

# NPDES Phase II Small MS4 Permit Program

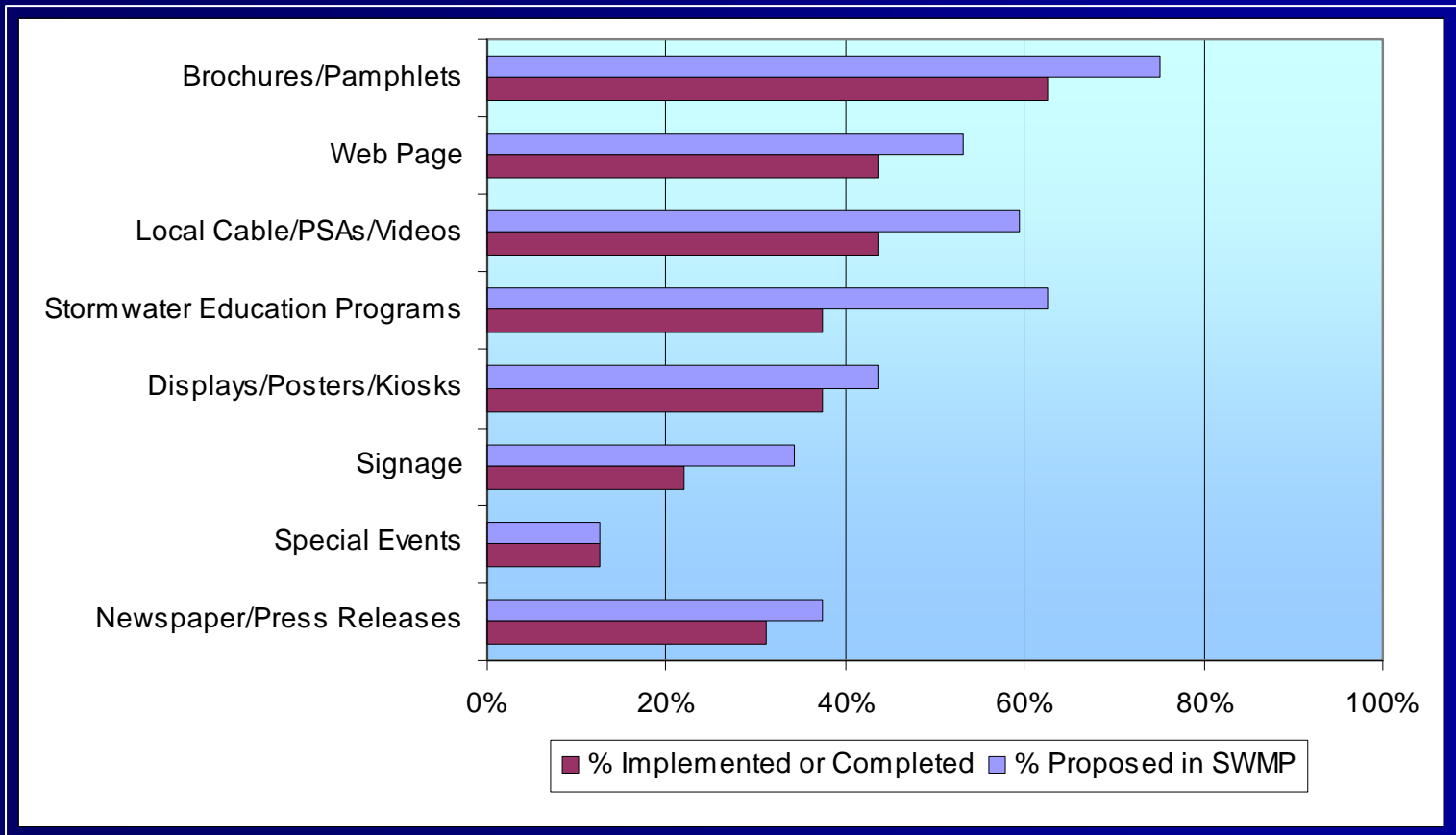
SWMP MCM Summaries & Select Metrics  
Permit Year 6 (2008-2009)



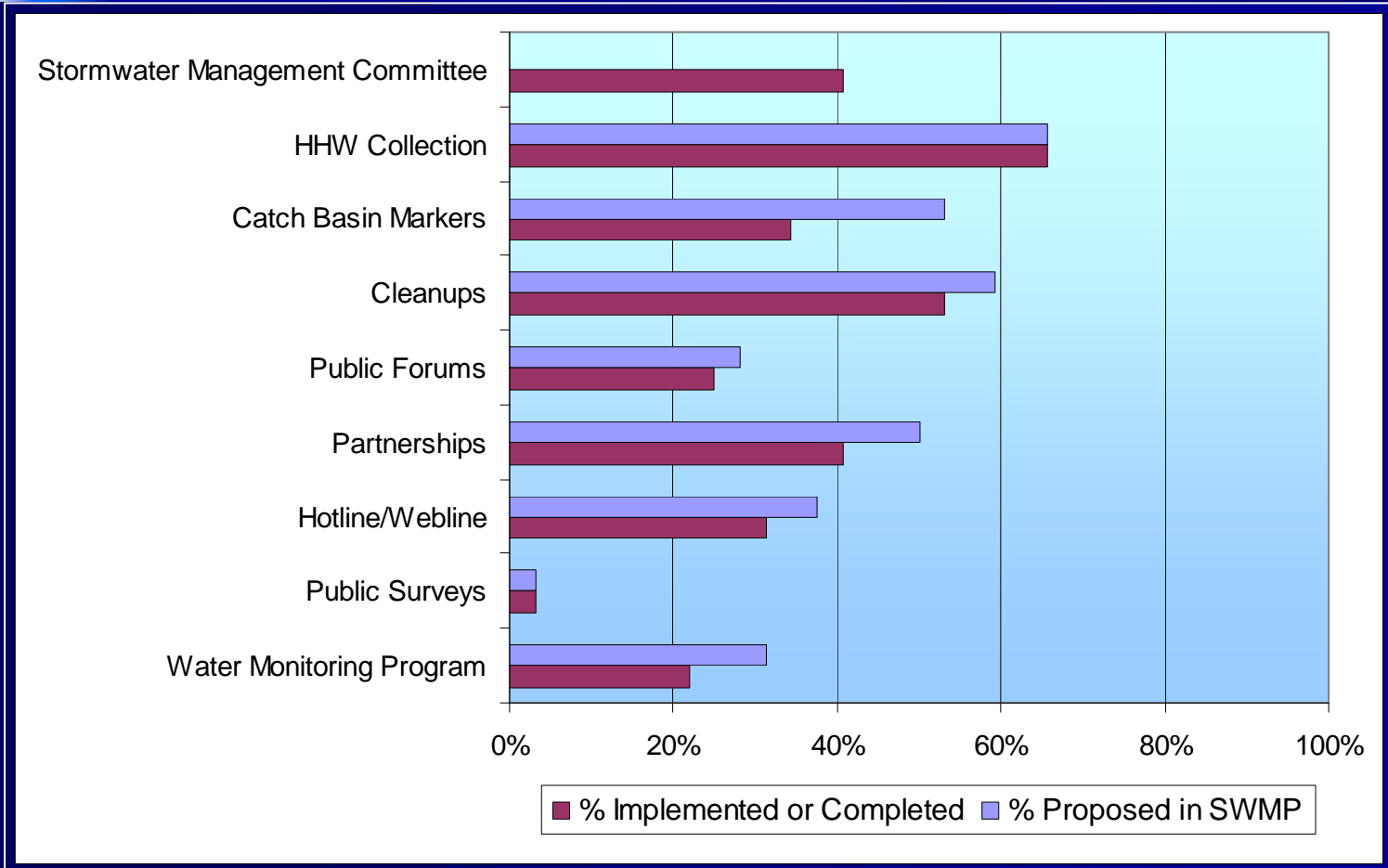
NH Cities and Towns Only  
(32 of 38 Reporting)

