

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

Green/Suisun Valley Area

Challenges and Potential Actions

April 30, 2024

Meeting Agenda

1

INTRODUCTIONS

Purpose of the Solano One Water Framework

2

MEETING PURPOSE AND OUTCOMES

Solano One Water Recap

Meeting Purpose and Outcomes

3

EXISTING CHALLENGES AND ACTIONS

Overview of Green/Suisun Valley Area:

- Challenges/Needs
- Completed, Ongoing, and Potential Future Actions

4

POTENTIAL FUTURE MASTER PLAN ACTIONS

Potential Case Study Ideas

Next Steps

Green/Suisun Valley Agricultural Area



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 to support Ag-related economic development in unincorporated Solano County
 - 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
- Website:
https://www.solanocounty.com/depts/rm/delta_and_water_programs/one_water_framework/

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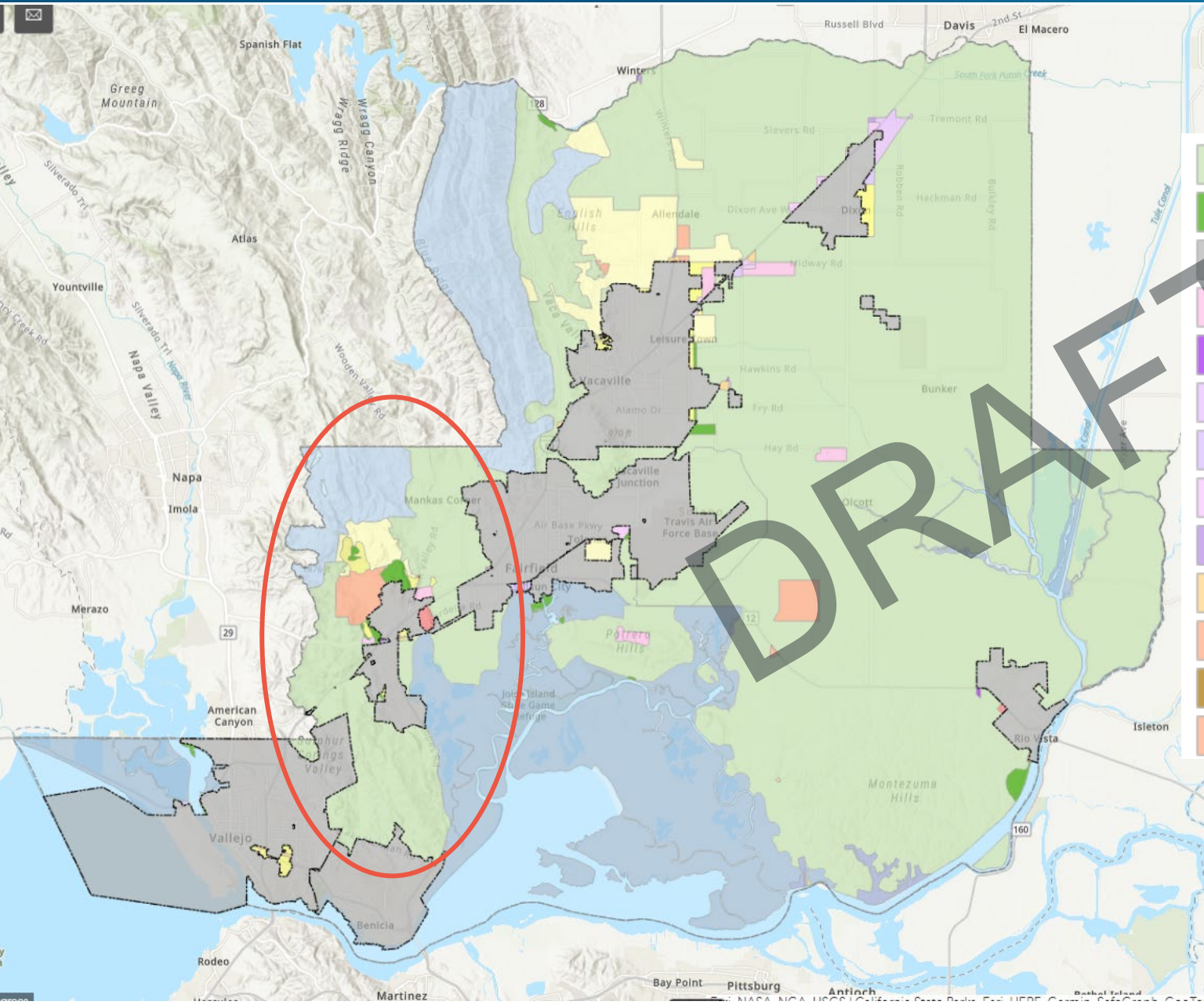
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Solano One Water – Supporting General Plan Implementation






































