



Wastewater Workgroup

Conference Call
December 6, 2011



Estimating Point Sources for Progress Scenarios

- **Issues/Concerns:**
 1. Comparable modeling of Point and NP sources for progress runs, milestones, Bay Barometer
 - NPS: estimates are based on 10-year average hydrology
 - PS: estimates are based on discharge flow data
 2. PS flow discharge data is influenced by weather conditions
 3. Accounting for reductions in recently upgraded facilities where discharge data is not available.



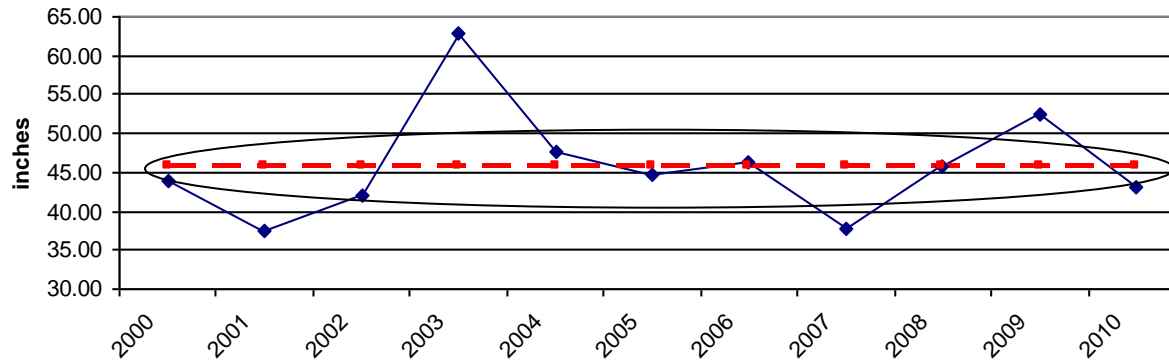
Estimating Point Sources for Progress Scenarios

- **Actions Requested:**
 - Provide feedback on proposed supplemental indicators
 - Provide feedback on methodology
 - Decide on flow averaging period
 - Decide on TN, TP for upgrade facilities where data is not yet available.

Progress Scenarios – Flow Comparison

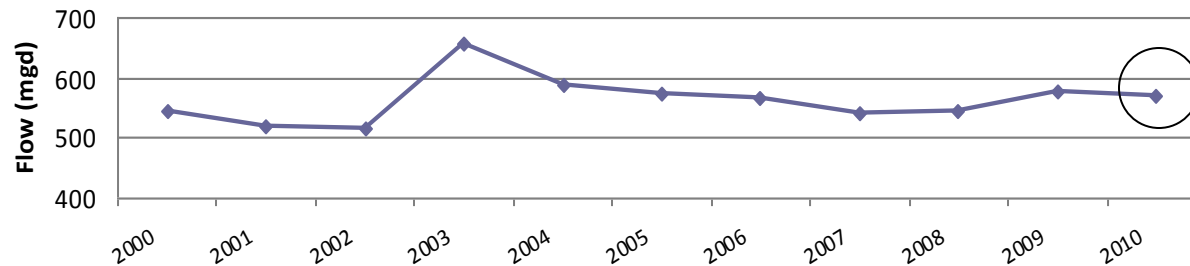
Are we comparing Apples and Oranges?