# MCM #1 - Education & Outreach

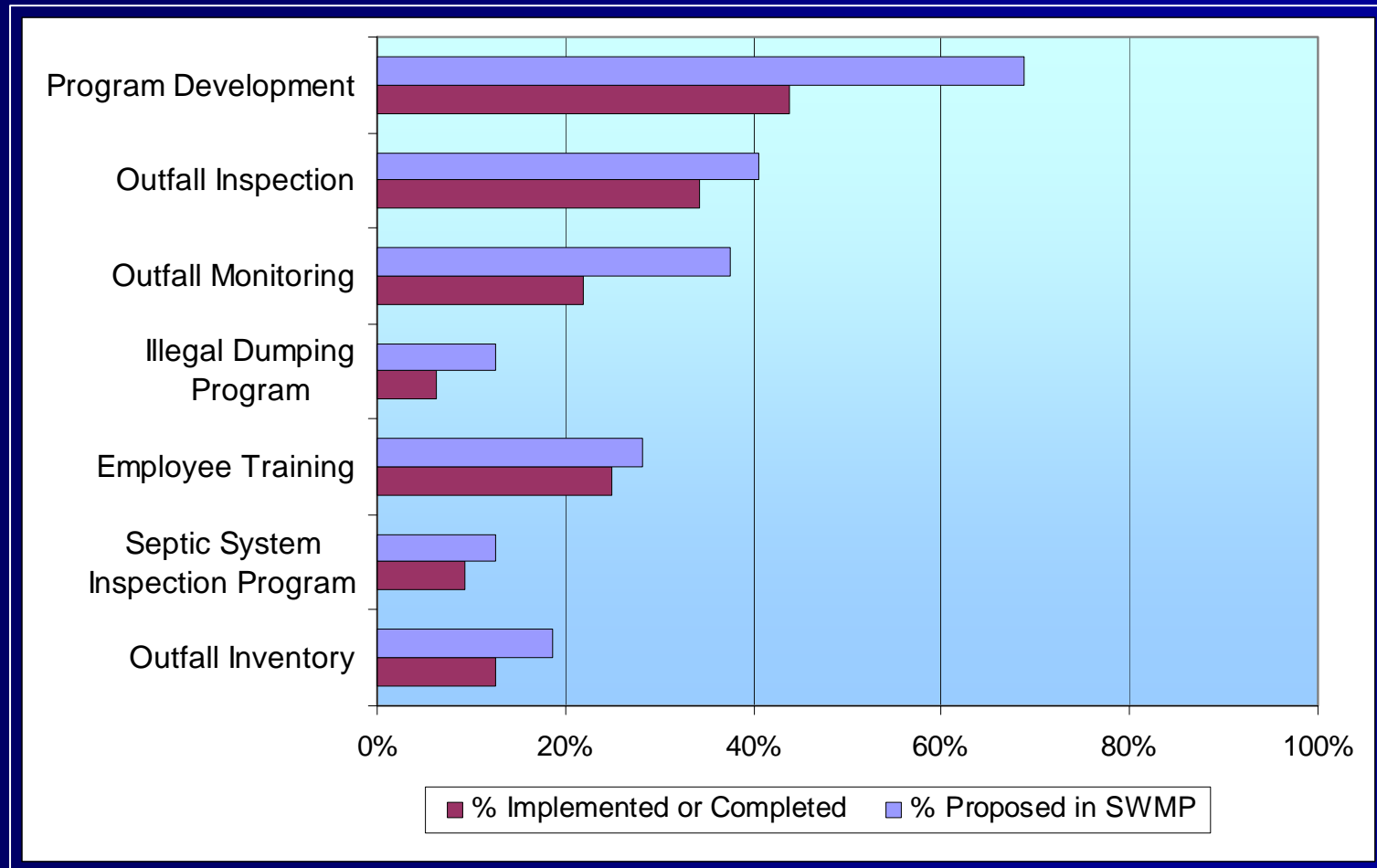
## Reported Status of Practices Proposed in SWMP



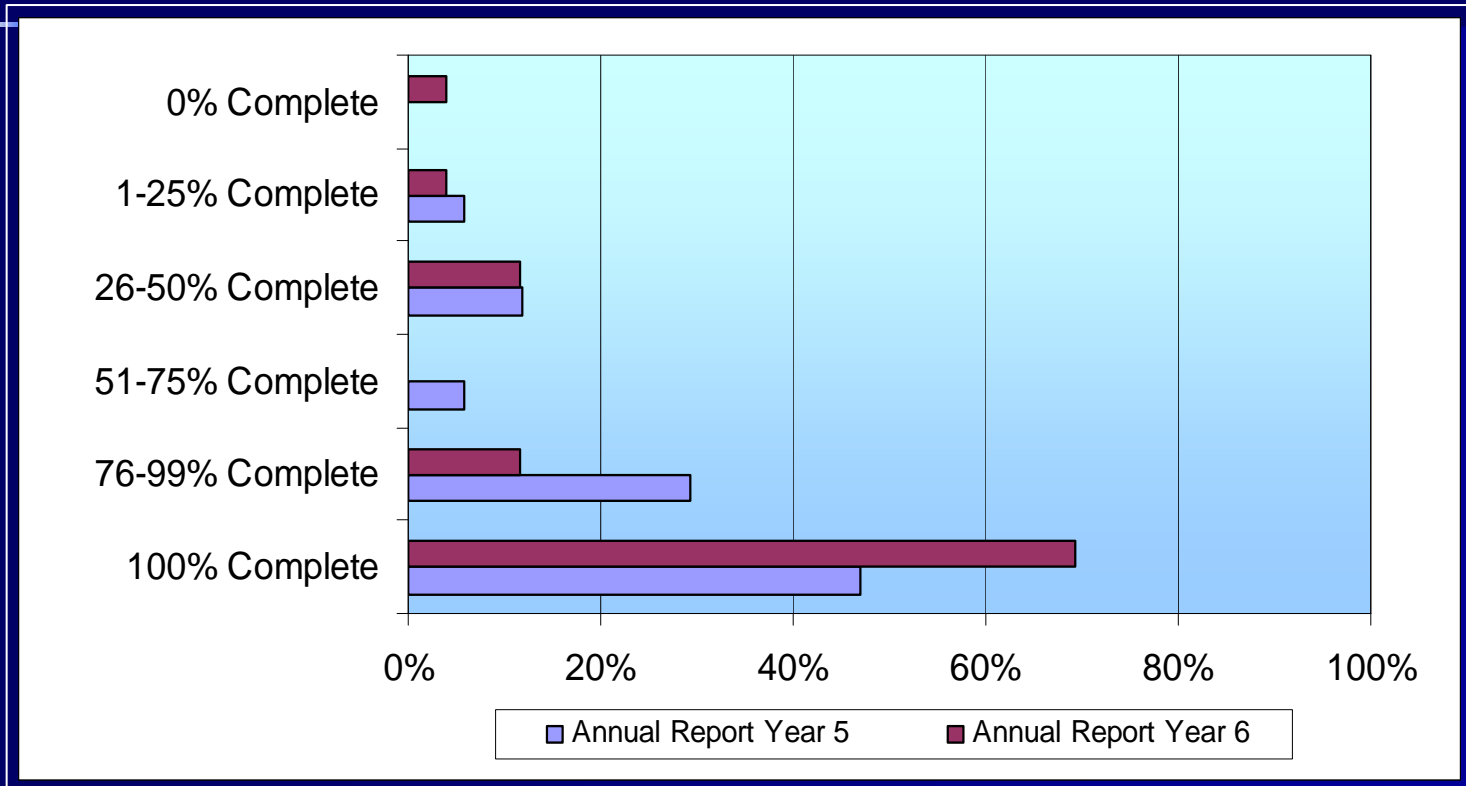
# MCM #2 - Public Participation & Involvement Reported Status of Practices Proposed in SWMP



