

GIS mapping for fumigation

TPSA, February 2009

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Pesticide Air Monitoring

- Funded by legislature
- Two year project
- Air in agricultural communities
- Collaboration:
 - WDOH
 - Washington State University (MITC)
 - University of Washington (OPs)

Franklin County Aerial view



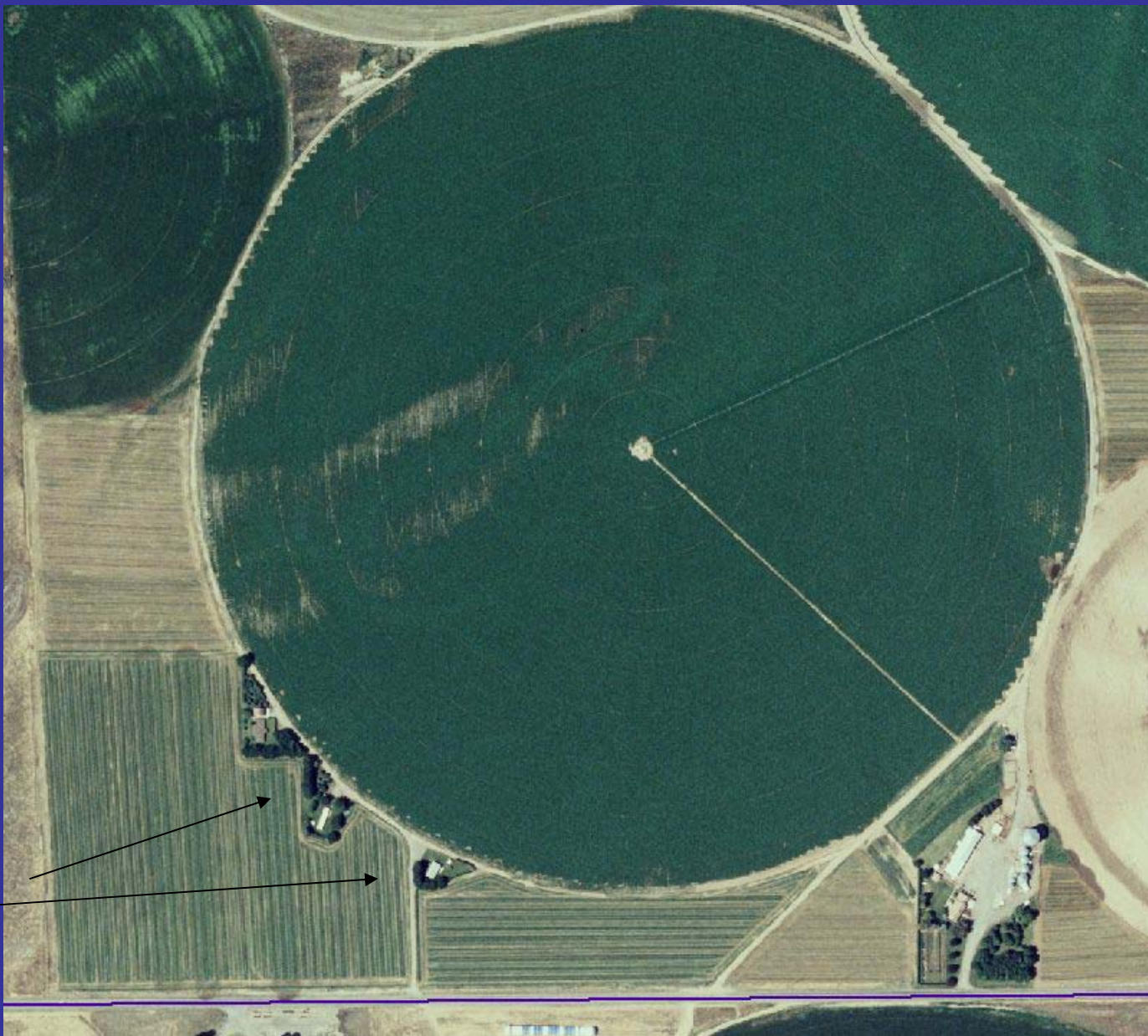
Proximity of crop
circles to
residential
communities

