

South Nolan Creek Water Quality

**City of Killeen
Water Sewer and Drainage Committee**

June 2, 2009

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Background & Regulatory Status

- South Nolan Creek
 - Segment 1218 extends 29 miles from the headwaters in Killeen to its confluence with the Leon River in Belton
 - Originally listed on the State's Impaired Water List in 1996 for elevated bacteria
 - Impaired contact recreation use
 - Water quality concerns also include elevated nutrient levels
 - Listing based on single monitoring site in lower portion of watershed
 - In 2006, TCEQ elevated priority for TMDL development

Clean Water Act Section 319 Nonpoint Source Grant

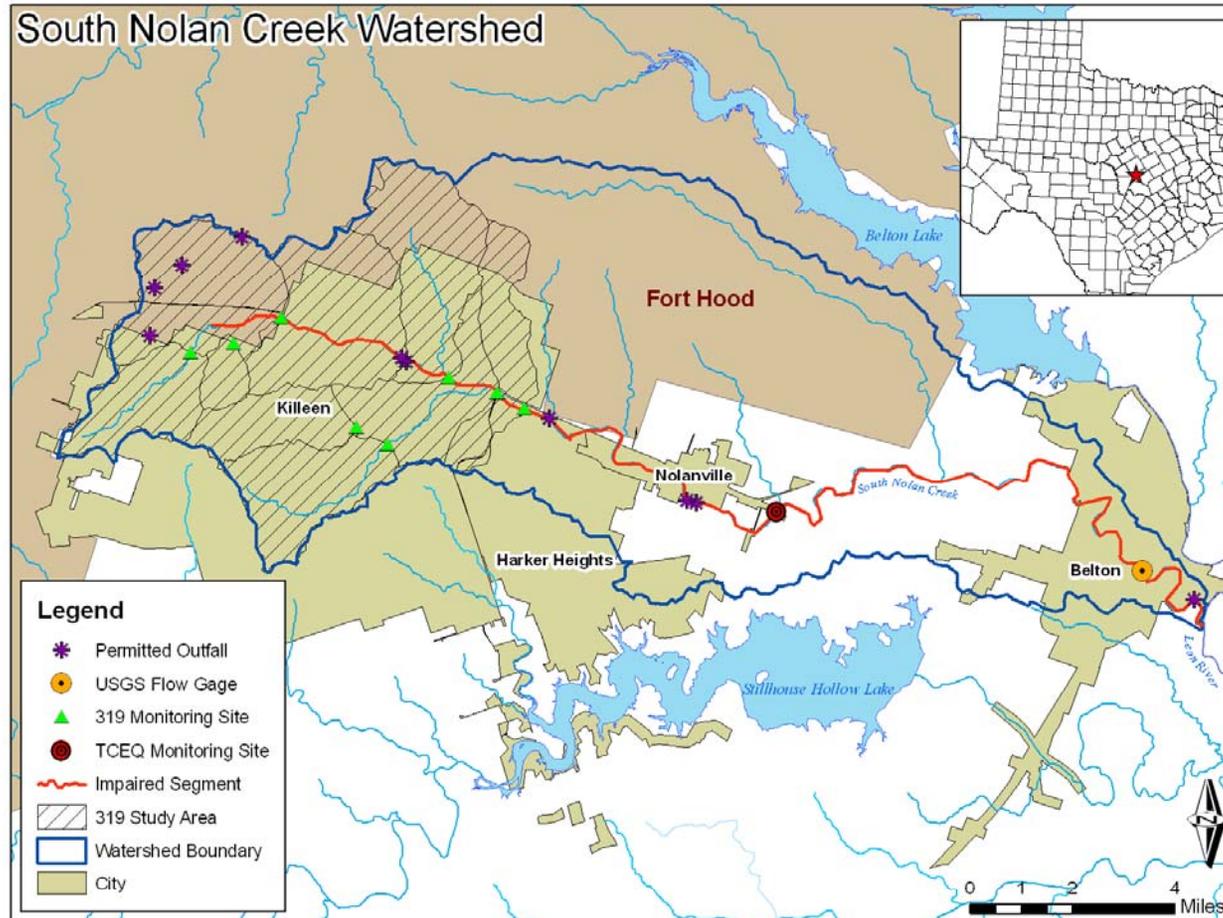
- In 2005, the City received grant funding to monitor water quality conditions in the South Nolan Creek within Killeen's city limits