# MCM #3 - Illicit Discharge Detection & Elimination Reported Status of Practices Proposed in SWMP



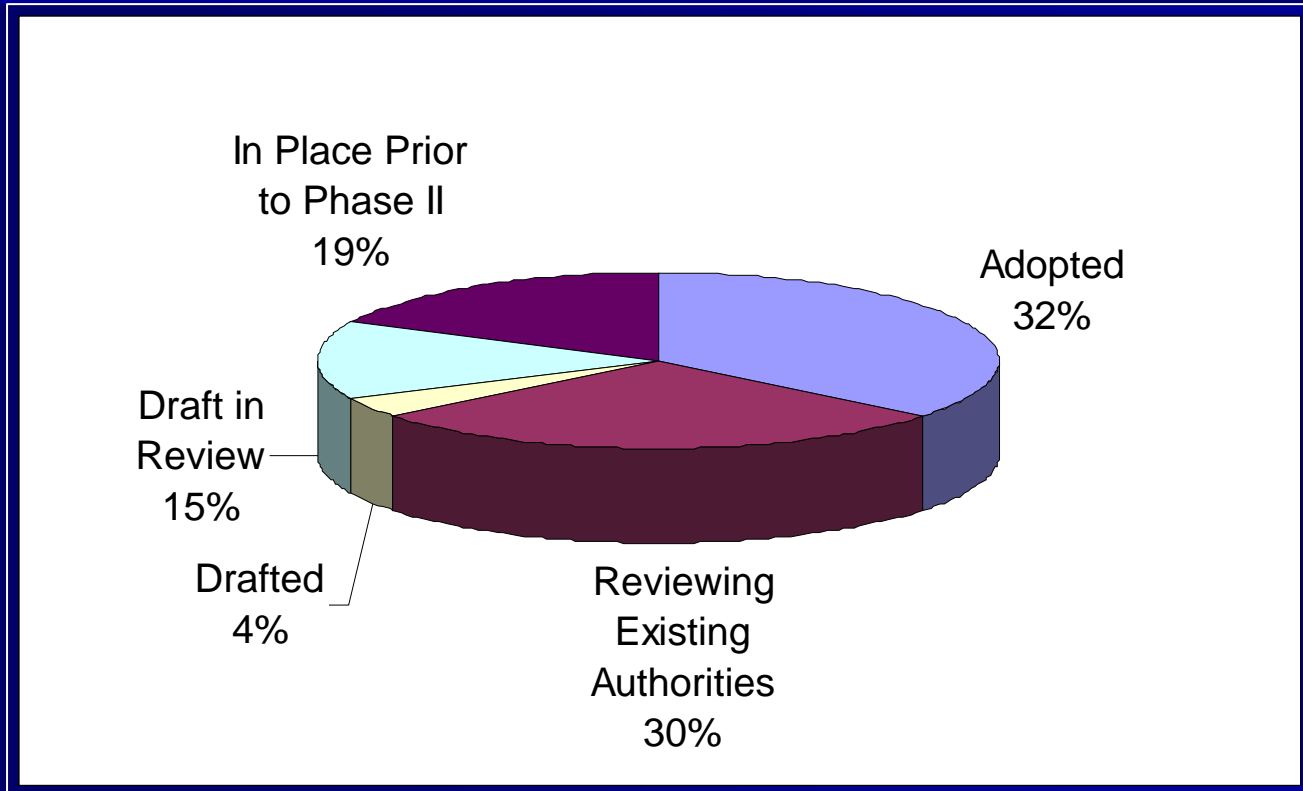
# Reported Status of Outfall Mapping (% Complete)\*



**\*Year 6: 81% reporting (26 of 32 year 6 annual reports)**

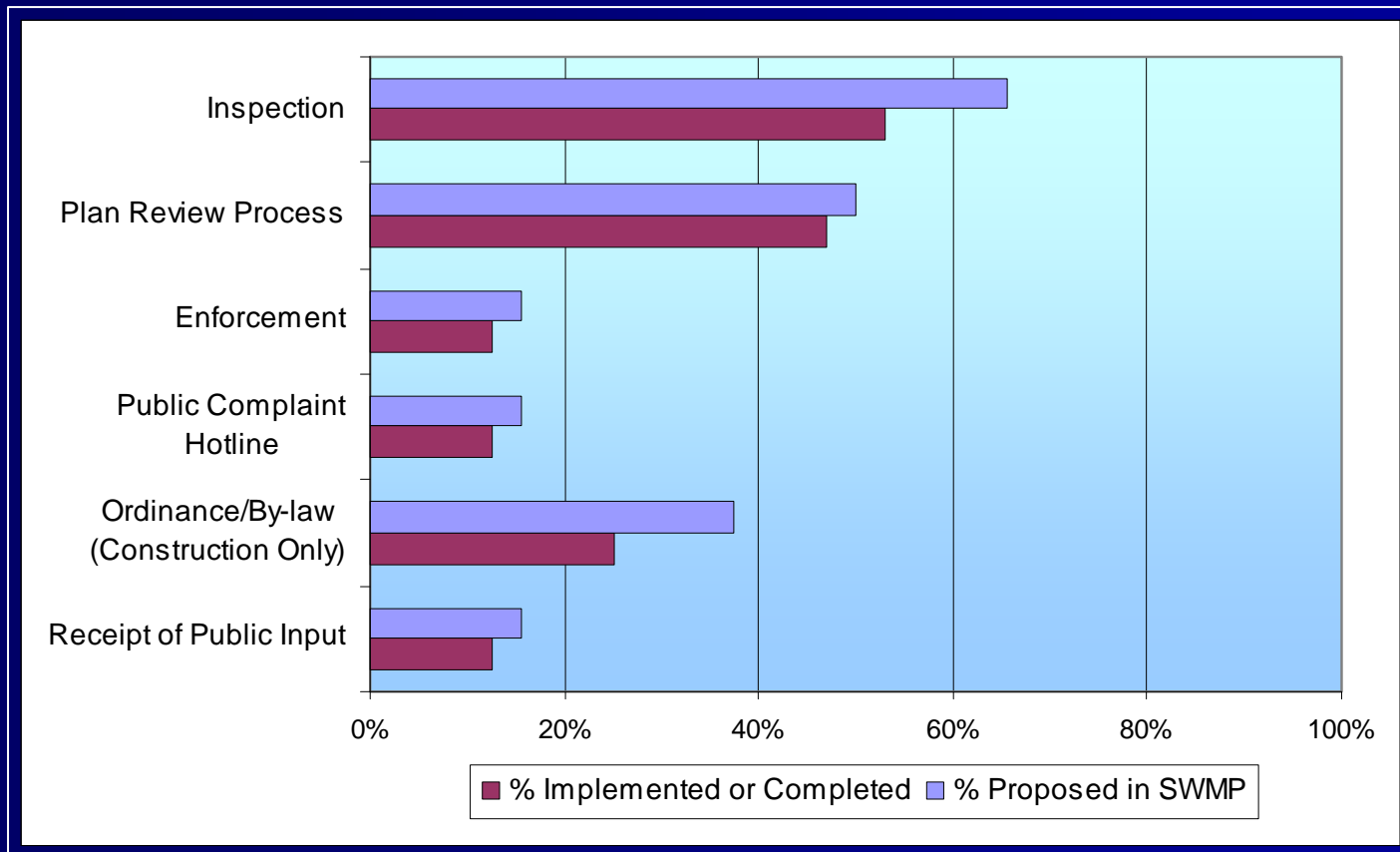
**Year 5: 61% reporting (17 of 28 year 5 annual reports)**

