

# **Omaha Combined Sewer Overflow (CSO) Control Program**

## **Commercial/Industrial Customers Update**

**Marty Grate - City of Omaha  
May 14, 2009**



# ***Challenges Facing Omaha***

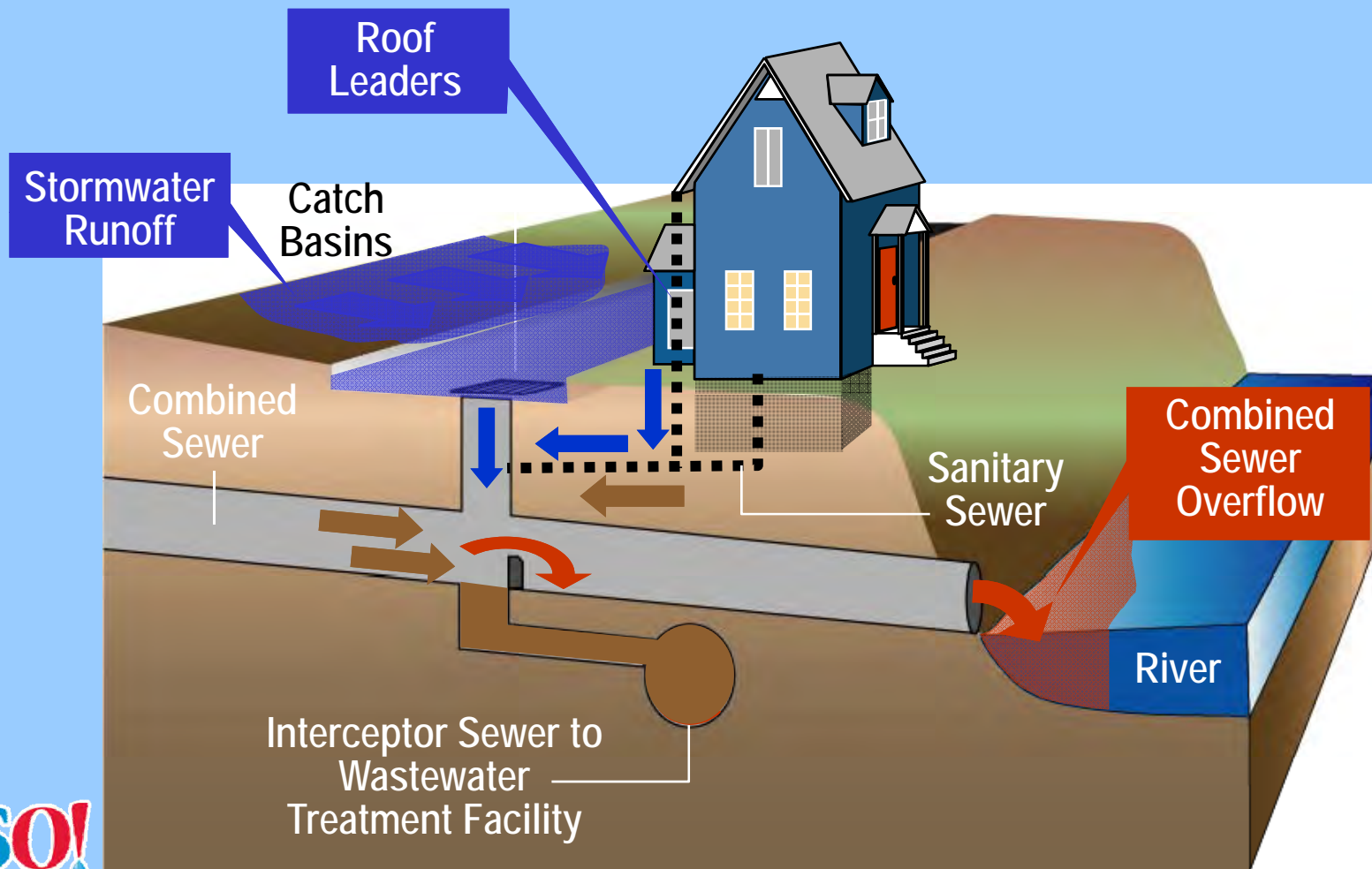
- **Meeting the increased requirements of the federal Clean Water Act**
- **Balancing the following needs:**
  - Regulatory compliance
  - Economic affordability
  - Community acceptance



# **772+ CSO Communities Nationwide**



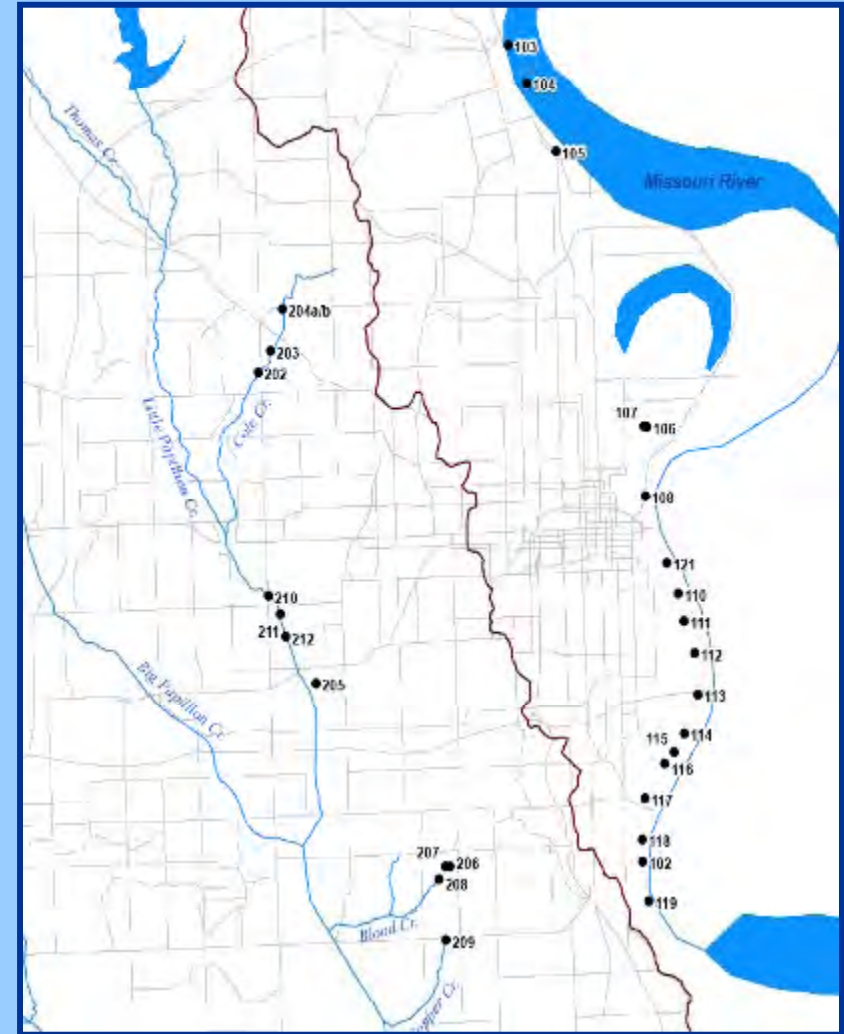
# *Wet weather inflows exceed the CSS capacity and trigger a CSO*





