

January 18, 2018

SAWPA Status Update



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

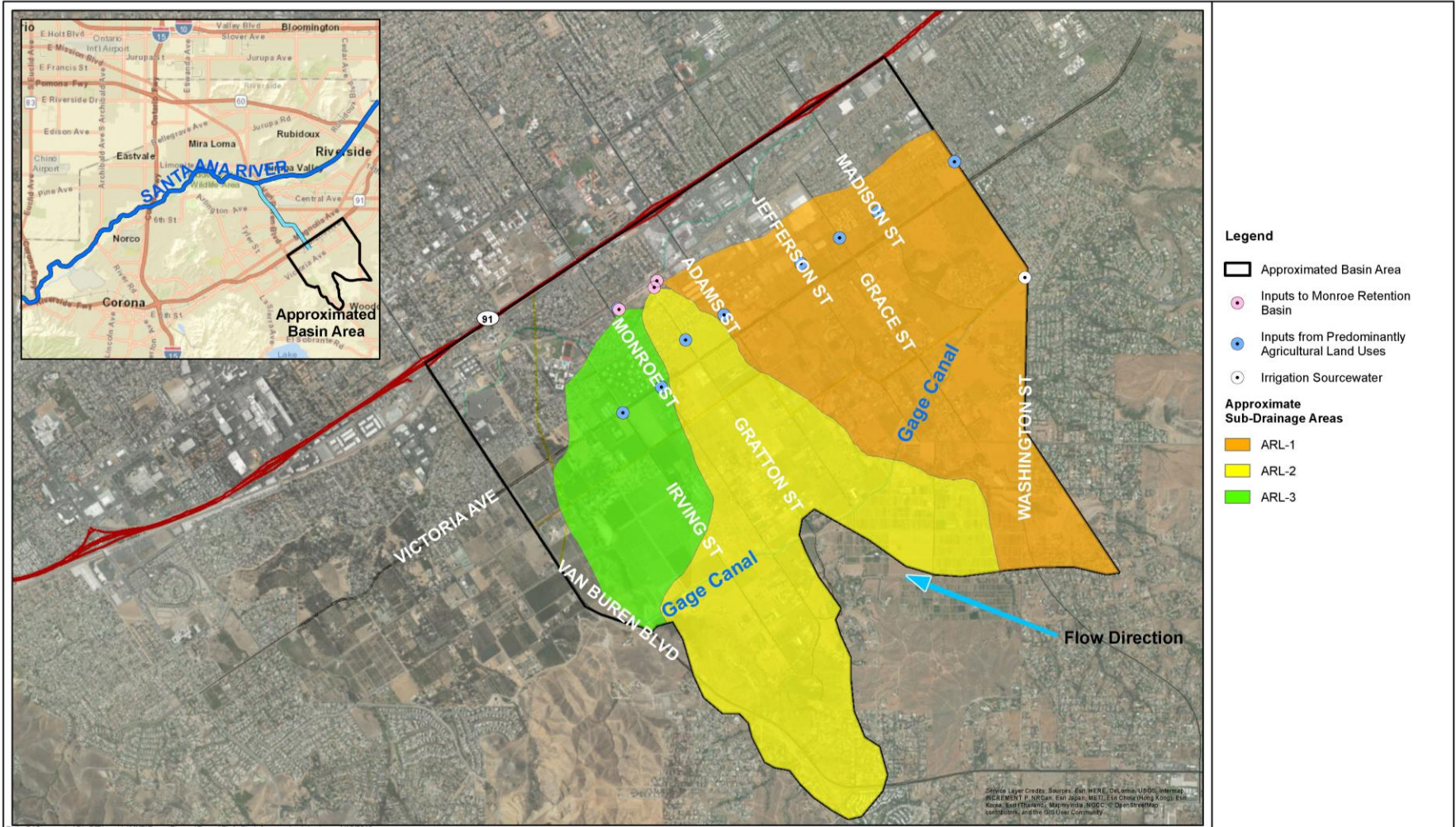
Are *E. coli* from human sources?

