

# CITY COUNCIL REPORT



Meeting Date: October 25, 2016  
 General Plan Element: ***Public Services & Facilities***  
 General Plan Goal: ***Provide a safe environment for all citizens, visitors and private interests***

## STUDY ITEM

**Zika and Other Mosquito-Borne Threat Preparedness.** Presentation regarding the threat of Zika and other mosquito-borne illnesses in the City of Scottsdale and discussion regarding actions taken by city staff for prevention, mitigation and response to the potential threat for possible direction to staff.

## BACKGROUND

The threat of Zika and other mosquito-borne illnesses is a real threat in Arizona. Since 2003 the West Nile virus has been a serious concern in Arizona. Recently the Zika virus, which prior to 2015 was found only in Africa, Southeast Asia, South and Central America and the Pacific Islands became an international concern due to the high incidence of birth defects when contracted during pregnancy. In February of 2016 the first locally transmitted case of Zika was discovered in the US.

To date in Arizona there are 36 cases of Zika known to exist, all of which are related to travel within countries where Zika infection is prevalent. No locally contracted cases of Zika have occurred. Currently there is no vaccine available to prevent Zika and no specific treatment to cure the illness.

## ANALYSIS & ASSESSMENT

There are four known ways of transmitting the Zika virus; the most common is being bitten by a Zika-infected *Aedes aegypti* mosquito. Transmission can also occur from mother to child during pregnancy, through sexual intercourse with a Zika-infected person, or through blood transfusions.

Since transmission by a mosquito is the primary means for the spread of Zika, the focus of this presentation will be on the prevention, mitigation and response to this threat vector. To that end city staff will discuss:

1. The current threat of mosquito-borne illnesses in Arizona
2. Actions taken by the City of Scottsdale to treat standing bodies of water found within the city

3. Actions taken by the city to reduce or eliminate standing water as a result of storm events in the city which may become a mosquito breeding habitat
4. Actions taken and additional planning for public information messaging regarding personal preventative measures for private property

Staff is working with Maricopa County Department of Public Health and Maricopa County Environmental Services to develop public messaging to educate and inform the public regarding this threat and preventative measures that can be taken to avoid infections. Messaging will be consistent with Arizona Department of Health Services and the Center for Disease Control messaging.

### **OPTIONS & STAFF RECOMMENDATION**

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This presentation is for information purposes about the current threat of mosquito-borne illness spread in Scottsdale, and to discuss current and planned preventative activities being taken by staff for Council consideration and direction.

### **RESPONSIBLE DEPARTMENT(S)**

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Stormwater Management

Office of Environmental Initiatives

Parks and Recreation

WestWorld

Office of Emergency Management

### **STAFF CONTACTS (S)**

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Brent Olson, Emergency Manager, [Bolson@ScottsdaleAZ.gov](mailto:Bolson@ScottsdaleAZ.gov)

### **APPROVED BY**

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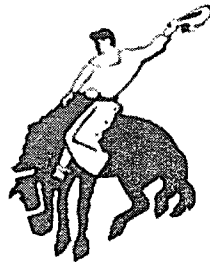


Biran Biesemeyer, City Manager

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Date

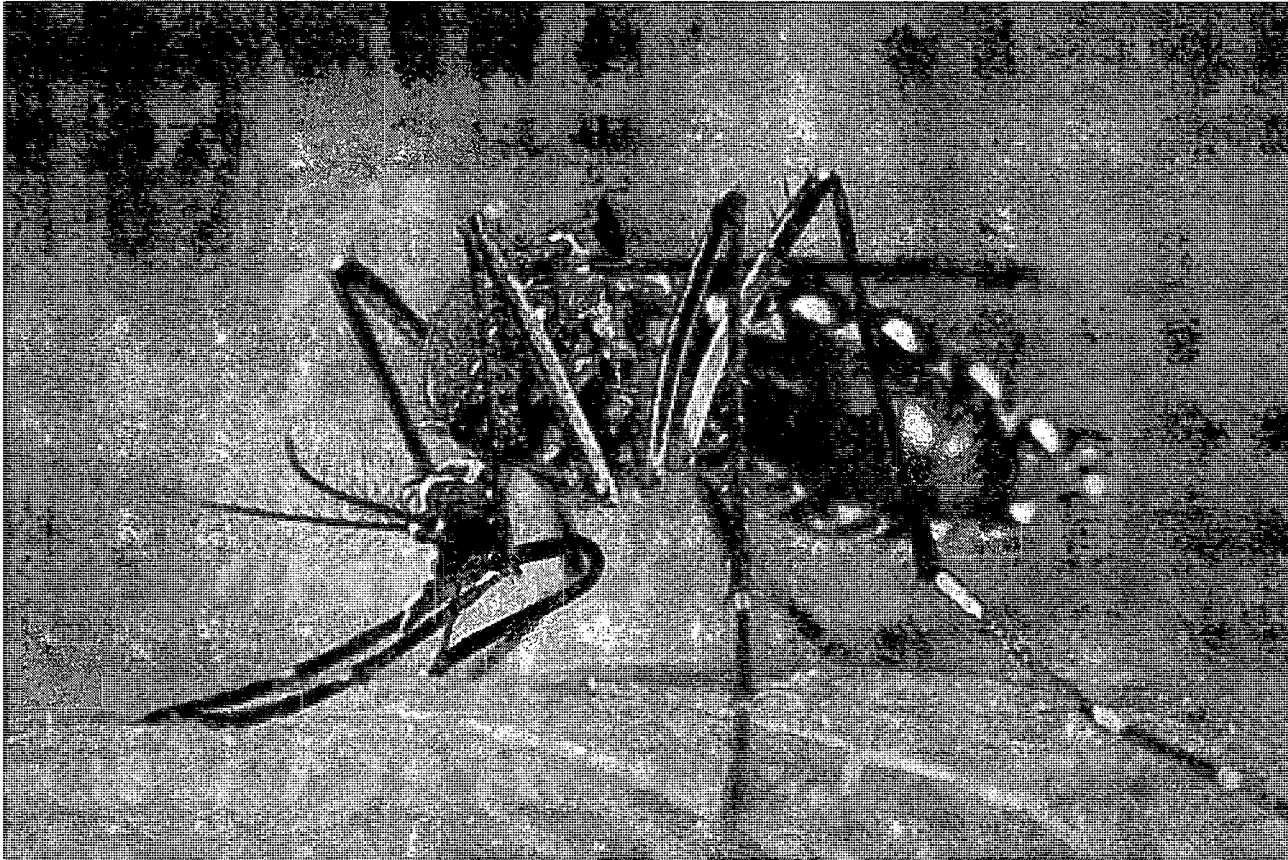
(480) 312-5631, [BBiesemeyer@ScottsdaleAZ.gov](mailto:BBiesemeyer@ScottsdaleAZ.gov)



# **Zika and Other Mosquito-Borne Threat Preparedness**

**October 25, 2016  
City Council Study Session**

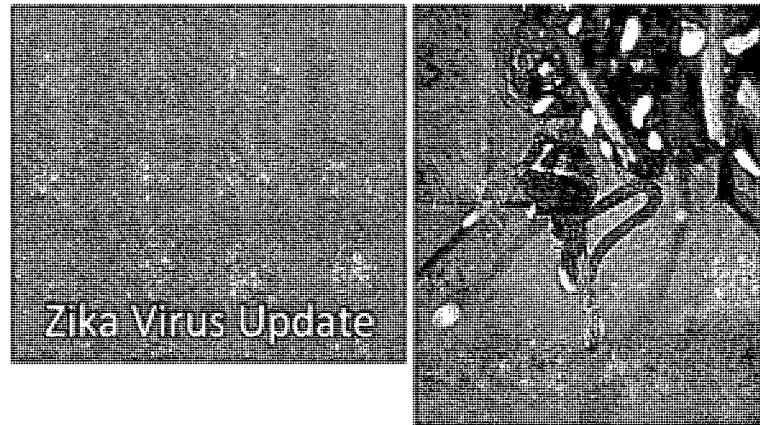
# Overview



# Mosquito-Borne Threat Presentation

**Craig Levy, MS**

Epizootologist, Office of Epidemiology  
Maricopa County Department of Public Health



