

City of Milwaukee Department of Public Works



Sewer Condition Report
Capital Improvement Committee (CIC)

July 09 2012

Total Sewer Mileage

Type of Sewer	Total	<= 21" Diameter	> 21" Diameter and < 48" Diameter	>= 48" Diameter and < 54" Diameter	=> 54" Diameter
	(miles)	(miles)	(miles)	(miles)	(miles)
Combined	549.1	311.6	150.9	17.9	68.7
Sanitary	941.8	929.8	11.6	0.4	0.0
Storm	961.9	642.4	216.2	25.0	78.3
Total	2,452.8	1,883.8	378.7	43.3	147.0

Age of Sewers

Type of Sewer	< 50 Years	51 to 90 years	> 90 Years	Total
	(miles)	(miles)	(miles)	(miles)
Combined	265.6	108.5	175.0	549.1
Sanitary	356.9	564.2	20.7	941.8
Storm	293.1	645.8	23	961.9
Total	915.6	1318.6	218.6	2,452.8

6 Year Capital Improvement Program

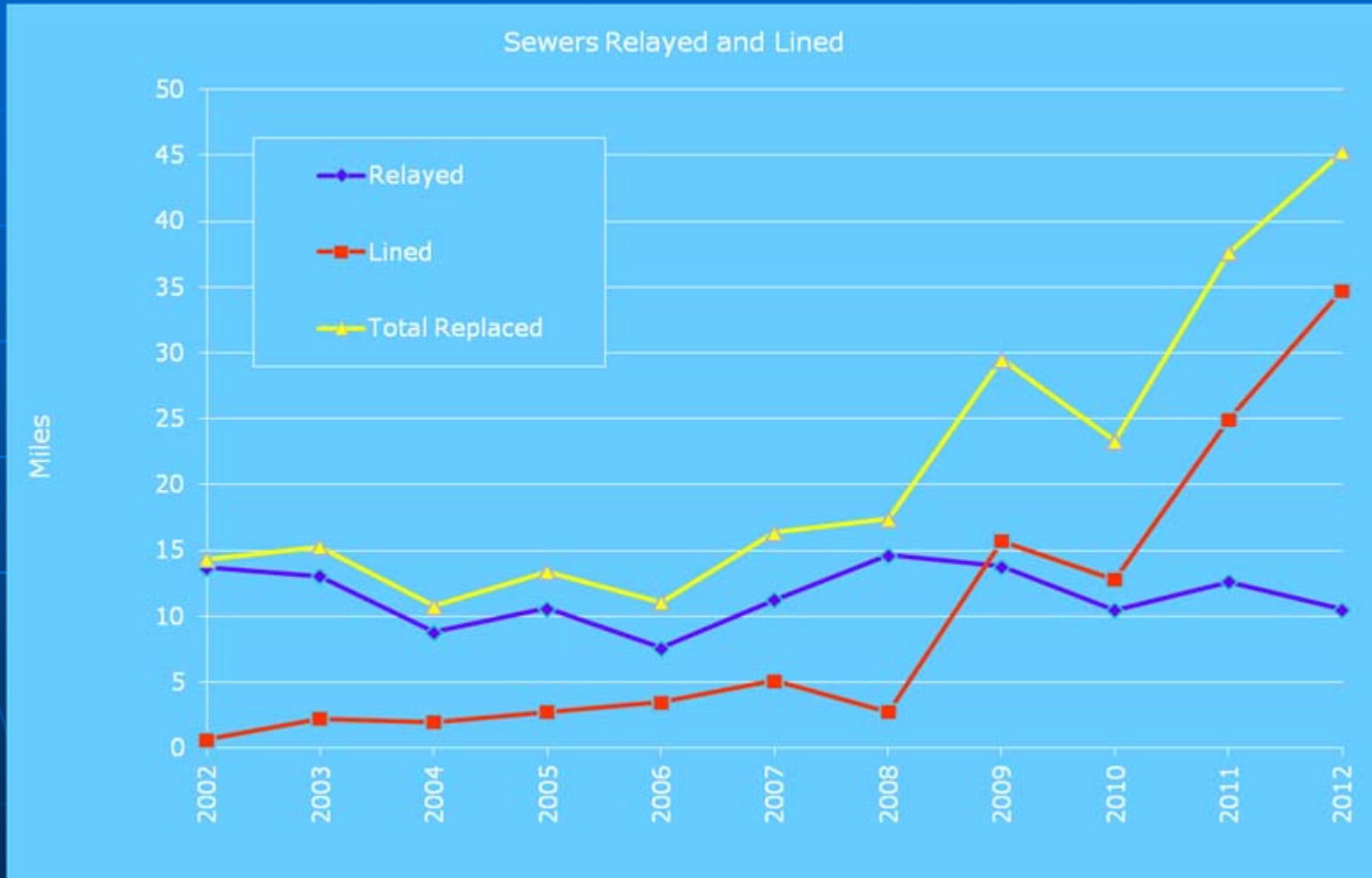
	Relief and Relay	Inflow and Infiltration	Pump Rehabilitation	Water Quality Projects	Channel Maintenance	Total Budget
Year	(million)	(million)	(million)	(million)	(million)	(million)
2012	\$31.70	\$10.85*	\$1.00	\$0.50	\$0.40	\$44.45
2013	\$30.00 ^Δ	\$9.80**	\$1.00	\$0.50	\$0.20	\$41.50
2014	\$31.00 ^Δ	\$8.80**	\$0.70	\$0.50	\$0.20	\$41.20
2015	\$32.00 ^Δ	\$8.80**	\$0.70	\$0.50	\$0.20	\$42.20
2016	\$33.00 ^Δ	\$8.80**	\$0.70	\$0.50	\$0.20	\$43.20
2017	\$34.00 ^Δ	\$8.80**	\$0.70	\$0.50	\$0.20	\$44.20
Total	\$191.70	\$55.85	\$4.80	\$3.00	\$1.40	\$256.75

