

# Tijuana River Valley Trash, Waste Tire and Sediment Characterization Study

## A Status Update



International Boundary and Water Commission  
United States Section

**USIBWC Citizens Forum**  
**October 22, 2009, 6 - 8 p.m.**

### Grants Sponsored by:

California Integrated Waste Management Board (CIWMB)  
State Water Resources Control Board

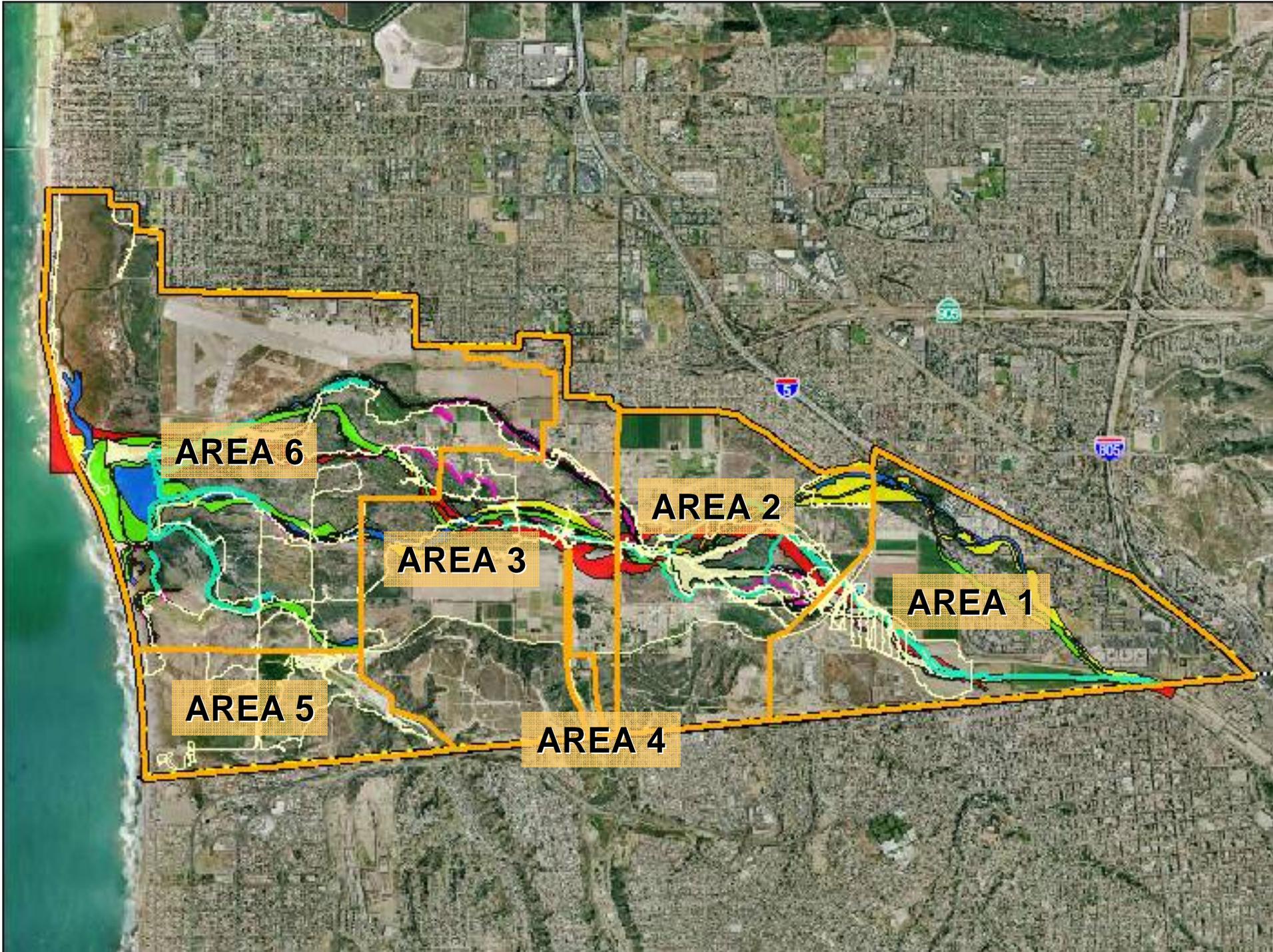
### Conducted by:

URS Corporation



# Scope of Work

- Data Review
- Aerial Photograph Review
- Trash and Waste Tire Survey
- Test Pits
- Soil Borings
- Report of Findings



**AREA 6**

**AREA 2**

**AREA 3**

**AREA 1**

**AREA 5**

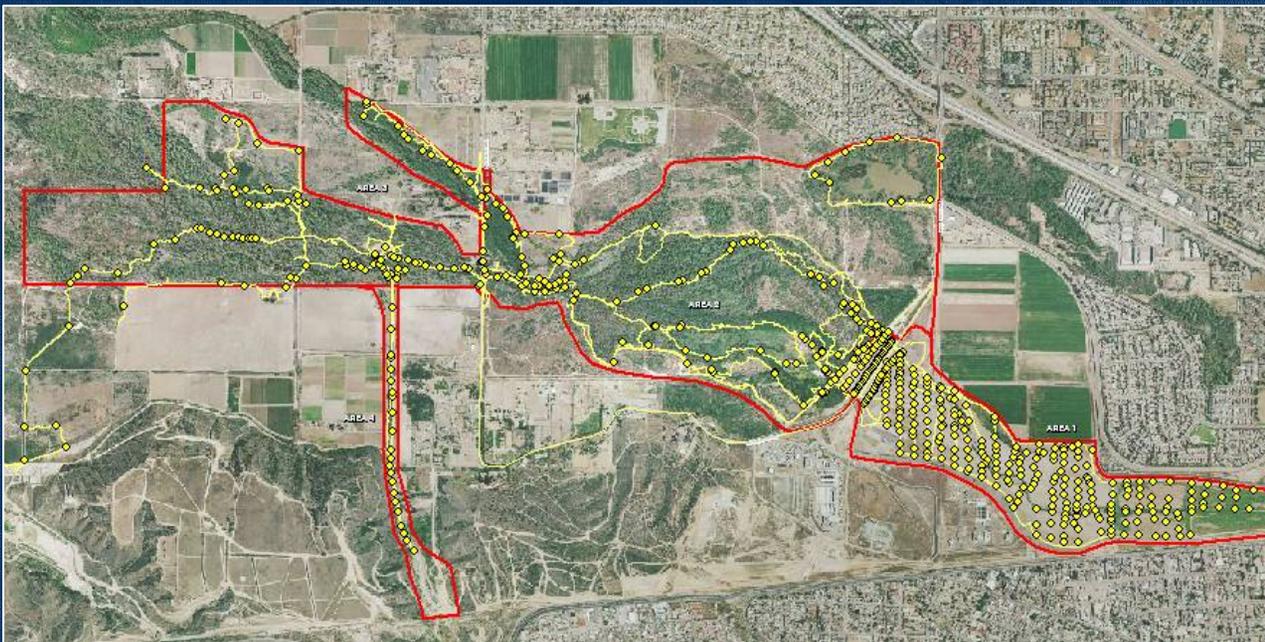
**AREA 4**

# Trash Survey Methods

- Divided valley into 6 areas, including state parks and federal land
- Conducted linear transects across open areas
- Paralleled water courses/channels in heavily vegetated areas
- Based observations on City descriptors
- Quantified by visually estimating % trash coverage of approximate areas
- Weighed trash in representative areas
- Used CIWMB solid waste categories
- Integrated representative areas to estimate total trash volumes by type

