Public Safety Communications

- **CITY-WIDE PAVING PROJECTS - $50,000**
  -Temporary and/or permanent network improvements associated with paving projects.

- **GENERAL ENGINEERING - $50,000**
  -Planning, design, estimates, and reports related to the program.

- **DATA NETWORK EXPANSION - $475,000**
  -Provides new or diverse connections to over 150 City facilities.

- **TELEPHONE SYSTEM EXPANSION - $50,000**
  -Ongoing maintenance and phased upgrades for smaller PBX systems.

Municipal Phone System Upgrade

- **History**

  -Phone system replaced in 2005 at cost of approximately $4M.

- **Software Upgrade**

  - Current version is no longer maintained by manufacturer. No bug fixes or feature enhancements.

- **Hardware Upgrade**

  -Replace hardware that is no longer in development or supported by new software.

- **Benefits**

  -Current software, replace aging equipment, better disaster recovery failover, better support for Voice over IP, and support for future technologies such as IPv6.

  -Cost of upgrade - $720,000.

DPW – Operations Division

2012 Capital Improvements Requests

Forestry

- Tree Planting and Production
  - $1,704,000
  - 2010 & 2011 funded through Stormwater Management Fee
- Emerald Ash Borer Readiness and Response
  - $923,000
  - 2010 & 2011 funded through Stormwater Management Fee
- Concealed Irrigation and General Landscaping
  - $510,000

Tree Planting & Production

- $1,704,000 Requested
- Adds 4,962 new trees
  - 4,262 replacement street trees
  - 700 boulevard trees
  - Maintains 98% stocking goal
- Supports Tree Production at City Nursery
- Currently funded through Sewer Maintenance Fee

EMERALD ASH BORER RESPONSE

- $923,000 Request
- Inoculates 13,500 8” diameter and larger ash street trees annually
- Provides 2 years protection

EMERALD ASH BORER RESPONSE

- Manages public safety risk
- Provides orderly transition to resistant species
- Prevents catastrophic loss of street tree canopy and associated benefits
- Least disruptive to other forestry operations

Concealed Irrigation & General Landscaping for Boulevards

- Provides for deep tap irrigation
- Work is done in conjunction with City's Paving Program
- Provides funding for deep taps at 79 locations on 4 boulevards scheduled for paving in 2011

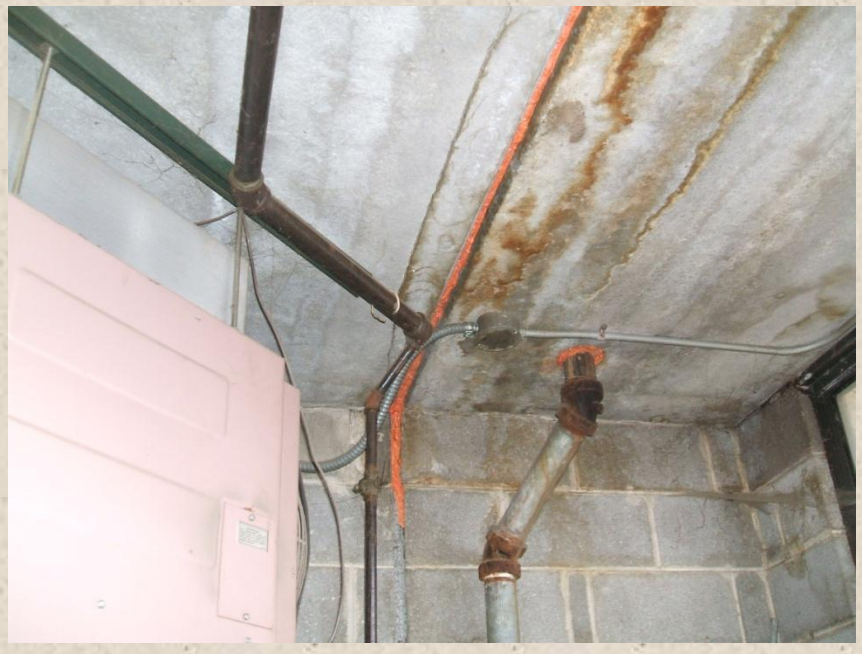
Concealed Irrigation & General Landscaping for Boulevards

- Supports maintenance of concealed irrigation systems to 300 new signature beds

Sanitation

- Facility Modifications Account
  - $685,000
    - $535,000 to finish repairs at 35th & Hayes
    - $150,000 for Brine Makers
- Facility Relocation
  - $1,700,000