*Craig Levy, Epizootologist, Office of Epidemiology*



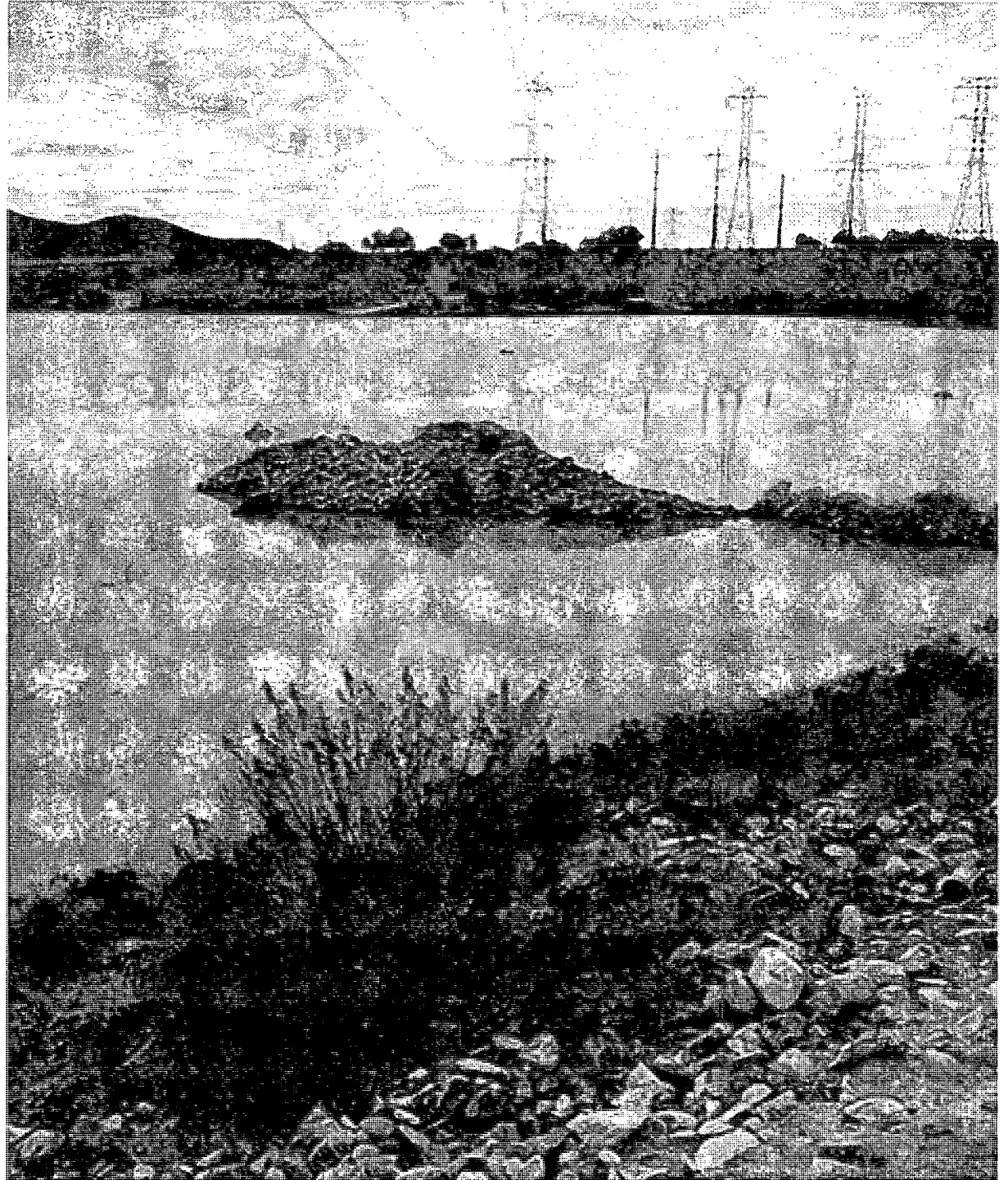
Maricopa County  
Department of Public Health

Website: [publichealth.maricopa.gov](http://publichealth.maricopa.gov) Twitter: [MaricopaHealth](https://twitter.com/MaricopaHealth) Facebook: [MaricopaPH](https://www.facebook.com/MaricopaPH)

# **Current Actions Taken by the City**

# WestWorld East Basin

- Designed to hold stormwater runoff
- Treated aggressively to prevent mosquitos
- Nearest trap catches very few mosquitos
- Looking for ways to accelerate groundwater recharge





## ***Aedes Aegypti* - Travel Range**

- **Potential ZIKA Carrier**
- **25 - 100 meters**

**100 meters**

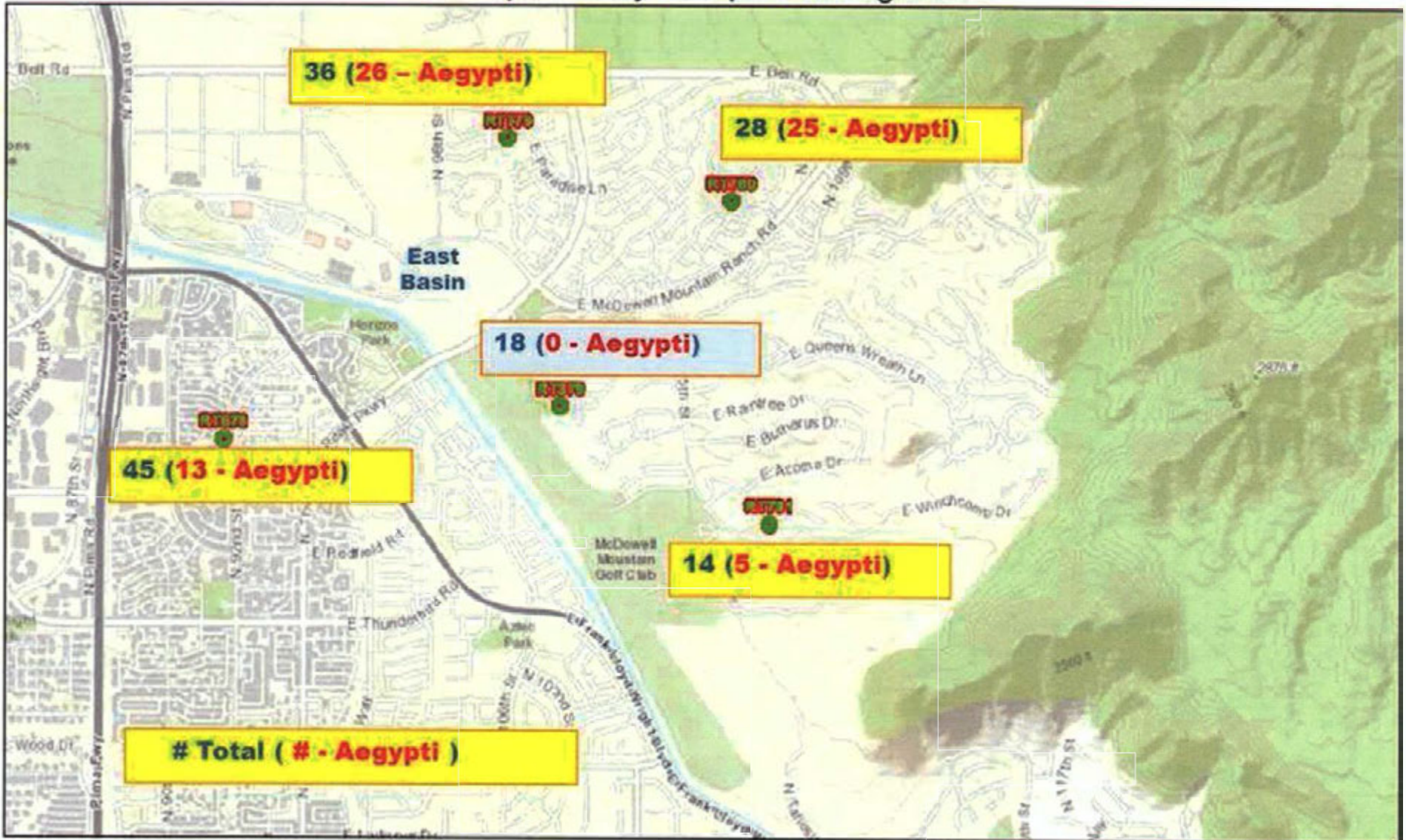
East  
Basin

***Trap RT379***

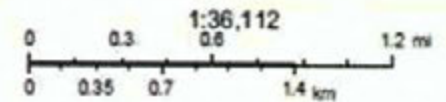
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Feet