~ 1 mile



Pasco

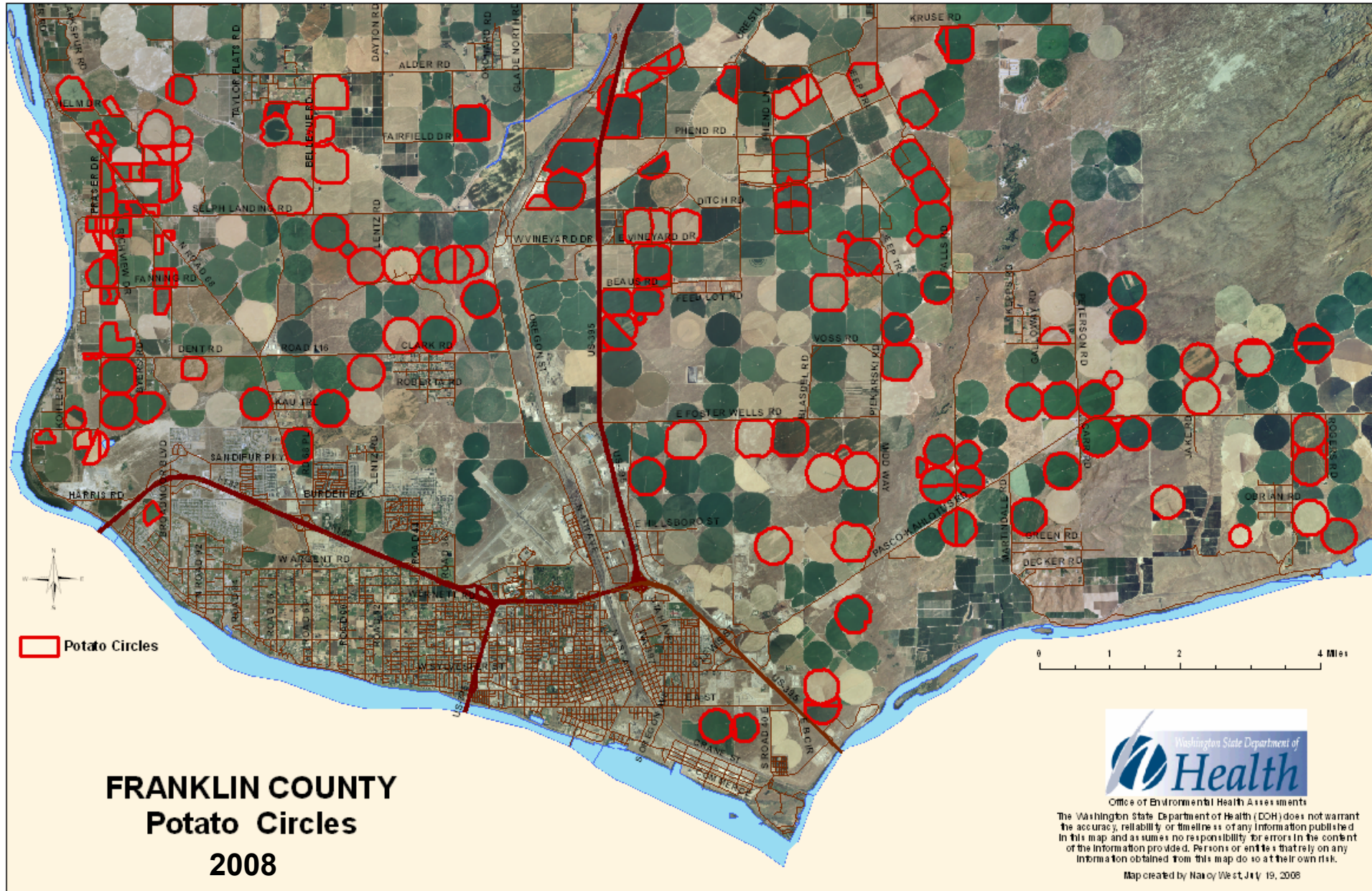
Columbia River



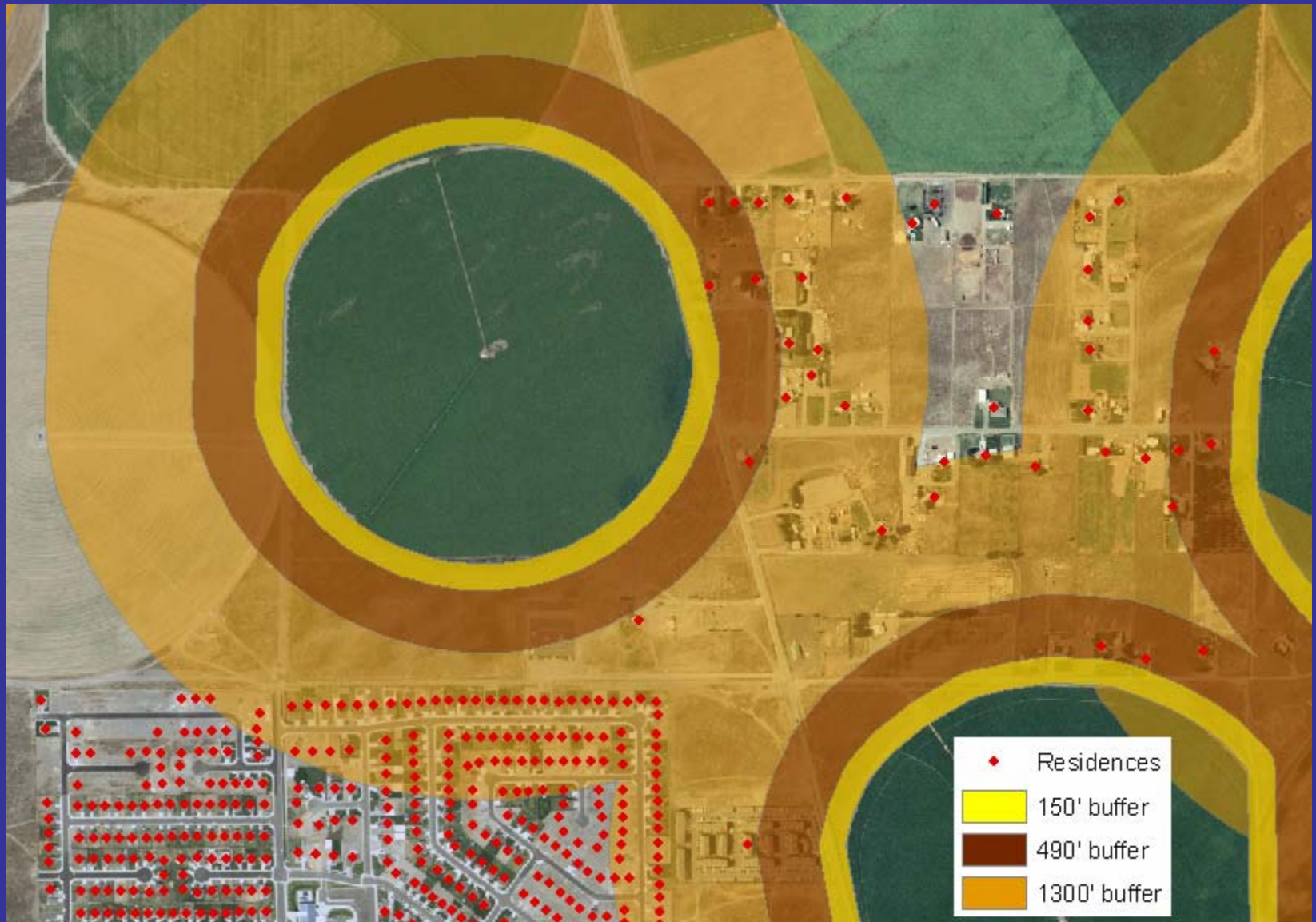