Facility Modifications Account
35th & Hayes South 1 Facility



Facility Modifications Account
35th & Hayes South 1 Facility

Facility Modifications Account
Brine Makers at South and North

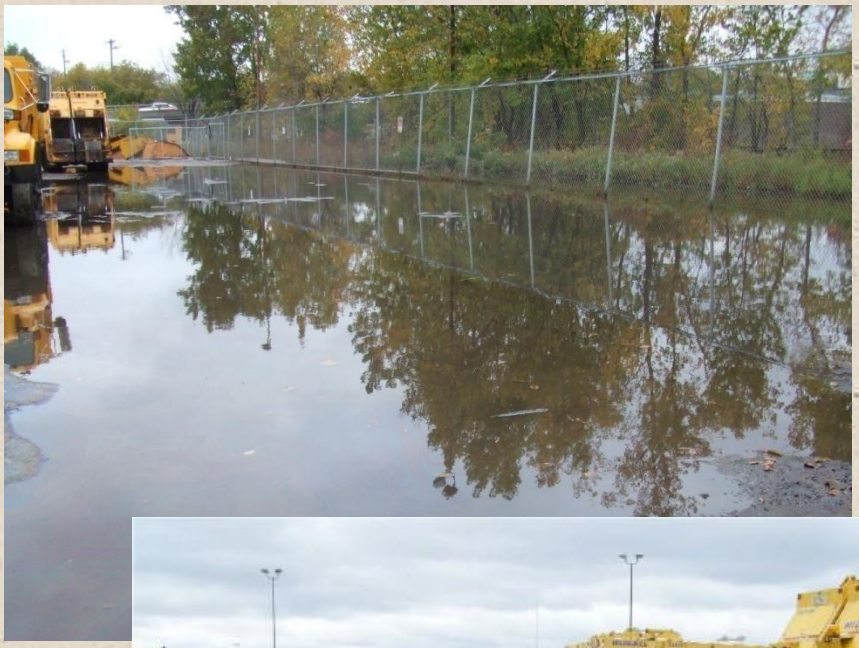
Facility Relocation

DIRECT SUPPLY®
Taking Cost Out of Healthcare®

Fleet

- Central Repair Garage Repaving of Back Lot
  - $573,000

Fleet Central Repair Garage Back Lot



Fleet Central Repair Garage Back Lot

Department of Public Works Infrastructure Services Division

2012 Capital Budget
Transportation and Operations

6 Year Capital Improvement Program

	Bridges State & Fed	Bridges Local	Streets State & Fed	Streets Local	Alleys	Sidewalks
Year	(Millions)	(Millions)	(Millions)	(Millions)	(Millions)	(Millions)
2012	$6.535	$10.435	$78.334	$13.700	$3.00	$1.50
2013	$2.105	$11.425	$22.694	$16.000	$3.00	$1.60
2014	$5.850	$12.175	$32.014	$15.700	$3.50	$1.70
2015	$3.500	$10.250	$36.842	$18.000	$3.50	$1.80
2016	$3.500	$10.275	$31.992	$16.300	$3.50	$1.90
2017	$3.500	$10.250	$28.130	$18.700	$3.50	$2.00
Total	$24.990	$64.810	$230.006	$98.400	$20.00	$10.50

6 Year Capital Improvement Program

	Street Lighting	Traffic Control	New Conduit	Repair Existing manholes	New Streets	Developer Streets
Year	(Millions)	(Millions)	(Millions)	(Millions)	(Millions)	(Millions)
2012	$9.100	$2.770	$4.10	$0.50	$0.00	$0.00
2013	$9.500	$2.760	$6.00	$0. 50	$0.30	$0.40
2014	$9.900	$3.560	$5.00	$0. 50	$0.35	$0.40
2015	$9.900	$3.050	$5.00	$0. 50	$0.35	$0.40
2016	$9.500	$3.015	$5.00	$0. 50	$0.35	$0.40
2017	$9.500	$3.060	$5.00	$0. 50	$0.35	$0.40
Total	$57.400	$18.215	$30.10	$3.00	$1.70	$2.00

City Bridge Inventory

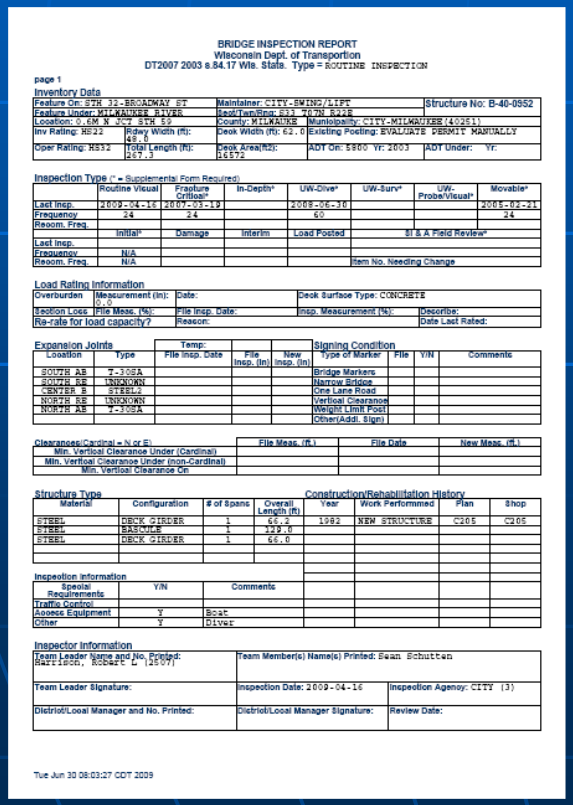
- 176 City-owned and maintained bridges
- Relative comparison of bridge types:

Bridge Structure Inspection

- In accordance with FHWA and WisDOT standards
- Conducted by DPW personal
  - FHWA certified Bridge Inspectors
- Bridges inspected *every* 24 months, except:
  - Annually for:
    - Movable bridges
    - Structurally deficient bridges

Bridge Inspection Reports

- Standardized inspection reports
  - Submitted to WisDOT and entered into their database
  - Highway Structures Information (HSIS) database generates a bridge Sufficiency Rating (SR)



BRIDGE INSPECTION REPORT
Wisconsin Dept. of Transportation
DT2007 2003 s.84.17 Wis. Stats. Type = ROUTINE INSPECTION

page 1

Inventory Data

Feature On: STH 32-BROADWAY ST	Maintainer: CITY-SWING/LIFT	Structure No: B-40-0552
Feature Under: MILWAUKEE RIVER	Sect/Twn/Rng: S33 T07N R22E	
Location: 0.6M N JCT STH 59	County: MILWAUKE	Municipality: CITY-MILWAUKEE(40251)
Inv Rating: HS22	Rdwy Width (ft): 48.0	Deck Width (ft): 62.0 Existing Posting: EVALUATE PERMIT MANUALLY
Oper Rating: HS32	Total Length (ft): 267.3	Deck Area(ft2): 16572 ADT On: 5800 Yr: 2003 ADT Under: Yr:

Inspection Type (* = Supplemental Form Required)

	Routine Visual*	Fracture Critical*	In-Depth*	UW-Dive*	UW-Surv*	UW-Probe/Visual*	Movable*
Last Insp.	2009-04-16	2007-03-19		2008-06-30			2005-02-21
Frequency	24	24		60			24
Recom. Freq.							

	Initial*	Damage	Interim	Load Posted	SI & A Field Review*
Last Insp.					
Frequency	N/A				
Recom. Freq.	N/A				Item No. Needing Change

Load Rating Information

Overburden	Measurement (in): 0.0	Date:	Deck Surface Type: CONCRETE	
Section Loss	File Meas. (%):	File Insp. Date:	Insp. Measurement (%):	Describe:
Re-rate for load capacity?		Reason:		Date Last Rated:

Expansion Joints

Location	Type	Temp: File Insp. Date	File Insp. (in)	New Insp. (in)
SOUTH AB	T-JOSA			
SOUTH EB	UNKNOWN			
CENTER B	STEEL2			
NORTH EB	UNKNOWN			
NORTH AB	T-JOSA			

Signing Condition

Type of Marker*	File	Y/N	Comments
Bridge Markers			
Narrow Bridge			
One Lane Road			
Vertical Clearance			
Weight Limit Post			
Other(Addl. Sign)			