* INCLUDES \$2.8M GRANT FROM MMSD
 ** INCLUDES \$1.8M GRANT FROM MMSD
 Δ DOES NOT INCLUDE RESERVES

2002-2012 Sewer Replacement

	Replaced	Lined	Total
Year	(miles)	(miles)	(miles)
2012 (est)	10.52	34.73	45.25
2011	12.65	24.96	37.61
2010	10.51	12.82	23.33
2009	13.78	15.74	29.52
2008	14.65	2.75	17.40
2007	11.25	5.11	16.36
2006	7.61	3.49	11.10
2005	10.63	2.76	13.39
2004	8.82	1.99	10.81
2003	13.05	2.25	15.30
2002	13.70	0.66	14.36
Average	11.56	9.77	21.33

2002-2012 Sewer Replacement

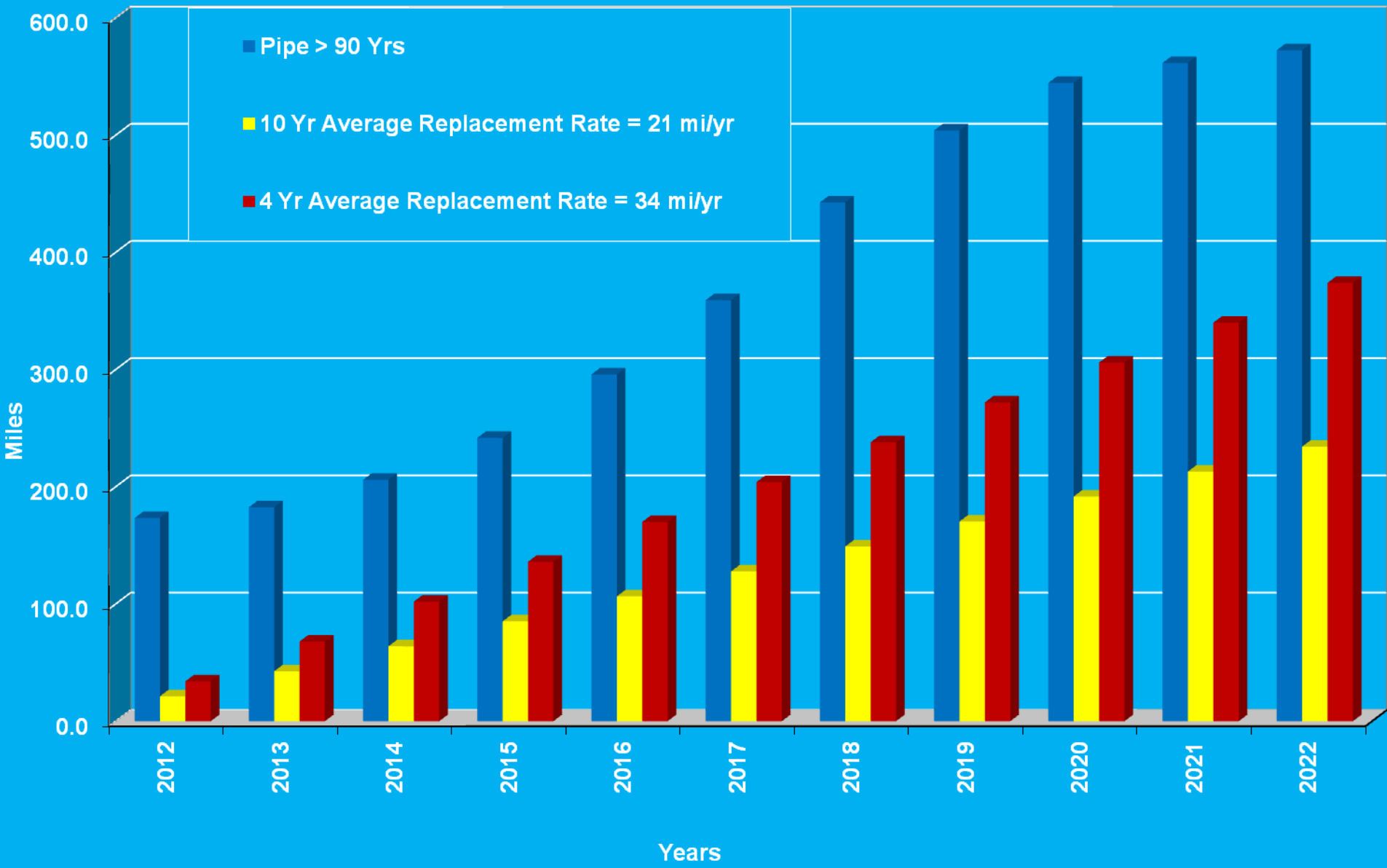


Sewer Replacement Program

On what basis are Sewer Mains selected for replacement?

- Index Rating based on Sewer Exams
- Existing Hydraulics – Backwater studies
- Paving Projects – Not part of Index Rating

