



# HARRISONBURG SANITARY SEWER MANAGEMENT PLAN SSMP

A Plan for Sustainability  
using a  
Balanced Scorecard Approach

# Harrisonburg Sewer System (excludes HRRSA assets)

- Current Asset Replacement Value  
\$119,076,129
- Net Book Value  
\$74,804,039
- Annual Depreciation  
\$1,240,245

# Harrisonburg Sewer Finances


- Annual Budget = \$12,308,429
- HRRSA = 53%
- O&M = 22%
- Transfers = 8%
- Unfunded Depreciation = 12%

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- Capital = 5%

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	FY2018	Fy2019	FY2020	FY2021	FY2022	FY2023
Water	\$0.20	\$0.20	\$0.20	\$0.20	\$0.00	\$0.00
Sewer	\$0.05	\$0.05	\$0.05	\$0.05	\$0.25	\$0.25
	\$0.25	\$0.25	\$0.25	\$0.25	\$0.25	\$0.25



# Eight Objectives

# Objective #1: Forecast City Build-out Sales

Aggressive Forecast: 10.05 MGD




Conservative Forecast 6.88 MGD

Current Sales 4.66 MGD

# Objective #2 HRRSA Flow Capacity

## Hydraulic Treatment Capacity:

H'burg Capacity:	12.80 MGD		
H'burg Sales:	6.88 MGD	+5.92	
H'burg Sales:	10.10 MGD	+2.70	