Clearances(Cardinal = N or E)	File Meas. (ft.)	File Date	New Meas. (ft.)
Min. Vertical Clearance Under (Cardinal)			
Min. Vertical Clearance Under (non-Cardinal)			
Min. Vertical Clearance On			

Structure Type

Material	Configuration	# of Spans	Overall Length (ft)
STEEL	DECK GIRDER	1	66.2
STEEL	BASCULE	1	129.6
STEEL	DECK GIRDER	1	66.6

Construction/Rehabilitation History

Year	Work Performmed	Plan	Shop
1982	NEW STRUCTURE	C205	C205

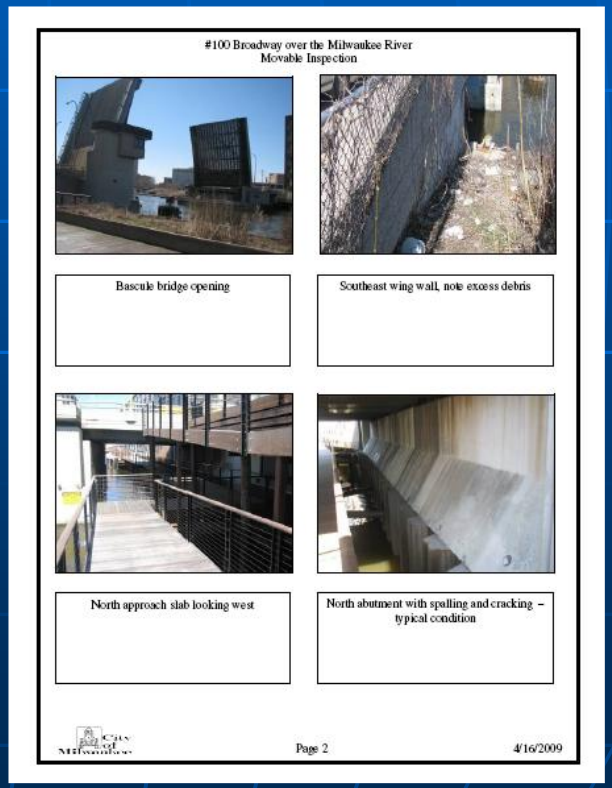
Inspection Information

Special Requirements	Y/N	Comments
Traffic Control		
Access Equipment	Y	Boat
Other	Y	Diver

Inspector Information

Team Leader Name and No. Printed: Harrison, Robert L (2507)	Team Member(s) Name(s) Printed: Sean Schutten	
Team Leader Signature:	Inspection Date: 2009-04-16	Inspection Agency: CITY (3)
District/Local Manager and No. Printed:	District/Local Manager Signature:	Review Date:

Tue Jun 30 08:03:27 CDT 2009



#100 Broadway over the Milwaukee River
Movable Inspection

Bascule bridge opening

Southeast wing wall, note excess debris

North approach slab looking west

North abutment with spalling and cracking – typical condition

Page 2

4/16/2009

Sufficiency Ratings

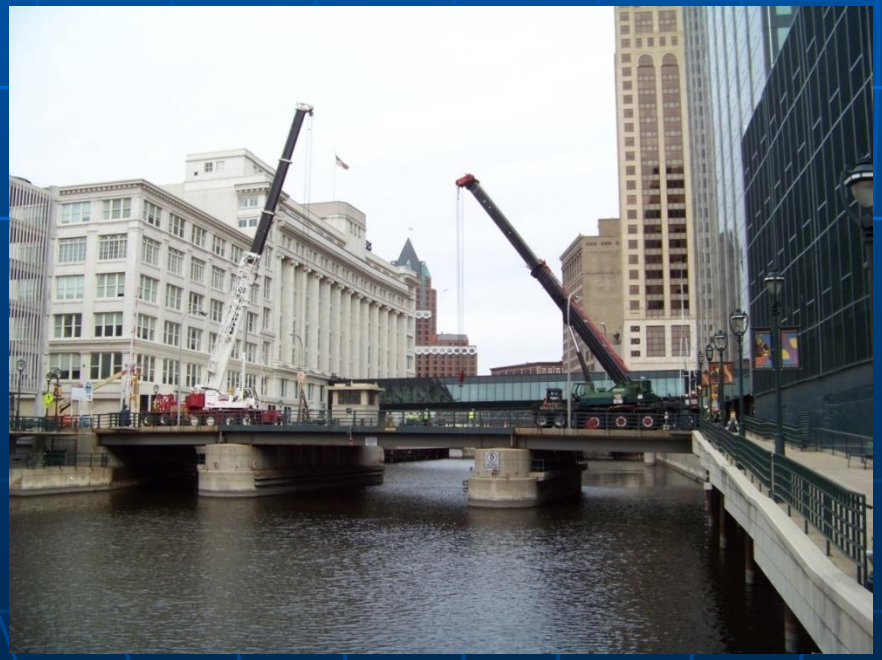
- FHWA standard measures service condition
- Three separate factors determine SR Rating
  - Structural adequacy (Deck, Superstructure, and Substructure)
  - Serviceability and functional obsolescence
  - Essentiality for public use
- Condition and function are rated to current standards (not what the bridge may have been built to)
- 100 percent would represent an entirely sufficient bridge; 0 is insufficient or deficient bridge
- Rating is not a quantitative measure of safe versus unsafe
- Example, a 50 year old bridge may be structurally adequate but deficient due to current roadway widths, standards, or clearance

Bridge State & Federal Program

- Available only for those bridges deemed as federally eligible
- Competitive application process for limited state-wide program dollars
- Applied for on a 3 year cycle
- Generally 80% Federal/State funded with 20% local share
- Project schedule generally established by limits on available funding

2012 Bridge State & Federal ($6,535,000)

- W. Capitol Dr over Menomonee River - replace (SR 49.0) $2,060,000
- S. 27th St over Kinnickinnic River - renovate (SR 60.6) $2,100,000
- S. Whitnall Ave over Union Pacific RR - rehab (SR 47.4) $1,450,000
- N. Granville over Little Menomonee - remove (SR 22.4) $425,000
- Misc various projects $500,000



