MSAR TMDL TASK FORCE
MEETING NOTES

January 18, 2018

PARTICIPANTS	REPRESENTING
Pat Boldt	Agricultural Pool
Steven Wolosoff	CDM SMith
Nisha Wells	City of Chino Hills
Joe Rosales	City of Montclair
Melissa Cansino	City of Pomona
Lynn Merrill	City of Rialto
Mike Roberts	City of Riverside
Cynthia Gabaldon	County of San Bernardino
Elroy Ruvalcaba	County of San Bernardino
Richard Meyerhoff	GEI Consultants
Megan Brousseau	Inland Empire Water Keeper
Suzan Given	OCPW/Environmental Resources
Stella Shaw	OCPW/Environmental Resources
Tim Moore	Risk Sciences
Scott Bruckner	Riverside County Executive Office
Mark Smythe	Regional Water Quality Control Board
Ken Theisen	Regional Water Quality Control Board
Ava Moussavi	Riverside County Flood Control
Andrea Gonzales	Riverside County Flood Control
Kyle Gallup	Riverside County Flood Control
Edwin Quinonez	Riverside County Flood Control
Ed Filadelfia	Riverside RWQCP
Arlene Chun	San Bernardino County Flood Control District
Susan Longville	SAWPA Commission
Mark Norton	SAWPA
Rick Whetsel	SAWPA
Darcy Ebentier	Wood (formerly Amec Foster Wheeler)
Roshan Christoph	Wood (formerly Amec Foster Wheeler)
Via Conf Call:	
Tiffany Lin	CDM Smith
Kimberly Colbert	The Colbert Group for the City of Claremont
Robert Ewing	Riverside RWQCP
Bobby Gustafson	Riverside RWQCP
Lisa Haney	Orange County Sanitation District

1. Call to Order & Introductions

The Middle Santa Ana River Watershed Pathogen (MSAR) TMDL Task Force meeting was called to order at 9:03 a.m. by Mark Norton at Santa Ana Watershed Project Authority (SAWPA). Brief introductions were made by the attendees.

2. Approval of the Meeting Notes

Rick Whetsel asked for any comments on the October 17, 2017 meeting notes. There were no comments and the meeting notes were deemed acceptable.

3. Update: Regional Monitoring Program (RMP) (CDM Smith)

Tiffany Lin provided an update on the Santa Ana River Bacteria Monitoring Program informing stakeholders that the 2017 dry season monitoring, as well as the additional priority 4 monitoring at Cucamonga Creek has been completed. CDM Smith is currently tracking the wet weather storms event, a left over requirement of the MSAR TMDL Compliance monitoring. This wet weather event will

complete the 2017 monitoring. CDM Smith is planning to have a draft monitoring report available to stakeholders in April 2018, and the fourth quarter monitoring report was distributed to stakeholders this week.

4. Presentation: Arlington Area Tier-2 Source Evaluation Study (Amec Foster Wheeler)

Darcy Ebentier/ Wood (formerly Amec Foster Wheeler) presented on the draft revised project report. This presentation focused on the key findings of the study and recommendations for future follow-on work.

Key findings of the study are as follows:

- What are the predominant sources of dry weather flow in the Arlington Area?

  All three sub-drainage areas have continuous flow to Monroe retention Basin. Agricultural sites are major contributors of dry weather flow, particularly in ARL-2 and ARL-3. Other sources need further investigation.
- What are the magnitude and sources of E. coli in the observed dry weather flow?

  E. coli are elevated in majority of samples. Agricultural sites are a source of E.coli. Other sources need further investigation.
- Are E. coli from human sources?

  Potentially, but need confirmation testing.

Recommendations:

- *BMPs - Controlling or reducing flows both in upstream agricultural land uses and downstream urban land uses will help reduce bacteria loads to/from the Monroe Retention Basin.*
- *Continue Flow Characterization - This study was the first step in characterizing the contribution of flow from agricultural sources to the downstream MS4. To provide a more comprehensive characterization of flows in the Arlington Area, additional data are needed.*
- *Continue Bacteria Source Investigation - E. coli is elevated throughout the Arlington Area. E.coli accumulates as flows move downstream-both Ag and Urban land uses are contributing.*

Darcy Ebentier requested comments by COB Friday, February 2nd.

A copy of the Amec Foster Wheeler presentation for the Arlington Area Tier-2 Source Evaluation Study will soon be posted to the SAWPA website and is attached to these meeting notes.

5. Discussion: Preparation for CBRP Audit and Meeting with Regional Board Staff: (Risk Sciences, CDM-Smith & GEI))

Richard Meyerhoff/GEI Consultants provided to the Task Force an overview of the efforts by the consultant team to prepare for the upcoming February 13th CBRP Audit Workshop. It is envisioned that the workshop will include discussion of the following:

- Background on the TMDL, Task Force, Basin Plan Amendments, MS4 Permit
- CBRP Implementation Strategy
- CBRP Compliance Evaluation
- CBRP Measures of Progress and Success
- CBRP Areas for Improvement
- Conclusions & Recommendations

It was noted by Mark Smythe that the request for the audit came out of a different Section of the Regional Board that administers the MS4 Program. What may have triggered the request for the audit is that, as with the Regional Board, many municipalities have different departments doing different work. When we have the MS4 Program for the Regional Board talking to the MS4 program within the municipalities, this picture, which is the CBRP, does not get communicated down in both those departments, and this may have resulted in miscommunication of what compliance is being done by the municipalities.

Last, Mark Smythe stressed to the Task Force that upper management at the Regional Board has a good understanding of the work being done by the municipalities on the CBRPs.

This meeting is scheduled for Tuesday, March 13th at the Regional Board.

A copy of the CBRP Audit presentation will soon be available on the SAWPA website and is attached to these meeting notes

6. TMDL Task Force Administration (SAWPA)

Draft FY 2018-19 Budgets MSAR and Regional WQ Monitoring

FY 2018-19 MSAR TMDL Task Force Budget
Rick Whetsel presented the Draft FY 2018-19 MSAR Task Force budget to the Task Force. This budget is similar to previous years; however, it includes a placeholder of $25,000 for additional source evaluation work.

Following discussion, a motion was put forward by Edwin Quinonez and seconded by Mike Roberts to approve the budget with the addition of $25,000 for source evaluation work to be determined by the Task Force.

FY 2018-19 Regional Water Quality Monitoring Task Force Budget
Rick Whetsel presented the Draft FY 2018-19 Regional Water Quality monitoring Task Force budget to the three Counties. This budget has two significant changes to the previous year's budget:

- $10,000 contingency added to the CDM Smith Monitoring program budget line item to cover additional monitoring for Riverside and San Bernardino Counties that may be required to address regulatory compliance.
- $25,000 Regulatory Compliance Expert budget line item to cover work to prepare a petition to the Regional Board to amend the Basin Plan and revise the method by which we calculate the antidegradation targets, so it now matches how the State Board used that same data.

