## City of Milwaukee Department of Public Works



## Sewer Condition Report Capital Improvement Committee (CIC) July 03 2013

## **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	548.2	310.10	151.2	18.1	68.8
Sanitary	943.5	931.4	11.7	0.40	0.0
Storm	963.9	643.5	216.5	25.0	78.9
Total	2,455.6	1,885.0	379.4	43.5	147.7



## Combined Sewers by Age Total Miles: 548



## Sanitary Sewers by Age Total Miles: 944



## Storm Sewers by Age Total Miles: 964



## Sewer Exams within last 5 years



# Sewer Exams Frequency for Condition Assessment

100 Years and Older ..... 5 years
75 to 99 Years Old......15 years
50 to 74 Years Old...... 25 years
25 to 49 Years Old...... 50 years
Less than 25 years old are not examined

## Sewer Replacement Program

On what basis are Sewer Mains selected for replacement?

Index Rating based on Sewer Exams

Existing Hydraulics – Backwater studies

Paving Projects

## 2005-2014 Sewer Replacement



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



### **Sewer Replacement Information**

- 210 miles of sewers that are greater than 90years old
- With 2,456 miles of sewer in the City and an annual replacement rate of 26.1 miles (10 year average), our current sewer replacement rate is once every 94 years
- With 2,456 miles of sewer in the City and a useful sewer life cycle of 90 year, the replacement rate needed to meet the 90 year useful life cycle is 27.3 miles annually
- Current 4 years average for replacement rate using lining & replacement methods is 37.6 miles/year, allowing us to meet this cycle.

## **2013 Major Projects**



N. 27<sup>th</sup> Street – Hazelton Ct. to St. Paul Ave. 1500 FT of 78" Dia. Slip Lining - \$ 2.1 M (Completed)

Wells to Clybourn – 15<sup>th</sup> to 17th 2100 FT of 72" Dia. Lining – \$ 1.7 M (Being Installed)





Carferry Dr. – Lincoln Ave to 5100' North 5500 FT New Storm Sewers - \$ 1.0 M (Will start in July)

### **2014 Major Projects**

- W. Becher Street S 16<sup>th</sup> St to S 20<sup>th</sup> St– (CIPP). \$ 1.1 M (CIPP-1300 ft of 96-inch dia. Combined-122 years old)
- W. Keefe Ave N. 18<sup>th</sup> to N 22nd St-(CIPP)...... \$ 2.2 M (CIPP-2100 ft of 60-inch dia. Combined-104 years old)
- \* Cured-in-place lining (CIPP)

#### 4-Year Flood Mitigation Priority Areas Project

- 18 areas of priority were identified
- Since 2010.....
  - Public infrastructure lining and repair in 15 areas complete by the end of 2013
  - \$18.5 M spent for 68 miles of sewers lining or replacement Private sanitary lateral lining in 1 area has been completed
  - Private sanitary lateral lining in another area is underway



#### **Status of Private Property I&I Reduction Projects**

- Currently, work is being done on 2nd Lateral Lining Project
   Clemens School Neighborhood- Capitol to Congress – N. 36<sup>th</sup> to N. 42<sup>nd</sup> St
  - \$ 3.0 M is contract amount for the proposed lining of 449 properties' laterals funded through MMSD Private Property Inflow/Infiltration Program
  - An average cost of \$ 6700 per property





Work on this project began in March of 2013
Project completion date is October 30, 2013

#### Sanitary Bypass Pump and Lift Station Locations

The City owns and maintains two types of pumping facilities, sanitary bypass pumps and sanitary lift stations.

O Bypass Pumping Stations (83)

• Lift Stations (7)

Bypass pumps are located in areas where there has been a history of backwaters.

Lift stations are located where gravity sewer service is not available, usually in low-lying areas.



#### Inspections

City has contracted with a private firm to perform a check of all bypass pumps and lift stations on a monthly basis.

Contractor makes 35 assessments for each site.

Provides City with a written report.

Field managers can use this information for establishing priorities for troubleshooting work.

Engineers use this information for future pump rehab projects.

#### Bypass Pump Wet Testing

City has contracted with a private firm to perform "wet testing" of bypass pumping sites.

This testing simulates a high water event by isolating and filling pump manholes with clean water.

A comprehensive test, evaluates all components working together.

Indentifies deficiencies that may not be apparent during a monthly inspection.

Results from this testing provide us with excellent feedback on the readiness of our bypass pumps.

Testing is a high level of Asset Management.

All sites are wet tested bi-annually, critical sites tested annually.

#### **Bypass Pump Rehabilitation**

The City lets contracts annually to perform significant repair or replacement of bypass pump sites and lift station components.

Major Rehab typically includes replacement of pump and manhole.

Minor Rehab typically includes electrical components, such as level sensors, communications, logic controllers, etc.

Year	Major Rehab	Minor Rehab	
2007	3	0	
2008	4	0	
2009	3	12	
2010	8	0	
2011	5	25	
2012	4	15	
2013	3	12	
2014 (proj.)	4	10	

Trend towards more minor rehab indicative of results of pump wet testing and inspection.

#### TMDL Development

- Total Maximum Daily Load (TMDL) is the amount of a pollutant a waterbody can receive and still meet water quality standards.
- Work underway on TMDLs to address the TSS, bacteria and phosphorus-related impairments in the Menomonee, Milwaukee, and Kinnickinnic River watersheds and the estuary area.
- The TMDL development team has completed the first major step in developing the TMDLs: calculating the allowable loads each river reach could receive and maintain the water quality standards.
- The team is making progress and expects estuary modeling to be completed in late summer or fall 2013.
- Once final allowable loads in the estuary and river reaches are determined, draft load allocations to all sources within the basin will be developed.

#### **TMDL** Development

Projected TMDL development schedule summary:

Water quality modeling completed Late summer / fall 2013
 Draft allocated loads for stakeholder review October 2013
 Final TMDL to WDNR / USEPA November / December 2013
 Implementation plan development 2014

# QUESTIONS ?