## Maricopa County Mosquito Management

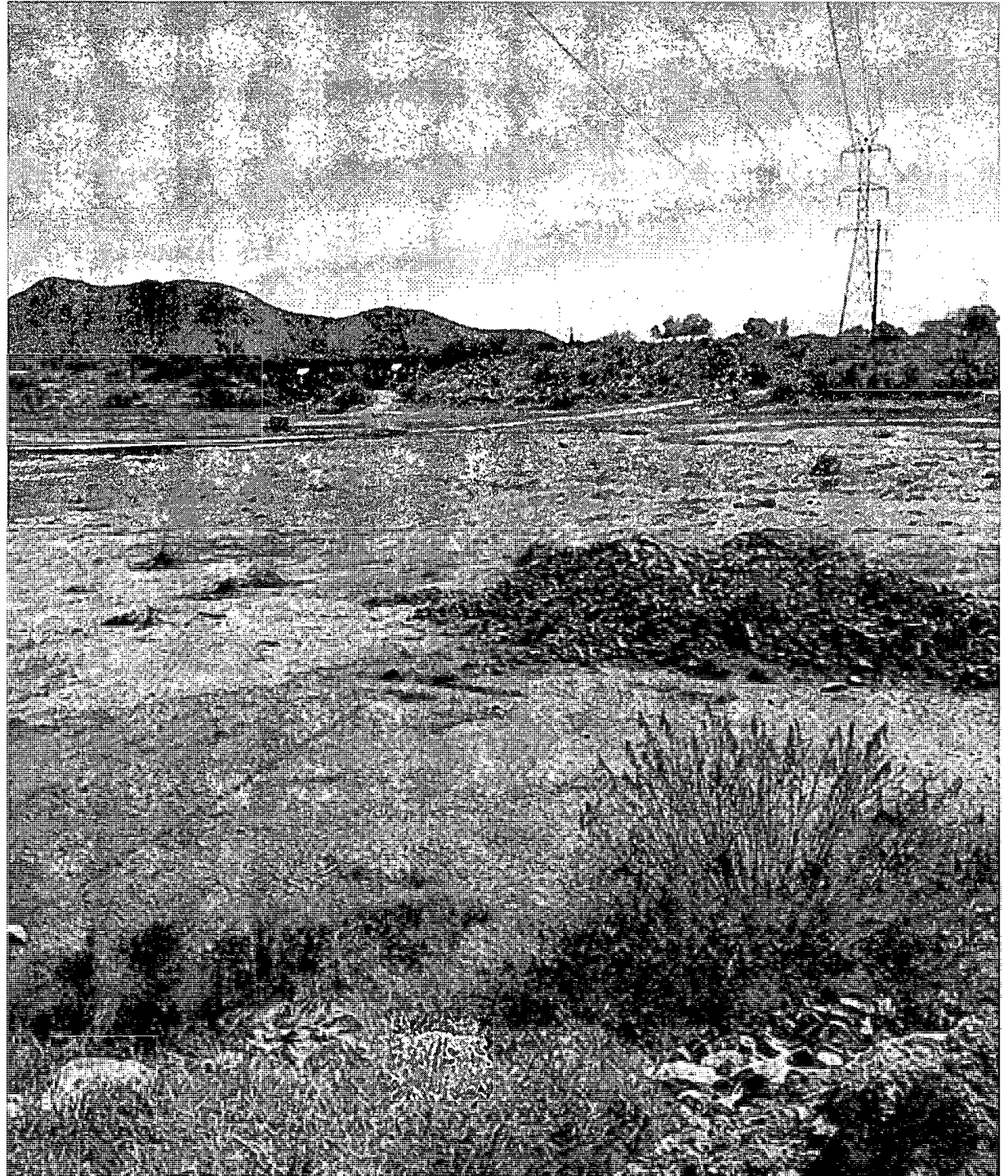


### Mosquito Trap Count – 2016 YTD



# WestWorld East Basin

- Dry wells assist percolating water back into the ground
- Exploring feasibility of additional dry wells
- Recent pilot program pumped the basin dry