Residences

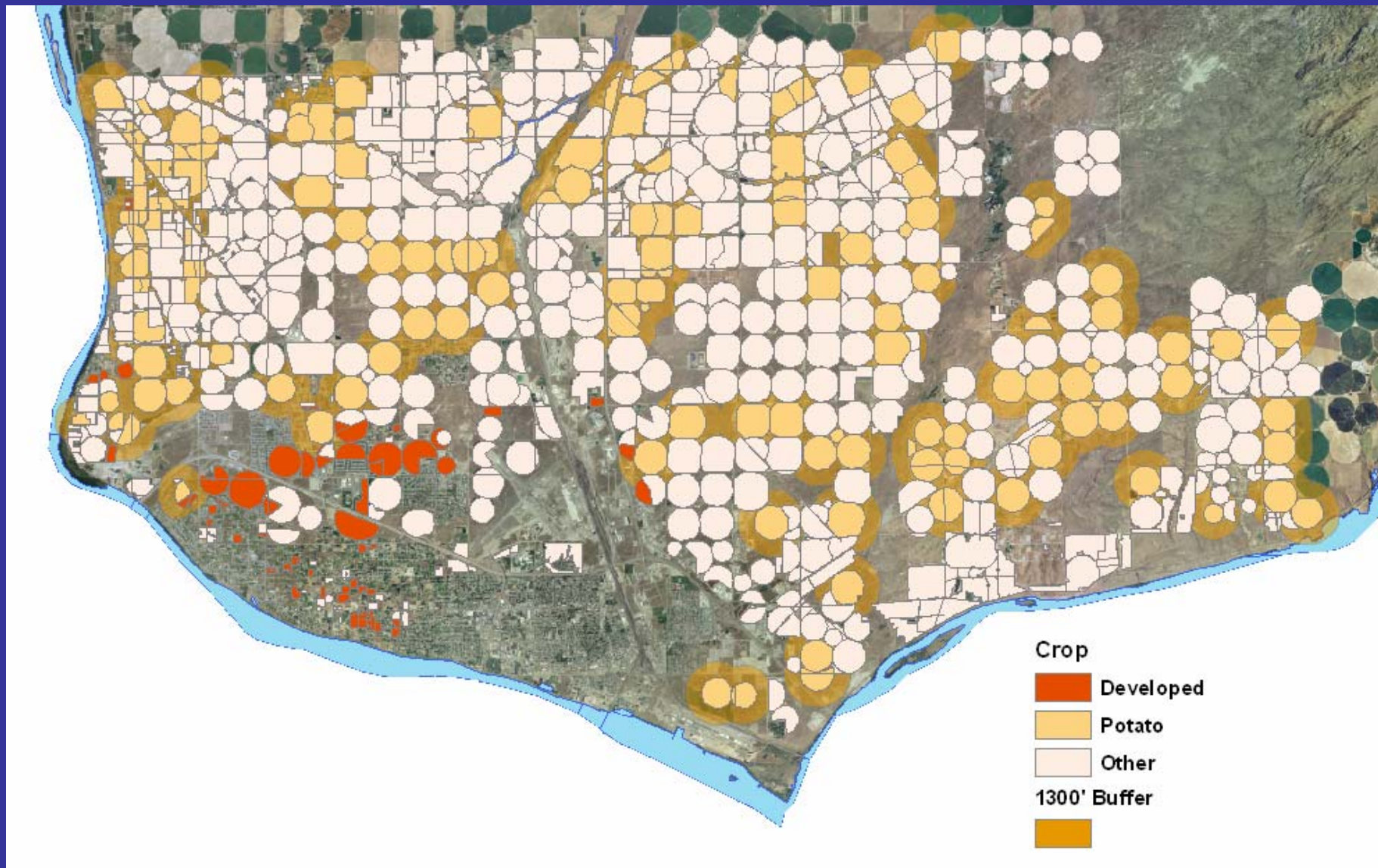
Limited Exposure Assessment

- Geomapping will provide