



# Safe Drinking Water

Implementation Strategies in the Lower Yakima Valley  
Groundwater Management Area

Damon Roberts

May 2<sup>nd</sup>, 2024

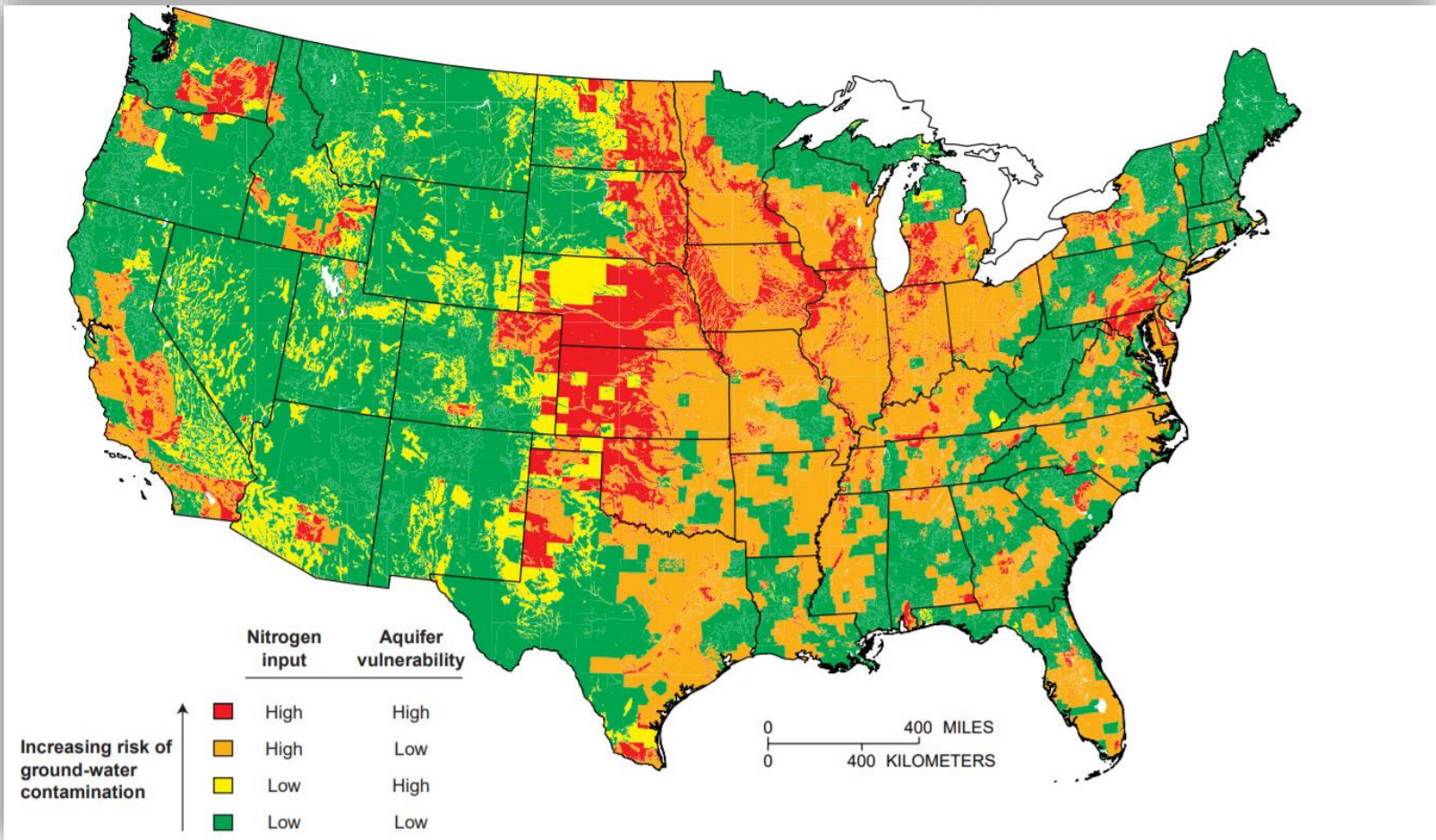


# Overview

- Overview of nitrate contamination and what led to action being taken
- Overview of programs and partners
- Safe Drinking Water Project



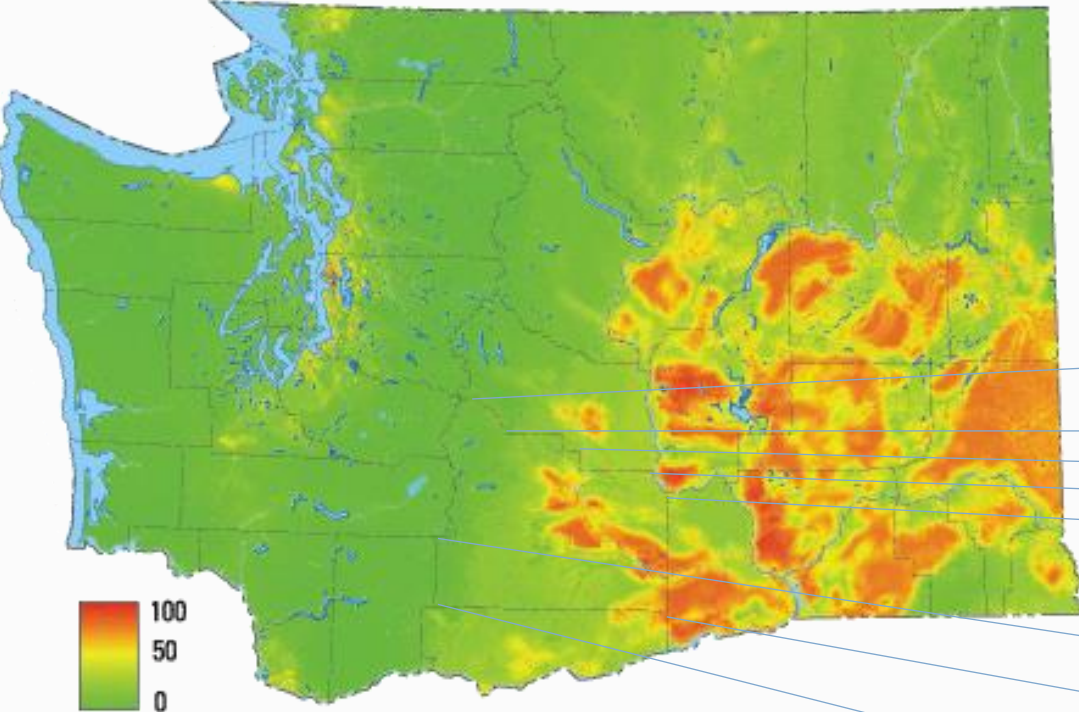
# US Risk of Groundwater Nitrate Contamination