Following discussion, a motion was put forward to approve the budget subject to clarification of the cost details for the SAR Bacteria Monitoring Program and governance approval from each of the County Agencies; this motion was agreed by each of the three Counties.

Status Update: Amendment to MSAR Task Force Agreement
Mark Norton reminded stakeholders to get the Amendment signed and submitted to SAWPA.

7. Other Business

No other business was presented.

8. Schedule Next Meeting

The next meeting of the Middle Santa Ana River Pathogen TMDL Task Force is tentatively scheduled for Tuesday, April 17, 2018, 1:30 p.m. at SAWPA.

10. Adjourn

There being no further business for review, the meeting adjourned at 11:30 a.m.

Attachments::
1 Presentation:CBRP Audit Support
2.Status Update - Arlington T2 Bacteria Study Findings

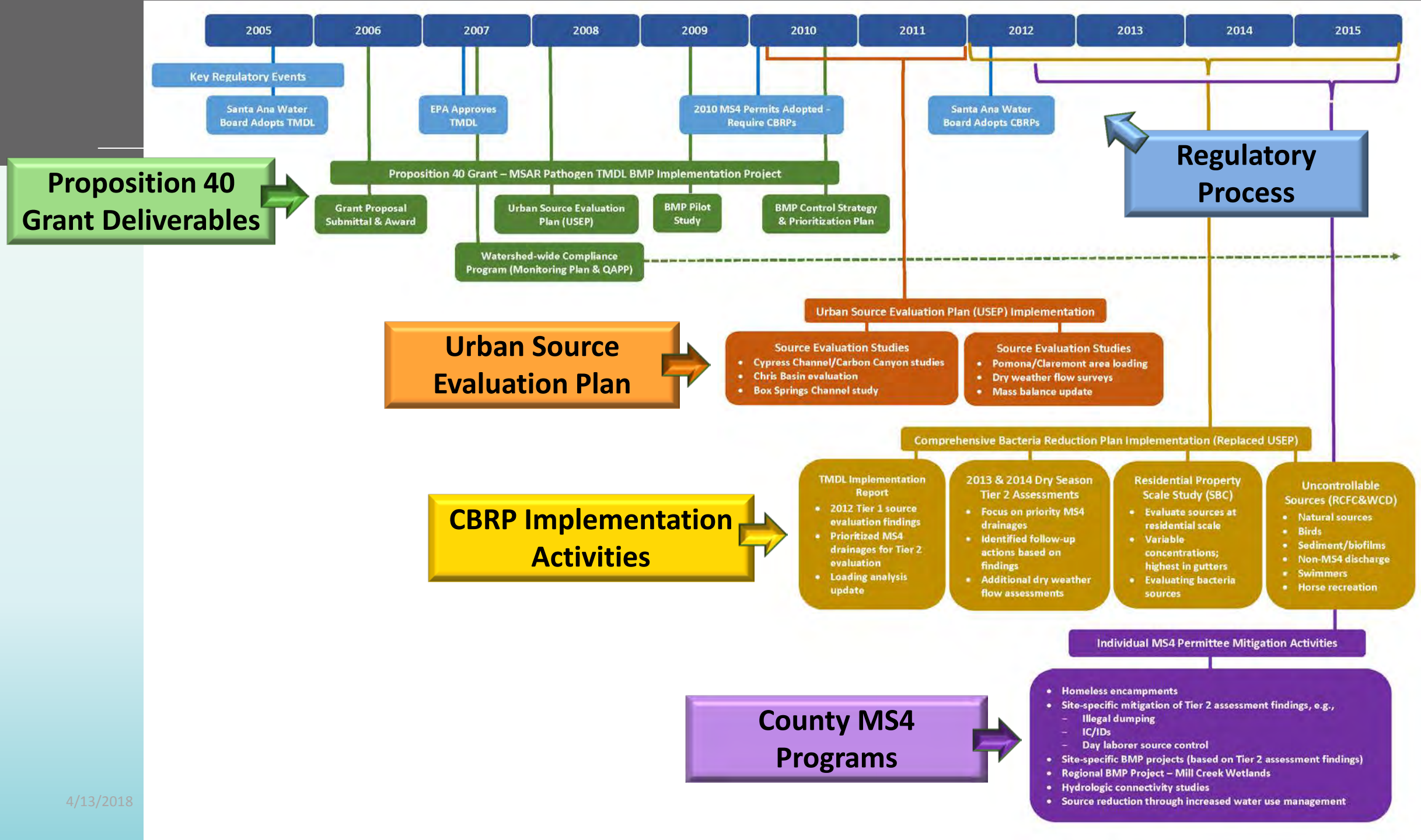
CBRP AUDIT SUPPORT - SCOPE OF WORK

- Provide chronology of significant implementation efforts
- Summarize status of work on “high priority” waterbodies identified in the CBRP, including source investigations, BMPs or other remediation activities
- Describe findings of special studies completed to support TMDL implementation
- Identify CBRP tasks and status of deliverables for each County
- Summarize long-term trends in water quality at the watershed-wide compliance monitoring sites
- Prepare digital archive of all CBRP deliverables

CHRONOLOGY OF IMPLEMENTATION

- Regulatory & Legal
  - *Regional, State, Federal*
- Task Force Activities
  - *Proposition 40 Grant*
  - *Urban Source Evaluation Plan (USEP)*
  - *CBRP Implementation*
- County MS4 Programs
  - *CBRP Implementation*
    - Program-specific
    - Permittee-specific