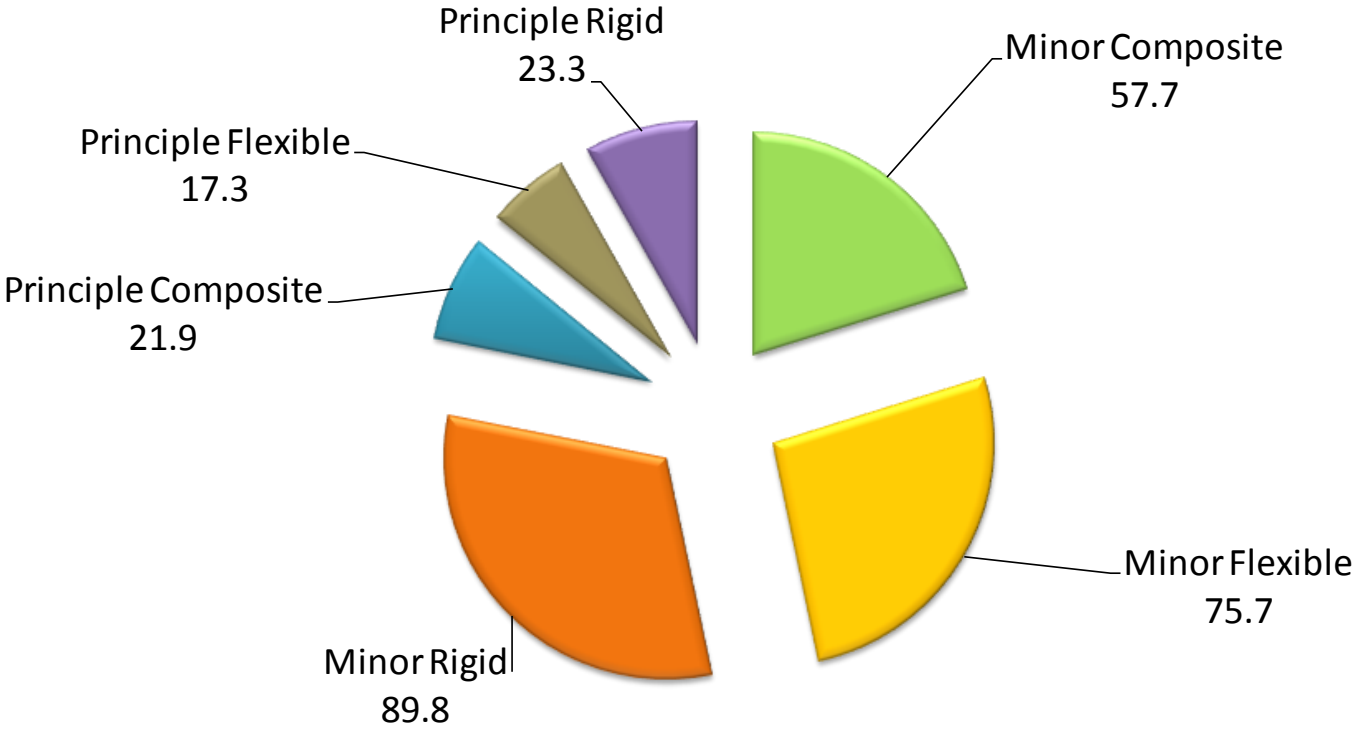
Bridge Local Program

- Bridges not deemed Federal/State eligible
- Bridges in which Federal/State funds not available or insufficient
- Maintenance work including structure repair, painting mechanical upgrades, inspections, pre-engineering activities, etc.
- Safety inspections

2012 Bridge Local ($10,435,000)

- W. St Paul Ave over Milwaukee River - rehab (SR 45.5) $9,300,000
- W. Lisbon Ave over Canadian Pacific RR - design (SR 40.9) $500,000
- S. 1st St over Kinnickinnic River – design (SR 61.9) $335,000
- City Safety Inspection $175,000
- Misc various projects $100,000
- S. 5th St over Kinnickinnic River – MMSD review $25,000