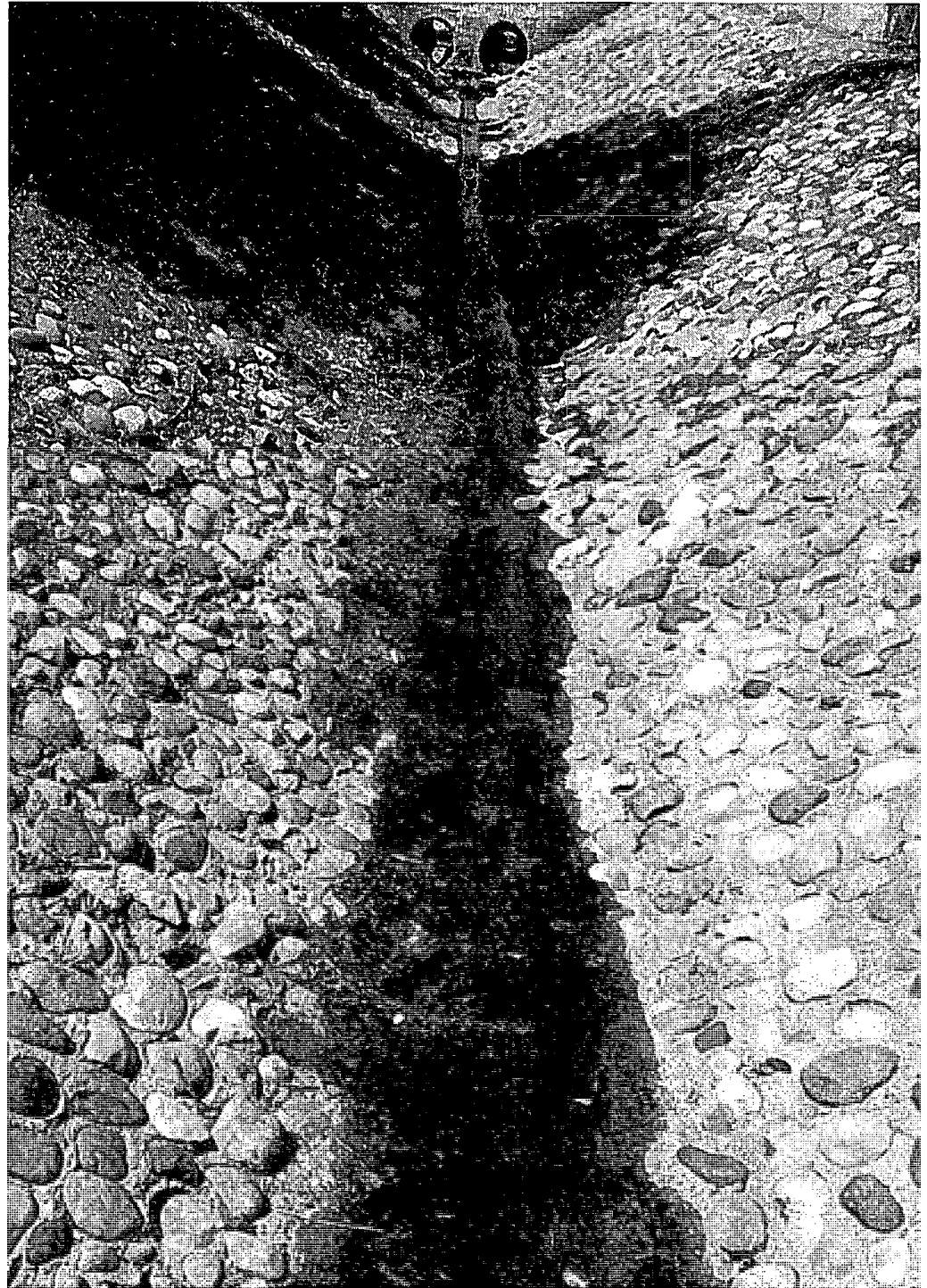




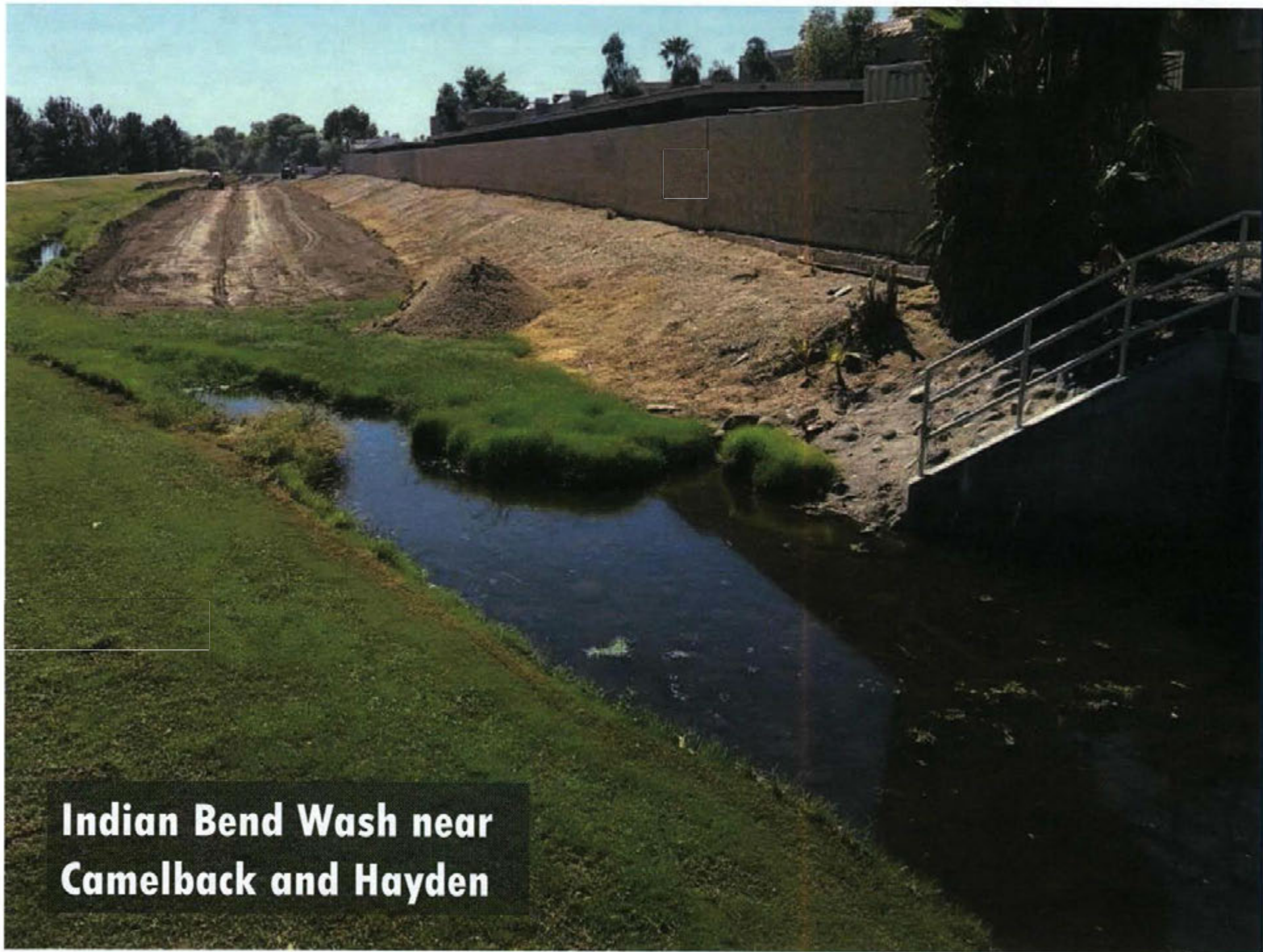


# What is the city doing about standing water?

- Respond to complaints
- Grade to promote drainage
- Remove sediment & debris
- Treat or pump
- Investigate/eliminate illicit discharge or connections