# Reported Regulatory Mechanism Status for IDDE\*

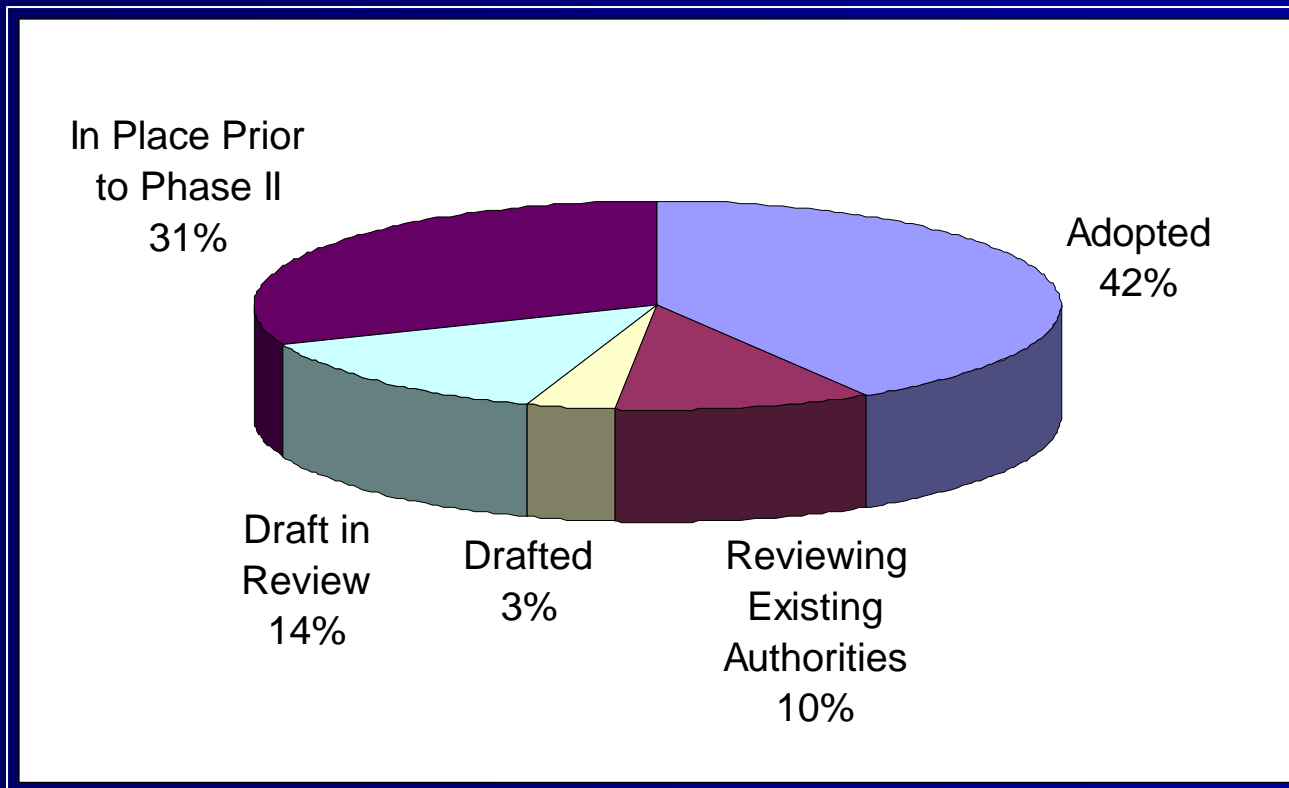


**\*88% reporting (28 of 32 year 6 annual reports)**

# MCM #4 - Construction Site Runoff Control Reported Status of Practices Proposed in SWMP

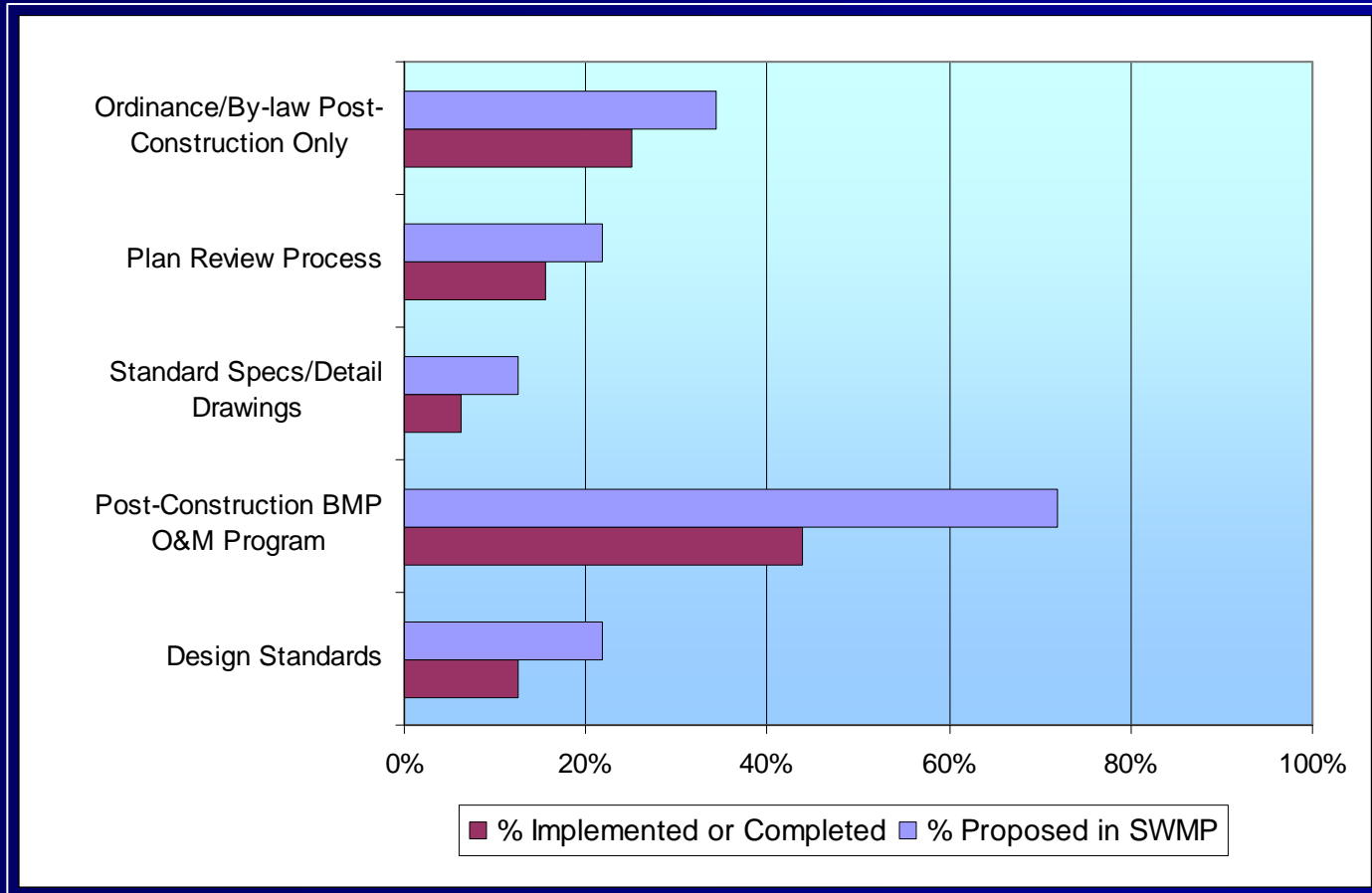


# Reported Regulatory Mechanism Status for Construction Site Runoff\*

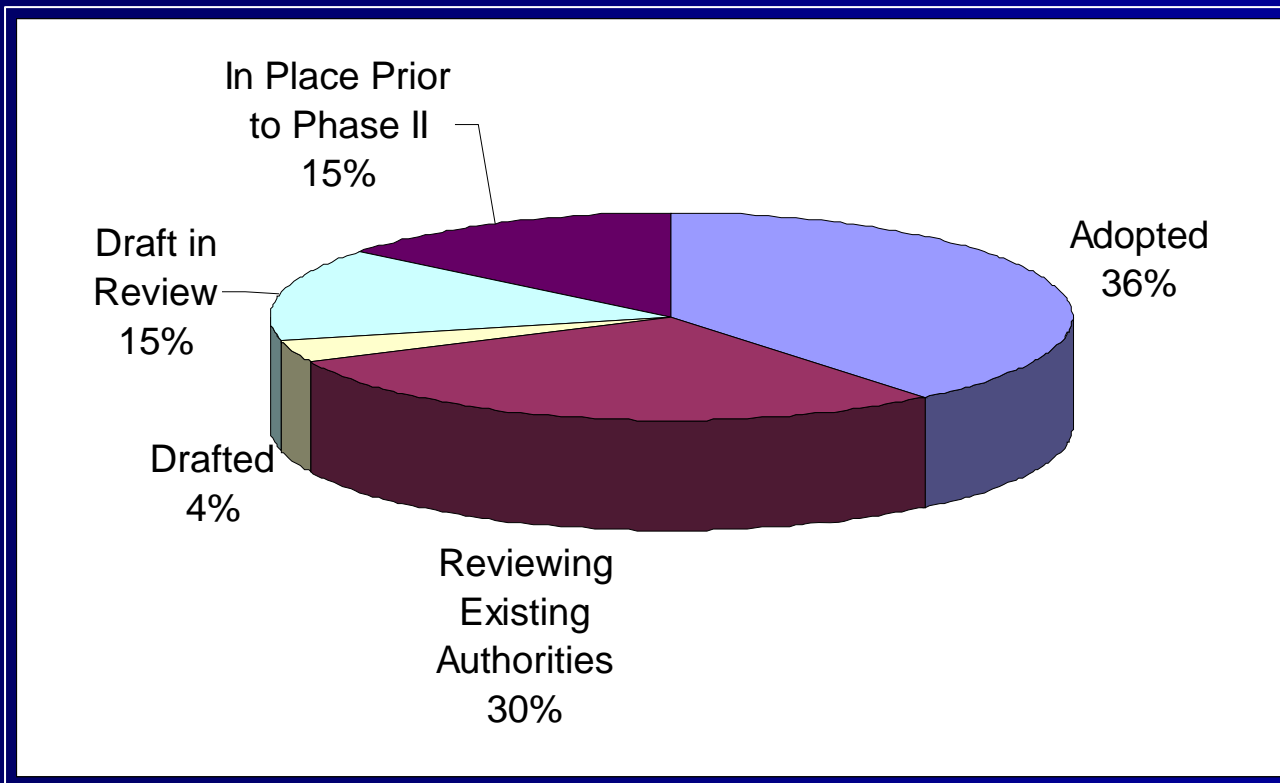


\* 91% reporting (29 of 32 year 6 annual reports)

