per Day
- MHI – Median Household Income
- MS4 – Municipal Separate Storm Sewer Systems
- NBPR – North Branch Park River – Note: Total elimination of CSOs required
- O&M – Operations and Maintenance
- PMU – Program Management Unit
- R&R – Rehabilitation & Replacement
- WPCF/WWTP – Water Pollution Control Facility/Wastewater Treatment Plant
- 1-year storm – Design storm for CSO Consent Order with CTDEEP
- Typical year – All rain events in a typical year with no storms bigger than a 1 year storm

Agenda - Status of LTCP and Affordability Analysis

1. Quick Summary of LTCP Evolution
2. Discuss High Points of Recommended Technical Plan
   - Baseline assumption = sewer system renewal
3. Results of Affordability Analysis
4. Evaluation of Alternatives for Implementation
5. Next Steps/Schedule/Outreach

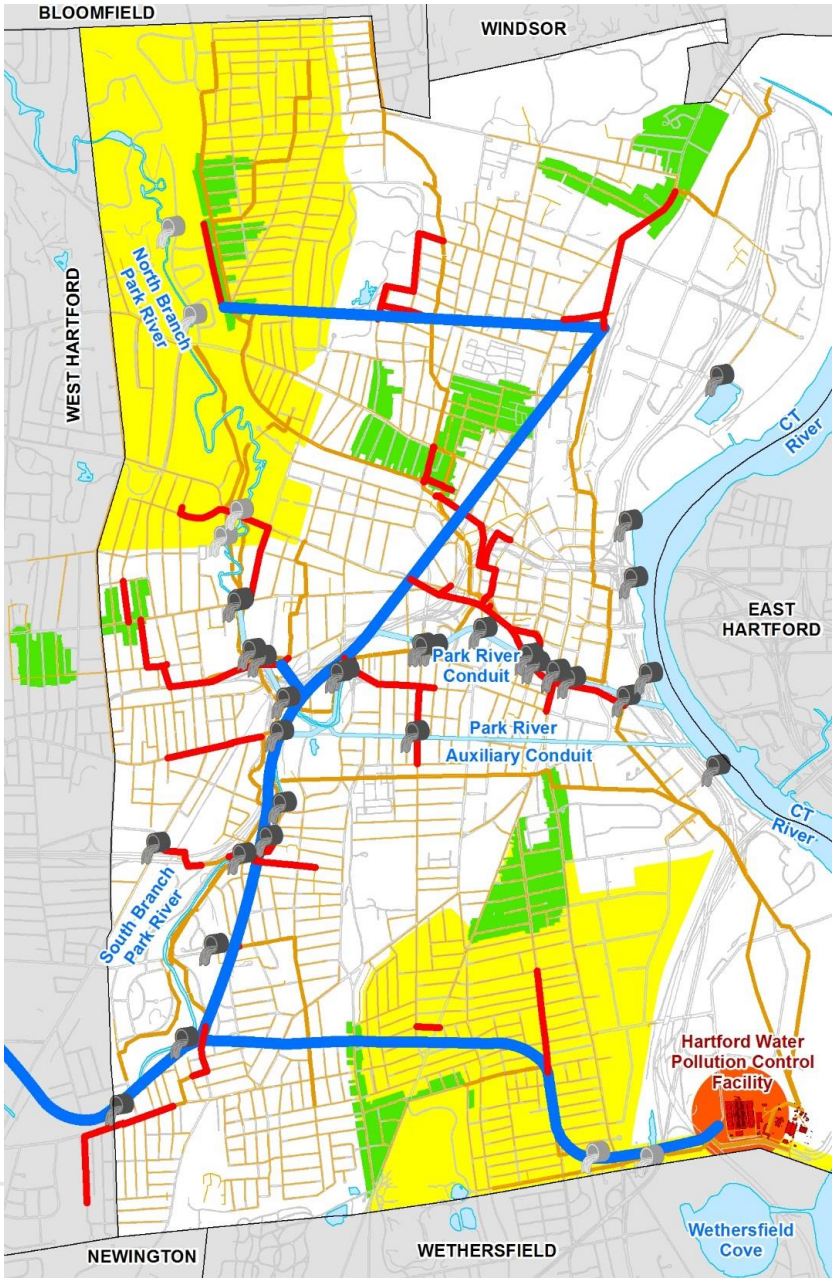
1. Summary of LTCP Evolution

Clean Water Project (CWP) requires CSO Long-Term Control Plan (LTCP)

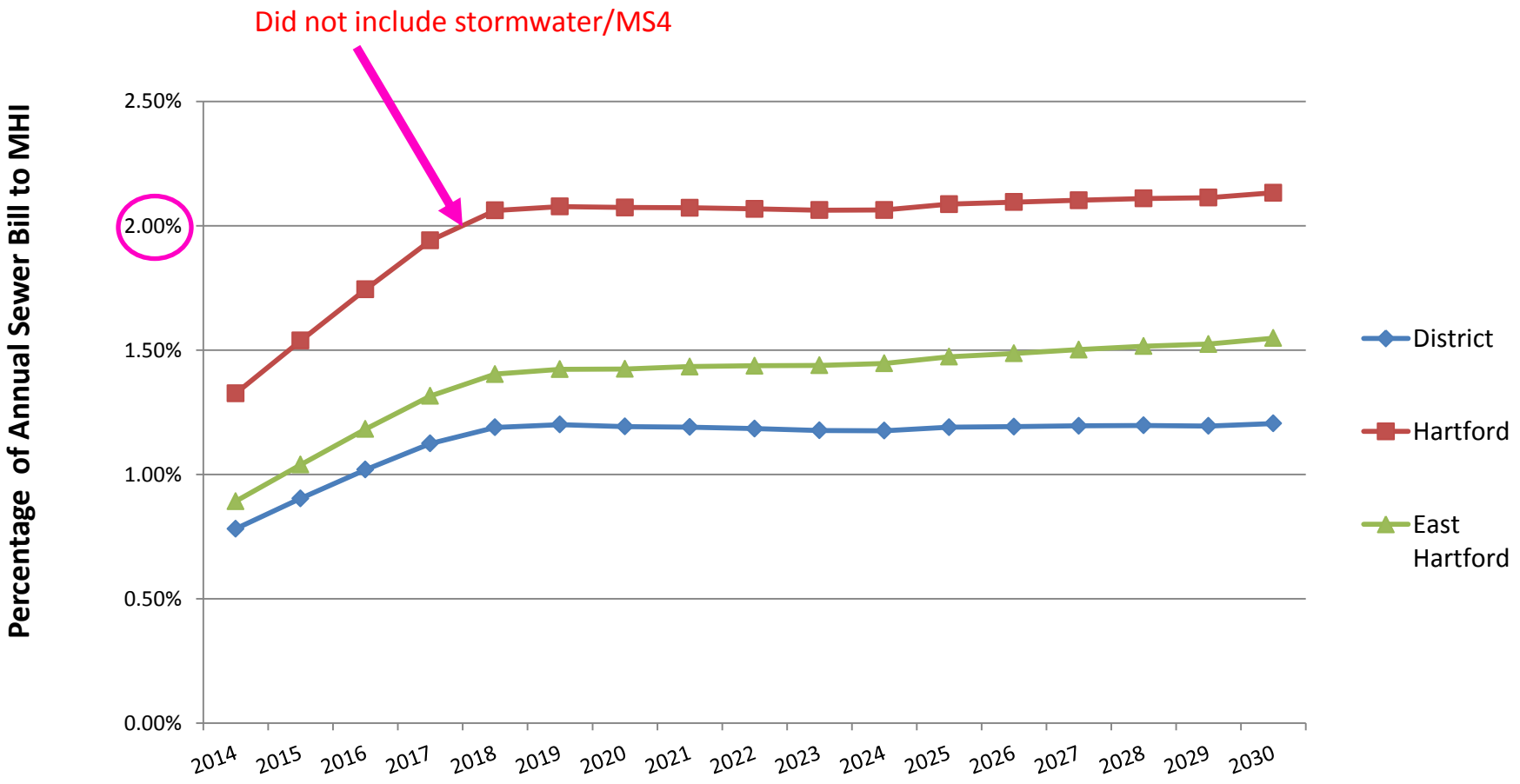
- 2005 LTCP approved by CT DEEP in 2007
- LTCP required to be updated every 5 years
- 2012 LTCP Update approved by CT DEEP in 2014
- Next LTCP Update due to CT DEEP December 2018