HF183 analysis

Visual Observations



Arlington Study Area and Monitoring Sites





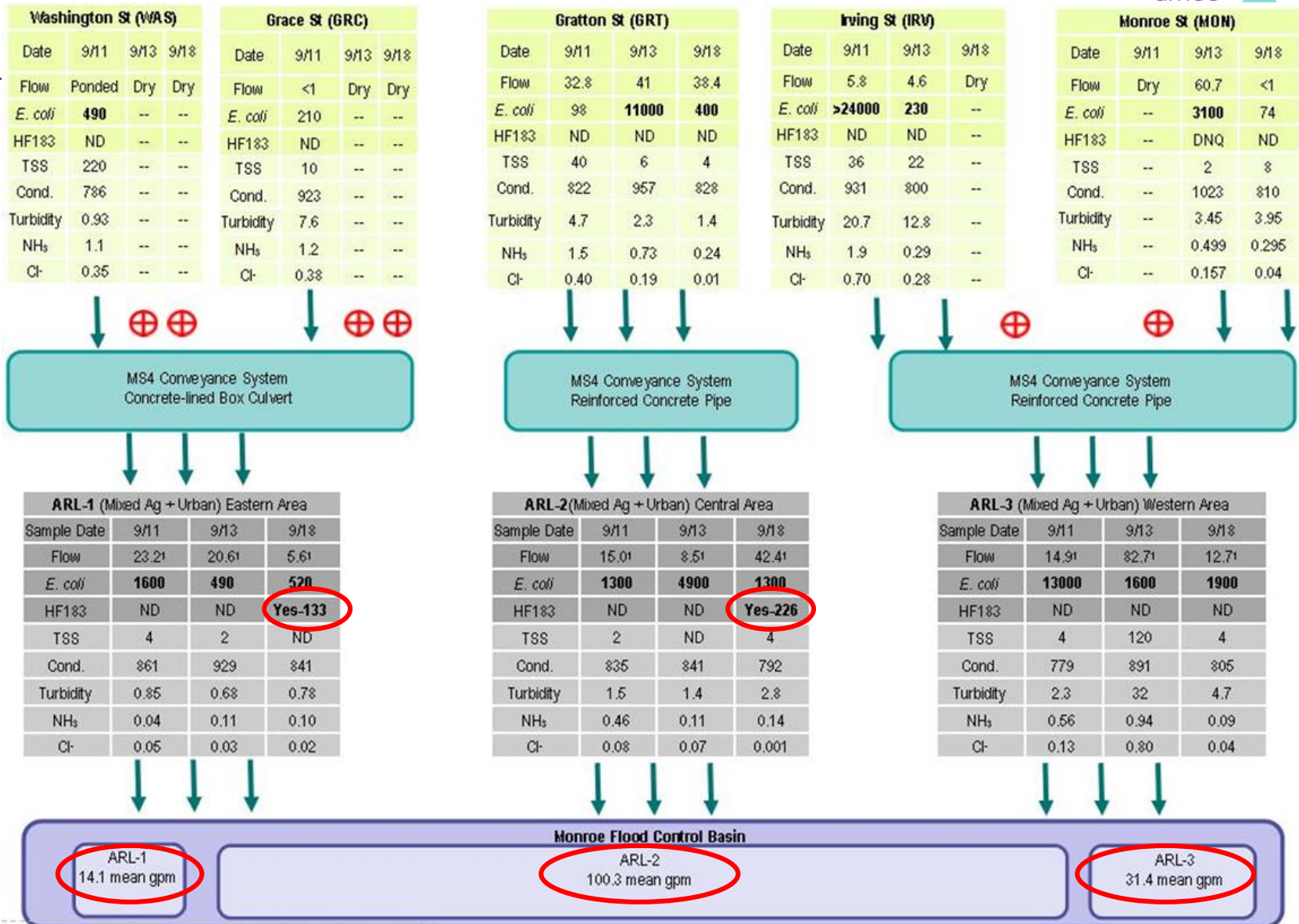
Monitored Events

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)
Central	Ag Land Use	Gratton Street (GRA)	Flowing (1)	Flowing (1)	Flowing (1)
	Mixed Land Use	ARL-2	Flowing (1)	Flowing (1)	Flowing (1)
Western	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

