

Board of Director's Meeting

July 1, 2015

9:00 a.m.



CENTRAL TEXAS
Regional Mobility Authority

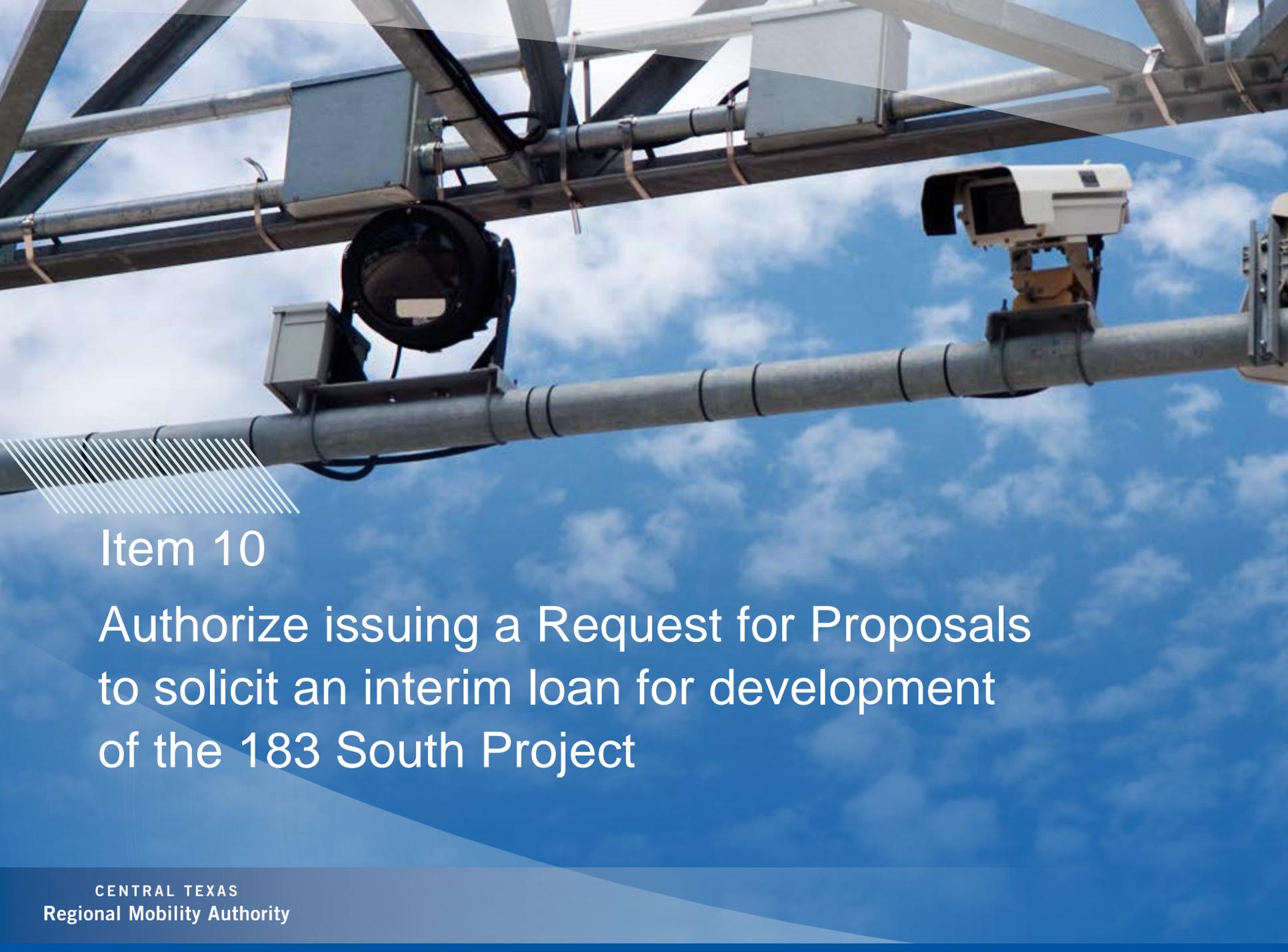


Item 2

Opportunity for Public Comment

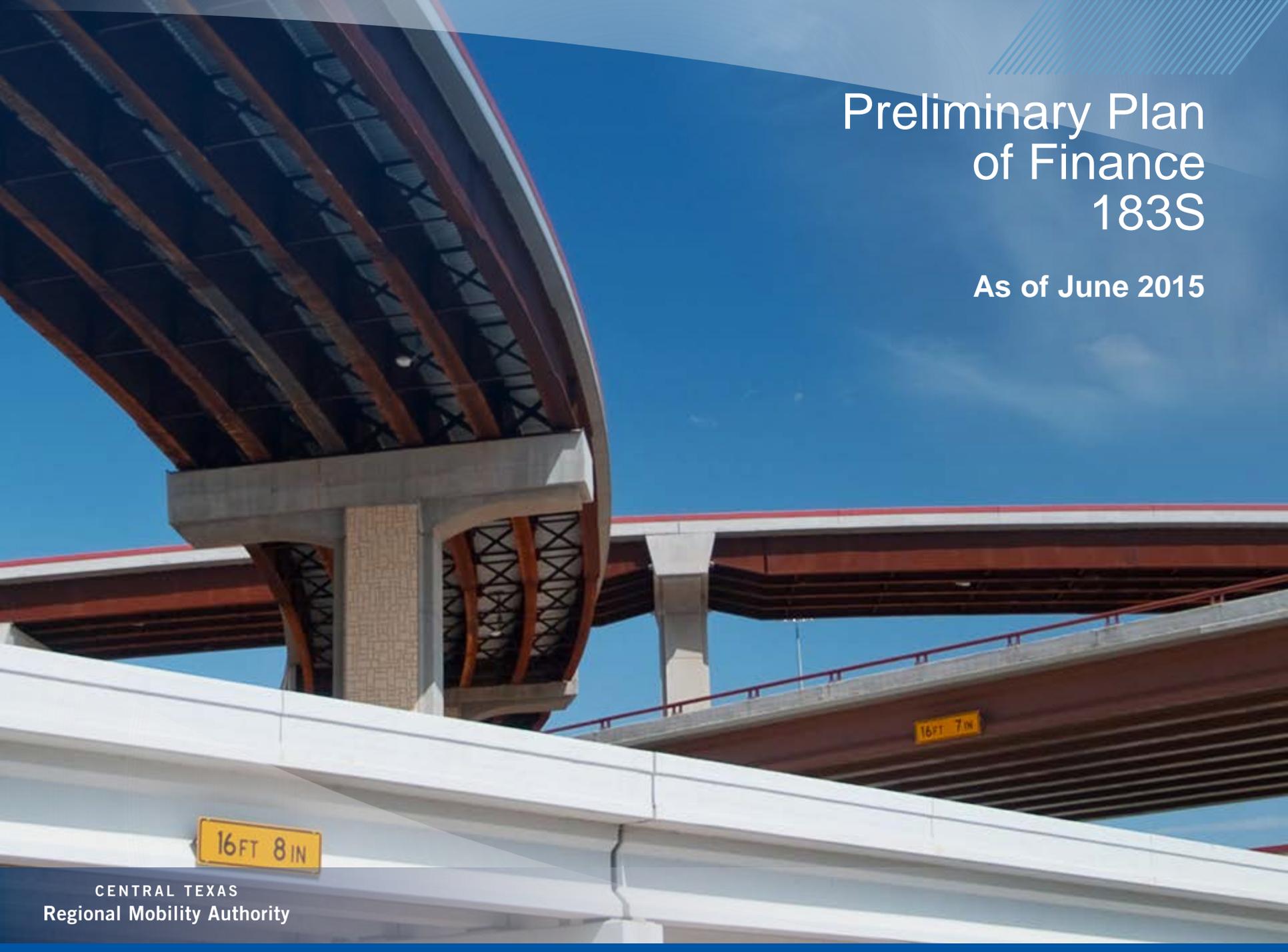


CENTRAL TEXAS
Regional Mobility Authority



Item 10

Authorize issuing a Request for Proposals to solicit an interim loan for development of the 183 South Project



Preliminary Plan of Finance 183S

As of June 2015

16FT 8IN

16FT 7IN



- **Senior Lien Revenue bonds**

- \$338,908,000 **4.616%**