# MCM #5 - Post-Development Runoff Control Reported Status of Practices Proposed in SWMP



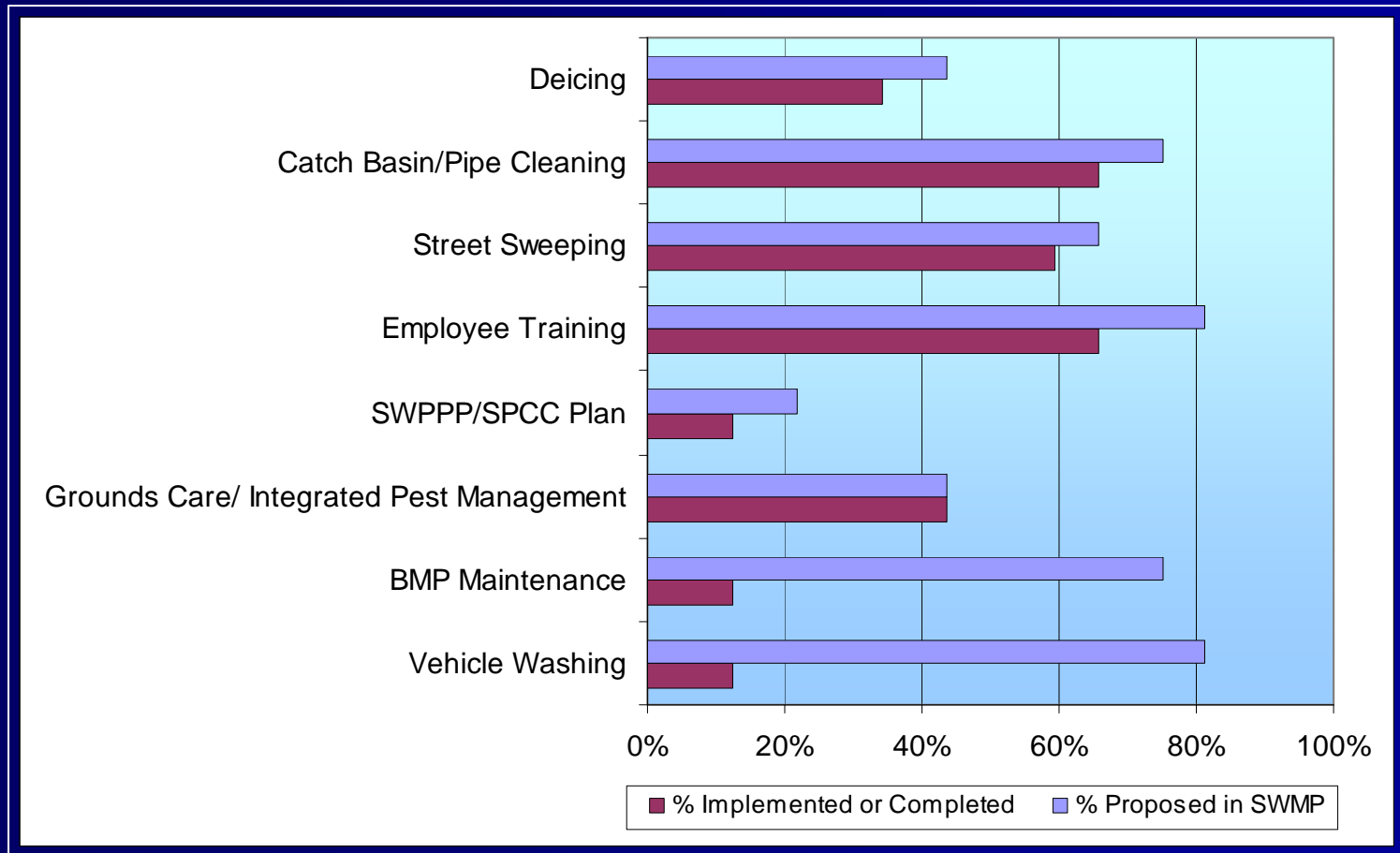
# Reported Regulatory Mechanism Status for Post Development Runoff\*



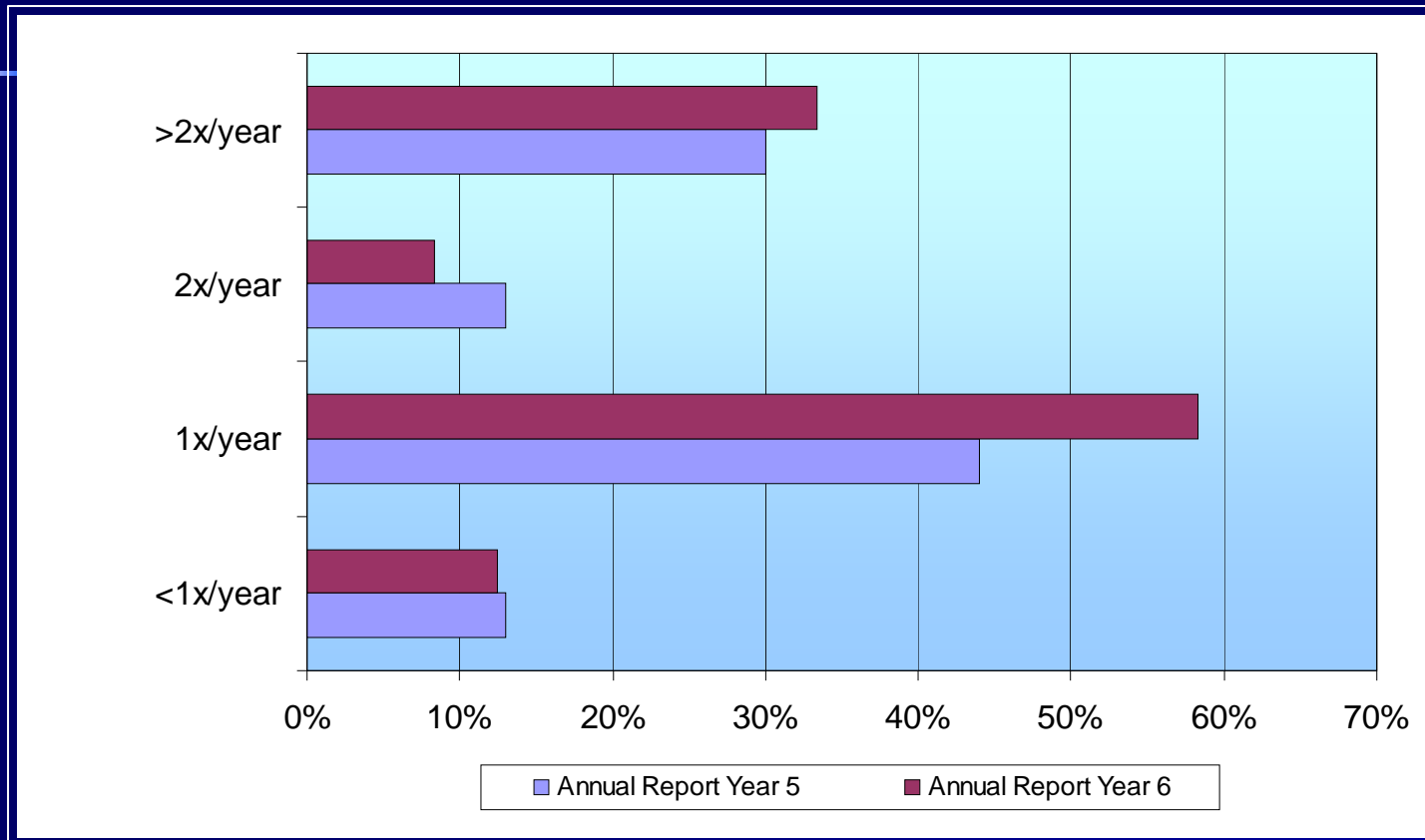
\* 88% reporting (28 of 32 year 6 annual reports)