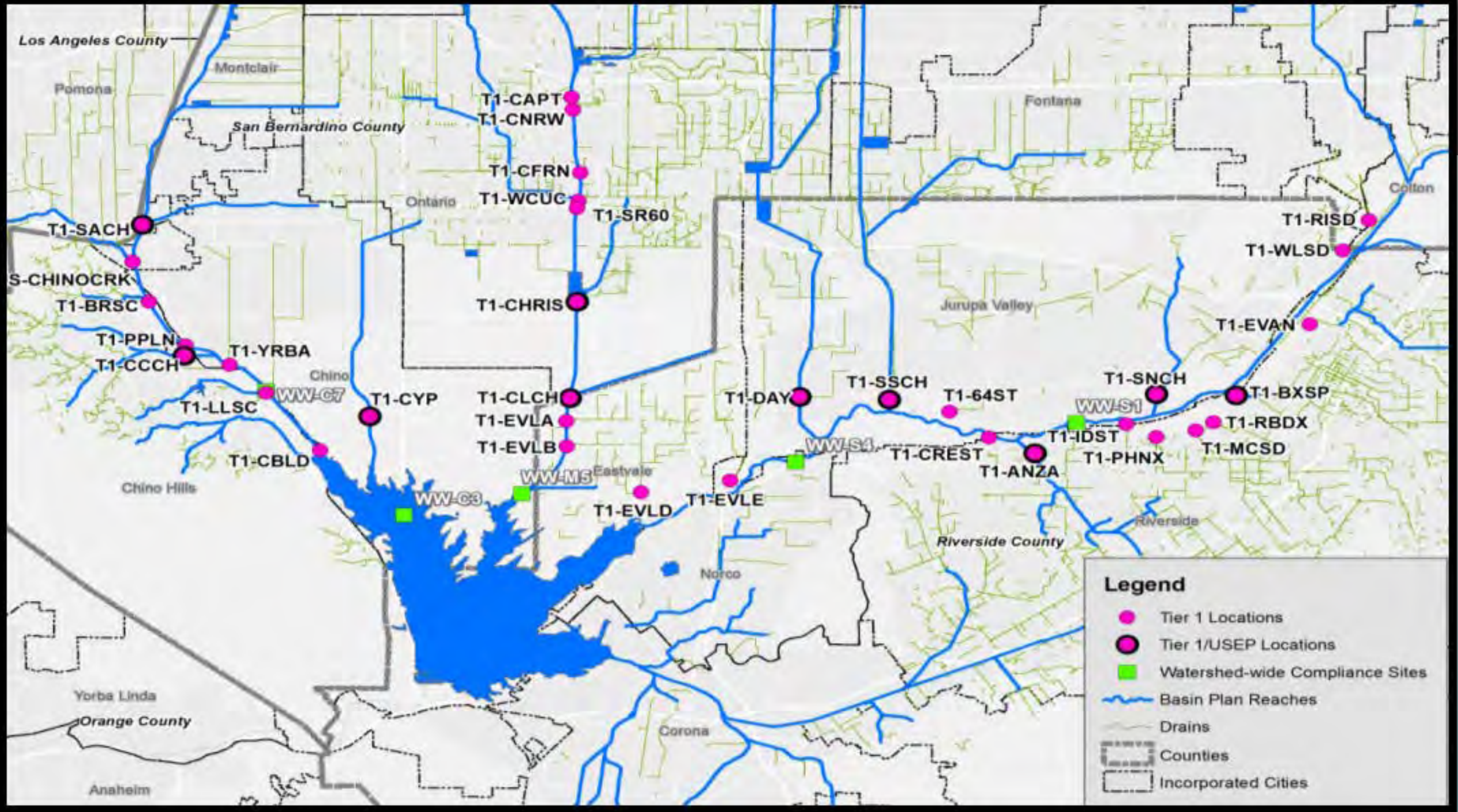
We will work with the Task Force and MS4 Programs to ensure we have a detailed chronology of activities completed to date and document actions still planned for implementation


2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Key Regulatory Events
Santa Ana Water Board Adopts TMDL
EPA Approves TMDL
2010 MS4 Permits Adopted - Require CBRPs
Santa Ana Water Board Adopts CBRPs
Regulatory Process
Proposition 40 Grant Deliverables
Proposition 40 Grant – MSAR Pathogen TMDL BMP Implementation Project
Grant Proposal Submittal & Award
Urban Source Evaluation Plan (USEP)
BMP Pilot Study
BMP Control Strategy & Prioritization Plan
Watershed-wide Compliance Program (Monitoring Plan & QAPP)
Urban Source Evaluation Plan
Urban Source Evaluation Plan (USEP) Implementation
Source Evaluation Studies
Cypress Channel/Carbon Canyon studies
Chris Basin evaluation
Box Springs Channel study
Source Evaluation Studies
Pomona/Claremont area loading
Dry weather flow surveys
Mass balance update
CBRP Implementation Activities
Comprehensive Bacteria Reduction Plan Implementation (Replaced USEP)
TMDL Implementation Report
2012 Tier 1 source evaluation findings
Prioritized MS4 drainages for Tier 2 evaluation
Loading analysis update
2013 & 2014 Dry Season Tier 2 Assessments
Focus on priority MS4 drainages
Identified follow-up actions based on findings
Additional dry weather flow assessments
Residential Property Scale Study (SBC)
Evaluate sources at residential scale
Variable concentrations; highest in gutters
Evaluating bacteria sources
Uncontrollable Sources (RCFC&WCD)
Natural sources
Birds
Sediment/biofilms
Non-MS4 discharge
Swimmers
Horse recreation
Individual MS4 Permittee Mitigation Activities
County MS4 Programs
Homeless encampments
Site-specific mitigation of Tier 2 assessment findings, e.g.,
Illegal dumping
IC/IDs
Day laborer source control
Site-specific BMP projects (based on Tier 2 assessment findings)
Regional BMP Project – Mill Creek Wetlands
Hydrologic connectivity studies
Source reduction through increased water use management