# Omaha Sewer System

- 1,950 miles of sewers
  - Eastern half combined
  - Western half separate
- 51 sq mi combined sewer area
  - 33,000 acres
  - 7,300 sq blocks
- 29 CSO outfalls
  - 10 to Papio Creek
  - 19 to Missouri River
  - 3 recently eliminated



# CSO Control Program Timeline



# CSO Control Options Considered

- **Complete sewer separation**
  - 490 sq blocks per year for 15 years
  - Then, treat separated stormwater?
- **Storage**
  - Below-ground tanks
  - Deep tunnels

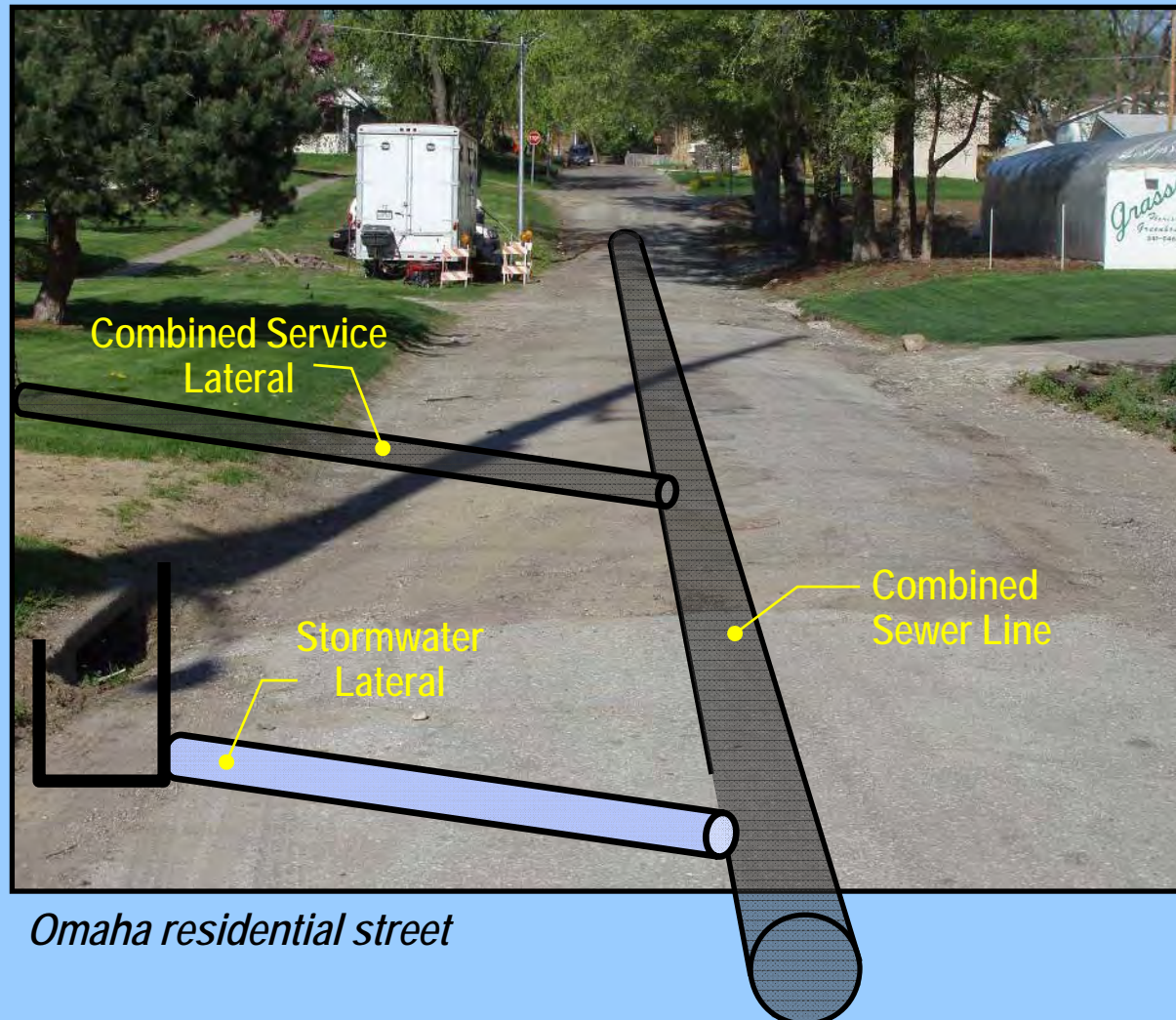


# ***CSO Control Options Considered (cont.)***

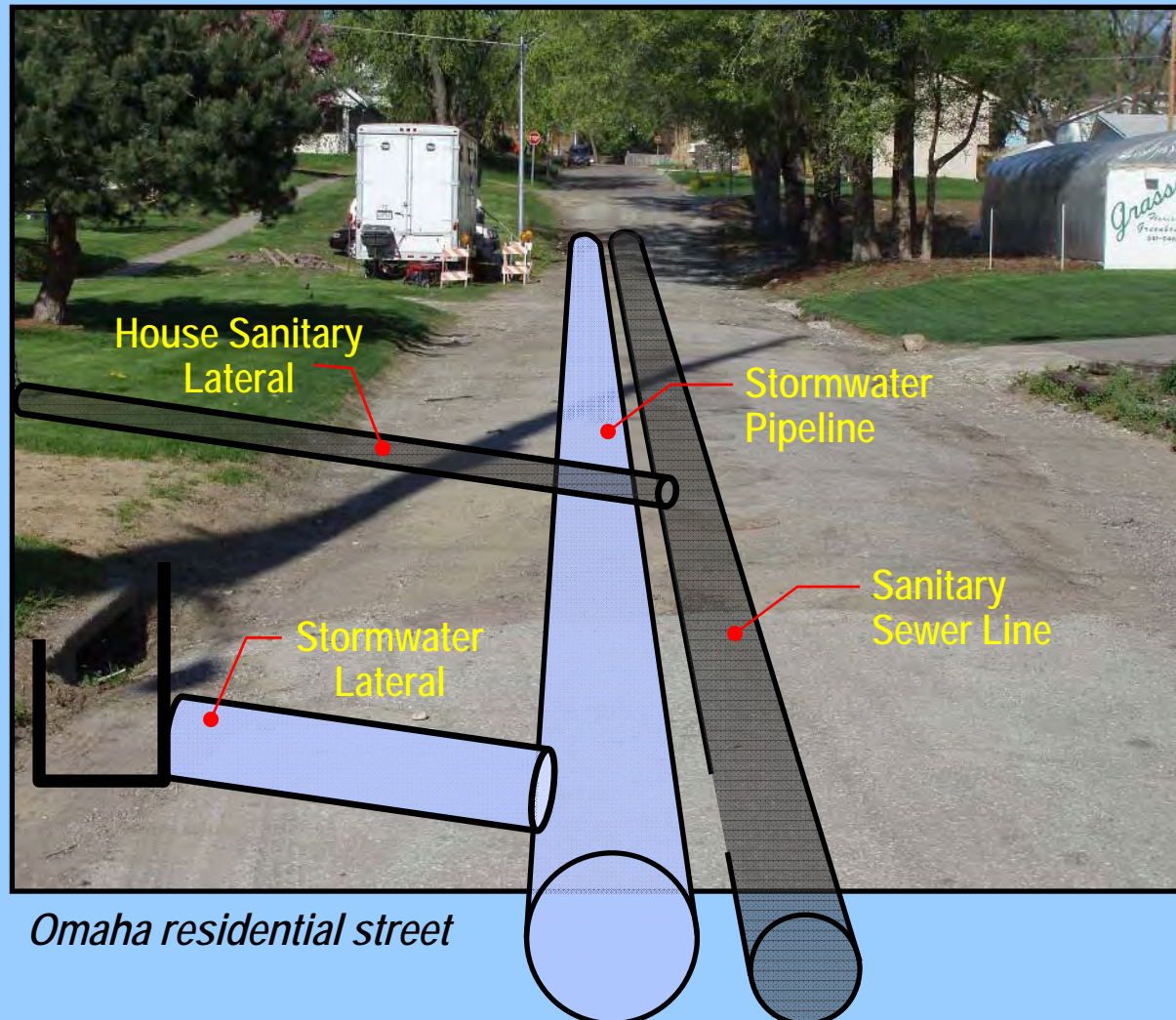
- **High-rate treatment**
  - Near points of discharge
  - Operate only in wet weather
- **Combination of Solutions**
  - Green/Natural solutions