rough population estimates for two types of samples.
 - Residential air samples
 - Near-field samples



Adding the county parcel map...





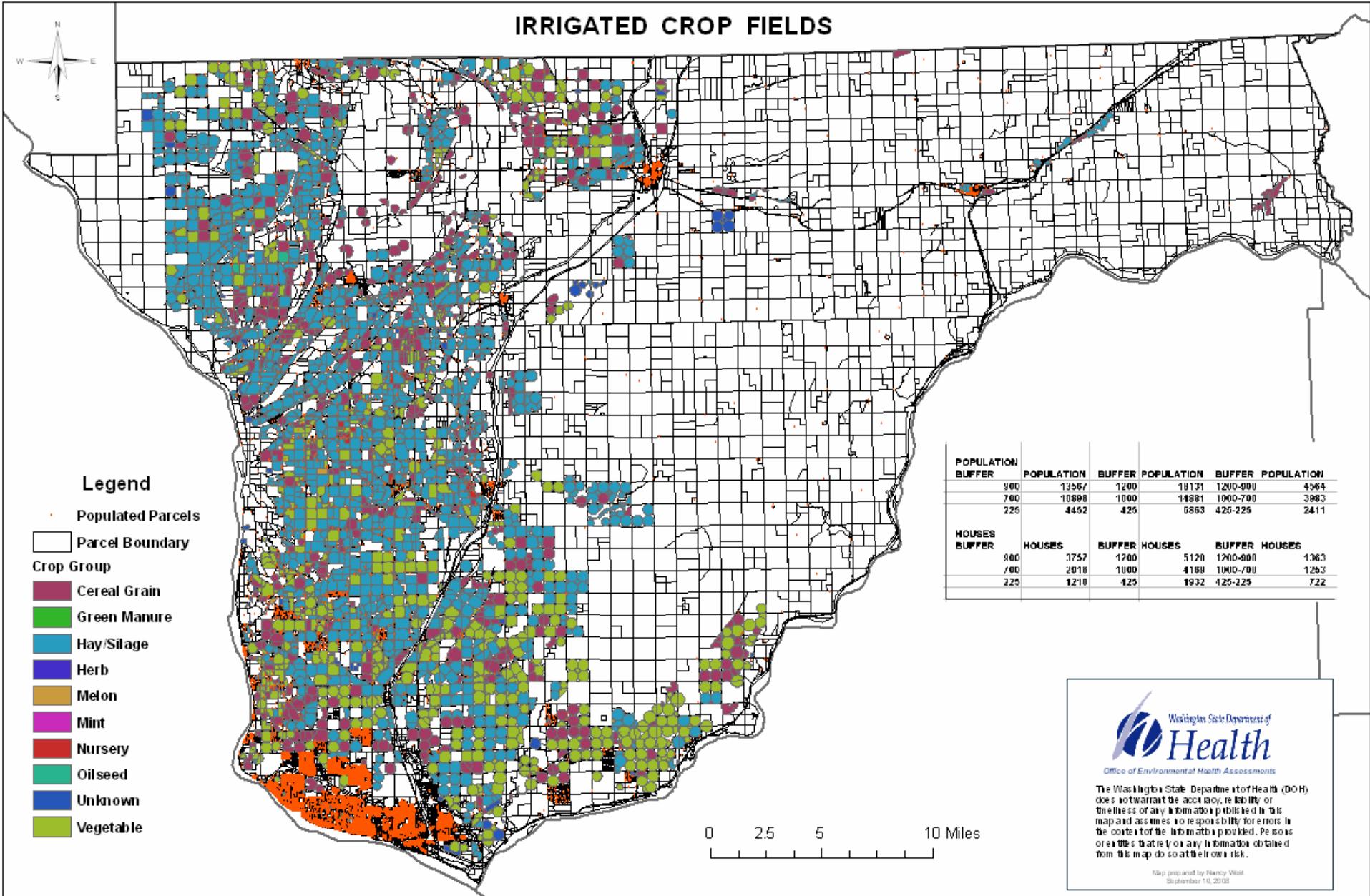
IMPACT of EPA's RED* for Metam fumigants