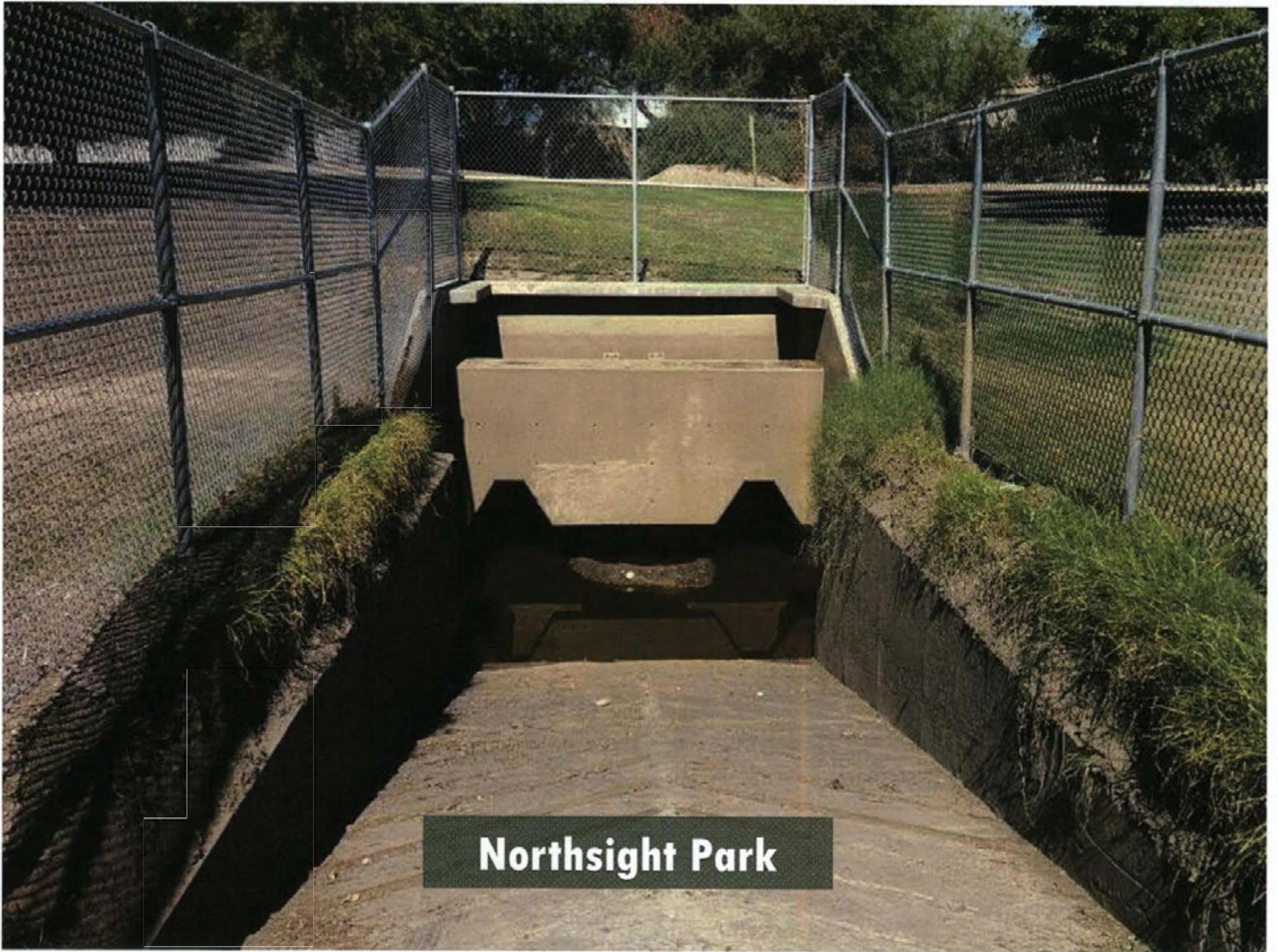






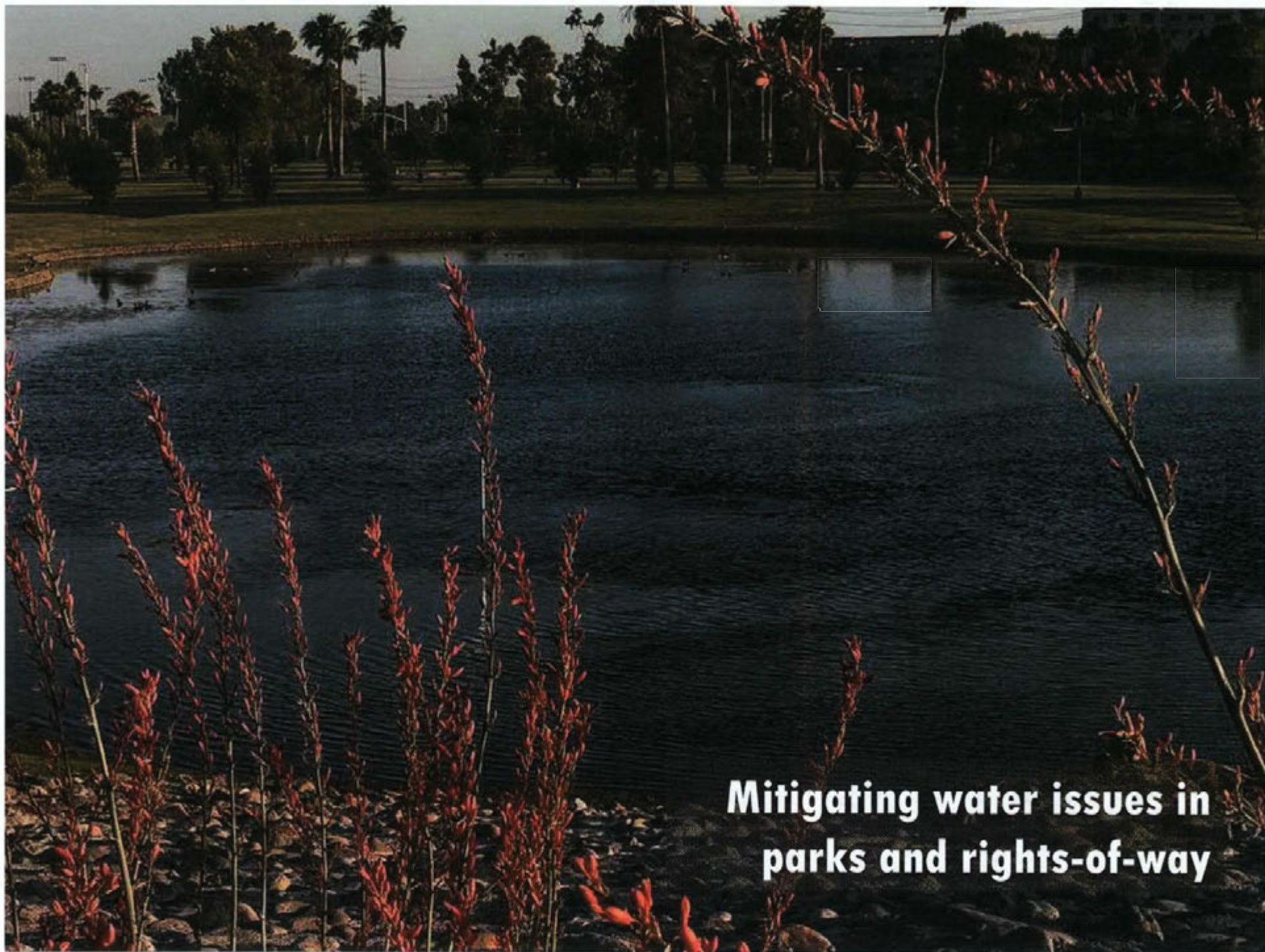
**Indian Bend Wash near  
Camelback and Hayden**





**Northsight Park**





**Mitigating water issues in  
parks and rights-of-way**





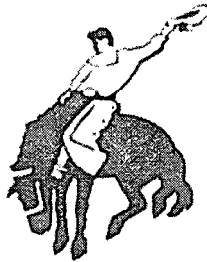




**We need YOU!**

# Common Backyard Mosquito Sources





# **Zika and Other Mosquito-Borne Threat Preparedness**

**October 25, 2016  
City Council Study Session**

## Brent Olson and City Staff Presentation

### **Zika and Other Mosquito-Borne Threat Preparedness**

October 25, 2016  
City Council Study Session

#### **Overview**





## **Mosquito-Borne Threat Presentation**

### **Craig Levy, MS**

Epizootologist, Office of Epidemiology  
Maricopa County Department of Public Health



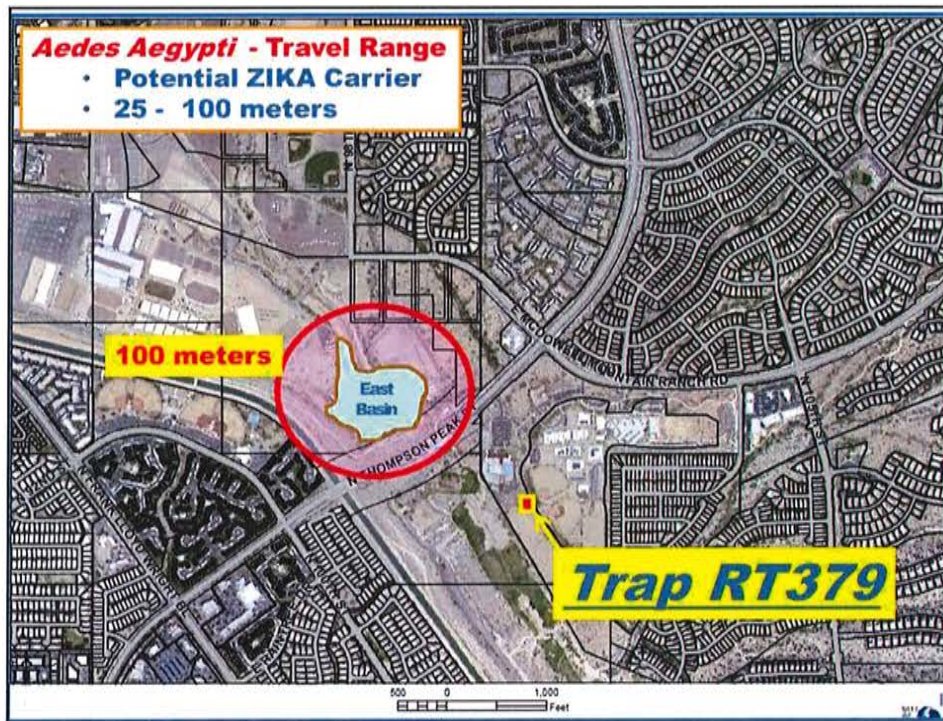
*Craig Levy, Epizootologist, Office of Epidemiology*