# Typical Combined Sewer



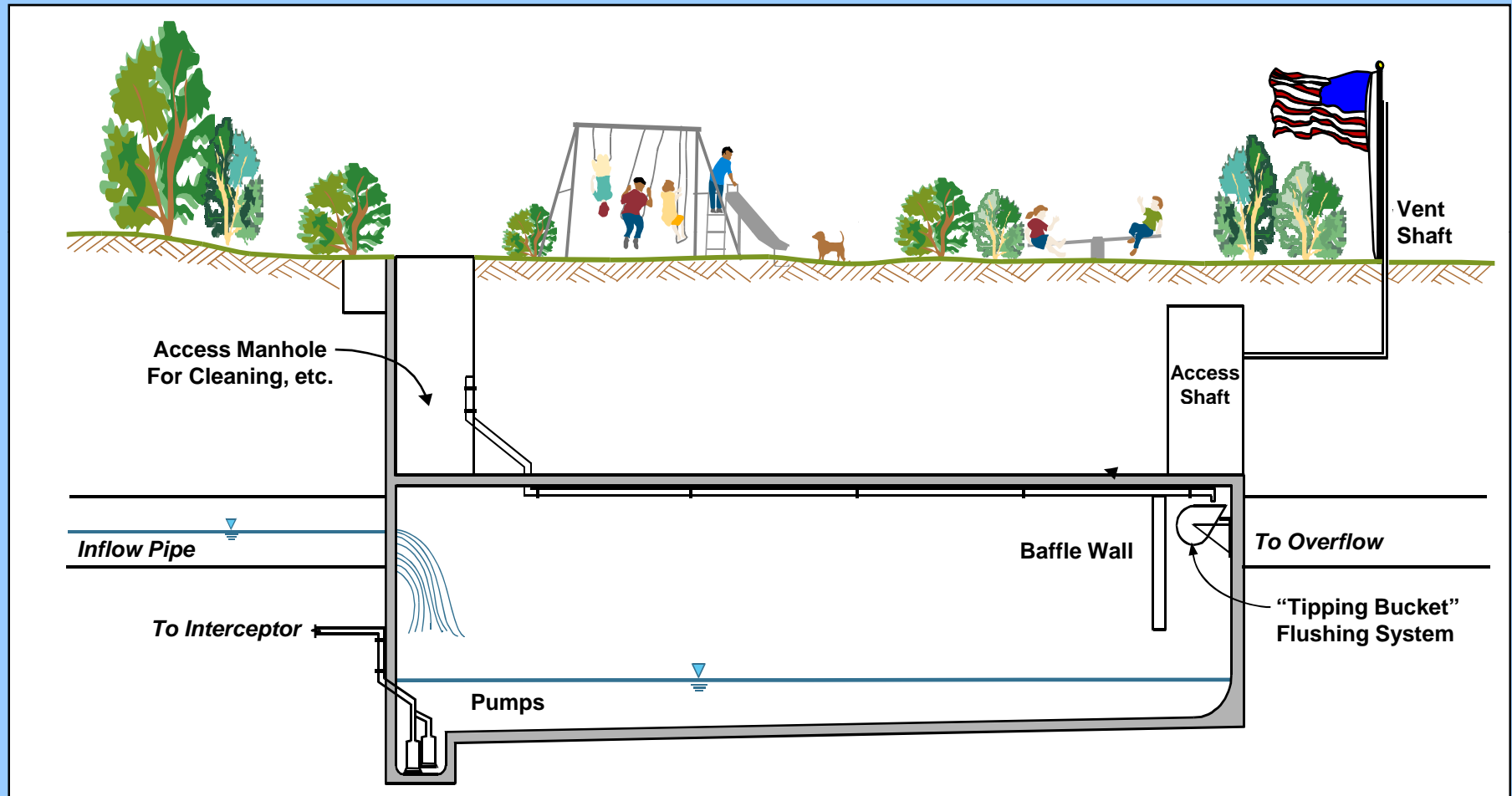
# Typical Sewer Separation



# *Storage – Above-Ground Tanks*



# Storage – Below-Ground Tanks

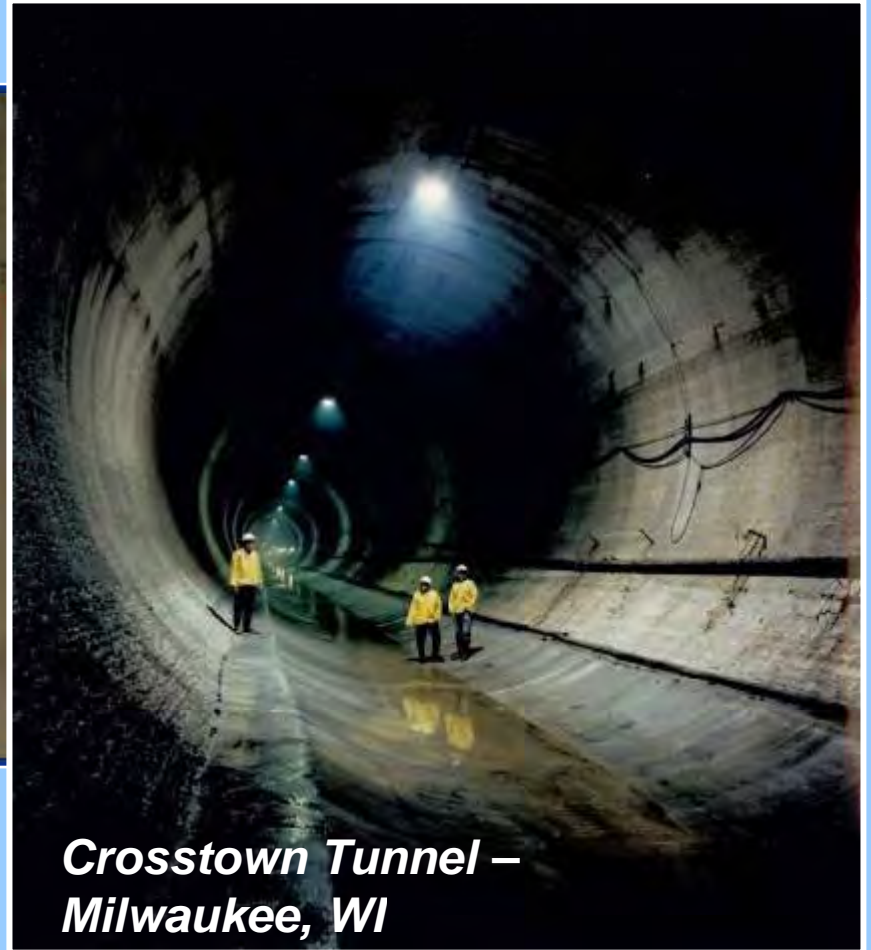


# ***Tunnel Examples***

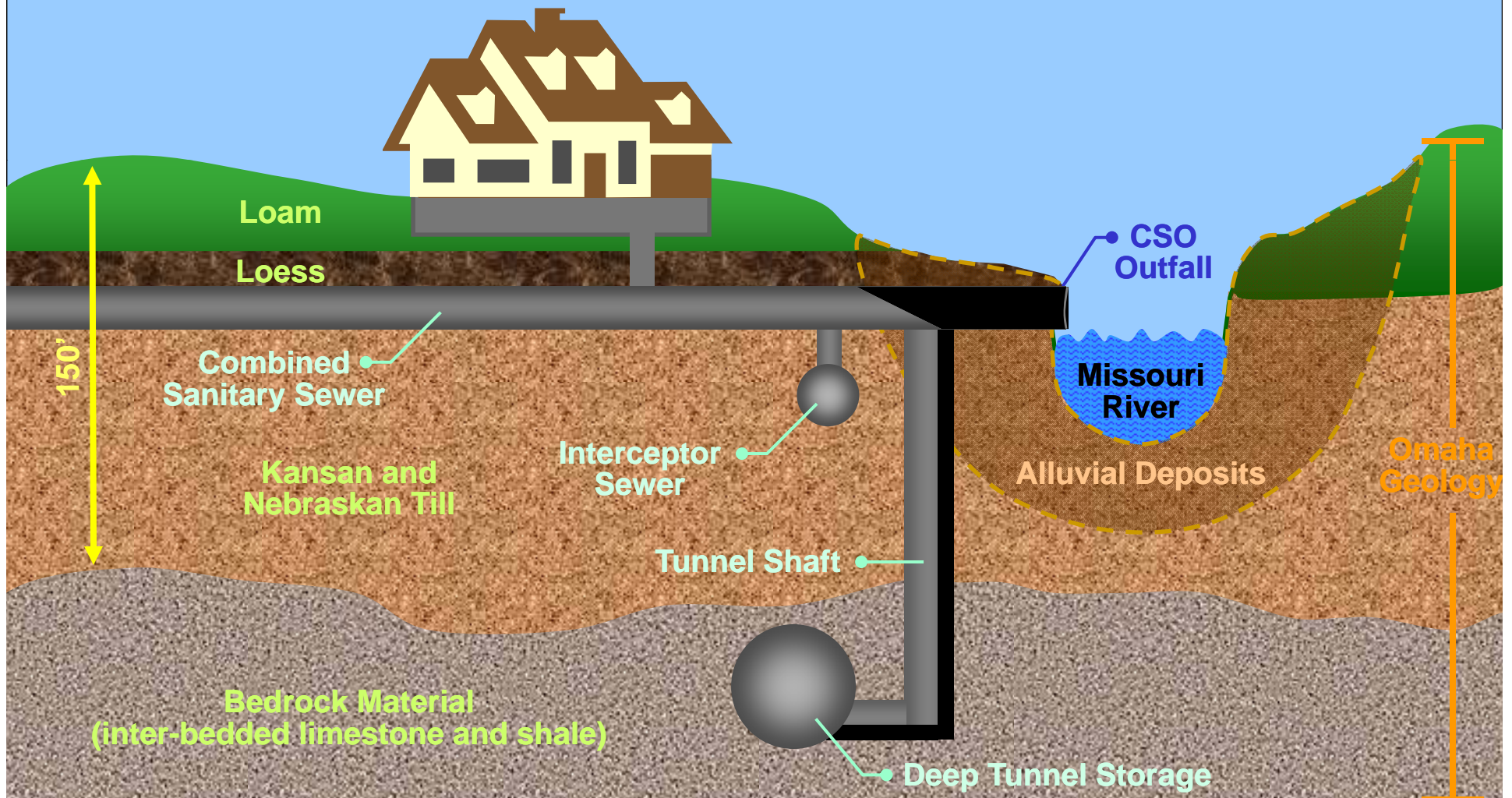
***Henderson Tunnel - Seattle, WA***



***Crosstown Tunnel –  
Milwaukee, WI***



# Deep Tunnel Storage Concept in Omaha



# High-rate treatment technology



# ***Green Solutions***

- **Approach to stormwater management**
  - **Sustainable**
  - **Cost effective**
  - **Environmentally friendly**
- **Purpose is to capture, clean, and reduce stormwater runoff using plants and soils**