Non Point Sources
2000 - 2010 Average Precipitation



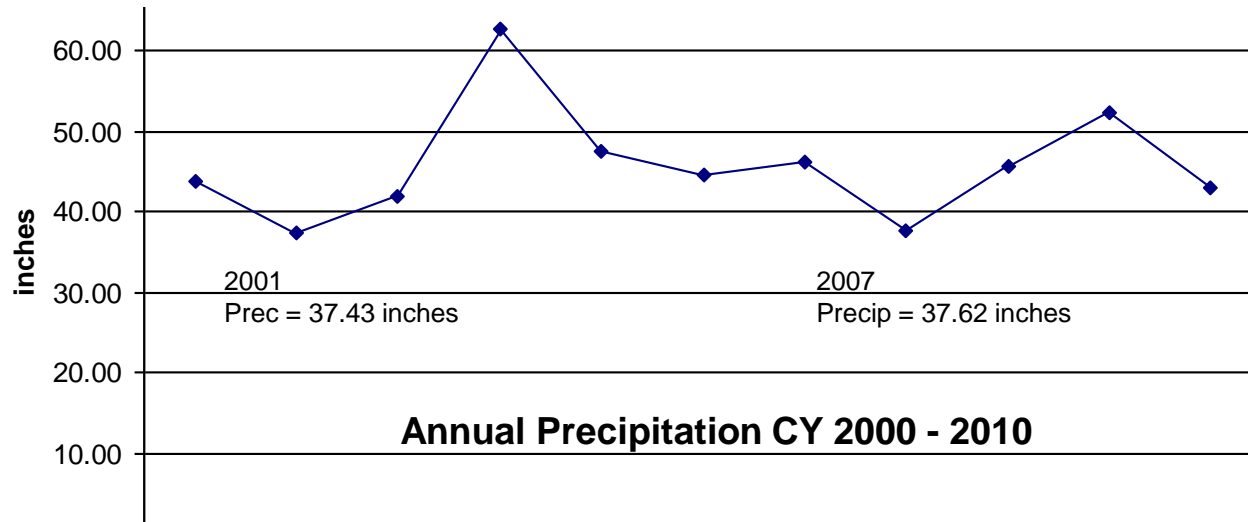
Q_{ave} Nonpoint Sources

Point Sources WWTP
Flow CY2000 - CY2010

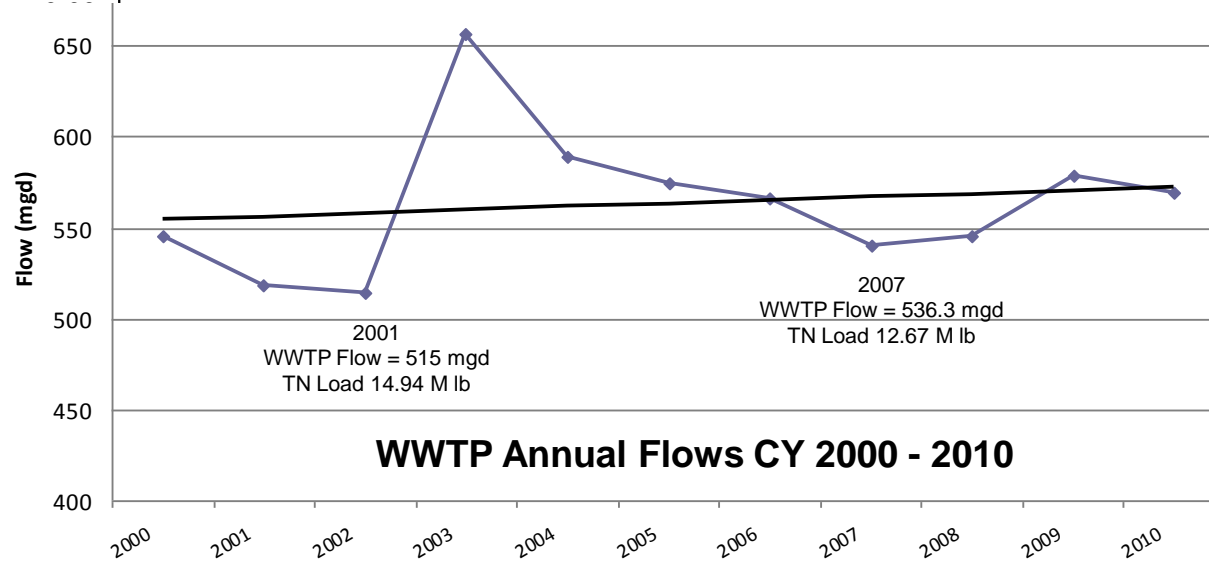


Q_{ave} Point Sources

Precipitation vs Flows/Loads



Annual Precipitation CY 2000 - 2010



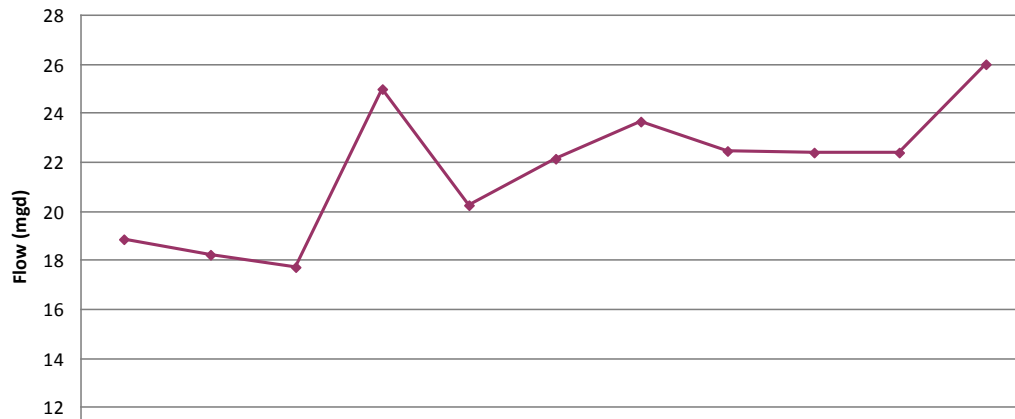
WWTP Annual Flows CY 2000 - 2010

General Trend: Dry years => Lower WWTP Flows
Wet Years => Higher WWTP Flows

Estimated WWTPs Flow Increase based on Population Growth

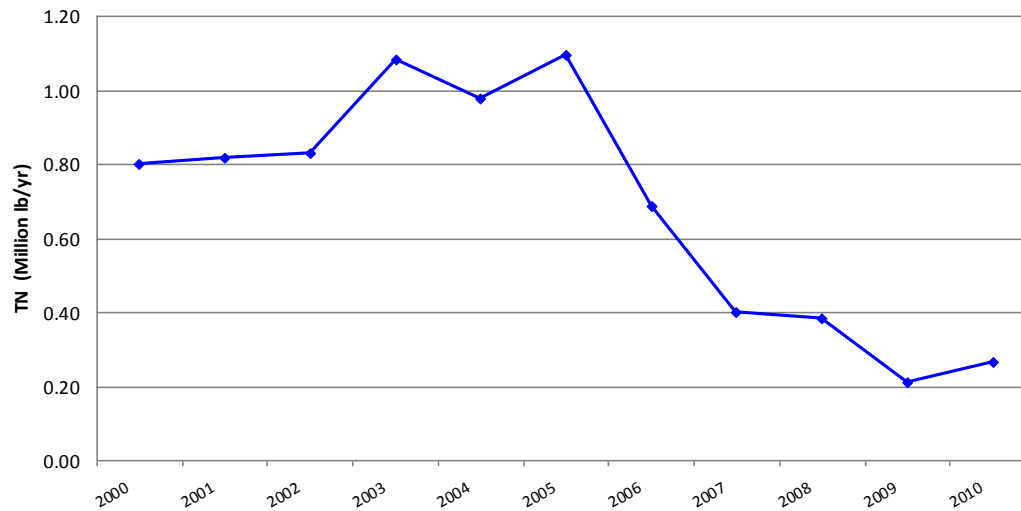
| | Total | Total EDU | OSDS | WWTP | Estimated Flow Increase at Major WWTPs | Estimated Flow Increase at Major WWTPs 2001-2007 |
|----------------------|-------------------|-----------|--------|---------|--|--|
