Miller Weir No. 3 Replacement

Schedule of Activities

- Bid Advertisement – February 19, 2014
- Bid Opening – March 20, 2014
- Governing Board Award – April 10, 2014
- Notice To Proceed – May 13, 2014
- Substantial Completion – January 19, 2015
- Final Completion – March 20, 2015

Lake Trafford

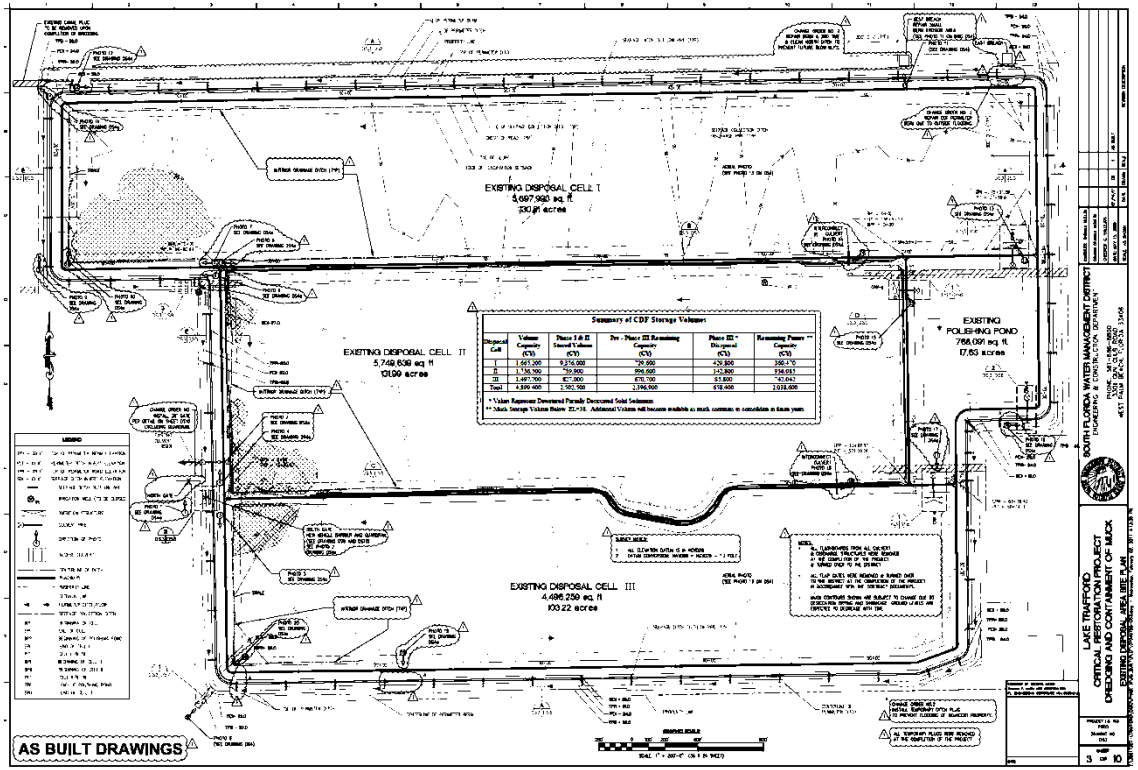
Big Cypress Basin Board Meeting
February 18, 2014

Jeff Kivett, P.E.
Division Director
Operations, Engineering, and Construction
South Florida Water Management District

Location

Background

- District conducted a dredging project in 2009 to dredge remove sediment from Lake Trafford.
  - Construction of detention basin for the dewatering water
  - Temporary easement to pump water to the detention basin



Evaluation

- District staff evaluated whether or not the existing detention basin could serve as a flow through filter marsh.
  - 378 acres
  - 4 treatment cells
  - Utilized the first order steady model to simulate anticipated load removal and outflow concentration
  - Assumed inflow rates and 15 cfs and 35 cfs
  - Assumed starting inflow concentrations ranging between 65 ppb – 237 ppb based on data collected between 2002 - 2012 by Collier County

Results

Scenario	Inflow Volume (cfs)	Average Annual Volume Treated (acre-feet per year)	Inflow TP Concentration (ppb)	Outflow TP Concentration (ppb)	Resulting in-Lake TP Conc. (ppb)
1	15	11,000	65	18	45
2			85	22	58
3			127	32	86
4			237	57	160
5	35	25,000	65	33	33
6			85	43	43
7			127	63	63
8			237	117	117

Next Steps

- Real Estate
  - Investigate potential options for locating pump station and pipeline route
- Further refine analysis for pump sizing
- Conduct surveys of existing detention basin to see if excess sediment needs to be removed

QUESTIONS?

Lake Trafford Water Quality Analysis Update

Rod A. Braun, Principal Scientist
Nenad Iricanin, Principal Scientist

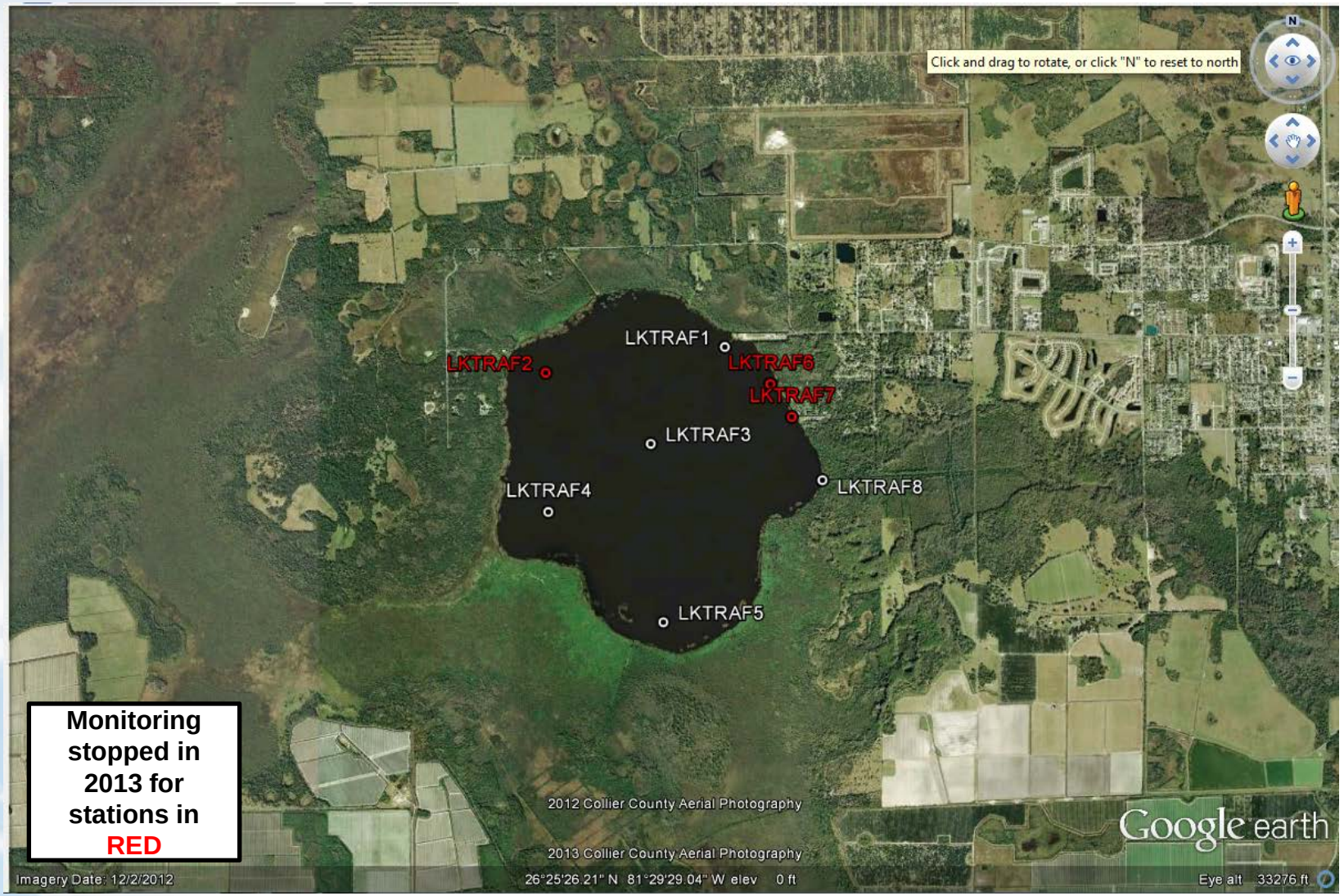
Big Cypress Basin Board Meeting

February 18, 2014

Lake Trafford Water Quality

- Collier County Pollution Control
  - Period of Record: December 1996 – December 2012
  - Fixed Stations
- Florida Department of Environmental Protection
  - Period of Record: December 1998 – December 2004
  - Probability-based sampling locations