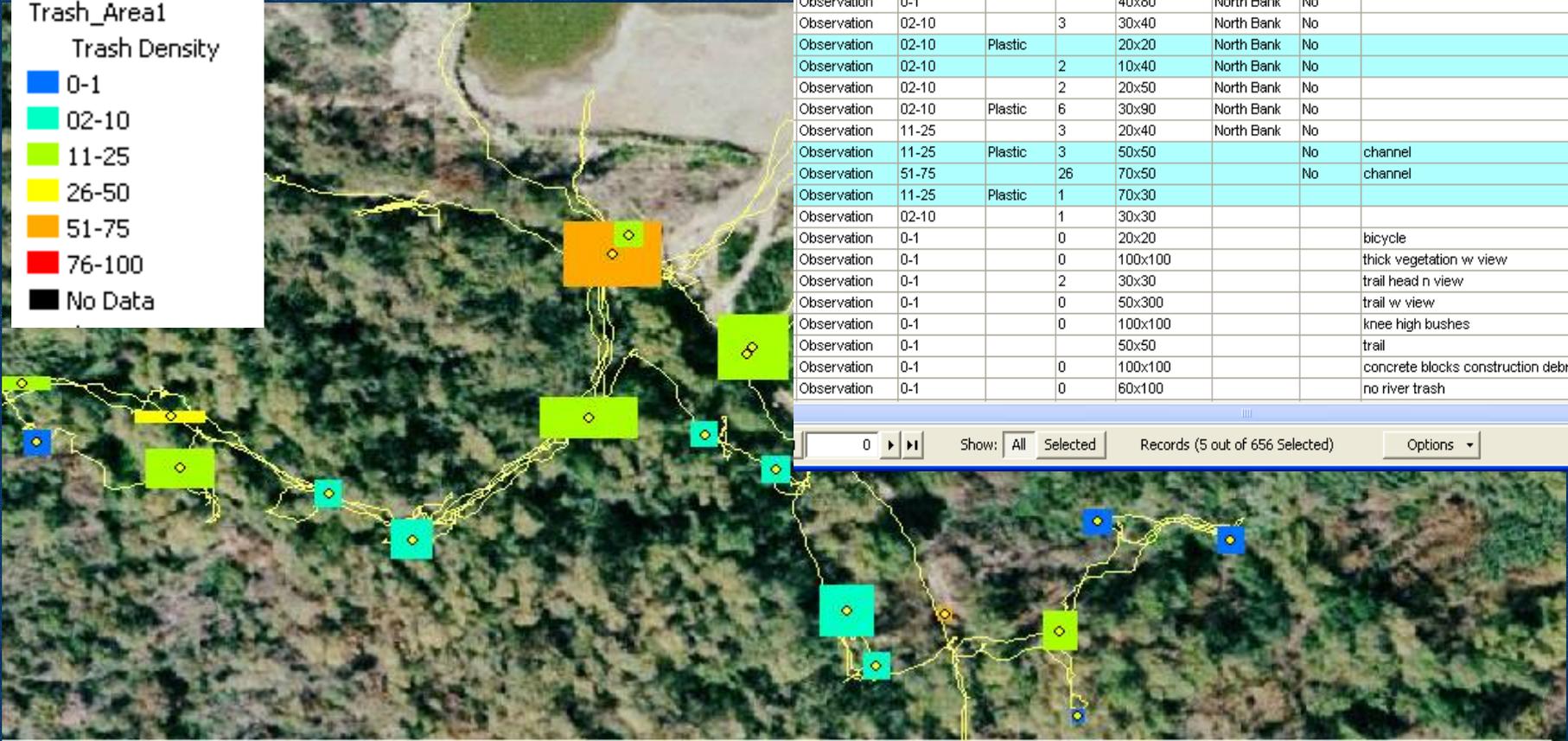
# Field Data Collection

- Data Collection Using GPS



# Mapping the Results

- Survey Results after Data Analysis

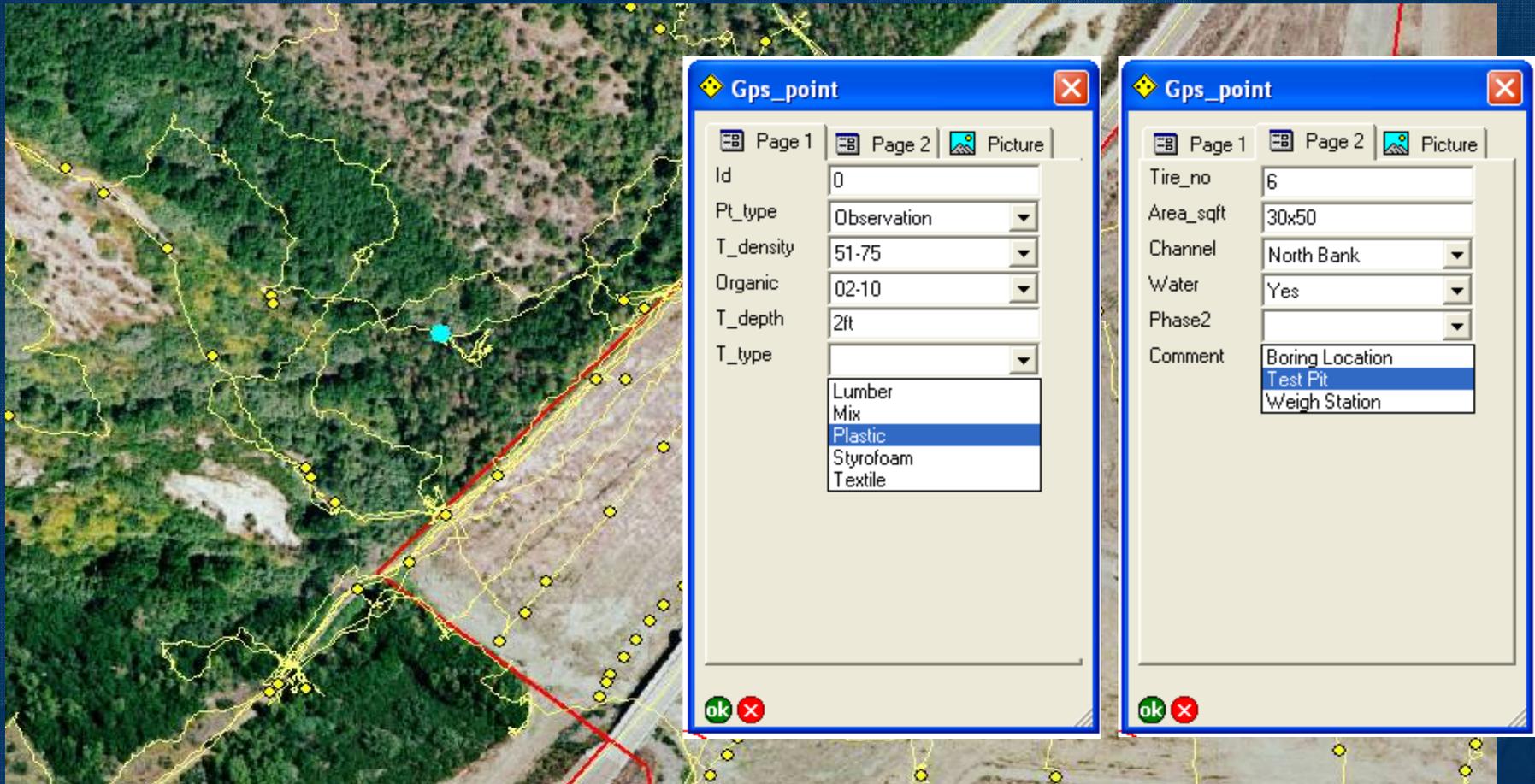


PT_TYPE	T_DENSITY	T_TYPE	TIRE_NO	AREA_SOFT	CHANNEL	WATER	COMMENT
Observation	0-1		0	60x60	South Bank		muddy
Observation	02-10			20x20			end of wtr
Observation	0-1			60x60	North Bank	No	
Observation	0-1			40x80	North Bank	No	
Observation	02-10		3	30x40	North Bank	No	
Observation	02-10	Plastic		20x20	North Bank	No	
Observation	02-10		2	10x40	North Bank	No	
Observation	02-10		2	20x50	North Bank	No	
Observation	02-10	Plastic	6	30x90	North Bank	No	
Observation	11-25		3	20x40	North Bank	No	
Observation	11-25	Plastic	3	50x50		No	channel
Observation	51-75		26	70x50		No	channel
Observation	11-25	Plastic	1	70x30			
Observation	02-10		1	30x30			
Observation	0-1		0	20x20			bicycle
Observation	0-1		0	100x100			thick vegetation w view
Observation	0-1		2	30x30			trail head n view
Observation	0-1		0	50x300			trail w view
Observation	0-1		0	100x100			knee high bushes
Observation	0-1			50x50			trail
Observation	0-1		0	100x100			concrete blocks construction debris barn
Observation	0-1		0	60x100			no river trash