SITE ACTIVITIES

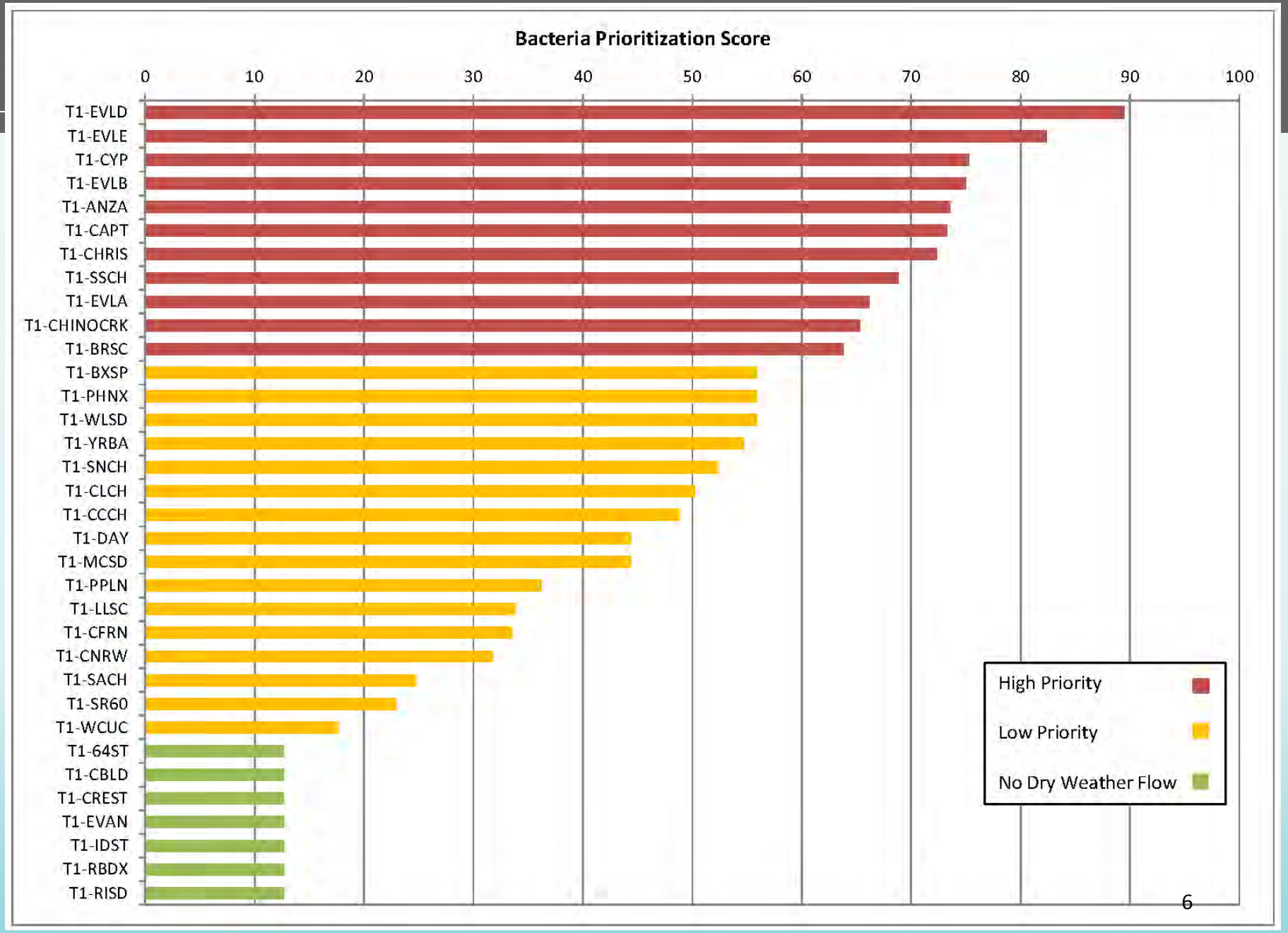
- Proposition 40 Grant deliverables developed original list of waterbody priorities
  - *Figure 5-30, MSAR Bacterial Indicator TMDL Data Analysis Report (2009)*
- CBRP included process to refine waterbody priorities through its Tier 1 reconnaissance level work
  - *2013 Tier 1 Evaluation Report documented findings*

We will focus our efforts on documenting the status of work on Tier 1 Priority Sites


Los Angeles County
Montclair
Pomona
San Bernardino County
Ontario
Fontana
Colton
Jurupa Valley
Chino
Chino Hills
Eastvale
Norco
Corona
Riverside
Riverside County
Yorba Linda
Orange County
Anaheim
T1-CAPT
T1-CNRW
T1-CFRN
T1-WCUC
T1-SR60
T1-CHRIS
T1-SACH
S-CHINOCRK
T1-BRSC
T1-PPLN
T1-CCCH
T1-YRBA
T1-LLSC
WW-C7
T1-CYP
T1-CBLD
WW-C3
T1-CLCH
T1-EVLA
T1-EVLB
WW-N5
T1-EVLD
T1-EVLE
T1-DAY
WW-S4
T1-SSCH
T1-64ST
T1-CREST
T1-ANZA
WW-S1
T1-IDST
T1-PHNX
T1-SNCH
T1-BXSP
T1-RBDX
T1-MCSD
T1-EVAN
T1-RISD
T1-WLSD
Legend
Tier 1 Locations
Tier 1/USEP Locations
Watershed-wide Compliance Sites
Basin Plan Reaches
Drains
Counties
Incorporated Cities

TIER 1 PRIORITIES

- Tier 1 Prioritization
  - *Average dry weather flow rate*
  - *Geometric mean of* E. coli *concentration*
  - *Frequency of human Bacteroides detection*
  - *Risk of exposure with regards to recreation activity*
- Figure 3-8 in 2013 Tier 1 Evaluation Report



CBRP ACTIVITIES

- Evaluate Status of CBRP Figure 2-3 Activities (as summarized here)
  - *Document each MS4 Program's approach to implement CBRP*
  - *Document permittee-specific activities*

We will collaborate with MS4 Programs to document progress on each task

CBRP Step	Element	Activity
Identify, prioritize, and evaluate MS4 Dry Weather Flow Sources	Ordinance	• Water Conservation • Pathogen Control
	Specific BMPs	• Transient Camps • IDDE Program • Street Sweeping • Irrigation and Water Conservation Practices • WQMP Revision • Septic System Management • Pet Waste Management
	Inspection Criteria	• Tier 1 Sites • Prioritize Drainage Areas • Identify & Select Mitigation Alternatives • Project Identification
Evaluate, Select & Construct Structural BMPs	Outfall-specific or Regional Treatment	• Complete UAAs • Budget/Planning • Design • Permitting
Construct BMPs		• Construct BMPs
Monitoring & Reporting	Watershed-wide Compliance Monitoring	• Dry & Wet Season Reports • Triennial Reports
	CBRP Progress Report	• Annual Reports

DATA SOURCES

- Proposition 40 Grant Deliverables
- Task Force Work Products
  - *Special Studies*
  - *Monitoring Program Activities*
- MS4 Programs/Permittees
  - *CBRPs*
  - *Annual Reports*
  - *Special Studies*
- Triennial Reports
  - *2010, 2013, 2016*

January 18, 2018
SAWPA Status Update

amec foster wheeler

Agenda

1. **Study Approach**
2. **Monitoring Results**
3. **Key Findings**
4. **Recommendations**

Study Approach

What are the predominant sources of dry weather flow in the Arlington Area?