GENERAL PLAN LAND USE DESIGNATIONS – UNINCORPORATED COUNTY

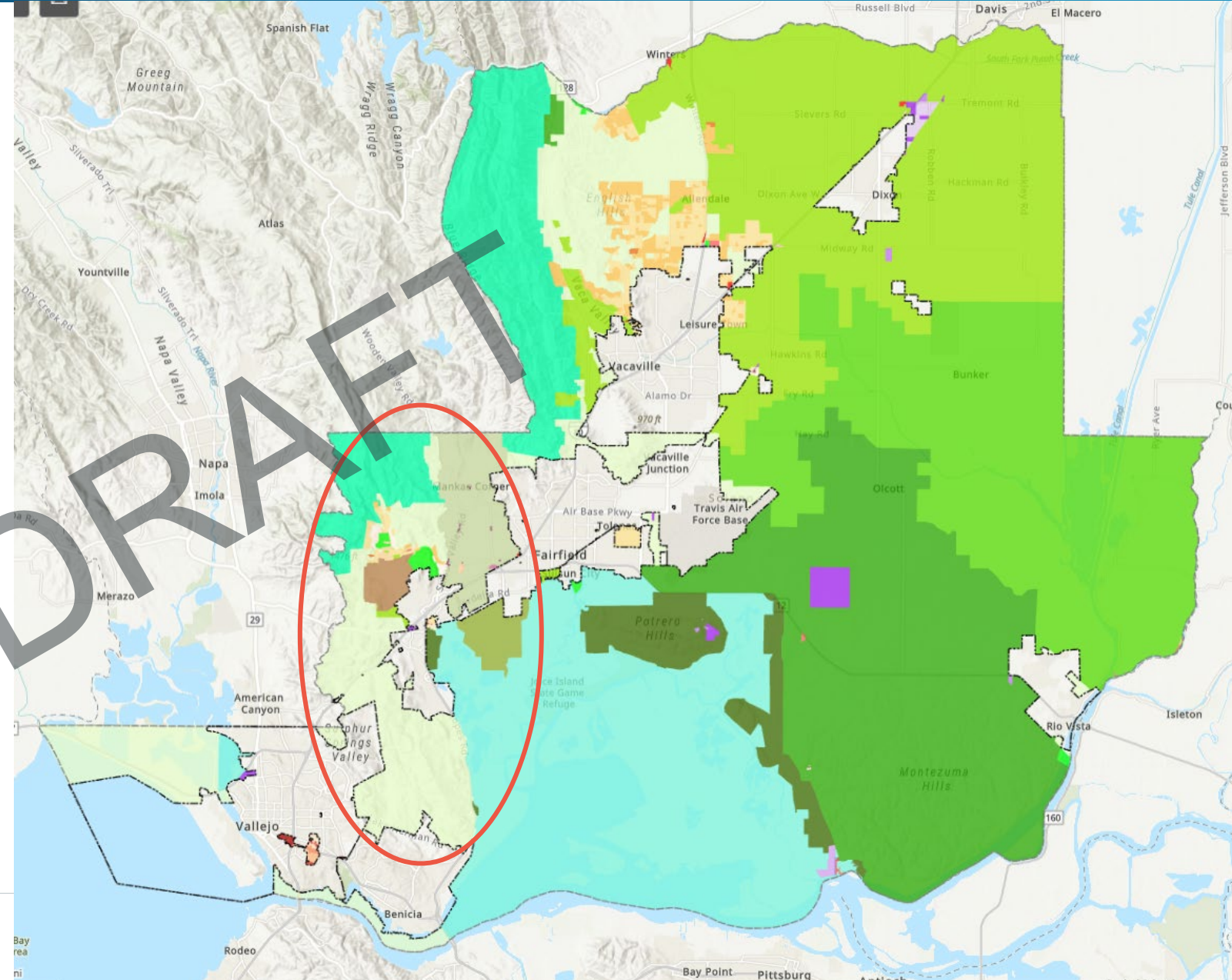
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|---------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------|-------------------------------------|
|  | Agriculture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

Source: Solano County Resource Management Viewer.
 "Solano_County_Unincorporated_General_Plan_2008_Updated"

Unincorporated County Zoning in the Green/Suisun Valley Ag Area

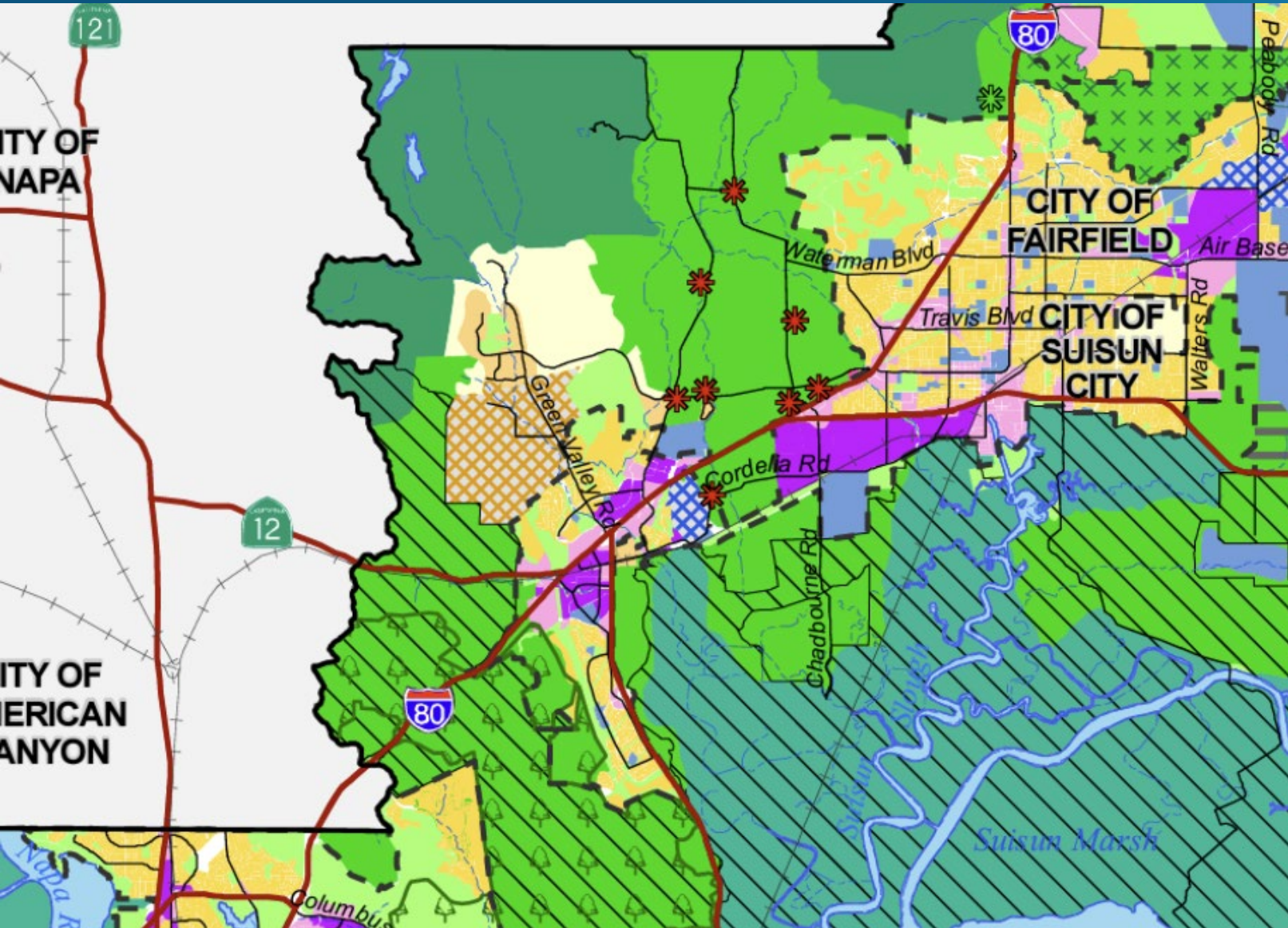
UNINCORPORATED COUNTY ZONING

 A-20	 RTC-20	 CS
 A-40	 RTC-15	 I-AS
 A-80	 RTC-10	 IWD
 A-160	 RTC-6	 MG-1/2
 ASM-80	 RTC-4	 MG-3
 ASM-160	 RTC-D6	 MP
 ASV-20	 RTC-D4	 W-160
 ATC	 RTC-MF	 P
 ATC-NC	 RTC-MU	 MGV-SP
 RR-2.5	 CH	
 RR-5	 CN	
 RR-10	 CR	
 RTC-1AC	 CRL	



Source: Solano County Resource Management Viewer.
 "Solano County Unincorporated Zoning."