Mitigation measures

- » **Buffer Zones**
- » Application Block Size Limitations
- » Fumigant Management Plans
- » **Public Notification**
- » Emergency Preparedness and Response
- » Worker Protection Measures
- » **Ambient Air Monitoring**

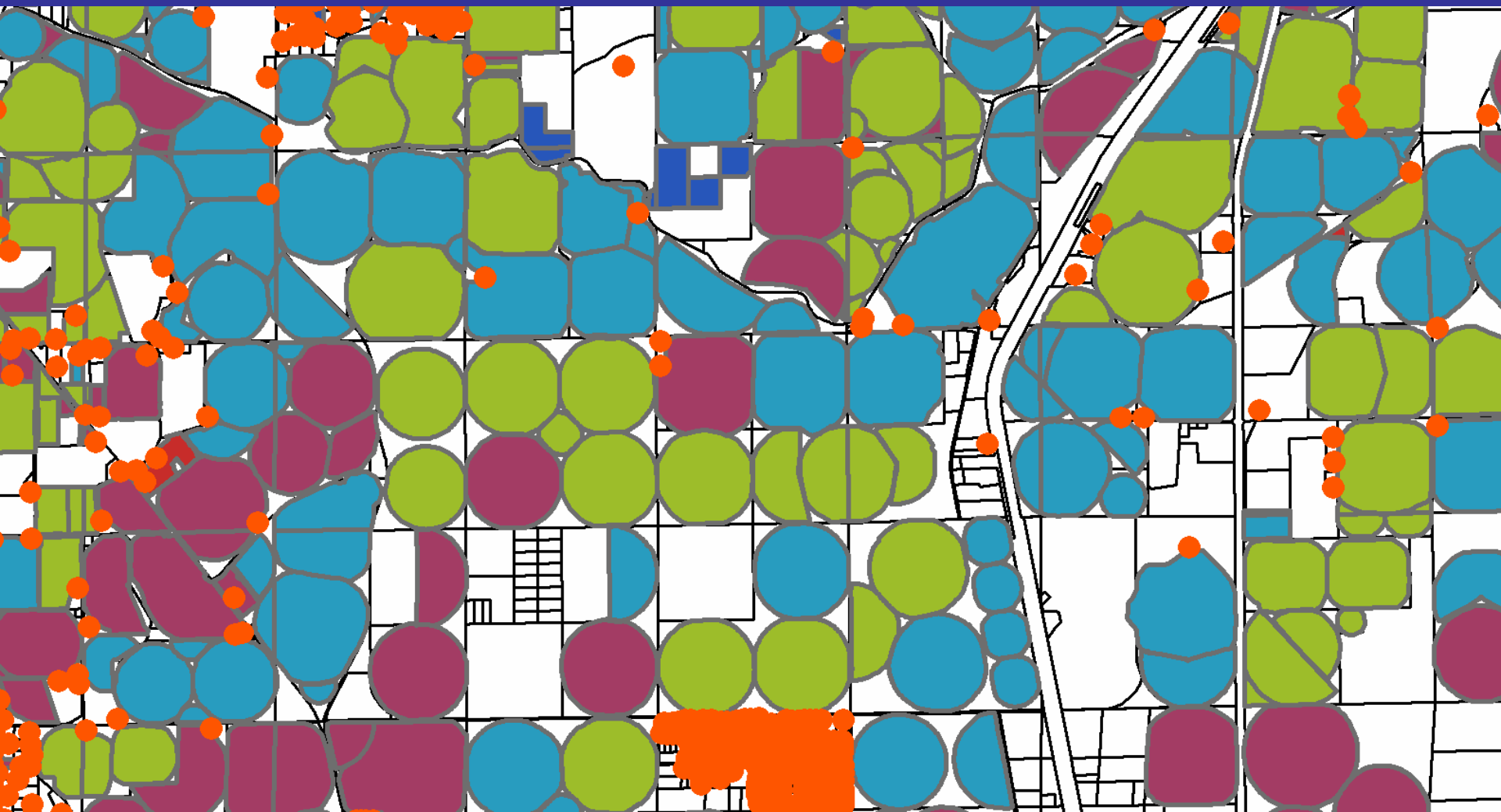
*** EPA Reregistration Eligibility Decision (RED) for Methyldithiocarbamate Salts – Metam Sodium/Potassium and MITC: July 2008**