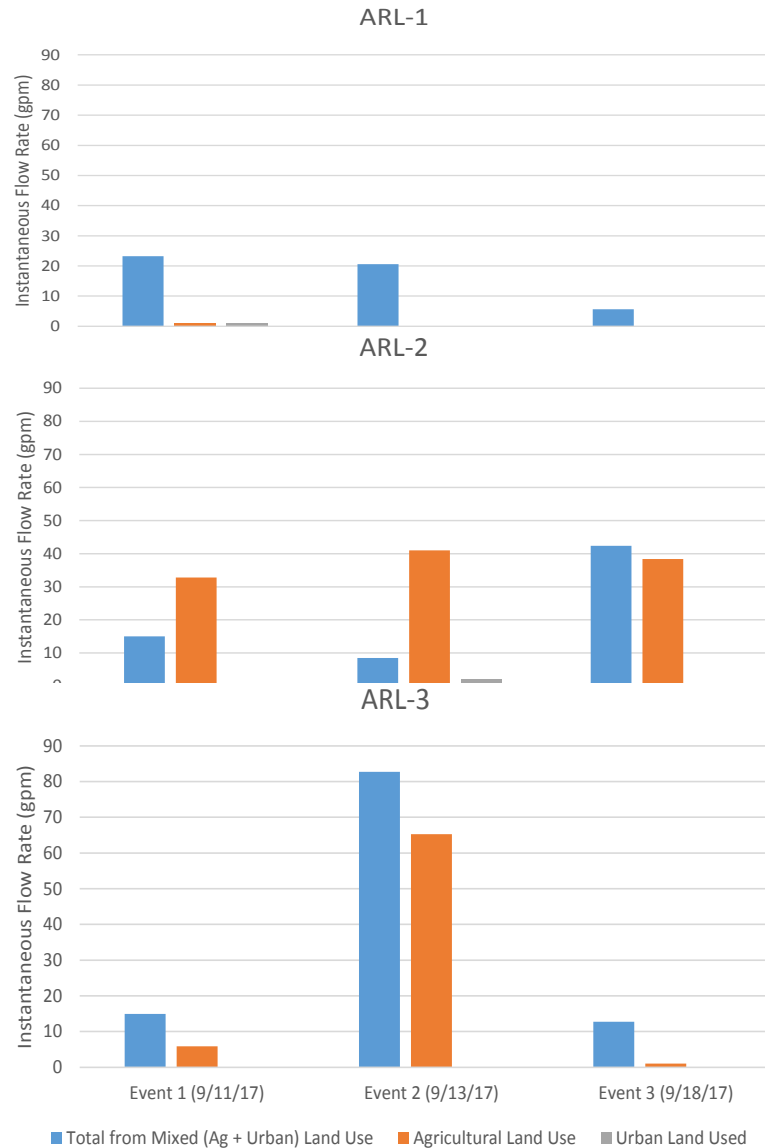


KEY:

AG Sampling Site	MS4	Mixed Land Use Sites	Monroe Basin Outlet	Sample Date (2017)	<i>E. coli</i> (MPN/100mL)	Bold <i>E. coli</i> exceed the benchmark	HF183 (copies per 100mL)	Flow (gpm)	TSS (mg/L)	Conductivity (us/cm)	Turbidity (NTU)	Ammonia [NH ₃] (mg/L)	Chlorine [Cl ⁻] (mg/L)
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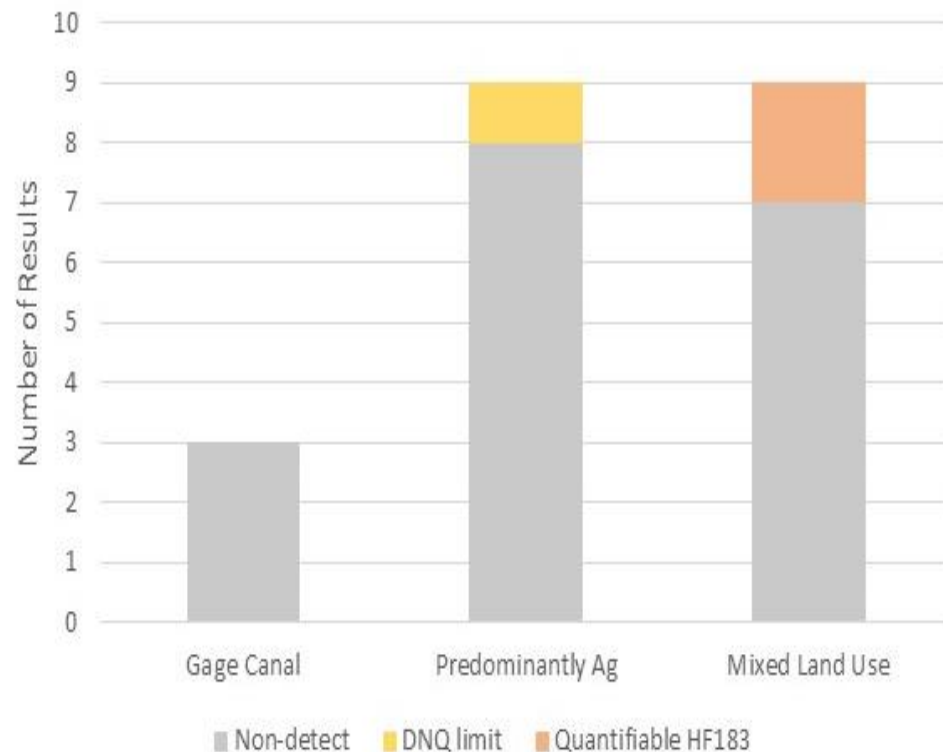
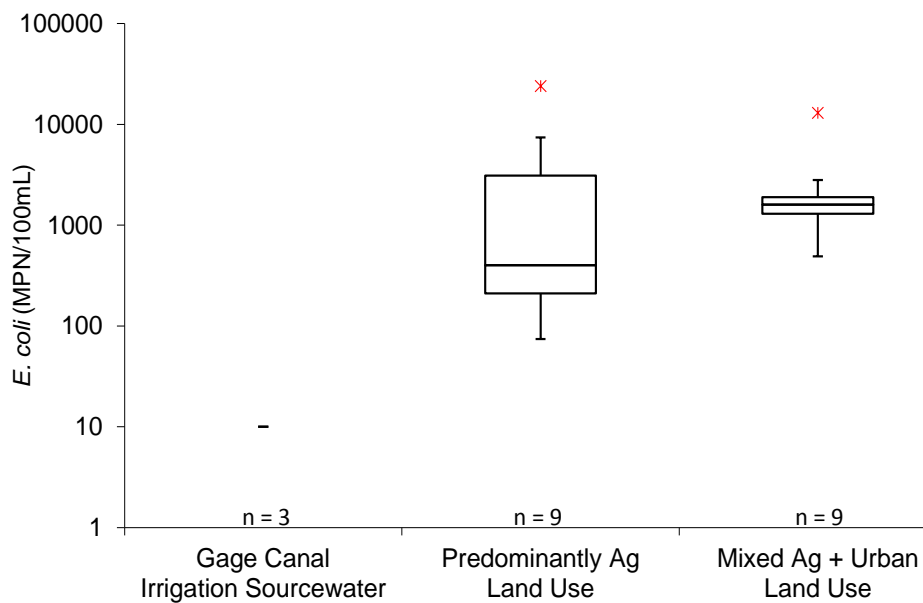
Flow Comparison by Land Use