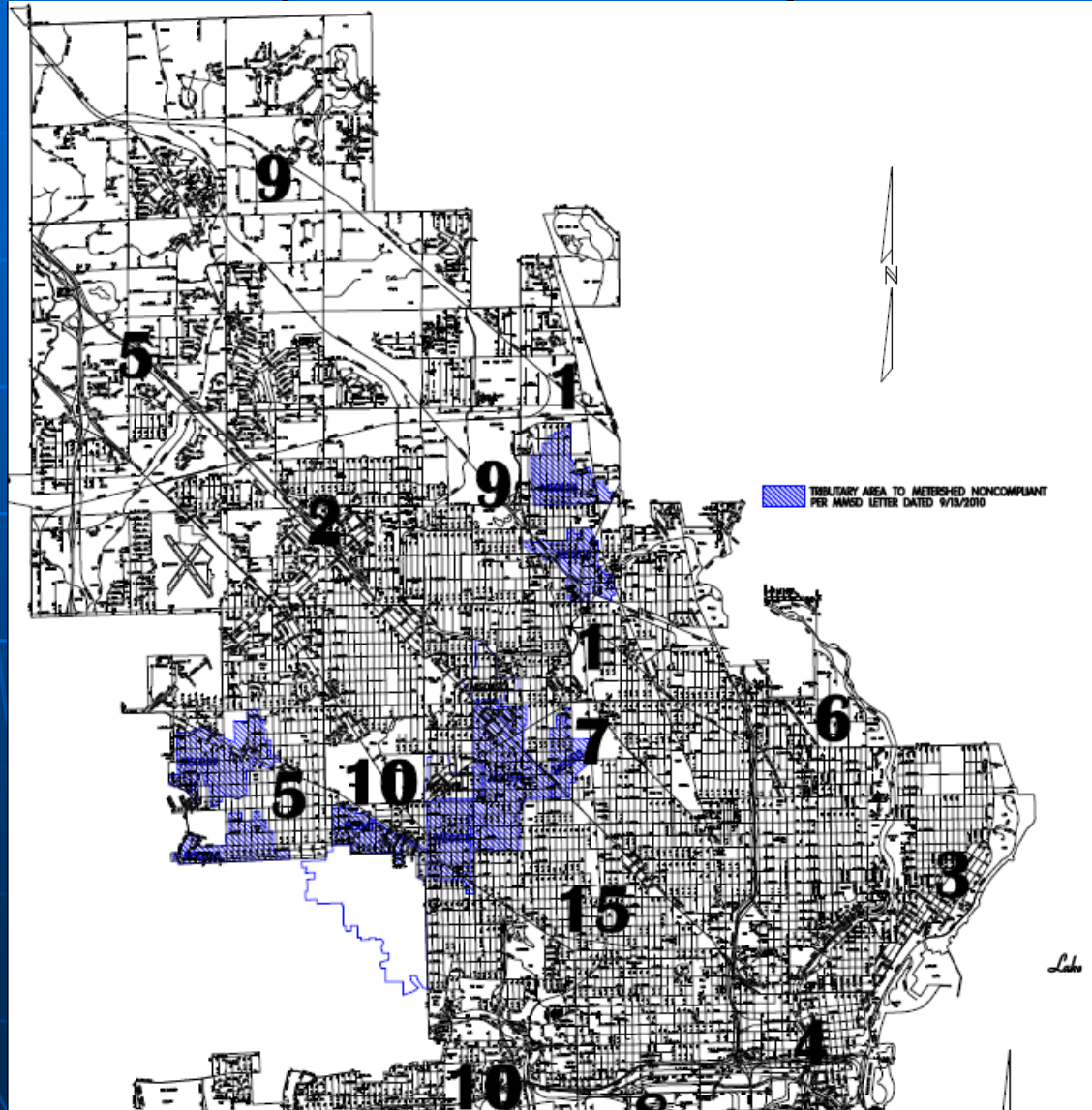
Future Sewer Lengths Needed To Be Rehabilitated That Are Greater Than 90-Years Old