**Wetlands**



**Wet Pond**



**Extended Dry Pond**



# CSO Control Plan



# Proposed Major Elements October 2007 Submittal



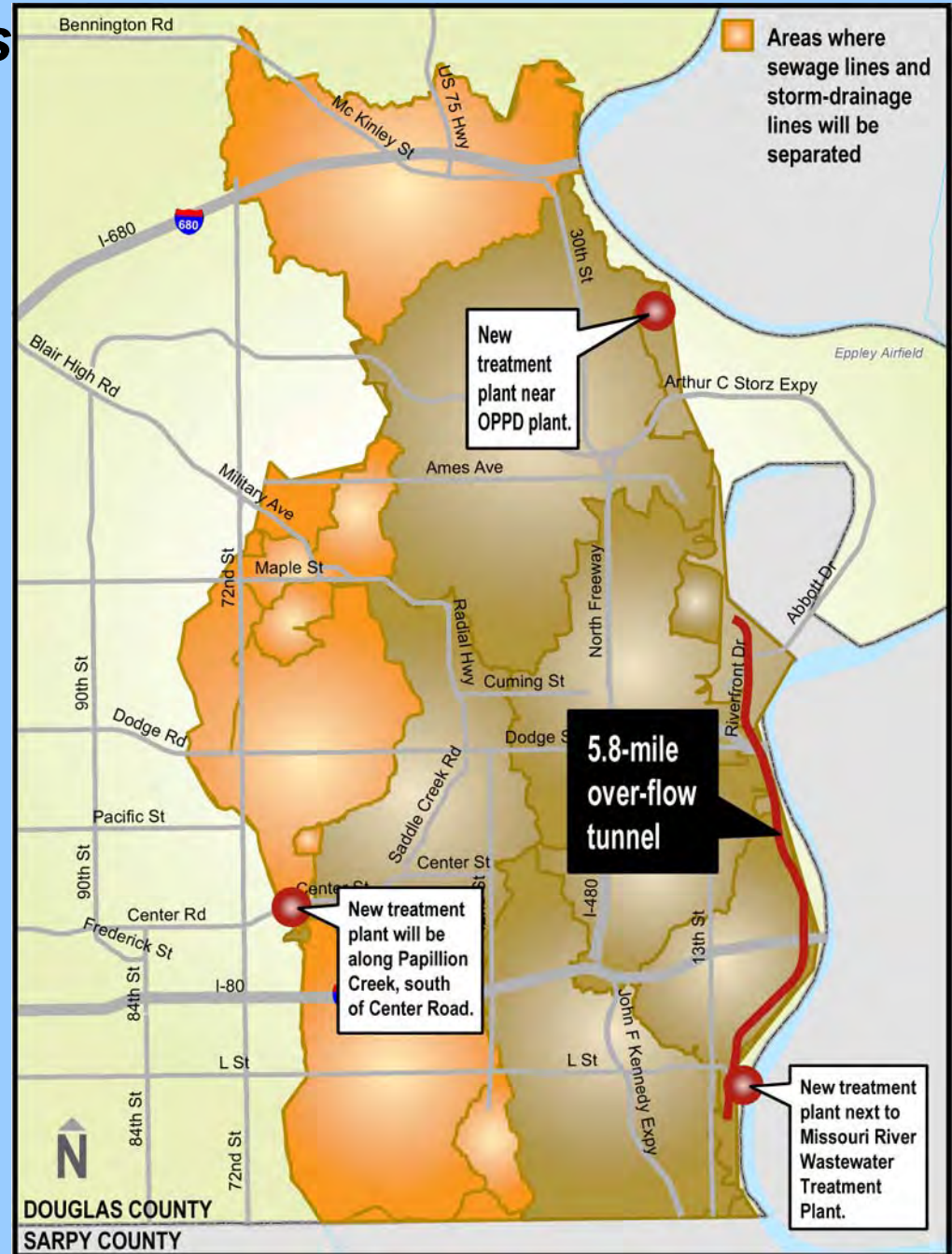
Targeted Sewer Separation Projects



3 High Rate Treatment Facilities

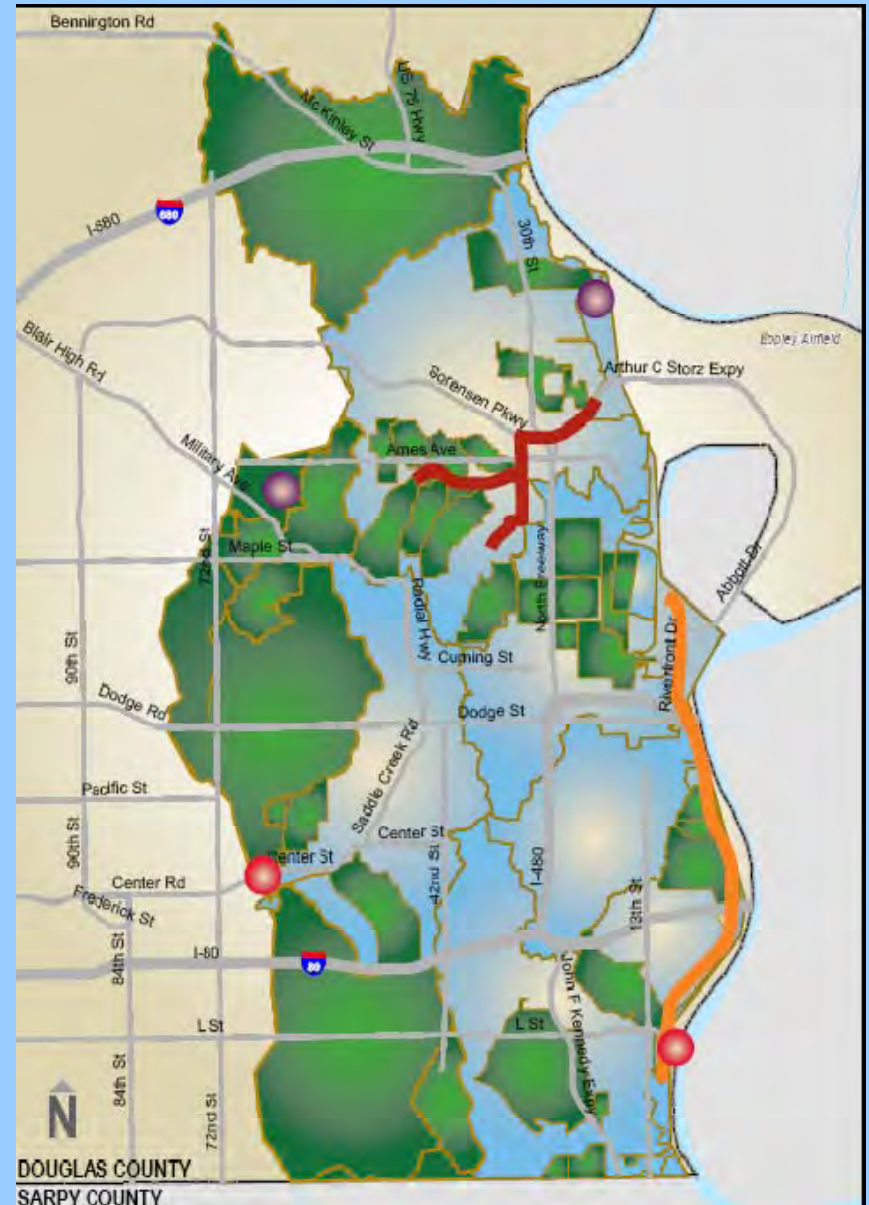


One Deep Conveyance Tunnel



# 2009 CSO Controls

- **High-Rate Treatment at Saddle Creek Outfall**
  - Flow rate: 315 million gallons per day
  - Reduced size of facility by adding additional sewer separation area
- **High-Rate Treatment at Missouri River Wastewater Treatment Plant**
  - Flow rate: 52 million gallons per day
  - Reduced size of facility by increasing tunnel size
- **Storage Tank at Minne Lusa Outfall**
  - Volume: 3.7 million gallons
  - Eliminate Treatment Facility by adding additional sewer separation areas
- **Storage Tank near Benson Park**
  - Volume: 80,000 gallons



# CSO Control - Tunnel

- **Deep Tunnel:**
  - Length: 5.4 miles
  - Diameter: 17 feet
  - Depth: 160 feet
  - Number of drop shafts: 5
- **Changes**
  - Reduced length by 0.4 miles and increased diameter from 12.5 to 17 feet
  - Reduced number of drop shafts from 6 to 5 by combining facilities