Prior 2014 LTCP Plan

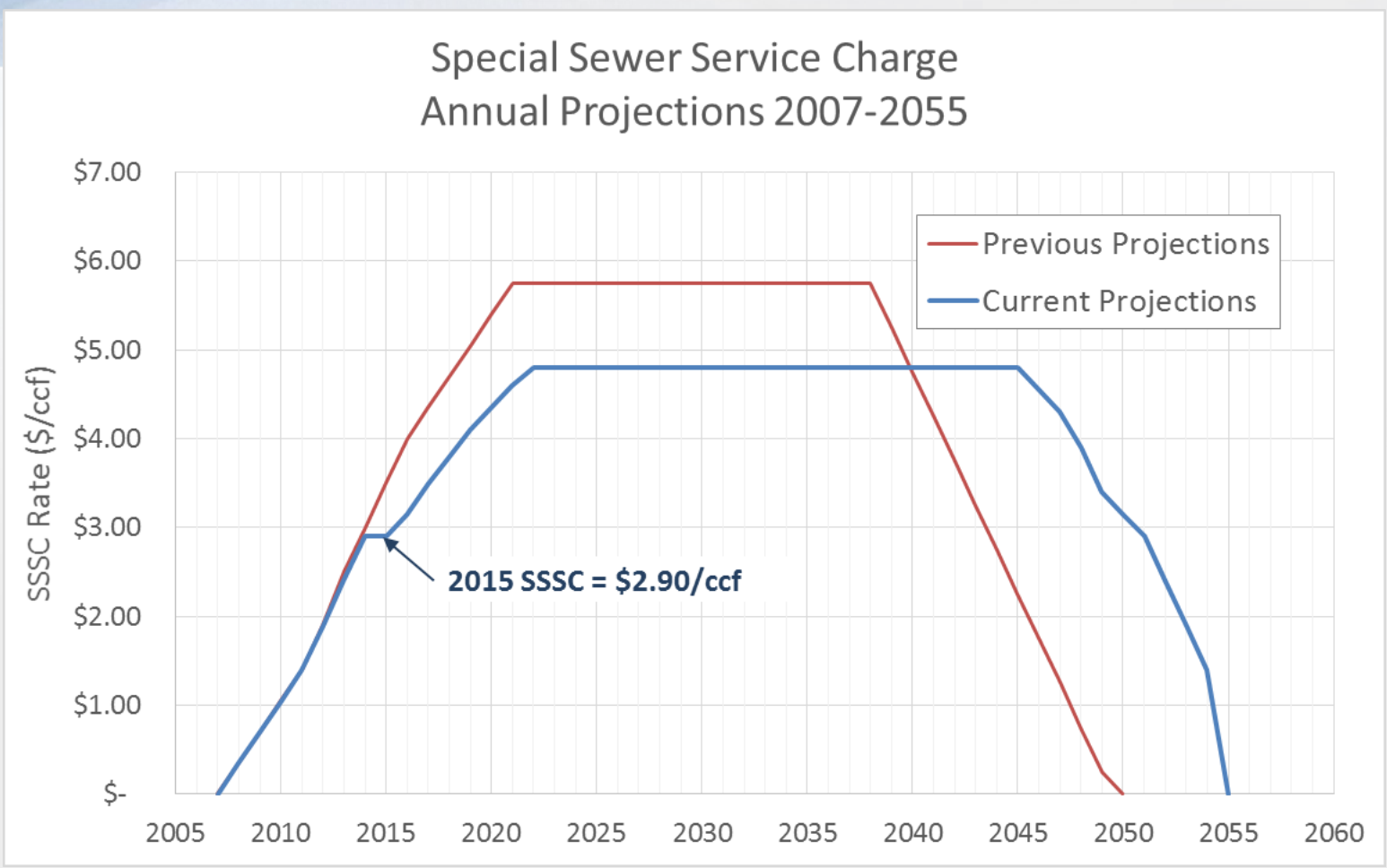
- Complete HWPCF improvements
- 1/2024: South Tunnel online (eliminate CSOs to Cove)
- 2029: North tunnel online. Primary reasons for tunnel:
  1) Eliminate CSOs to NBPR
  2) Capture remaining CSOs up to & including 1-year storm



Projected Household Burden--$20M CIP based on Average Cost Per Dwelling Unit (from 2014)



Financing the CWP – From 2015 Public Hearing



Assumed average household uses 105 ccf of water per year (8.75 ccf/month)
Assumed 2026 end date which was later extended to 2029
2029 end date assumed CWPC peak of $5.30 needed

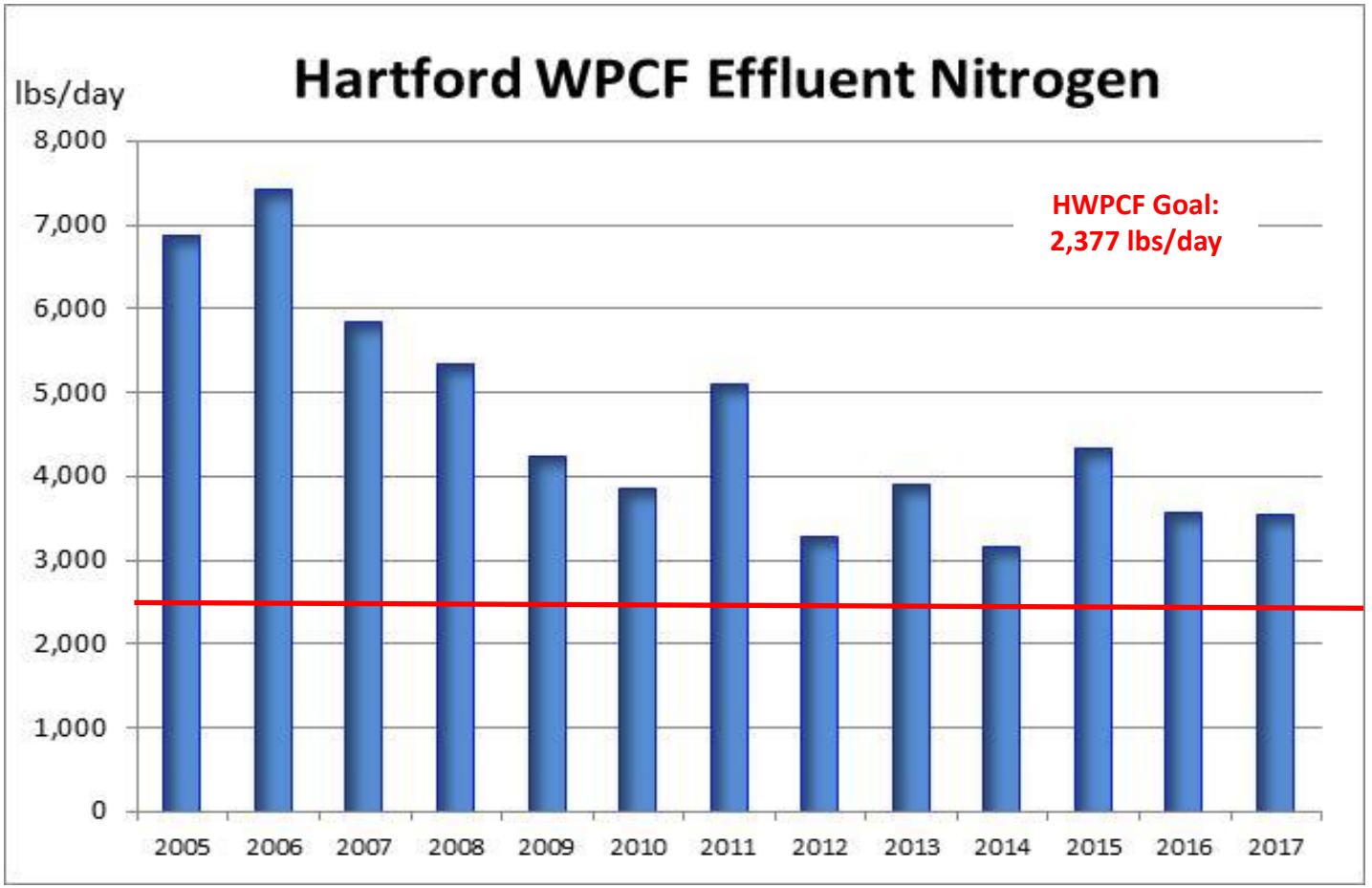
Clean Water Program Progress – Typical Year