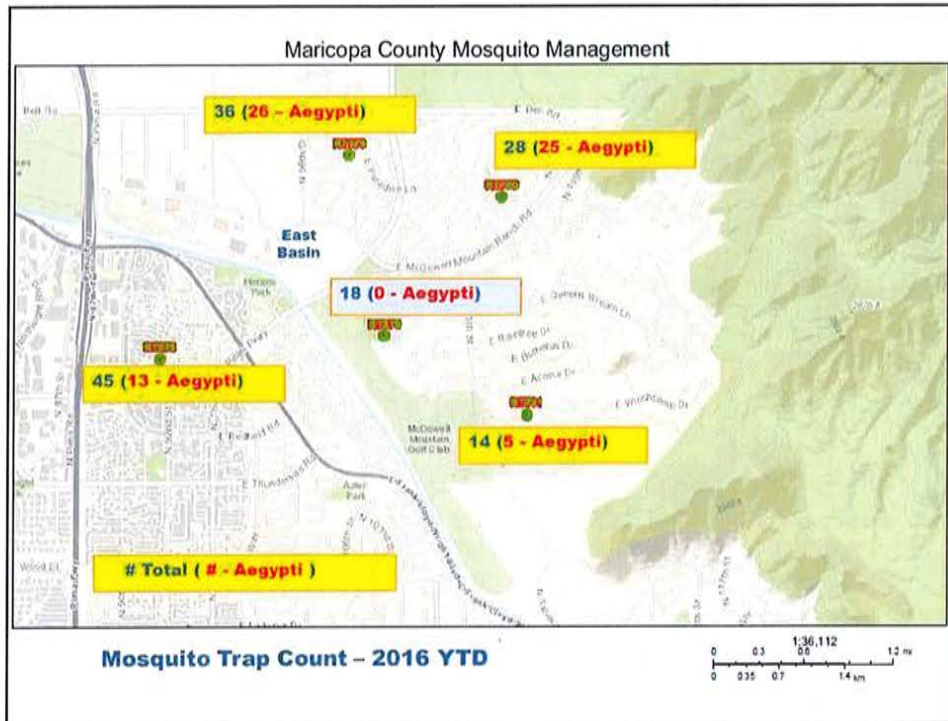


## **Current Actions Taken by the City**

## WestWorld East Basin

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## WestWorld East Basin

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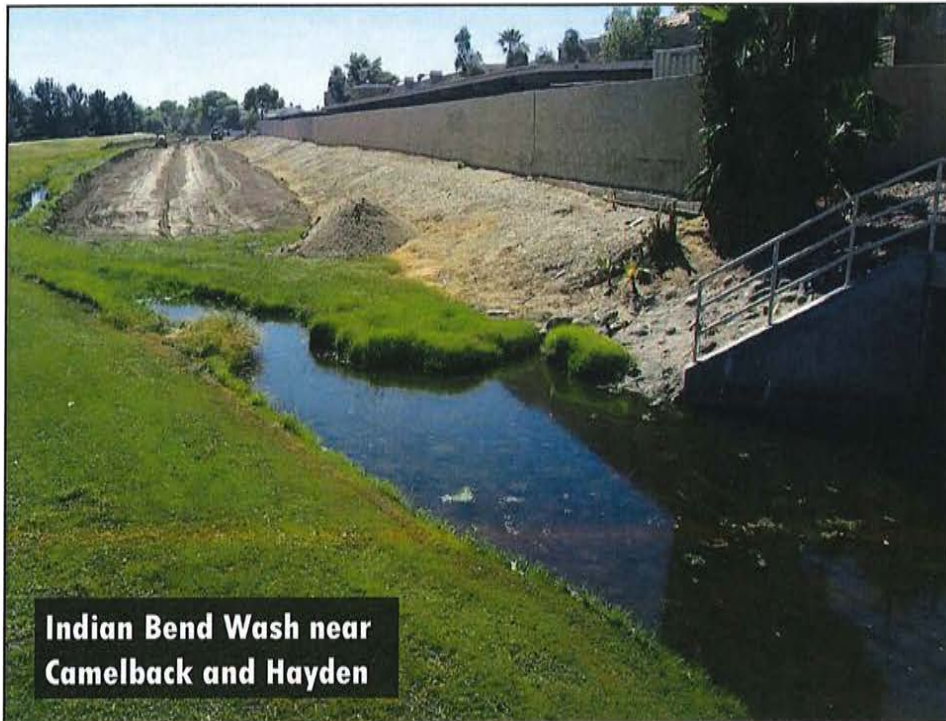


**What is the city doing  
about standing water?**

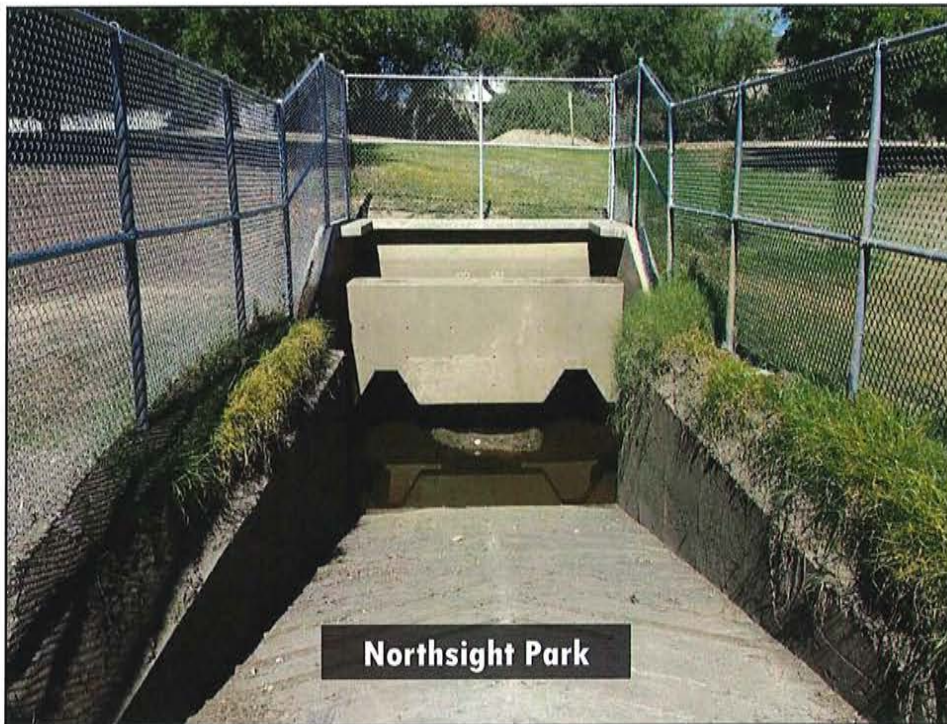
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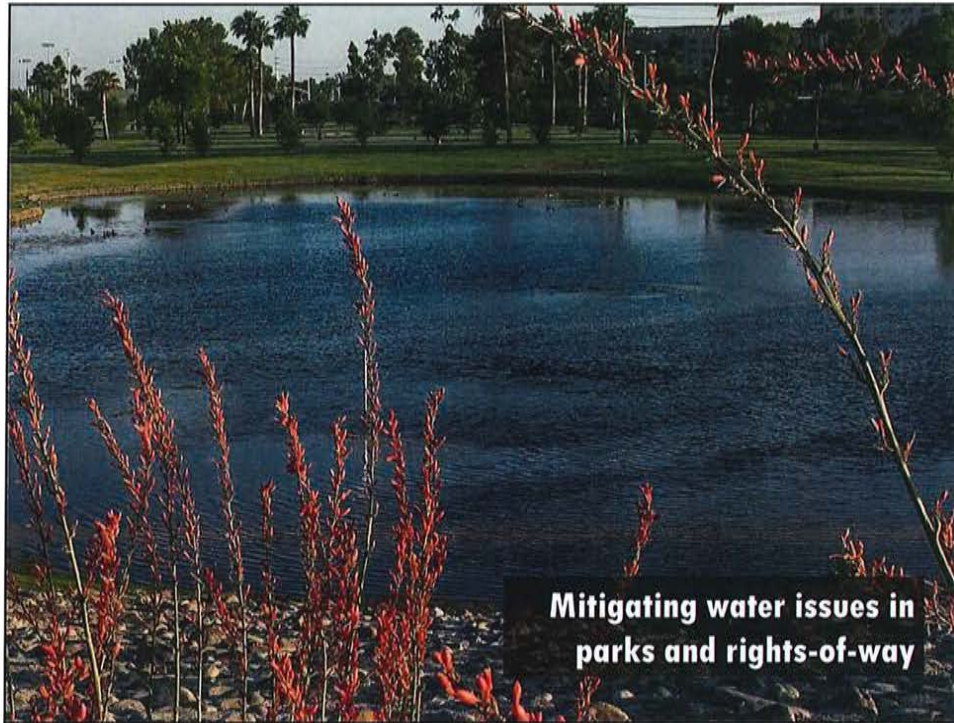


