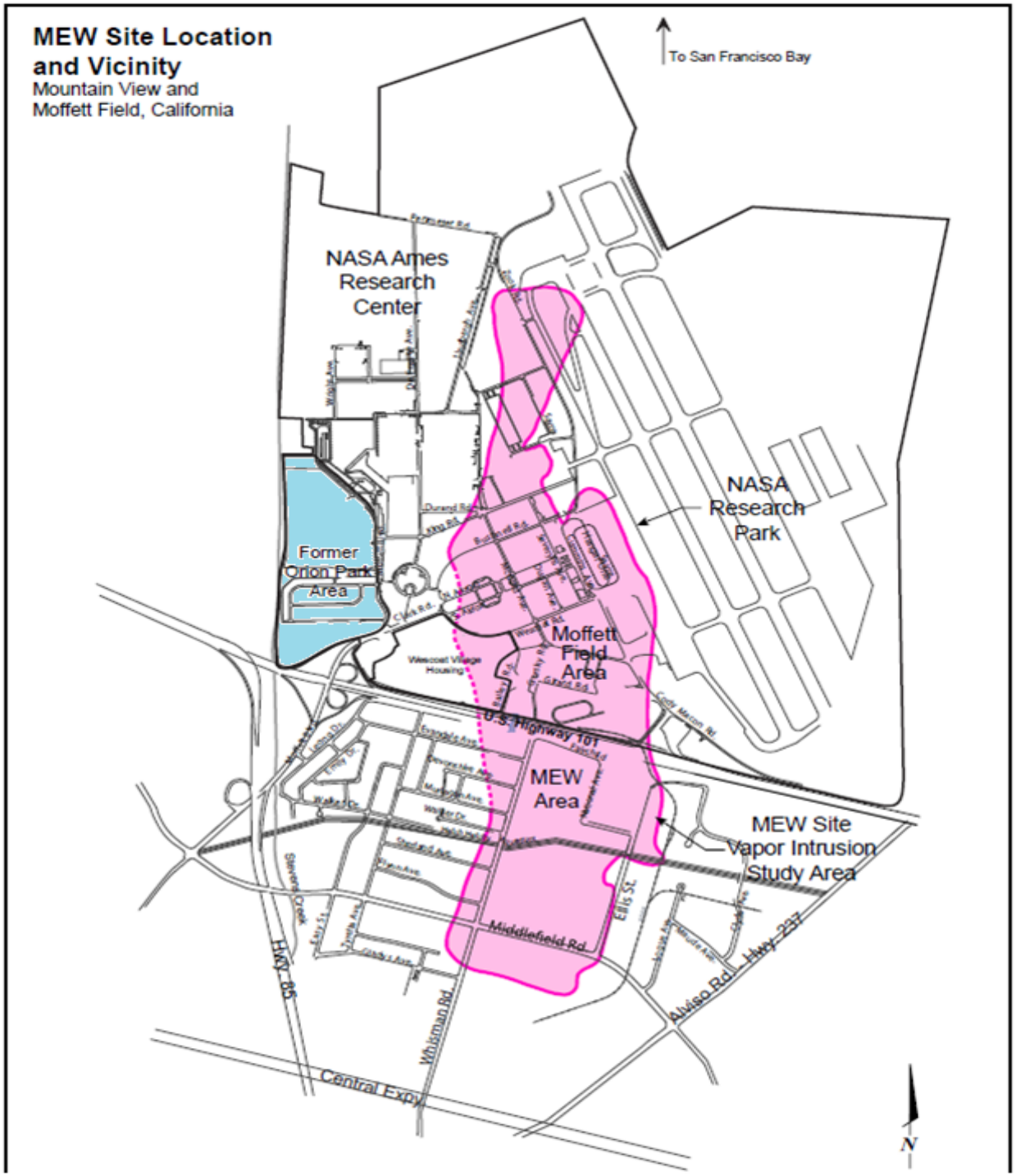
EPA Vapor Intrusion and TCE Potential Source Investigation Update