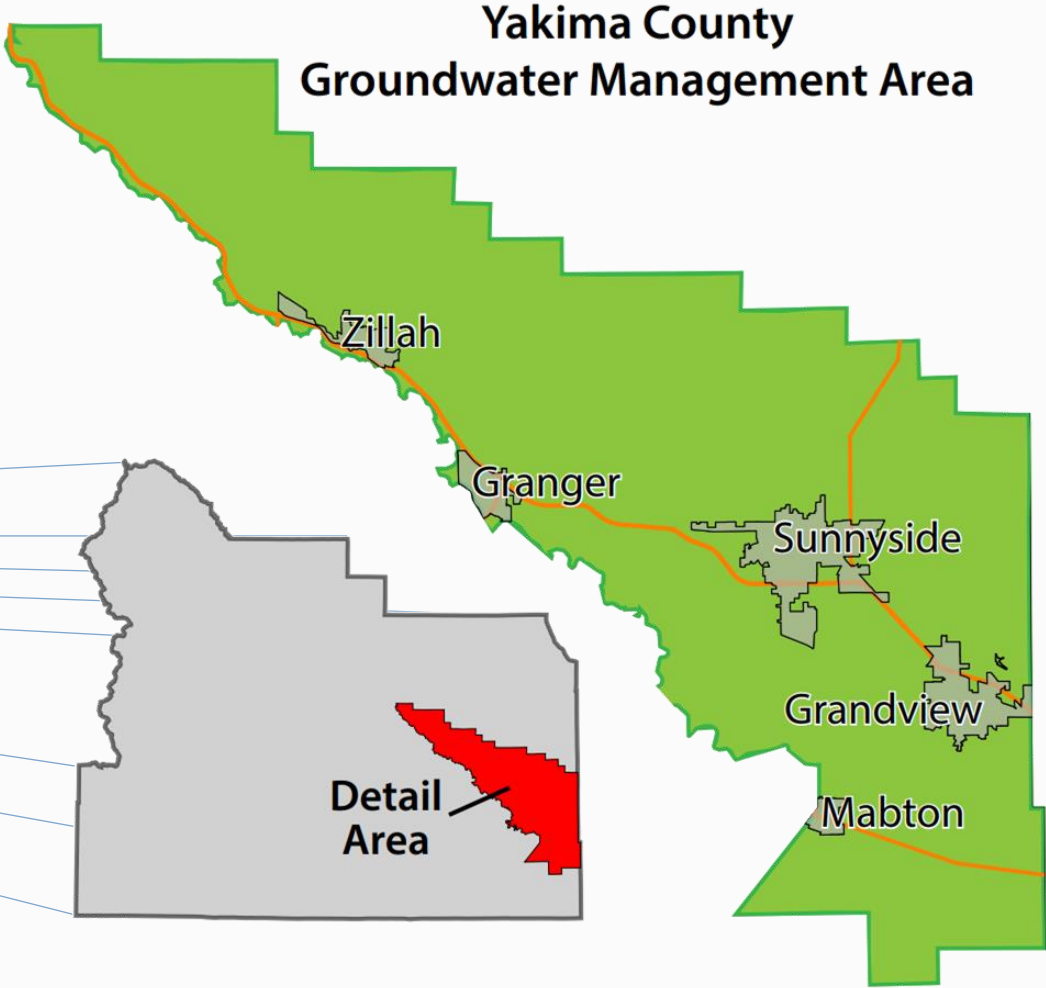


# Washington state, Yakima County, Lower Valley

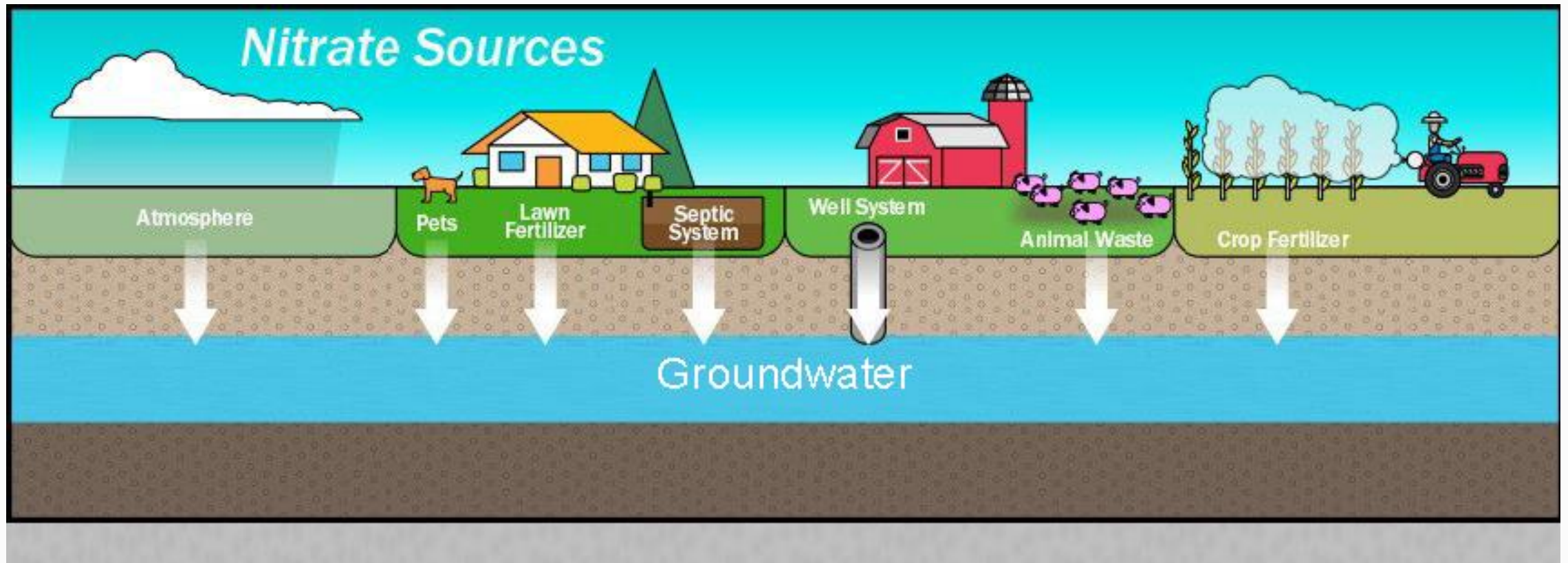
Vulnerability map of Washington for wells 145 feet deep



