

Integrated One Water Framework for
Water Master Plan – Unincorporated
Solano County

**EASTERN COUNTY REGIONAL ISSUES
AND CHALLENGES**

May 24, 2023



Meeting Agenda

1

INTRODUCTIONS

Purpose of the Solano One Water Framework

2

MEETING PURPOSE AND OUTCOMES

Solano One Water Recap
Meeting Purpose
Meeting Outcomes

3

EXISTING CHALLENGES DISCUSSION

Rural PWS and Domestic Wells
Drainage
Wastewater Treatment/ Recycled Water/Water Reuse/Disposal
Attracting and Maintaining Ag-Related Business/Industry
Other

4

SUMMARY

Summary
Next Steps

Purpose of the Solano One Water Framework

- One Water Framework Objective
 - Focus on water resources in unincorporated County
 - Support and align with implementation of Solano County General Plan
 - Identify water-related challenges and opportunities through a stakeholder process
 - Develop One Water concepts and guiding principles collaboratively with goals, objectives, and strategies
 - Establish a process to develop regional, multi-benefit projects that leverage regional cooperation and coordination
- One Water Framework Outcome:
 - Vision, goals, and strategies as a roadmap to future Solano County Utilities Master Plan

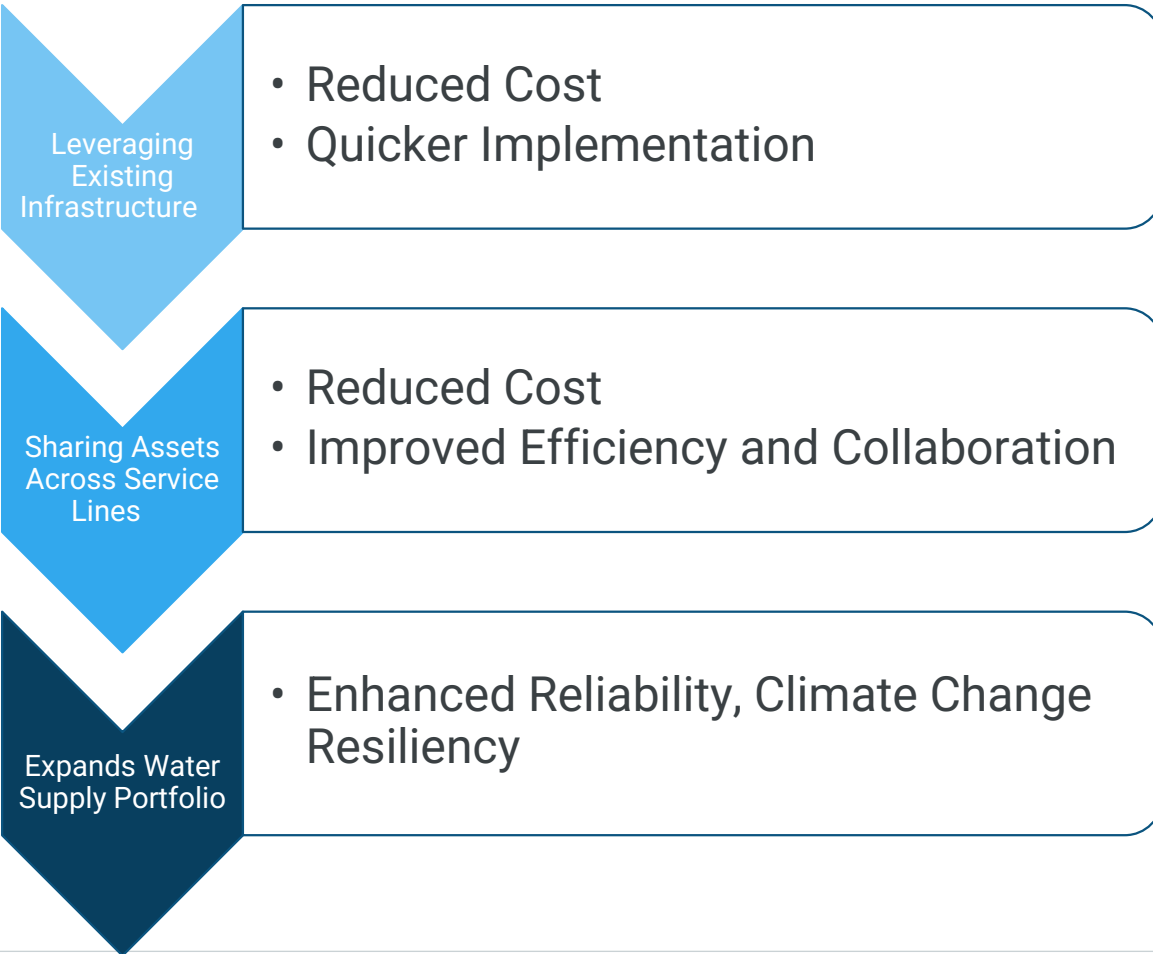
Purpose of the Solano One Water Framework

- What is One Water?
 - A holistic view of a community's multiple water resources, integrating each piece of the water cycle into one system
 - Looks to build a portfolio
 - Integration by design rather than accident
 - Looks to incorporate natural systems