## Infiltration & Inflow

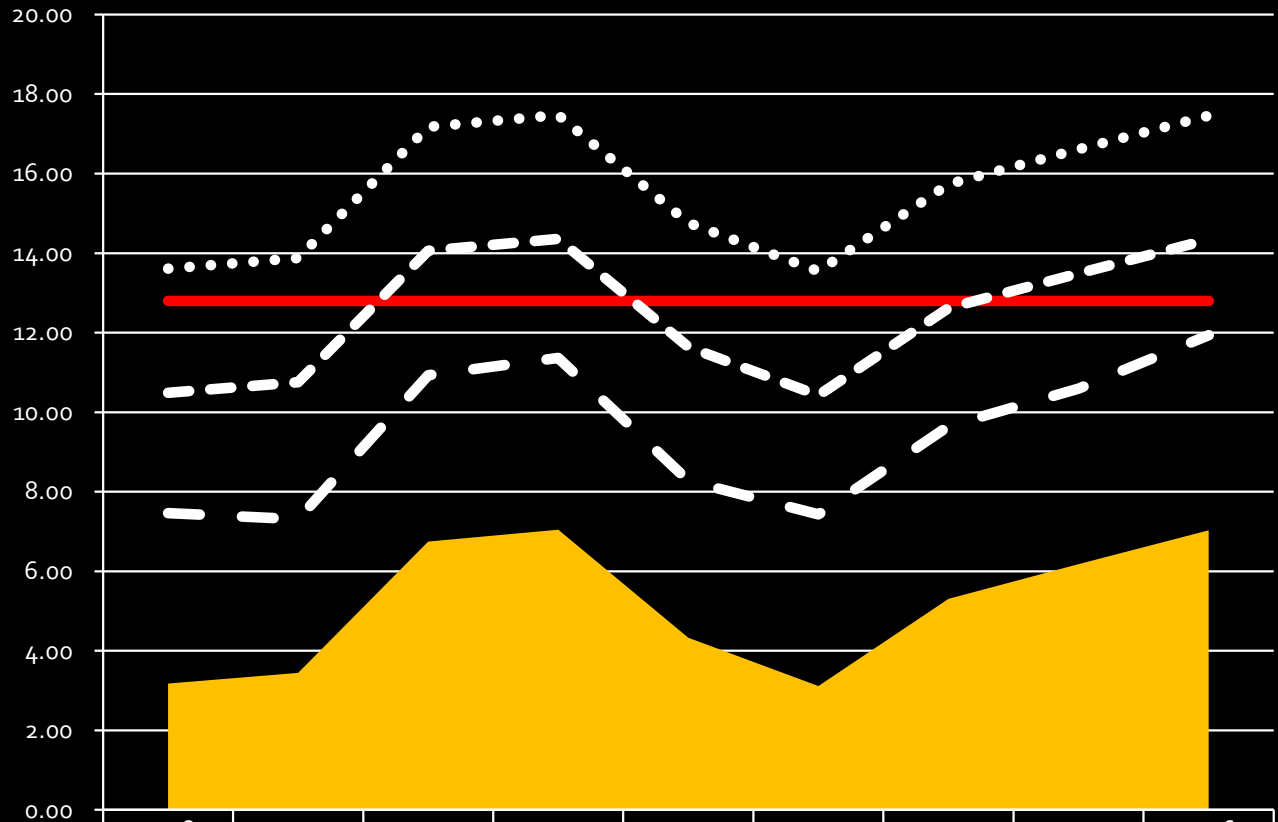
Exceeded 2.70 MGD 5 of last 9 years

Exceeded 5.92MGD 9 of last 9 years

Service Agreement is specific for MGD



# Harrisonburg Flow at HRRSA



	2008	2009	2010	2011	2012	2013	2014	2015	2016
I&I	3.18	3.45	6.75	7.05	4.33	3.11	5.31	6.18	7.03
HRRSA Capacity (C)	12.80	12.80	12.80	12.80	12.80	12.80	12.80	12.80	12.80
Historical HRRSA-Hburg Flows	7.46	7.31	10.93	11.37	8.28	7.43	9.65	10.59	11.94
Conservative Sales Forecast to 7.4 MGD	10.49	10.76	14.06	14.36	11.64	10.42	12.62	13.49	14.34
Aggressive Sales Forecast to 10.6 MGD	13.61	13.88	17.18	17.48	14.76	13.54	15.74	16.61	17.46

## Objective #3 HRRSA POC Capacity

MGD:POC < 1.0

BOD = 0.83      TSS = 0.80



Service Agreement silent of POC Allocation

## Objective #3 HRRSA POC Leveraging

BOD = 64%      TSS = 66%

BOD/TSS exceeded 100% 26 times FY2015



Local Limits Program is limited for flexibility



# Objective #4 HRRSA Interceptor

HRRSA LOS Interceptor Study:  
Service Agreement Silent on Interceptor Capacity

Black's Run 24.1 MGD

>30MGD

Lower Cooks Creek 22.0 MGD

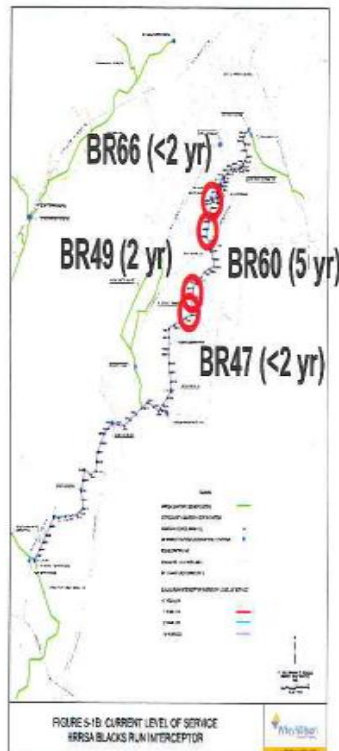
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Upper Cooks Creek 2.1 MGD

\$80M to \$90M Upgrade Cost (83%)

# LEVEL OF SERVICE ANALYSIS

## LEVEL OF SERVICE



The Majority of HRRSA's Major Interceptors Provide 10 Year LOS at 22 MGD Flow Tier

## CRITICAL SURCHARGING

(w/in 4 ft of manhole rim)