# **Water Quality Benefits**

***Reduction of Overflows and  
Bacteria***



# ***Overflow Statistics for Average Year***

	<b>Number of Overflows (2024)</b>	<b>Percent of overflow volume controlled (2024)</b>
<b>Missouri River Watershed</b>	<b>4</b>	<b>92%</b>
<b>Papillion Creek Watershed</b>	<b>4</b>	<b>96%</b>
<b>Total System</b>		<b>94%</b>

# **Costs & Implementation Plan**



# ***CSO Control Costs***

- **CSO Control Programs involve a significant cost**
  - Atlanta, GA - \$3.0B for 19 sq mi
  - Cincinnati, OH - \$1.5B for 74 sq mi
  - Cleveland, OH - \$1.6B for 75 sq mi
  - Louisville, KY - \$500M for 27 sq mi
  - Nashville, TN - \$1.3B for 15 sq mi
  - **Omaha, NE - \$\_\_\_\_\_ for 51 sq mi**

# ***Preliminary Cost Estimates***

- **Total cost estimate \$1.5 billion (2006 \$)**
  - **Sewer rates are likely source of funds**
  - **All system users in Omaha and metro area**
  - **All rate payers affected including residential, commercial and industrial**
- **Residential rate of \$15/month in 2010 estimate up to \$50/month by 2017**

# *Stimulus funds*

- **American Recovery and Reinvestment Act - \$800B**
- **Clean Water Act share \$4B**
- **Nebraska share \$20 M**
- **Omaha CSO (separation) share: \$7.5M**
  - **\$3.75M 20-year loan @2%**
  - **\$1.875M 20-year loan @0%**
  - **\$1.875M loan forgiveness (grant)**
- **Additional \$7.5M loan @2% for treatment plant improvements**



***Typical  
Residential  
Sewer Bills-***

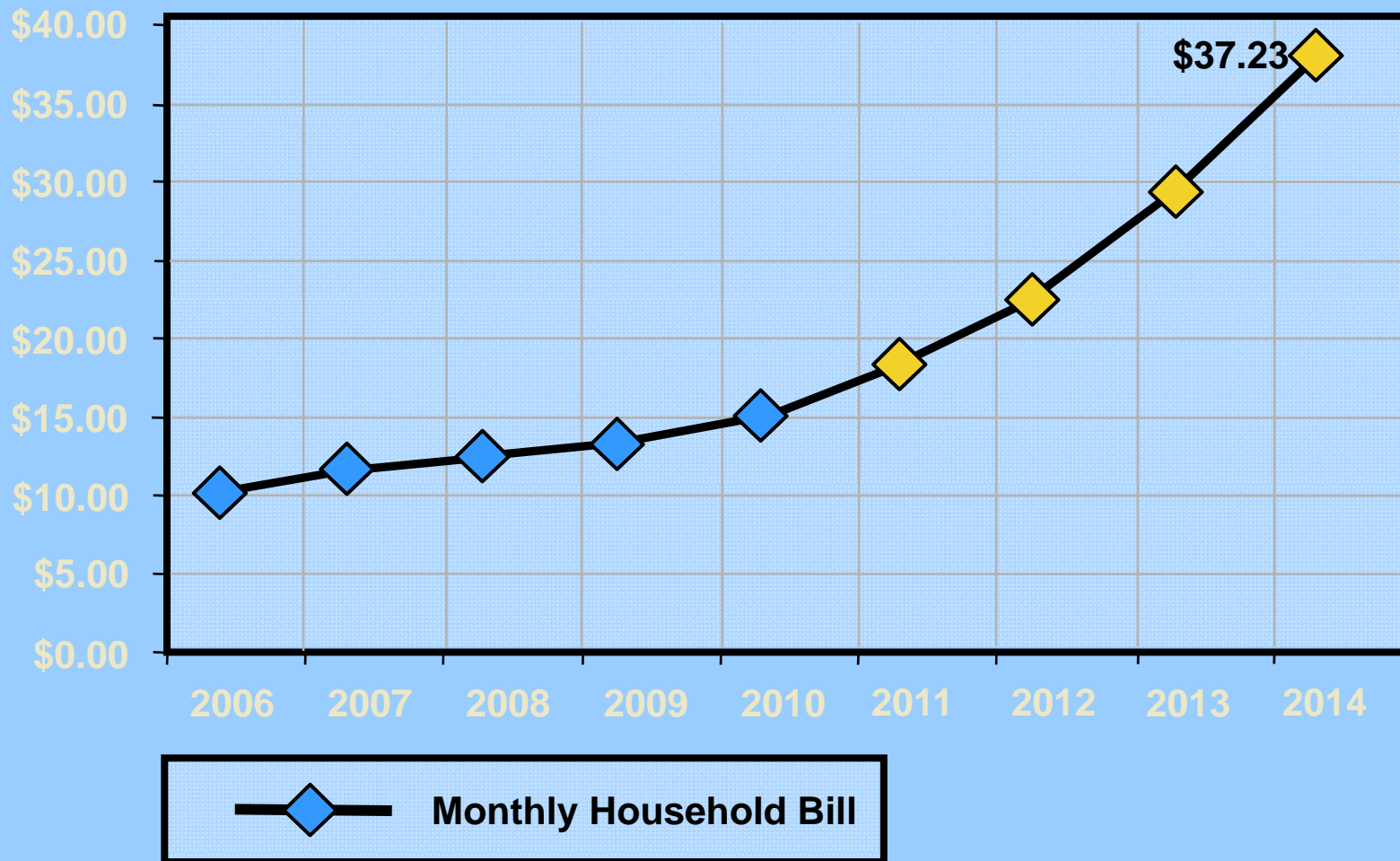
***Past, Present,  
and Future***



# ***Final LTCP Costs***

- **Refined LTCP**
- **Updated capital costs to April 2009 dollars**
- **Latest estimated total program cost ~\$1.7B (2009 \$)**
- **Updated financial plan and cost of service model for sewer use fees**
- **Drafted ordinance for 2011-2014 rate increases**