Goal:

- To confirm whether the City is contributing to the elevated bacteria concentrations, to what degree and to identify priority sub-basins for Best Management Practice (BMP) implementation



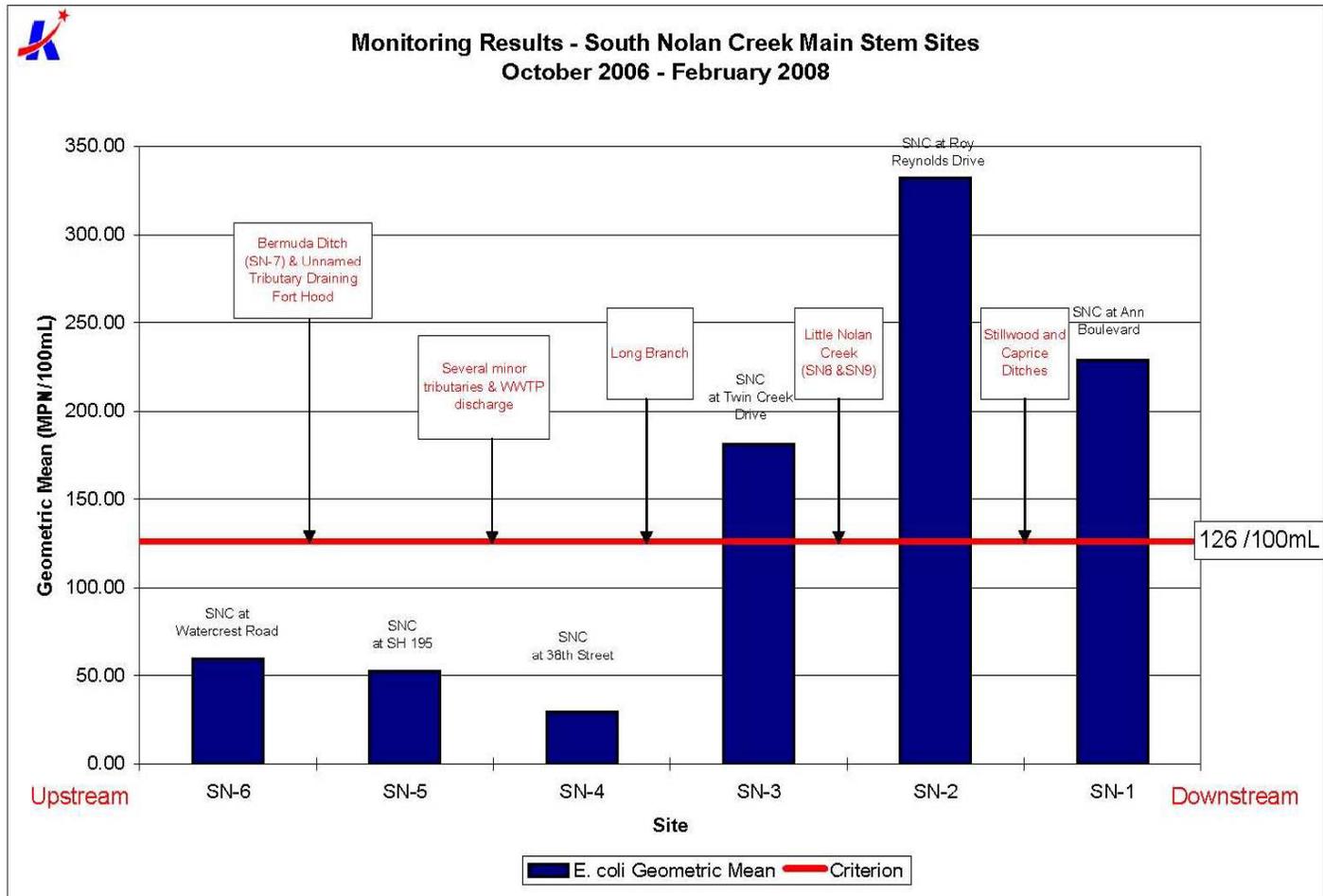
319 Grant Study Area



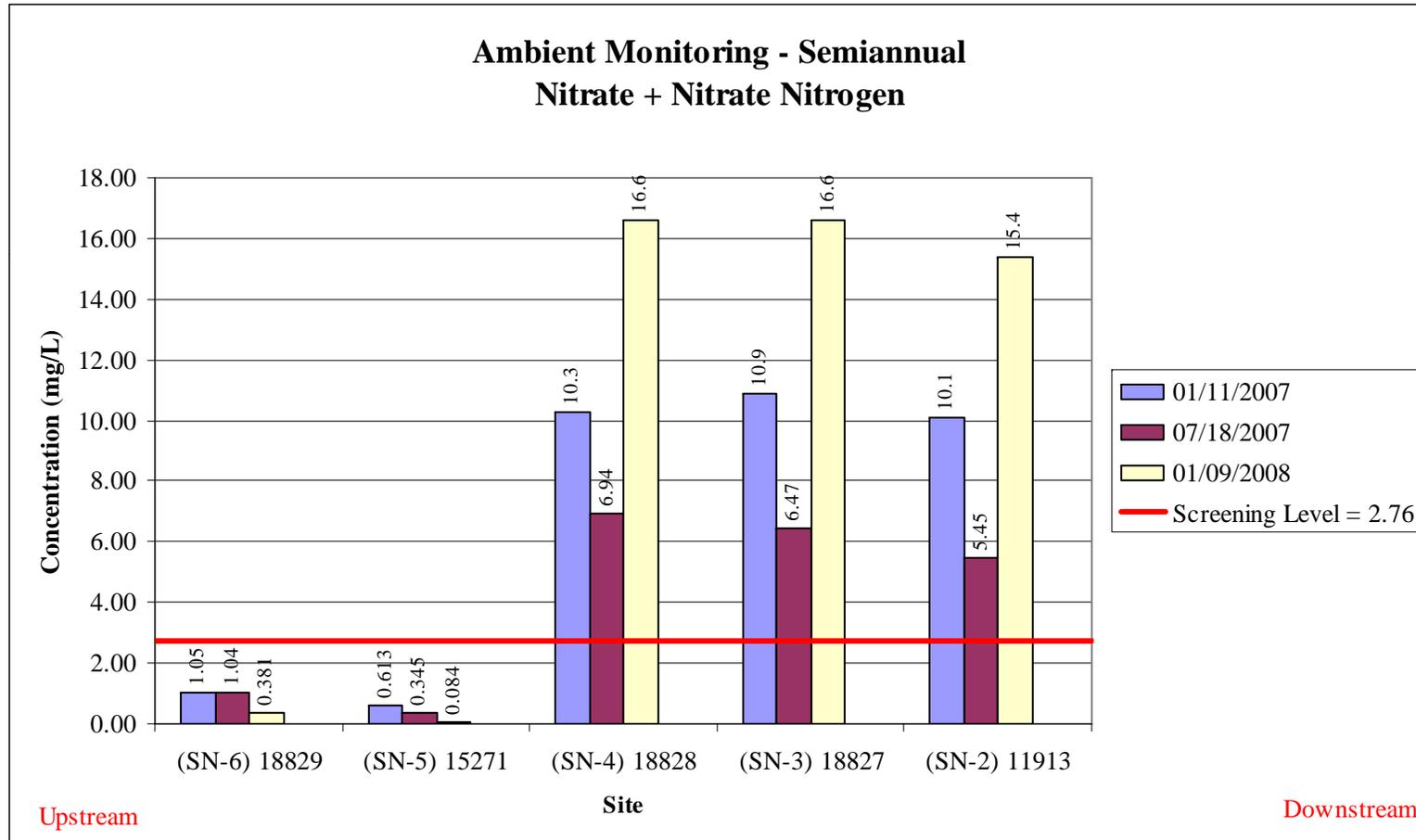
319 Grant Study

- Sampled 9 sites (October 2006 – February 2008)
- Monthly sampling for bacteria at 9 sites (primary focus)
- Semi-annual sampling at 5 sites for
 - Bacteria
 - Flow
 - Sediment (water clarity)
 - Nutrients (Nitrogen and Phosphorus)
 - Metals
 - Oxygen and BOD
 - Temperature, pH, Conductivity
- Storm Water (Wet-Weather) Monitoring at 1 site
- Characterized watershed and examined potential pollution sources (land use, wastewater outfalls, septic tank locations, sanitary sewer overflows, etc.)