Former NAS Moffett Field
Restoration Advisory Board Meeting

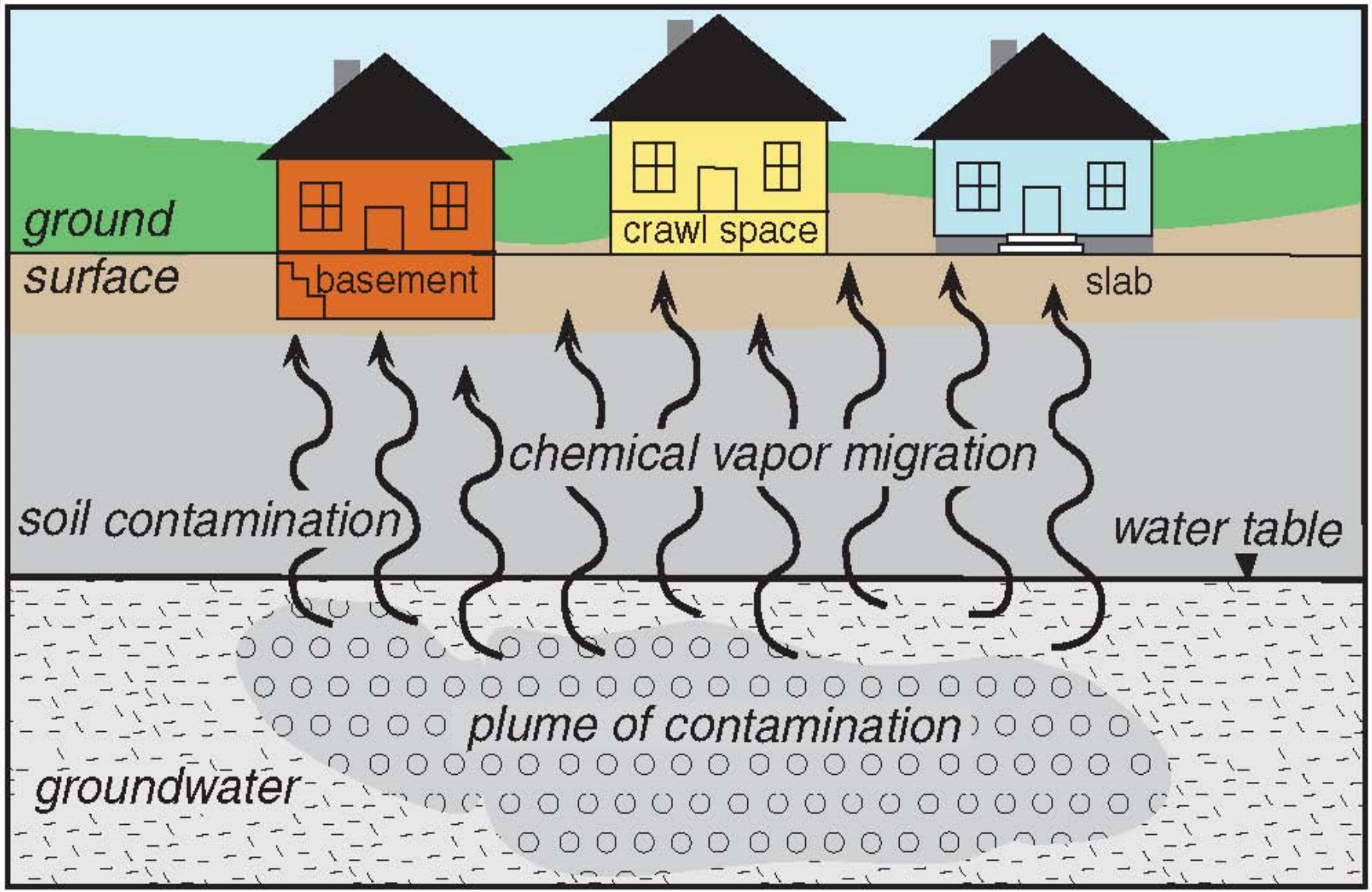
August 7, 2014

Overview

MEW/Moffett Field Vapor Intrusion Study area (as known in 2013)



Vapor Intrusion Pathway



What is TCE and why is it a concern?

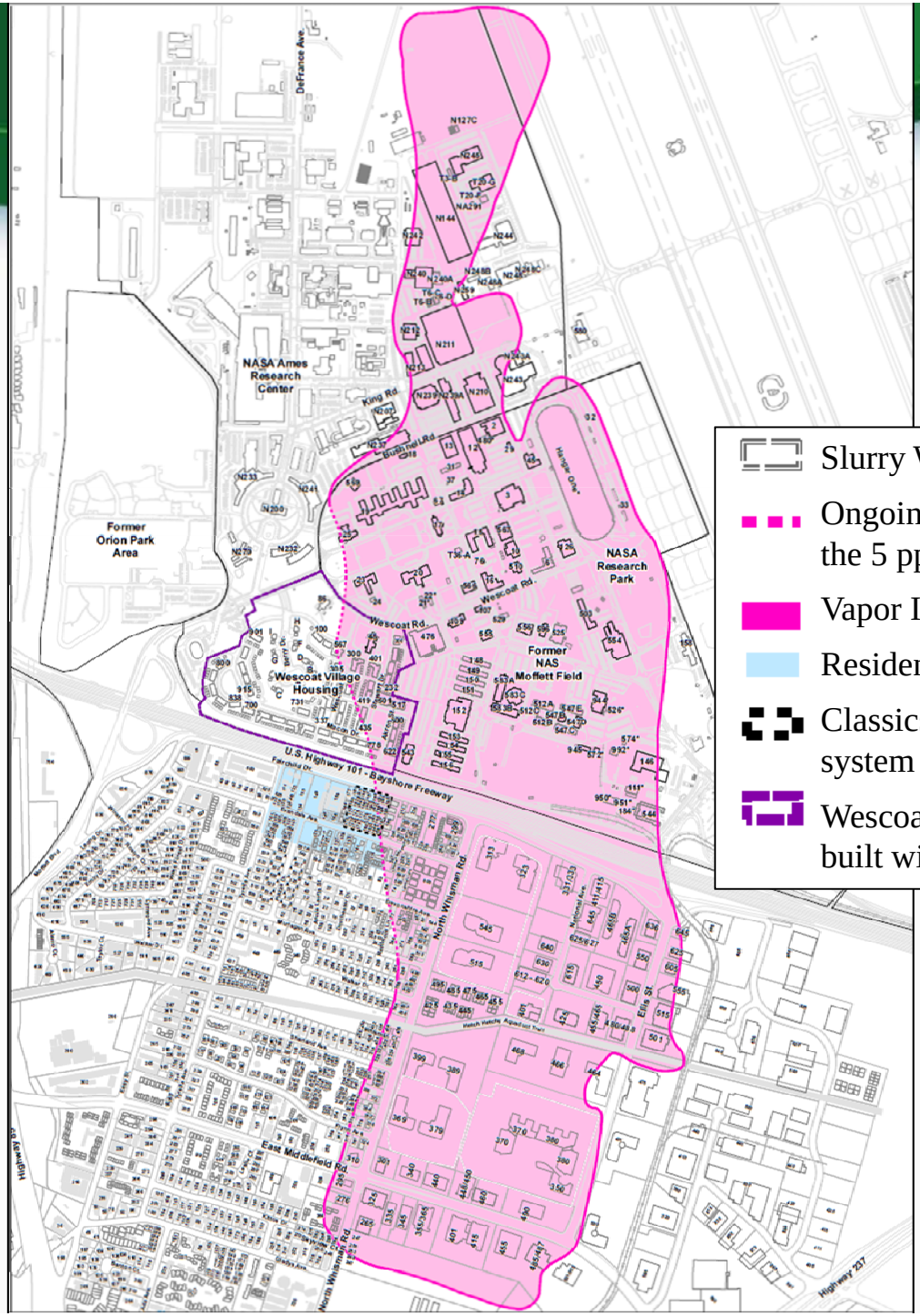
- TCE or trichloroethene is a solvent used that was widely used in past for degreasing and cleaning.
- TCE can readily evaporate into air and has potential to migrate from shallow contaminated groundwater upwards into overlying buildings through the vapor intrusion pathway.
- If TCE is in indoor air at high enough levels for a long enough duration, it may pose a potential health concern.

MEW/Moffett Field
Vapor Intrusion Study Area

- Generally defined by the area where TCE concentrations in shallow groundwater are greater than 5 micrograms per liter (μg/L), or parts per billion (ppb).