Agri-Tourism Zoning in the Green/Suisun Valley Ag Area



* Neighborhood Agricultural/
Tourist Center (ATC)

→ Solano Co's Land Use Plan has designated 8 ATC areas in Suisun Valley, totaling 75 acres of land.

Source: Solano County General Plan, 2008.
"Figure LU-1 Land Use Diagram"

PURPOSE AND OUTCOMES OF TODAY'S MEETING

Present an overview of:

-existing systems,

-challenges, and

complete/in-progress
activities for

Water

Wastewater

Drainage/Flood

in the Green/Suisun
Valley agricultural area

Discuss and
refine potential
Master Plan
actions in
addressing
challenges for

Water

Wastewater

Drainage/Flood

and Discuss
Case Study Ideas

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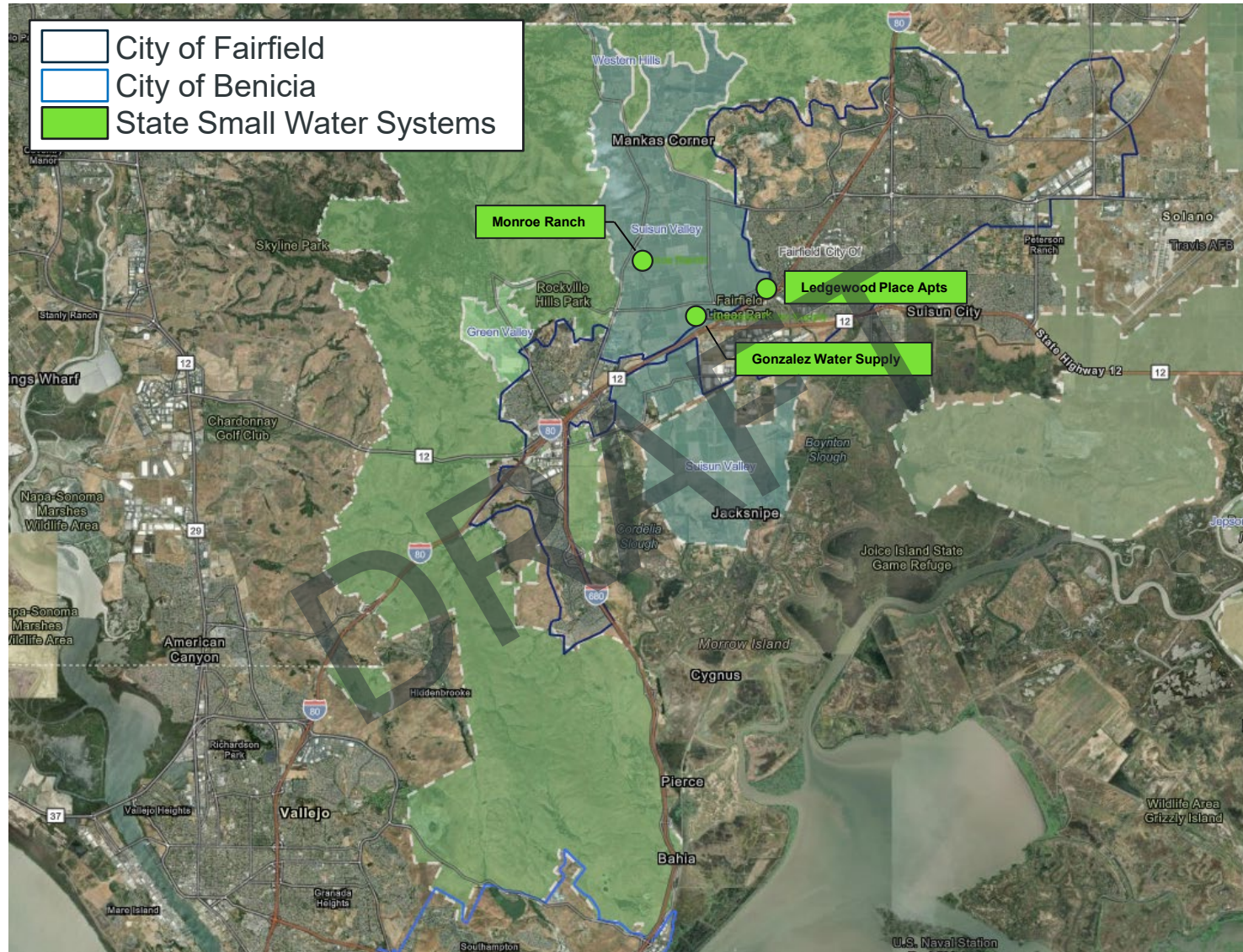
Overview of Green/Suisun Valley Area

Water Supply & Conveyance

Green/Suisun Valley Agricultural Area



Cities of Fairfield and Benicia Water Service and State Small Water Systems



Regional Water Conveyance: Putah South Canal and North Bay Aqueduct



-Putah South Canal – Delivery of Solano Project Water

- Proximity to Putah South Canal does not guarantee access to Solano Project Water
- Solano Project place of use determined by those who bought in to access the water during project development in the 1950s
- Expanding place of use for Solano Project highly unlikely