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 - \$40,000,000 **2.54%**



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 - \$288,627,394 **3.57%**



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- **Toll Equity Grant**
 - \$147,844,248

Total \$875,379,642



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Item 13

Report on the 84th Texas Legislature

Brian Cassidy, Locke Lord



CENTRAL TEXAS
Regional Mobility Authority



Item 14

Executive Director's Report

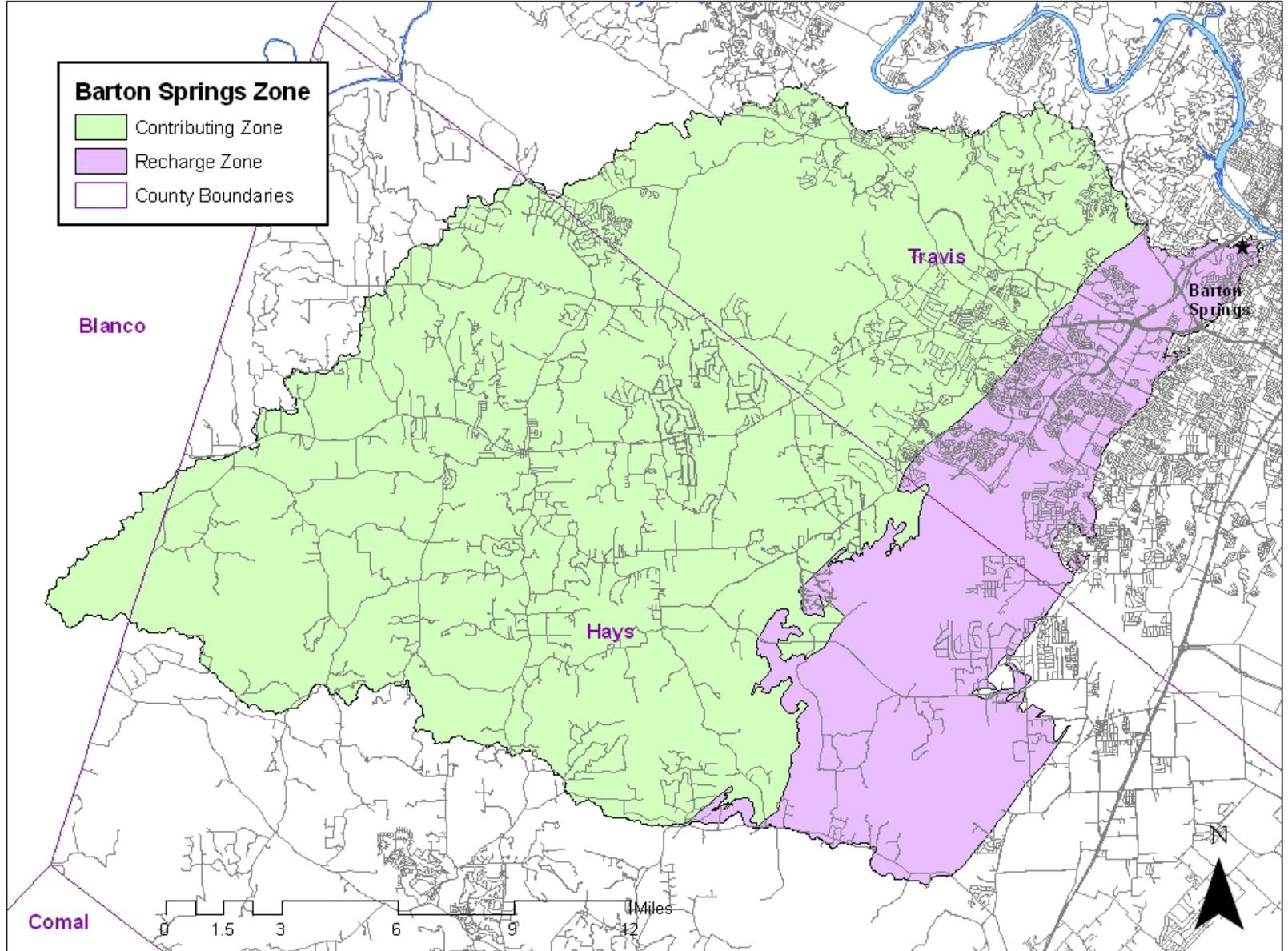
(A Preliminary Assessment of the)