Drainage District	Typical Year CSO Volumes (MG)				
	2004	2009	2012 LTCP Future Baseline	2018 Future Baseline	2018 Future Baseline + South Tunnel
Franklin	n/a	111	65	39.9	0.0
Gully	n/a	197	37	21.5	21.5
North Branch (N2/N4/N9/N10)	17	56	6.4	13	13
North Branch (Other)	54		35.6	62.1	62.1
North Meadows	n/a	114	70	95.7	95.6
Park	n/a	276	255	227.9	227.5
South Branch	n/a	86	84	62.3	42.4
South Meadows	n/a	106	18	1.5	1.5
System Total	**1,040**	**946**	**571**	**524**	**464**

- Save the Sound just released report two days ago that Long Island Sound water quality is improving - http://www.ctenvironment.org/save-the-sound/

2012 and 2018 Future Baseline Conditions includes HWPCF upgrades (200mgd) but does not include South Tunnel online or interceptor cleaning

Nitrogen Removal Performance



The HWPCF has eliminated nearly 1,000,000 pounds of nitrogen per year from the Connecticut River since 2009

2. High Points of Technical Plan

Next CSO LTCP Update/ Integrated Plan

- EPA guidance from 2012 allows for Integrated Planning
  - CSO Consent Order – CT DEEP Approval
  - SSO Consent Decree – EPA Approval
  - Sewer system investigation/repair (CMOM)
  - Stormwater (i.e., MS4)
- Consider affordability analysis

EPA United States Environmental Protection Agency

National Pollutant Discharge Elimination System (NPDES)

Integrated Planning for Municipal Stormwater and Wastewater

On this page:

- Overview
- Resources
- Technical Assistance

Overview

EPA, states, and municipalities have achieved real progress in implementing the Clean Water Act (CWA) (PDF) (234 pp, 571 K, About PDF) and protecting public health and the environment. However, today there are many factors stressing the implementation of CWA programs. Stressors include population growth, aging infrastructure, increasingly complex water quality issues, limited resources, and other economic challenges. Currently, EPA, states, and municipalities often focus on each CWA requirement individually. This may not be the best way to address these stressors and may have the unintended consequence of constraining a municipality from addressing its most serious water quality issues first.

An integrated planning approach offers a voluntary opportunity for a municipality to propose to meet multiple CWA requirements by identifying efficiencies from separate wastewater and stormwater programs and sequencing investments so that the highest priority projects come first. This approach can also lead to more sustainable and comprehensive solutions, such as green infrastructure, that improve water quality and provide multiple benefits that enhance community vitality.

The integrated planning approach is not about changing existing regulatory or permitting standards or delaying necessary improvements. Rather, it is an option to help municipalities meet their CWA obligations while optimizing their infrastructure investments through the appropriate sequencing of work.

Resources

- Memorandum: Achieving Water Quality Through Integrated Municipal Stormwater and Wastewater Plans
- Integrated Municipal Stormwater and Wastewater Planning Approach Framework – Provides guidance for EPA, states, and local governments to develop and implement effective integrated plans under the CWA. This framework was finalized after extensive public input including a series of workshops across the country.
- Combined Sewer Overflows - Guidance for Financial Capability Assessment and Schedule Development (FCA Guidance) – Provides an aid for assessing financial capability as part of negotiating schedules for CWA requirements for municipalities and local authorities.
- Financial Capability Assessment Framework – Provides greater clarify on the flexibilities built into

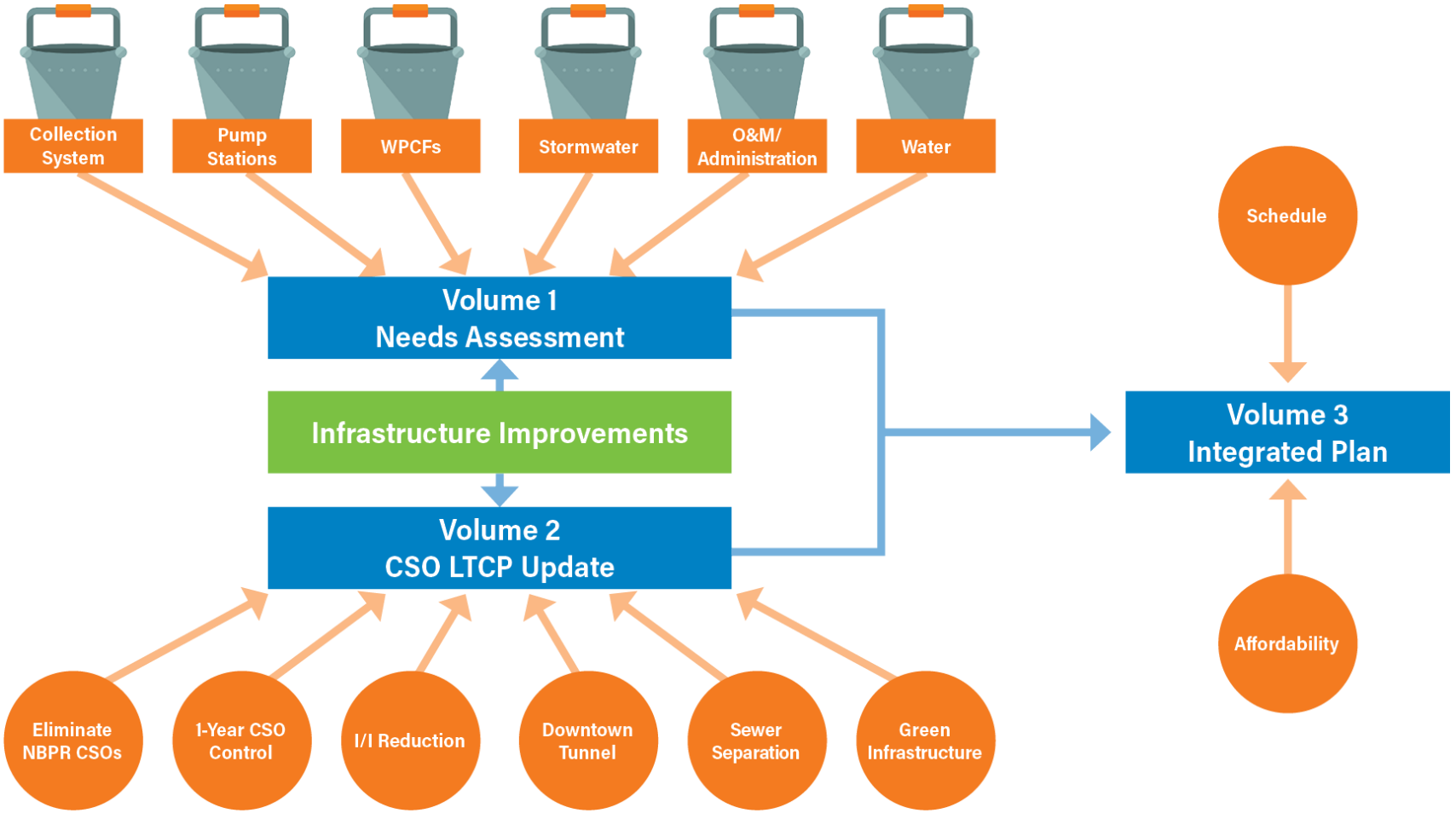
Summary of Current LTCP Update Efforts

- Integrated Planning Approach
- Needs Assessment of Existing System
  - Collection system, pump stations, plants, O&M/Admin, water
  - Recent infrastructure emergency repairs
  - Benefit of cleaning the system
- CTDEEP Workshop/Meeting Attendance
  - 40+ meetings to date with appropriate MDC staff/managers/directors
  - 17 meetings to date with CTDEEP in attendance
- Scoring and Ranking Progress
  - All projects ranked with CTDEEP

Integrated Planning Approach

MDC Needs = infrastructure projects to maintain the sewer system

*Infrastructure improvements that satisfy a "**Need**" and accomplish **CSO reduction** will **rank high**