- Continuous flow at 3 main outlets to Monroe Basin
- Field measure flow at Predominantly Ag Sites
- Confirm flow is discharging from the Monroe Basin

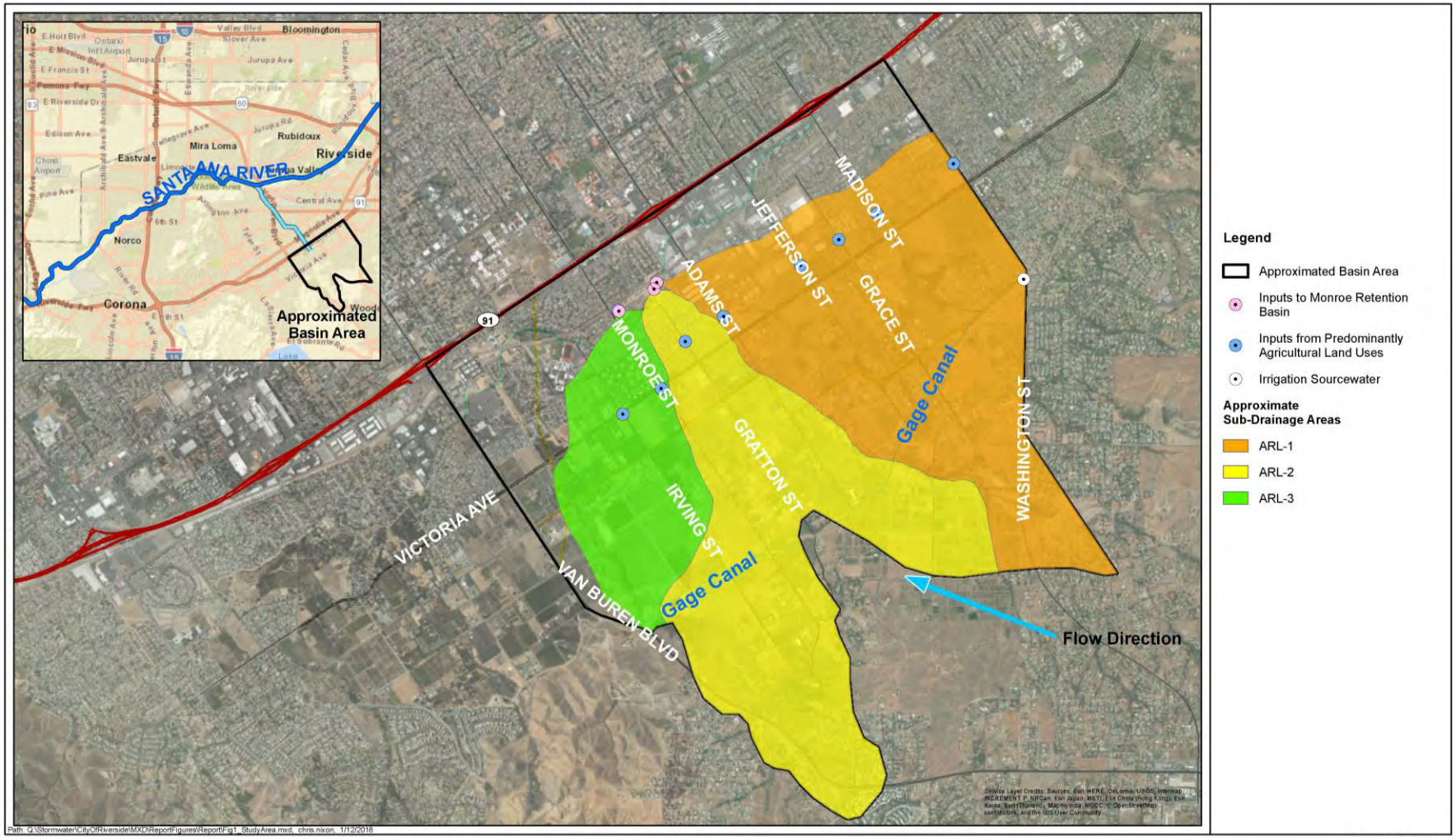
What are the magnitude and sources of *E. coli* in the observed dry weather flow?

- *E. coli* samples
- Visual Observations

Are *E. coli* from human sources?

- HF183 analysis
- Visual Observations

Arlington Study Area and Monitoring Sites



Study Area
Stormwater Delineation
Riverside, Ca.