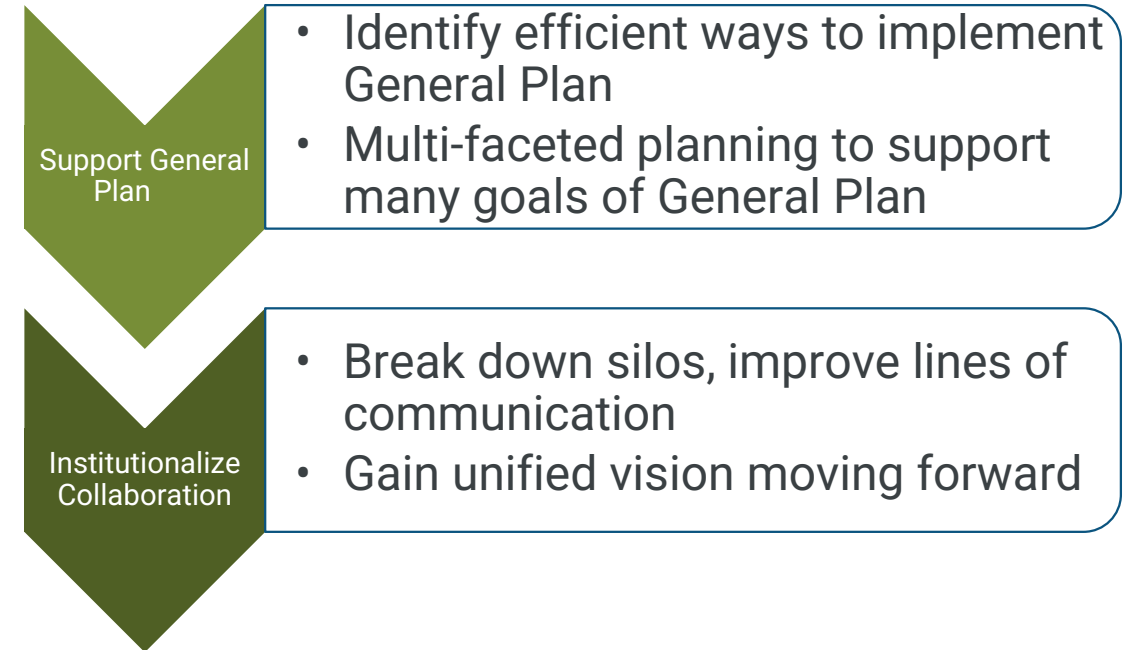


Purpose of the Solano One Water Framework

Benefits of One Water Approach



Benefits in Unincorporated County



Introductions

Solano County*

Misty Kaltreider

Dick Tzou

James Bezek

Department of Resource
Management

Cal Water – Dixon*

City of Benicia

City of Dixon*

City of Fairfield

City of Rio Vista*

City of Suisun City

City of Vacaville/Vacaville GSA

City of Vallejo

Dixon RCD*

Fairfield Suisun Sewer District

Maine Prairie Water District*

RD 2068*

Rural North Vacaville Water District

Solano County Agricultural Commissioner*

Solano County Farm Bureau*

Solano County Water Agency*

Solano Irrigation District/SID GSA

Solano RCD*

Vallejo Flood and Wastewater District

*Solano GSA Member

Steering
Committee
Participants



Kennedy Jenks



Sachi Itagaki

Project Manager

Meredith Clement

Deputy Project Manager

Jennifer Larsen

Technical Lead

Nick Watterson, Hydrogeologist/

Groundwater Sustainability Planning

Kennedy
Jenks
&
LSCE

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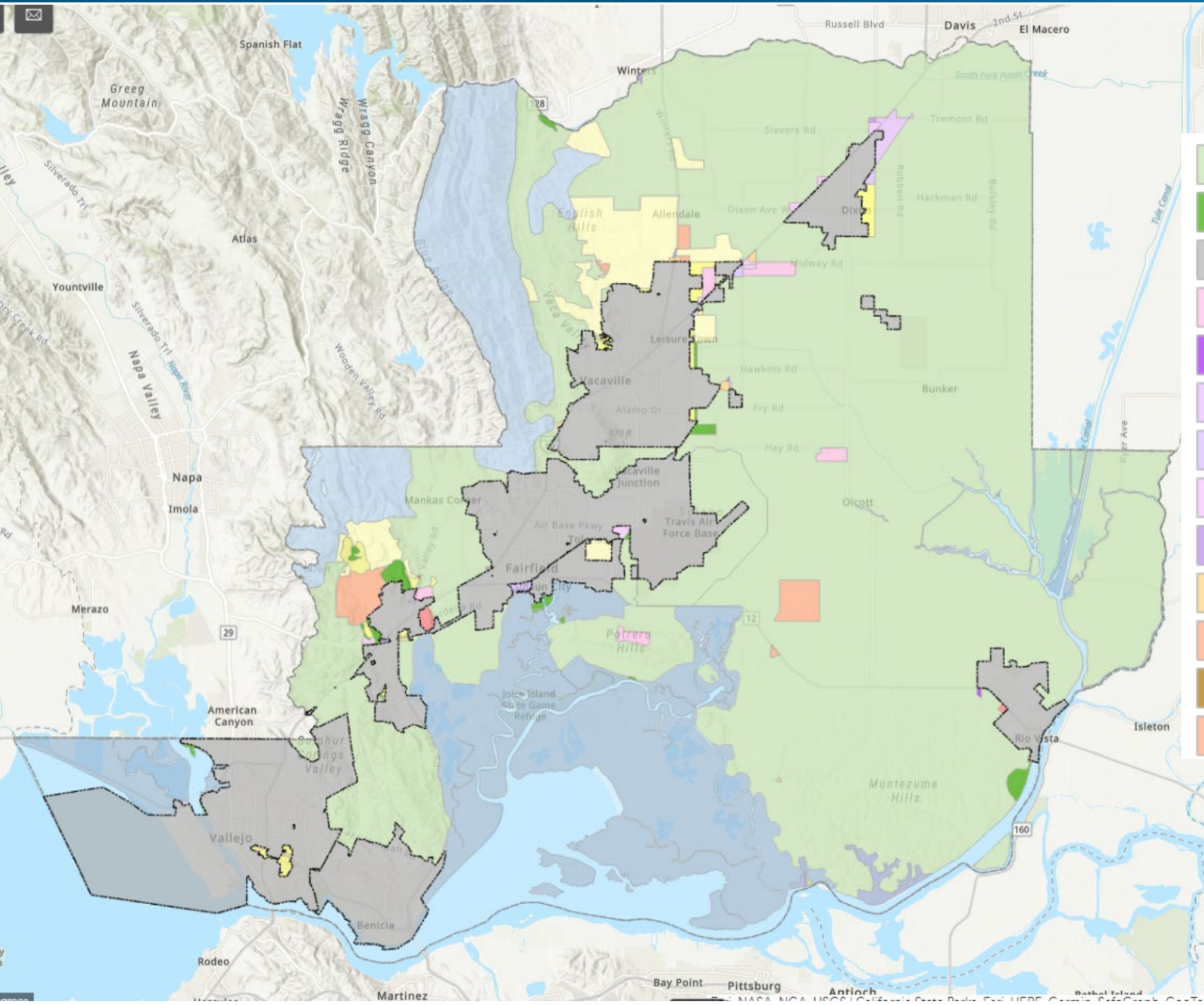
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Solano One Water – Supporting General Plan Implementation



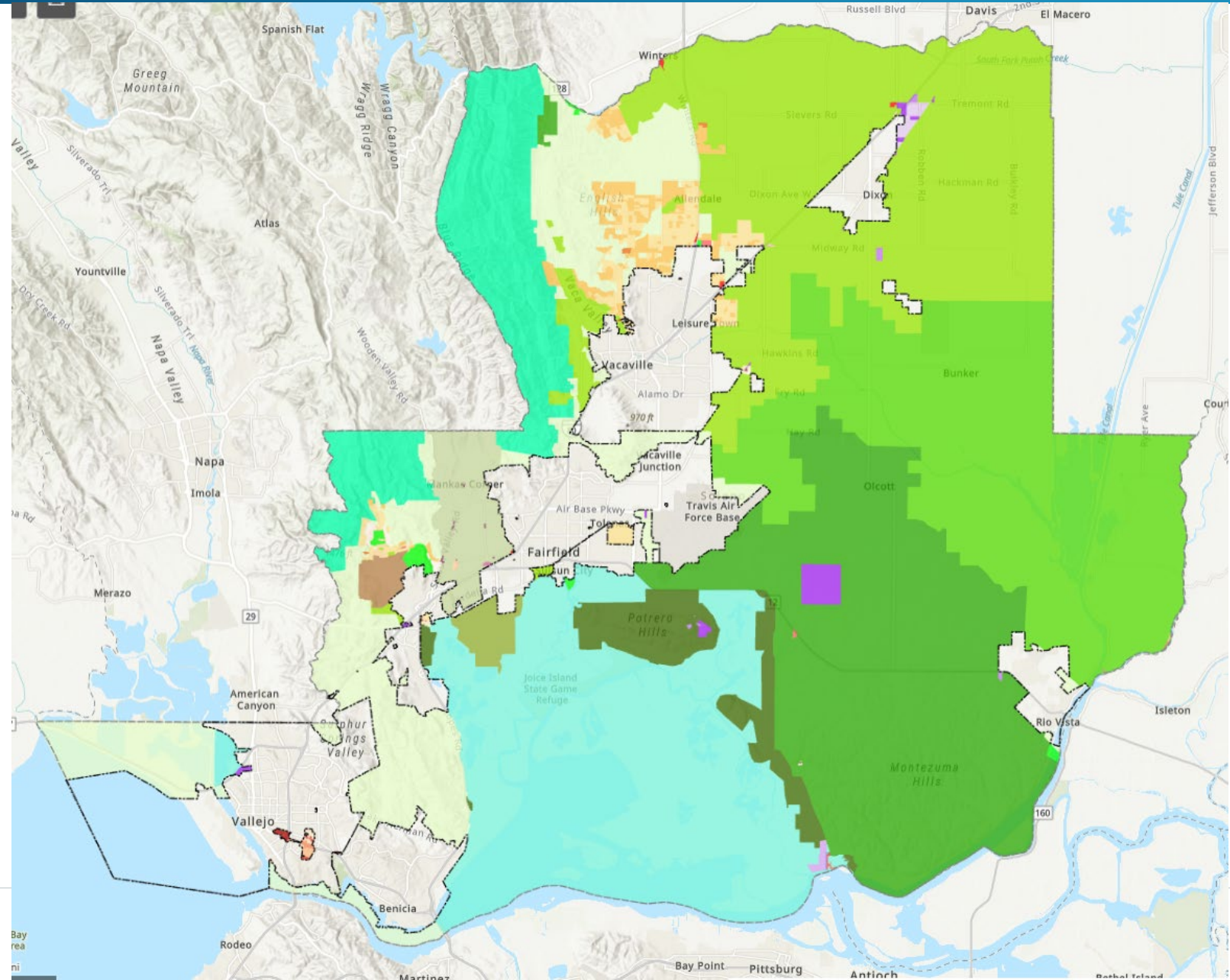
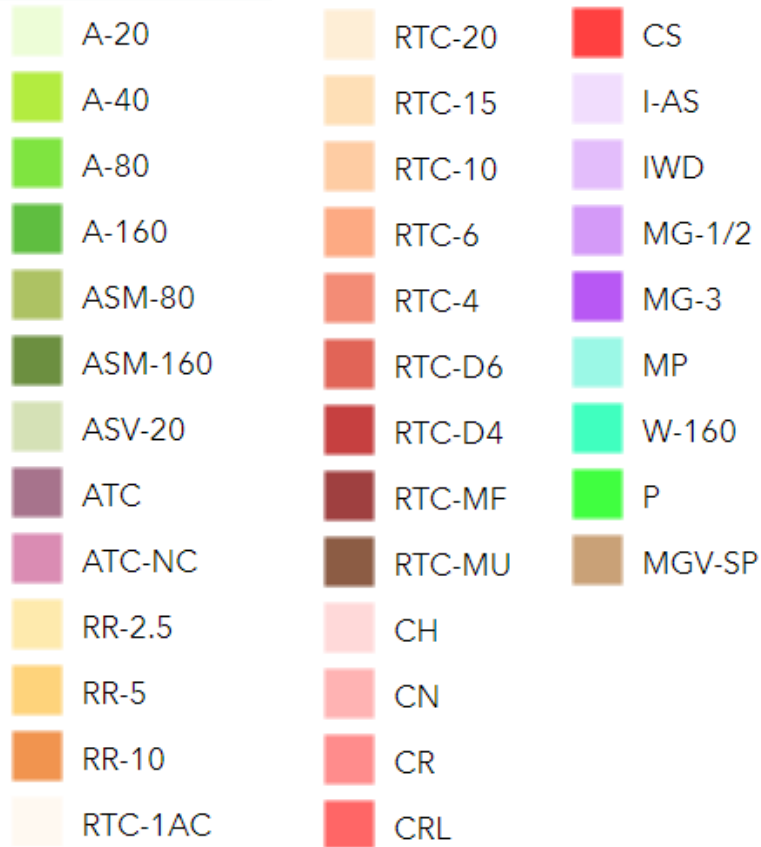
GENERAL PLAN LAND USE DESIGNATIONS – UNINCORPORATED COUNTY

- Agriculture
- Park and Recreation
- Incorporated Area
- Public/Quasi-Public
- General Industrial
- Limited Industrial
- Urban Industrial
- Urban Commercial
- Service Commercial
- Highway Commercial
- Commercial Recreation
- Neighborhood Commercial
- Specific Project Area
- Urban Project Area
- Urban Residential
- Rural Residential
- Traditional Community - Residential
- Traditional Community - Mixed Use
- Marsh
- Water Bodies and Courses
- Water Dependent Industrial
- Watershed

Source: Solano County Resource Management Viewer.
 "Solano_County_Unincorporated_General_Plan_2008_Updated"