Baseline Assumption
Address Failing Infrastructure

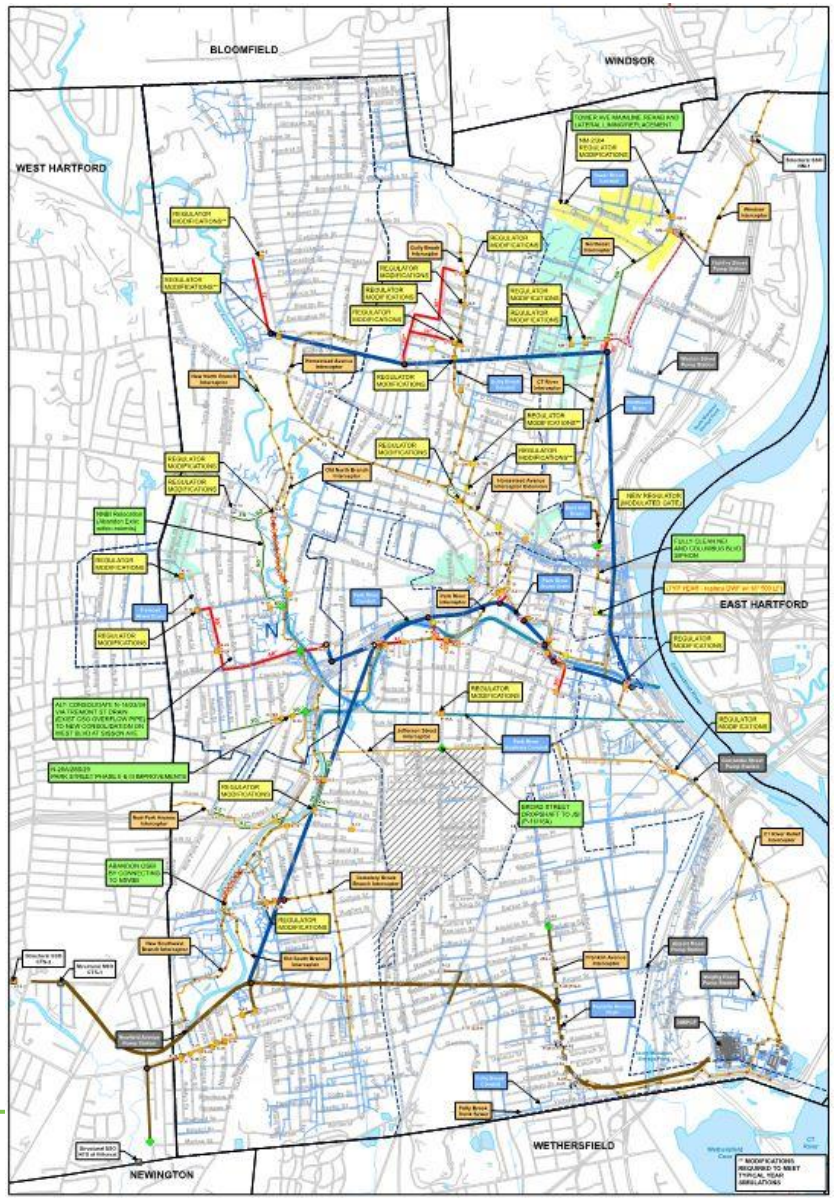
- 10% I/I removal (sewer rehab) and interceptor cleaning program at a cost of about $450 million
  - Ranked as separate projects if not included in other CSO project
- Many projects would have been funded by Ad Valorem
- Sewer Rehabilitation: Dual benefit of repairing infrastructure and further controlling wet weather response in some areas
- Coordination with water main infrastructure improvements

Sewer Collection System Renewal = I/I Reduction

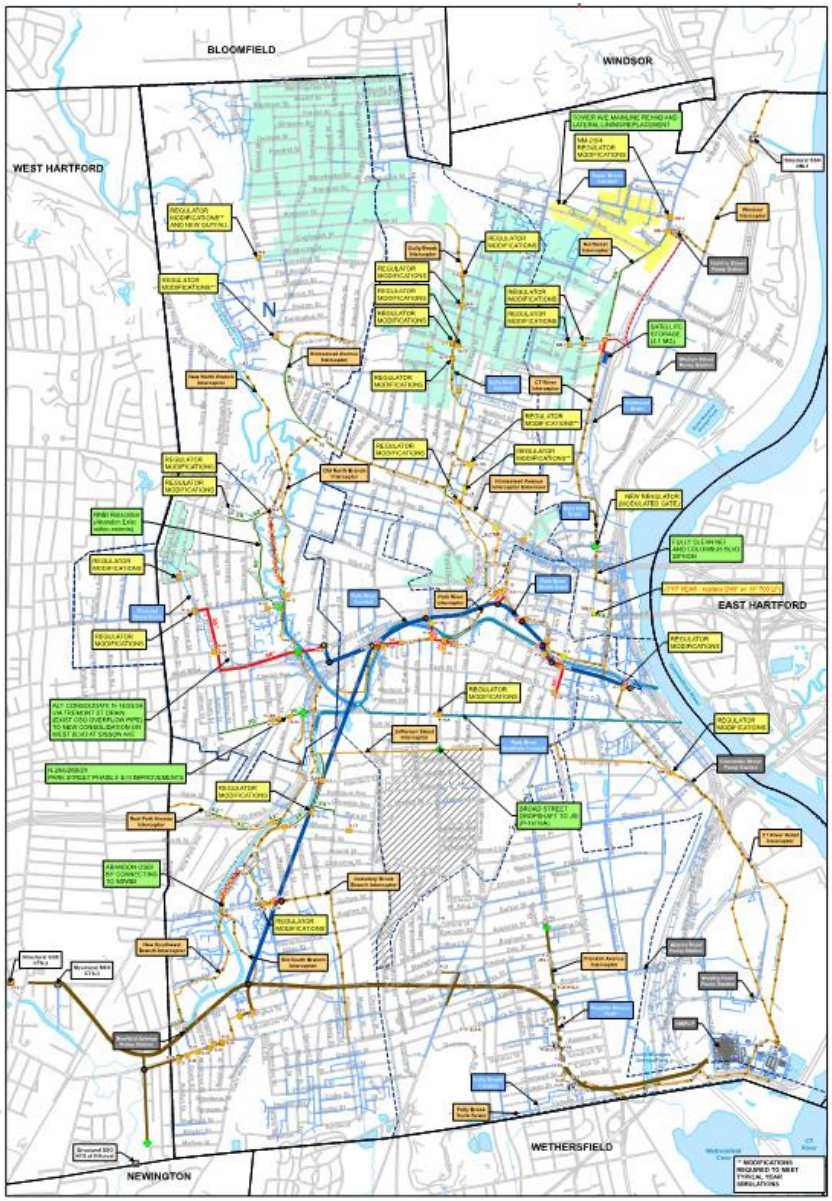
		Sewer Rehabilitation (%)			Sewer Age (years)		
Town	Miles	Completed	Recommended	Total	Prior to CWP (2005)	If Infrastructure Ignored (2038)	After IP (2038)
Bloomfield	118	6%	35%	41%	34 yrs	67 yrs	45 yrs
East Hartford	168	3%	23%	26%	45 yrs	78 yrs	58 yrs
Hartford	217	**5%**	**67%**	**72%**	**74 yrs**	**107 yrs**	**35 yrs**
Newington	128	27%	14%	41%	38 yrs	71 yrs	50 yrs
Rocky Hill	90	7%	10%	17%	30 yrs	61 yrs	54 yrs
West Hartford	223	**36%**	**43%**	**79%**	**53 yrs**	**84 yrs**	**35 yrs**
Wethersfield	122	32%	22%	54%	45 yrs	76 yrs	43 yrs
Windsor	152	18%	12%	30%	36 yrs	67 yrs	49 yrs
Total	**1,218**	**17%**	**33%**	**50%**	**50 yrs**	**81 yrs**	**45 yrs**

Two Primary Options for Remainder of LTCP

North Tunnel Plan



Proposed Plan with Separation in North



Comparison of Northern Area CSO Alternatives

North Tunnel Plan

- Less expensive ($282M)
- Addresses CSOs only. **Limited renewal of existing assets. Avg. sewer age increases to ~80 yrs**
- **One large project**
- Can't be phased
- **Likely need to start tunnel now**
- More risk
- Project has less disruption to community

Sewer Separation Plan in North

- More expensive ($350M)
- **Renew existing assets Avg. sewer age reduces to ~45 yrs**
- **Multiple "smaller" projects**
- Can be phased, gain intermediate levels of control as plan progresses
- Sewer separation can be combined with other street work to limit disturbances – **INTEGRATED PLANNING**
- Separation add drainage pipe and outfalls – MS4 issues?