Probability that nitrate concentration will exceed 2 mg/L, in percent



# Where does Nitrate Come from?



# Lower Yakima Valley GWMA



- The Lower Yakima Valley Groundwater Management Area (GWMA) was formed in 2012 to establish local control of a local issue.
- Its purpose: address high nitrate concentrations, above drinking water standards in 12-20% of private drinking water wells, ~2,000 people

# Timeline

2008 “Hidden Wells, Dirty Water” Article

2011 GWMA Formed

2016 Proposed Ambient Groundwater Monitoring Network Plan

2018 Nitrogen Availability Assessment

2019 GWMA Program Certified

2011 Nitrate Treatment Pilot Program

2014 Groundwater Monitoring Plan and Quality Assurance Project Plan

2017 Drinking Water Well Study

2019 Installation of Monitoring Wells

2021 - Today - Implementation Group



# Groundwater Advisory Committee

- Concerned Citizens of the Yakama Reservation
- Friends of Toppenish Creek
- Heritage University
- Hispanic Community Representative
- Irrigated Crop Producer
- Lower Valley Community Representative Position 1
- Lower Valley Community Representative Position 2
- Port of Sunnyside
- South Yakima Conservation District
- Sunnyside Roza Joint Board of Control
- Turner & Co. and agronomist
- U.S. Environmental Protection Agency
- US Geological Survey
- Washington Department of Agriculture
- Washington Department of Ecology
- Washington Department of Health
- WSU Irrigated Agriculture Research and Extension Center
- Yakama Nation
- Yakima County Board of Commissioners
- Yakima County Farm Bureau
- Yakima Dairy Federation
- Yakima Health District