Effectiveness of Stormwater Regulations in the Barton Springs Zone

Michael Barrett, Ph.D., P.E., D. WRE
Center for Research in Water Resources

Rainfall Simulation





Barton Springs

- Known location of 2 endangered species
- Long term monitoring record
- Integrates the water quality impacts of the entire zone



Population Growth in BSZ

- 1990 – 2010 population grew by 2.5x (+80,000 people)
- 2100 acres of structures added (not including driveways, sidewalks, or roads) according to Herrington

Water Quality Regulations

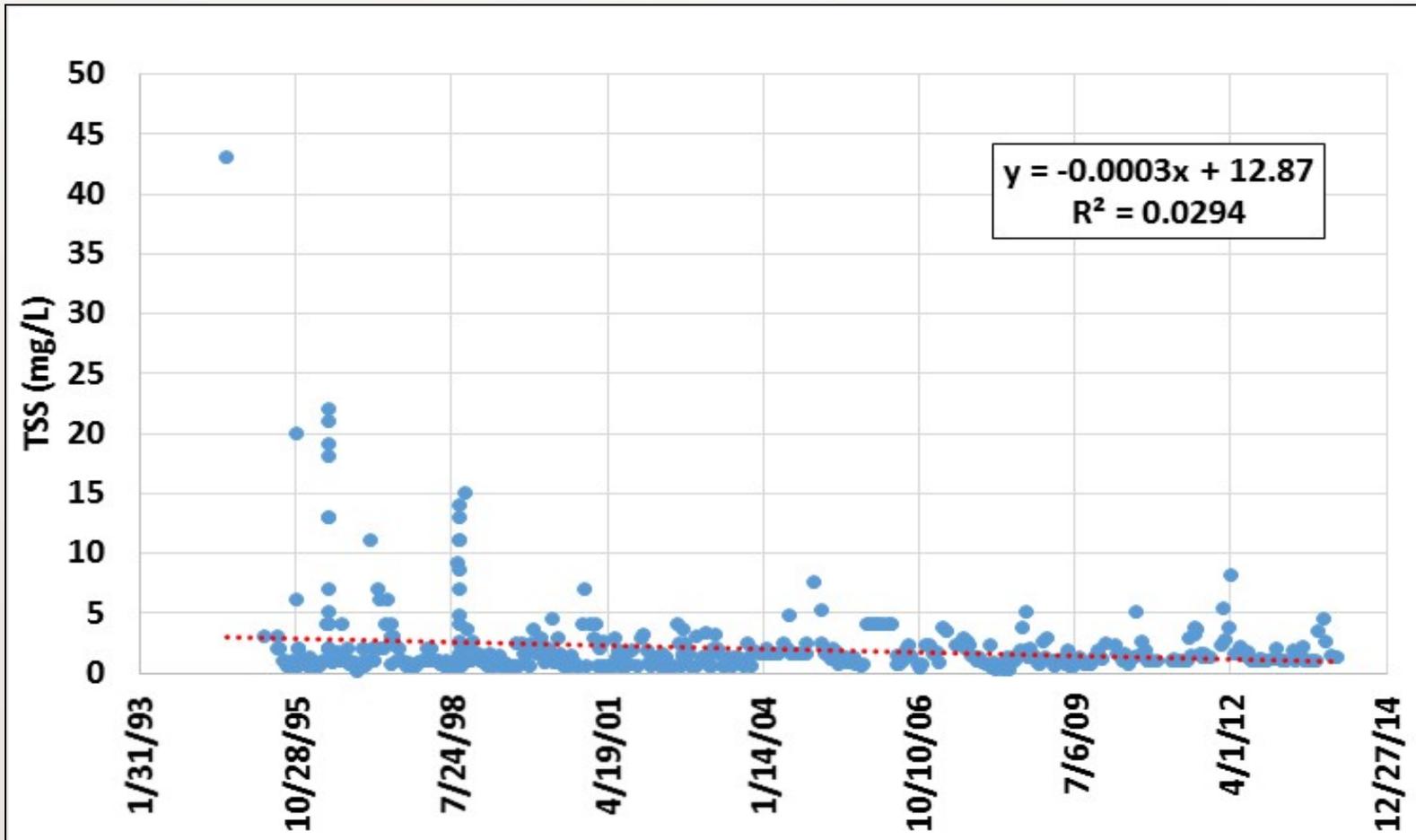
- Austin SOS Ordinance in place since 1992
 - Basically a no-discharge requirement
 - Retention/Irrigation
- TCEQ current Edwards Rules in place since 1999
 - 80% Total Suspended Solids (TSS) reduction
 - Mostly sand filters
 - Low density residential with no controls