Lake Trafford WQ Stations

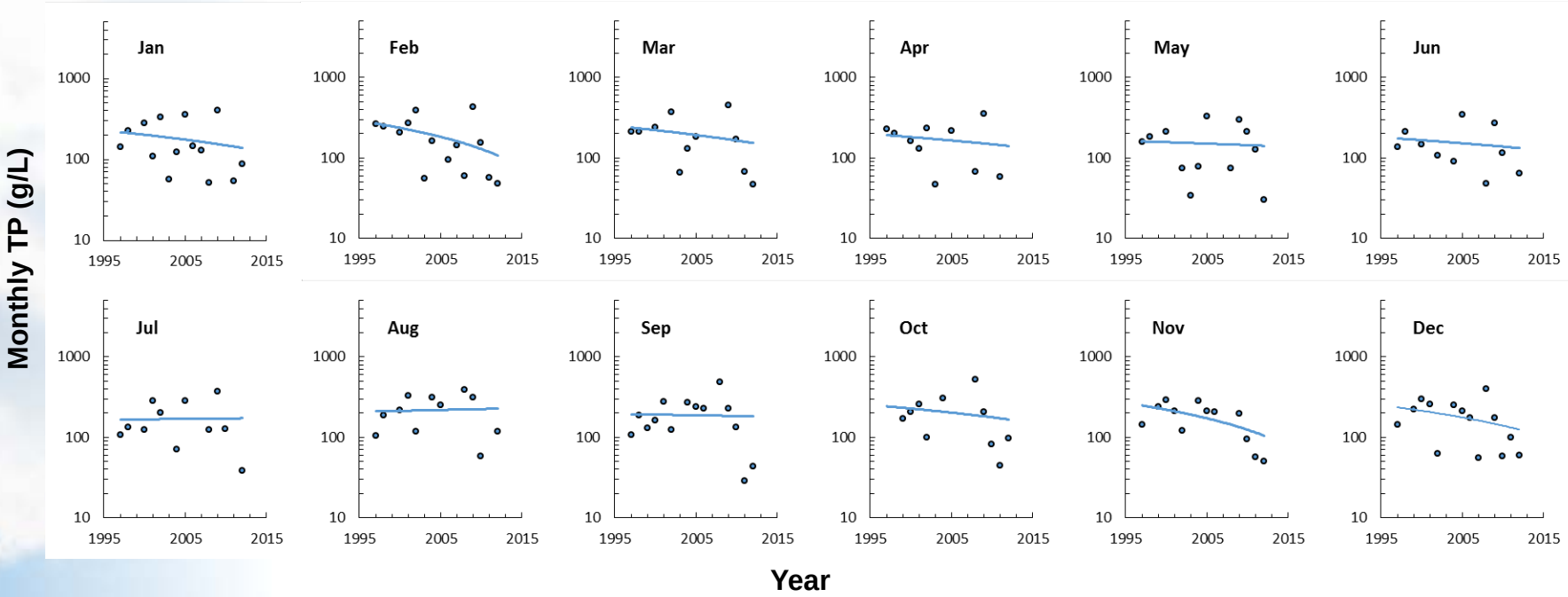


Lake Trafford Water Quality

- Developed water quality database
- Opportunities for reducing stations and parameters
- Overall Trends: Mean Monthly Concentrations
  - Total Phosphorous concentrations generally appear to be decreasing
  - Specific conductance concentrations appear to be increasing
- Other Parameters of interest:
  - Total Nitrogen
  - Chlorophyll-a
  - Dissolved Oxygen
  - Soluble Reactive Phosphorous

Lake Trafford Water Quality

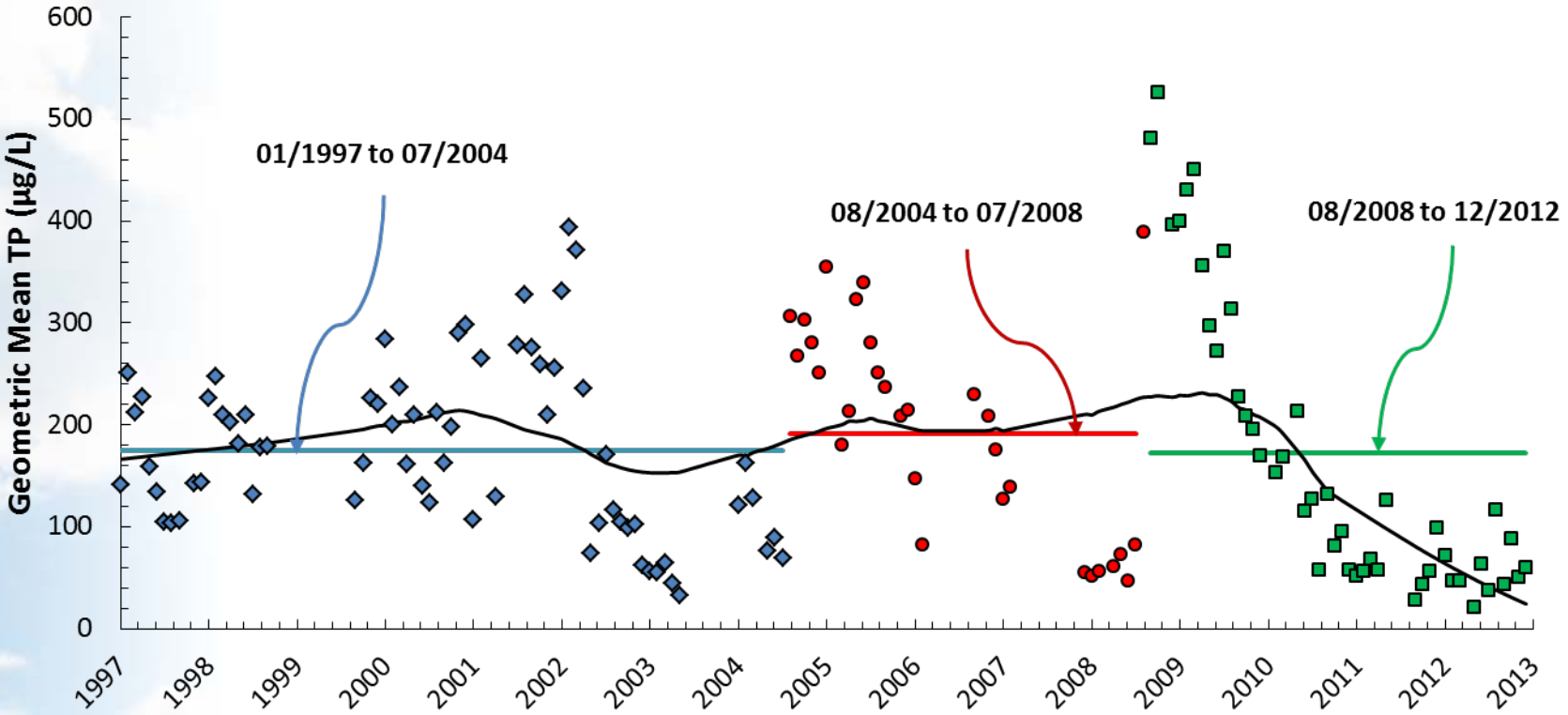
Mean monthly TP concentrations



- Time series and trends for each individual month
- TP concentrations generally appear to be decreasing