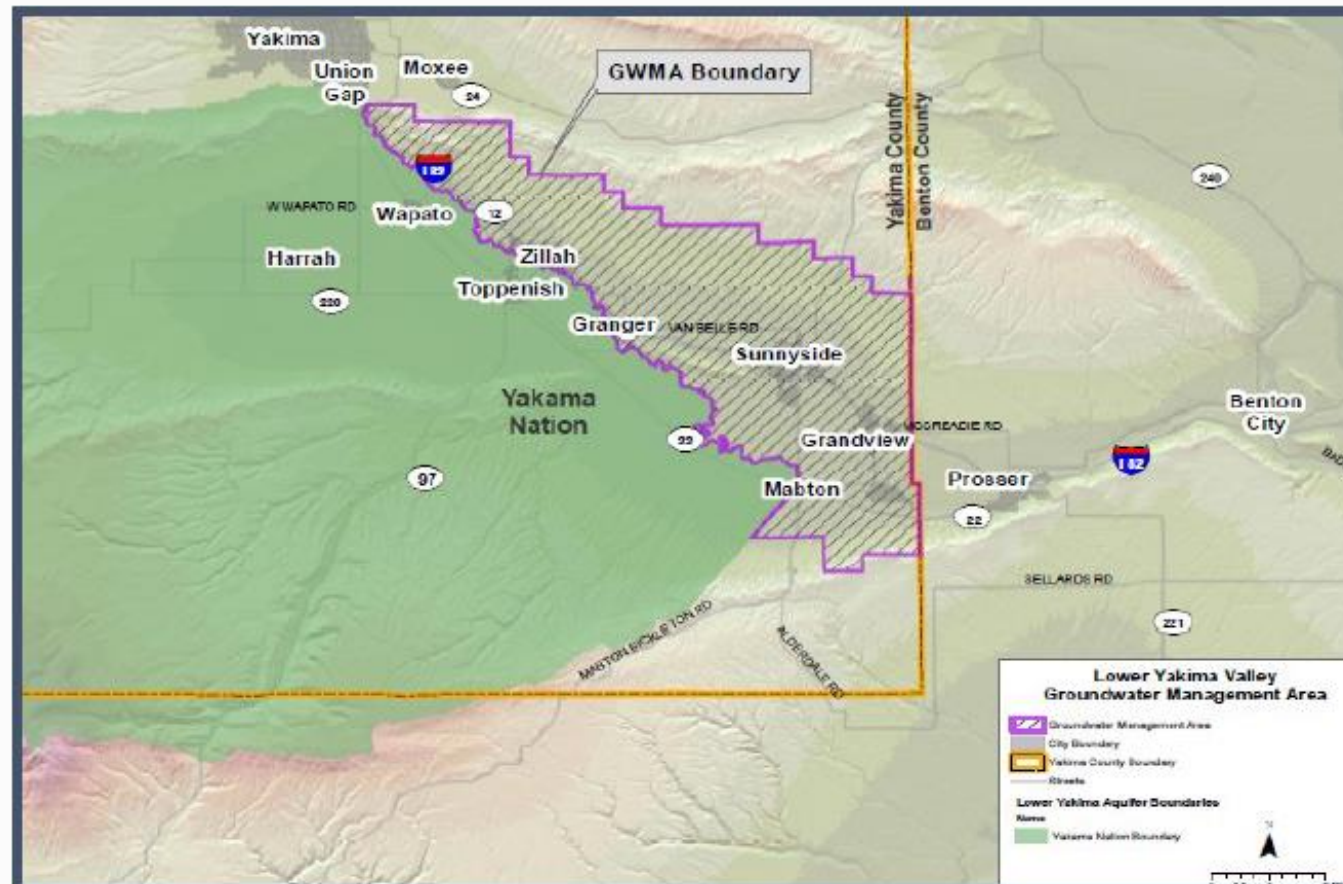
## GWMA Mission



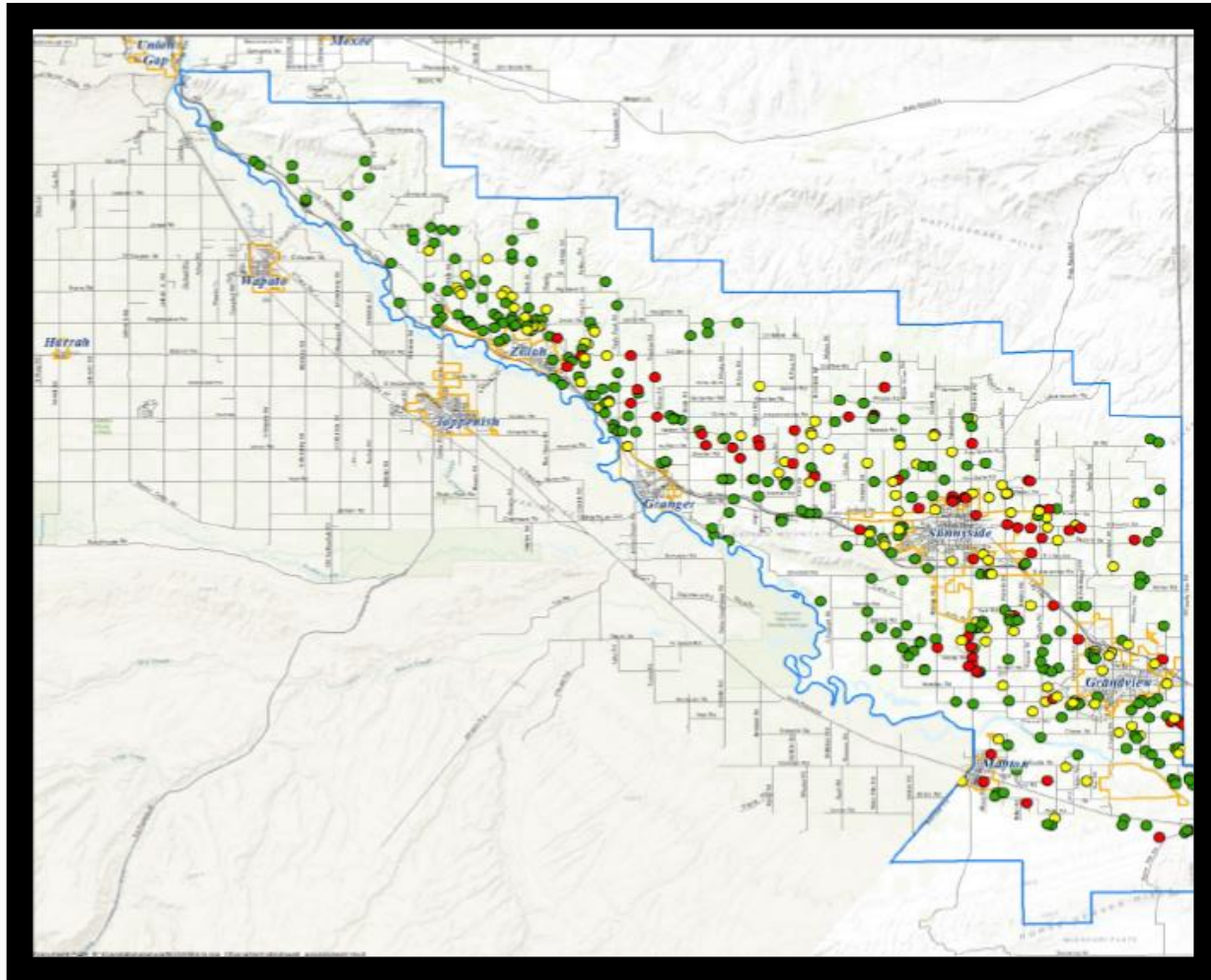
The goal of the Lower Yakima Valley GWMA is to reduce nitrate concentrations in groundwater below state drinking water standards

# Regulatory Framework

RCW 90.44.400 and WAC 173-100 provide the authority and guidelines to establish a GWMA and the required content of a program to address groundwater quality issues



# Lower Yakima Valley Groundwater Management Area Program



## The Issue to Address:

- Studies estimate 12-20 % of private domestic drinking water wells are impacted by elevated nitrate in the Lower Yakima Valley



# What does Nitrate do?



**It reduces the ability of red blood cells to carry oxygen.**

In most adults and children these red blood cells rapidly return to normal. However, in infants it can take much longer for the blood cells to return to normal.

# Who is at risk?



Those considered at high risk from exposure to elevated or high levels of nitrate include:

- Children less than 1-yr of age,
- Pregnant women,
- Women who may become pregnant.
- Individuals with certain blood disorders
- Lack of enzyme that converts affected red blood cells back to normal, or
- Low stomach acids.