IRRIGATED CROP FIELDS



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Map prepared by Nancy West
September 10, 2008



Buffer Zone Distances and Risk Characterization for Pacific Northwest Metam Use Scenarios

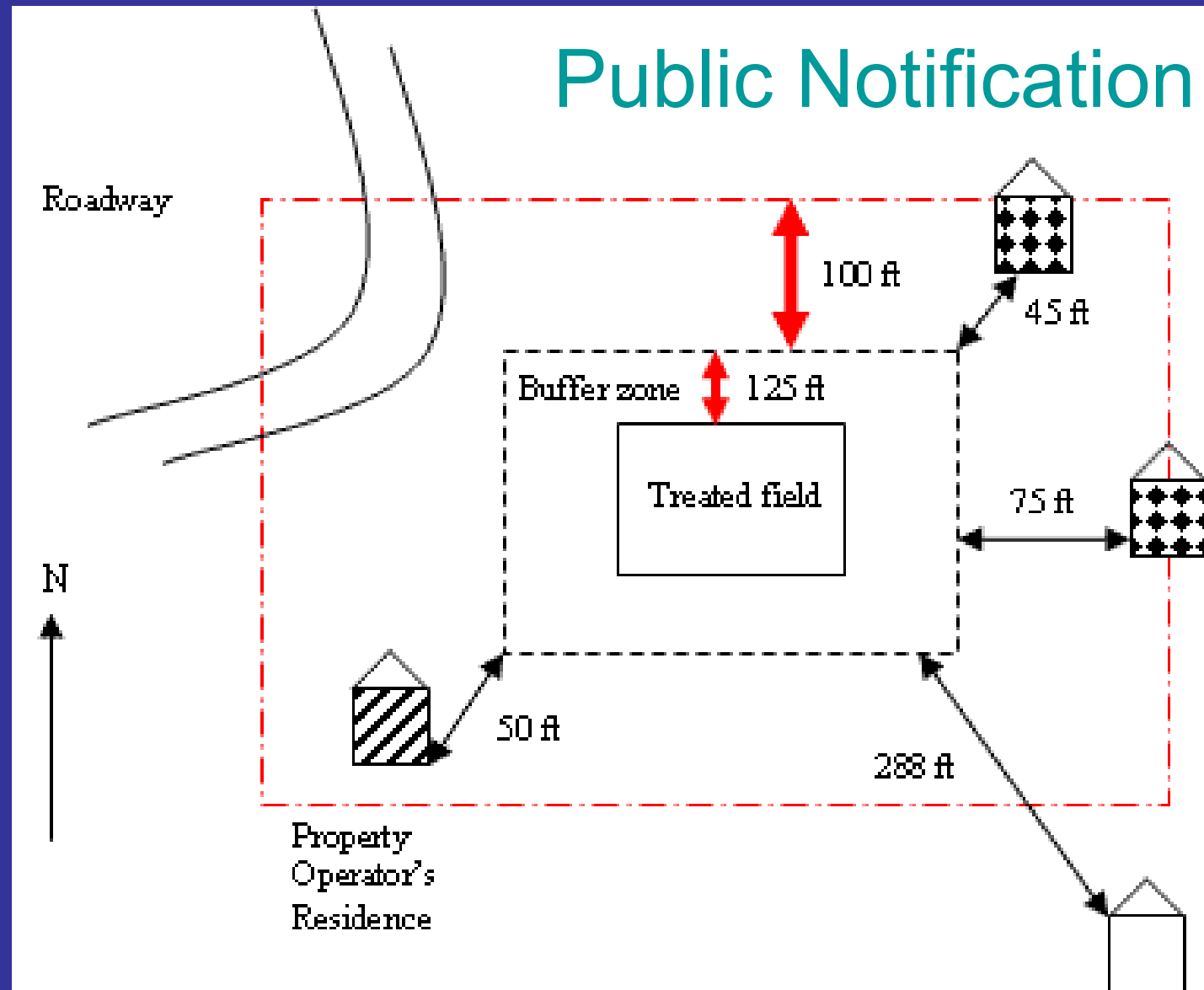
Table 8. Buffer Zone Distances and Risk Characterization for Key Metam Use Scenarios