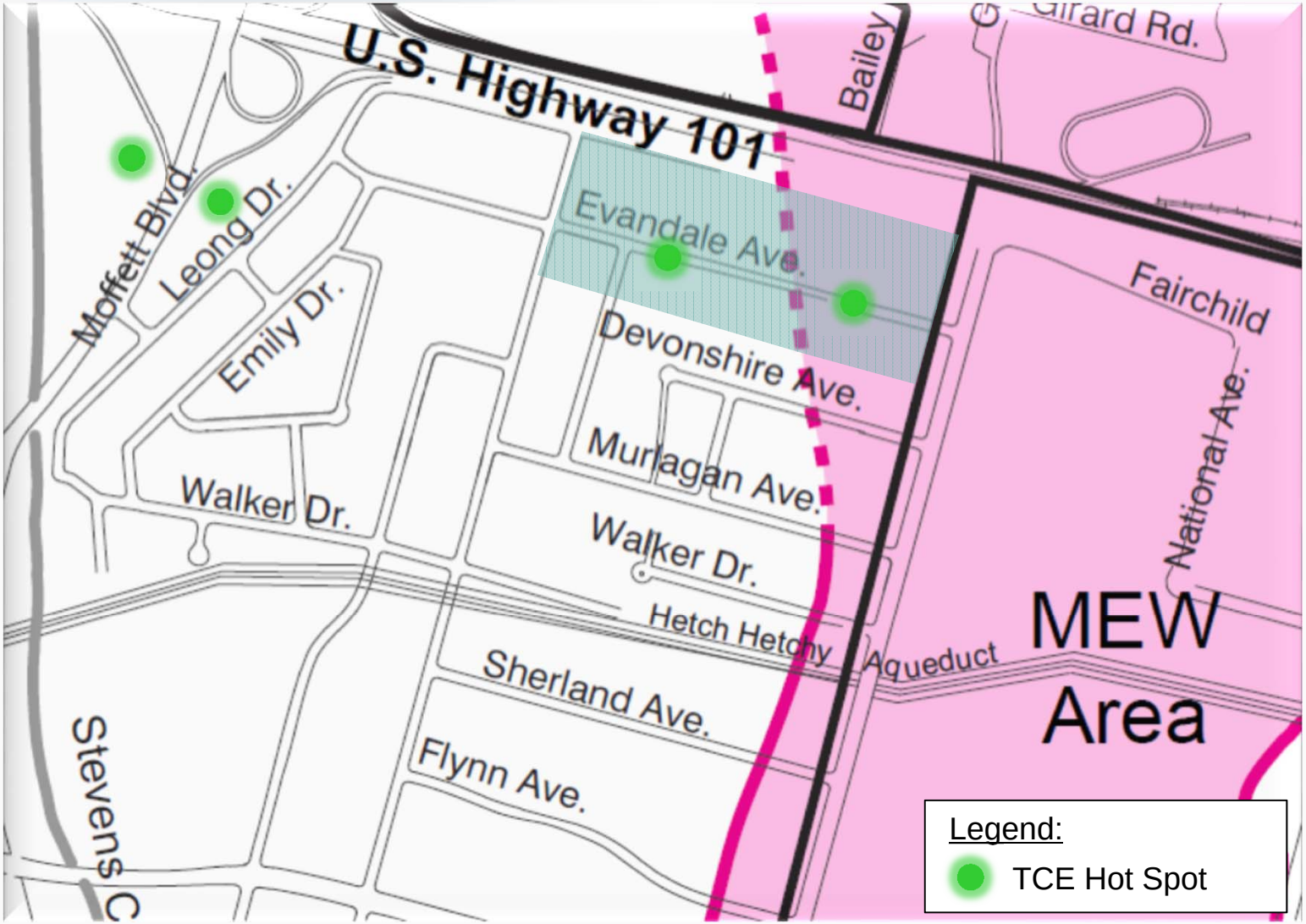
- In 2010, EPA selected a vapor intrusion remedy for the MEW Site, which applies to all existing and future residential and commercial buildings, within the MEW Vapor Intrusion Study Area.

- EPA has set TCE indoor air cleanup levels that are protective of both short-term and long-term health concerns.



- Slurry Wall
- Ongoing Investigation (2013-2014) to delineate the 5 ppb TCE plume boundary
- Vapor Intrusion Study Area (>5 pbb TCE plume)
- Residential Indoor Air Sampling Area
- Classics homes built with vapor intrusion control system
- Wescoat Village Residential Area (2006 homes built with vapor intrusion control system)

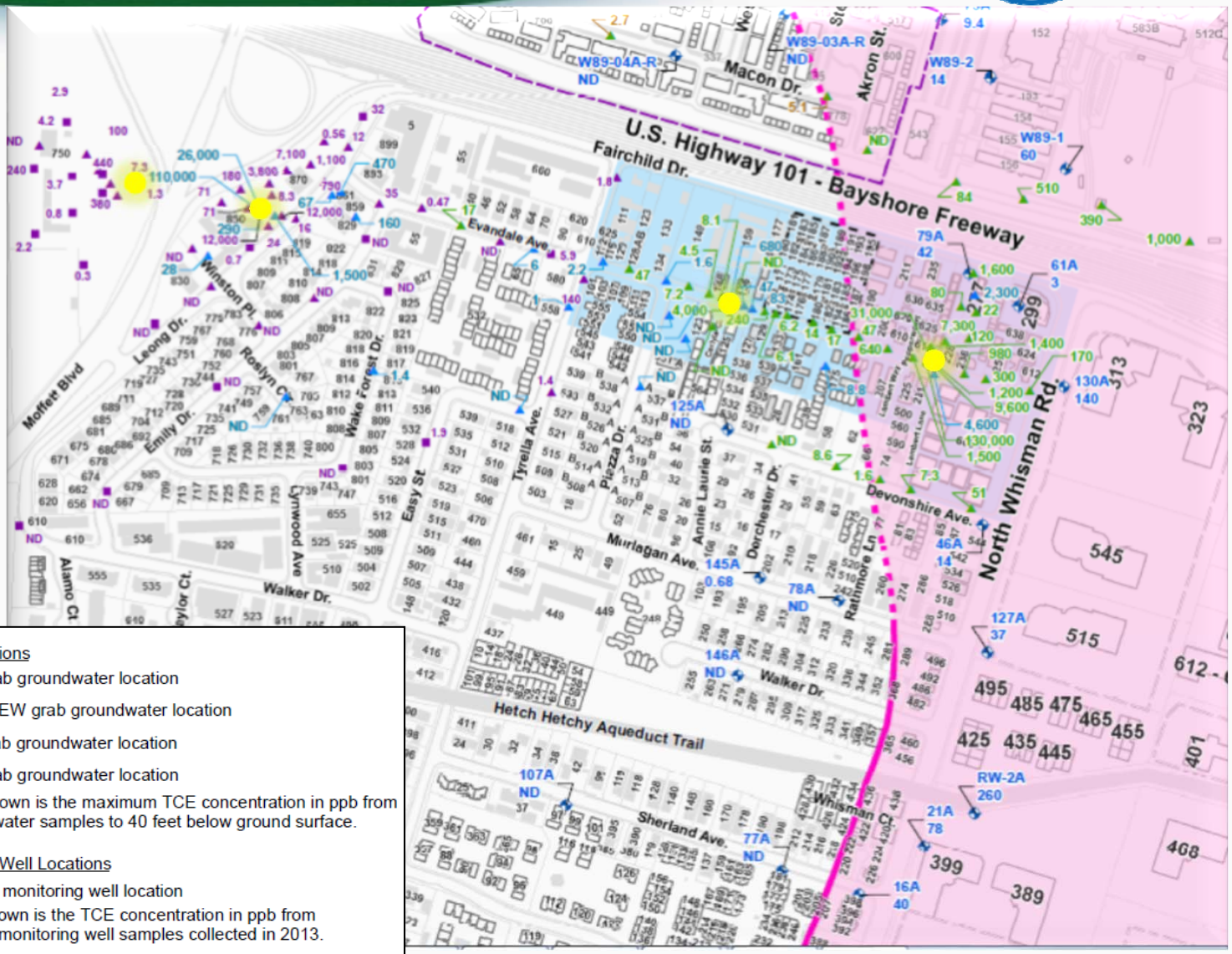
TCE Hot Spot Area and Residential Air Sampling Area