# MCM #6 - Pollution Prevention and Good Housekeeping

## Reported Status of Practices Proposed in SWMP



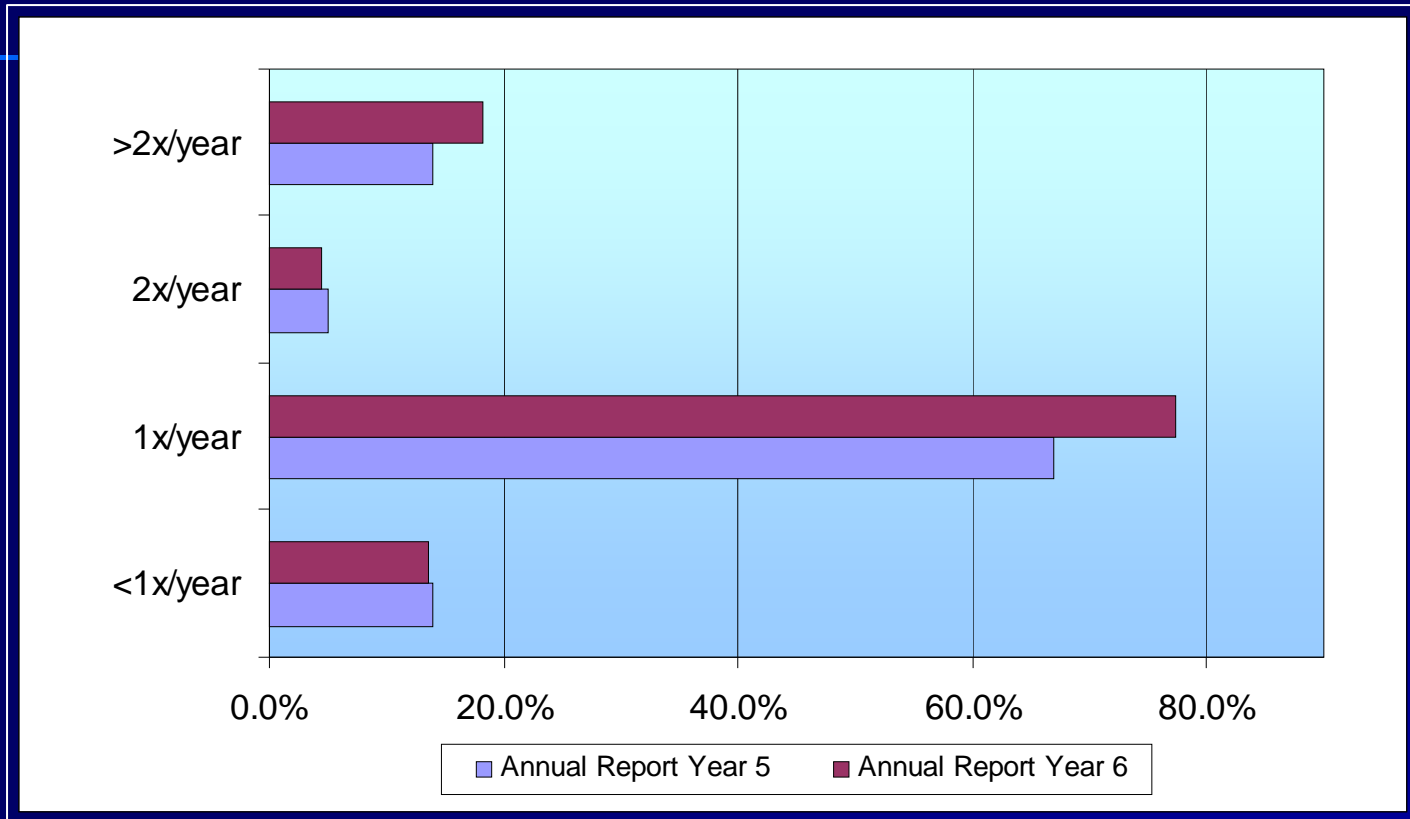
# Reported Frequency of Street Sweeping (Commercial/Arterial)\*



**\*Year 6: 84% reporting (27 of 32 year 6 annual reports)**

**Year 5: 82% reporting (23 of 28 year 5 annual reports)**

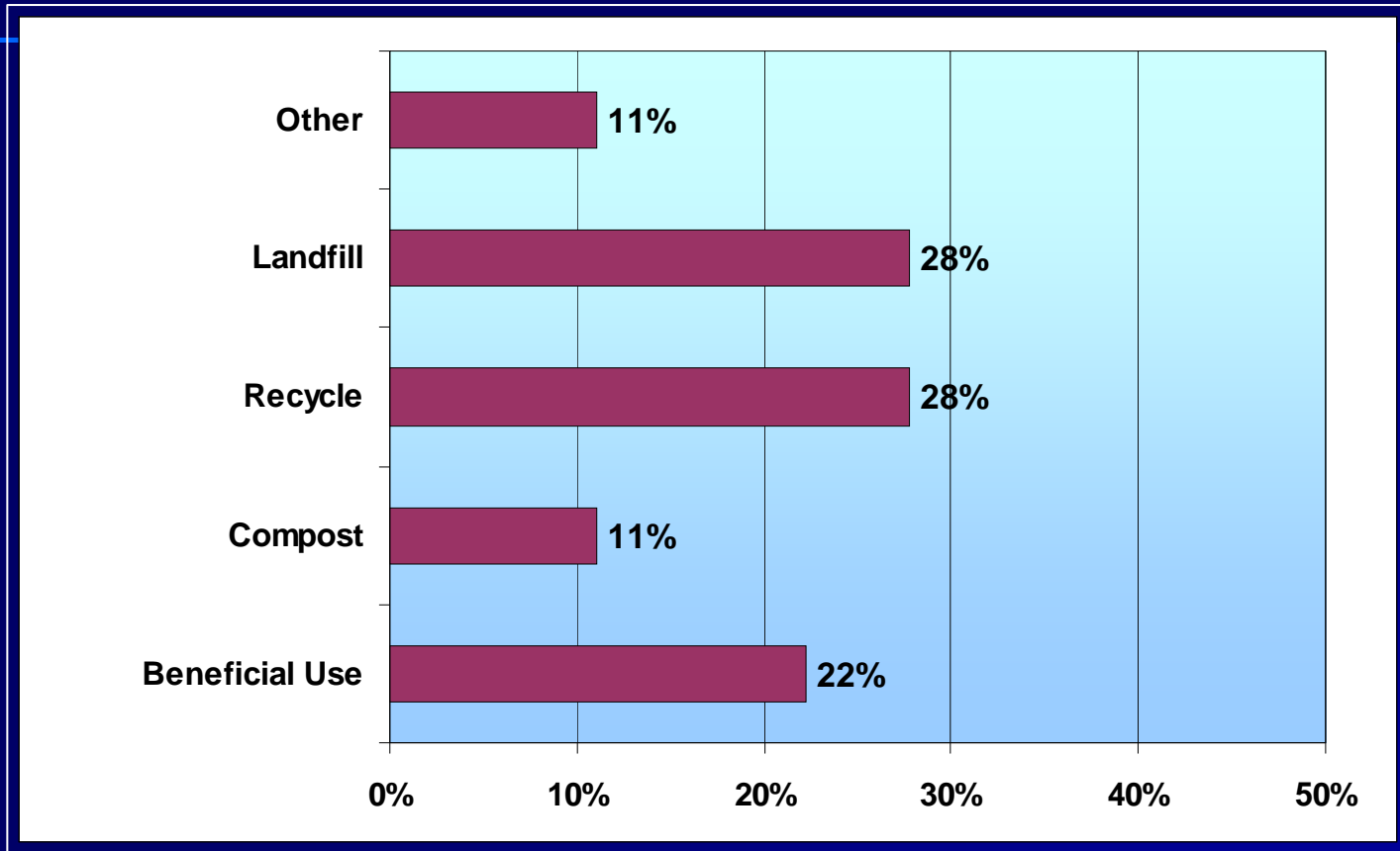
# Reported Frequency of Street Sweeping (Residential)\*



**\*Year 6: 78% reporting (25 of 32 year 6 annual reports)**

**Year 5: 75% reporting (21 of 28 year 5 annual reports)**

# Reported Street Sweepings Use & Disposal\*



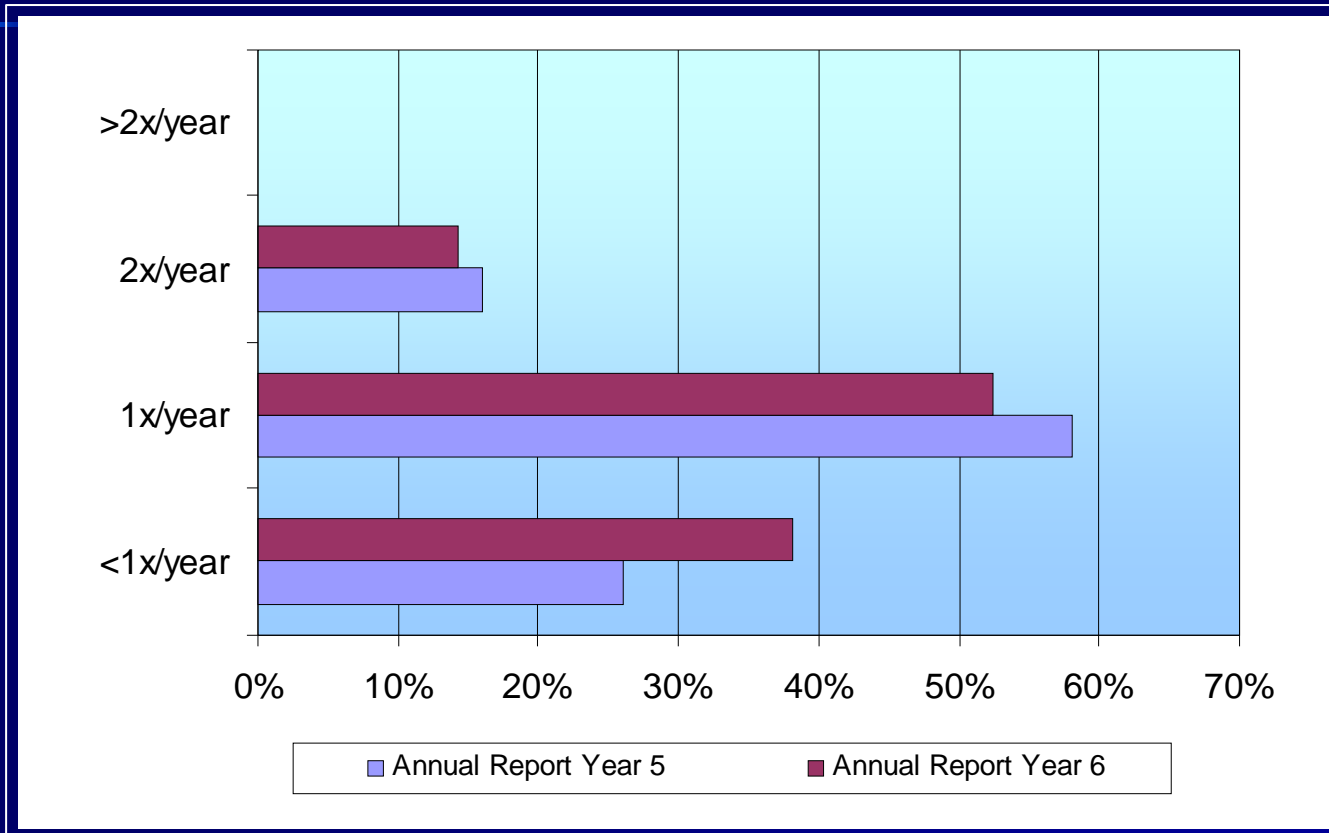
\* 56% reporting (18 of 32 year 6 annual reports)