Solano One Water – Unincorporated County Zoning

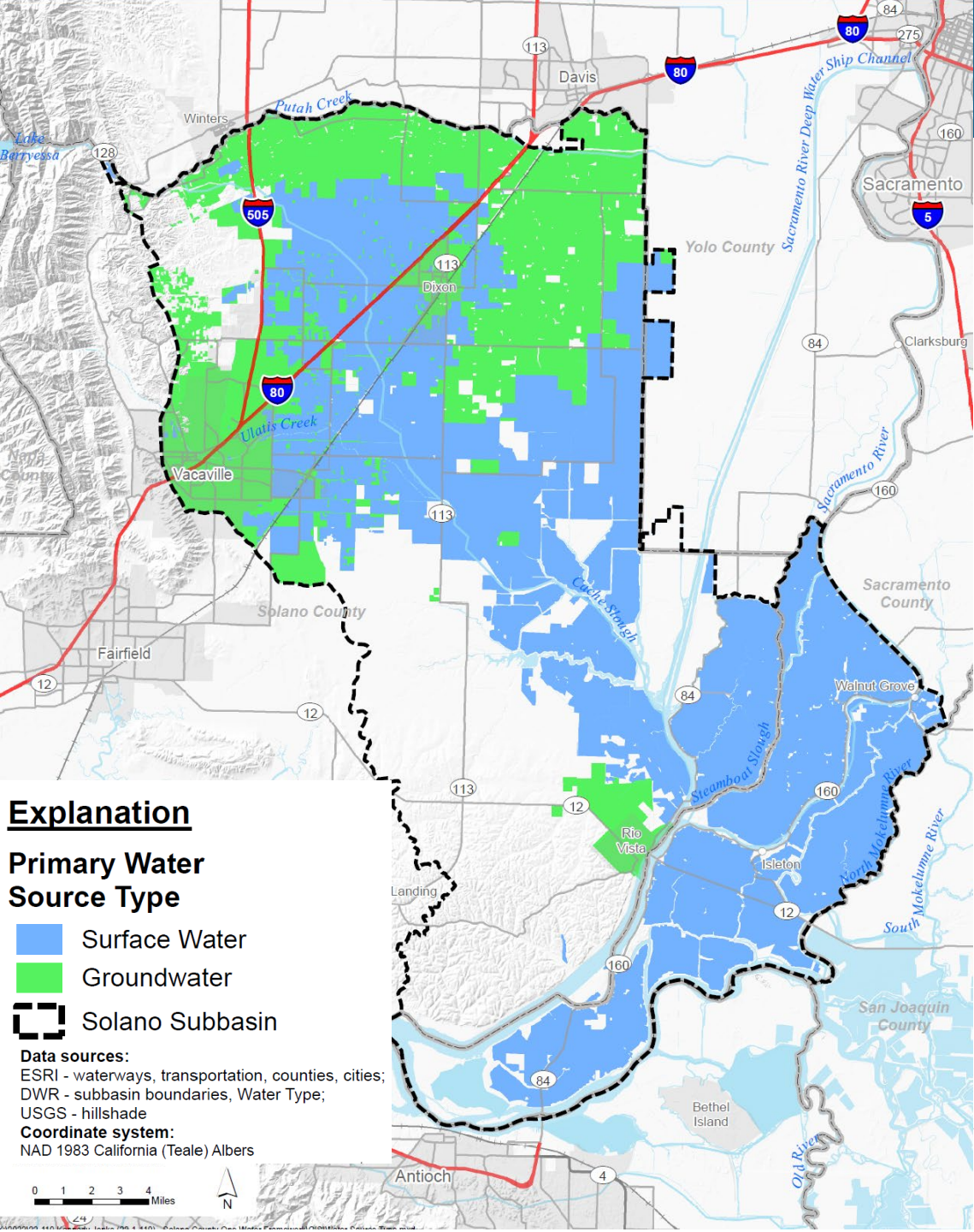
UNINCORPORATED COUNTY ZONING



Source: Solano County Resource Management Viewer.
 “Solano County Unincorporated Zoning.”

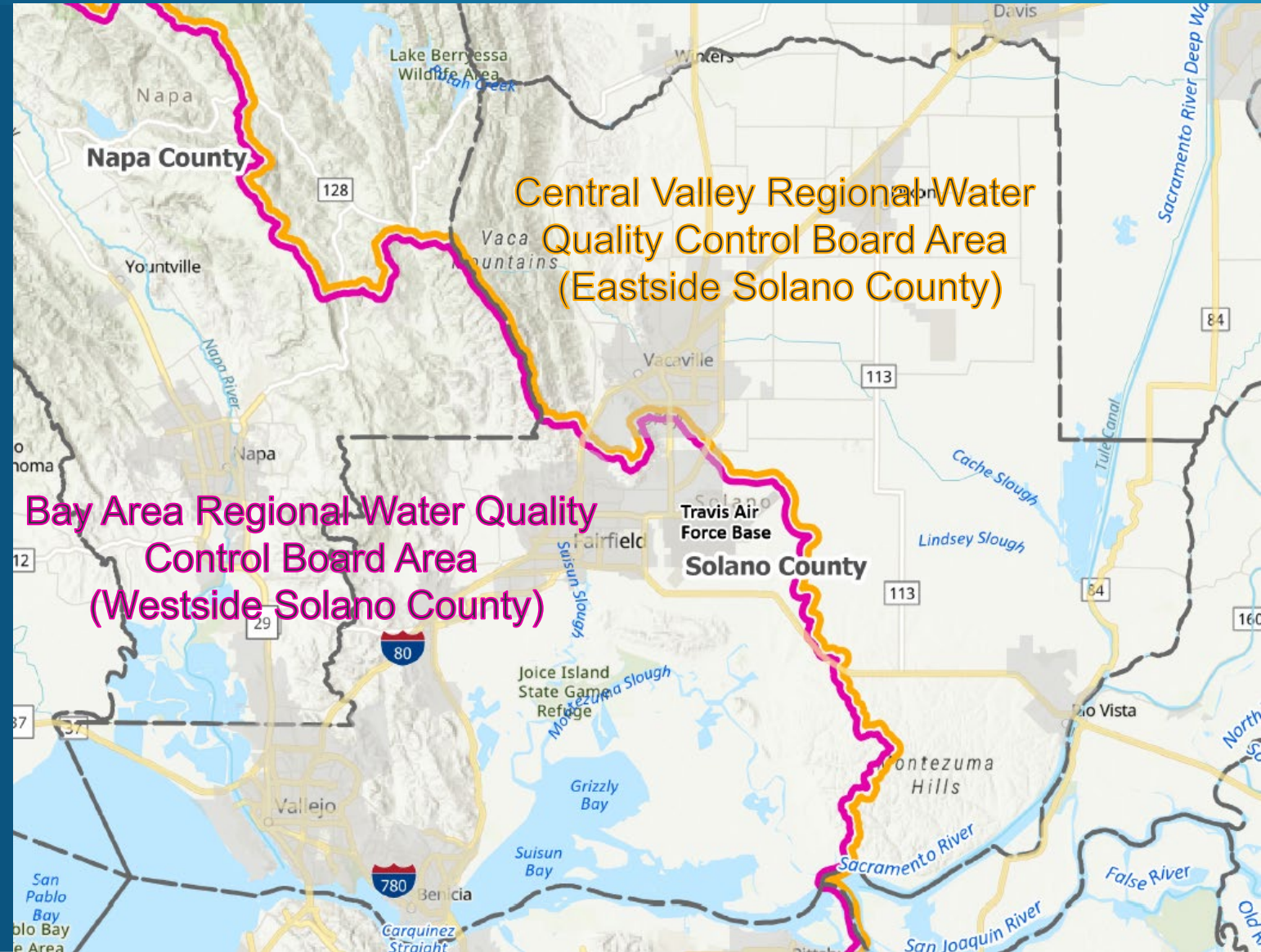
Water Source Use Areas – Eastern County

- Surface Water:
 - Solano Project
 - State Water Project
 - Diversions
- Groundwater



PURPOSE AND OUTCOMES OF TODAY'S MEETING

- Review existing conditions and sources of information
- Collect new information
- Discuss Eastside challenges
 - Westside challenges will be discussed at next meeting
- Future meeting reserved for opportunities discussion



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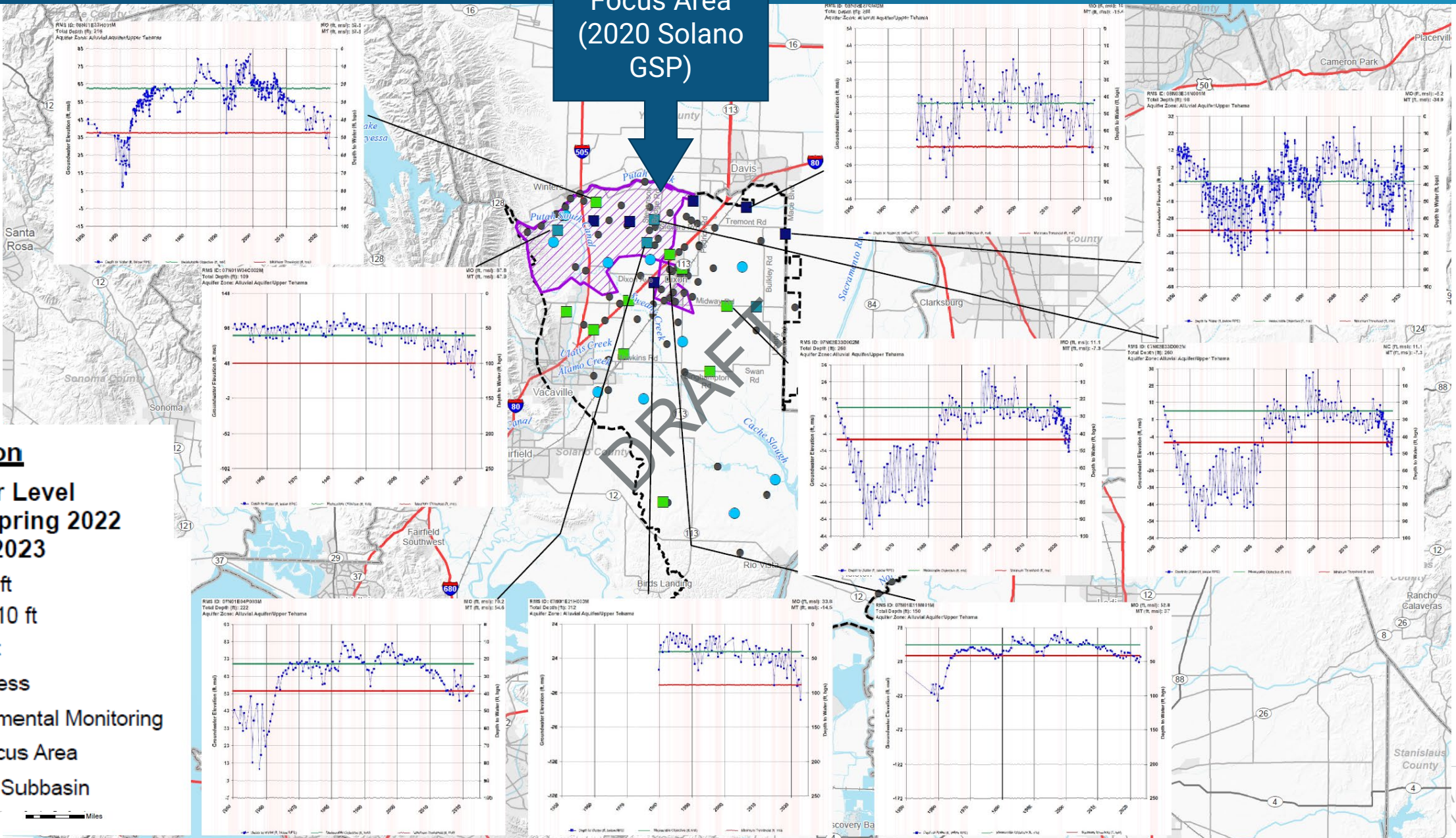
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Existing Challenges: Rural Public Water Systems and Domestic Wells