Separation Effectiveness

Area	Separation Effectiveness (% area contributing to drain vs. sewer)	Impervious Area	Existing Sewer Rehab/ Replacement
Granby	90/10	40%	55%
Franklin 5	90/10	70%	100%
Upper Albany	85/15	60%	89%
Farmington Ave	80/20	60%	86%
Franklin 13	60/40	70%	60%
Tower	60/40	50%	22%

3. Affordability Analysis

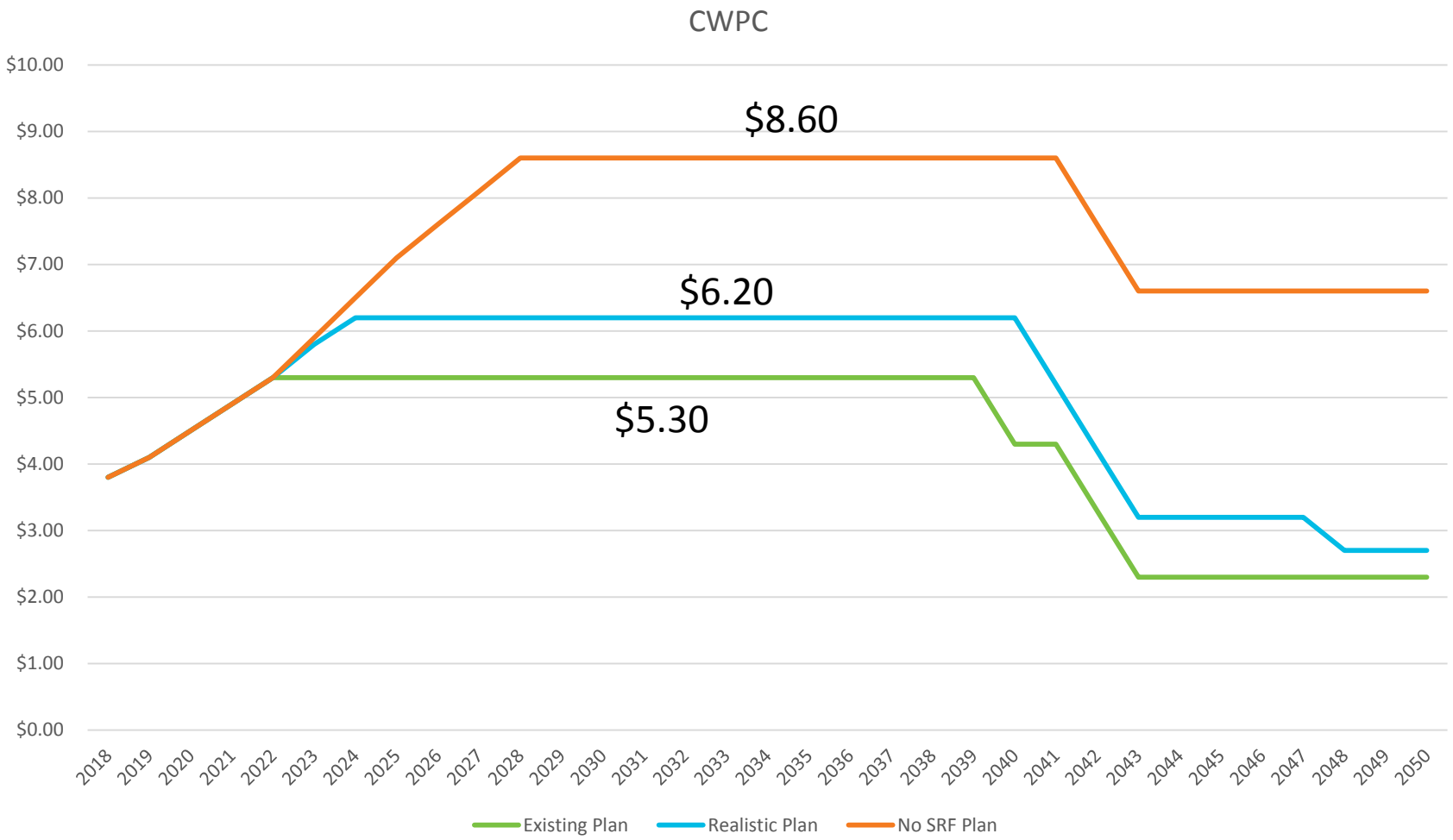
2018 Projections

- EPA affordability guidance focuses on average household bill (cost) relative to Median Household Income (MHI)
  - 2% is the threshold for high burden
- EPA affordability focus is on the household not single family customer or connections, etc.
- Current projections based on:
  - Latest budgetary information
  - **Current water sales data**
    - **Total water sales run at 16.1 million ccf**
    - **Per dwelling sales set at community actuals (approximately 70 ccf avg.)**
  - Modified household income projections to reflect most recent Census data and growth rates
  - Three scenarios evaluated summarized in slide later

Current Required Program—for Illustrative Purposes Three Alternatives

- Existing Required Program
  - Remaining CWP of $750 million and maximize CWF grants/loans
  - North Tunnel largest remaining project, required to be completed by 2029
    - MDC elected to not proceed with BODR and so project cannot be completed based on mandated schedule
    - DEEP has been briefed on MDC's intent to submit an Integrated Plan that focuses on existing system and pushes out North Tunnel into future
- Realistic Current Program, with CWF grants/loans
  - Completes current required program but with North Tunnel completed in 2032. Projects/costs updated.
  - North Tunnel cost will increase because of additional capital inflation
- Realistic Current Program, no CWF grants/loans
  - Same as Realistic program, but assumes MDC does not receive grants/loans

CWPC Rate Impact of Three Current Program Alternatives ($/ccf)



Key Assumptions for Future Projections

- Capital Inflation – 4%
- CWP run with:
  - Max state support assumption
  - No state support assumption
- Capital Financing – All GO bond, 5.0% rate, 20 year term, 1.0% Cost of Issuance
- O&M Inflation – Varied by line item based on MDC historical
- Miscellaneous Revenue - Varied by line item based on MDC historical, same assumptions as MDC using for budget
- PMU – credit from CWPC to Ad Valorem reduced, varies some by scenario
- Non-Member Share of Ad Valorem Revenue Requirement – 14.84%

MDC Customers Pay for Sewer in Two Primary Ways

- Property tax payments for MDC assessment (Ad Valorem)
  - Property owners pay directly through town tax bill
  - Renters pay indirectly through rental payments
  - Tax exempts charged sewer rate directly (Sewer User Charge)
- CWPC allocated to customers based on metered water consumption
- To address EPA affordability process need to estimate the total combined cost per dwelling unit

Ad Valorem: Necessary to Allocate Assessments to Estimate Per Dwelling Unit Imputed Cost

1. Allocate assessments to member communities using average allocation percentage for past 5 years

2. Determine residential share of grand list within each community (includes apartments with residential)

3. Determine residential share of MDC assessment for each community (#1/#2)

4. Use latest Census data to identify number of dwelling units for each community

5. Divide residential share of assessment (#3) by # of dwelling units (#4) within each community

Projected Residential Ad Valorem Sewer Bill - 2019

Community	Residential Portion of Ad Valorem	Total Residential Dwelling Units	Residential Ad Valorem Sewer Bill
Bloomfield	$2,806,882	8,807	**$319**
East Hartford	$4,538,855	21,530	**$211**
Hartford	$7,540,696	53,297	**$141**
Newington	$3,707,007	12,860	**$288**
Rocky Hill	$2,372,811	8,788	**$270**
West Hartford	$9,964,669	25,987	**$383**
Wethersfield	$3,973,153	11,376	**$349**
Windsor	$3,059,960	11,553	**$265**

- Total Residential Dwelling Units derived from US Census, American Community Survey 5-year estimate

Clean Water Project Charge

	2018	2019	2020	2021	2022	2023-2040	2041 - 2050
Current Approved	$3.80	$4.10	$4.50	$4.90	$5.30	$5.30	Declines, eventually ending
Revised (Realistic schedule)		$4.10	$4.50	$5.30	$5.80	$6.20	Declines, eventually ending