E. coli and HF183 by Land Use

amec
foster
wheeler





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

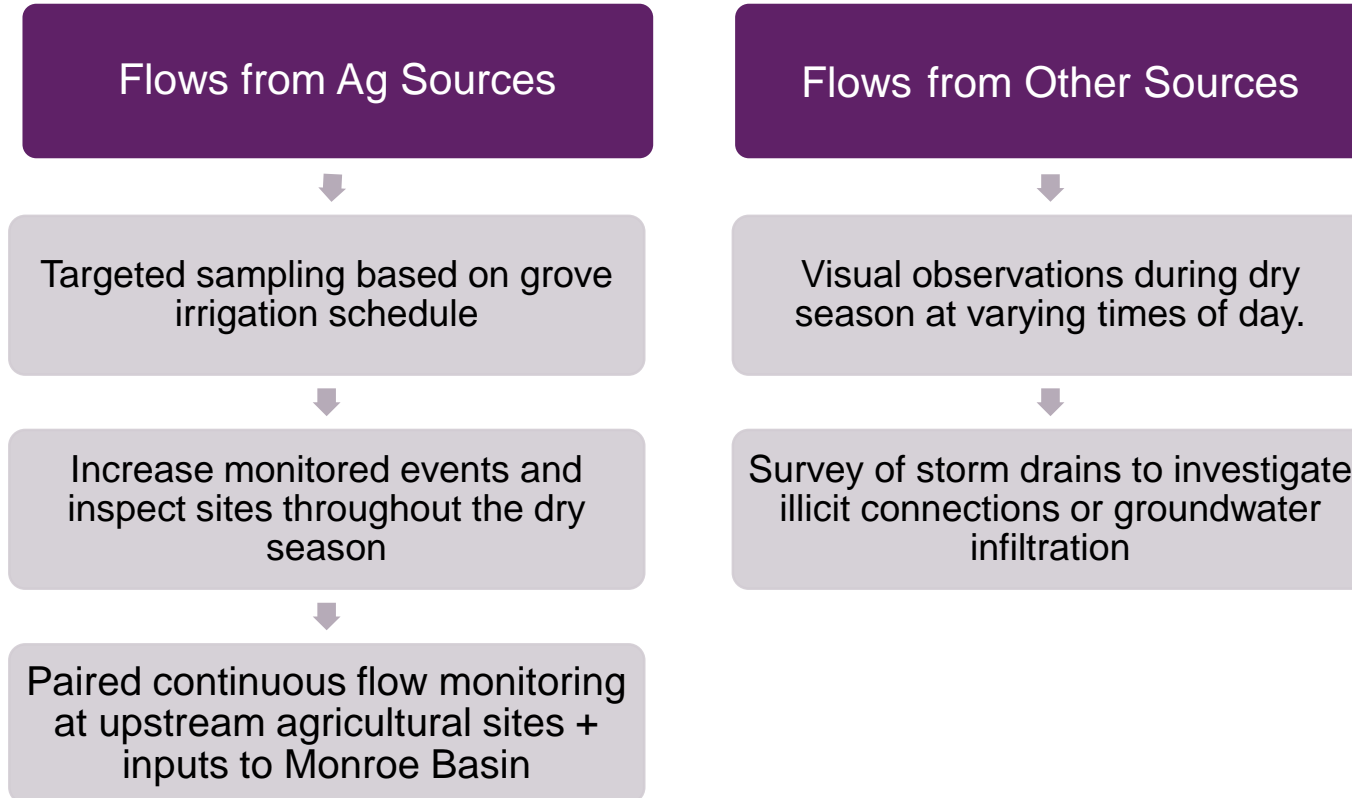
BMPs for Urban Land Uses

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.**