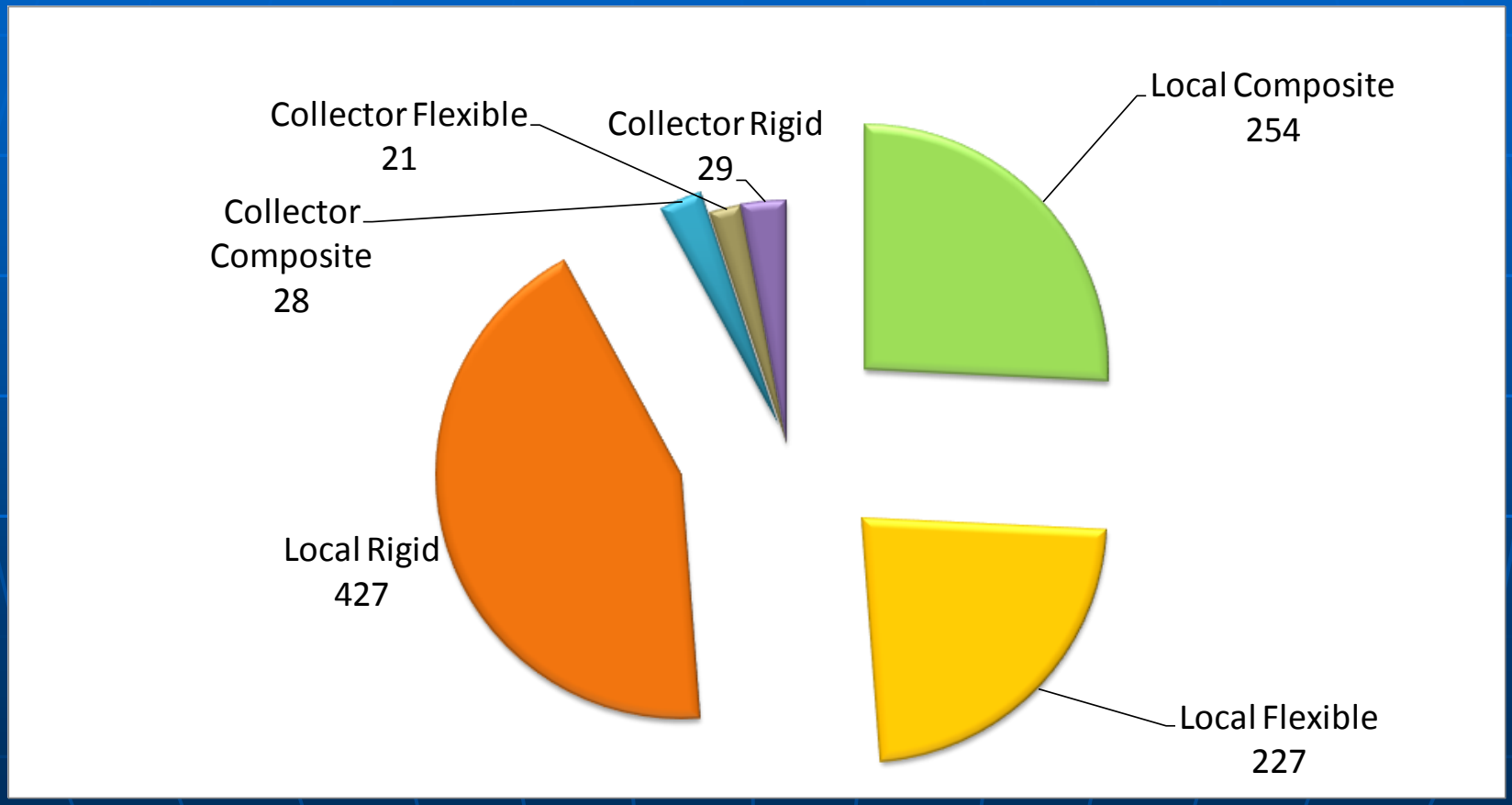
City Major Street Inventory



2012 Major Street Program

- State Trunk Highways $29,472,000
- County Trunk Highways $ 305,000
- State Transportation Program $12,005,000
- Other (TE, CMAQ, LRIP, SRTS, etc.) $36,552,000

City Local Street Inventory



2012 Sidewalk Replacement Program

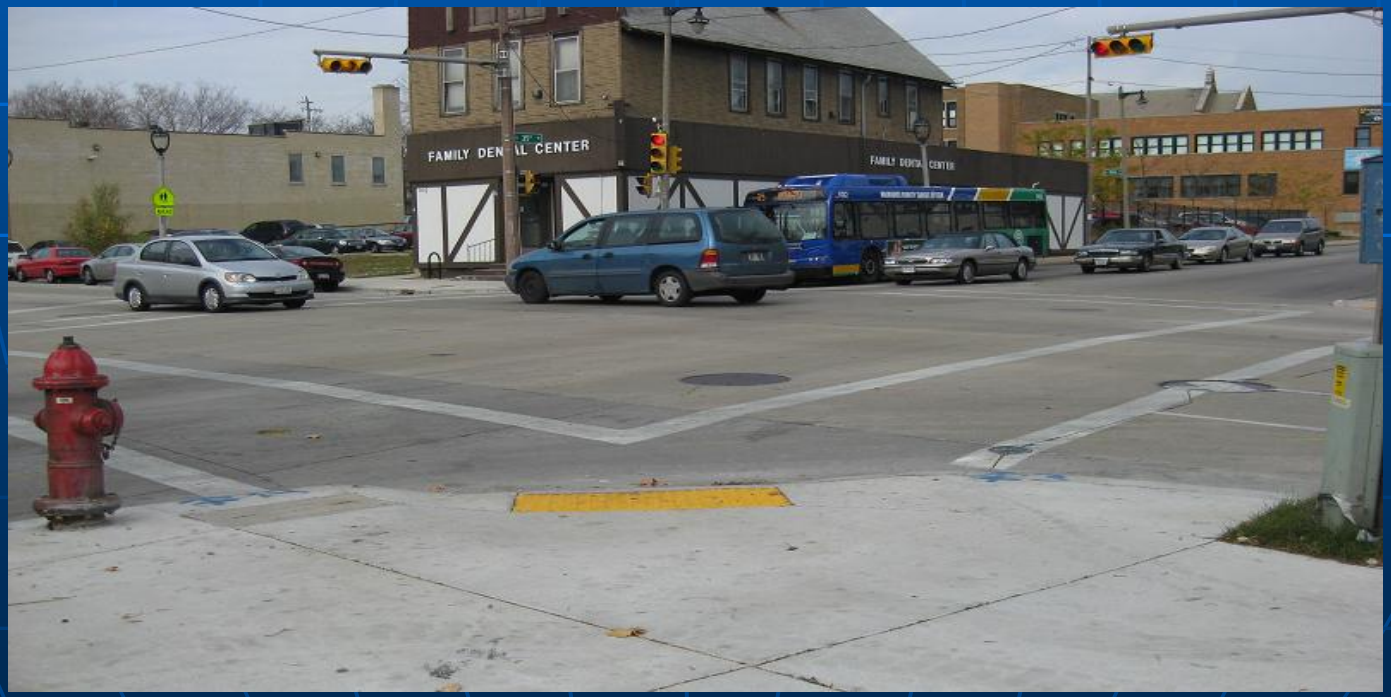
- Area wide replacements $1,200,000
- Scattered site replacements $300,000

2012 Street Lighting Program

- Engineering $ 1,070,000
- Street Lighting Substations $ 1,360,000
- Neighborhood Lighting Program $ 2,385,000
- Paving Program $ 4,285,000

2012 Traffic Control Program

- Engineering $ 370,000
- Signals $ 937,300
- Signs $1,237,700
- Uncollectable Knockdowns $ 225,000