MHI Growth based on average annual MHI growth since 2009 by community

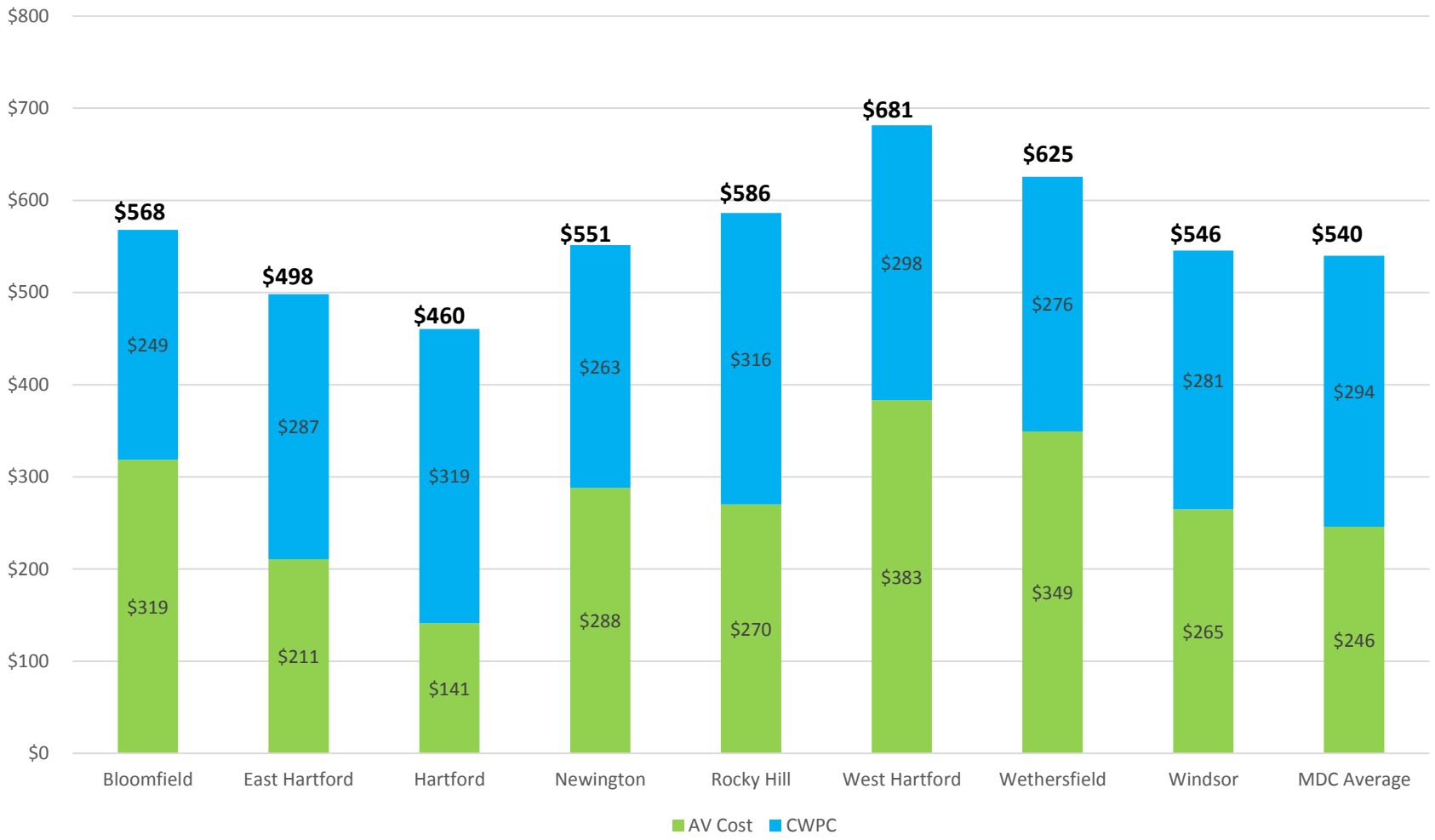
Community	2016 MHI – Census	2019 MHI - Estimated	Average Annual Increase
Bloomfield	$74,107	$75,360	0.56%
East Hartford	$50,750	$51,446	0.46%
Hartford	$32,095	$34,033	1.97%
Newington	$80,315	$85,889	2.26%
Rocky Hill	$81,988	$86,089	1.64%
West Hartford	$91,875	$99,785	2.79%
Wethersfield	$78,371	$82,433	1.70%
Windsor	$82,707	$84,421	0.69%

Estimated 2019 Dwelling Unit Costs for CWPC, Current Program, at 105 ccf and Actual Consumption

Community	Assumption (CCF)	Estimated Surcharge Bill	Actual CWP Consumption (CCF)	Estimated Surcharge Bill
Bloomfield	105	$430	61	$249
East Hartford	105	$430	70	$287
Hartford	105	$430	78	$319
Newington	105	$430	64	$263
Rocky Hill	105	$430	77	$316
West Hartford	105	$430	73	$298
Wethersfield	105	$430	67	$276
Windsor	105	$430	68	$281

2019 CWPC rate is $4.10/ccf

Estimated Dwelling Unit Cost, By Community, 2019 Current Program



Projected Household Burden – 2019
Current Program

Community	Estimated Dwelling Unit Bill	Median Household Income	Household Burden
Bloomfield	$568	$75,360	0.75%
East Hartford	$498	$51,446	0.97%
Hartford	$461	$34,033	1.35%
Newington	$551	$85,889	0.64%
Rocky Hill	$586	$86,089	0.68%
West Hartford	$681	$99,785	0.68%
Wethersfield	$626	$82,433	0.76%
Windsor	$546	$84,421	0.65%

- Estimated Dwelling Unit Bill includes both Ad Valorem portion and CWPC

Major Assumption Changes Since 2014 Evaluation

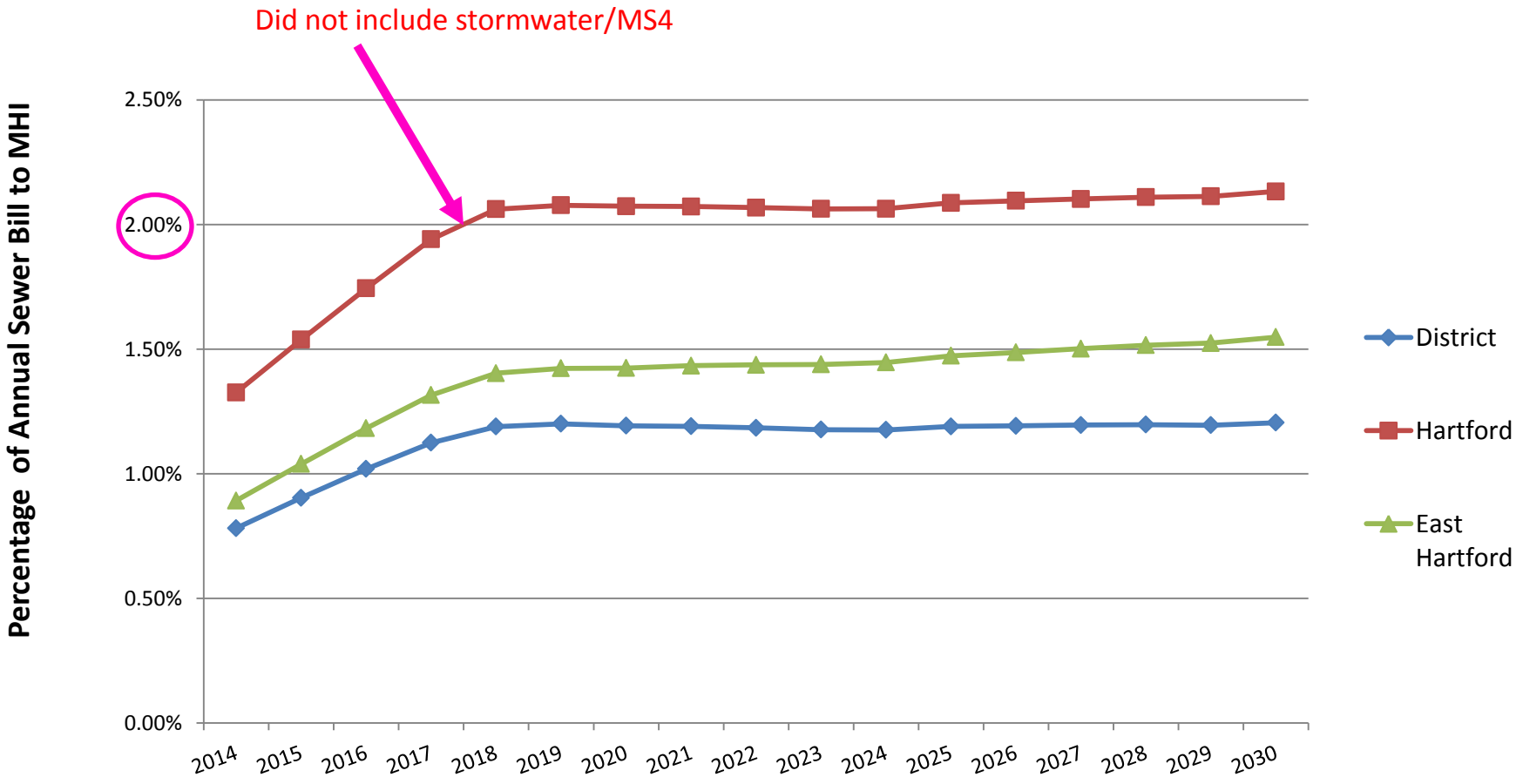
- Water sales lower
  - Annual total sales for CWPC now at 16.1 million ccf
  - Per household across communities running at average of 70 ccf, versus assumption in 2014 of 105 ccf
- Household incomes updated to reflect available Census data since 2014
  - 2014 assumed MHI grew 2.5 percent annually
  - 2014 thus had higher MHI through the projection period
- Current Clean Water Project schedule shifted with North Tunnel completion being delayed until 2032