Indoor Air Sampling Results

- EPA sampled over 90 residences in expanded residential areas, and over 140 residences
- No TCE was detected in most residences sampled.
- TCE was detected in some residences, but below indoor air cleanup levels. These homes were re-sampled to confirm TCE below indoor air cleanup levels.
- TCE was found in only two residences exceeding EPA's TCE indoor air cleanup level of 1 microgram per cubic meter.
- Vapor intrusion control systems were installed to mitigate TCE indoor air concentrations to below indoor air cleanup levels.

Groundwater Sampling (2005-2013)



Grab Groundwater Locations

- 2013 EPA grab groundwater location
- 2012/2013 MEW grab groundwater location
- 2011 EPA grab groundwater location
- 2005 EPA grab groundwater location

The result shown is the maximum TCE concentration in ppb from grab groundwater samples to 40 feet below ground surface.

Groundwater Monitoring Well Locations

- Groundwater monitoring well location

The result shown is the TCE concentration in ppb from groundwater monitoring well samples collected in 2013.

ND = Not Detected (below 0.5 ppb TCE)

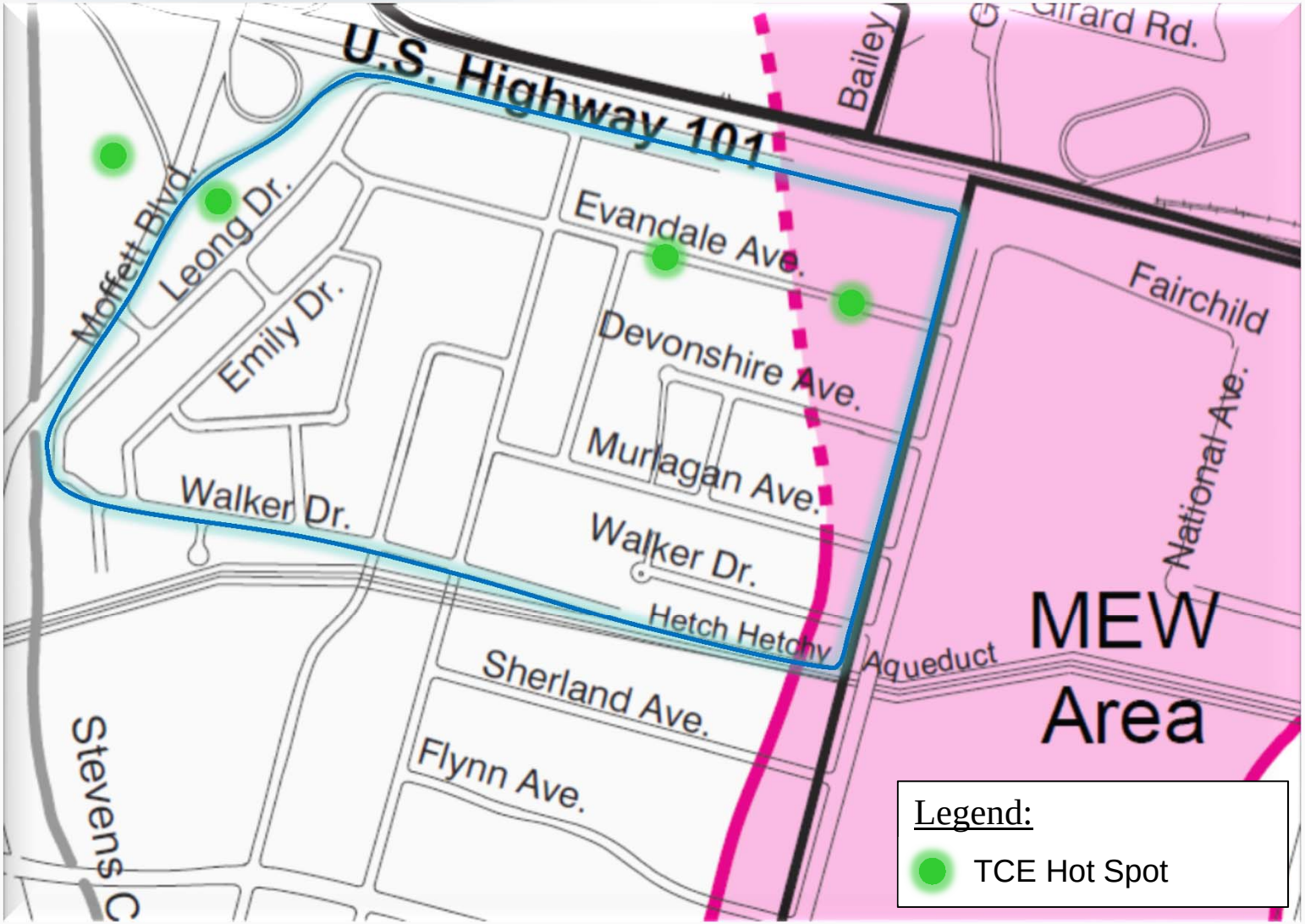
Sampling Summary and 2014 Investigation Activities

- Results from all indoor air sampling to date showed vapor intrusion not a problem in most residences sampled.