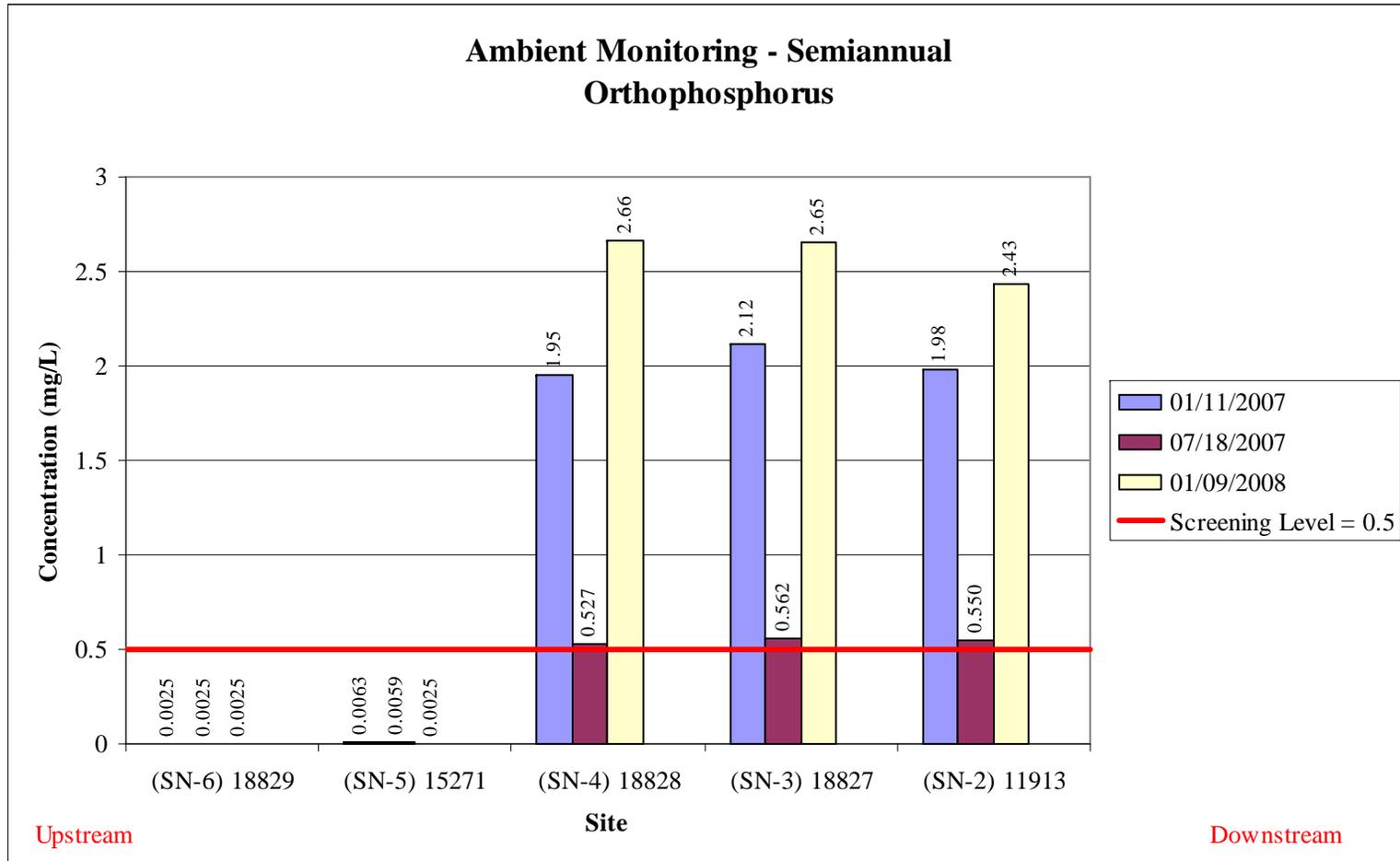
Monitoring Results - Bacteria



Monitoring Results – Nutrients (Nitrogen)



Monitoring Results – Nutrients (Phosphorus)