Crop	Region	Application Method	Typical Application Rates (lb ai/A)	Typical Application Block Size (A)	Buffer Zone Distances (ft) w/o Credits	Whole Field and Max Distance Percentiles		MOEs at the 95 th Air Concentration from PERFUM2
						Whole Field	Max	
Potatoes	PNW	Center Pivot – high release height w/ end gun	140	120-160	900-1300	n/a	n/a	n/a
		Center Pivot – low release height w/o end gun	140	120	700	75	15	4
		Center Pivot - w/ low drift technology	140	120	525	60	15	3
	Upper Midwest	Chemigation	150	30	200	65	<5	3
				50	304	65	<5	3
	PNW	Shank Injection	140	80	175	60	<5	4
				120	225	60	<5	3

MOE = Margin of Exposure

From: EPA Reregistration Eligibility Decision (RED) for Methylthiocarbamate Salts – Metam Sodium/Potassium and MITC: July 2008

Public Notification



Potential population involved Franklin County, WA

Proposed buffers	Houses	Population
900 ft buffer	3,757	13,567
+300 ft notification	1,363	4,564
700 ft buffer	2,916	10,898
+300 ft notification	1,253	3,983
225 ft buffer	1,210	4,452
+200 ft notification	722	2,411

Importance of notification

Case study







Inversion



000236 - Symptoms

- 18 people in 3 houses identified as symptomatic (incl. infant, 7 other children)
- Sherriff's deputy
 - Burning sensation in the eyes
 - Nose & throat irritation
 - Headache
 - Nausea
 - Stomach pain
- 12/19 sought medical care

80236 - Response

- Called 911
- The Franklin County Sherriff Deputy: reported symptoms while talking to the family on the driveway after just 10 minutes.
- The Franklin County Fire District: smelled fumigant, talked to applicator, did not shut down application “Appeared to be a legal application.”

80236 - Recommendations

- BMPs for metam sodium application are essential when homes are nearby. Proper soil preparation and attention to weather conditions is critical in controlling off-site movement.
- Residents were not notified about the application or the potential inhalation hazard. Notification would have reduced duration of exposure.
- Residents should have left as soon as they started having symptoms of exposure approximately at 5:00 PM.
- Better communication between law enforcement, emergency management and pesticide enforcement. Case not immediately reported to enforcement agency.