Comparison of 2019 MHI Estimates

Community	2014 Analysis	2018 Analysis
Bloomfield	$86,844	$75,360
East Hartford	$53,290	$51,446
Hartford	$31,888	$34,033
Newington	$90,046	$85,889
Rocky Hill	$88,654	$86,089
West Hartford	$98,315	$99,785
Wethersfield	$97,600	$82,433
Windsor	$87,068	$84,421

- MHI for 2019 in the 2014 exercise based on 2012 ACS 5-Year estimates, increased by average increase since 2000 for each community
- MHI for 2019 in the 2018 exercise based on 2016 ACS 5-Year estimates, increased by average increase since 2009 for each community

Projected Household Burden--$20M CIP based on Average Cost Per Dwelling Unit (from 2014)



4. Evaluation of Pending Alternatives

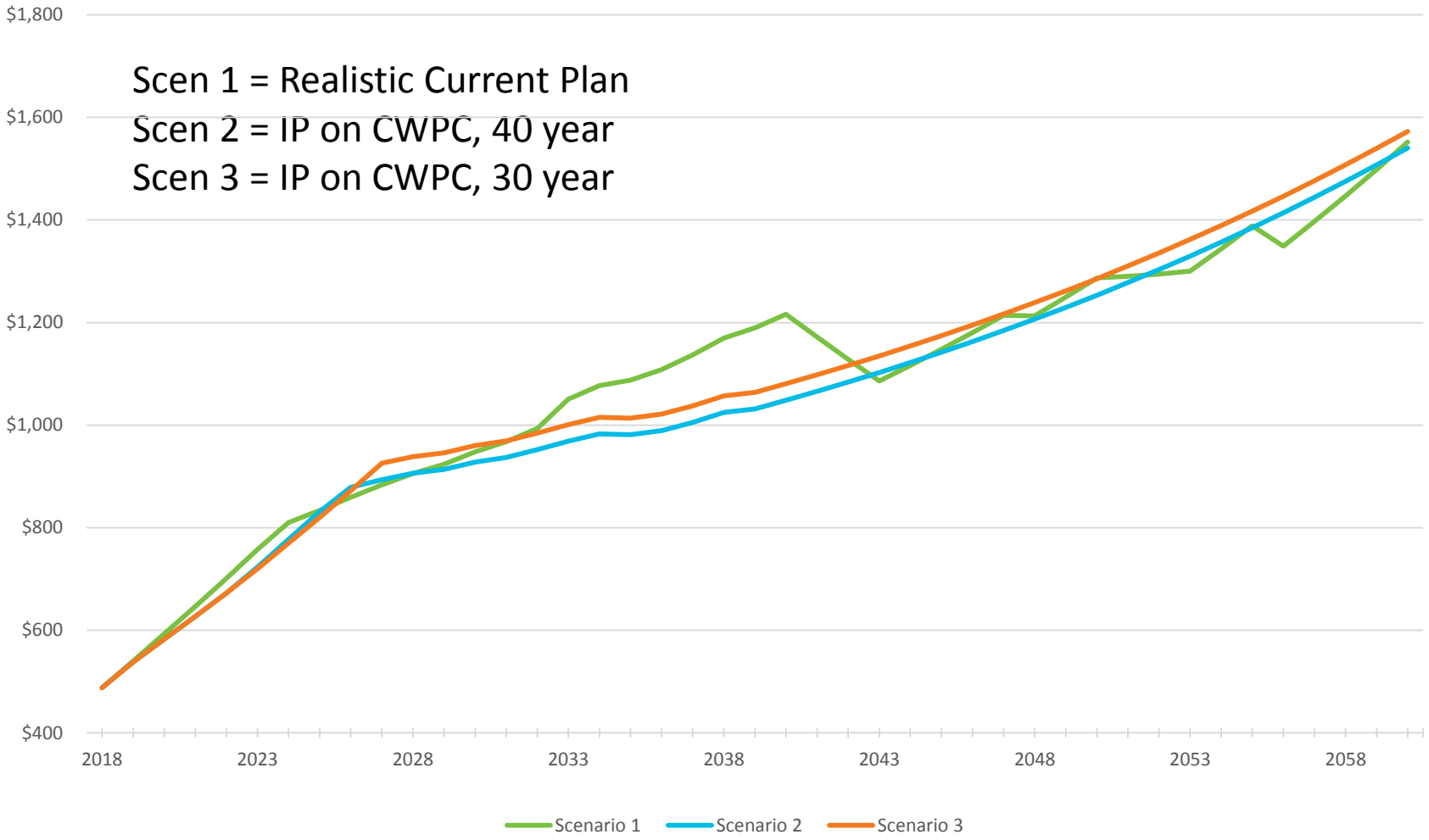
CIP Shift from Ad Valorem to CWPC

- Consent Decree requires CCTV of all sewers
  - To date 92% has been completed
  - Remaining 8% is primarily cross country sewers with access issues
  - Completed inspection has identified about $450 million in repairs, which if done would reduce I/I in the collection system (dual benefit)
- Previously most of these projects were funded by Ad Valorem
- Current MDC goal is to move many CIP projects over to CWPC that were identified by Consent Decree mandate and have dual benefit to renew system and reduce system I/I