0 | Show: All Selected | Records (5 out of 656 Selected) | Options

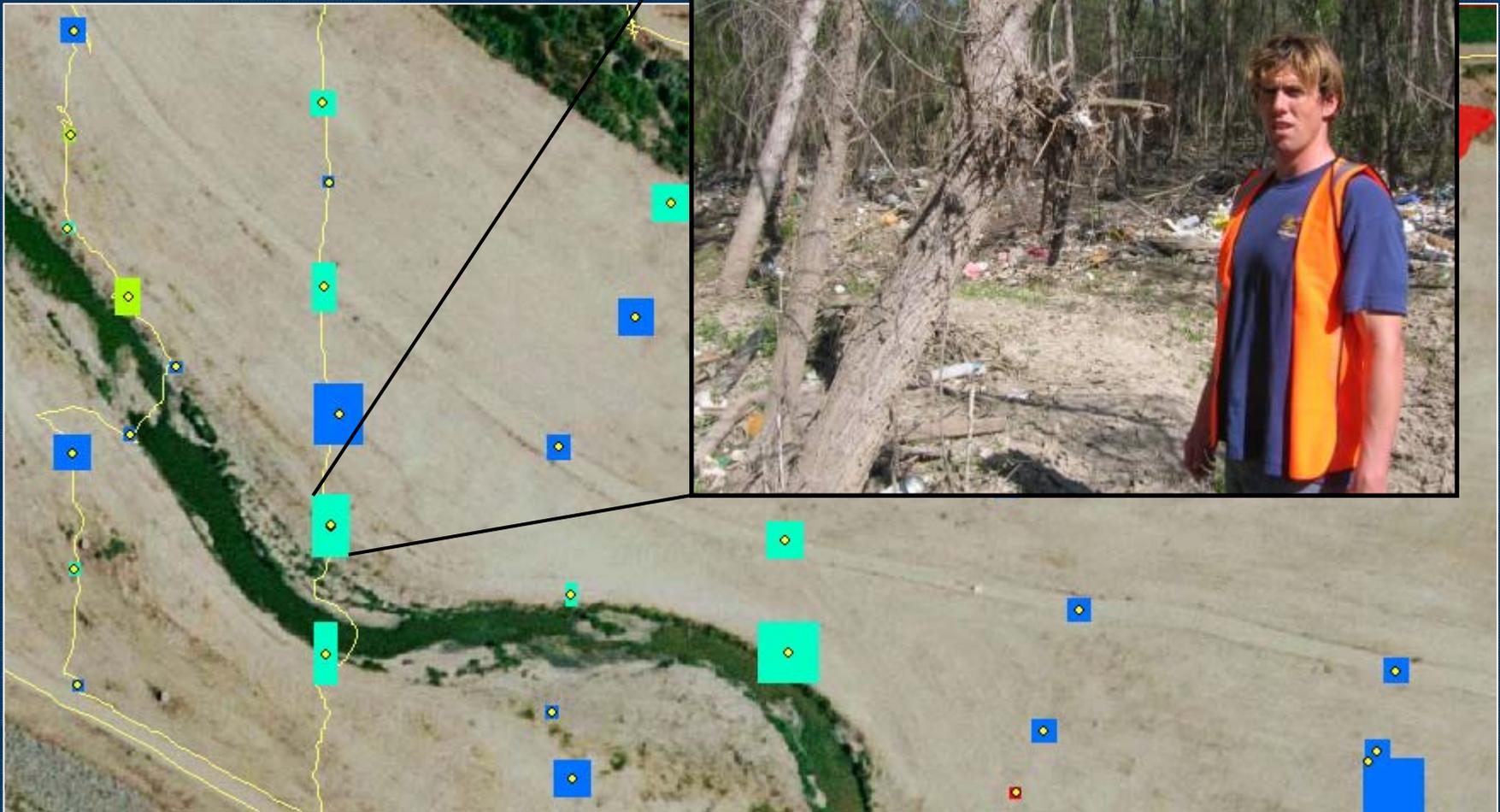
# Field Data Collection

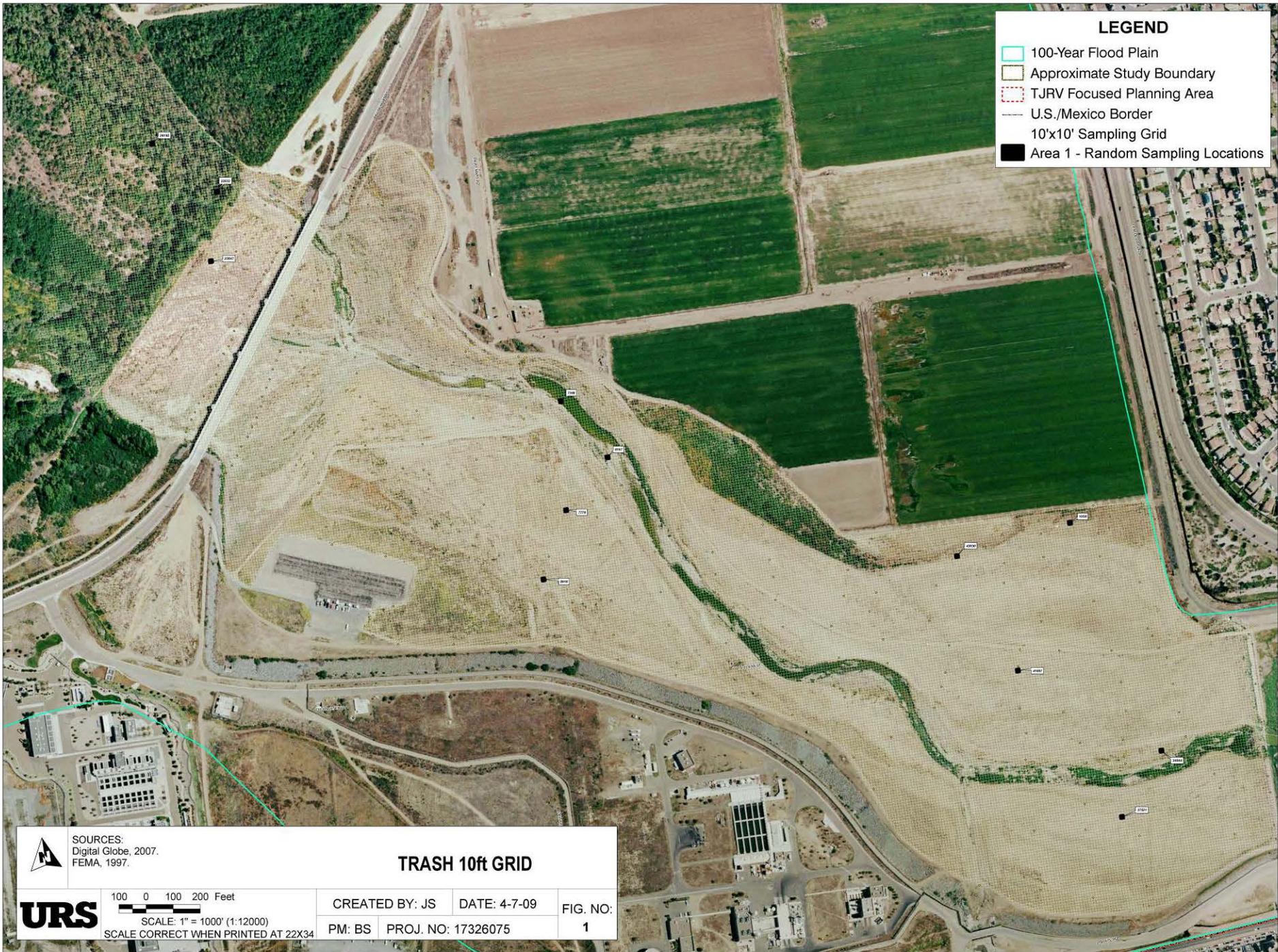
- GPS Collection using ArcPad



# Data Sharing Tools

- ArcReader Demo





**LEGEND**

- 100-Year Flood Plain
- Approximate Study Boundary
- TJRV Focused Planning Area
- U.S./Mexico Border
- 10'x10' Sampling Grid
- Area 1 - Random Sampling Locations

**SOURCES:**  
Digital Globe, 2007.  
FEMA, 1997.

**TRASH 10ft GRID**

**URS**

100 0 100 200 Feet

SCALE: 1" = 1000' (1:12000)