2023 Groundwater Conditions Update

Northwest Focus Area
(2020 Solano GSP)



Explanation

RMS Water Level Change: Spring 2022 to Spring 2023

- 0 to +5 ft
- +5 to +10 ft
- > +10 ft
- No Access
- Supplemental Monitoring
- NW Focus Area
- Solano Subbasin

Public Water System Classification

- Public Water System (PWS) = 15 or more connections or serves at least 25 individuals daily at least 60 days of the year
- PWS with < 200 service connections can be regulated by County as local primacy agency (Solano Co has none)

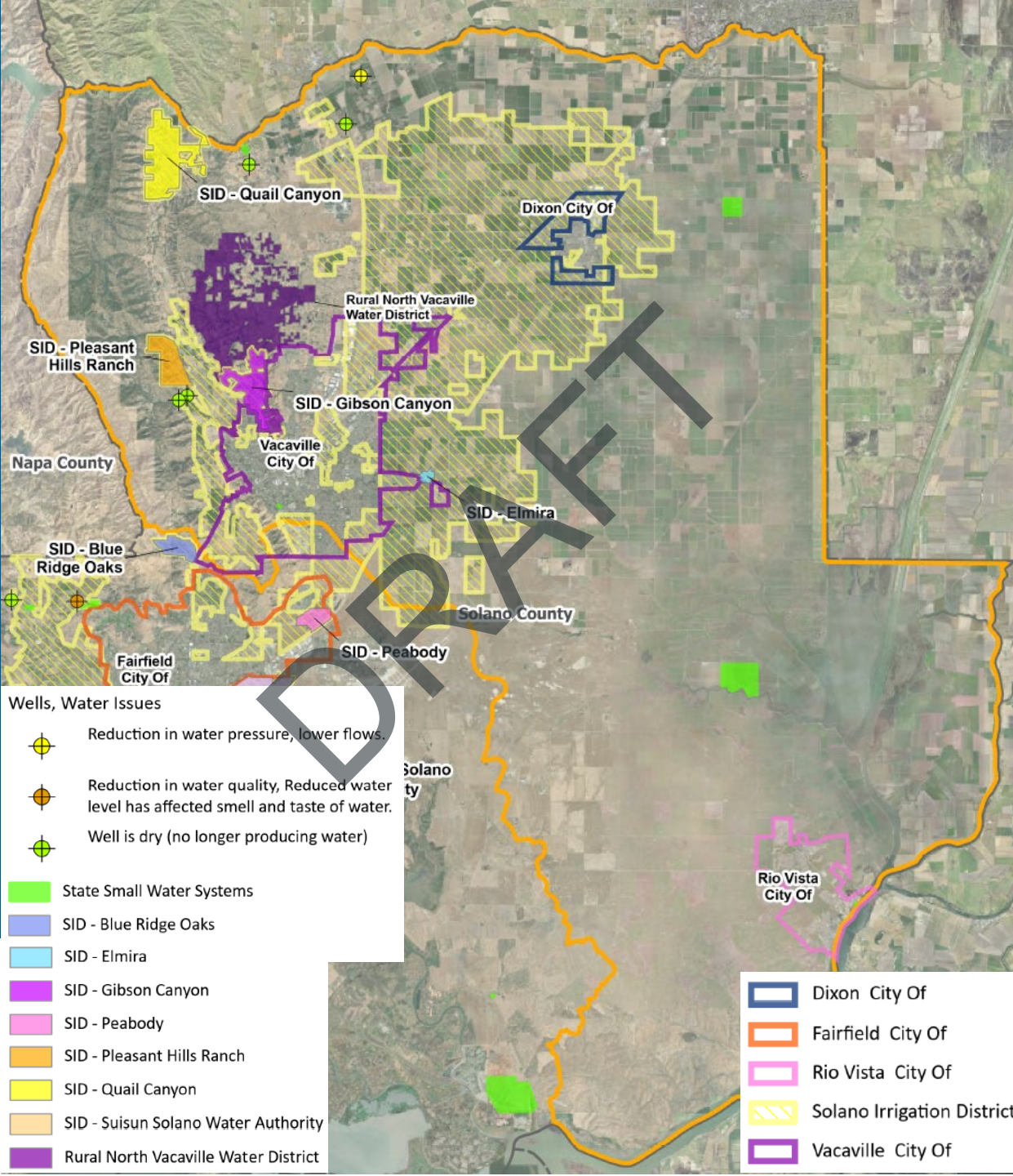
Type of PWS	# of connection/residents	Regulated by
Community Water System	At least 15 service connections of year long residents* OR Regularly serves at least 25 year long residents*	State Water Resources Control Board – Division of Drinking Water
Non community water system	PWS that is not a community water system	
a. Nontransient non community water system	Regularly serves 25 or more of the same persons over six months per year	
b. Transient non community water system	Does not regularly serve 25 or more of the same persons over six months per year	

* Resident = a person who physically occupies the same dwelling for at least 60 days of the year

Other Water System Classifications

Type of WS	# of connection/residents	Regulated by
State Small Water Systems	Not a PWS Serves 5 – 14 service connections at least 60 days per year	Solano County – Env. Health (Dept. Of Resource Mgmt.)
Other	Serves < 5 service connections	System not regulated by State nor County, Solano County regulates well construction permitting
Private	for private residence	Solano County regulates well construction permitting

Rural PWS and Domestic Wells in Eastern Solano County



- Solano County has
 - 4 “Larger” PWS in the urbanized areas
 - Rural PWS include
 - SID operates 4 PWS serving potable
 - Rural North Vacaville WD operates a PWS
 - Solano Co regulates 2 State Small Water Systems
 - Private wells – some of which have identified issues

Existing Activities/Resources for Rural PWS/Domestic Wells

- County Drought Contingency Plan (SB552)
 - In process
 - To coordinate with S1W Effort
- DWR Dry Well Reports
- State Water Resources Control Board Safe and Affordable Funding for Equity and Resilience Program (SAFER Program: <https://www.waterboards.ca.gov/safer/>)
- Local Hazard Mitigation Plan

SAFER 2023 Drinking Water Needs Assessment

Assessment

Of 26 PWS regulated by DDW:

Status based on:

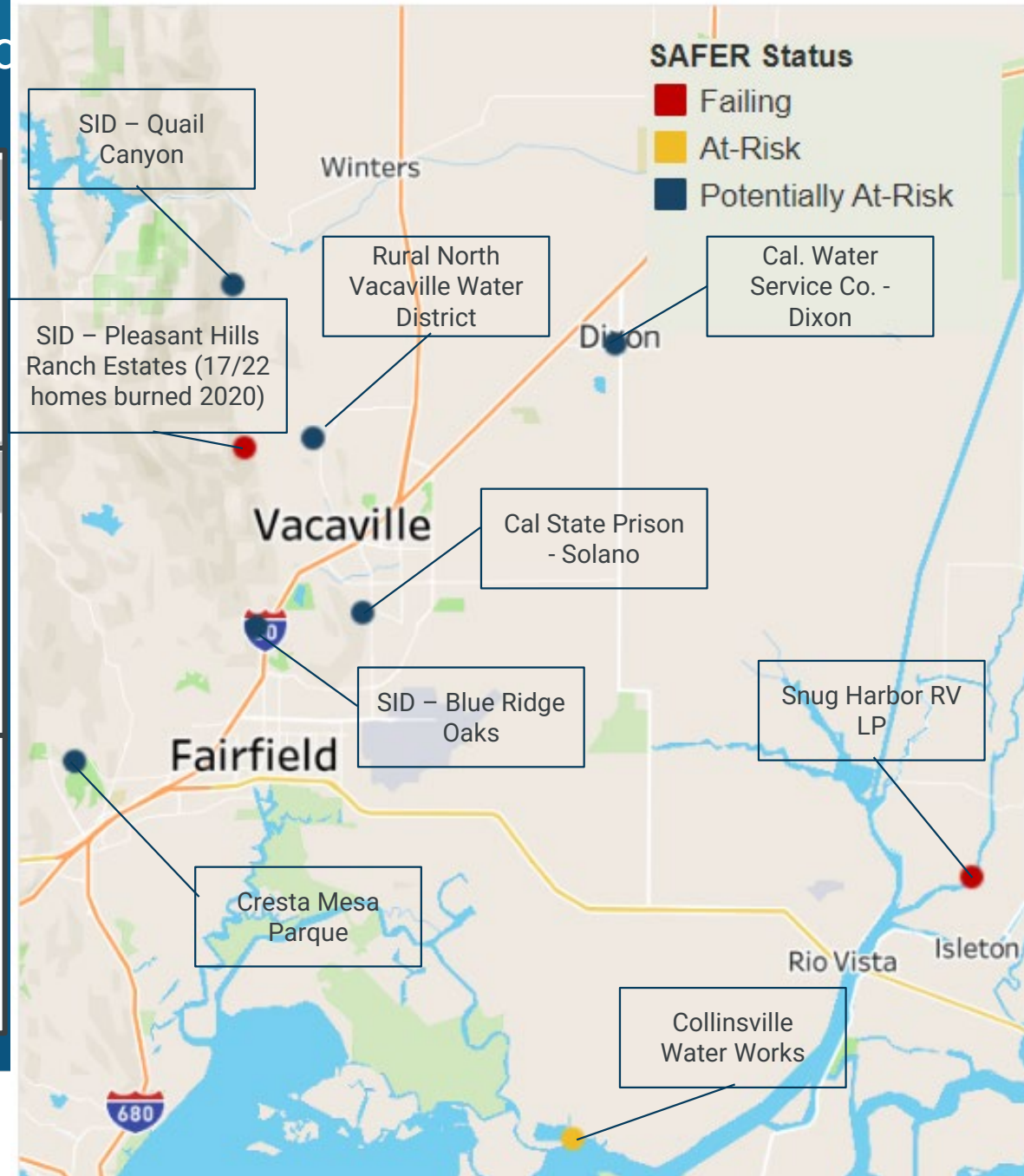
- # of system connections
- # of sources
- Lack of intertie
- Fractured rock
- Water quality