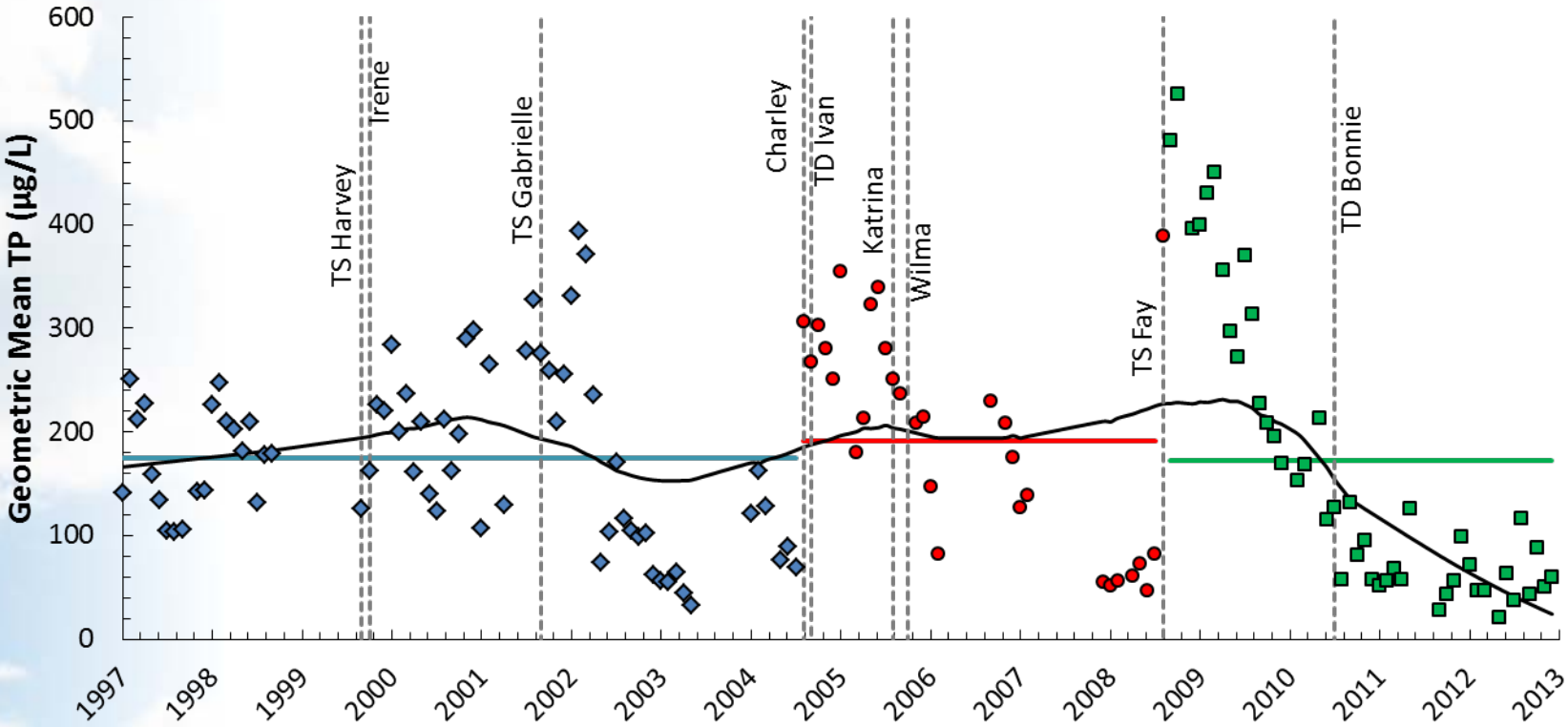
Lake Trafford Water Quality

Monthly geometric mean TP concentrations, Jan. 1997 through Dec. 2012



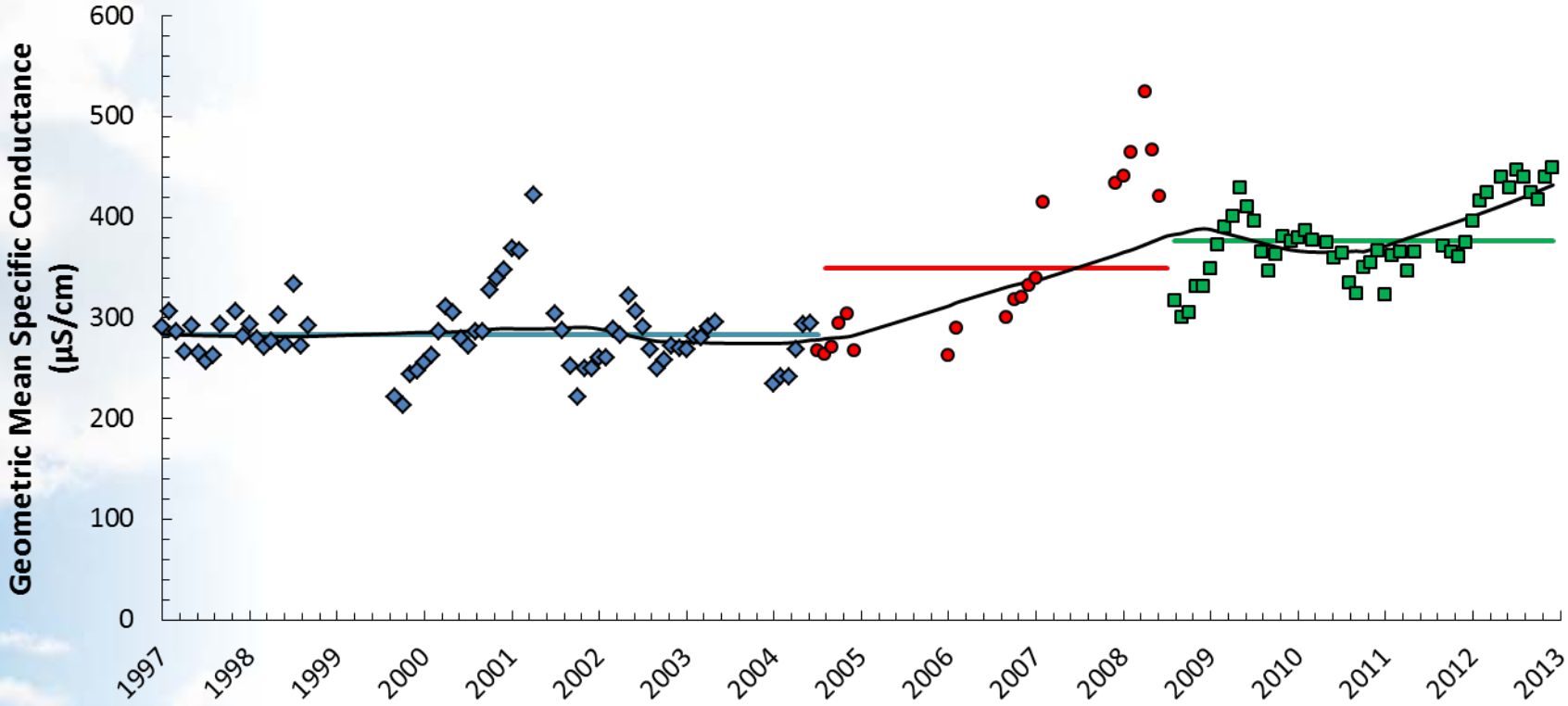
Lake Trafford Water Quality

Monthly geometric mean TP concentrations, Jan. 1997 through Dec. 2012 with tropical depressions, tropical storms and hurricanes events.