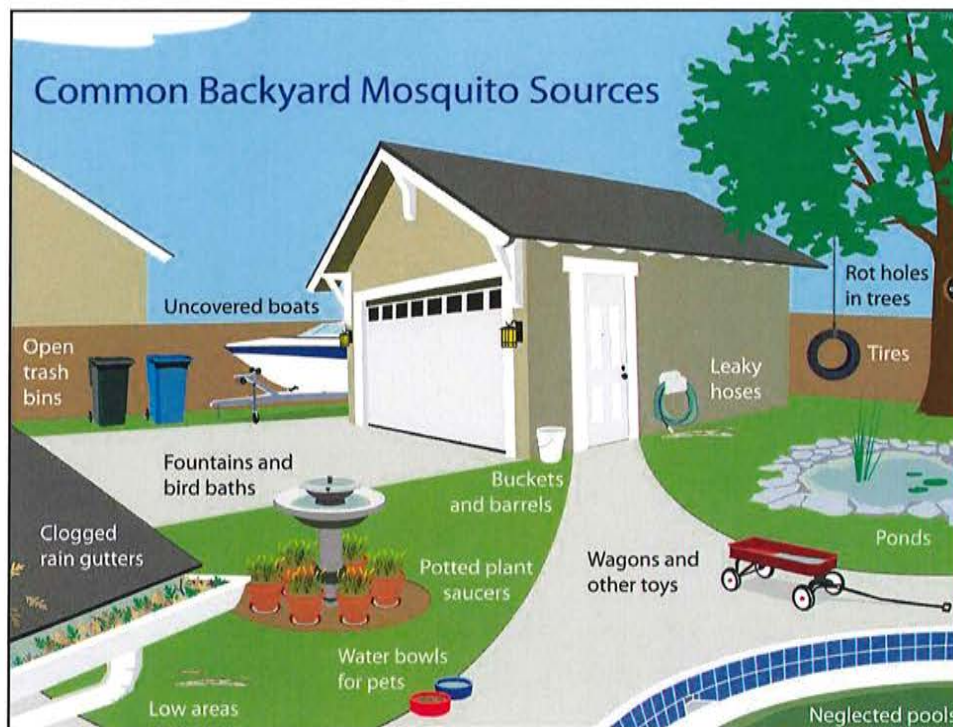
**Indian Bend Wash near  
Camelback and Hayden**



**Northsight Park**









Craig Levy  
Presentation

## Zika Virus Update



*Craig Levy, Epizootologist, Office of Epidemiology*

## Emerging Arboviruses

- Zika Virus
- Chikungunya
- Dengue Viruses
- Same Mosquito Vectors
- Similar Symptoms
- Rapidly Expanding in the Americas
- Imported cases
- Have potential to start transmission here !

## Mosquito Transmission

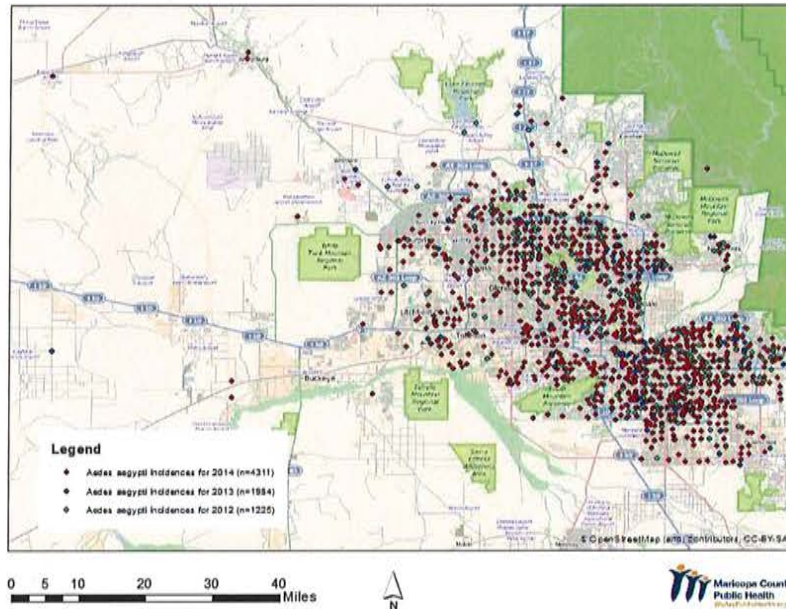
- *Aedes aegypti* and *Aedes albopictus* are the primary mosquito vectors
  - Infected humans are the reservoir for the viruses. Infections result in high viremias which can persist up to 7 days
  - Both mosquitoes bite mostly during the daytime
  - *Aedes aegypti* are "ankle biters"
  - Both mosquitoes breed in backyard containers
- ***Aedes aegypti* mosquitoes are widespread and thriving in Maricopa County**



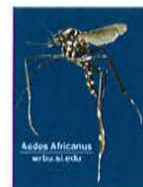
## *Aedes sp.* Breeding Sites



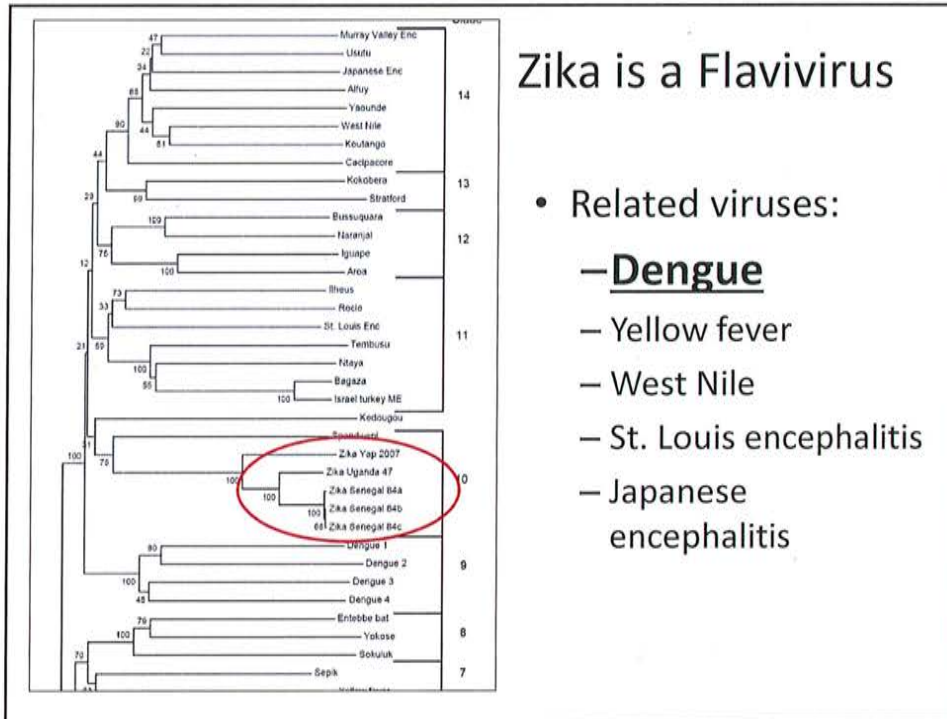
*Aedes aegypti* incidences in Maricopa County (2012-2014)



## Zika Virus: Discovered in 1947 in the Zika Forest







## Zika Transmission

- Mosquitoes Bites
- Perinatal
- Sexual transmission
- Possible blood transfusion-associated
- Laboratory exposure



## Zika Epidemiology

- Incubation period in people: 2–12 days
- ~ 80% of infections = no symptoms

## Zika Symptoms



- Low-grade fever
- Joint pain/swelling
- Muscle pain
- Rash
- Headache, retro-ocular pain
- Conjunctivitis
- Note: Guillain-Barre' Syndrome (GBS) has been reported post Zika