State Small WS (not in SAFER):

- Water quality issues re septic and arsenic

Failing
Water Systems 2
Population 214
Funding Since 2017 \$0
At-Risk
Water Systems 1
Population 25
Funding Since 2017 \$0
Potentially At-Risk
Water Systems 6
Population 17,246
Funding Since 2017 \$0

Total Count of Systems: **9**. Total Population: **17,485**



Summary of Initial Needs/Challenges: Rural PWS and Domestic Wells

- Declining groundwater levels in northwest Solano Subbasin
- Localized rural areas having issues with lowered groundwater levels
- Groundwater under the direct influence of surface water
- Poor well construction
 - Septic failure/interference
- Maintaining water facilities during wildfires, planned/unplanned power shutoffs, and other emergencies
- Technical, managerial, financial, and administrative capabilities
 - Low # of customers over which to spread fixed costs
 - Customers are spread out and need lots of infrastructure for service

Discussion: Rural PWS and Domestic Wells Needs and Challenges

- Besides list above, what other needs and challenges for rural PWS and domestic wells?



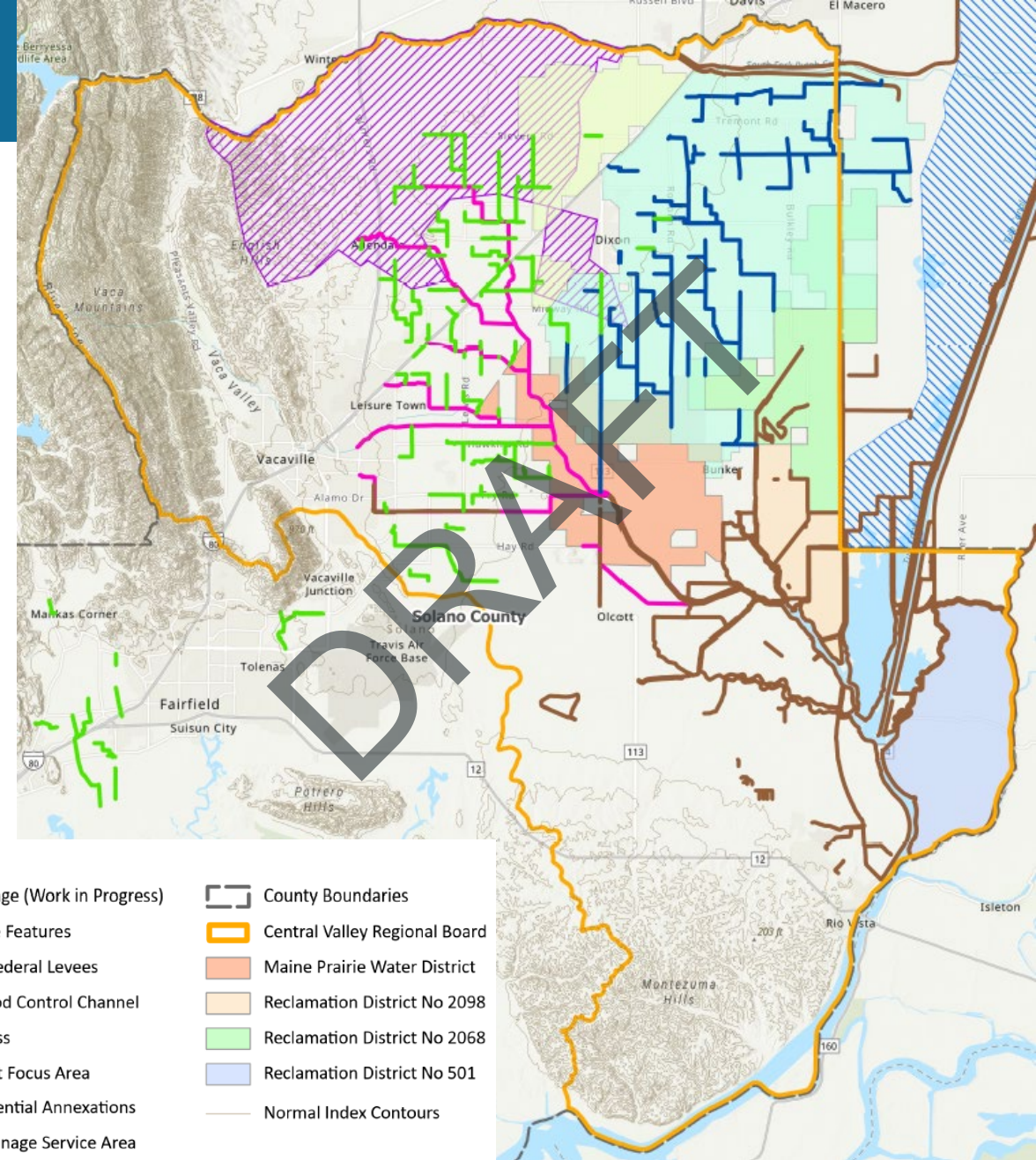
Existing Challenges: Drainage

Existing Drainage Facilities

- SID
- Dixon RCD
- Ulatis Flood Control System (SCWA)
- Yolo Bypass and State and Federal Levees

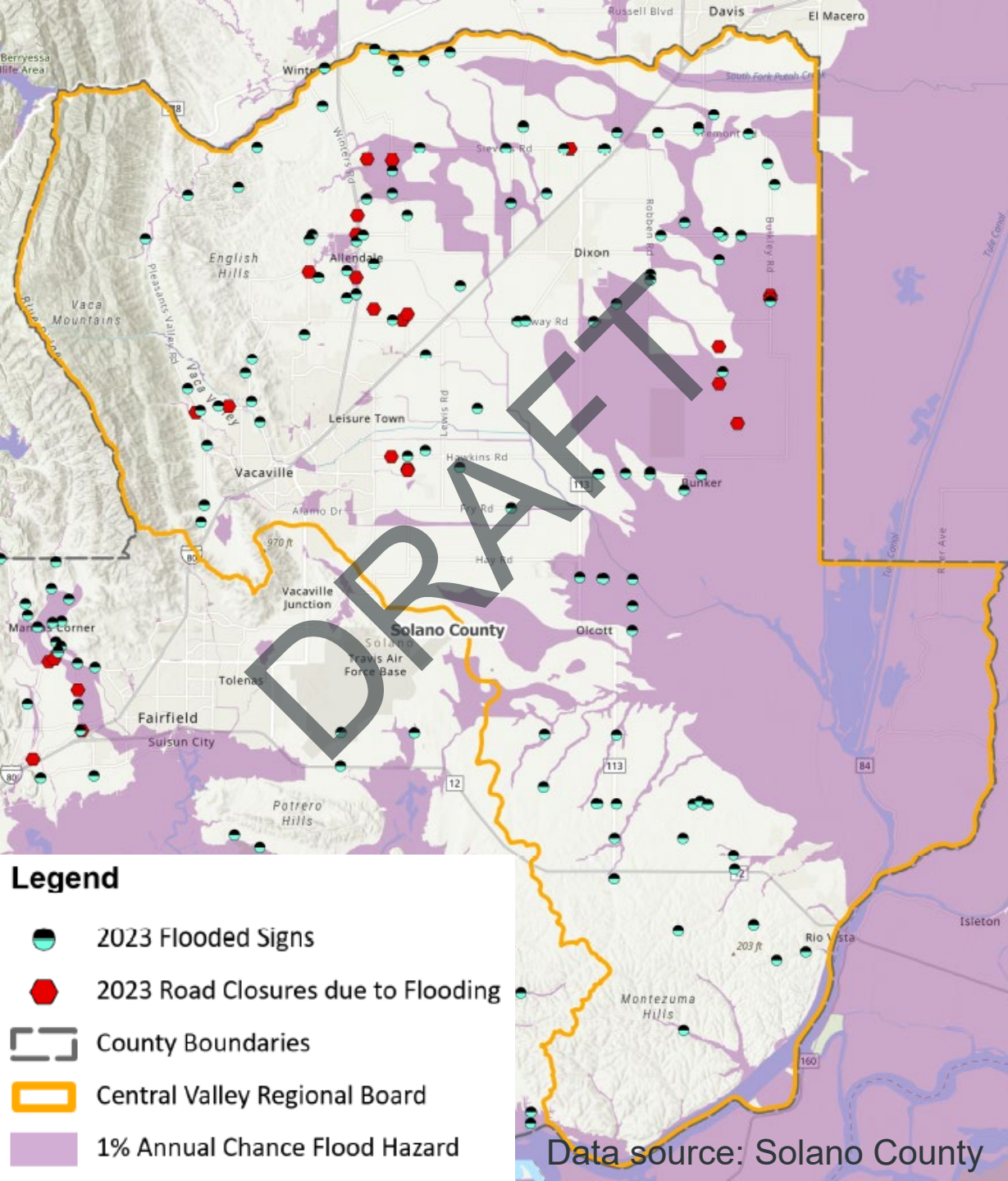
For Discussion:

- How do these facilities perform?
- Are they candidates for Managed Aquifer Recovery?