# ***Average Residential Sewer Bills: Past, Present, and Future***



# ***Rates Remain Competitive***

## **Memphis Light, Gas and Water**



**2009  
Utility Bill  
Comparisons  
for Selected U.S. Cities**

---

## RESIDENTIAL WASTEWATER BILLS

Rates in effect January 1, 2009

Rank	City	State	Company	5 CCF	10 CCF	15 CCF
1	Memphis	TN	Memphis Light, Gas and Water	\$3.58	\$7.17	\$10.75
2	Chicago	IL	City of Chicago-Department of Water Management	\$5.60	\$11.19	\$16.79
3	Denver	CO	Denver Wastewater Management Division	\$7.80	\$13.65	\$21.45
4	Lincoln	NE	Lincoln Water and Wastewater	\$9.41	\$17.51	\$25.61
5	Oklahoma City	OK	City of Oklahoma City-Utilities Department	\$10.81	\$23.17	\$35.53
6	El Paso	TX	El Paso Water Utilities	\$11.38	\$17.38	\$24.08
7	Phoenix	AZ	City of Phoenix Water	\$11.40	\$21.58	\$31.76
8	San Antonio	TX	San Antonio Water Service	\$12.38	\$20.07	\$27.76
9	Indianapolis	IN	City of Indianapolis-Public Works	\$12.40	\$24.88	\$37.32
10	Omaha	NE	City of Omaha - Public Works Department	\$12.76	\$16.71	\$20.67
11	Los Angeles	CA	City of L.A., Bureau of Sanitation	\$13.08	\$29.43	\$42.51
12	Springfield	MO	City of Springfield, MO-Wastewater Operations	\$13.47	\$18.22	\$22.97
13	Huntsville	AL	Huntsville Utilities	\$15.59	\$31.12	\$46.59
14	Jackson	TN	Jackson Energy Authority	\$16.97	\$30.96	\$44.94
15	Louisville	KY	Louisville & Jefferson Co. Metropolitan Sewer District	\$17.26	\$26.01	\$34.76
16	Nashville	TN	Metro Water Services	\$17.33	\$36.13	\$54.93
17	New York	NY	New York City Water Board	\$18.35	\$36.70	\$55.05
18	Columbus	OH	City of Columbus	\$19.77	\$36.32	\$52.87
19	St. Louis	MO	Metropolitan St. Louis Sewer District	\$20.10	\$29.50	\$38.90
20	Colorado Springs	CO	Colorado Springs Utilities	\$22.49	\$32.99	\$43.49
21	Jacksonville	FL	Jacksonville Electric Authority	\$22.82	\$41.29	\$59.77
22	Little Rock	AR	Little Rock Wastewater	\$23.45	\$38.15	\$52.85
23	Boston	MA	Boston Water and Sewer Commission	\$24.20	\$49.00	\$74.23
24	Detroit	MI	Detroit Water and Sewerage Department	\$25.25	\$37.60	\$49.96
25	Philadelphia	PA	Philadelphia Water Department	\$26.61	\$36.47	\$46.34
26	New Orleans	LA	Sewerage and Water Board of New Orleans	\$26.71	\$41.82	\$56.93
27	San Francisco	CA	San Francisco Public Utilities Commission	\$27.36	\$76.21	\$125.06
28	Austin	TX	City of Austin, Austin Water Utility	\$27.53	\$55.35	\$83.18
29	Cincinnati	OH	Metropolitan Sewer District of Greater Cincinnati	\$29.75	\$46.93	\$64.12
30	Baltimore	MD	City of Baltimore-Bureau of Water and Wastewater	\$30.45	\$30.45	\$45.68
31	Tallahassee	FL	City of Tallahassee	\$31.03	\$48.28	\$65.08
32	Marietta	GA	Marietta Power and Water	\$32.68	\$58.84	\$85.00
33	Chattanooga	TN	City of Chattanooga-Public Works	\$35.39	\$70.78	\$106.16
34	Knoxville	TN	Knoxville Utility Board	\$37.00	\$75.21	\$100.41
35	Bellevue	WA	City of Bellevue-Water and Wastewater Department	\$44.00	\$56.10	\$68.20
36	Seattle	WA	Seattle Public Utilities	\$44.45	\$88.90	\$133.35

## COMMERCIAL WASTEWATER BILLS

Rates in effect January 1, 2009

100 CCF Per Month				250 CCF Per Month				500 CCF Per Month			
Rank	City	State		Rank	City	State		Rank	City	State	
1	Memphis	TN	\$71.66	1	Memphis	TN	\$179.15	1	Memphis	TN	\$358.30
2	Omaha	NE	\$88.64	2	Omaha	NE	\$207.29	2	Omaha	NE	\$405.04
3	Springfield	MO	\$108.51	3	Springfield	MO	\$251.01	3	Springfield	MO	\$488.51
4	Denver	CO	\$146.25	4	El Paso	TX	\$340.74	4	El Paso	TX	\$658.24
5	El Paso	TX	\$150.24	5	Denver	CO	\$364.65	5	Denver	CO	\$729.30
6	Lincoln	NE	\$162.00	6	Lincoln	NE	\$405.00	6	Lincoln	NE	\$810.00
7	Phoenix	AZ	\$190.80	7	Phoenix	AZ	\$475.17	7	Phoenix	AZ	\$949.12
8	Louisville	KY	\$218.30	8	St. Louis	MO	\$508.10	8	St. Louis	MO	\$978.10
9	St. Louis	MO	\$226.10	9	Louisville	KY	\$520.12	9	Louisville	KY	\$1,023.15
10	Oklahoma City	OK	\$230.42	10	Oklahoma City	OK	\$579.59	10	Philadelphia	PA	\$1,114.36
11	Colorado Springs	CO	\$248.49	11	Colorado Springs	CO	\$590.49	11	Oklahoma City	OK	\$1,157.42
12	Detroit	MI	\$275.92	12	Philadelphia	PA	\$621.11	12	Colorado Springs	CO	\$1,160.49
13	Los Angeles	CA	\$294.30	13	Detroit	MI	\$646.57	13	Detroit	MI	\$1,264.32
14	Little Rock	AR	\$311.07	14	Los Angeles	CA	\$735.75	14	Cincinnati	OH	\$1,442.79
15	Jackson	TN	\$315.64	15	Little Rock	AR	\$752.07	15	Los Angeles	CA	\$1,471.50
16	Philadelphia	PA	\$325.16	16	Cincinnati	OH	\$755.79	16	Little Rock	AR	\$1,487.07
17	Cincinnati	OH	\$343.59	17	Jackson	TN	\$768.93	17	Jackson	TN	\$1,524.41
18	Columbus	OH	\$365.65	18	Tallahassee	FL	\$884.54	18	Tallahassee	FL	\$1,733.52
19	Huntsville	AL	\$365.77	19	Nashville	TN	\$885.04	19	Nashville	TN	\$1,742.54
20	New York	NY	\$367.00	20	Columbus	OH	\$899.65	20	Columbus	OH	\$1,789.65
21	Nashville	TN	\$370.54	21	Huntsville	AL	\$914.43	21	Huntsville	AL	\$1,828.86
22	Tallahassee	FL	\$375.15	22	New York	NY	\$917.50	22	New York	NY	\$1,835.00
23	Jacksonville	FL	\$380.41	23	Jacksonville	FL	\$934.68	23	Jacksonville	FL	\$1,858.46
24	Marietta	GA	\$497.02	24	Marietta	GA	\$1,236.04	24	Marietta	GA	\$2,459.02
25	Austin	TX	\$548.80	25	Austin	TX	\$1,360.01	25	Austin	TX	\$2,712.02
26	Knoxville	TN	\$685.81	26	Knoxville	TN	\$1,539.31	26	Knoxville	TN	\$2,865.81
27	Seattle	WA	\$889.00	27	Seattle	WA	\$2,222.50	27	Seattle	WA	\$4,445.00
28	San Francisco	CA	\$959.48	28	San Francisco	CA	\$2,398.70	28	San Francisco	CA	\$4,797.40