Lake Trafford Water Quality

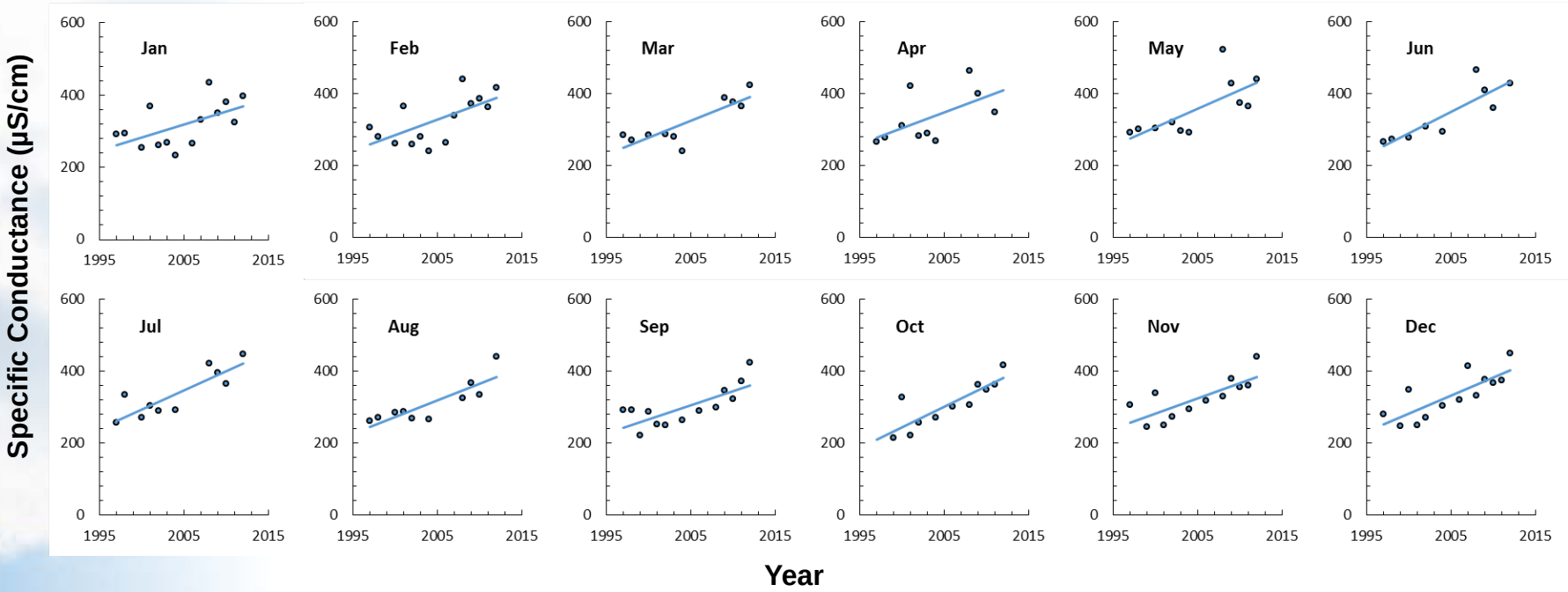
Monthly geometric mean specific conductance concentrations for Jan. 1997 through Dec. 2012.




Questions?

Lake Trafford Water Quality

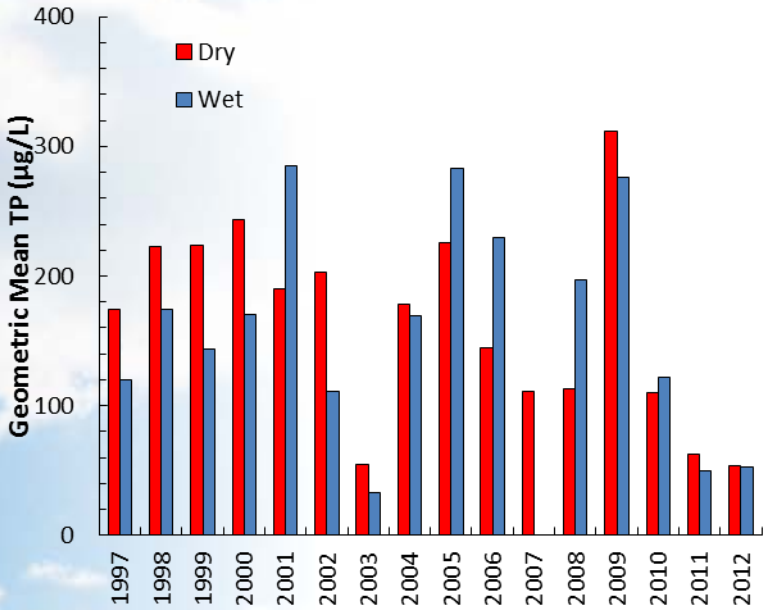
Mean monthly specific conductance



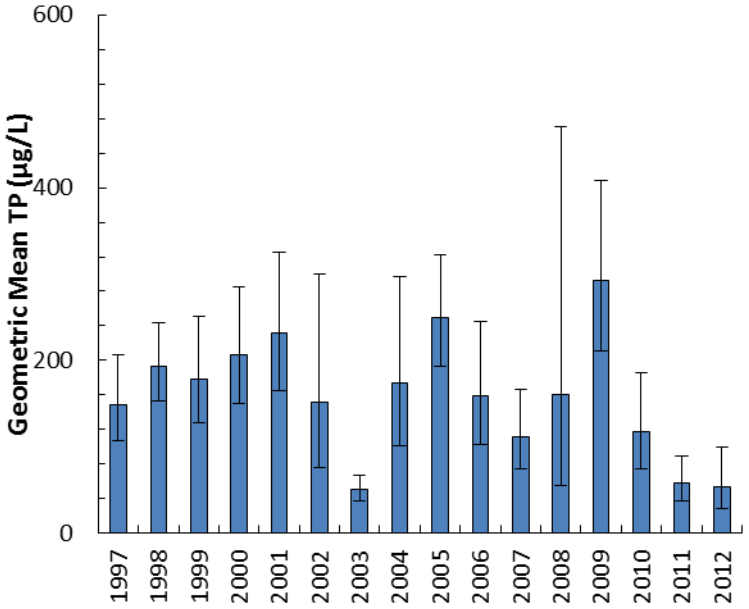
- Time series and trends for each individual month
- Specific conductance appear to be increasing across all months

Lake Trafford Water Quality

- Wet and dry season comparison of TP concentrations for each monitoring year

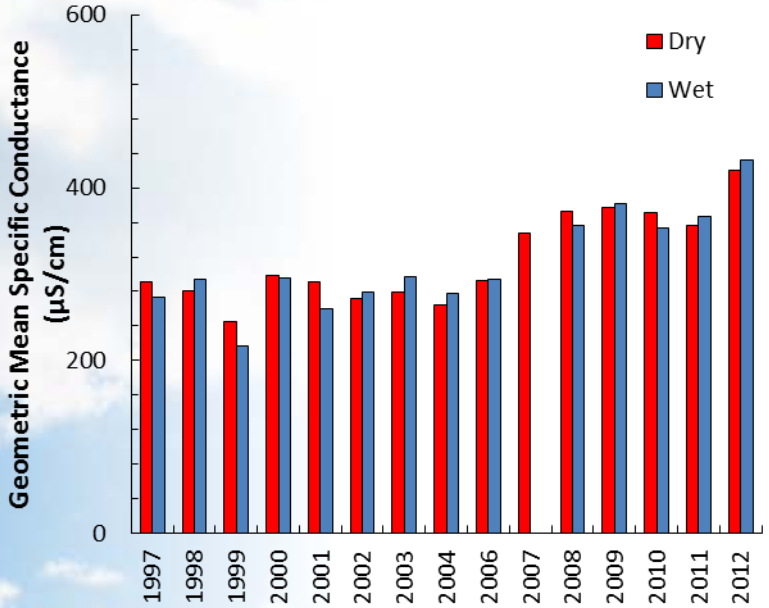


- Annual geometric mean of TP ± standard deviation



Lake Trafford WQ

- Wet and dry season comparison of specific conductance concentrations for each monitoring year