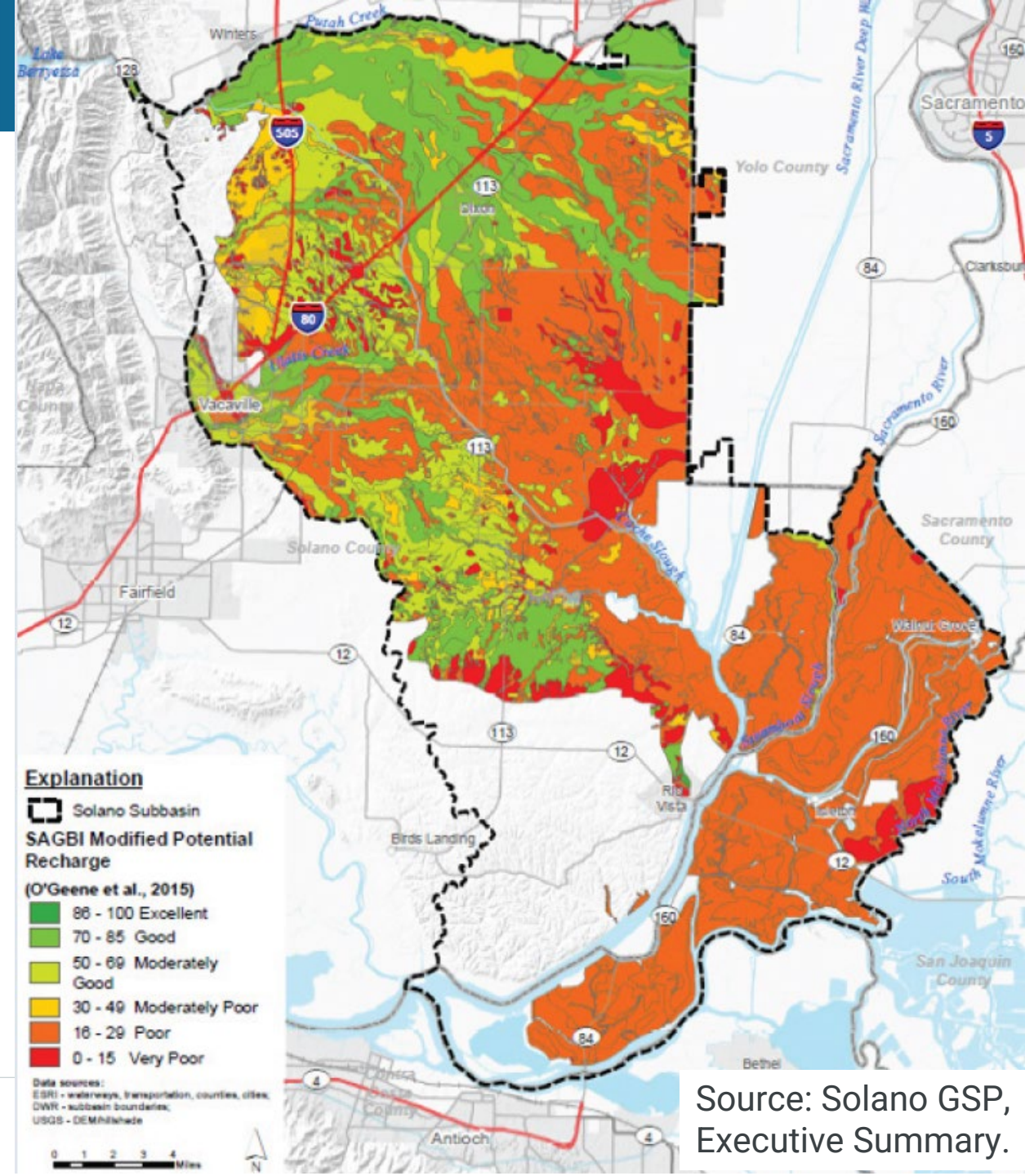
Areas Prone to Flooding

- Did these areas flood Dec 2022 – March 2023?
- For how long did the flooding last?
- Why did the flooding occur?
 - Vegetated channels
 - Blocked culverts?
 - Other?
- Who do these flooded areas impact the most?
- Next step – update with infrastructure
 - Are channels undersized?
 - Are they near flood channel systems?



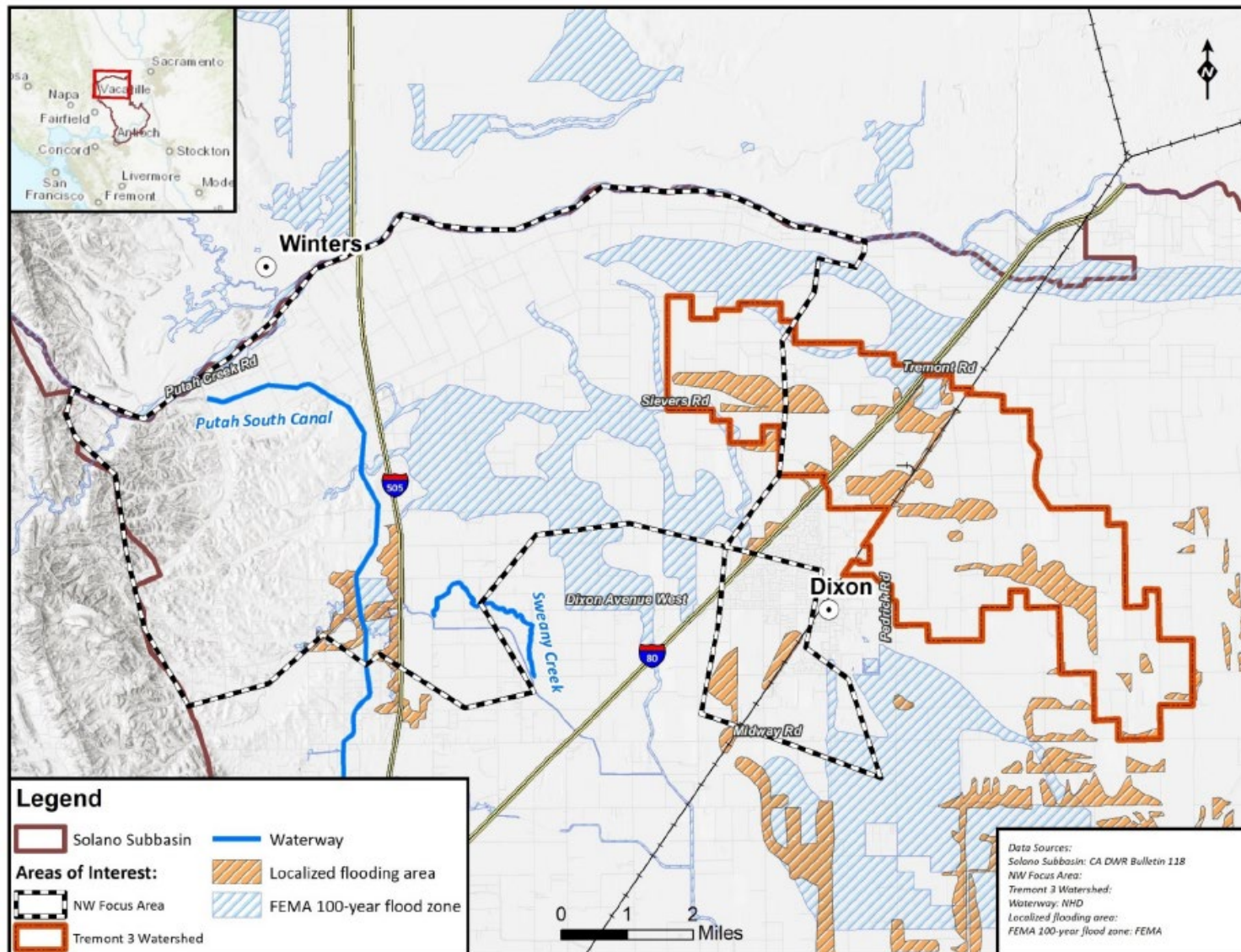
Areas Conducive to Recharge

- Existing efforts to develop multi-benefit recharge projects and locations:
 - High GW recharge potential
 - Environmental benefits
 - Practical recharge methods depending on individual site conditions
- Needs and challenges include:
 - Field verification to verify recharge rate
 - Willing land owner/access areas and land use/crop alignment
 - Infrastructure needs
 - Permits/approvals



Northwest Focus Area and Tremont 3 Efforts

Figure 2. Areas of interest (AOIs) and stormwater management features.



- Managed aquifer recharge (MAR) strategies are being explored by the Solano GSP Implementation
 - Estimate potential stormwater benefits from using MAR on agricultural fields in flood-prone areas around the Northwest Focus Area of the Solano Subbasin
 - Assess the potential for MAR to contribute to regional plans for reducing stormwater issues in the Tremont 3 watershed (north and east of the City of Dixon area)

Source: The Freshwater Trust, Estimating the Potential Benefits of Managed Aquifer Recharge to Stormwater Management in the Solano Subbasin, January 31, 2022.