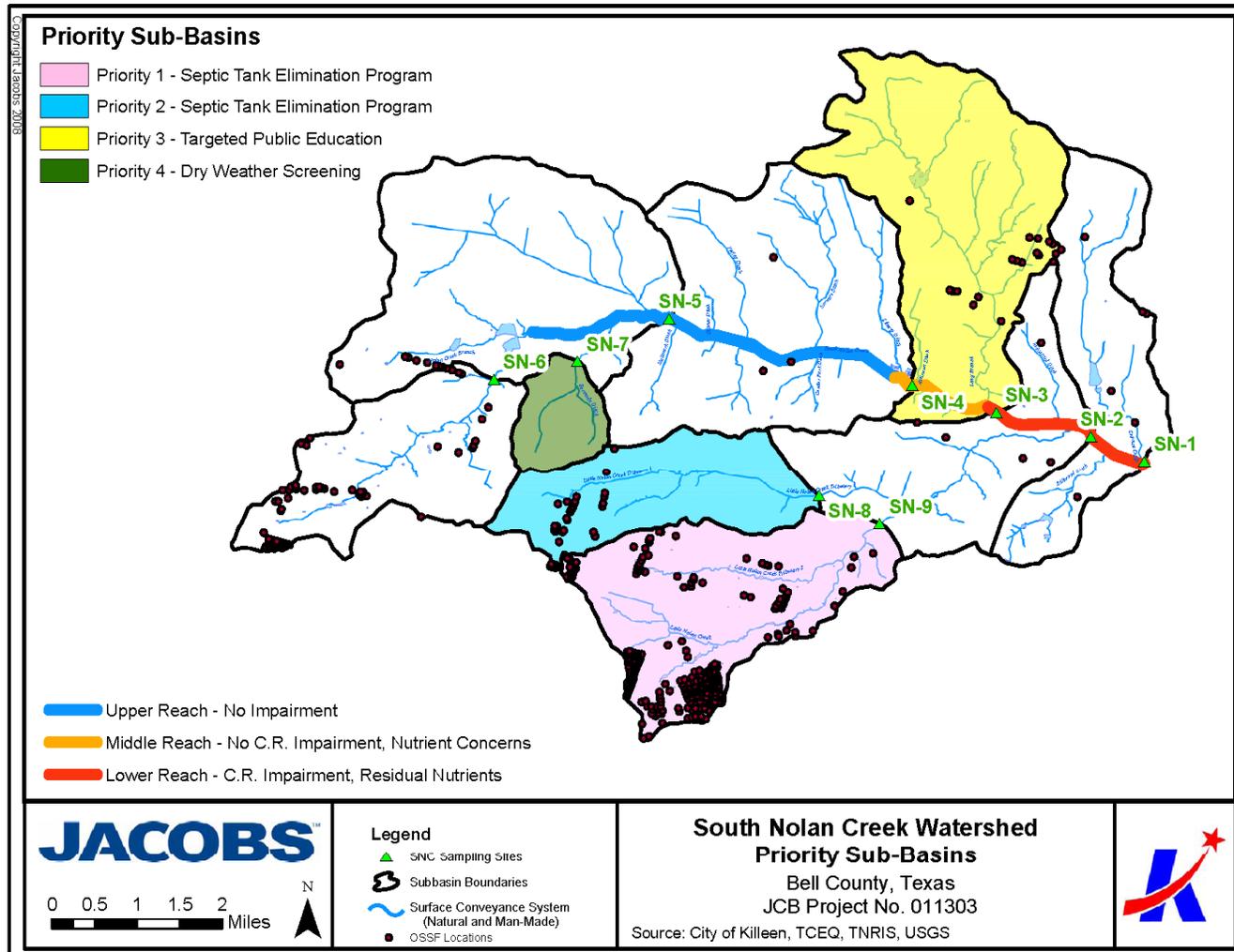
Monitoring Results & Study Findings

- Upper portion of SNC above 38th Street has good water quality
- Confirmed water quality impairment in SNC from Twin Creek Drive downstream to the city limits
 - bacteria levels exceed State criteria for contact recreation
 - contributions from Long Branch and Little Nolan Creek
- Data showed a relationship between the number of septic tanks and the bacteria concentrations

Monitoring Results & Study Findings

- Elevated nutrient contributions from Bell County WCID wastewater treatment plant discharge
 - Nitrogen and Phosphorus concentrations up to 6 times greater than State imposed criteria
- Identified 4 priority sub-basins for BMP implementation
Proposed BMPs include:
 - Septic tank elimination program
 - Targeted public education (septic tank maintenance, pet waste disposal)
 - Dry weather screening for illicit discharges/illegal connections
- BMPs in process of implementation through the City's Storm Water Management Program / Storm Water Permit

Monitoring Results & Study Findings



Next Steps

- TCEQ will initiate a Total Maximum Daily Load (TMDL) for the South Nolan Creek in the near future
 - May impose load allocations in future discharge permits in the watershed
 - Will significantly increase regulatory requirements for all communities and dischargers in the watershed
- Possible alternative to a TMDL is a Watershed Protection Plan (WPP)

What is a WPP?

- Locally-developed, comprehensive plans that coordinate activities and resources to improve water quality
- Facilitate the restoration of impaired water bodies or the protection of threatened waters before they become impaired
- Voluntary, stakeholder-driven plans that give the decision-making power to the local stakeholders most vested in their community's water quality

WPP versus TMDL

Watershed Protection Plan (WPP)	Total Maximum Daily Load (TMDL)