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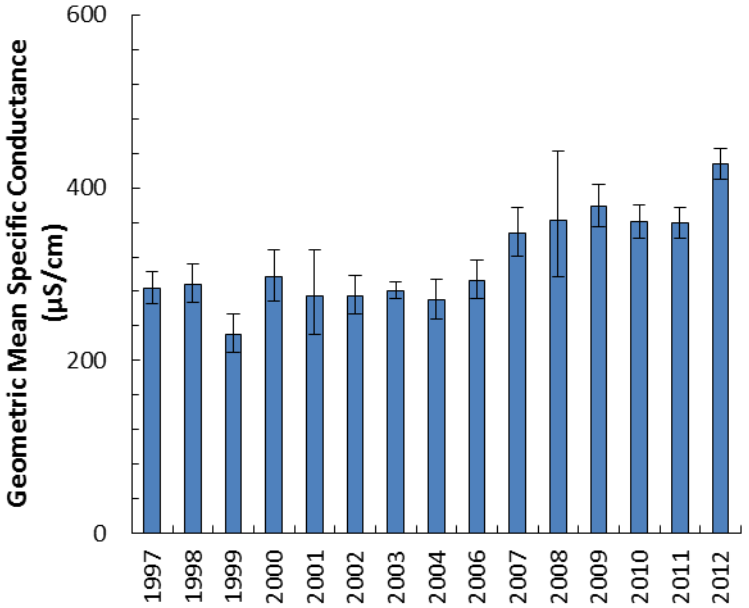
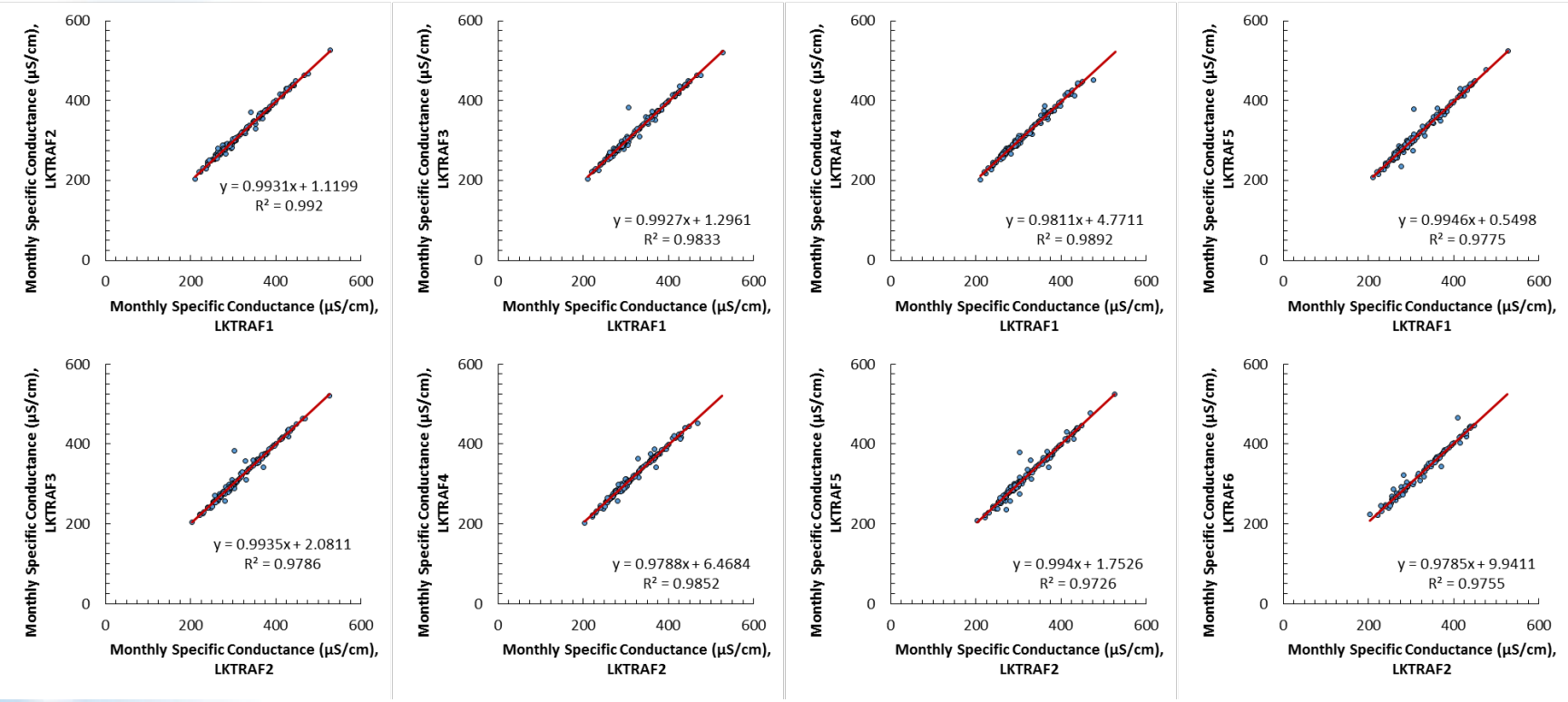


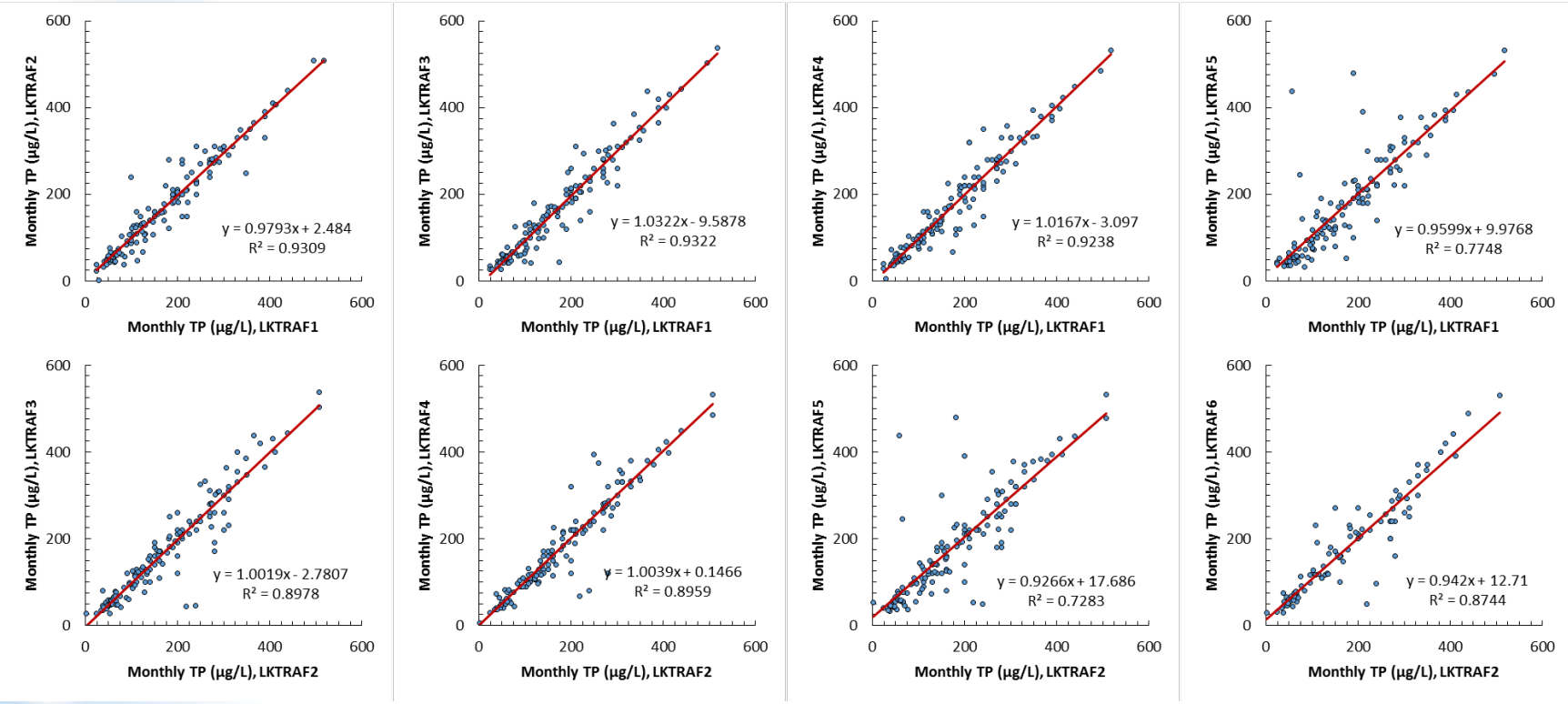
Lake Trafford Water Quality

Examples of comparison of monthly specific conductance concentrations between monitoring locations in Lake Trafford



Lake Trafford WQ

Examples of comparison of monthly TP concentrations between monitoring locations in Lake Trafford



BCB Governing Board

BCB SCADA Enhancements

February 17, 2014

BCB SCADA Enhancements

Topics:

- Define SCADA from a BCB Perspective
- Current BCB SCADA System
- Planned BCB SCADA System Enhancements
- Leveraging Existing/New SFWMD Resources to Assist BCB Water Managers

SCADA Enhancement Initiative
SCADA Definition

SCADA – Supervisory Control and Data Acquisition

Hardware and software systems used to gather and analyze real time data and provide user interface that allows control of equipment.