Load Based Calculations

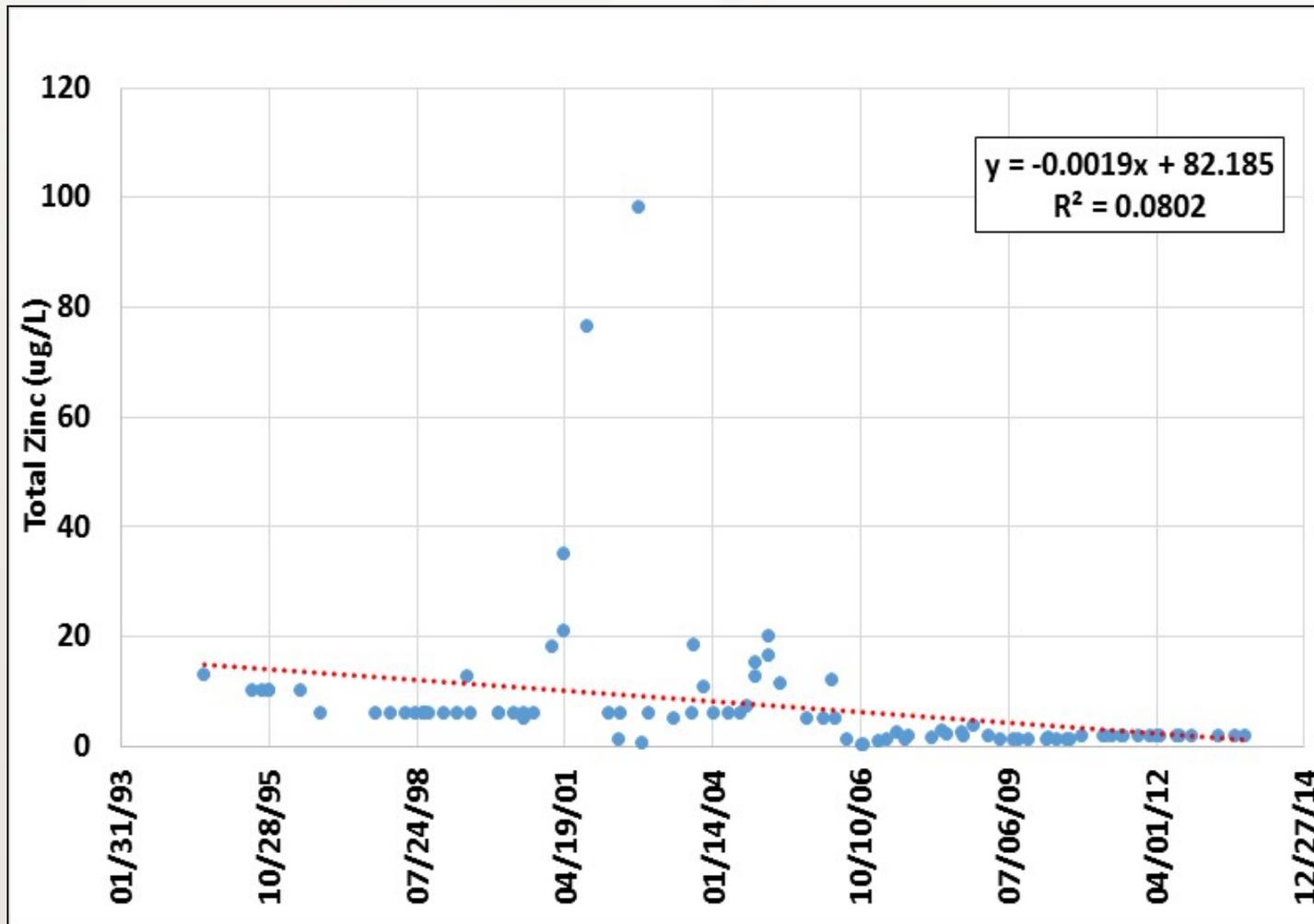
Concentration x Runoff Volume = Load

- Development increases volume by 10 to 20 times
- Concentration must be reduced compared to undeveloped by similar amount
- The Problem with SOS:
 - Many constituents at very low concentrations in undeveloped runoff
 - BMPs not effective for dissolved constituents
 - Requires about 475,000 cubic feet of storage