# What did GWAC Accomplish?

- Analysis of existing water quality data and studies
- Groundwater Monitoring Options
- Groundwater Monitoring plan
- Installation of 30 groundwater monitoring wells
- Public education and outreach
  - door-to-door surveys;
  - billboards;
  - Website
- High Risk well assessment surveys
- Deep Soil Sampling
- Nitrogen Availability Assessment
- Drinking water quality assessment
- ❖ Produced a GWMA Program
  - 64 recommended actions
  - Unanimously approved

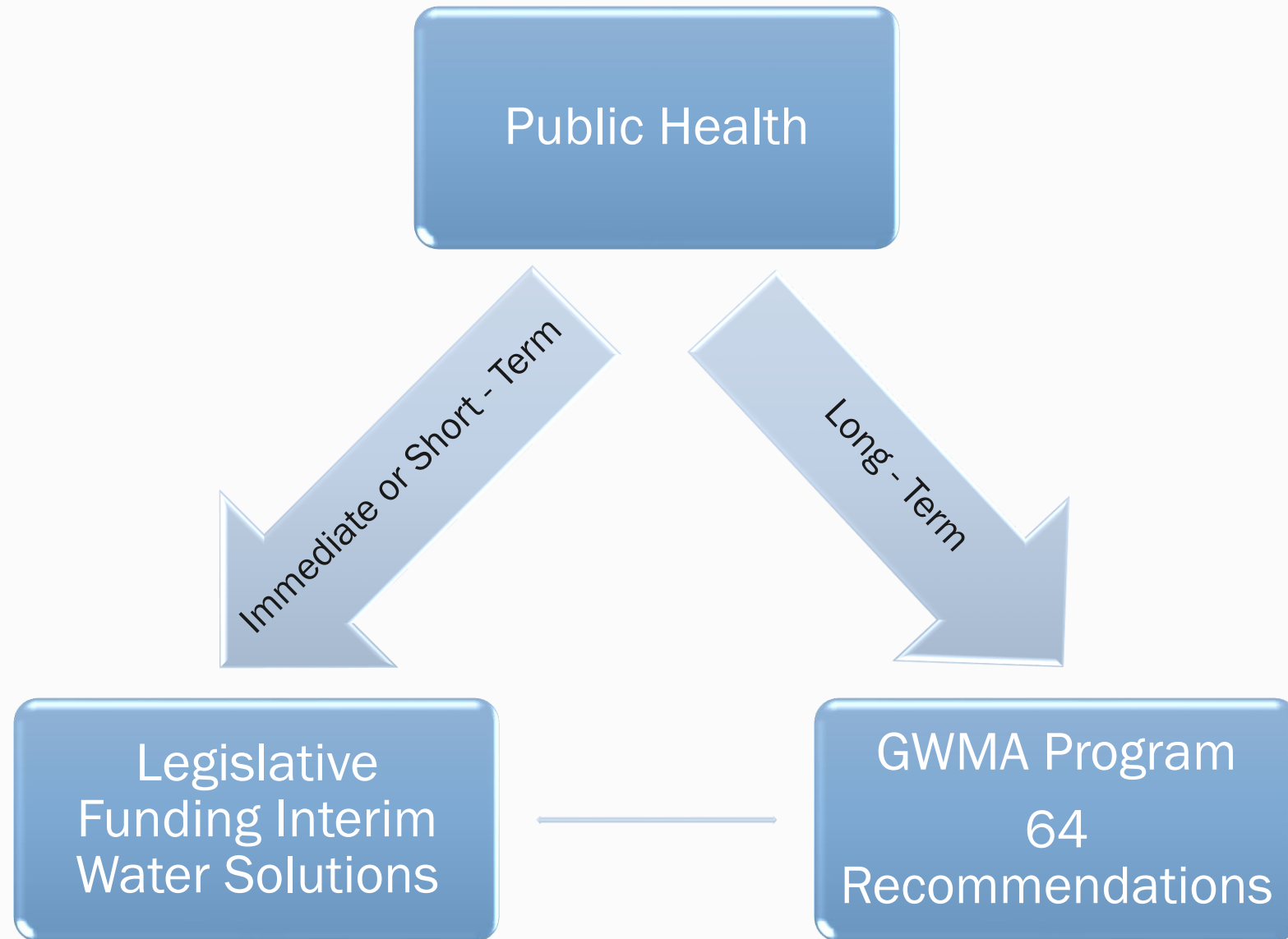
## Purpose

The purpose of the Groundwater Management Area is to reduce the nitrate contamination concentrations in groundwater below state drinking water standards.





# Focus



# Implementation Team

South Yakima Conservation District

Washington State Department of Agriculture

Washington State Dairy Federation

Washington State Department of Ecology

Washington State Department of Health

Yakima County

Yakima Health District

## 2024 Yakima County Kickoff of the Lower Yakima Valley Groundwater Management Area Outreach & Alternate Water Program



Purpose: to identify, contact, test and offer alternative water to residents whose private wells have nitrate above the State's drinking water threshold of 10 mg/L in the LYV GWMA



Funding: \$1.19 M \$850,000 from the 2023 Legislature; \$345,000 pass through from State Dept of Health



How funding will be used: to conduct outreach, provide bottled water, and offer water treatment systems for qualifying households