Data Examples:

- Gate position
- Surface water stage
- Rainfall
- Ground Water Levels

Equipment Examples:

- Water Control Structures
- Pumps

BCB SCADA Enhancements
Current SCADA System

BCB SCADA:

Supervisory Control
None – Rely on “Local Auto” function or field staff deployed to manually operate the system

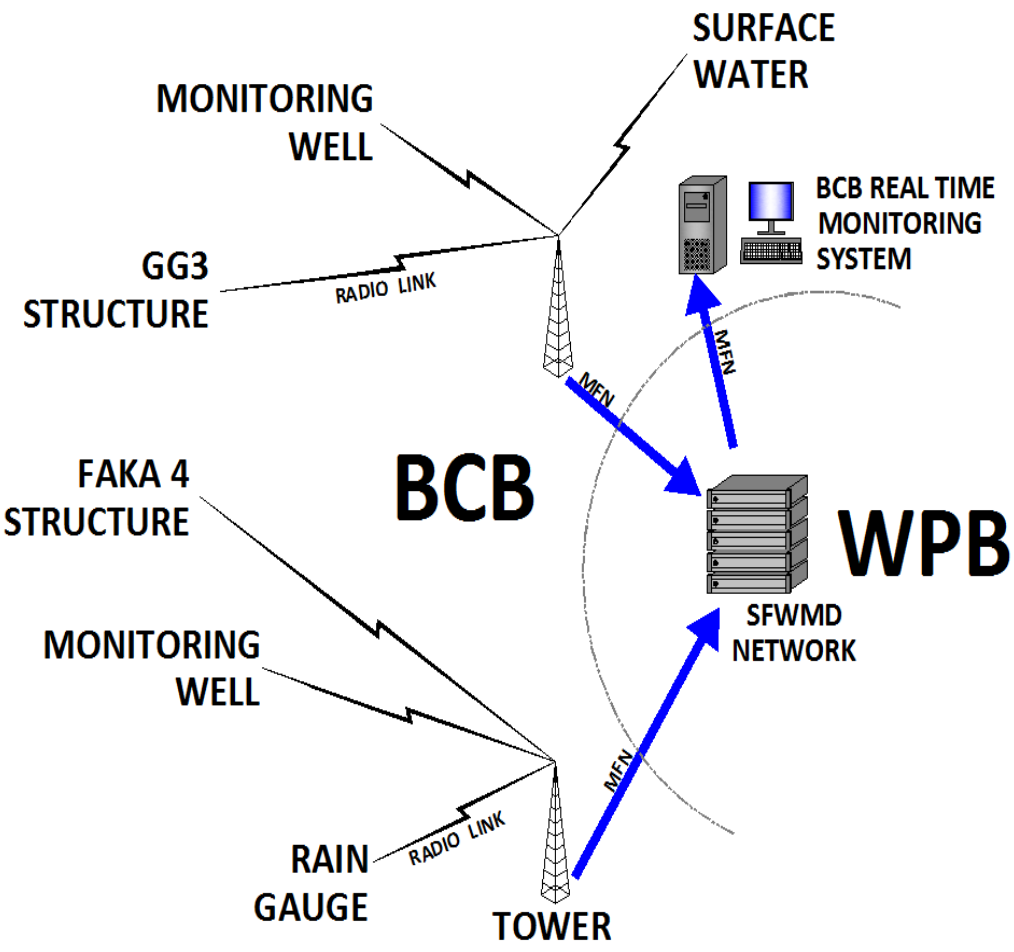
Data Acquisition
Near Real Time monitoring system of approximately 170 points such as:

- Gate Opening
- Weir Elevation
- Surface water stage
- Rainfall
- Ground Water Levels

BCB SCADA Enhancements
Current SCADA System

Key points:

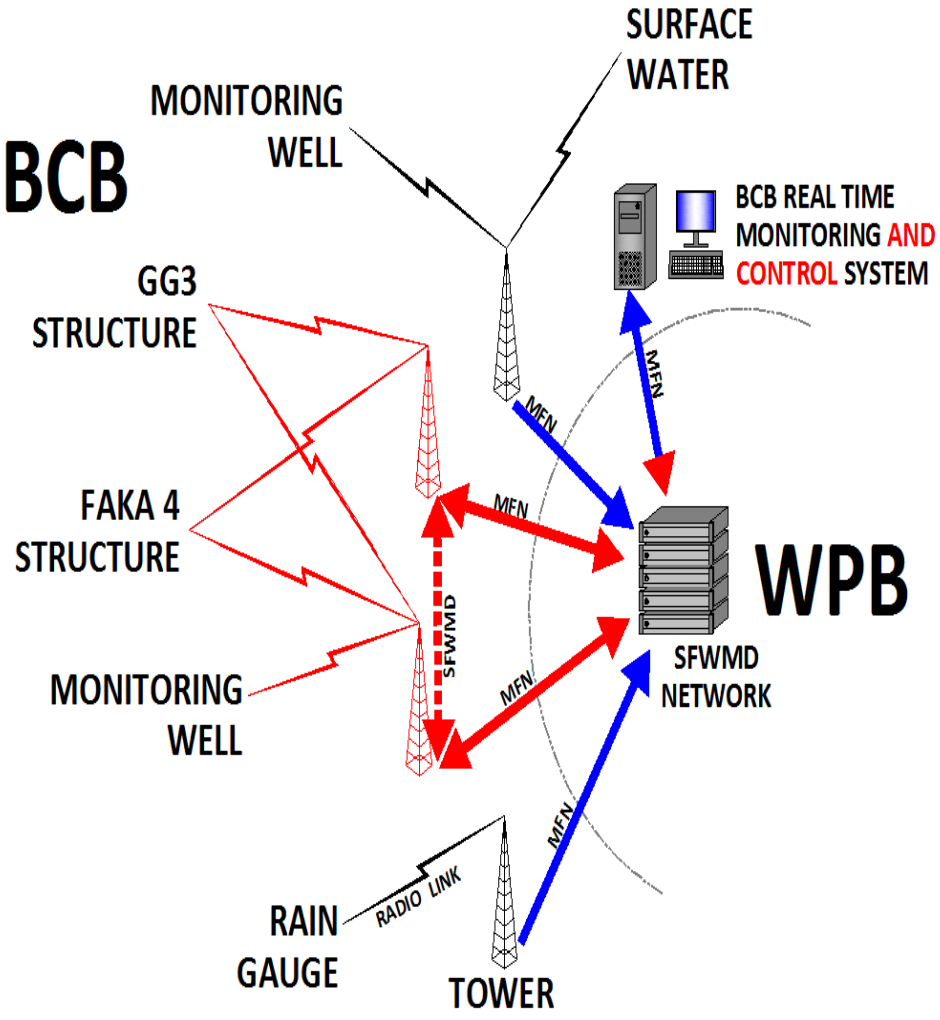
- Uses rugged Campbell Scientific Data loggers
- Configured for monitoring only
- Limited monitoring of water control structure “health”
- Communications between BCB and WPB is via Leased Lines (MFN)
- No system redundancy
- BCB Servers located in WPB – Allows Centralized Maintenance
- Has proven reliable



BCB SCADA Enhancements
Future SCADA System

Key points:

- "Hardened" towers at new Field Station and Picayune Strand's Faka pump station
- Continued use of rugged Campbell Scientific Data loggers
- Adds Motorola ACE units at flood control facilities for full remote control and increased monitoring capability
- Flood control facilities have redundant communications paths
- Primary communications system in loop configuration - adds redundancy
- High availability server architecture in WPB with 24/7/365 support
- Will need to increase SCADA Maintenance field support and decrease response time for Break/Fix items



BCB SCADA Enhancements
Leverage Existing/New SFWMD Resources

- Central SCADA software replacement project – BCB taken into consideration
- Performed investigations at nine BCB water control structures to identify scope for Motorola ACE upgrades
- Initiated conversations about Leveraging SFWMD Control Room in WPB
  - Manned 24/7/365
  - Can support BCB water managers after hours, weekends, holidays
  - BCB is prime operator of the system

QUESTIONS?