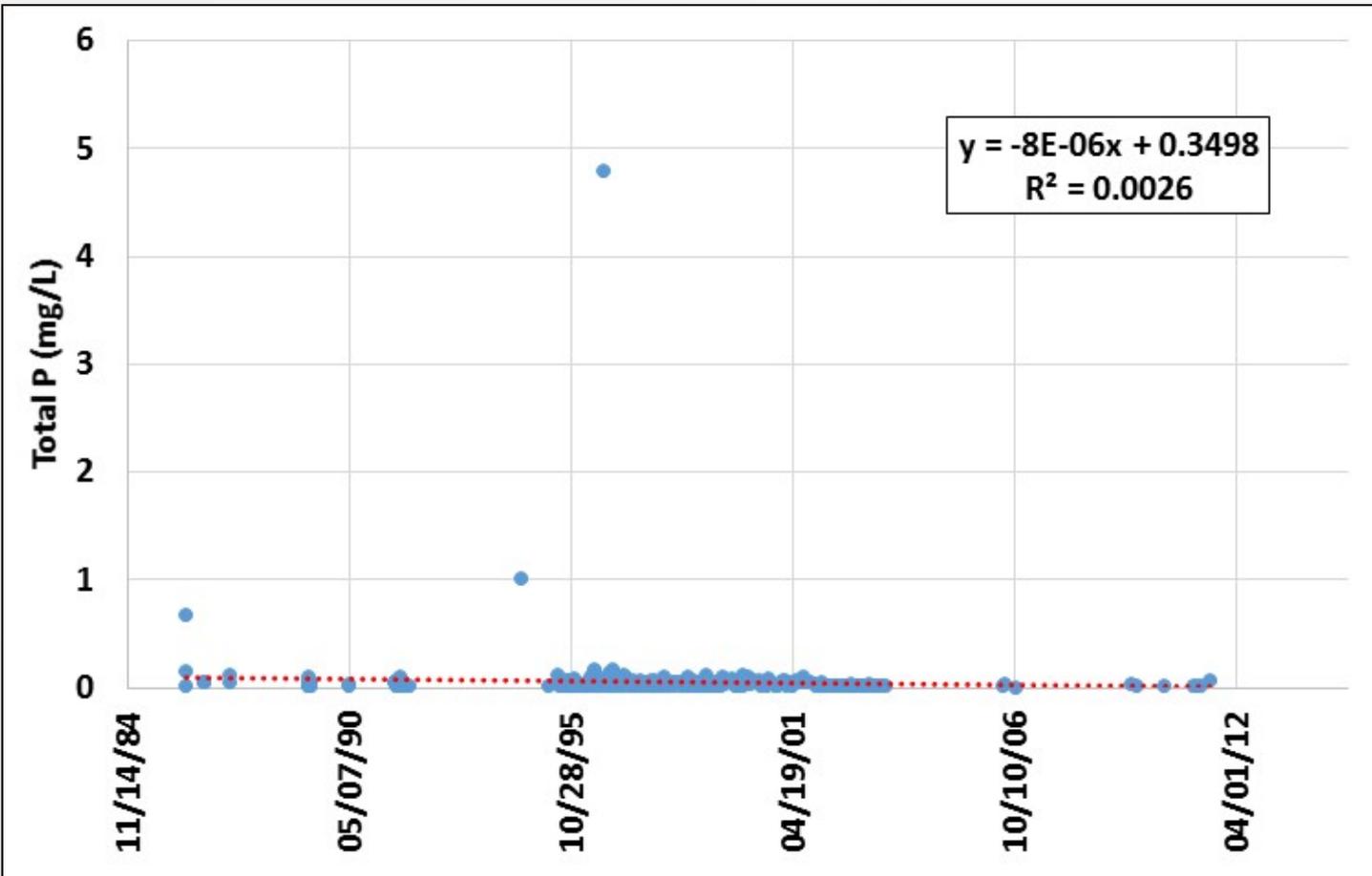
Total Suspended Solids



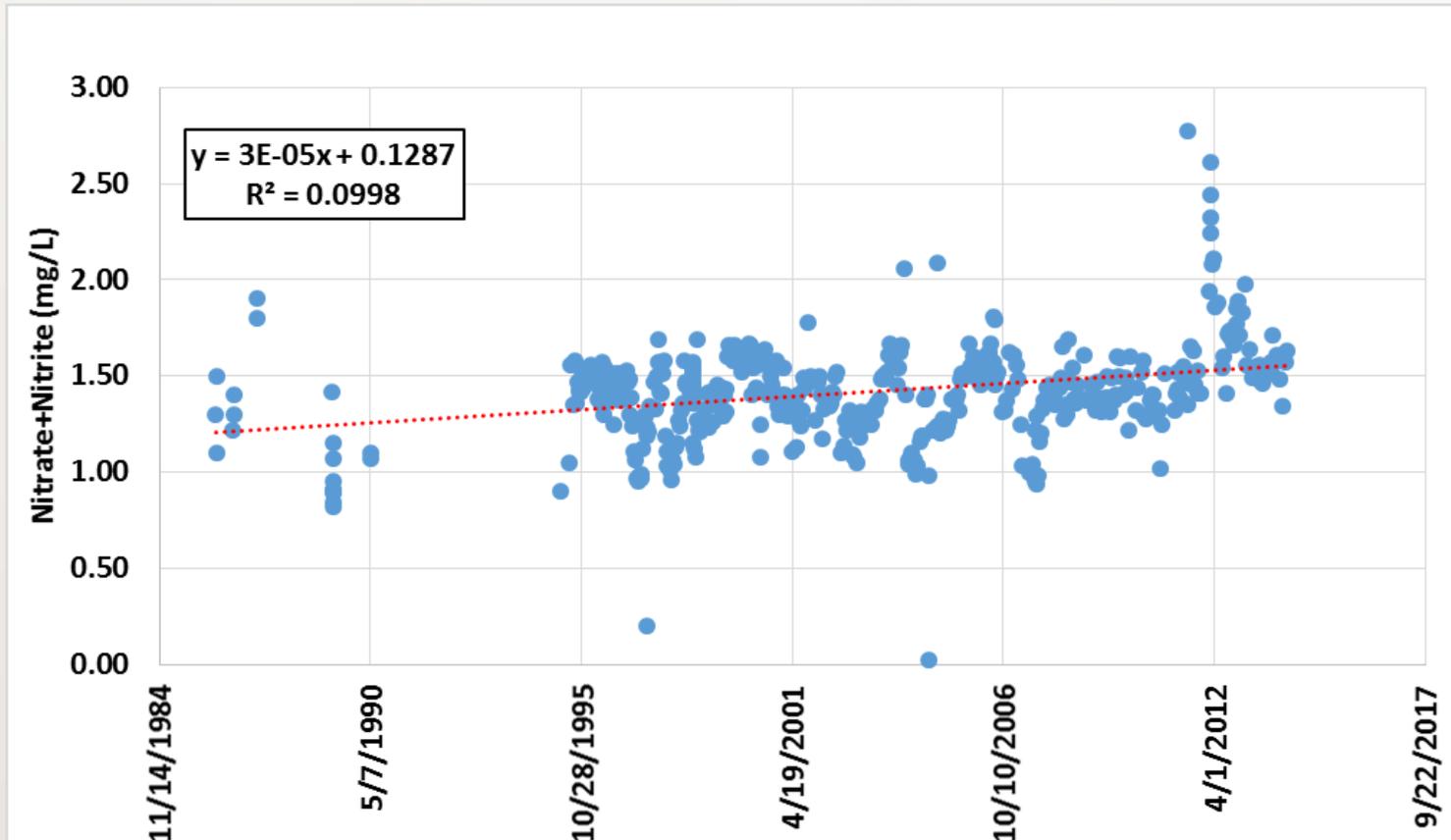
Total Zinc



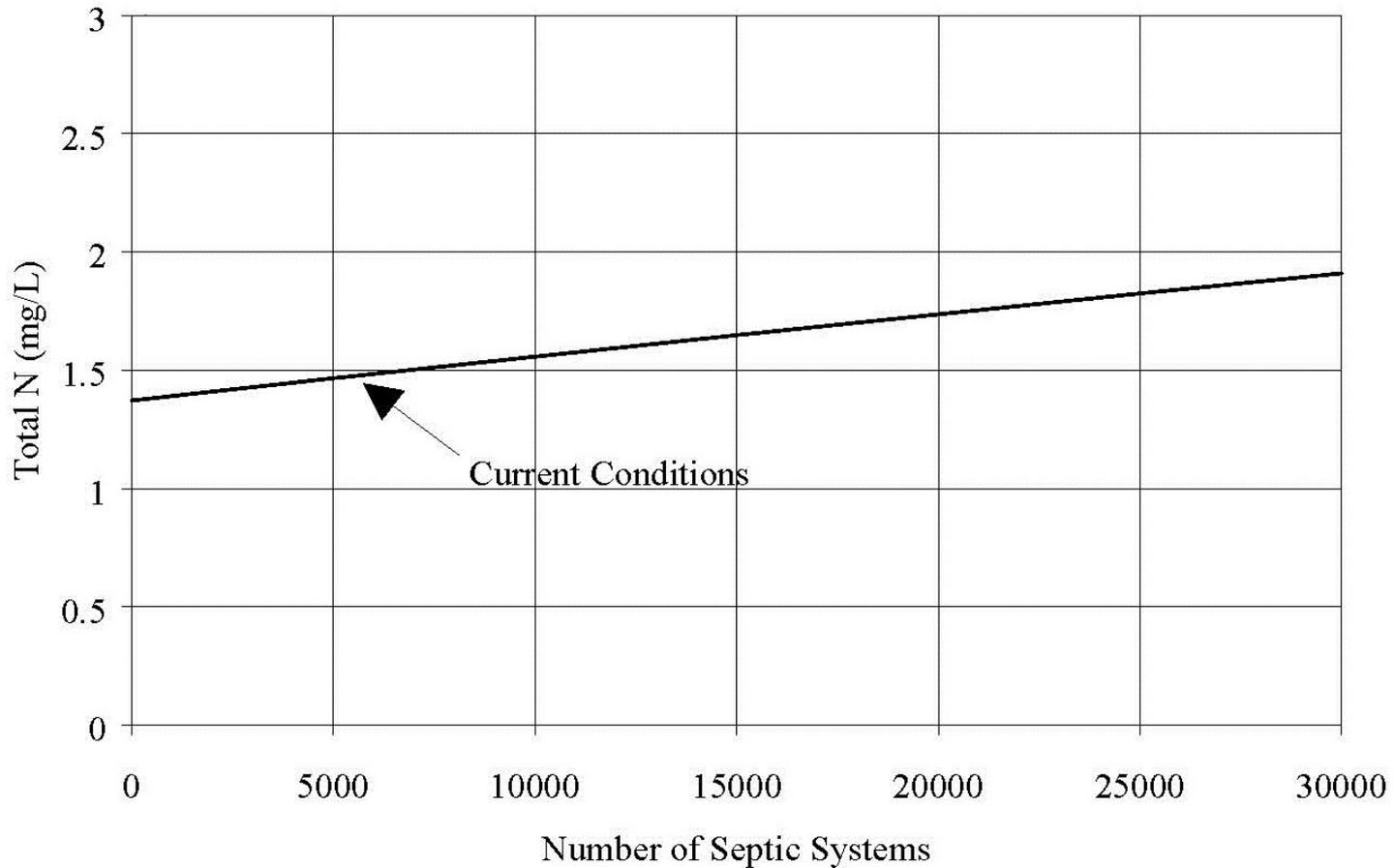
Total Phosphorus



Nitrate + Nitrite



Impact of Septic Systems



Barrett, 1996

Wastewater Disposal