Extensive Critical Surcharging = Limited Capacity to Support Future Growth

# Objective #4

## Harrisonburg Owned Interceptors

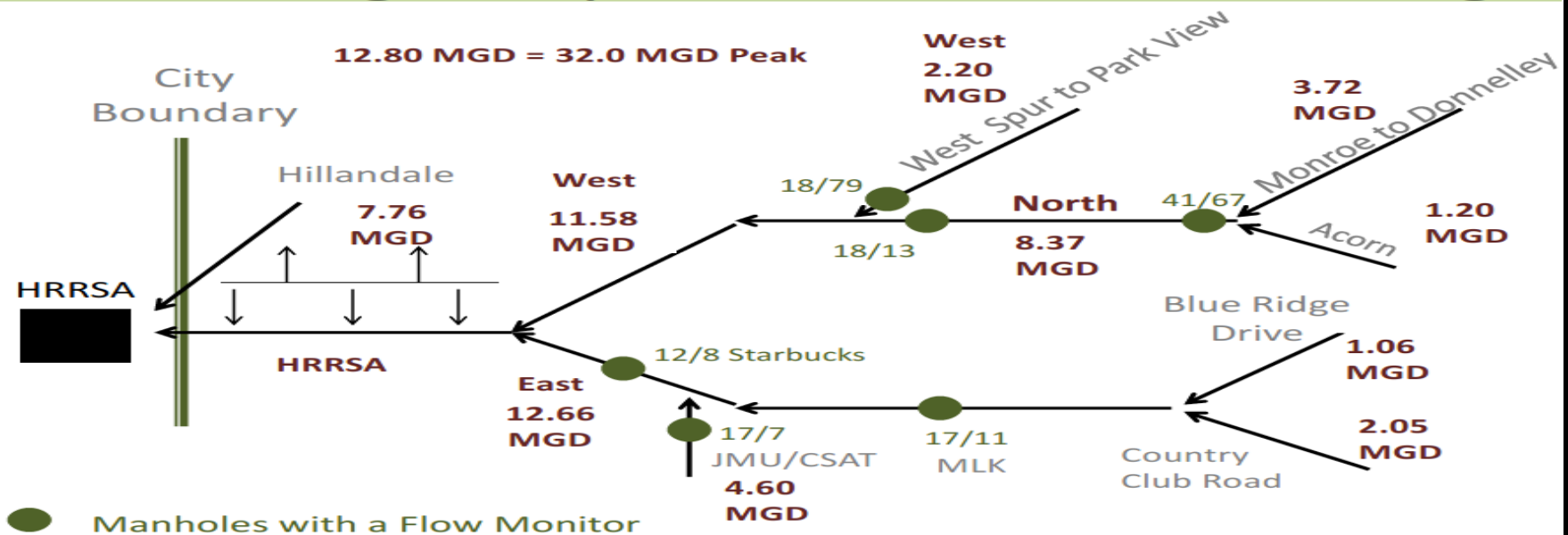
Interceptor Study completed 1989;