Big Cypress Basin Field Station Relocation Project Update

Jeffrey Kivett, P.E., Director
Operations, Engineering and Construction Division

2/18/14

Design/Build Services: Phase 1

01/15/14	Submit Project Work Plan	√
02/03/14	**Submit Site Analysis Technical Memorandum**	√
05/14/14	Submit Design Documentation Report (DDR)	
06/11/14	Submit 30% Design and Cost Model	
08/13/14	Submit 50% Design and Cost Model	
10/01/14	Submit 70% Design and Cost Model	
11/12/14	Submit Final 70% Design & GMP for Phase 2	
11/27/14	Issue NTP for Phase 2	

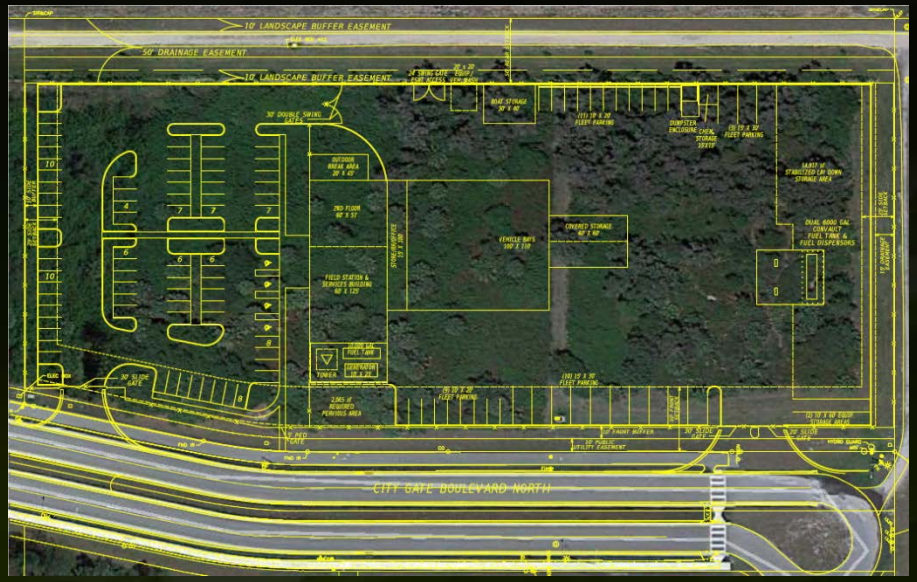
Site Analysis: Feasibility of Including Service Center at New Field Station Facility

- Three design approaches, with multiple variations, were considered for each of the concepts:
  - Attached Administration, Maintenance & Covered Storage Buildings (similar to SCFS design)
  - Detached Admin./Maint./Storage Buildings - with N/S alignment for Administration Building.
  - Detached Admin./Maint./Storage Buildings - with E/W alignment for Administration Building.

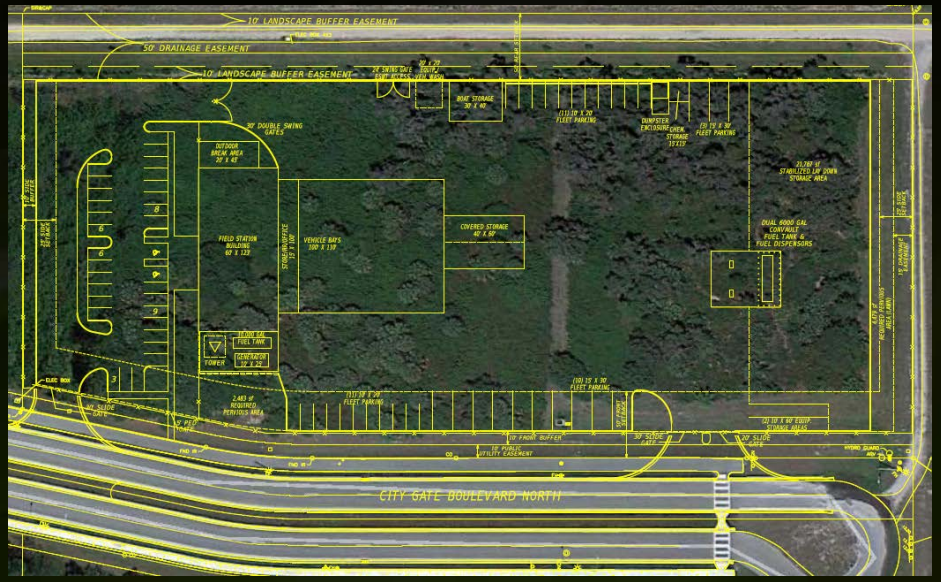
Site Analysis: Feasibility of Including Service Center at New Field Station Facility

- The conceptual site plans were evaluated and compared based on the following criteria:
  - Building Size and Configuration
  - Parking Requirements
  - Pedestrian and Vehicular Traffic Flows
  - Utilization of the Site
  - Conformance with Applicable Codes and Regulations
  - Cost