# Metals Collected by Street Sweeping per year

	Qty. of sand/debris collected by sweeping (kg/year)	Ni (kg/year)	Cu (kg/year)	Zn (kg/year)	Cr (kg/year)	Pb (kg/year)	Cd (kg/year)
Minimum	2,720	0.250	0.403	1.25	8.71E-02	0.468	5.44E-03
Maximum	454,000	41.7	67.1	209	14.5	78.0	0.907
Average	188,000	17.3	27.9	86.7	6.03	32.4	0.377
Standard Deviation	155,000	14.2	22.9	71.1	4.94	26.6	0.309
Estimated total for all NH MS4s	7,140,000	659	1,060	3,290	229	1,230	14.3
28% Reporting (9 out of 32 year 6 annual reports)							

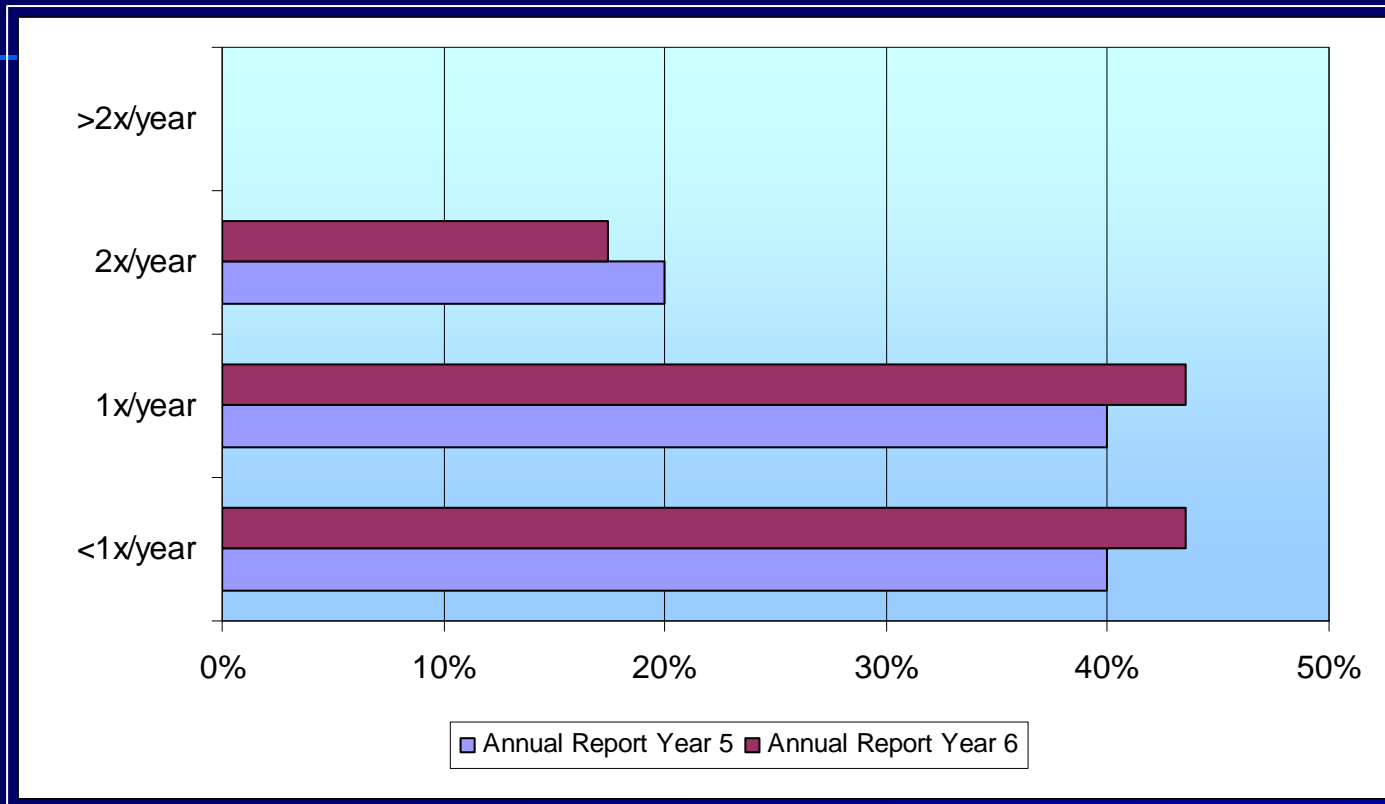
\*Based on data from "Metals and PAHs adsorbed to street particles," a study at the University of California at Los Angeles (Lau, Strenstrom, 2005)

# Reported Frequency of Catch Basin Cleaning (Commercial/Arterial)\*



**\*Year 6: 69% reporting (22 of 32 year 6 annual reports)  
Year 5: 68% reporting (19 of 28 year 5 annual reports)**

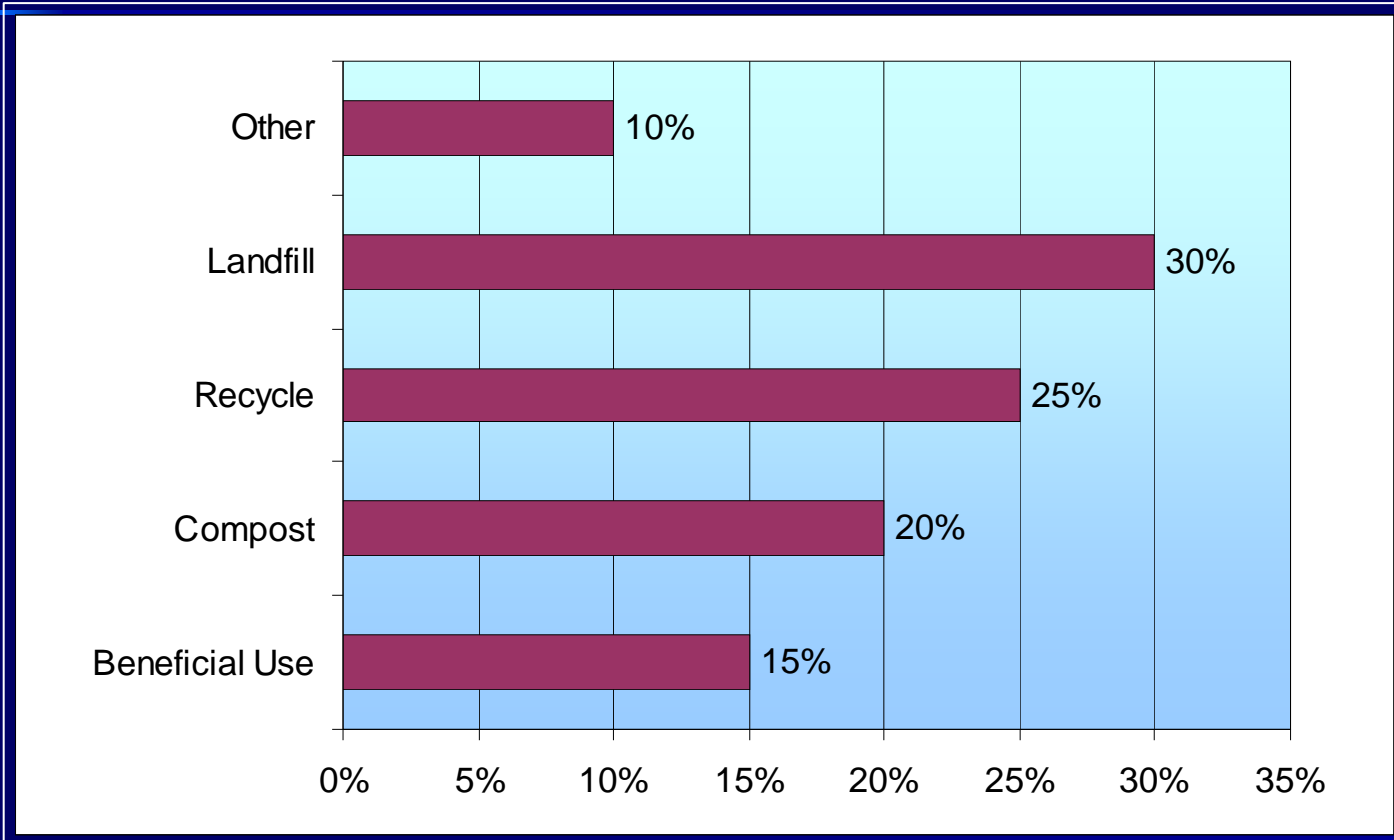
# Reported Frequency of Catch Basin Cleaning (Residential)\*