| | Population change | EDUs | EDUs | EDUs | mgd | mgd |
| 7/1/2000 to 7/1/2001 | 64,454 | 25,782 | 7,500 | 18,282 | 4.57 | 2.29 |
| 7/1/2001 to 7/1/2002 | 64,880 | 25,952 | 7,500 | 18,452 | 4.61 | 4.61 |
| 7/1/2002 to 7/1/2003 | 56,795 | 22,718 | 7,500 | 15,218 | 3.80 | 3.80 |
| 7/1/2003 to 7/1/2004 | 45,951 | 18,380 | 7,500 | 10,880 | 2.72 | 2.72 |
| 7/1/2004 to 7/1/2005 | 39,861 | 15,944 | 7,500 | 8,444 | 2.11 | 2.11 |
| 7/1/2005 to 7/1/2006 | 29,676 | 11,870 | 2,500 | 9,370 | 2.34 | 2.34 |
| 7/1/2006 to 7/1/2007 | 22,046 | 8,818 | 2,500 | 6,318 | 1.58 | 1.58 |
| 7/1/2007 to 7/1/2008 | 24,413 | 9,765 | 2,500 | 7,265 | 1.82 | 0.91 |
| 7/1/2008 to 7/1/2009 | 40,823 | 16,329 | 2,500 | 13,829 | 3.46 | |
| 7/1/2000 to 7/1/2009 | 388,899 | 155,560 | 47,500 | 108,060 | 27.01 | 18.08 |