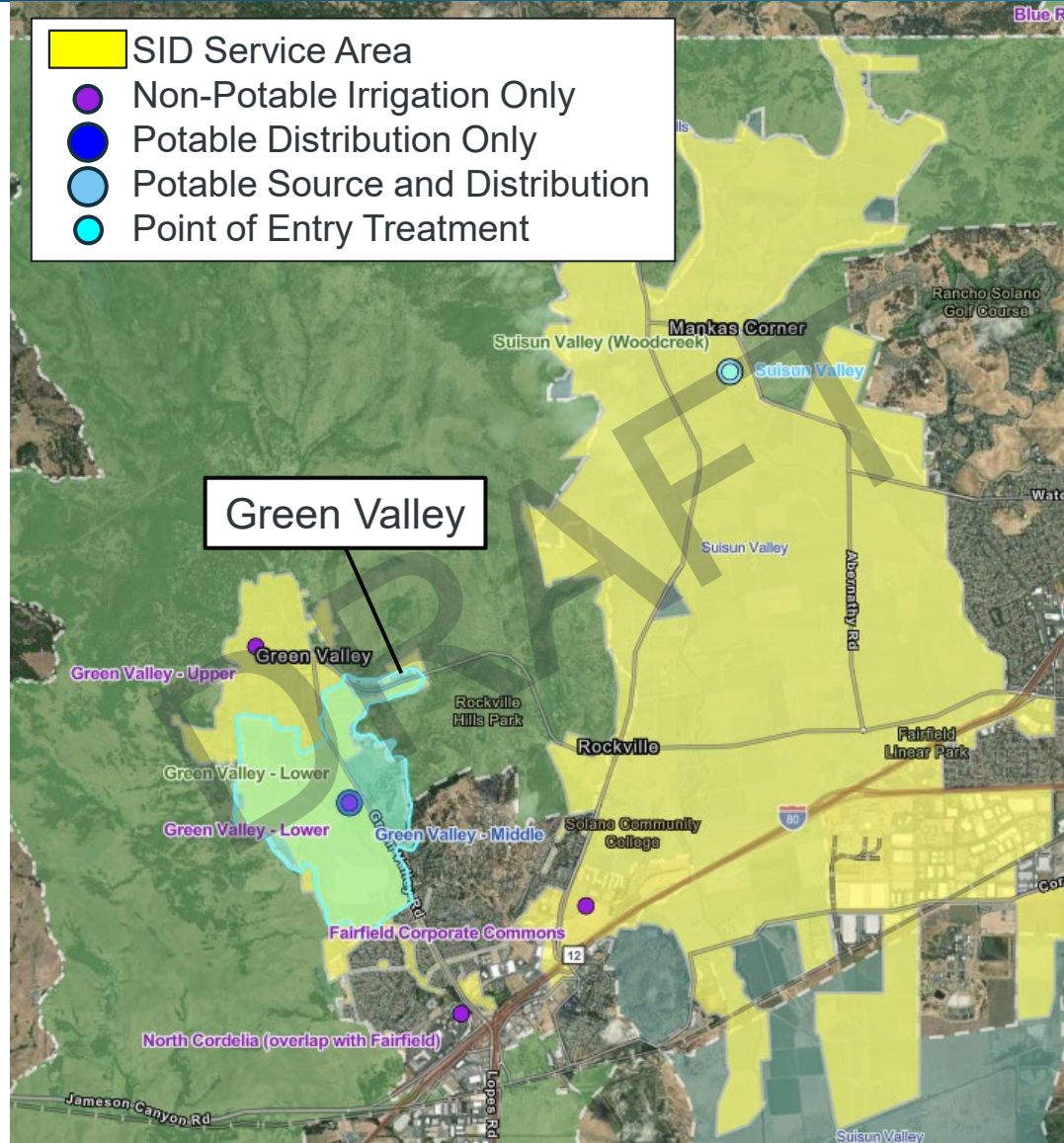
-North Bay Aqueduct – Delivery of State Water Project Water

-Vallejo Cache Pipeline Reactivation

Solano Irrigation District: Service Area and Water Systems

SID Small Systems in Green Valley:

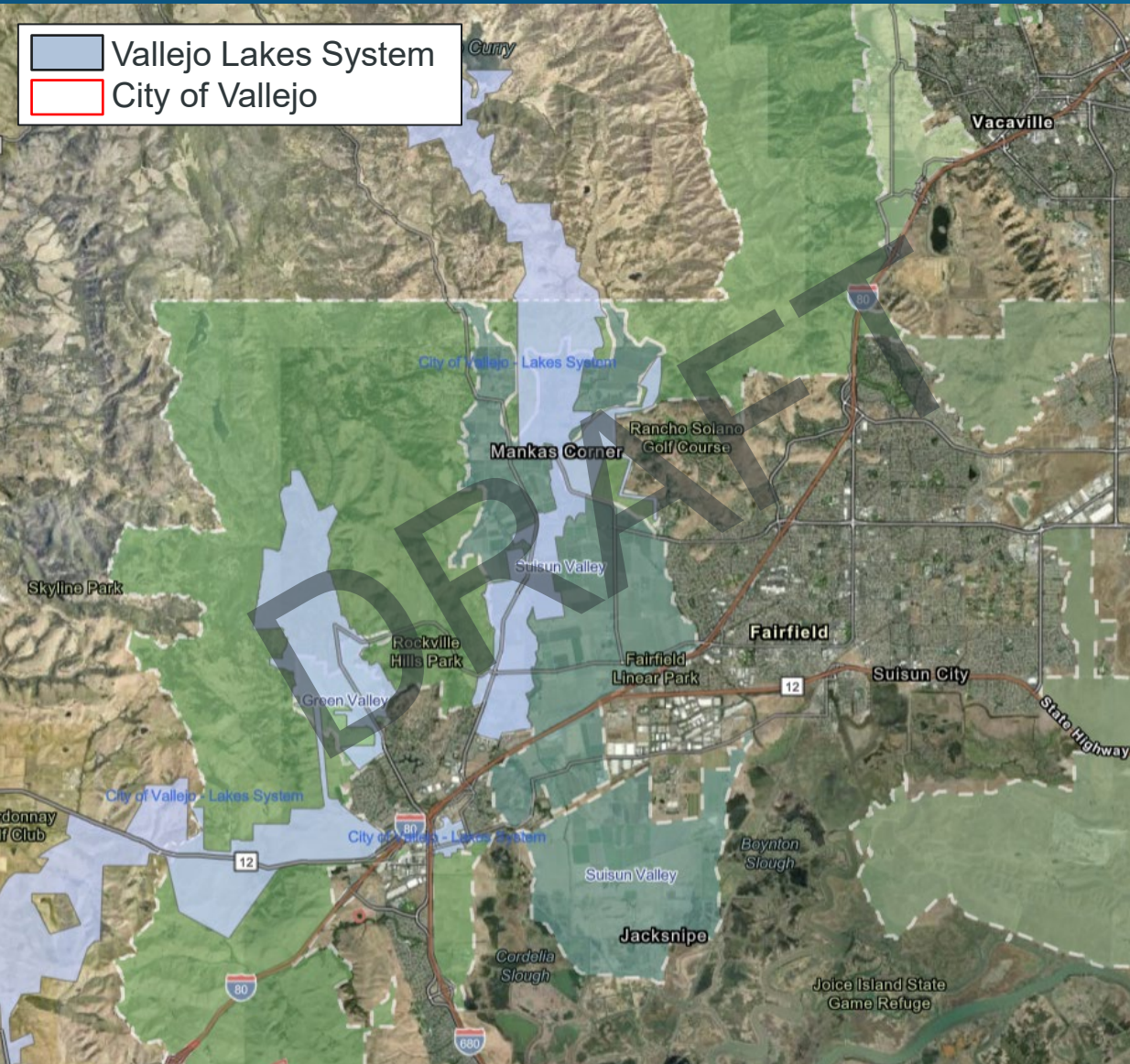
- **Upper Green Valley**
 - Potable source/distribution: Vallejo Lakes
 - Non-potable source/distribution: SID
 - # of non-potable connections?
 - Old system, needs upgrades
- **Middle Green Valley**
 - Planned development
 - Water service is in development
 - # of potable connections?
- **Lower Green Valley**
 - Potable source/distribution: Fairfield
 - Non-potable source/distribution: SID
 - # of potable and non-potable connections?
 - POE treatment?
- **Agricultural service to individual parcels**