**\*Year 6: 75% reporting (24 of 32 year 6 annual reports)**

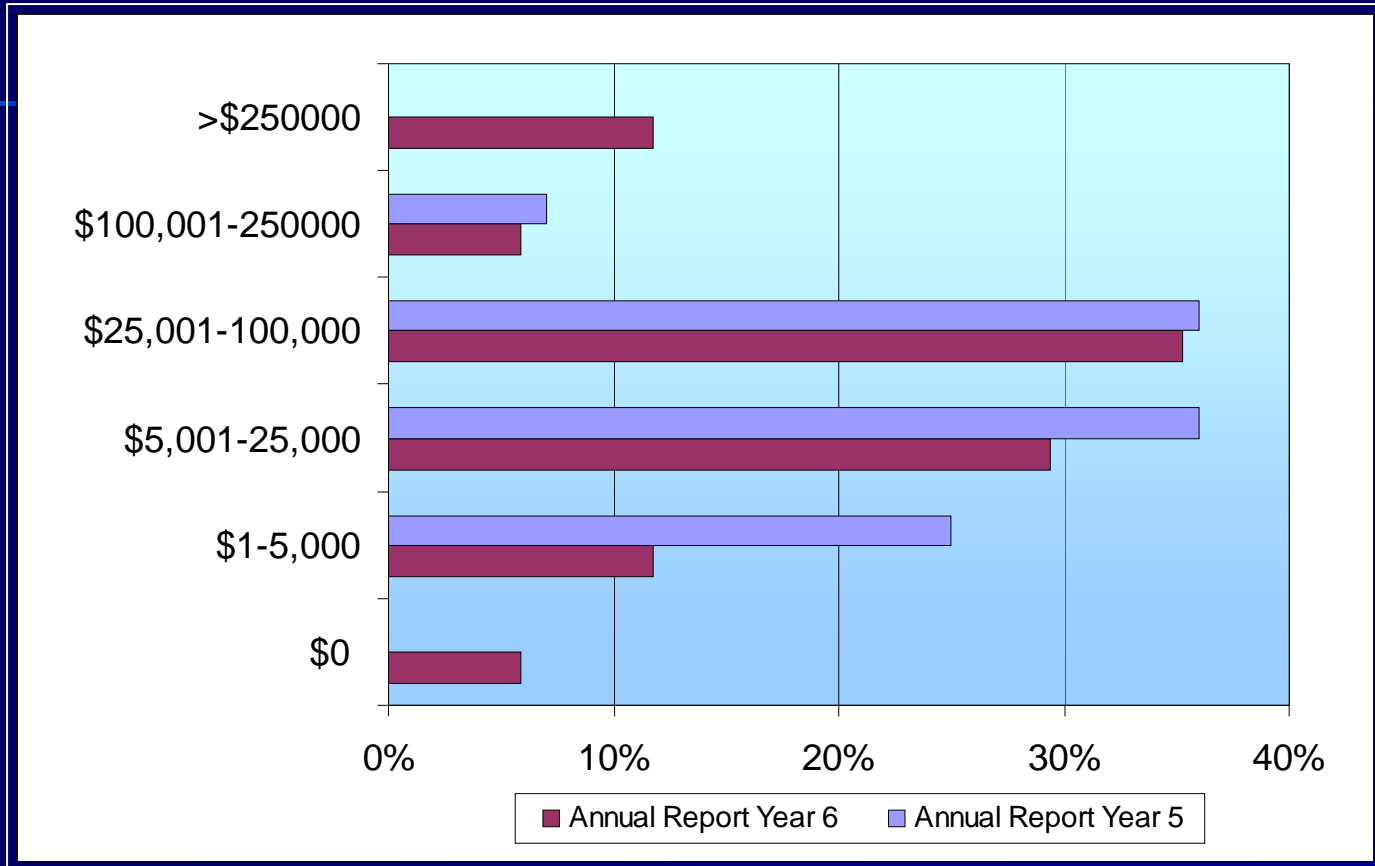
**Year 5: 71% reporting (20 of 28 year 5 annual reports)**

# Reported Catch Basin Screenings Use & Disposal\*



\* 66% reporting (21 of 32 year 6 annual reports)

# Reported Annual Expenditures\*



\* Year 6: 59% reporting (17 of 32 year 6 annual reports)

Year 5: 50% reporting (14 of 28 year 5 annual reports)

# Chemical Quality of Catchbasin Sediment per year

	Total number of structures cleaned (per MS4 per year)	Area cleaned (ha)	Qty. of screenings/debris removed from catchbasins (kg total solids)	Total Solids (kg/ha/yr)
Minimum	120	85.7	9,070	9.48
Maximum	1,340	957	680,000	1,920
Average	606	433	241,000	776
Standard Deviation	457	326	229,000	665
Estimated total for all NH MS4s	23,000	16,500	9,160,000	29,500
<b>28% Reporting (9 out of 32 year 6 annual reports)</b>				

\*Based on data from a study in Bellevue, WA (Pitt 1985) as part of the Nationwide Urban Runoff Program (EPA 1983).

# Chemical Quality of Catchbasin Sediment per year

	<b>COD (kg/ha/yr)</b>	<b>TKN (kg/ha/yr)</b>	<b>TP (kg/ha/yr)</b>	<b>Pb (kg/ha/yr)</b>	<b>Zn (kg/ha/yr)</b>
Minimum	1.71	2.09E-02	1.23E-02	1.90E-03	4.74E-03
Maximum	345	6.35	2.49	0.383	0.958
Average	140	1.70	1.01	0.155	0.388
Standard Deviation	120	2.18	0.864	0.133	0.332
Estimated total for all NH MS4s	5,310	64.5	38.3	5.89	14.7
<b>28% Reporting (9 out of 32 year 6 annual reports)</b>					

\*Based on data from a study in Bellevue, WA (Pitt 1985) as part of the Nationwide Urban Runoff Program (EPA 1983).

# Reported Deicing Metrics

Method	% Utilizing Method	% Reporting
Automatic or Zero-velocity Spreaders used	41%	53%
Manual Control Spreaders used	70%	63%
Pre-wetting Techniques	39%	56%
Salt pile(s) covered in storage shed(s)	100%	66%

	Year 6	Year 5	Year 4
Salt to Sand Ratio	2.5:1	2.1:1	1.7:1

**\* 34% reporting (11 of 32 year 6 annual reports)**

## Select BMPs of Interest Reported by Municipalities

- LID Practices Permitted or Encouraged (4)
- Own or lease vacuum sweepers (16)
- Water restoration projects (6)
- Replacement of old gas vehicles with hybrids (1)
- Use of environmentally safe priming fluid in fire apparatus to reduce petroleum products released at ground fires (1)
- Nonpoint Source Program (1)

# References

- Lau, Sim-Lin, and Michael K. Strenstrom. "Metals and PAHs Adsorbed to Street Particles." *Water Research* 39 (2005): 4083-092
- Pitt, Robert, and Shirley Clark. "Interactions between catchbasin and street cleaning in urban drainages and sediment transport in storm drainage systems." *Chapter 6, Best Management Practices (BMP) Technology Symposium: Current and Future Directions*, American Society of Civil Engineers (May 2006): 94-125