Site Analysis: Building Size and Configuration



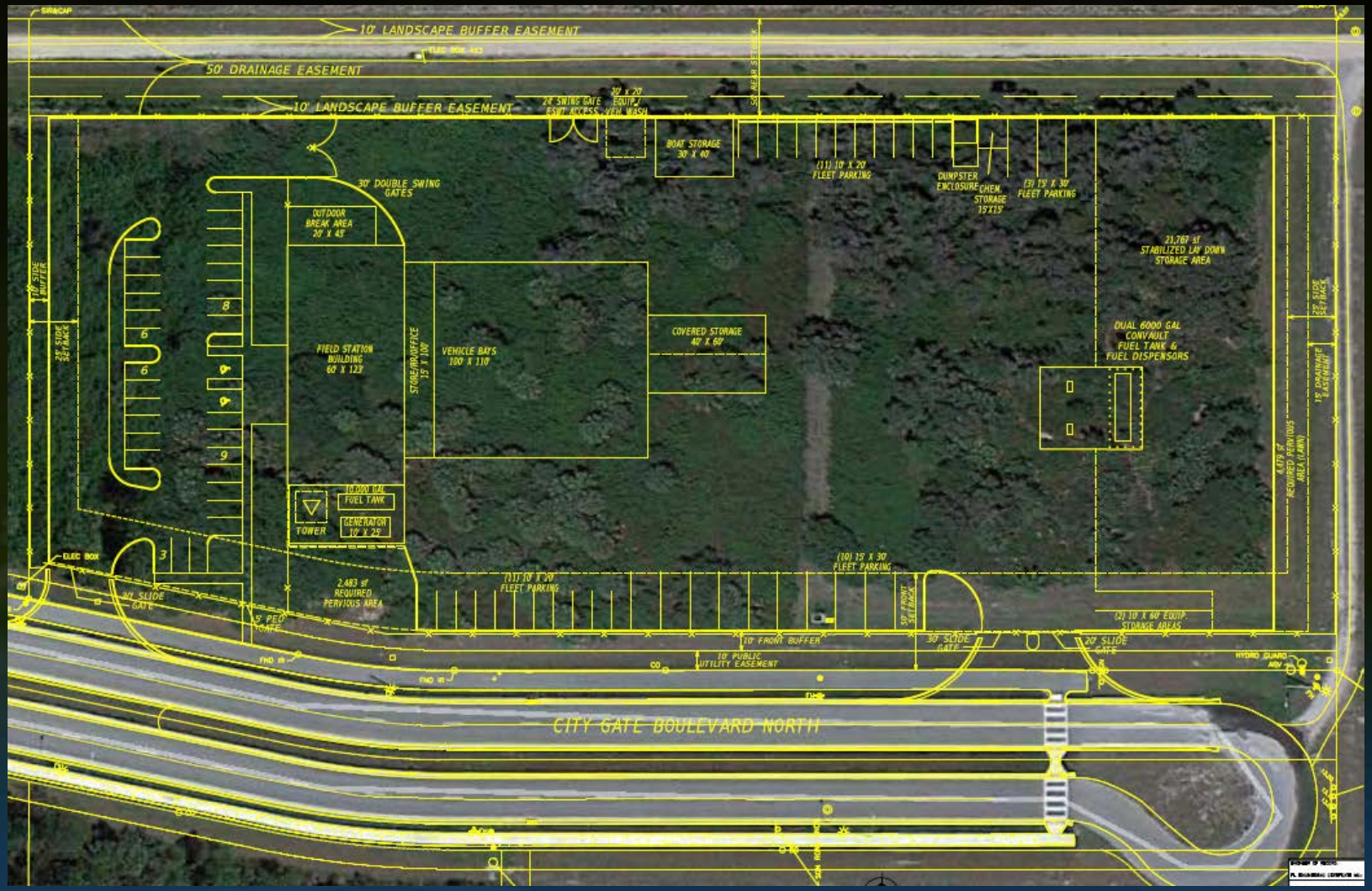
Concept A



Concept B

Admin. Building	Concept A - Co-Location	Concept B – Field Operations Only
No. of Stories	2	1
1st Floor (SF)	7,500	7,400
2nd Floor (SF)	3,060	N/A
Total Area (SF)	10,560	7,400
Foot Print Dimensions (Ft)	60 x 125	60 x 123

Site Analysis: Building Size and Configuration

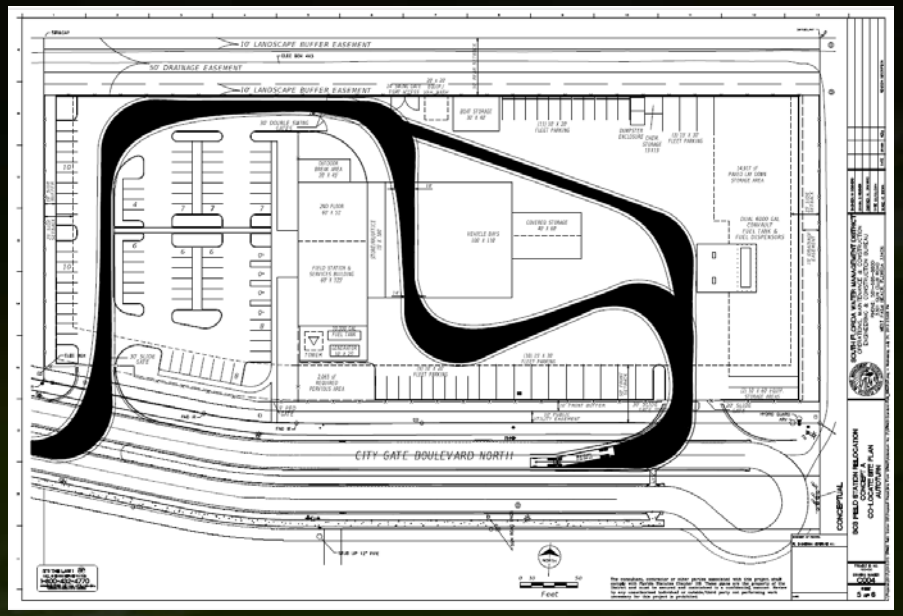


Concept B

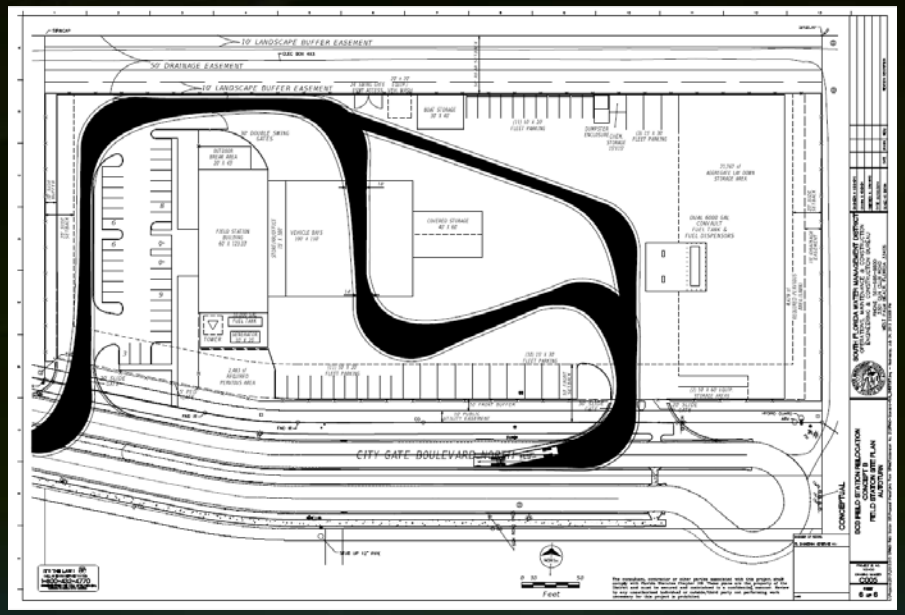
Site Analysis: Parking Requirements

Parking	Concept A - Co-Location	Concept B - Field Operations Only
Field Station Staff	22	22
Service Center Staff	13	N/A
Visitor/Meetings	44	10
Total	**79**	**32**

Site Analysis: Pedestrian/Vehicular Traffic Flows



Concept A



Concept B

Site Analysis: Utilization of the Site - Pros/Cons of Co-Locating

- Pros
  - Single site management for District (security, landscaping, maintenance, IT service, BMS, etc.).
  - Improved communications between Service Center and Field Operations staff for flood control operations.
  - Unified District presence in community.
  - Proximity to I-75 .
- Cons
  - Additional engineering and construction costs to include Service Center function.
  - Future expansion is minimized.
  - Field Operations laydown areas are significantly reduced.
  - Diminished communications with County administration and services.
  - Diminished customer service due to restricted growth for regulatory/compliance staff.
  - Moving expenses associated with relocation of Service Center staff (personnel, security system, IT, phone, website, business cards, stationary, etc.).

Site Analysis: Conformance with Applicable Codes and Regulations

- Collier County (Site Development Plan, Vegetation Removal, Growth Management Division, Fire Code Officials)
- City Gate Commerce Park PUD
- City Gate Developer Covenants, Conditions, Restrictions & Easements
- FDEP (Potable Water, Wastewater, Water Use, ERP)
- Easements/Buffers
- City Gate Blvd Expansion

Site Analysis: Cost Comparison

Description	Concept A		Concept B	
	Co-Locate Service Center with Field Operations		Service Center Stays in Current Location	
	Cost	Revenue	Cost	Revenue
Relocation Costs	$33,000			
Sale of Existing Service Center		$1,675,000		
Sale of Existing Field Station		$625,000		$625,000
Impact Fees	$120,000		$79,000	
Phase 1 Design Costs	$850,800		$780,800	
Phase 2 Cost Estimate	$6,750,000		$6,000,000	

Note: Co-Locating the Service Center will cost approximately $820,000 in additional design and construction costs.

Design/Build Services: Phase 2

- Complete final design.
- Procure equipment and subcontractors.
- Secure necessary permits.
- Construct the project.
- Conduct commissioning and performance testing.
- Provide training to District staff.
- Provide warranty coverage.

Big Cypress Basin Field Station Relocation Project

QUESTIONS?