ENR Upgraded WWTP (13 Facilities)
Flow 2000 - 2010



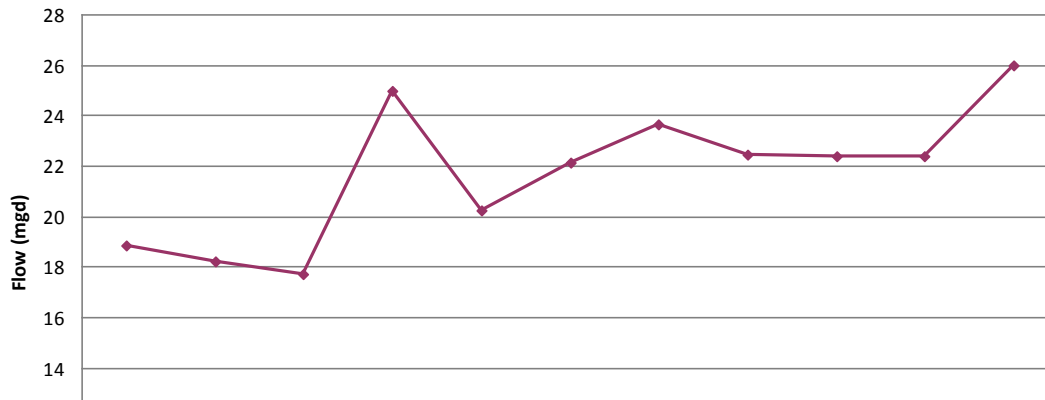
Annual Upgraded WWTP Flows

ENR Upgraded WWTP (13 facilities)
TN Load 2000 - 2010



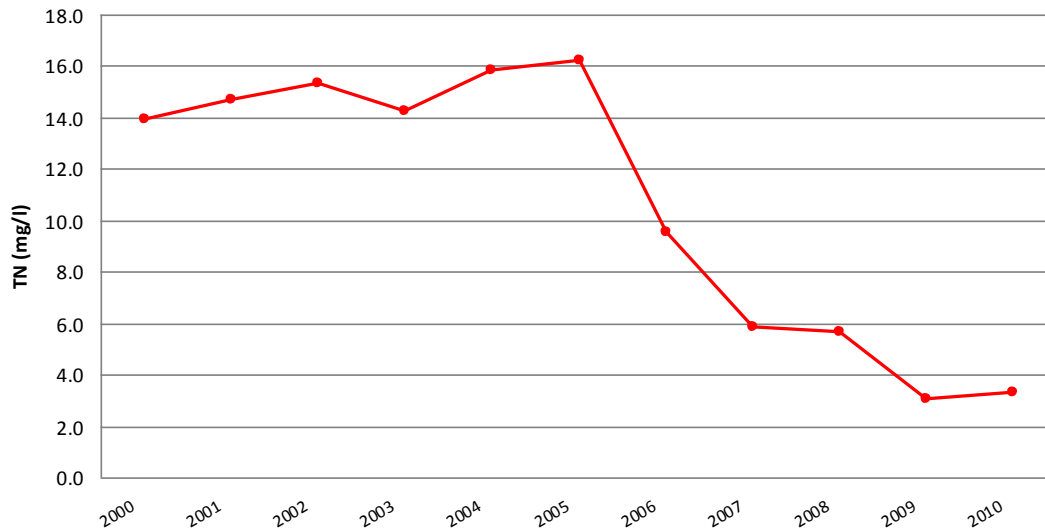
Annual TN Load

**ENR Upgraded WWTP (13 Facilities)
Flow 2000 - 2010**