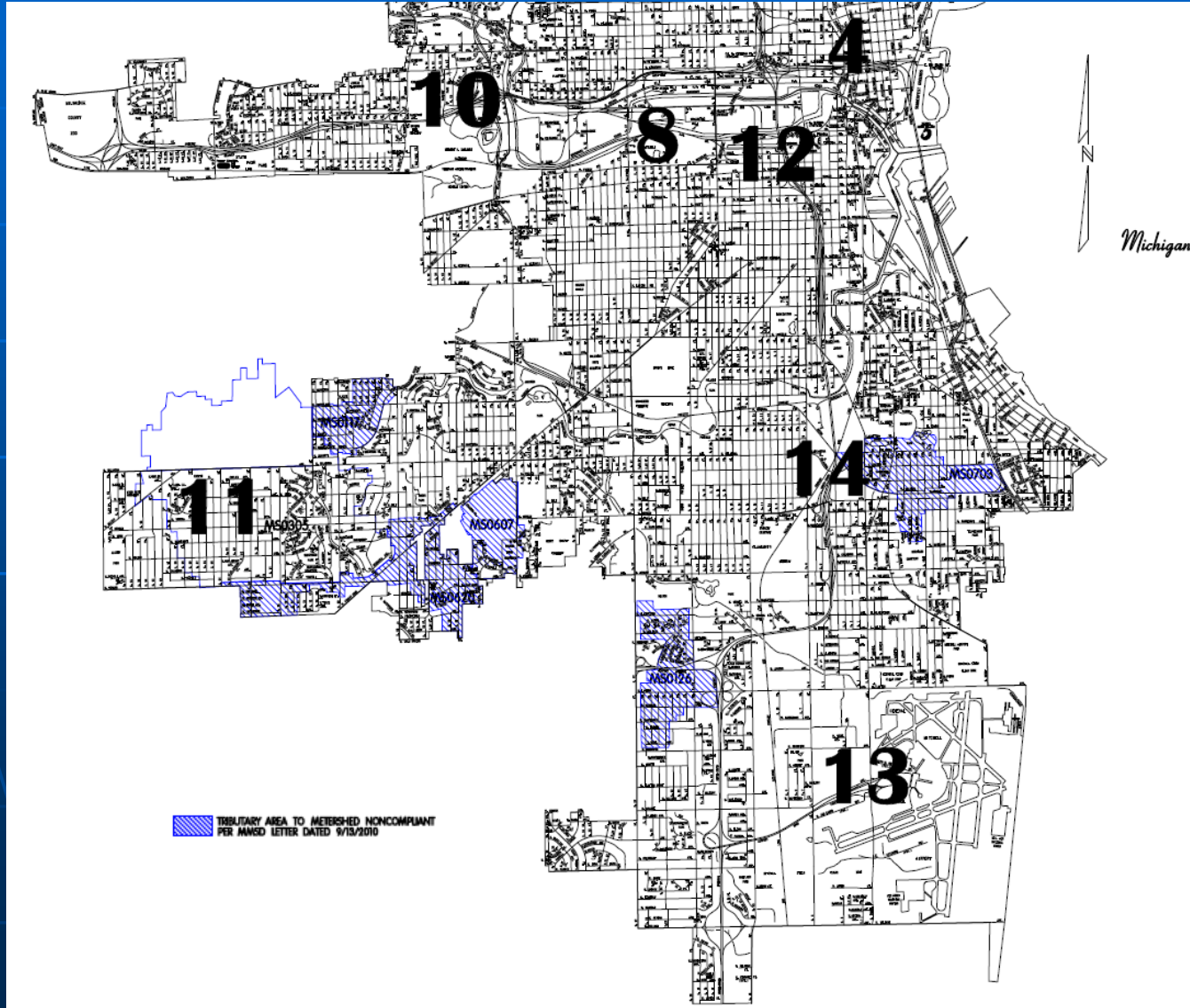
Sewer Replacement Information

- Currently there are 219 miles of City of Milwaukee sewers that are greater than 90-years old
- With 2,453 miles of sewer in the City and a useful sewer life cycle of 90 years, the replacement rate needed to meet the 90 year useful life cycle is 27 miles annually
- Current 4 years average for replacement rate using lining & replacement methods is 34 miles/year, allowing us to meet this cycle.