SID Small Systems in Suisun Valley:

- **Suisun Valley**
 - 5 connections
 - Potable source/distribution: SID
 - Woodcreek 60 development has 3 POEs
- **Agricultural service to individual parcels**

City of Vallejo Lakes Water System (LWS)



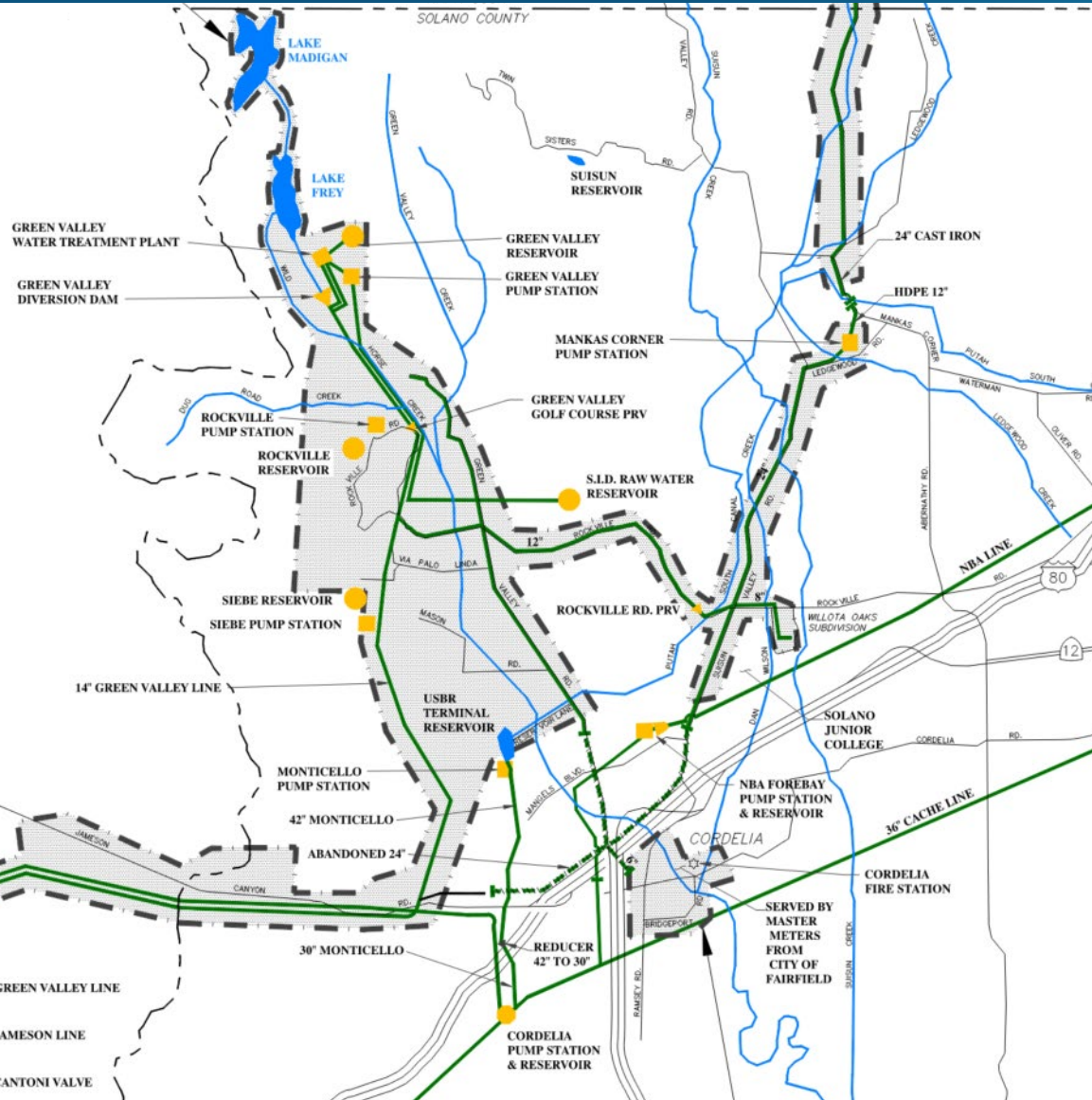
LWS in Green Valley:

- 607 existing LWS potable connections in Green Valley
 - 6 entitlements (= connections that receive water allocations at no cost through agreements with City of Vallejo in exchange for pipeline easements or riparian rights)
- 400 potential potable connections in Green Valley
 - Solano Co General Plan: Middle Green Valley specific project area (400 dwelling units)

LWS in Suisun Valley:

- 24" dia. pipeline passes through Suisun Valley
- **No retail connections?**

City of Vallejo Lakes Water System (LWS) – 2018 Study Highlights

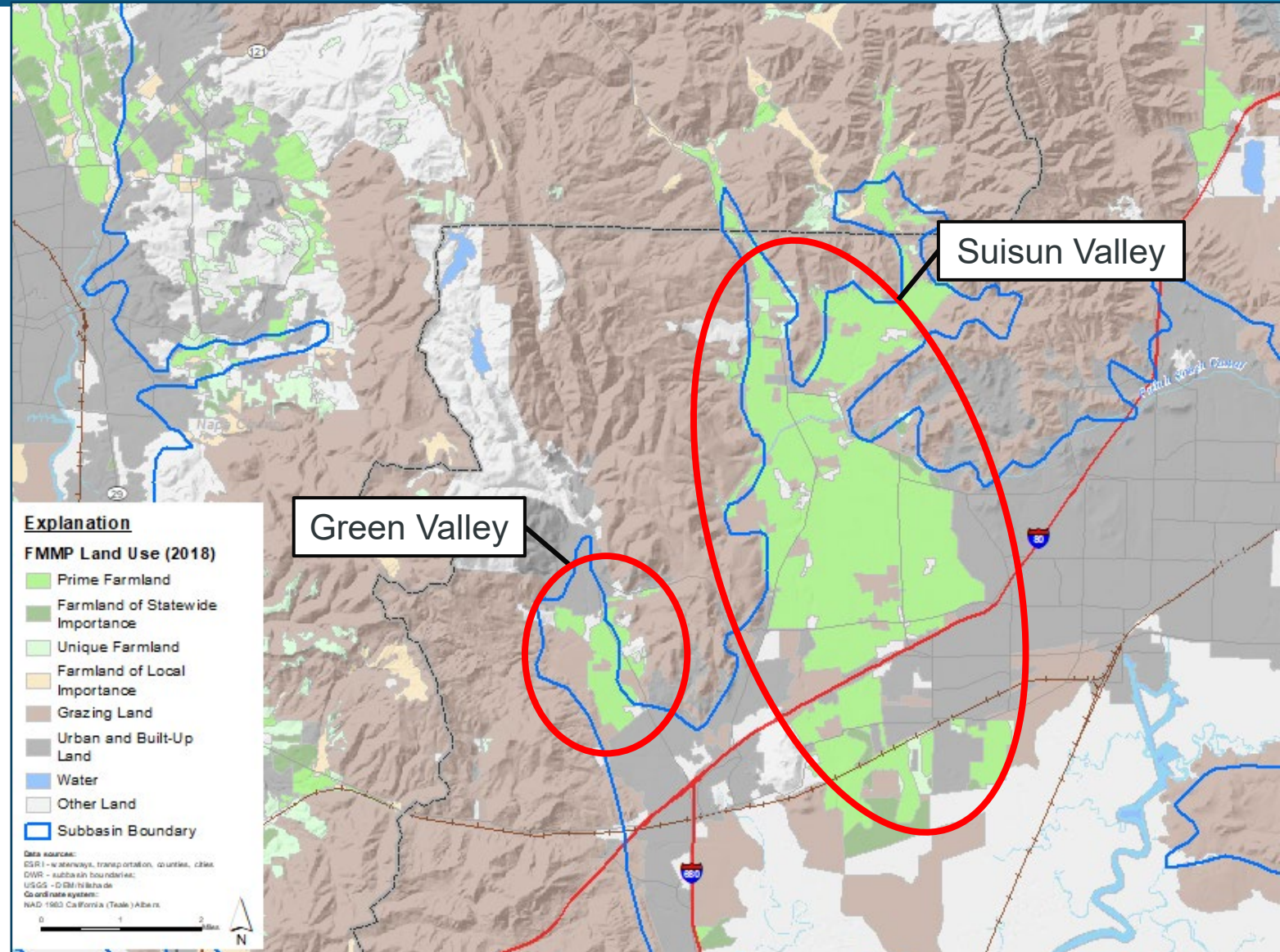


LWS key operating issues in Green Valley:

- Need to evaluate fire flow storage capacity and hydrant spacing
- System reliability due to aging infrastructure
 - Green Valley Pipeline constructed in 1894 (some portions replaced in 1997)
- Green Valley WTP capacity limits growth of LWS
 - Can serve up to approx. 100 new homes
 - Was running at 70% capacity in summer of 2017
 - “Potential capability and room on site to upgrade, but existing customer base does not justify the investment”
- High customer rates

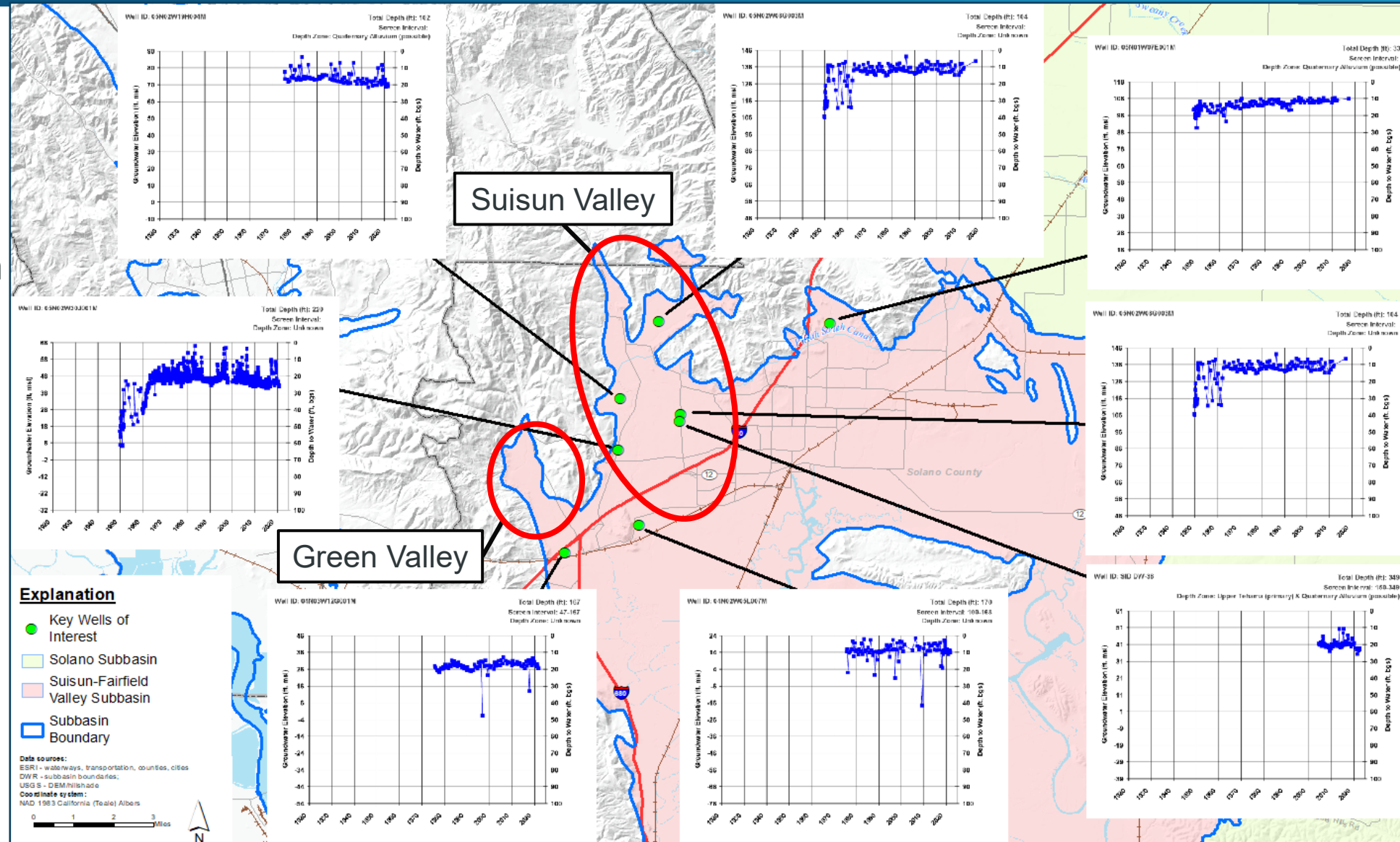
Land Uses

- Considerable Prime Farmland (CA Dept of Conservation)
- Extends outside of Suisun-Fairfield Valley GW Basin