Annual Upgraded WWTP Flows

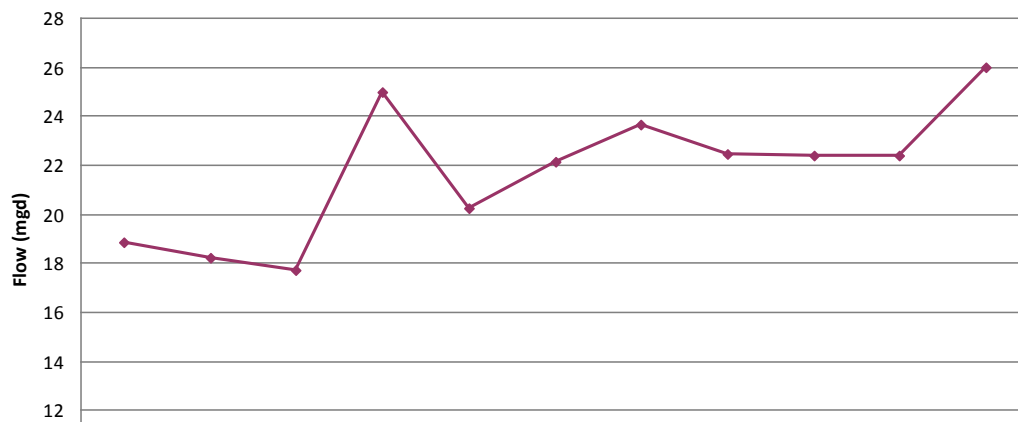
**ENR Upgraded WWTP (13 Facilities)
Weighted TN Concentrations 2000 - 2010**



**Annual Flow Weighted
TN Concentrations**

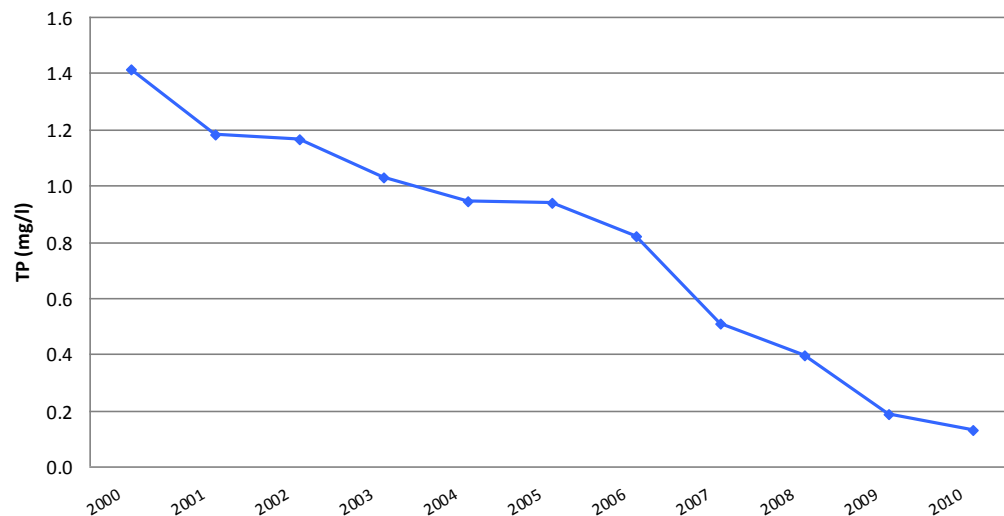
**Trend – Concentration decreases
showing Progress**