1 inch = 2,640 feet
0 0.5 Miles

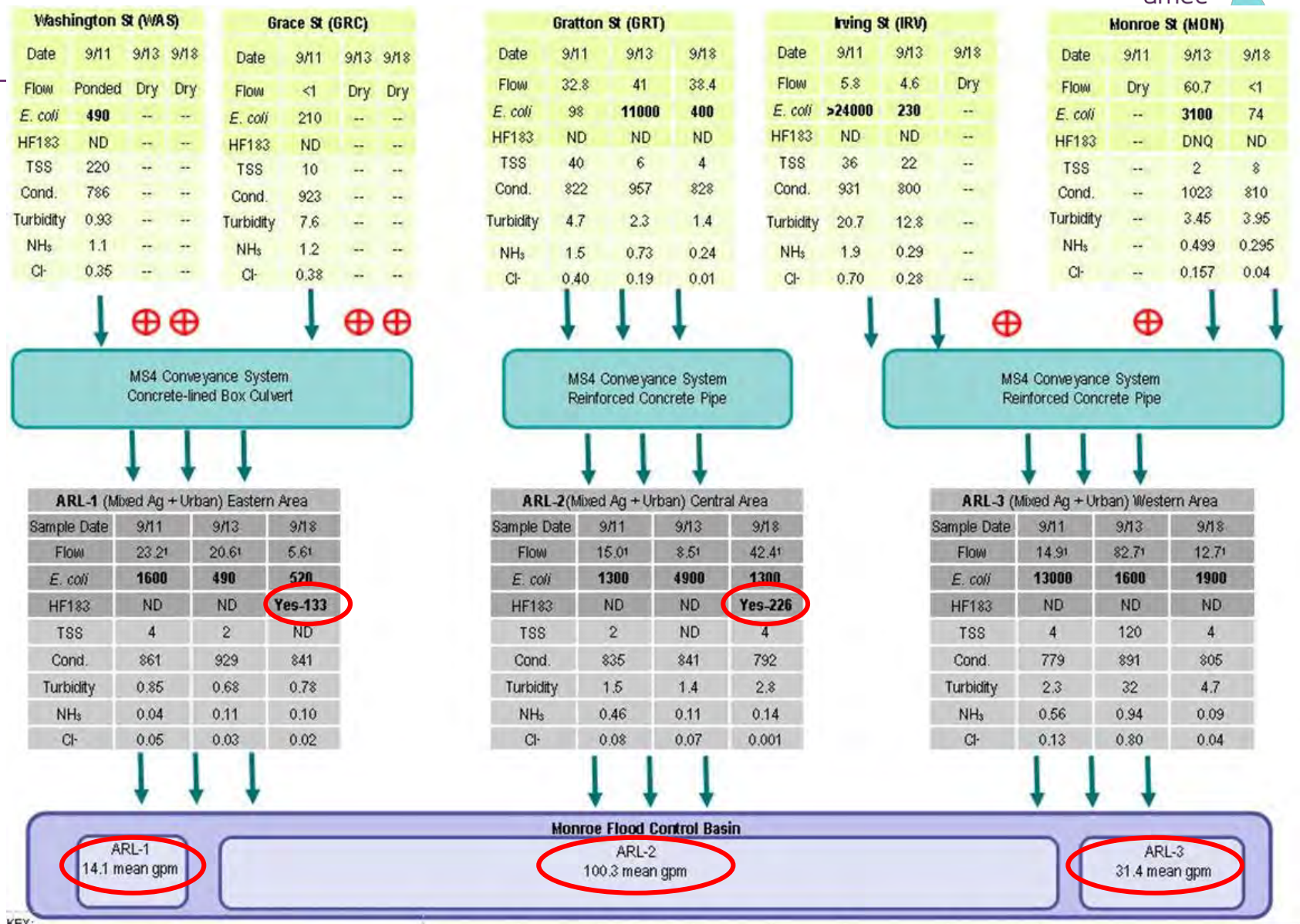
FIGURE 1

Monitored Events

Drainage Area	Site Type	Site Names	Monitored Events		
			9/11/17 (n)	9/13/17 (n)	9/18/17 (n)
NA	Control Site	Gage Irrigation Canal (GIC)	Flowing (1)	Flowing (1)	Flowing (1)
Eastern	Agricultural (Ag) Land Use	Adams Street (ADA)	Dry	Dry	Dry
		Jefferson Street (JEF)	Dry	Dry	Dry
		Grace Street (GRC)	Flowing (1)	Dry	Dry
		Madison Street (MAD)	Dry	Dry	Dry
		Washington Street (WAS)	Ponded (1)	Dry	Dry
	Mixed (Ag and Urban) Land Use	ARL-1	Flowing (1)	Flowing (1)	Flowing (1)
Cen-tral	Ag Land Use	Gratton Street (GRA)	Flowing (1)	Flowing (1)	Flowing (1)
	Mixed Land Use	ARL-2	Flowing (1)	Flowing (1)	Flowing (1)
West-ern	Ag Land Use	Irving Street (IRV)	Flowing (1)	Dry	Dry
		Monroe Street (MON)	Flowing (1)	Dry	Dry
	Mixed Land Use	ARL-3	Flowing (1)	Flowing (1)	Flowing (1)
Arlington Area	Monroe Basin Outlet	OUT	Flowing SNR	Flowing SNR	Flowing SNR
Anza	Discharge point of Anza Channel	ANZA	Flowing SNR	Flowing SNR	Flowing SNR

Notes:
n= number of samples collected when water was present; NA = not applicable; SNR = sample not required.

Summary of Results and Flow by Site



Washington St (WAS)			
Date	9/11	9/13	9/18
Flow	Ponded	Dry	Dry
E. coli	**490**	--	--
HF183	ND	--	--
TSS	220	--	--
Cond.	786	--	--
Turbidity	0.93	--	--
NH_3	1.1	--	--
Cl-	0.35	--	--

Grace St (GRC)			
Date	9/11	9/13	9/18
Flow	<1	Dry	Dry
E. coli	210	--	--
HF183	ND	--	--
TSS	10	--	--
Cond.	923	--	--
Turbidity	7.6	--	--
NH_3	1.2	--	--
Cl-	0.38	--	--

Gratton St (GRT)			
Date	9/11	9/13	9/18
Flow	32.8	41	38.4
E. coli	98	**11000**	**400**
HF183	ND	ND	ND
TSS	40	6	4
Cond.	822	957	828
Turbidity	4.7	2.3	1.4
NH_3	1.5	0.73	0.24
Cl-	0.40	0.19	0.01

Irving St (IRV)			
Date	9/11	9/13	9/18
Flow	5.8	4.6	Dry
E. coli	**>24000**	**230**	--
HF183	ND	ND	--
TSS	36	22	--
Cond.	931	800	--
Turbidity	20.7	12.8	--
NH_3	1.9	0.29	--
Cl-	0.70	0.28	--

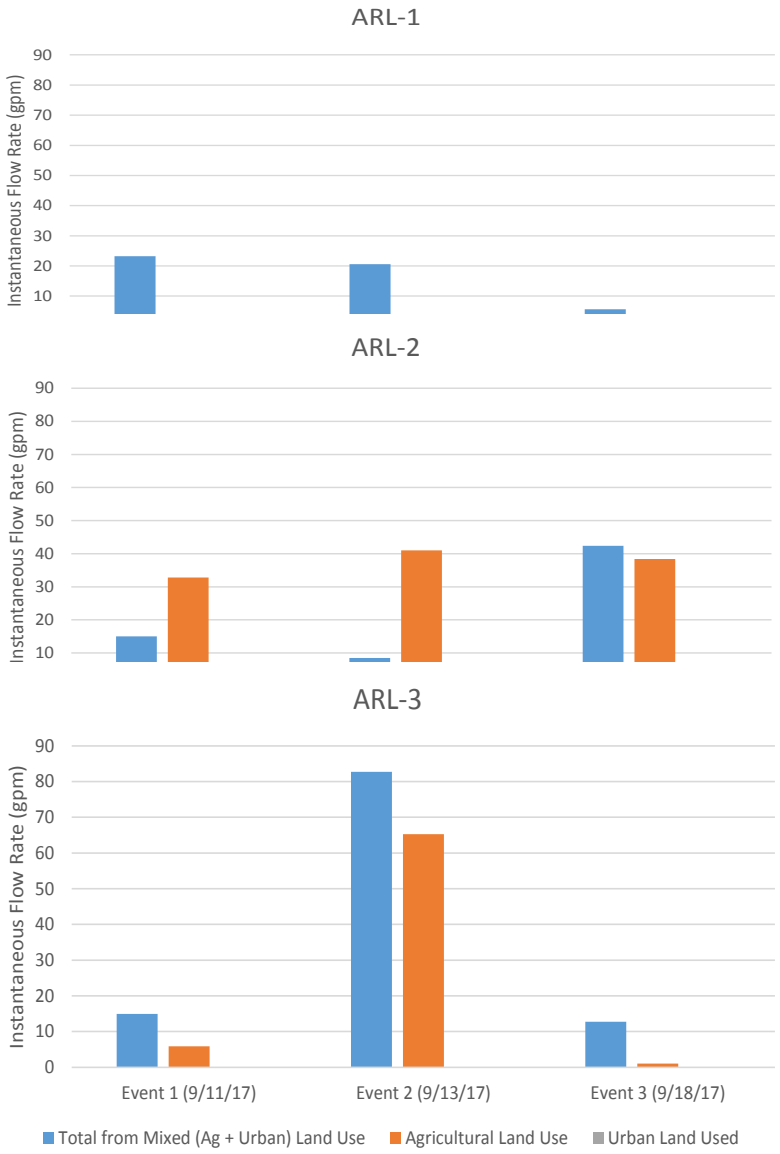
Monroe St (MON)			
Date	9/11	9/13	9/18
Flow	Dry	60.7	<1
E. coli	--	**3100**	74
HF183	--	DNQ	ND
TSS	--	2	8
Cond.	--	1023	810
Turbidity	--	3.45	3.95
NH_3	--	0.499	0.295
Cl-	--	0.157	0.04