## INDUSTRIAL WATER AND WASTEWATER BILLS

Rates in effect January 1, 2009

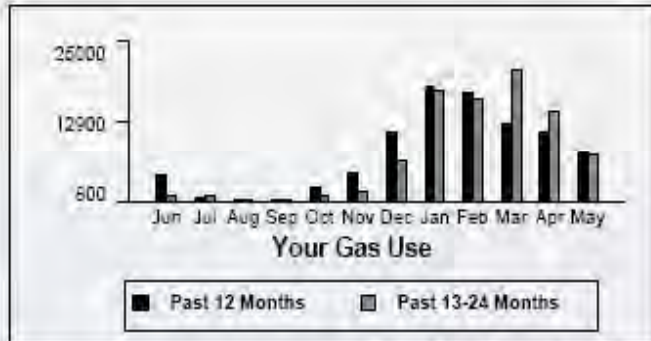
Water 7,500 CCF Per Month					WasteWater 7,500 CCF Per Month			
Rank	City	State		Meter Size	Rank	City	State	
1	Jacksonville	FL	\$5,365.67	10"	1	<b>Memphis</b>	TN	<b>\$5,374.50</b>
2	<b>Memphis</b>	TN	<b>\$5,447.50</b>	10"	2	Omaha	NE	\$6,383.17
3	Springfield	MO	\$6,457.15	10"	3	Springfield	MO	\$7,138.51
4	Omaha	NE	\$7,146.43	10"	4	El Paso	TX	\$10,097.04
5	Huntsville	AL	\$7,835.56	10"	5	Denver	CO	\$10,939.50
6	Orlando	FL	\$7,850.28	10"	6	Lincoln	NE	\$12,150.00
7	Indianapolis	IN	\$8,330.45	10"	7	St. Louis	MO	\$14,138.10
8	Little Rock	AR	\$8,370.36	10"	8	Phoenix	AZ	\$14,219.64
9	St. Louis	MO	\$8,675.52	10"	9	Louisville	KY	\$16,260.38
10	Lincoln	NE	\$8,702.95	10"	10	Colorado Springs	CO	\$17,120.49
11	Reno	NV	\$8,923.44	10"	11	Oklahoma City	OK	\$17,449.48
12	Detroit	MI	\$9,379.86	10"	12	Detroit	MI	\$19,062.44
13	Knoxville	TN	\$10,249.45	10"	13	Philadelphia	PA	\$20,486.67
14	Cincinnati	OH	\$10,416.16	10"	14	Nashville	TN	\$20,500.66
15	Colorado Springs	CO	\$10,924.01	10"	15	Los Angeles	CA	\$22,072.50
16	Columbus	OH	\$11,789.67	10"	16	Little Rock	AR	\$22,344.00
17	Chattanooga	TN	\$11,801.74	10"	17	Cincinnati	OH	\$22,383.84
18	Nashville	TN	\$12,349.43	10"	18	Huntsville	AL	\$23,225.40
19	Oklahoma City	OK	\$12,583.79	10"	19	Columbus	OH	\$26,709.65
20	Philadelphia	PA	\$14,003.58	10"	20	New York	NY	\$27,525.00
21	Louisville	KY	\$15,061.17	10"	21	Jacksonville	FL	\$28,213.17
22	El Paso	TX	\$15,368.26	10"	22	Knoxville	TN	\$34,768.81
23	New York	NY	\$17,325.00	10"	23	Austin	TX	\$37,258.40
24	Phoenix	AZ	\$19,451.95	10"	24	Seattle	WA	\$66,675.00
25	San Francisco	CA	\$22,120.90	10"	25	San Francisco	CA	\$71,961.00
26	Los Angeles	CA	\$22,189.88	10"				
27	Austin	TX	\$22,898.13	10"				
28	Seattle	WA	\$25,783.50	10"				



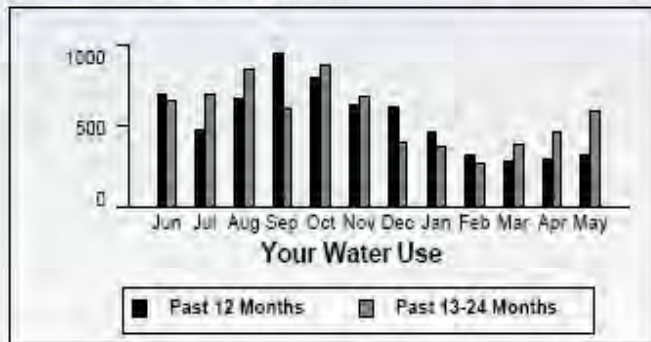
# ***Commercial/Industrial Rates***

- **Wastewater conveyance and treatment fees are assessed on a cost of service basis**
- **Billing is generally done through MUD**
- **The charge labeled City of Omaha Sewer includes:**
  - **A flat monthly customer charge**
  - **A flow charge that is based on water use**
  - **Where appropriate a high strength surcharge**

# Commercial MUD Bill



	This Month	Last Year
Billing units:	8275	8031
Use per day:	266.9	286.8
Average cost per day:	\$127.54	\$275.44
Number of days in billing cycle:	31	26



	This Month	Last Year
Billing units:	324	591
Use per day:	10.5	21.1
Average cost per day:	\$10.73	\$19.01
Number of days in billing cycle:	31	26

Details of current charges:

## GAS COMMERCIAL RATE B: Mar 27 to Apr 27

Meter Number 391125

Current read (actual): 61647 - Previous read (actual): 60842 = 805 MCF

Gas Use: 805 MCF x 1.028 (heat value) x 10 = 8275.400 therms

403.226 therms at 0.6442 = \$259.76

931.516 therms at 0.6342 = 590.77

2096.774 therms at 0.4483 = 939.98

4843.883 therms at 0.4383 = 2,123.08

Service Charge	17.00
Gas Cost	\$3,930.59
Gas Infrastructure Replacement	23.00

## WATER COMMERCIAL RATE W-2: Mar 27 to Apr 27

Meter Number 70037631 Size: 3 -inch

Current read (actual): 67901 - Previous read (actual): 67577 = 324 CCF

Water Use: 324.000 CCF or 242,352 gallons

324.000 CCF at 0.8457 = \$274.01

Service Charge	48.54
Water Cost	\$322.55
Water Infrastructure Replacement	10.00

City of Omaha Sewer	265.82
Sales Tax	0.00
<b>Current Charges</b>	<b>\$4,551.96</b>

# Path Forward



# ***Schedule – LTCP Completion***

- Rate ordinance public hearing – **May 19**
- Community Basin Panel meeting – **June 17**
- Public release of the LTCP and 30-day comment period – **June 30**
- Community Basin Panel meeting – **July 15**
- Public meeting – **August 18**
- BAP meetings – **August 19 to September 10**
- Submit Final Long Term Control Plan – **October 1, 2009**

# ***Learn more...***

- **Public web site: [www.omahaCSO.com](http://www.omahaCSO.com)**
- **CSO hotline: 341-0235**
- **Information sites at Omaha Public Libraries, Community Centers, and the Neighborhood Center**
- **NE Educational TV documentary  
“Our Water, Our Future” NETV2**

# Discussion & Questions