Summary of Initial Needs/Challenges: Drainage

- Loss of conveyance capacity due to aquatic nuisance vegetation
- Lack of adequate flood control infrastructure (storage?) in low density rural areas
- Lack of region-wide sponsors for flood control infrastructure and maintenance
- Lack of comprehensive, up to date, geospatial mapping of areas with flood and drainage issues
- Runoff water quality
- Return flow vs storm drainage water for supply and reuse

Discussion: Drainage Needs and Challenges

- What is the major factor(s) in drainage issues?
 - Are they localized or more widespread?
 - Are they only during large storms or during small storms as well?
- Are there areas we have not identified that have drainage issues?
- What are the group's thoughts on Managed Aquifer Recharge?

Existing Challenges: Wastewater Treatment/Recycled Water/Water Reuse/Disposal




Wastewater Treatment/Recycled Water/Water Reuse/Disposal

13 Other Regulated Facilities – Industrial Stormwater (4) and Waivers for WDR (9) (not mapped):












- Cannabis Sites – 5
- Food Processing – 4
- Industrial Food Preparations and others – 3
- Industrial Malt Beverages – 1

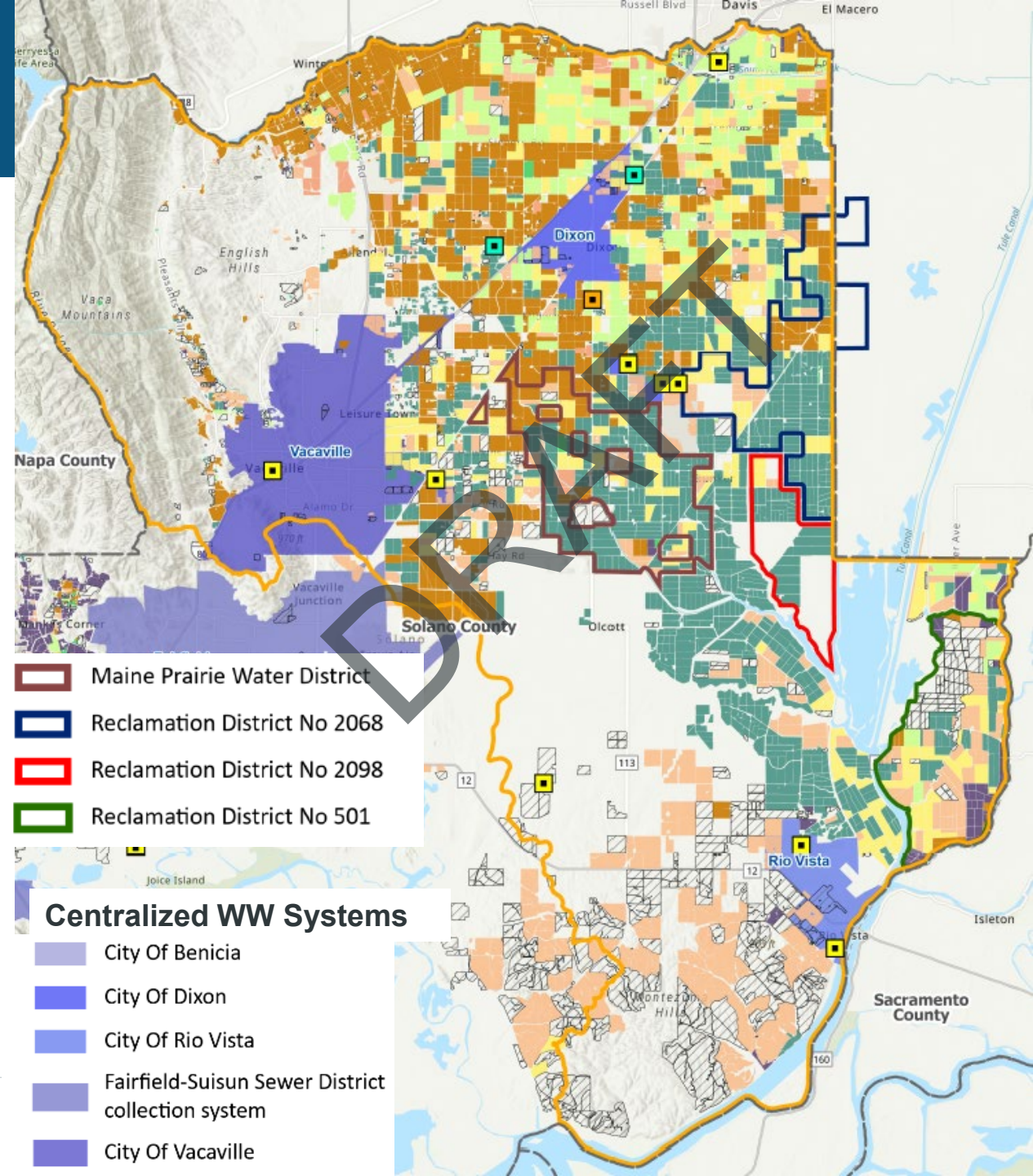
-WDR Waivers are issued for discharges of <1,000,000 gallons/year to land
 -WDRs are issued for disposal to land

WDR Permit Locations

-  Food Processing – 2
-  Slaughtering – 1
-  Municipal Wastewater Treatment Facility – 11

2020 (Provisional) DWR Crop Data

-  R | RICE
-  P | PASTURE
-  G | GRAIN AND HAY CROP
-  T | TRUCK NURSERY AND BERRY CROPS
-  F | FIELD CROPS
-  C | CITRUS AND SUBTROPICAL
-  D | DECIDUOUS FRUITS AND NUTS
-  V | VINEYARD
-  YP | YOUNG PERENNIAL
-  U | URBAN UNSPECIFIED
-  X | UNCLASSIFIED



Summary of Initial Needs/Challenges: Wastewater Treatment/Recycled Water/Water Reuse/Disposal

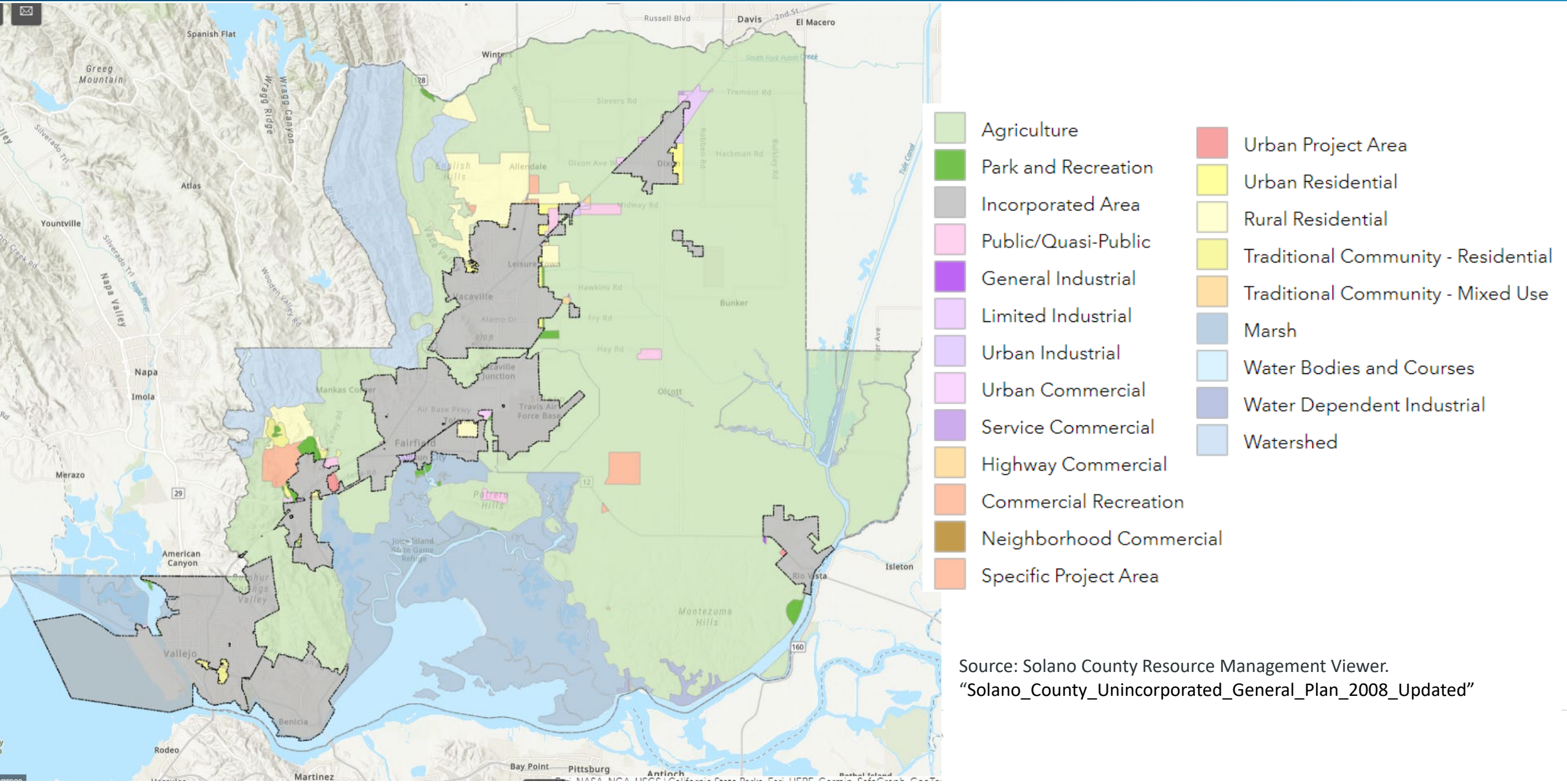
- Historical problem areas limiting recharge for disposal

Discussion: Wastewater Treatment/Recycled Water/Water Reuse/Disposal Needs and Challenges

- Are growers or municipal treatment facilities willing to accept nutrient-rich water or processed high-strength waste?
- Is the need to run onsite wastewater treatment systems discouraging ag supporting businesses?
 - Do connection requests to consolidated wastewater service providers come from potential businesses that are located outside of service area?
- Is there any evidence of failing septic?
- Are there issues with poor soils limiting septic system performance?