ARL-1 (Mixed Ag + Urban) Eastern Area			
Sample Date	9/11	9/13	9/18
Flow	23.2[1]	20.6[1]	5.6[1]
E. coli	**1600**	**490**	**520**
HF183	ND	ND	**Yes-133**
TSS	4	2	ND
Cond.	861	929	841
Turbidity	0.85	0.68	0.78
NH_3	0.04	0.11	0.10
Cl-	0.05	0.03	0.02

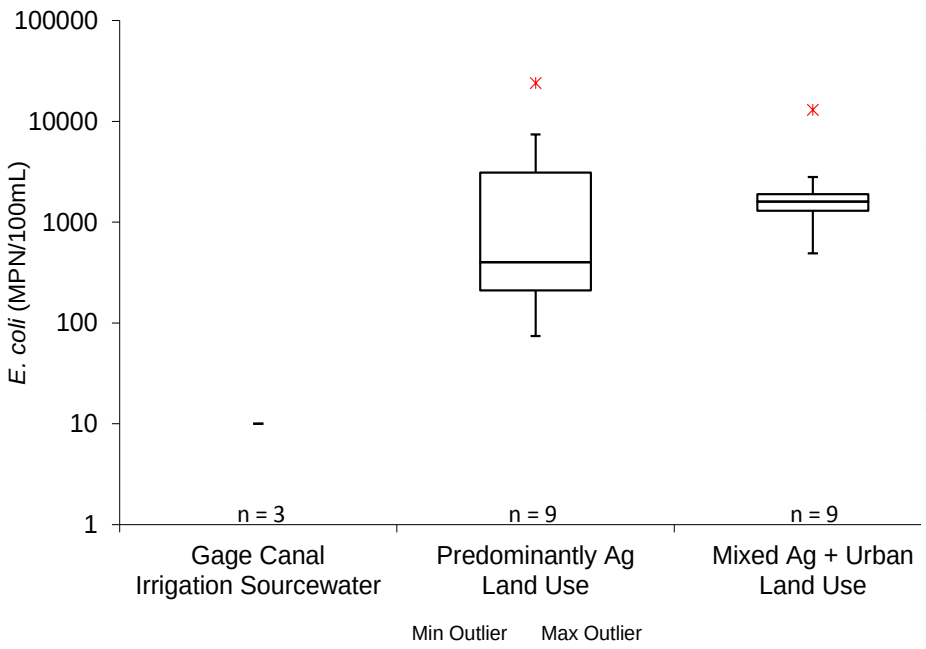
ARL-2 (Mixed Ag + Urban) Central Area			
Sample Date	9/11	9/13	9/18
Flow	15.0[1]	8.5[1]	42.4[1]
E. coli	**1300**	**4900**	**1300**
HF183	ND	ND	**Yes-226**
TSS	2	ND	4
Cond.	835	841	792
Turbidity	1.5	1.4	2.8
NH_3	0.46	0.11	0.14
Cl-	0.08	0.07	0.001

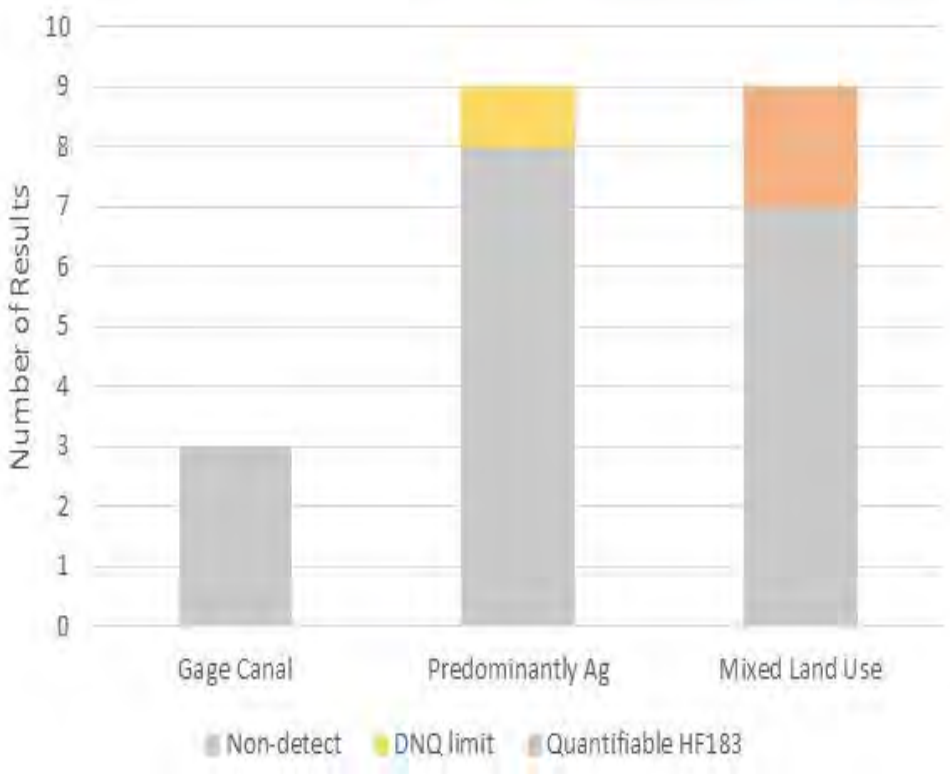
ARL-3 (Mixed Ag + Urban) Western Area			
Sample Date	9/11	9/13	9/18
Flow	14.9[1]	82.7[1]	12.7[1]
E. coli	**13000**	**1600**	**1900**
HF183	ND	ND	ND
TSS	4	120	4
Cond.	779	891	805
Turbidity	2.3	32	4.7
NH_3	0.56	0.94	0.09
Cl-	0.13	0.80	0.04

Flow Comparison by Land Use



E. coli and HF183 by Land Use





you need to add more rows, add rows above the gray line below the table so that the range references expand to include these new rows.