FY 2017: Flow Monitoring

FY 2018: Level of Service Study



### Blacks Run Interceptor 1988 Target Capacities; 2015 Monitoring



# Objective #5

## Risk Asset Management

### Criticality

Cost

Social

Environmental



### Failure Mode

Structural Mortality

Capacity Failure

Level of Service Failure

Efficiency /Obsolescence Failure

Delivers Risk Based Capital Recommendations

Prioritizes Predictive, Preventive & Repair Maintenance

# Objective #6

## Infiltration & Inflow Abatement Prioritized by Objective #5

HRRSA Treatment: 1.56 MGD to 4.96MGD  
\$9M-29M

HRRSA Interceptors: 4.00 MGD to 13.00MGD  
\$23M-\$43M X

City Interceptors: TBD LOS Study  
Top Priority is West Spur overflow

# Objective #7

Sewer System Integrity  
Backups & Failures prioritize by Objective #5

Current Integrity Benchmark  
14.1 to 18.8 f/100mi







Midrange performance  
8.75 f/100mi

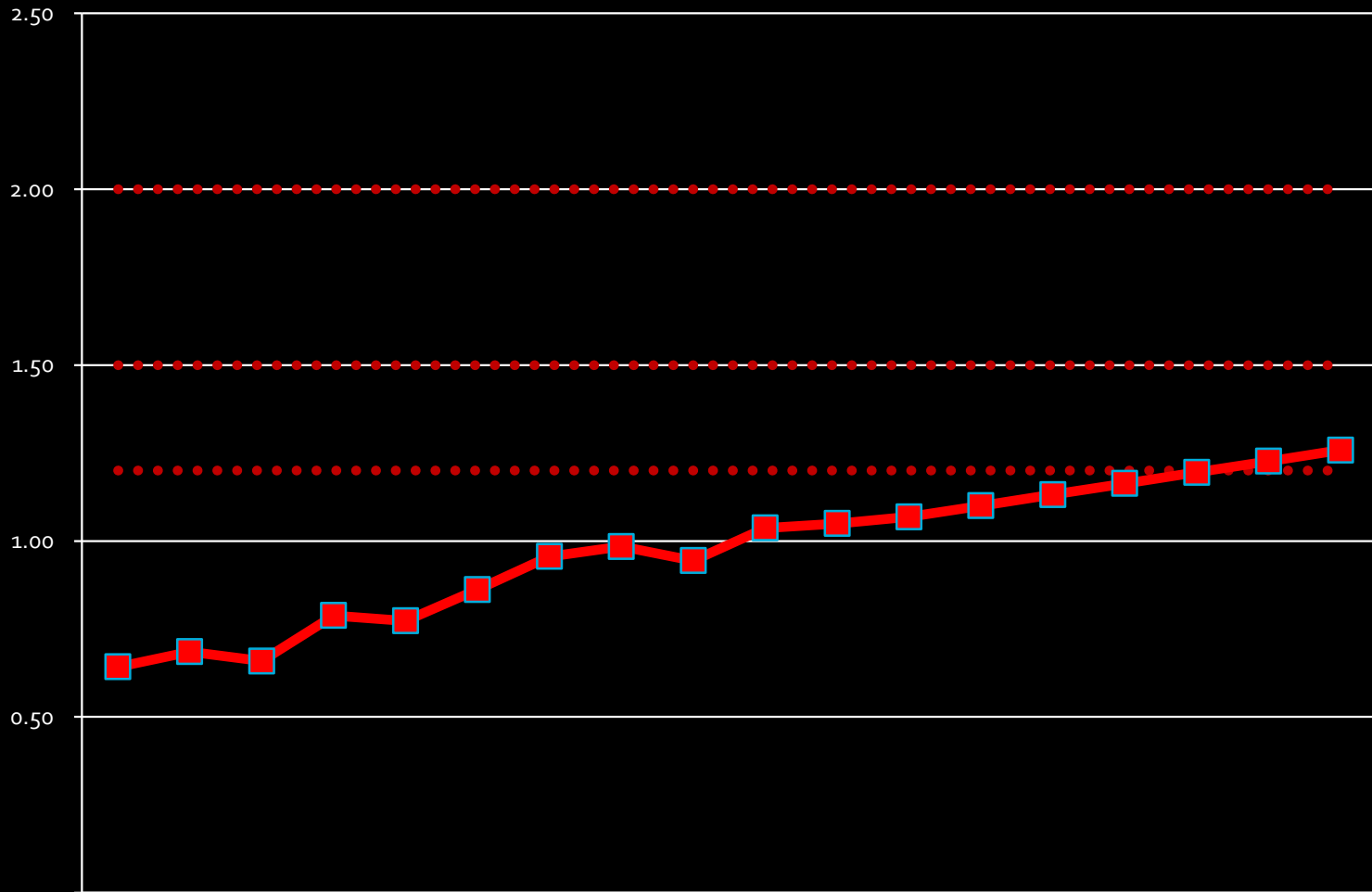


# Objective #8

## Financial Benchmarks

- Customer Rate Index 
- Sewer Fund Liquidity Index 
- Debt Coverage Index 
- R&R Index 

# Hburg Residential Rate HMI Index



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
●●● Fitch's Strong Rating	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
●●● Fitch's Medium Rating	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
●●● Fitch's Weak Rating	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
■ % HMI H'burg Water + Sewer	0.64	0.69	0.66	0.79	0.77	0.86	0.96	0.98	0.94	1.04	1.05	1.07	1.10	1.13	1.16	1.20	1.23	1.26