Barton Springs contributing and recharge zones

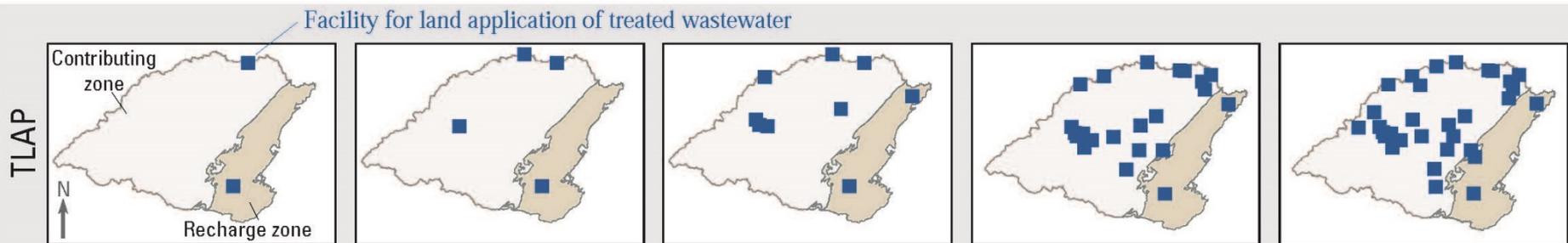
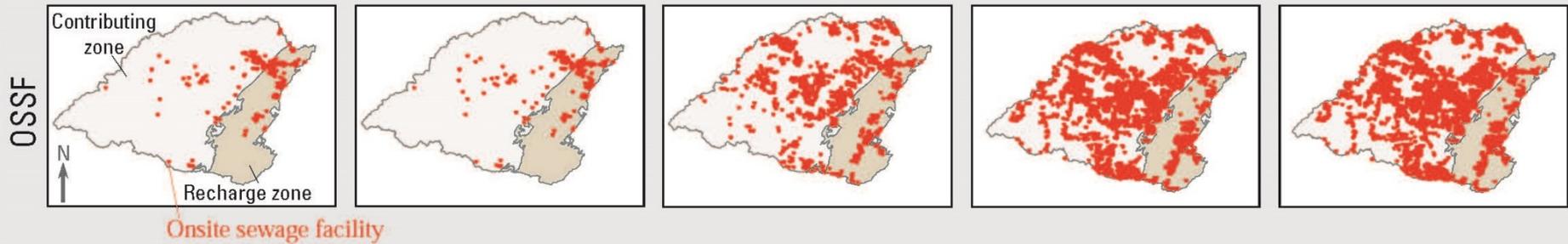
1990

1995

2000

2005

2010



Wastewater Disposal

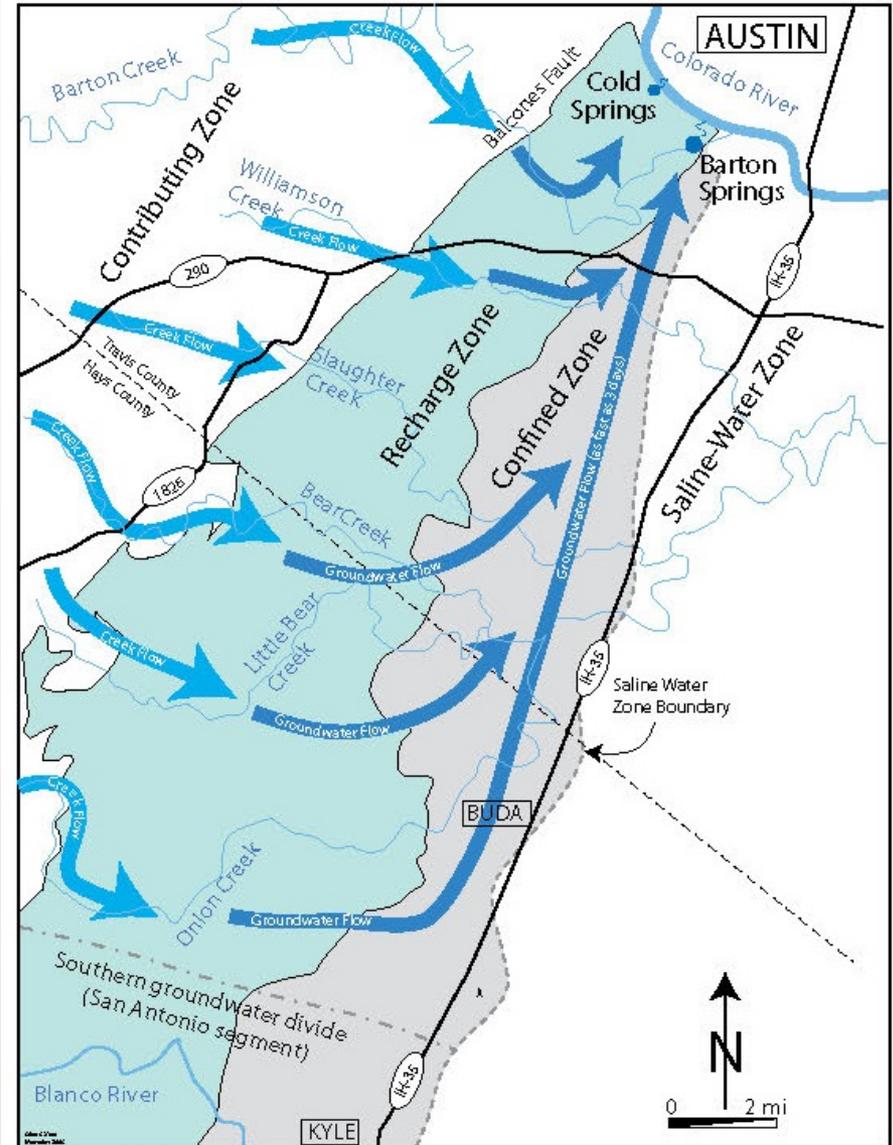
- Nitrate concentration typically 10 – 15 mg/L
- Since early 90's added about 4000 septic systems in the Barton Springs Zone (1.4 MGD total)
- Land application of wastewater accounts for 3.8 MGD (roughly 60,000 people)
- Isotopic analysis of nitrogen indicates human or animal origin (Mahler et al., 2011)