<ul style="list-style-type: none"> • Locally developed 	<ul style="list-style-type: none"> • Developed by TCEQ
<ul style="list-style-type: none"> • Voluntary 	<ul style="list-style-type: none"> • Regulatory
<ul style="list-style-type: none"> • Qualifies for 319 grant funds to develop (60% federal grant / 40% local match) 	<ul style="list-style-type: none"> • TCEQ pays to develop
<ul style="list-style-type: none"> • Stakeholder group formed by communities in the watershed and facilitated by lead grantee 	<ul style="list-style-type: none"> • Stakeholder group formed and facilitated by TCEQ
<ul style="list-style-type: none"> • Covers a broad range of issues (quantity, quality, streambank stabilization, wetlands restoration, etc.) 	<ul style="list-style-type: none"> • Covers a single parameter for which the segment is impaired
<ul style="list-style-type: none"> • Once developed and approved, the watershed qualifies for additional 319 grant funds to implement practices identified in plan 	<ul style="list-style-type: none"> • No grant funds available, communities must implement practices and load allocations as specified in TMDL but no funding available
<ul style="list-style-type: none"> • No regulatory requirement to revise MS4 or wastewater permits 	<ul style="list-style-type: none"> • Once adopted, MS4 permits in the watershed (Fort Hood, Killeen, Harker Heights, Nolanville and Belton) will be revised to incorporate load allocations and additional permit requirements

WPP Grant Steps

- Assemble Research Team
 - Texas Agrilife
 - Blackland Research and Extension Center in Temple
 - TAMU – Spatial Sciences Laboratory
 - Jacobs Engineering
- Meet with communities & stakeholders in watershed and solicit support and local match contributions
- Develop grant proposal and submit to TCEQ for funding – Early Fall 2009
- 3 Year Grant Funding for WPP development

Q&A

Questions ?