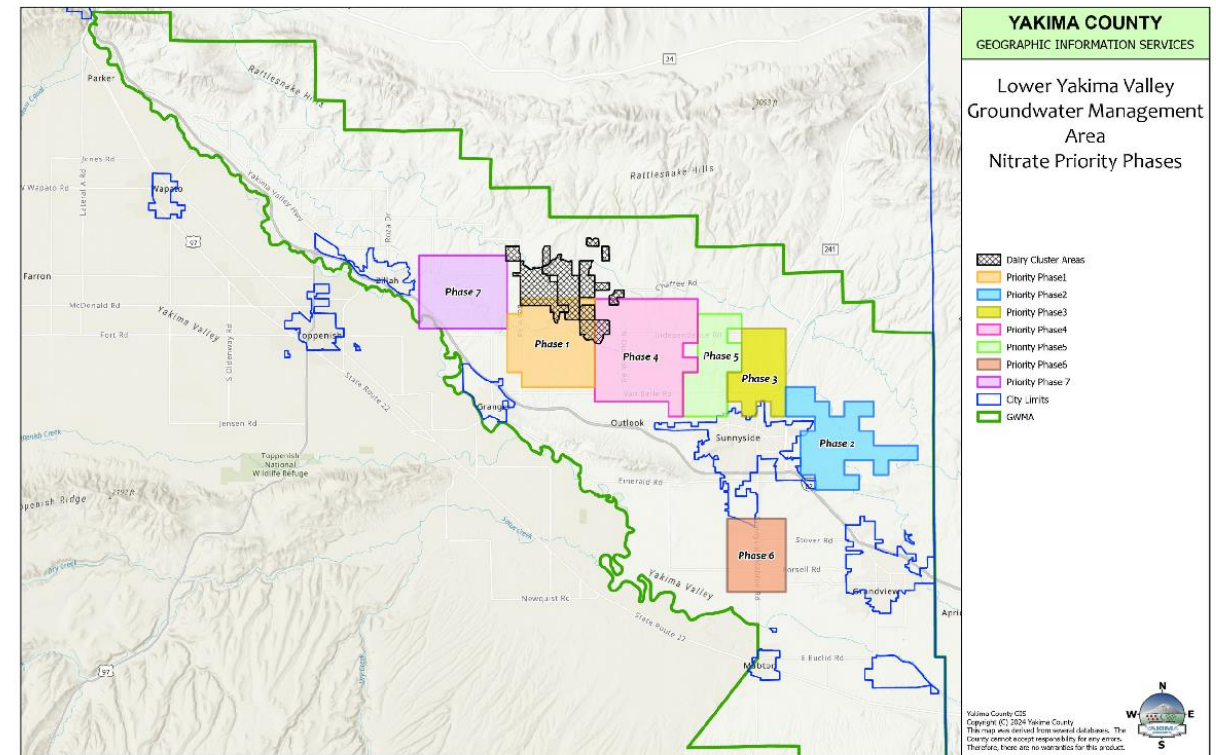


Timeframe: January 2024 -June 2025



# GWMA Phased Outreach 2024

1. Targeted monthly mailings
2. Households invited to test their water with test strips
3. Yakima Health District will conduct well testing
4. Qualifying households will be offered a treatment system
5. Limited-time bottled water delivery available



# 2024 Timeline

January to December -

- Media Outreach
- Phased Mailings
- Door to Door
- Well Testing
- Bottled Water Delivery
- Water Treatment Systems

TV, radio, newspapers, social media, community groups

250 Phased Letters issued monthly through July (1,750+ households)

YHD begins well testing and surveys – February

Limited bottled water delivery begins until a treatment system is installed – March

Treatment systems installed for qualifying households - April

Total Parcels within GWMA

Tracking number of times contacted

Parcel Opting In

Some homes request no further contact or otherwise opt out of participation

Parcel Nitrate Test Strip Test

Below determined limit Low Priority

Test Strip Above Limit

Verify with lab results

Well Test Above Limit


Project phasing performed with trying to get the largest number of these parcels first