2012 Estimated Conduit Installation Costs

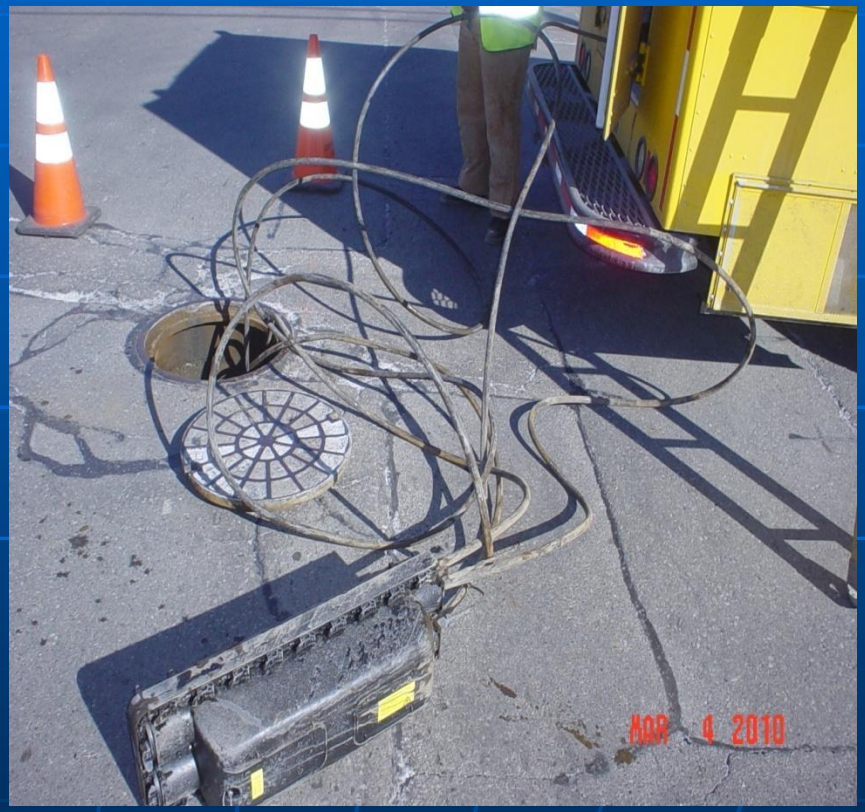
Priority	Location	LF	MH	Estimated Cost	
1	Captiol - 60th to 84th (Replace existing conduit impacted by curb realignment)	8200	14	$459,000.00	
1	Capitol - 84th to 100th (Replace existing conduit impacted by curb realignment)	5200	9	$291,500.00	
1	Appleton Ave Bridge over Silver Spring (Replace existing conduit with bridge reconstruction)	180	0	$250,000.00	*1
2	Appleton - 91 to Silver Spring (New conduit to feed Engine House #4)	3500	6	$196,000.00	
3	27- St Paul to Highland (Connects gap between St Paul & State St)	3550	6	$198,500.00	
4	Wisconsin - 21 to 35 (Increase capacity)	4900	9	$276,500.00	
5	Lloyd - Sherman to 60th (New conduit requested by Traffic to feed signals and interconnect path - Increase in capicity for Communications)	5500	10	$310,000.00	*2
6	20th - Hopkins to Capitol	5030	8	$279,500.00	
7	Appleton - Hampton to 91 (New)	3850	7	$217,000.00	
8	Chicago - Jackson to Milwaukee (Alternate path in high traffic area)	700	2	$42,000.00	
9	Milwaukee - Menomonee to Chicago (Alternate path in high traffic area)	450	2	$29,500.00	
10	91/Swan - Hampton to Appleton (New conduit to feed Engine House #4)	2900	5	$162,500.00	
11	13th St - Windlake to Forest Home	2500	4	$139,000.00	
12	35th - Burnham to Greenfield	2500	4	$139,000.00	
13	Mill - Teutonia to 43	4200	8	$238,000.00	
14	91- Appleton to Flagg (Increase capacity)	4400	8	$248,000.00	
15	Appleton - Capitol to Hampton (Increase capacity)	6400	11	$358,500.00	
16	Appleton -Silver Spring to 107 (Increase capacity)	4131	7	$231,050.00	
Total				**$4,065,550.00**	

*1 - Reduced to $40,000 if DOT allows reattachment to bridge

*2 - Reduced to $62,000 if project qualifies for 20/80 City/DOT split.

The Projects shown in Red are absolutely necessary due to impacts to existing conduit from the proposed construction projects.

Communications Manhole – Splice Case



Block Manhole Repair

Manhole Inventory

7,529 Active communications and electrical manholes

- 43% Brick Manholes (1888-1950)
- 40% Block Manholes (1950-1980)
- 17% Precast concrete (1950-Present)

Brick manholes are past their useful life (75 years)

- Replacing 3,200 brick manholes at $13,000 per manhole = $41.6 million
- Replacing 100 manholes annually = $1.3 million, will take 32 years

Repair Manholes

- 200 manholes annually at $3,000 per manhole = $600,000

2012 budget request for manhole maintenance $500,000

Funding level currently doesn't meet maintenance needs

City of Milwaukee Department of Public Works

2012 Sewer Budget

6 Year Capital Improvement Program

	Relief and Relay	Inflow and Infiltration	Pump Rehabilitation	Total Suspended Solids Removal	Channel Maintenance	Total Budget
Year	(million)	(million)	(million)	(million)	(million)	(million)
2011	$24.00	$11.13	$1.00	$0.50	$0.08	$36.71
2012	$29.00	$7.00	$1.00	$1.00	$0.20	$38.20
2013	$30.00	$4.90	$1.00	$1.00	$0.20	$37.10
2014	$31.00	$3.00	$0.70	$1.00	$0.20	$35.90
2015	$31.00	$3.00	$0.70	$1.00	$0.20	$35.90
2016	$32.00	$3.00	$0.70	$1.00	$0.20	$36.90
Total	$177.00	$32.03	$5.10	$5.50	$1.08	$220.71

2011-2016 Relief and Relay

	R/R Budget (million)
2011	$24.00
2012	$29.00
2013	$30.00
2014	$31.00
2015	$31.00
2016	$32.00
Total	$177.00

Age of Sewers

Type of Sewer	<26 Years	26 to 50 years	51 to 75 years	76 to 100 years	>100 Years	Total
	(miles)	(miles)	(miles)	(miles)	(miles)	(miles)
Combined	180.2	81.3	64.4	98.1	123.0	547.0
Sanitary	92.5	288.2	376.4	183.2	0.0	940.4
Storm	48.6	296.3	393.7	221.3	0.8	960.7
Total	321.3	665.8	834.5	502.6	123.8	2,448.1