Summary of Key Findings

What are the predominant sources of dry weather flow in the Arlington Area?

All three subdrainage areas have continuous flow to Monroe Retention Basin. Agricultural sites are major contributors of dry weather flow, particularly in ARL-2 and ARL-3. Other sources need further investigation.

- Dry weather flow is continuous into/out of the Monroe Basin from all three subdrainage areas (ARL-1, -2, and -3)
- ARL-2 was the biggest contributor ARL-1 contributed the least
- Ag sites are contributing to flows in ARL-2 and ARL-3
- Other sources of flow are present and contributing to persistent flows at ARL-1, -2, and -3

What are the magnitude and sources of *E. coli* in the observed dry weather flow?

E.coli are elevated in majority of samples. Agricultural sites are a source of E.coli. Other sources need further investigation.

- Elevated in all 21 samples collected
- Concentrations were generally higher at Mixed land use sites (ARL-1, ARL-2, and Arl-3) than Ag sites
- Ag sites are contributing *E. coli*
- Other sources observed include domestic animals, livestock, wildlife, trash

Are *E. coli* from human sources?

Potentially but need confirmation testing.

- HF183 was not quantified in 19 of 21 samples
  - Not quantified in any samples from Ag sites
- HF183 was quantified in 2 Mixed land use samples from 2 different sites
  - HF183 was not persistent at any site

BMP Recommendations

Controlling or reducing flows both in upstream agricultural land uses and downstream urban land uses will help reduce bacteria loads to/from the Monroe Retention Basin.

BMPs for Agricultural Land Uses

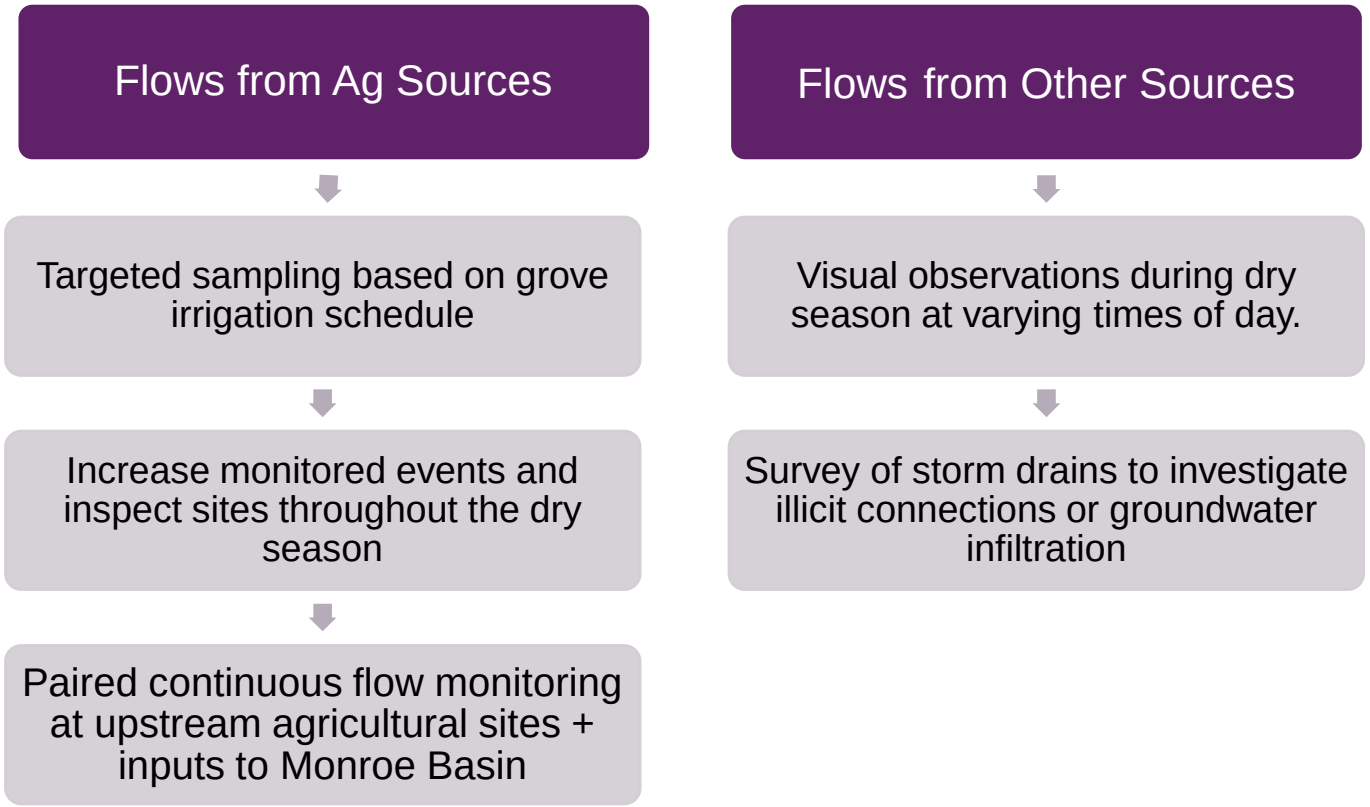
- Implement retention or infiltration BMPs on agricultural parcels where grove irrigation was confirmed to be contributing dry weather flow and elevated bacteria concentrations to the MS4
- Increase inspection of right of ways and notify parcel owners of runoff

BMPs for Urban Land Uses

- Implement infiltration BMPs at Monroe Retention Basin
- Retrofit Monroe Retention Basin to perform dry weather retention
- Increase residential and commercial inspections

Recommendations to Continue Flow Characterization

This study was the first step in characterizing the contribution of flow from agricultural sources to the downstream MS4. To provide a more comprehensive characterization of flows in the Arlington Area, additional data are needed.



Recommendations to Continue Bacteria Source Investigation

E. coli is elevated throughout the Arlington Area. _E. coli_ accumulates as flows move downstream- both Ag and Urban land uses are contributing.

E.coli Sources	Confirm Presence of Human	Test for Animal Markers
Prioritize the three drainage basins for follow-up investigation.	Two samples with measureable HF183 to be analyzed for a second human MST marker, such as HumM2 or _B. thetaiotamicron_.	Analyze archived samples for whole drainage area for chicken, dog, horse
Add monitoring locations within urban land use including MS4 catch basins. Conduct visual surveys and water quality monitoring.	If confirmed, conduct source investigation in individual drainage area(s) for potential sources of human contamination.	Assess presence and magnitude
Increase visual inspections of residential and commercial properties.	If not confirmed, prioritize other recommendations.	Develop BMP recommendations based on findings