Short Term Solution

Start with Bottled Water and then move to RO Systems



# Testing Metrics



**Yakima County Public Services**

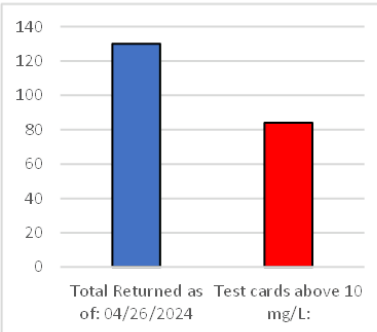
**Lower Yakima Valley GWMA**

**Nitrate Treatment Program**

**Nitrate Test Strip Results**

Total Returned as of: 04/26/2024    **130**

Test cards above 10 mg/L:            **84**

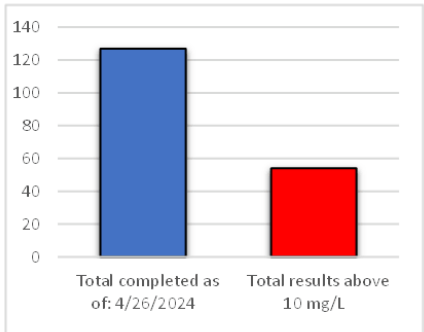


Total Returned as of: 04/26/2024	130
Test cards above 10 mg/L:	84

**Certified Lab Results**

Total completed as of: 4/26/2024    **127**

Total results above 10 mg/L            **54**

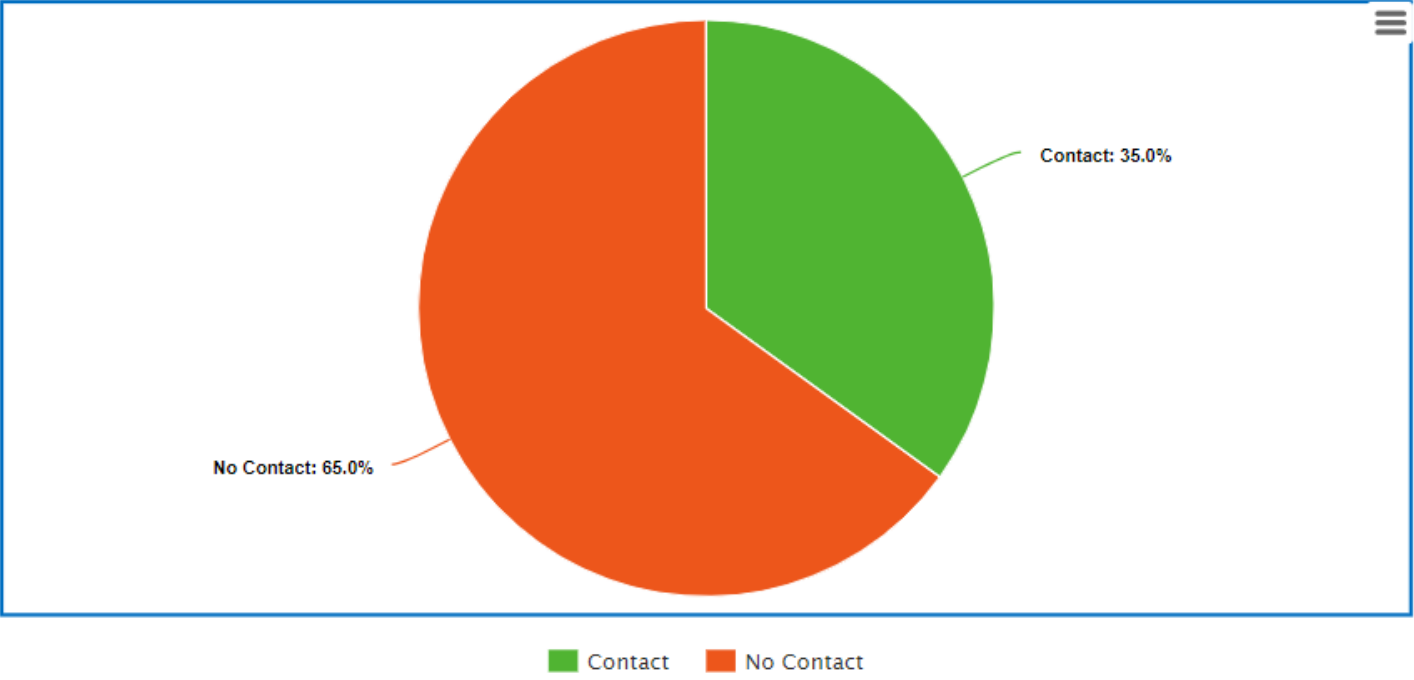


Total completed as of: 4/26/2024	127
Total results above 10 mg/L	54

<b>Certified Lab Results at or above 10 mg/L:</b>	<b>54</b>
<b>Total responses to outreach*:</b>	<b>265</b>
<b>Number of Properties that received direct mailing:</b>	<b>1066</b>
<b>Number opting out of program:</b>	<b>48</b>
<b>Signed up for bottled water delivery:</b>	<b>30</b>

\*Outreach is including but not limited to: Direct Mail, Radio, TV, Social Media, Calls, Emails and Door-to-Door.