Sewer Replacement Program

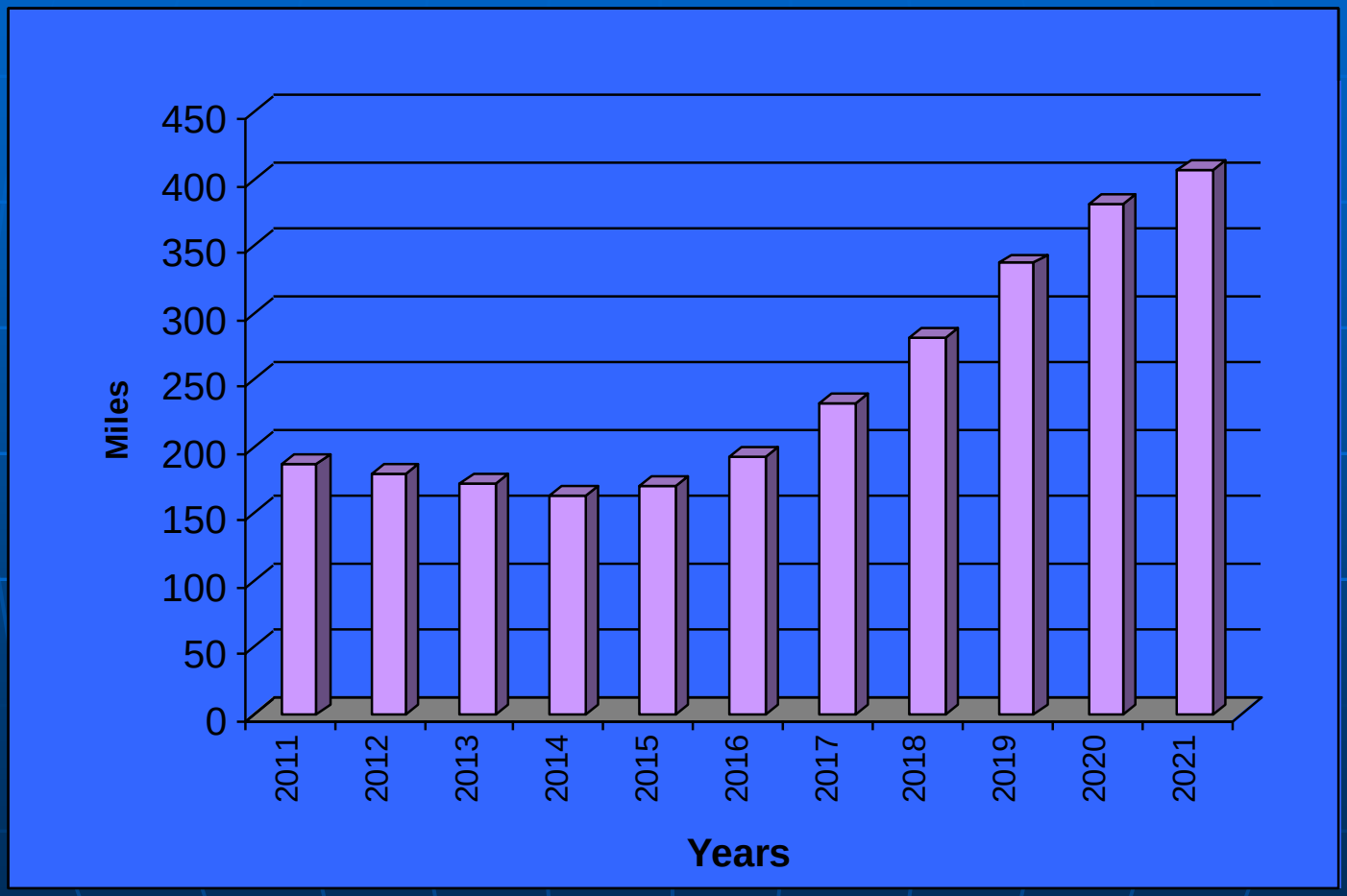
On what basis are Sewer Mains selected for replacement?

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

Sewers need to be rehabilitated in future that are greater than 90-Years Old 2011 to 2021

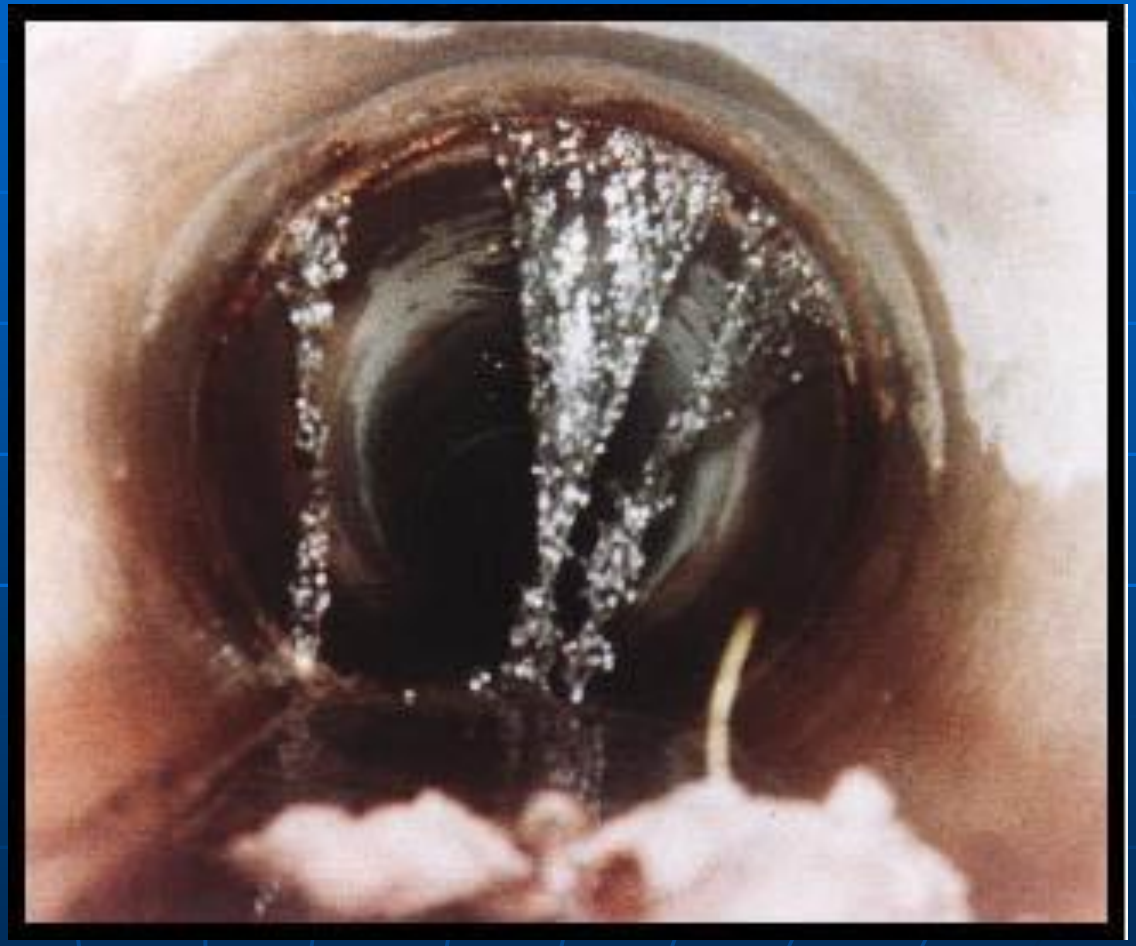
(assuming an average replacement rate of 17.2 miles per year)

*Current replacement cycle is 142 years instead of 90 years



2011-2016 Inflow and Infiltration (I/I)