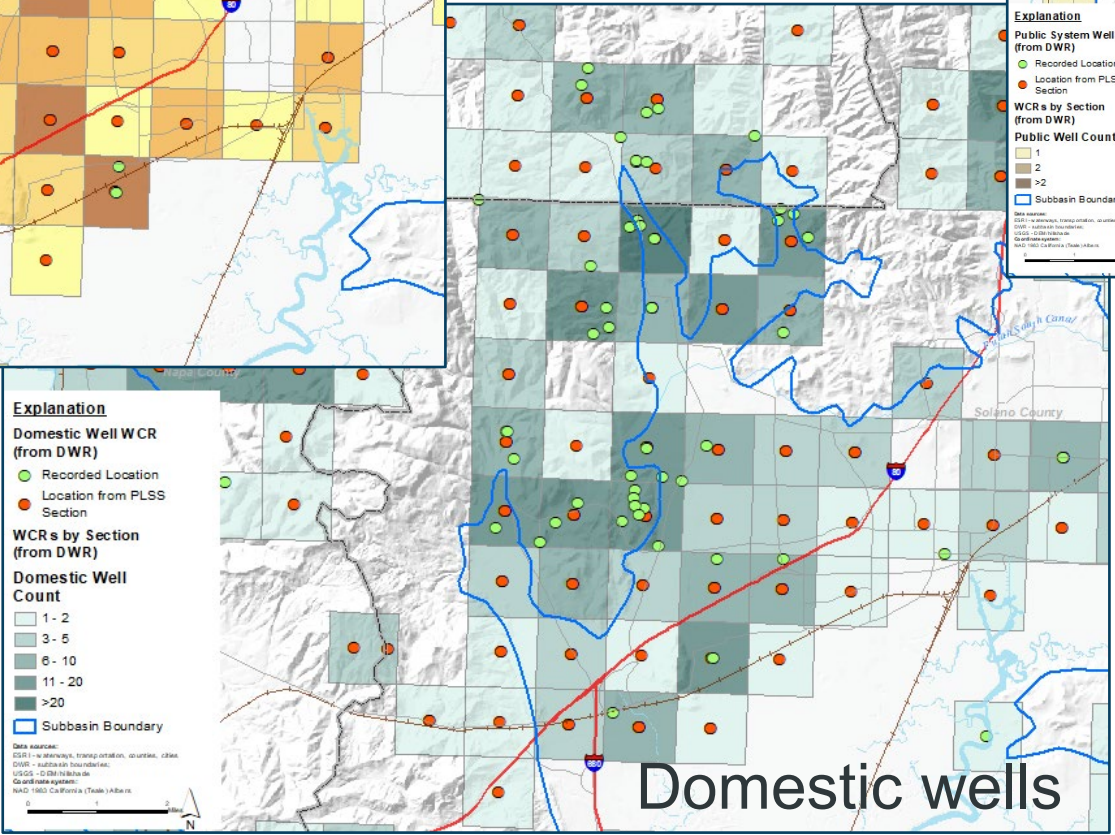
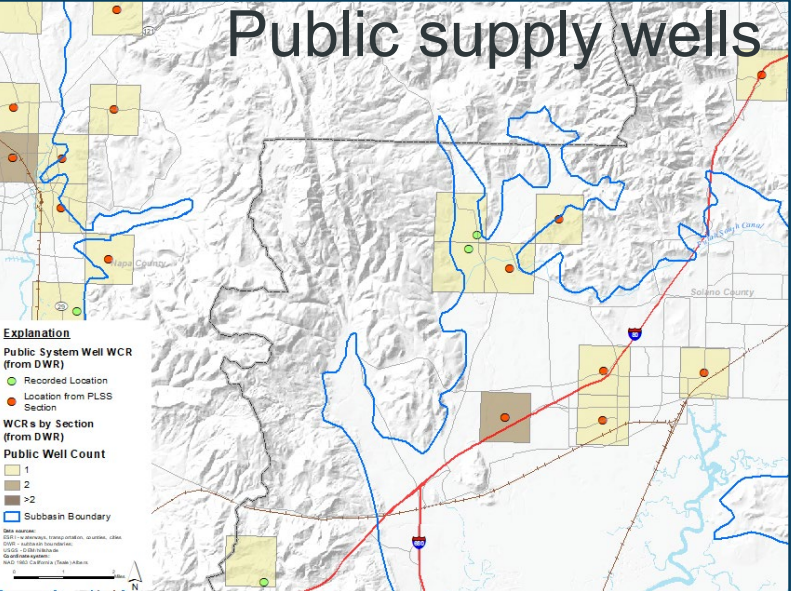
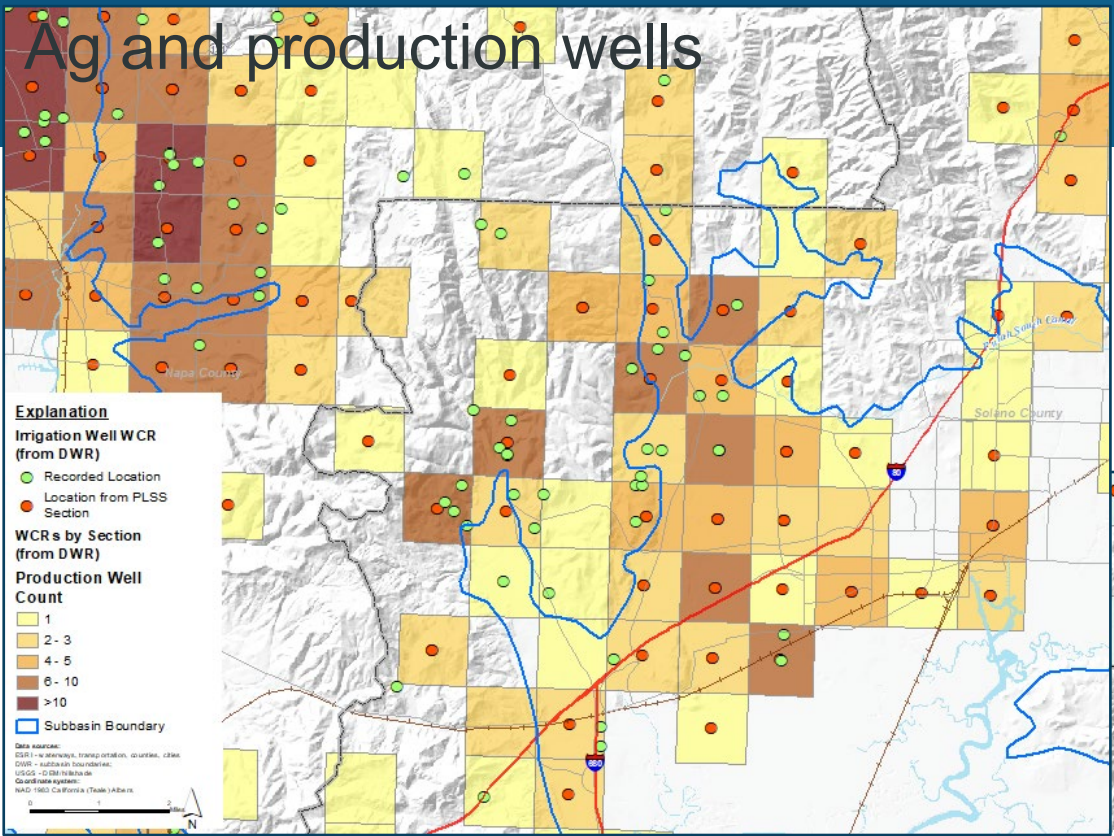