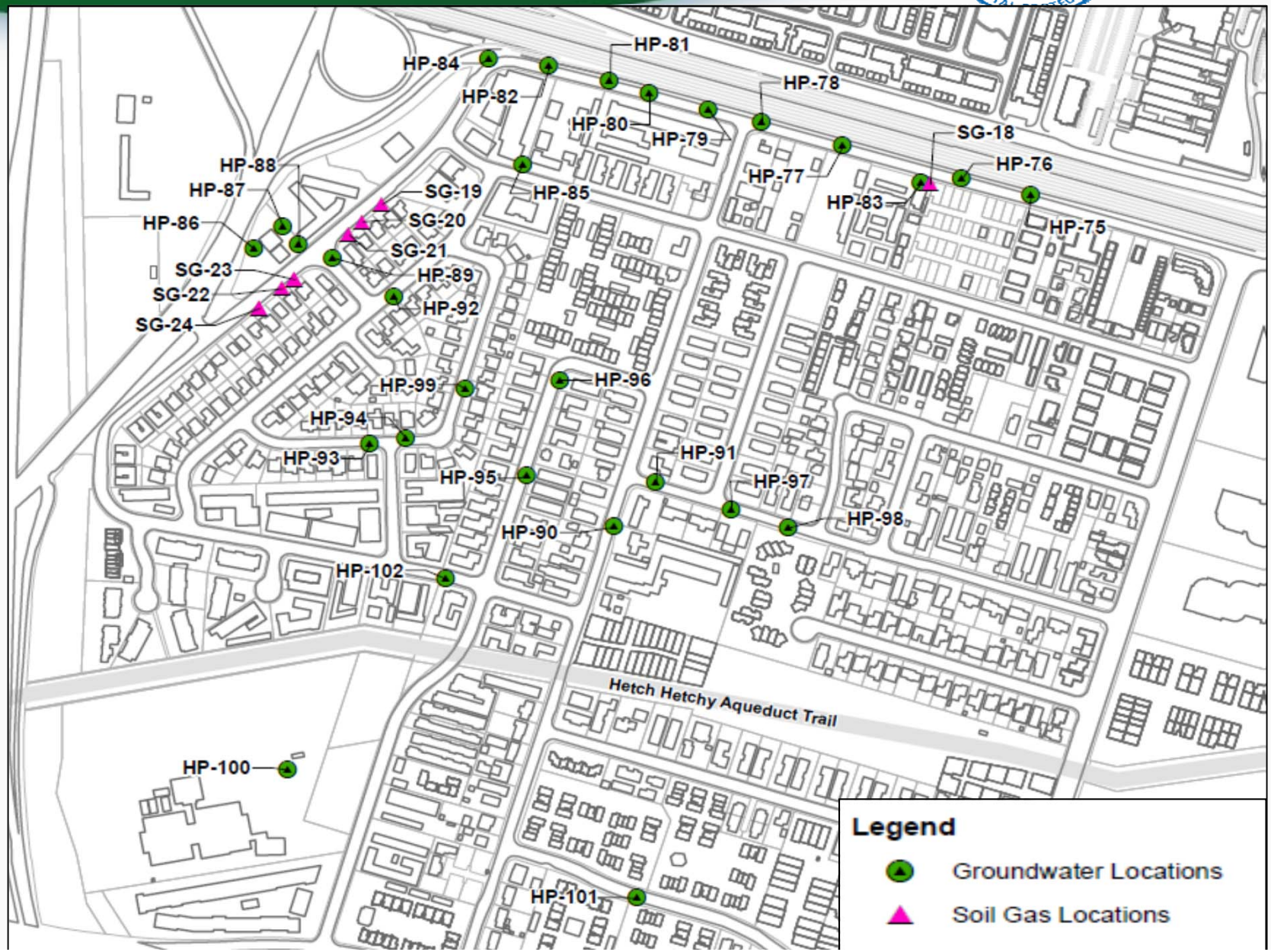
- Based on groundwater and air sampling to date, areas that overlie lower TCE groundwater concentrations are considered as low vapor intrusion risk.

- EPA conducting potential source investigation of TCE Hot Spot Areas and conducted additional groundwater investigation to fill data gaps on Fairchild Drive.