**ENR Upgraded WWTP (13 Facilities)
Flow 2000 - 2010**



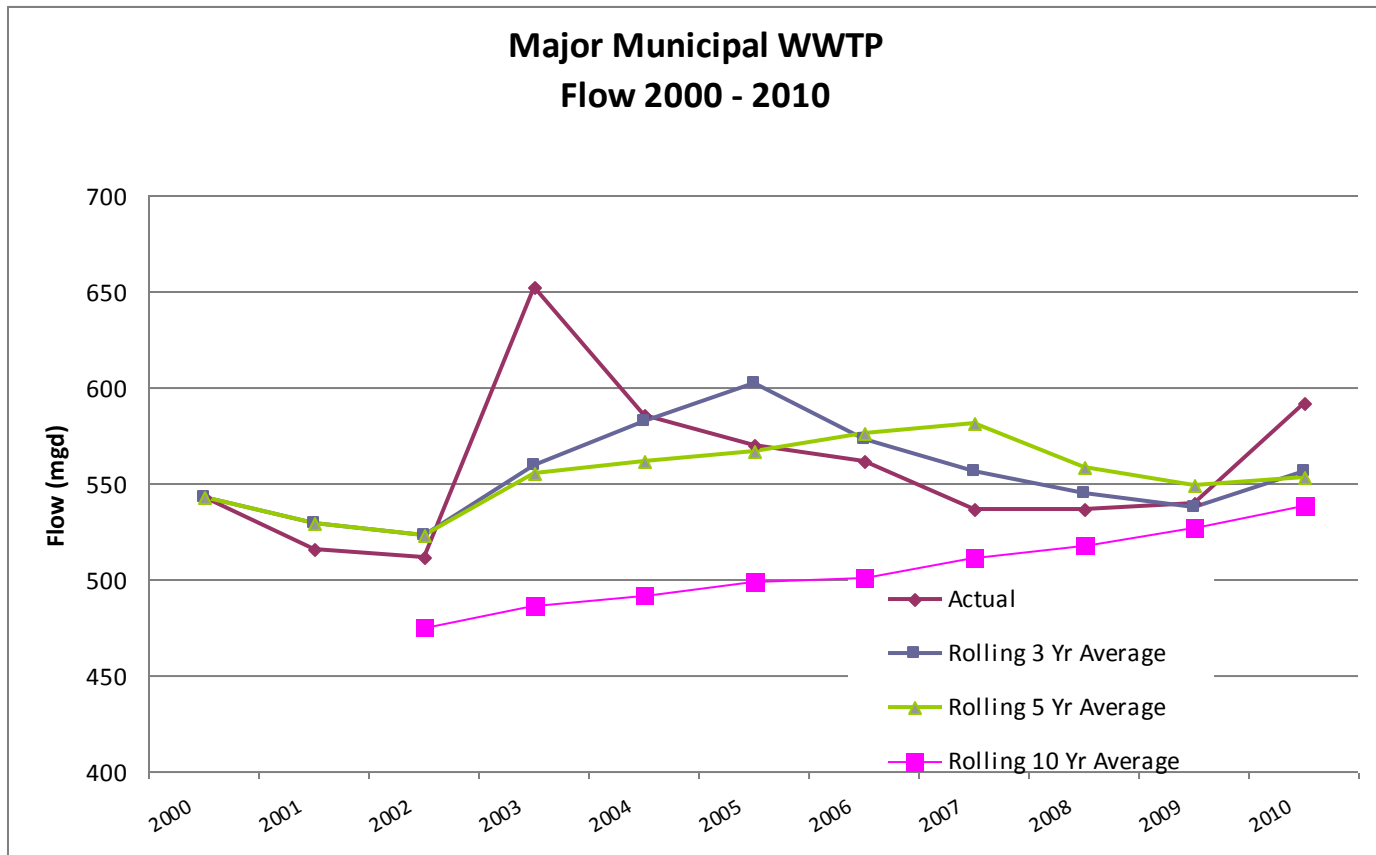
Annual Upgraded WWTP Flows

**ENR Upgraded WWTP (13 Facilities)
Weighted TP Concentrations 2000 - 2010**

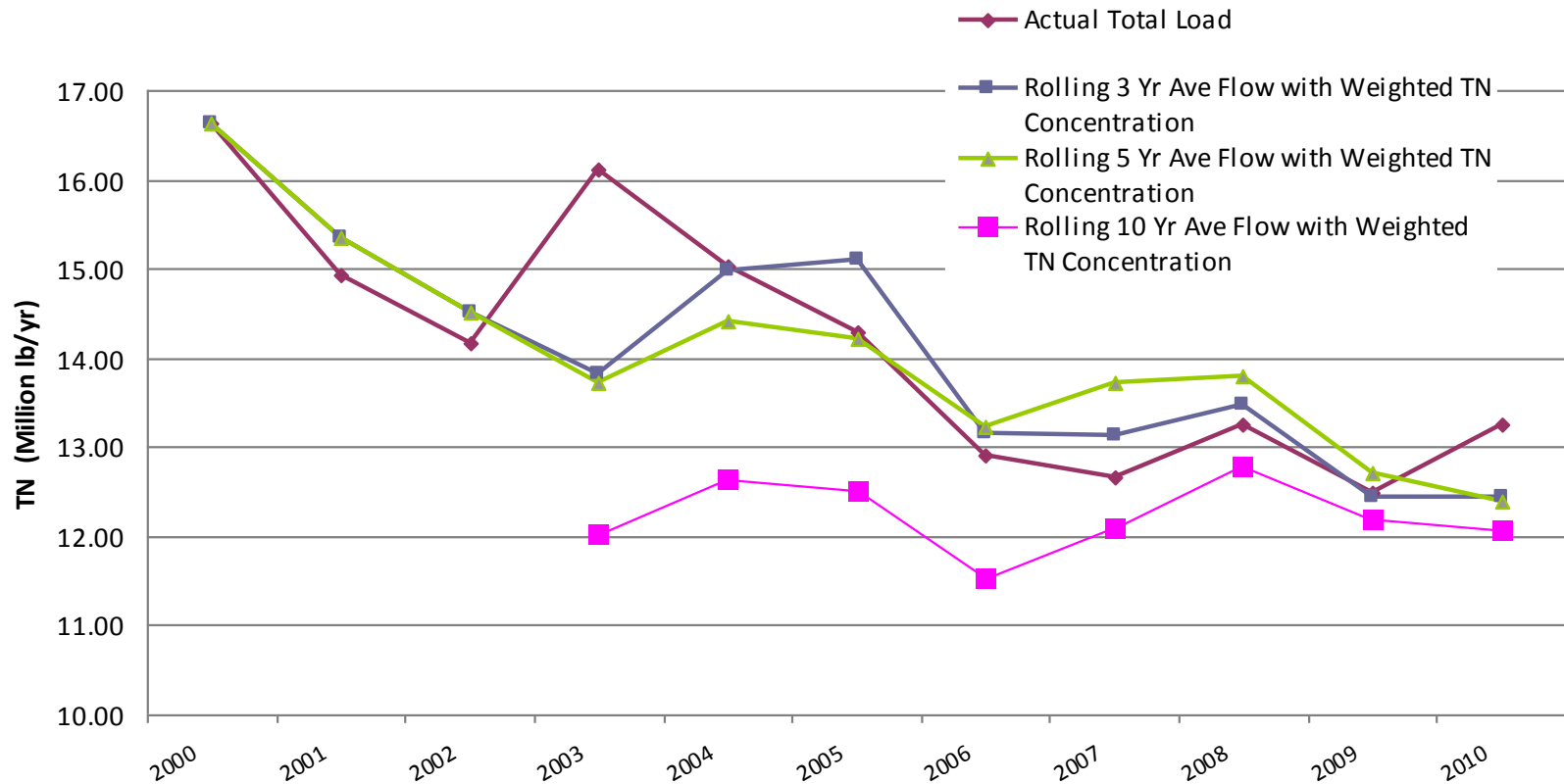


**Annual Flow Weighted
TP Concentrations**

**Trend – Concentration decreases
showing Progress**



Major Municipal WWTP TN Load 2000 - 2010





Estimating Point Sources for Progress Scenarios

- Proposed supplemental indicators
 - Use 10-year rolling average to estimate PS Loads
 - Use Actual TN, TP for facilities operating with upgrades for about a year
 - Use default TN, TP for facilities where data is not yet available