City of Austin – Worsening

Herrington & Heirs (2010)

- Conductivity
- Dissolved Oxygen
- Nitrate
- Sodium
- Chloride
- Alkalinity
- Hardness
- Strontium
- Silica
- Calcium
- Magnesium
- Potassium
- Barium
- Sulfate
- Fluoride

“Bad Water Line”

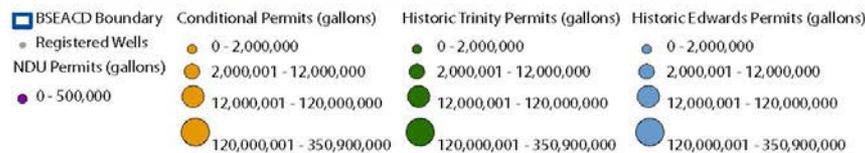
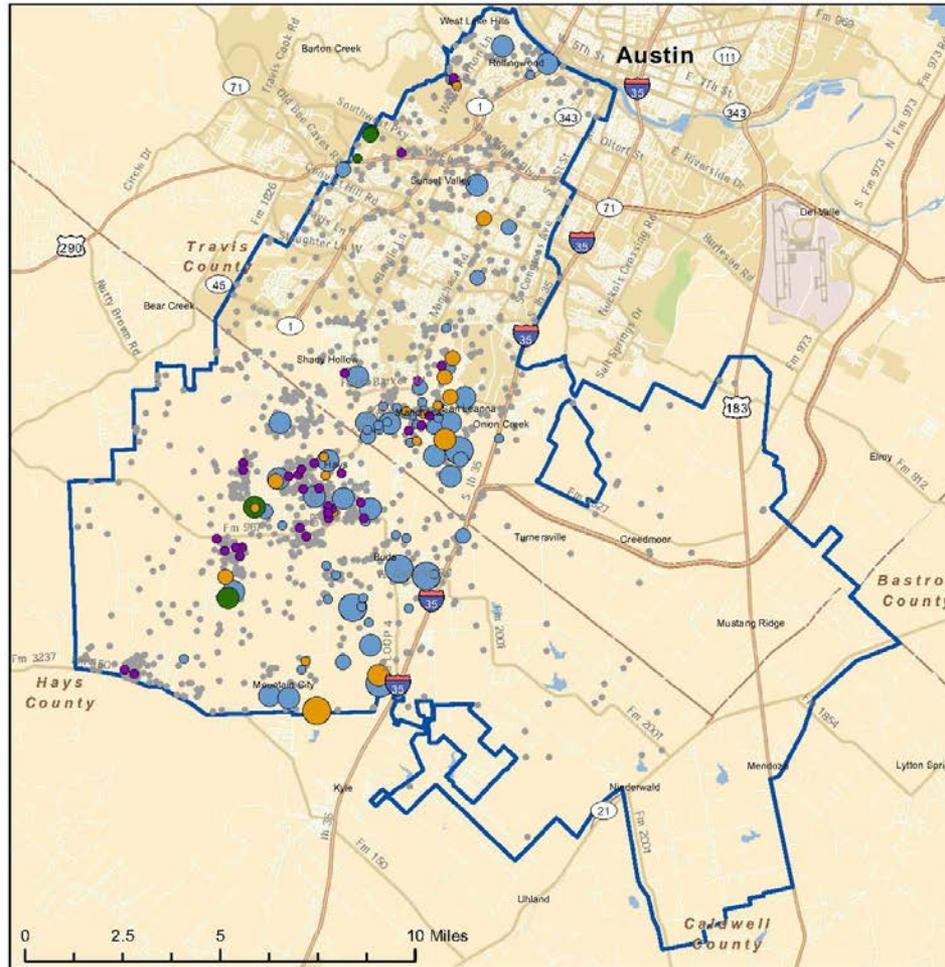


City of Austin – No Trend

Herrington & Heirs 2010

- Total suspended solids
- Total volatile solids
- Zinc
- Copper
- Lead
- Cadmium
- Dissolved phosphorus
- Total phosphorus
- Diazinon
- Atrazine
- Oil and Grease
- Turbidity
- E. coli

BSEACD Permitted Volumes by Permit Type



Base data: Representation of BSEACD permits by permit type; Roads from ESRI
 Author: Robin Gary, BSEACD
 Date: January 24, 2012

This map is for graphic display purposes only. It is not intended for engineering, surveying or construction purposes. The information depicted has been digitized from various sources and only represents the relational accuracy of design elements. The Barton Spring Edwards Aquifer Conservation District is not responsible for the use, display or interpretation of this map by any other person, agency or organization.

Conclusions

- Concentrations of urban runoff constituents in spring discharge are stable
- Stormwater controls have been effective at preventing degradation from stormwater
- Prevention of further degradation requires:
 - Limiting pumping
 - Limiting wastewater discharges or enhancing nitrogen removal

THE END



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Executive Session



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