	I/I Budget (million)
2011	$11.13
2012	$7.00
2013	$4.90
2014	$3.00
2015	$3.00
2016	$3.00
Total	$32.03



Purpose of Inflow and Infiltration (I/I) Projects

- To comply with MMSD's non-compliant metersheds
- To reduce basement backups, remove unwanted clear rain water from sanitary sewers
- To reduce Sanitary Sewer Overflows (SSO)

2011-2016 Pump Rehabilitation

	Pump Rehab
2011	$1.00 million
2012	$1.00 million
2013	$1.00 million
2014	$700,000
2015	$700,000
2016	$700,000
Total	$5.1 million

Purpose of Pump Rehabilitation

- Flow is pumped from the sanitary sewer to a higher level sanitary sewer or a storm sewer to prevent basement backups.
- Rebuild existing pump sites, including new pump and components
- Maintain SCADA telemetry system
- Perform monthly pump checks and “load” tests at all sites

2011-2016 Total Suspended Solids (TSS) Removal

	TSS Reduction
2011	$500,000
2012	$1.00 million
2013	$1.00 million
2014	$1.00 million
2015	$1.00 million
2016	$1.00 million
Total	$5.5 million

Purpose of TSS Removal

- Per Wisconsin Department of Natural Resource (WDNR), communities must reach a 40% reduction of suspended solids

- Types of projects include
  - Detention ponds
  - Bio-retention areas
  - Rain Gardens

2011-2016 Channel Maintenance

	Channel Maintenance
2011	$80,000**
2012	$200,000
2013	$200,000
2014	$200,000
2015	$200,000
2016	$200,000
Total	$1, 080,000

**Operation and Maintenance

Purpose of Channel Maintenance

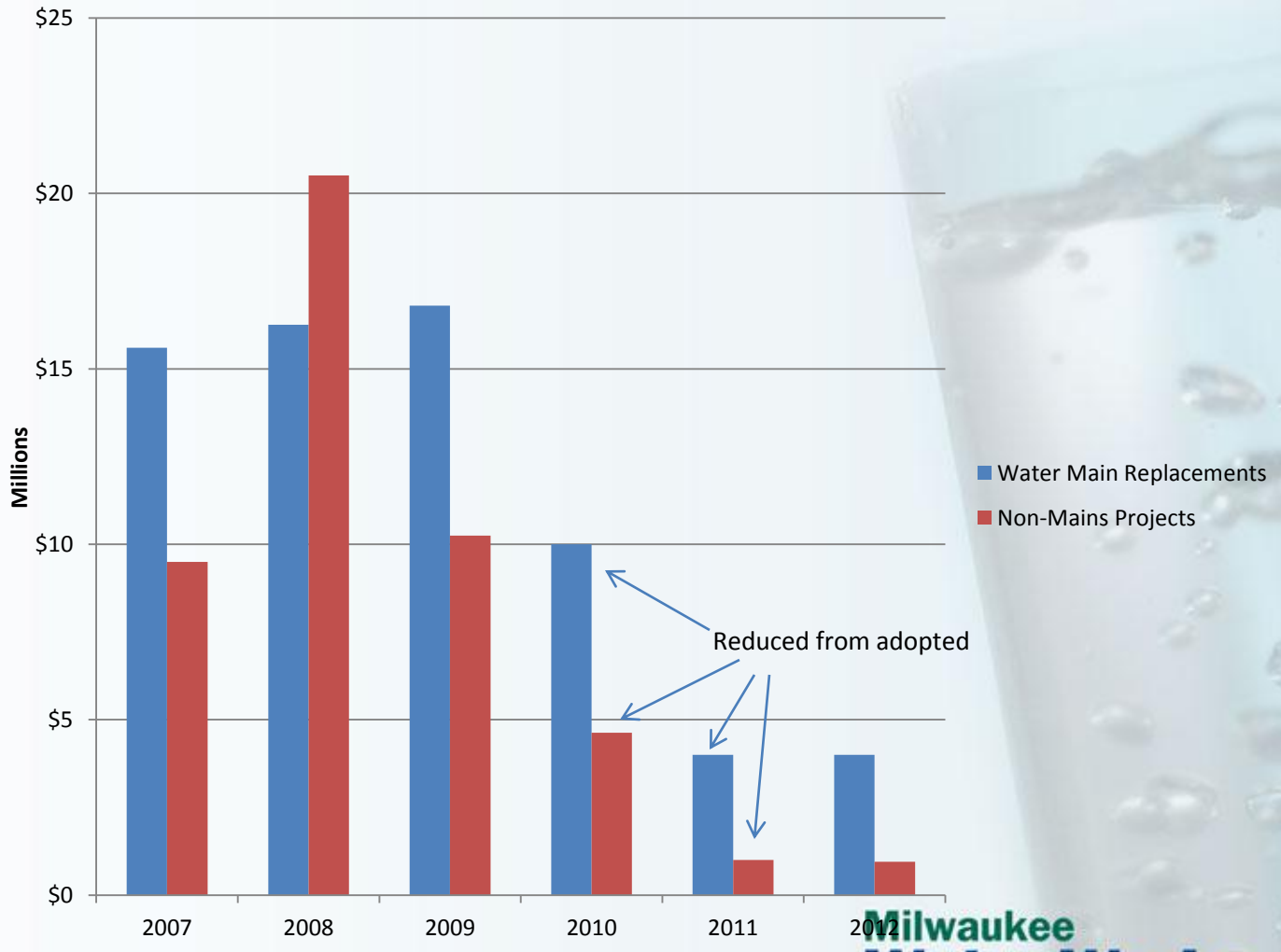
- Remove trash and debris from channels and culverts to maintain proper drainage
- Cut grass along banks of channels
- Clean sediments from channels

2012
Capital Budget Request

Milwaukee
Water Works

Safe, Abundant Drinking Water.

MWW Capital Budgets



Milwaukee Water Works

Safe, Abundant Drinking Water.

2012 Projects

Water Main Projects

– Distribution mains: $3.5 million
– Feeder mains: $0.5 million

Non-Mains Projects

– Inspect tunnel between Linnwood and Riverside: $800,000 (est)
– Design and construct Bulk Water Filling Station: $150,000

Milwaukee Water Works

Safe, Abundant Drinking Water.

Milwaukee
Water Works

Safe, Abundant Drinking Water.

City of Milwaukee
Number of Water Main Break Per 100 Miles Per Year
and Water Mains Relayed