Existing Challenges: Attracting and Maintaining Ag Supporting Services

General Plan Land Use - Unincorporated County



Source: Solano County Resource Management Viewer.
"Solano_County_Unincorporated_General_Plan_2008_Updated"




Ag-Support Areas

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







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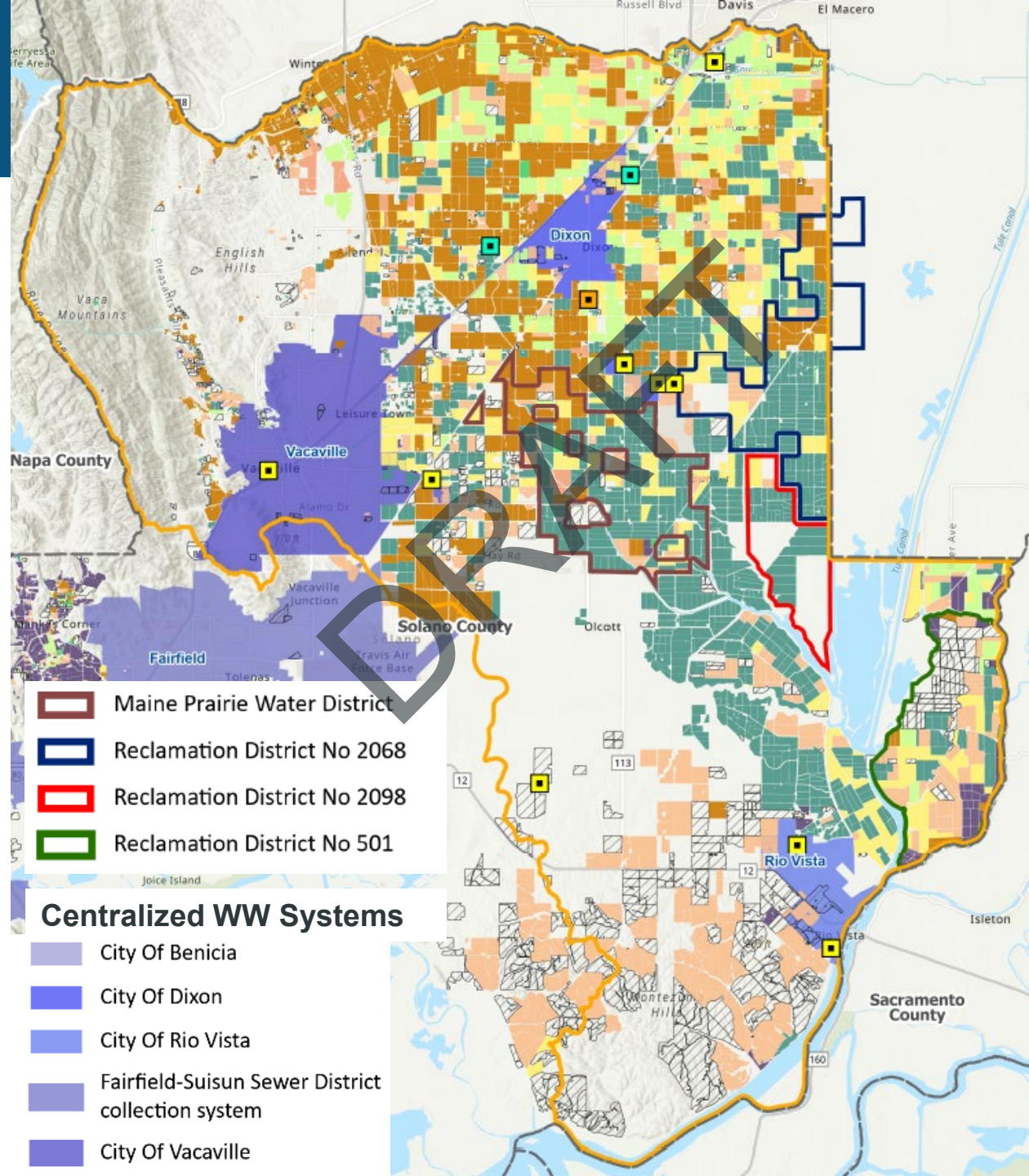
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-  U | URBAN UNSPECIFIED
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-  Maine Prairie Water District
-  Reclamation District No 2068
-  Reclamation District No 2098
-  Reclamation District No 501

Centralized WW Systems

-  City Of Benicia
-  City Of Dixon
-  City Of Rio Vista
-  Fairfield-Suisun Sewer District collection system
-  City Of Vacaville

Limited Industrial Land Use Areas for Ag Support

- Uses shall be related to or support agriculture.
- Uses should be developed to protect the soils and not adversely affect surrounding agricultural uses.

Dixon Limited Industrial Land Use – 750 acres (GPLU: LI)

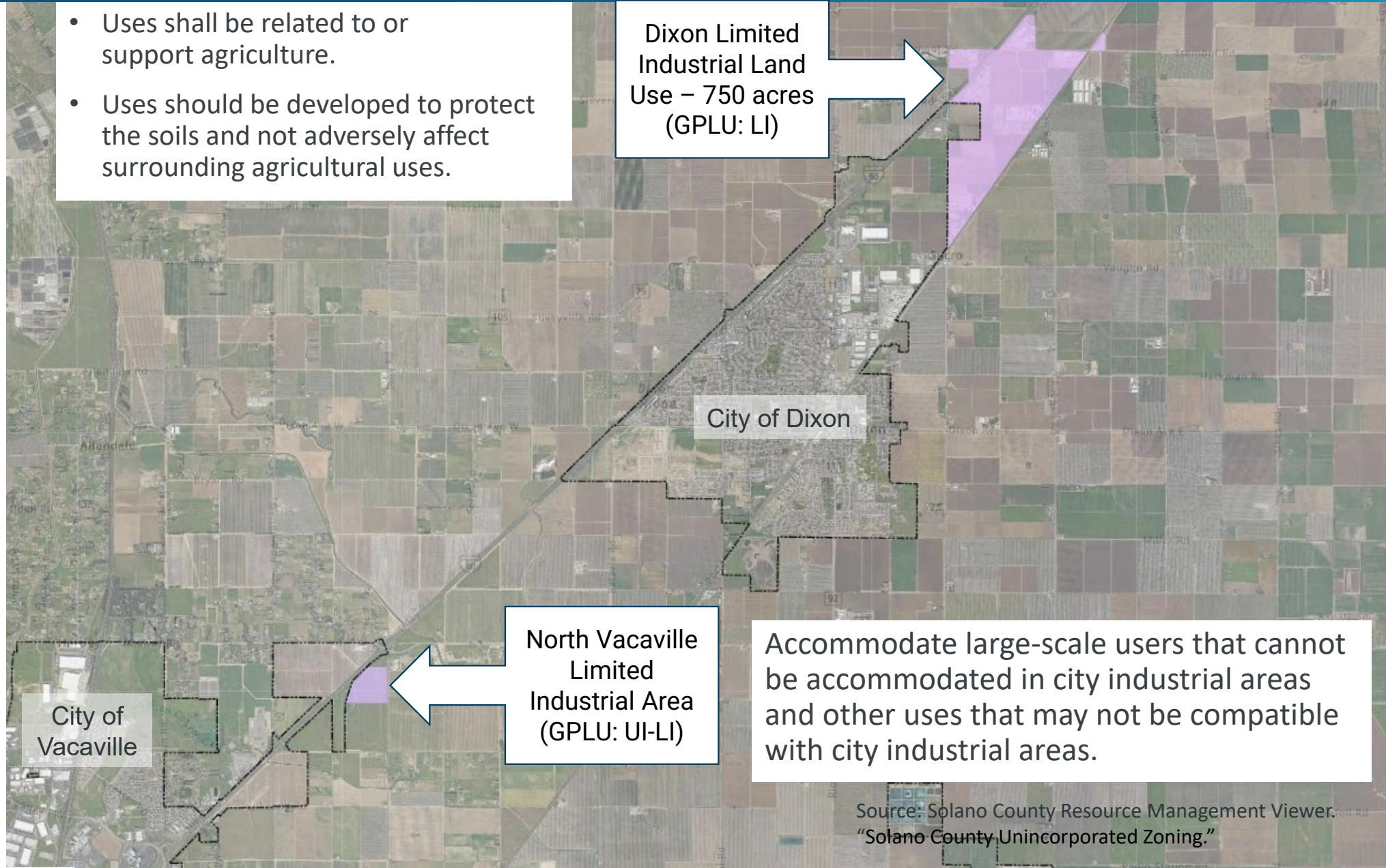
City of Dixon

North Vacaville Limited Industrial Area (GPLU: UI-LI)

City of Vacaville

Accommodate large-scale users that cannot be accommodated in city industrial areas and other uses that may not be compatible with city industrial areas.

Source: Solano County Resource Management Viewer.
“Solano County Unincorporated Zoning.”



Summary of Initial Needs/Challenges: Attracting and Maintaining Ag Supporting Services

- Lack of housing/water/wastewater systems limiting agricultural serving businesses & Ag-worker housing

Discussion: Attracting and Maintaining Ag Supporting Services Needs and Challenges

- What do ag services need/want to further the ag economy that are not available in the County?
 - Water?
 - Wastewater?
 - Drainage?
 - Housing?
 - Transportation route/Power/Other?
- What is needed to attract and retain value-added ag processors into Solano County?
- What is limiting ag producers from becoming ag processors?

Existing Water Challenges: Others?

Discussion: Other Challenges?

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- Steering Committee Meeting #3 – Western County Regional Issues and Challenges – June 28, 2023, 10:30 am – 12:15 pm
- Steering Committee Meeting #4 – Issues Wrap-up and Opportunities to Address Challenges – July 26, 2023, 10:00 am
- Summary of findings of Needs and Challenges– Under Preparation – late summer