Non-Compliant Metersheds (North Side)



Non-Compliant Metersheds (South Side)



16-NON-COMPLIANT MMSD METERSHEDS

Metershed	MMSD Priority	Project Location	Estimated Cost	Rehabilitation	Year Programmed
MS0514	1	Area bounded by: W Fon Du Lac Ave to W Center St from N 39th St to N 60th St	\$2,835,000	Sanitary Lining	2012
MS0607	1	Area bounded by: W Crawford Ave to W St. Francis Ave from S 46th St to S 50th St	\$209,000	Sanitary Lining	2012
MS0117	2	Area bounded by: W Harrison Ave to W Kinnickinnic River Pkwy from S 60th St to S 72nd St (Area #15)	\$1,200,000	Sanitary Lining	2012
MS0339	2	Area bounded by: W Burleigh Ave to W Melvina St from N 83rd St to N Menomonee River Pkwy	\$1,380,000	Sanitary Lining	2013
MS0420	2	Area bounded by: W Capitol Dr to Lincoln Creek from N 53rd St to N 44th St	\$731,000	Sanitary Lining	2013
MS0411	3	Area bounded by: W Burleigh Ave to W Center St from N 63rd St to N 76th St (Area #9)	\$977,000	Sanitary Lining	2013
MS0538	3	Area bounded by: W Custer Ave to W Hampton Ave from N 31st St to N Hopkins St	\$751,000	Sanitary Lining	2013
MS0418	4	Area bounded by: W Roosevelt Dr to W Meinecke Ave from N 50th St to N Avondale Blvd	\$840,000	Sanitary Lining	2014
MS0513	4	Area bounded by: W Nash St to W Burleigh Ave from N 33rd St to N 39th St	\$201,000	Sanitary Lining	2014
MS0528	4	Area bounded by: W Silver Spring Dr to W Douglas Ave from N 43rd St to N 27th St	\$1,365,000	Sanitary Lining	2014
MS0620	4	Area bounded by: W Coldspring Rd to W Forest Home Ave from S 84th St to S 48th St	\$2,360,000	Sanitary Lining	2015
MS0703	4	Area bounded by: E Wilbur Ave to E Manitoba Ave from S Chase Ave to S Clement Ave	\$1,125,000	Sanitary Lining	2015
MS0114	5	Area bounded by: W Edgerton Ave to W Plainfield Ave from Kinnickinnic River to S 27th St	\$1,367,000	Sanitary Lining	2015
MS0126	5	Area bounded by: W Layton Ave to W Edgerton Ave from S 20th St to S 27th St (Area #18)	\$775,000	Sanitary Lining	2011
MS0305	5	Area bounded by: W Oklahoma Ave to W Howard Ave from S 63rd St to S 95th St	\$3,035,000	Sanitary Lining	2015
MS0338	5	Area bounded by: W Center St to W Burleigh St from N 82nd St to N 92nd St (Area #3)	\$3,955,000	Lateral and Mainline Lining	2012

Total = \$23,106,000

Revised May 23, 2012

TOTAL MAXIMUM DAILY LOADS (TMDLs)

- TMDL program is administered by the U.S. Environmental Protection Agency (EPA)
- Responsibility for TMDLs is delegated to the State of Wisconsin / Department of Natural Resources (WDNR)
- The Milwaukee Metropolitan Sewerage District (MMSD) will develop these TMDLs as a third party on behalf of WDNR

FOUR WATERSHED OF INTEREST

- Menomonee River Watershed
 - Kinnickinnic River Watershed
 - Milwaukee River Watershed
 - Milwaukee Harbor Estuary
- Also known as the Milwaukee River Basin

THREE POLLUTANTS OF CONCERNS

- Phosphorous
- Sediment (total suspended solids -TSS)
 - Bacteria Fecal coliform for rivers
(*E. coli* for estuary)

SCHEDULE

- Draft TMDL Report to WDNR September 2012
- Final TMDL Report to WDNR December 2012
- Implementation plan September 2013

Stormwater Management in the City of Milwaukee to Reduce Phosphorus and TSS

- Bioswales
 - Rain Gardens
 - Catch Basins
 - Street Sweeping
 - Wet Ponds
 - Grass Swales
-
- Total additional cost - unknown

➤ 6th Street



➤ Maintained by
Gateway Partners
(private)



➤ Grange Avenue



➤ Maintained by City of Milwaukee Forestry



Detention Pond - Hartung Quarry

- Redevelopment of former clean-fill site to multi-use parkland
- Treats 355 acres of commercial/residential area for TSS