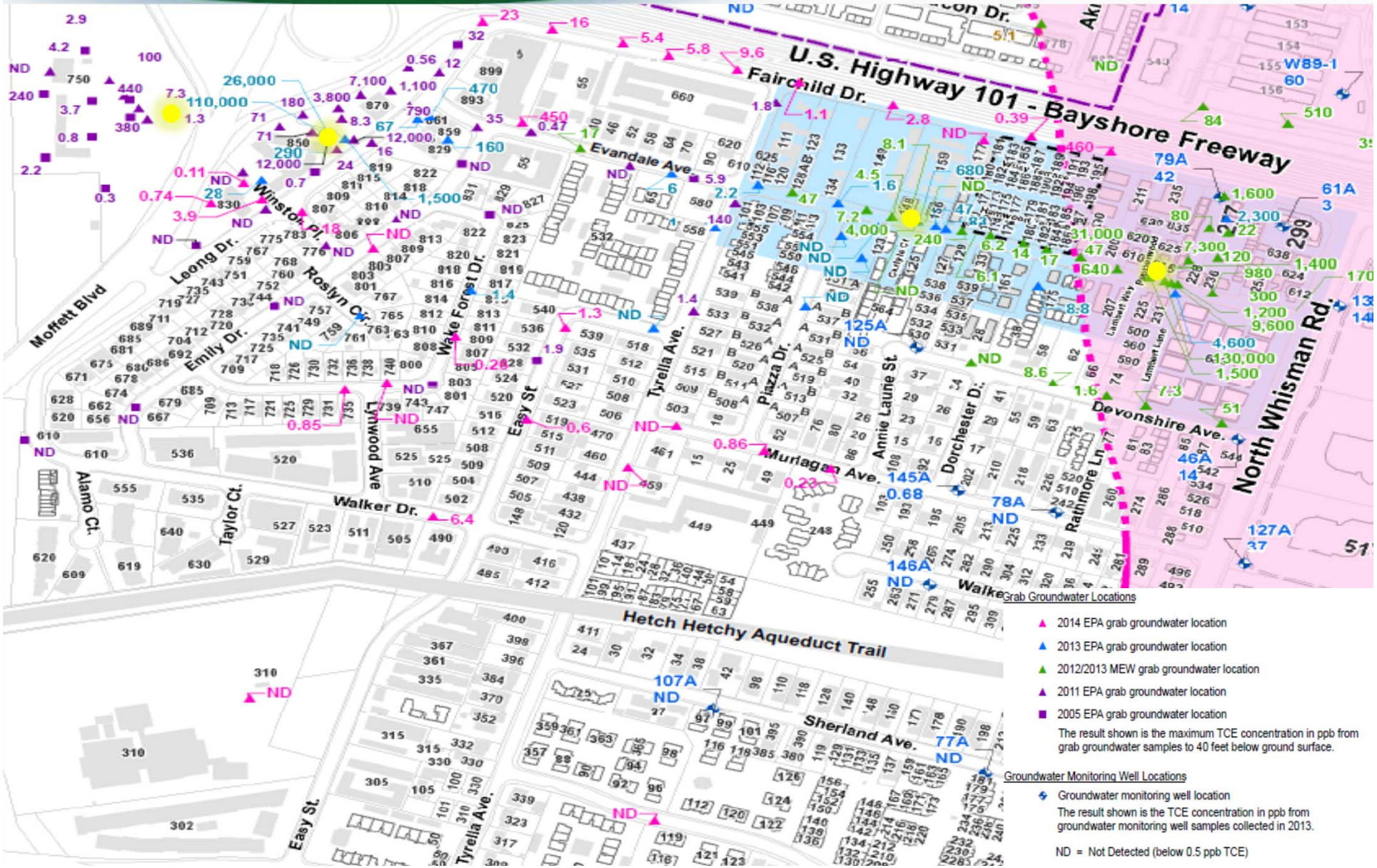
2014 Residential Study Area



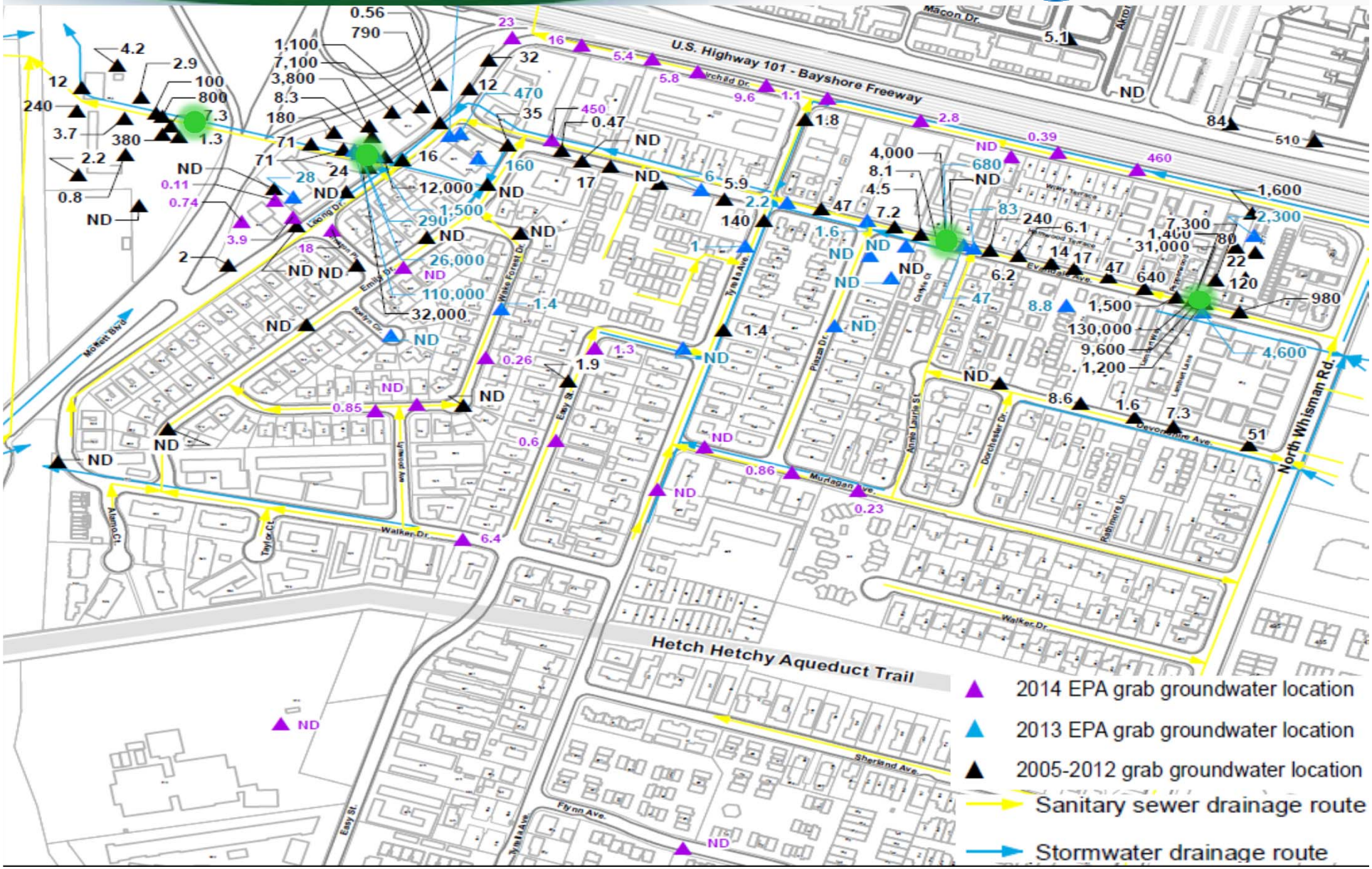
EPA 2014 Grab Groundwater Sample Locations



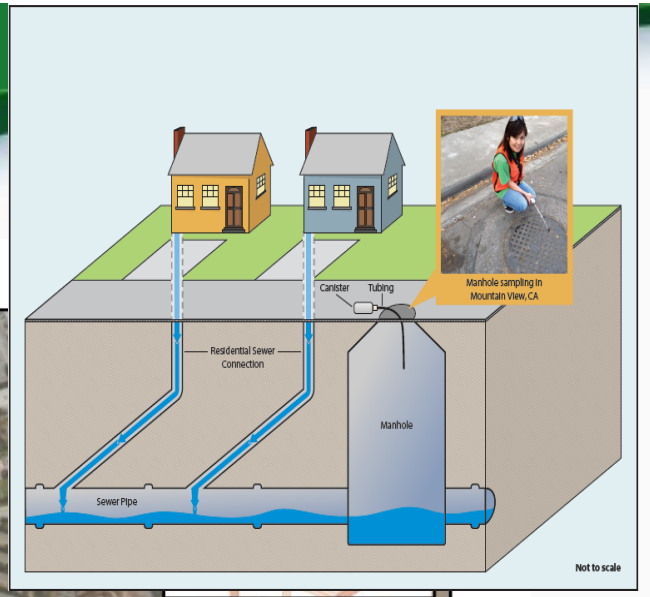
TCE Shallow Groundwater Results
Residential Areas (2005 - 2014)