# Door to Door Community Outreach

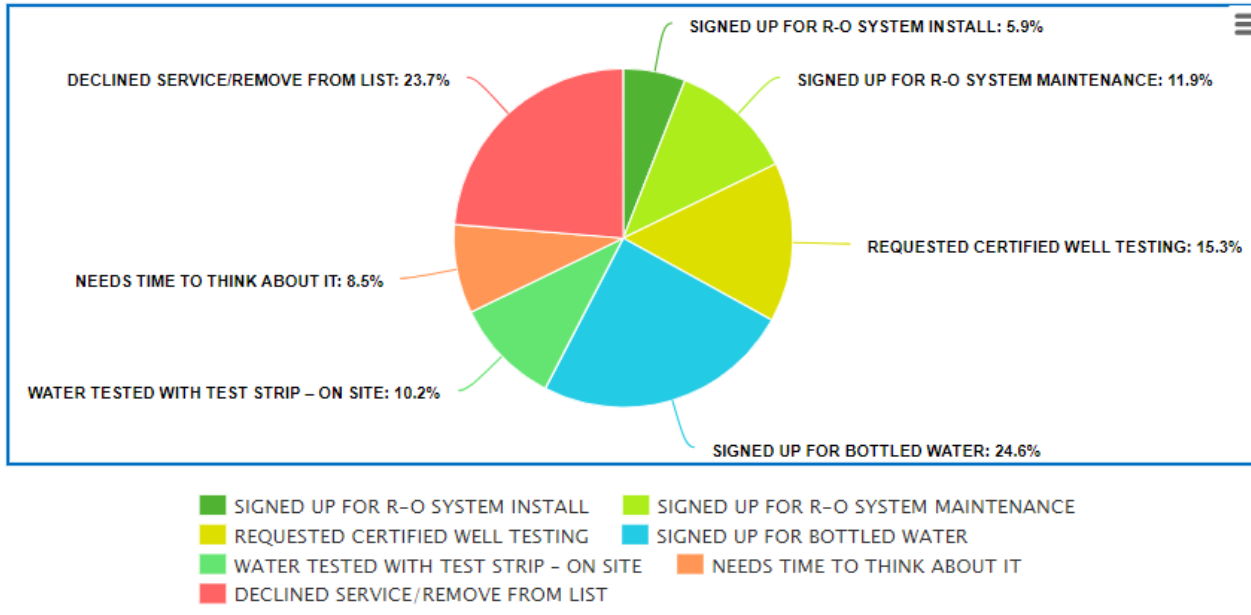


2024 DTD Outreach  
OVERALL RESULTS  
MARCH – APRIL 2024

Total Outreach Sessions: 4  
Total # Of Households: 266

<b>Contact Made</b>	<b>93</b>
<b>No Contact Made</b>	<b>173</b>

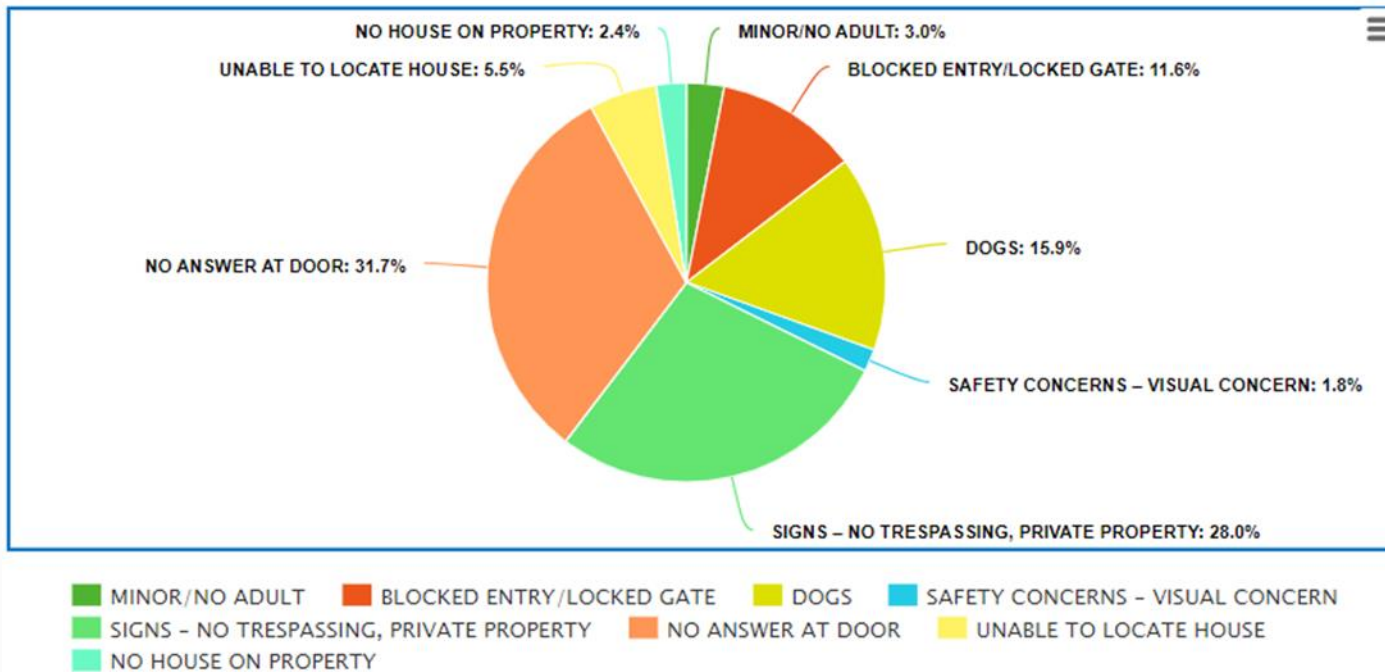
# Contact Breakdown



<b>SIGNED UP FOR R-O SYSTEM INSTALL</b>	<b>8</b>
<b>SIGNED UP FOR R-O SYSTEM MAINTENANCE</b>	<b>14</b>
<b>REQUESTED CERTIFIED WELL TESTING</b>	<b>18*</b>
<b>SIGNED UP FOR BOTTLED WATER</b>	<b>29</b>
<b>WATER TESTED WITH TEST STRIP - ON SITE</b>	<b>12</b>
<b>NEEDS TIME TO THINK ABOUT IT</b>	<b>10</b>
<b>DECLINED SERVICE/REMOVE FROM LIST</b>	<b>28</b>



# No Contact Breakdown



<b>MINOR/NO ADULT</b>	<b>5</b>
<b>BLOCKED ENTRY/LOCKED GATE</b>	<b>19</b>
<b>DOGS</b>	<b>26</b>
<b>SAFETY CONCERNS - VISUAL CONCERN</b>	<b>3</b>
<b>SIGNS - NO TRESPASSING, PRIVATE PROPERTY</b>	<b>46</b>
<b>NO ANSWER AT DOOR</b>	<b>52</b>
<b>UNABLE TO LOCATE HOUSE</b>	<b>9</b>
<b>NO HOUSE ON PROPERTY</b>	<b>4</b>

# Observations & Challenges

- Health effects of nitrate are difficult to convey
  - Odorless
  - Tasteless
  - Can't see it
- What is the immediate need? With no local reports of nitrate-related health problems, the public's concern was not high:
  - "I've been drinking this water for 60 years and have never gotten sick."
  - "it's my landlord's problem – not mine."

# Observations & Challenges



ECONOMICS



RENTER OCCUPIED  
HOUSEHOLDS



TECHNICAL TOPIC



SKEPTICISM



TRUST ISSUES



FEAR



# Recent Accomplishments

- Contracts established for installing RO units
- Continuing to contact remaining areas with Legislative funding currently available
- Communications plan established
- Ongoing monitoring with monitoring wells
- Ongoing extensive public outreach to install RO units
  - Home Visits;
  - Bottled water deliver;
  - RO unit installation
- Over \$2 million in funding for current and future project in Lower Valley
- Ongoing education and outreach campaigns
- ❖ 64 Recommended Actions of GWMA Program
  - 8 of 64 recommended actions completed
  - 20 of 64 recommended actions active

# JOIN US FOR OUR OPEN HOUSE

**DO YOU USE WELL WATER?**

JOIN US FOR AN  
**OPEN HOUSE**

**FREE DOOR PRIZES, KIDS' ACTIVITIES, AND TACOS**

**May 29, 2024 | 4-7 p.m.**  
**Come and go any time**

La Cosecha  
344 N 11th St, Sunnyside

*We'll share what you need to know about reducing nitrate contamination and how to protect yourself.*



**¿USA USTED AGUA DE POZO?**

ACOMPÁÑENOS A UNA  
**JUNTA COMUNITARIA**

**HABRÁ PREMIOS, ACTIVIDADES PARA NIÑOS Y TACOS**

**May 29, 2024 | 4-7 p.m.**  
**Puede participar a cualquier hora**

La Cosecha  
344 N 11th St, Sunnyside

*Tendremos información de cómo reducir la contaminación de nitratos y proteger su salud.*





Questions?





# Thank you

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