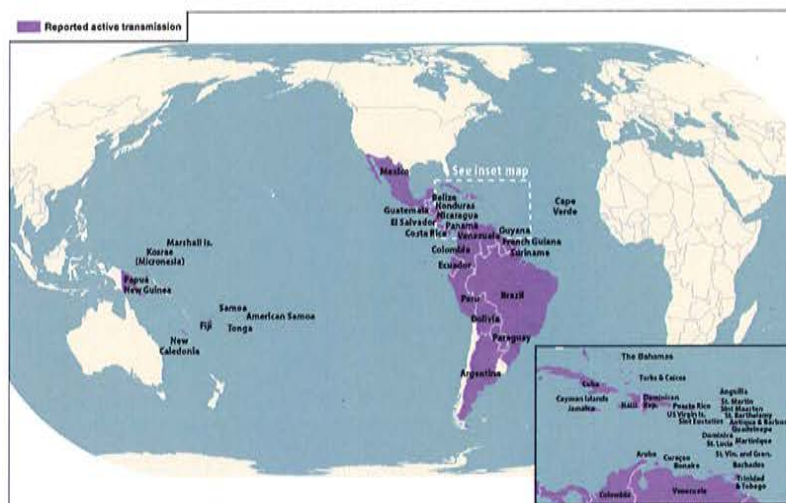
# Zika Virus During Pregnancy

## Microcephaly



- Microcephaly
- Intracranial calcifications
- Ventriculomegaly
- Miscarriage
- Stillbirth
- Eye defects
- Hearing loss
- Impaired growth and development

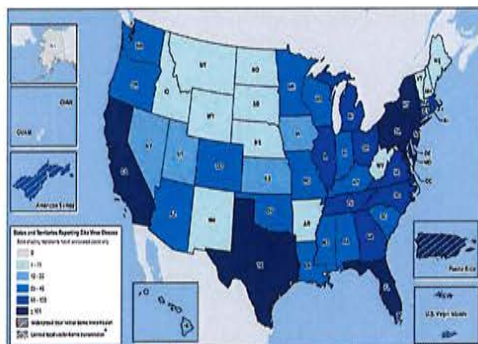
## Zika World Map



## Zika Cases in Mexico: mid-September



State of Residence for U.S. Travel-Associated Zika Cases, Jan 2015-October 2016



**N = 3,800+ imported cases**

### Top Six States

- NY - 837 (23%)
- FL - 707 (19%)
- CA - 277 (7%)
- TX - 218 (6%)
- PN - 132 (4%)
- NJ - 133 (4%)
- AZ - 36 (1%)



## Zika in Florida



- Miami-Dade County
- Miami Beach
- 600+ imported cases
- 100+ locally acquired
- NOTE: all southern states are at risk for local transmission

## Zika Update – Maricopa County

- 520+ people triaged (travelers and pregnant females)
- 22 cases – imported / travelers
- 430+ ruled-out
- 60+ lab testing pending

## Zika Treatment

- No vaccine or specific treatment
- Supportive care
  - Treatment with aspirin and NSAIDs discouraged unless dengue has been ruled-out

## Zika Prevention

- Mosquito avoidance – during & after travel
- Travel alert issued by CDC – pregnant mothers should NOT travel to Zika affected areas
- Pregnant women should abstain from sex or ensure condoms used during sex with men who have travelled to Zika affected areas for the duration of pregnancy
- Blood donors – wait 28+ days after returning from Zika active areas



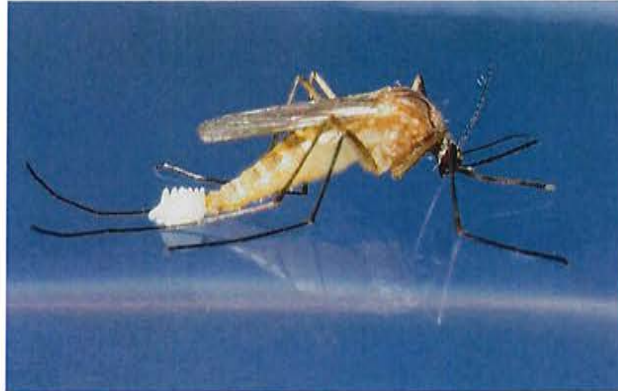
## Preventing Local Transmission

- For all returning travelers and suspected cases of Zika, chikungunya or dengue:
- Prevent mosquito bites for 3 weeks after return or onset.
- Notify public health officials immediately if you or any family members develop sx
- Check your property for mosquito breeding
- Remove, store or cover all containers

## Zika Surveillance & Response

- Enhanced human case surveillance & testing
- Mosquito Surveillance – Valley wide trapping and targeted surveillance in case locations
- Environmental Response/Vector Control
- Prevention Education & Community Involvement

## West Nile Virus (WNV) & St. Louis Encephalitis (SLEV)

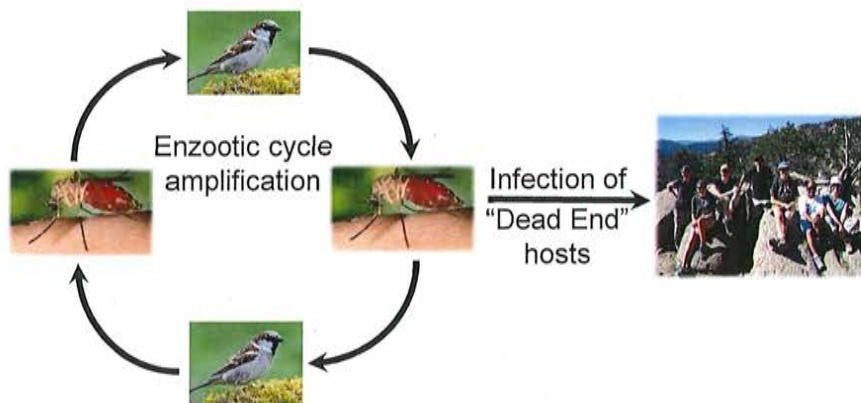


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Footer

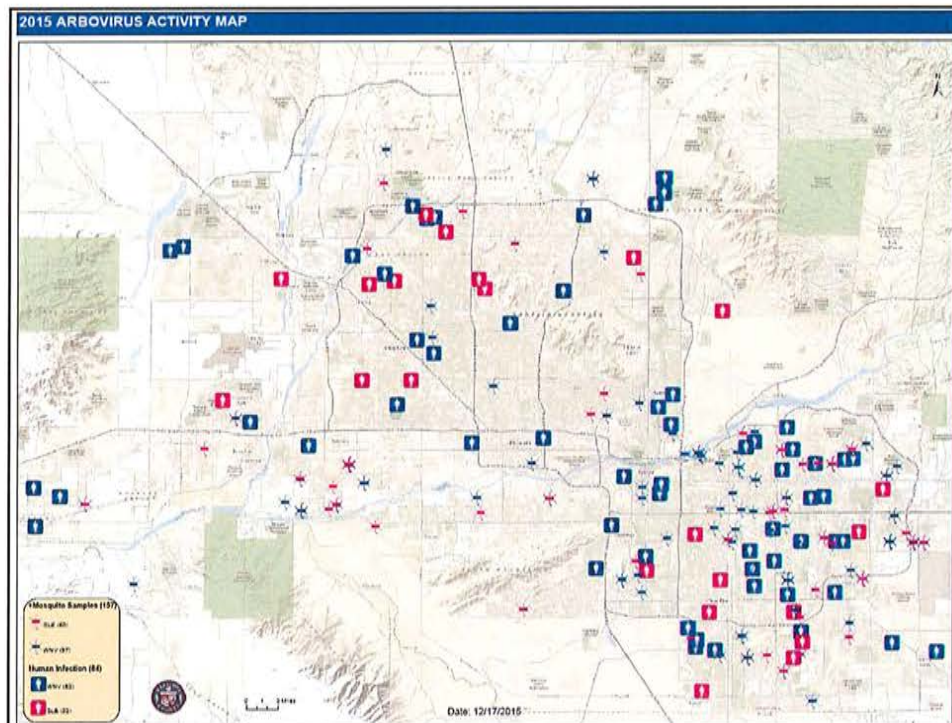
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### SLEV transmission cycle





## Culex Mosquito Breeding



## Prevention

**The best way to prevent arbovirus infection is to avoid mosquito exposure:**

- Stay indoors if possible
- Use air conditioning and window/door screens
- Use mosquito repellents on exposed skin
- Wear long-sleeved shirts and long pants
- Empty standing water from outdoor containers
- Scrub & rinse insides of any containers that had water
- Remove, cover or properly store all containers to prevent water collection
- FIGHT THE BITE! DAY & NIGHT !



## Questions?