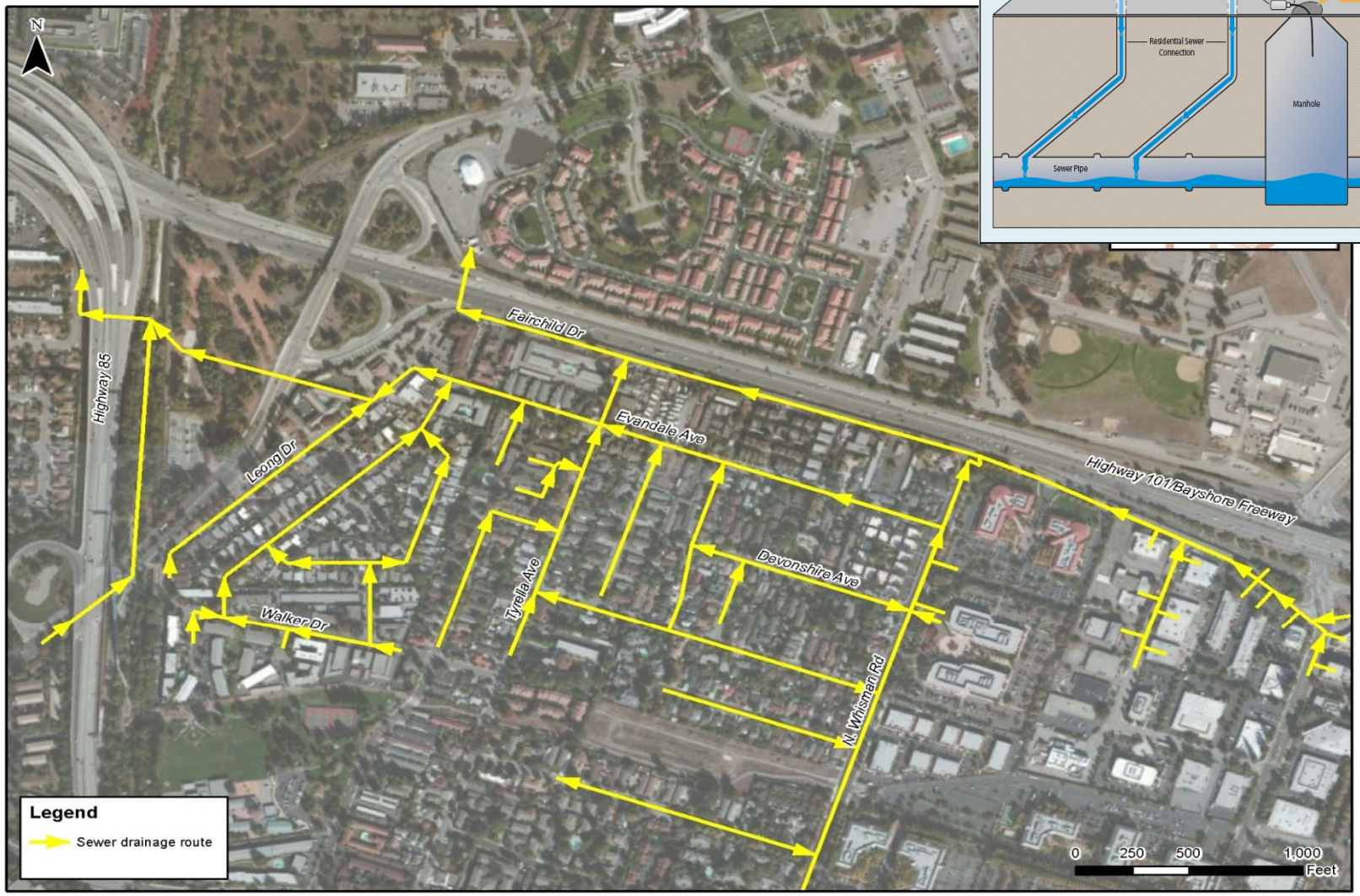


TCE Shallow Grab Groundwater Results 2013-2014



Sewer Flow Direction Map

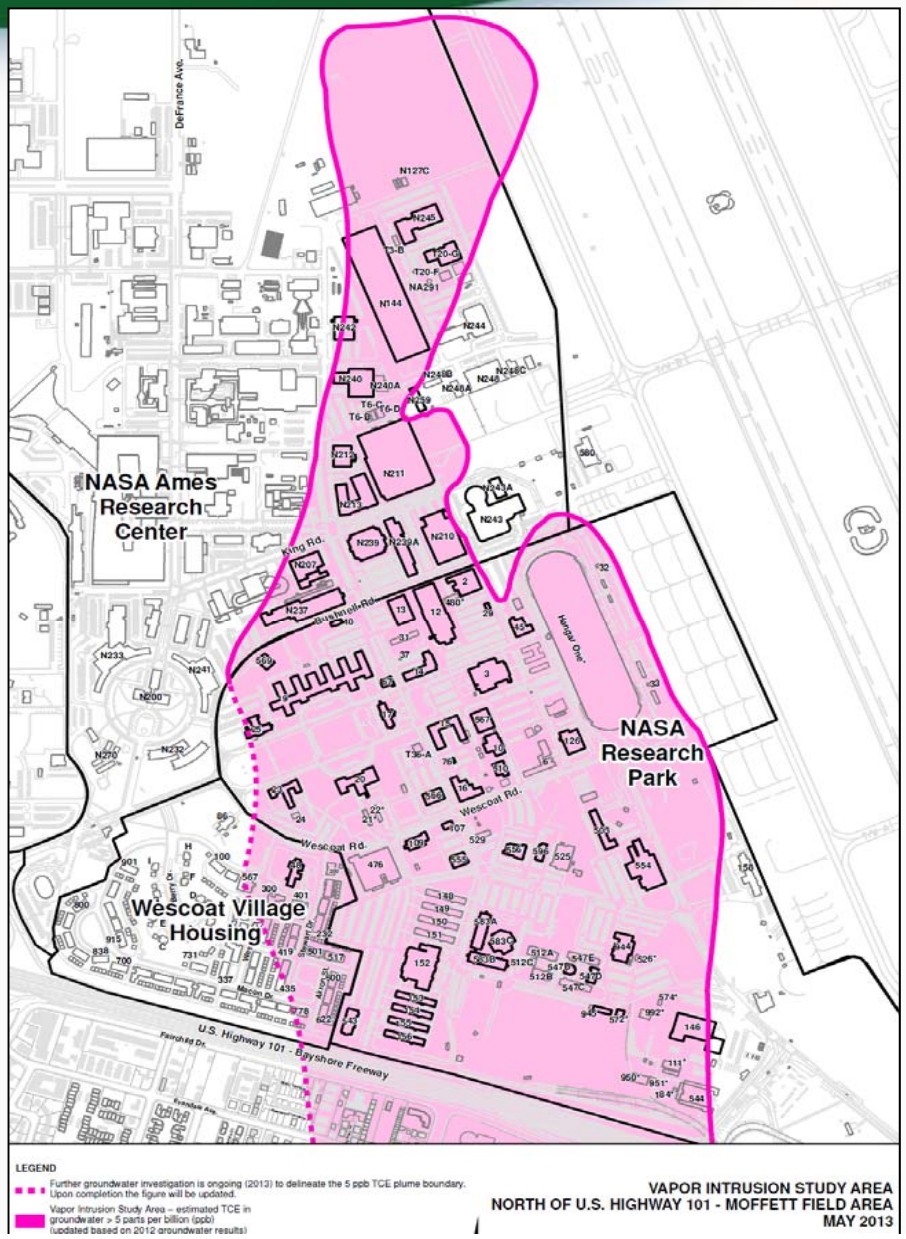


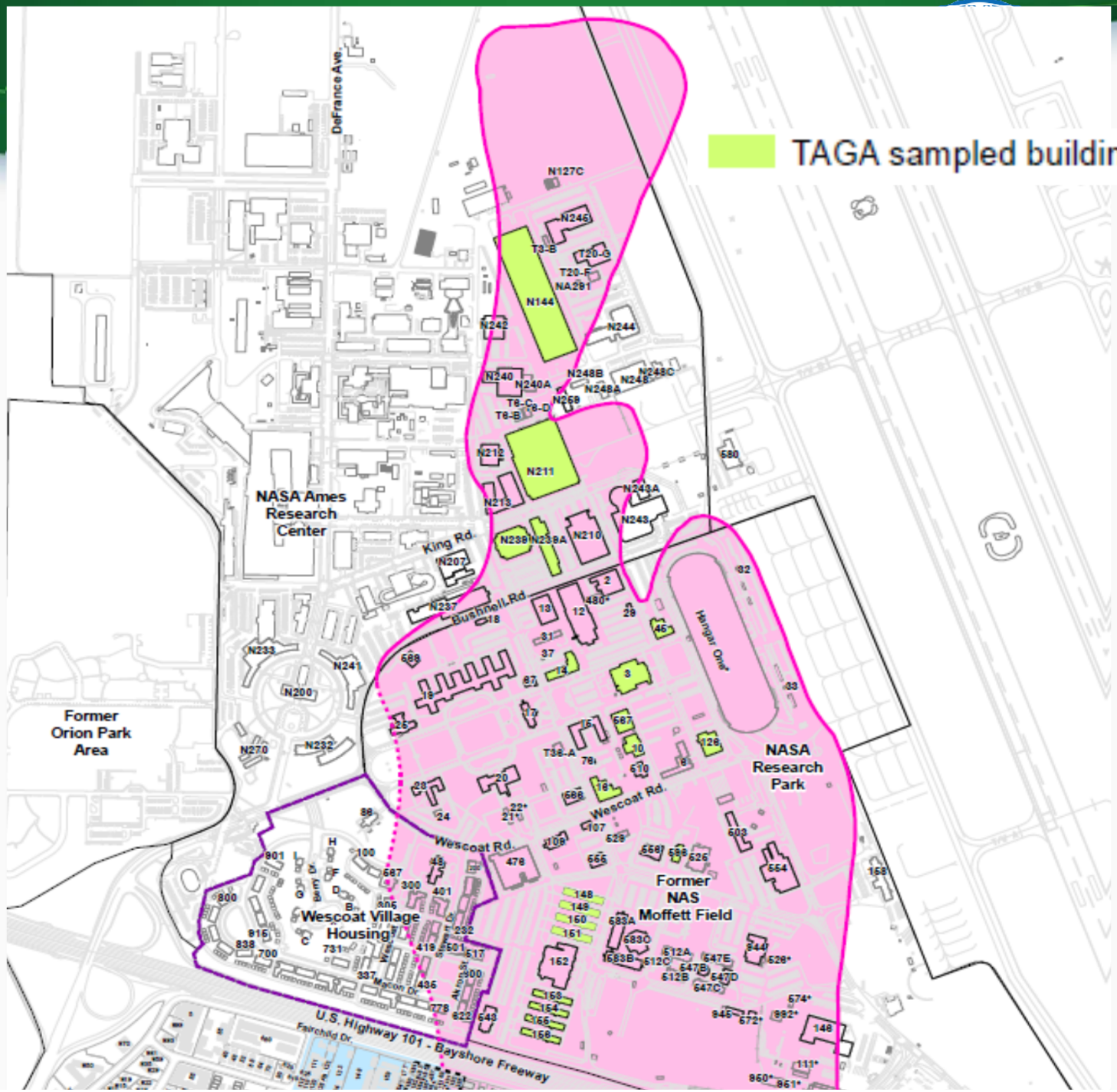


Storm Drainage Flow

EPA Mobile Lab and TAGA - Trace Atmospheric Gas Analyzer

Vapor Intrusion Study Area – Moffett Field Area




TAGA sampled building
NASA Ames Research Center
Former Orion Park Area
NASA Research Park
Former NAS Moffett Field
Wescoat Village Housing
Wescoat Rd.
King Rd.
Bushnell Rd.
DeFrance Ave.
Hangar One
U.S. Highway 101 - Bayshore Freeway
Fairchild Dr.
N127C
N144
N211
N210
N207
N233
N241
N200
N270
N232
N212
N213
N243
N243A
N244
N242
N240
N240A
N248
N248A
N248B
N248C
N246
T3-B
T20-G
T20-F
NA291
T38-A
T8-B
T8-C
T8-D
N239
N239A
N237
N238
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574*
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EPA Websites –
For More Information

www.epa.gov/region9/mew
www.epa.gov/region9/moffettfield
www.epa.gov/oswer/vaporintrusion