SCALE CORRECT WHEN PRINTED AT 22X34

CREATED BY: JS    DATE: 4-7-09    FIG. NO: 1

PM: BS    PROJ. NO: 17326075

# Trash Survey Methods: Weighing Trash



Measure and flag test plot



Collect trash



Sort trash by type



Weigh trash by type

Cell ID	Total Area	Weight % of Total			7368 Accumulation Area	
Cell Area (sf)	28196	Total	w/o Tires	w/o Tires	150	
Trash Coverage %				w/o branches stumps sediment	75 to 100%	
Waste Category	Weight (lbs) Sub-Totals	Weight % of Totals			Total lbs	Ave lbs/sf
<b>Paper</b>						
Cardboard	1.2	0.044%	0.063%	0.081%	0	0.000
Paper	0.6	0.022%	0.031%	0.041%	0.6	0.004
<b>Glass</b>						
Bottles	8.6	0.315%	0.449%	0.583%	0.7	0.005
<b>Metal</b>						
cans Al and Steel	8.3	0.304%	0.433%	0.563%	1	0.007
other	5.6	0.205%	0.292%	0.380%	0	0.000
<b>Electronics</b>						
Brown Goods	0	0.000%	0.000%	0.000%	0	0.000
Computer related	0	0.000%	0.000%	0.000%	0	0.000
<b>Plastic</b>						
PETE	72.8	2.666%	3.799%	4.936%	13.3	0.089
HDPE	60.4	2.212%	3.152%	4.095%	8.6	0.057
Durable Plastic	117.3	4.295%	6.121%	7.953%	10.4	0.069
Remainder /						
Composite	169	6.188%	8.820%	11.458%	12.1	0.081
<b>- Total Plastic</b>	<b>419.5</b>	<b>15.361%</b>	<b>21.892%</b>	<b>28.441%</b>	<b>44.4</b>	<b>0.296</b>
<b>Other Organic</b>						
Leaves/Grass/Sed	270.1	9.890%	14.096%		16.5	0.110
Branches Stumps	171.1	6.265%	8.929%		25.4	0.169
Textiles	79.8	2.922%	4.164%	5.410%	3.1	0.021
Carpet	2.3	0.084%	0.120%	0.156%	0	0.000
food						
<b>Construction / Demo</b>						
Concrete						
Asphalt						
Lumber	477.4	17.481%	24.914%	32.366%	31	0.207
<b>Household Haz Wast</b>						
	1.3	0.048%	0.068%	0.088%	1.2	0.008
<b>Special Waste</b>						
Tires (lbs)	814.8	29.835%			0	0.000
Bulky Items	50.8	1.860%	2.651%	3.444%	0	0.000
Other	0.1	0.004%	0.005%	0.007%	0.1	0.001
<b>Total Weight</b>					124	
<b>w/o Tires</b>					124	0.827
<b>w/o Tires, LG&amp; sed</b>					107.5	0.717
Total Trash Weight:	2731	100.000%	100.000%	100.000%		
Trash Weight w/o Tires:	1916.2					
es, Stumps Sediment:	1475					

# Nature of Deposited Materials

## Subarea 1 – IBWC Property



# Nature of Deposited Materials

## Subarea 2 – Dairymart to Hollister



# Nature of Deposited Materials

## Subarea 3 – Pilot Channel/Plug



# Nature of Deposited Materials

## Subarea 4 - Smugglers Gulch



# Nature of Deposited Materials

## Subarea 5 – Goat Canyon



# Nature of Deposited Materials

## Subarea 6 – State Parks



# Test Pits and Borings

- Excavated over 40 test pits
- Observed presence of trash
- Collected soil samples for chemical analysis
- Analyzed for constituents of potential concern:
  - Metals
  - Hydrocarbons
  - pesticides, dioxins
- Advanced 10 borings
- Collected samples for grain-size and plasticity

# Some Preliminary Findings

- Up to 12 feet of accumulated sediment found in the plug area
- About 5 feet sediment east of Dairy Mart Bridge
- Sediment is primarily sand with clay lenses
- Few samples with trace levels of chemicals
- Little trash observed in the sediment

# What's Next?

- Evaluate analytical and grain-size data
- Issue Report of Findings (December)
- Use findings as basis for:
  - Trash cleanups
  - Sediment removals/cleanups
  - Sand reuse options
  - Preliminary engineering design for trash collection devices in the valley

# What's Next?

## **Current Trash Capture BMP Status**

- Review of existing trash and sediment loading information (completed)
- Preliminary conceptual design options of trash capture BMPs (completed)
- Capital and operation and maintenance costs for several design options have been estimated

## **Next steps**

- Perform detailed hydrological/hydraulic analysis for main river and major tributaries to TJ River Valley
- Refine trash and sediment loading data to develop BMP sizing criteria
- Develop design plans for trash capture BMPs and/or sediment basins and identify potential locations for BMPs and O&M infrastructure