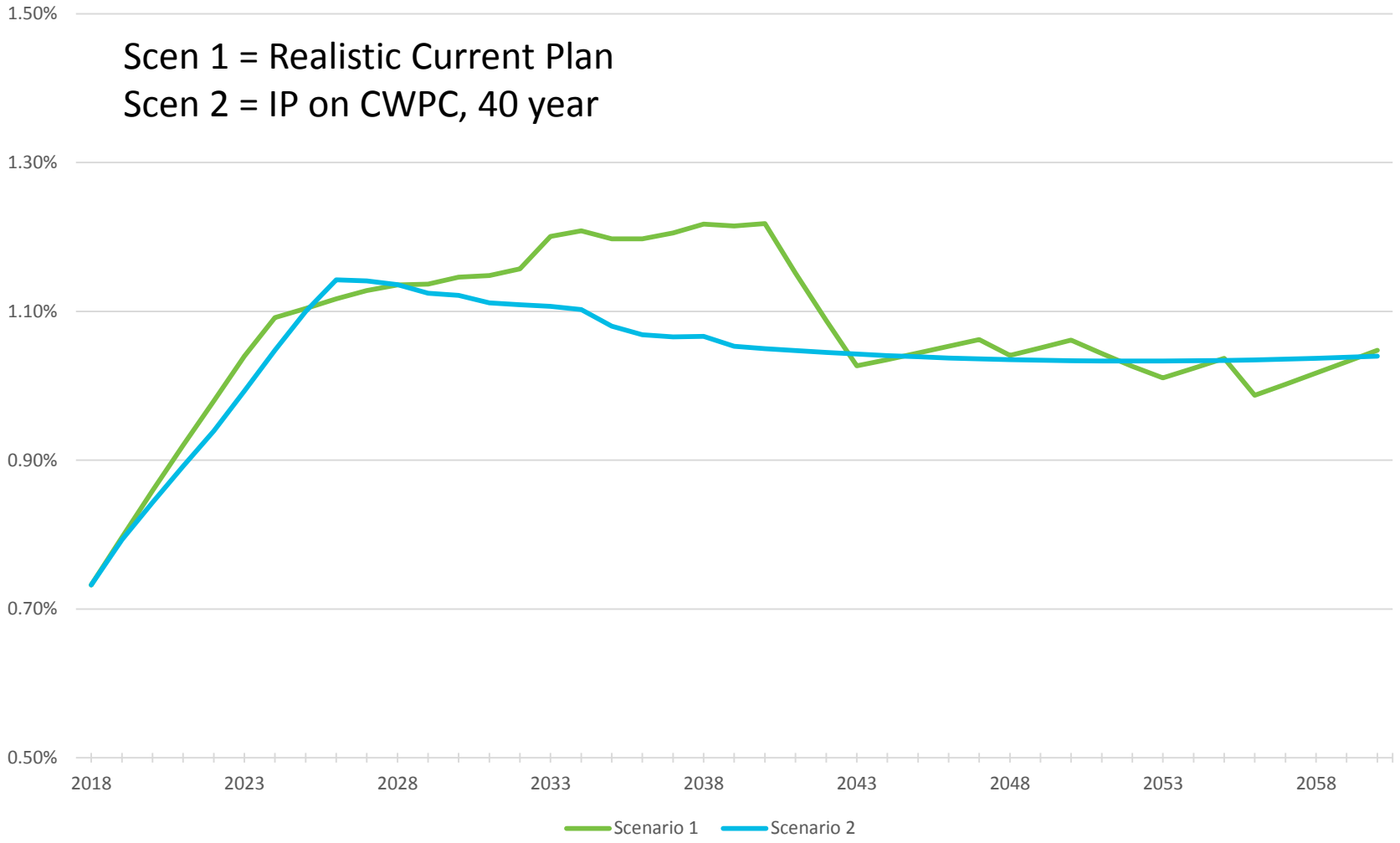
Summary of Scenarios

	Ad Valorem Elements	Clean Water Project Charge (CWPC)
Scenario 1--"Realistic Current Program"		
	Operating budget escalated from approved budget	CWP completed by 2032
	Existing debt schedule	CWPC modified from $5.30 peak to reflect change
	Capital Spending--$37m/yr CIP inflated	Includes North Tunnel and Downtown Tunnel
	$10m emergency repair	Full state SRF and grant support
	$5m for WWTP R&R	Total consumption at 16.1 m ccf
	$22m for new projects	Dwelling Unit consumption at "actual"
	Combined CIP at $8.1m	PMU costs gradually down
Scenario 2--Full IP, CWPC Cap lifted, 40 year implementation, Ad Valorem $15m		
	Same Operating budget as Scen 1	Full IP on CWPC, completed over 40 years
	Existing debt service as Scen 1	CWPC Increases to fund program
	CIP $15m/yr inflated	Includes Downtown Tunnel and additional north separation
	Combined CIP $8.1m	Full state SRF and grant support
		Total consumption at 16.1 m ccf
		Dwelling Unit consumption at "actual"
		PMU costs gradually down
Scenario 3--Full IP, CWPC Cap lifted, 30 year implementation, Ad Valorem $15m		
	Identical to Scen 2	Full IP on CWPC, completed over 30 years
		CWPC Increases to fund full program
		Includes Downtown Tunnel and additional north separation
		Full state SRF and grant support
		Total consumption at 16.1 m ccf
		Dwelling Unit consumption at "actual"
		PMU costs gradually down

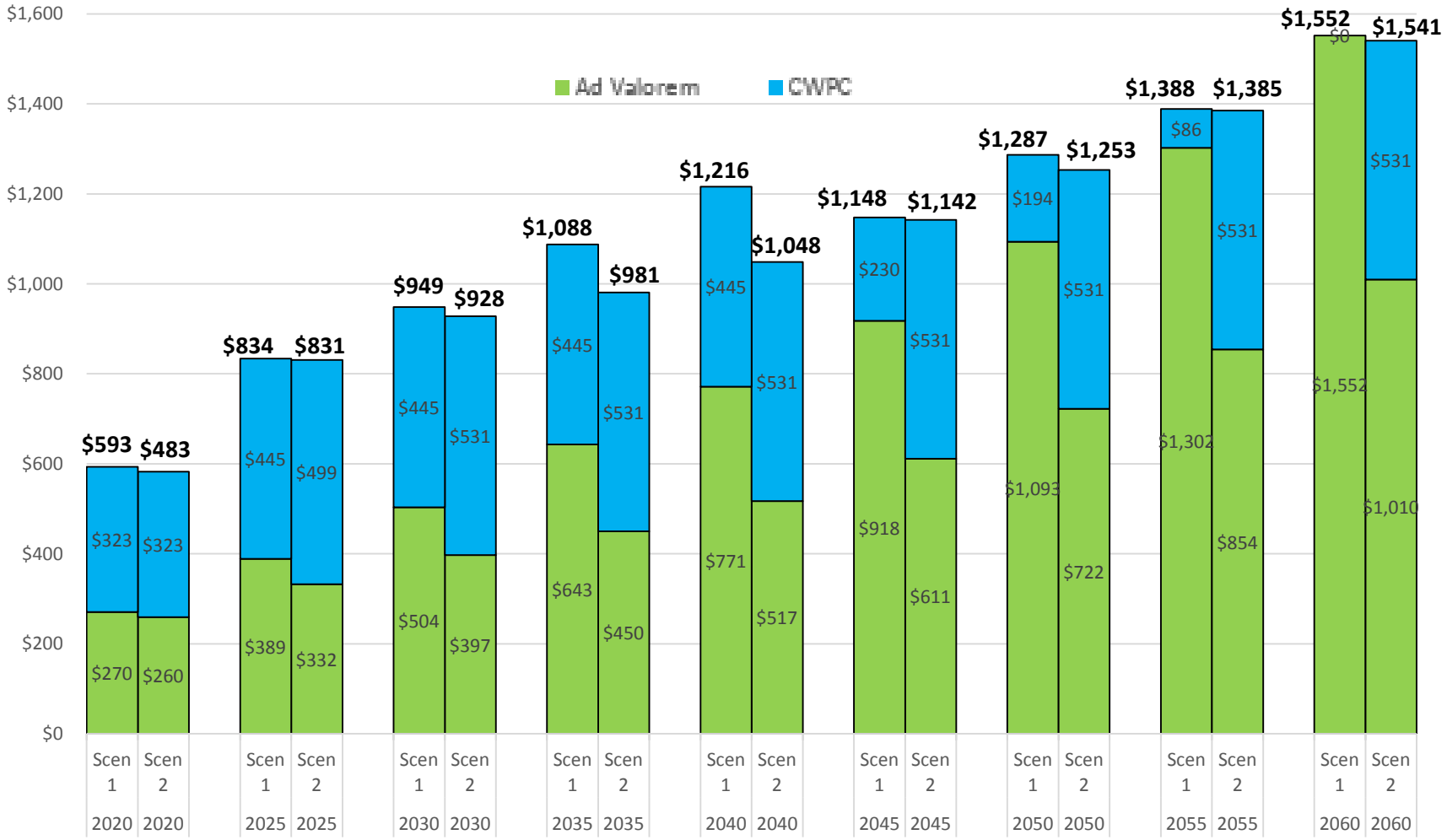
Projected HH Bill, MDC Average



Projected HH Burden, MDC Average



Household Bills Scenario 1 vs. Scenario 2, MDC Average



5. Next Steps/Outreach

Integrated Plan/Outreach Upcoming Schedule

- Comprehensive Project List - Done
- Affordability Assessment – Presented Today
- Future Town Council and public information meetings
  - Newington – October 9th
  - Wethersfield – October 15th
  - East Hartford – October 16th
  - Rocky Hill – November 19th
  - Others – TBD in October/November
- Initial draft IP to District - October
- Final Draft IP to District - November
- Public Hearing – Early December
- All three volumes submitted to DEEP by December 31st