Groundwater Conditions

- Limited current/ recent monitoring
- Shallow and relatively stable levels
- Water quality suitable for most purposes with some potential for higher salinity (mainly south of I-80)



Groundwater Wells



- Localized areas of higher ag and domestic well density

- Few public water system wells

Other Challenges/Needs: Water Supply & Conveyance (Discussion)

- Small Systems:
 - Need an inventory of water systems, including public and non-public water systems, locations, types and amounts of supplies, and demands.
- Estimate of rural domestic and agricultural water supplies and demands?
- Groundwater:
 - Supply reliability limited by brackish groundwater (southern) for wells and physical access to surface water infrastructure.
 - Lack of understanding of groundwater resources. Can groundwater support agricultural and domestic demands?
 - Comprehensive database of domestic wells?
 - Mapping of failing septic systems and resulting impacts to GW
- Surface Water:
 - Financial challenges to maintaining/extending water supply/conveyance infrastructure over small customer base.
- Talent/Workforce Development

Completed & Ongoing Actions: Water Supply & Conveyance (Discussion)

- Completed and ongoing actions for water supply and conveyance:
 - **Green Valley**
 - **Solano Co. & City of Vallejo:** Established JEPA in 2020 focusing on LWS (excluding Lake Curry supply)
 - **Vallejo Lakes Water System Expansion Feasibility Study** (ARPA-Funded) anticipated summer 2024
 - **SID:** Continuing to study consolidation opportunities of Lower/Middle Green Valley systems
 - **Suisun Valley**
 - Limited water supply and conveyance planning
 - **Solano Co. Dept. of Agriculture & CA Dept. of Conservation:** Grant to develop agricultural infrastructure plan (water, wastewater, energy) needed to support buildout of Solano Co agricultural uses.
 - **Solano Co.:** Drought Planning, Well Ordinance
 - **State of CA:** SB610/221 for developments greater than 500 units



Potential Future Actions: Water Supply & Conveyance (Discussion)

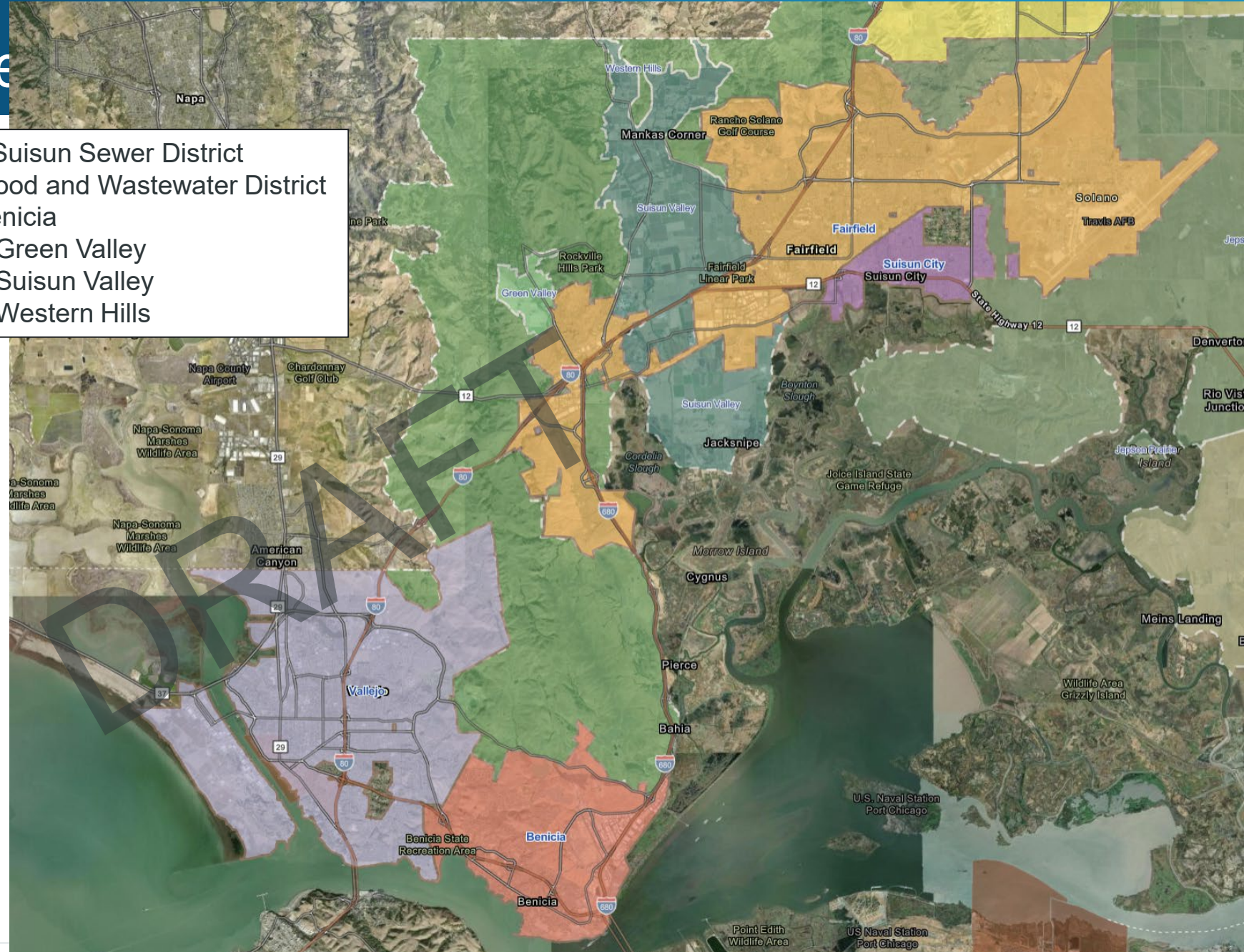
- **Green Valley**
 - **Solano Co.:** Pending results of Vallejo Lakes Water System Expansion Feasibility Study
- **Suisun Valley**
 - Evaluation of other actions such as consolidations
 - Groundwater studies (“GSP Light”)
- **Others?**

Overview of Green/Suisun Valley Area

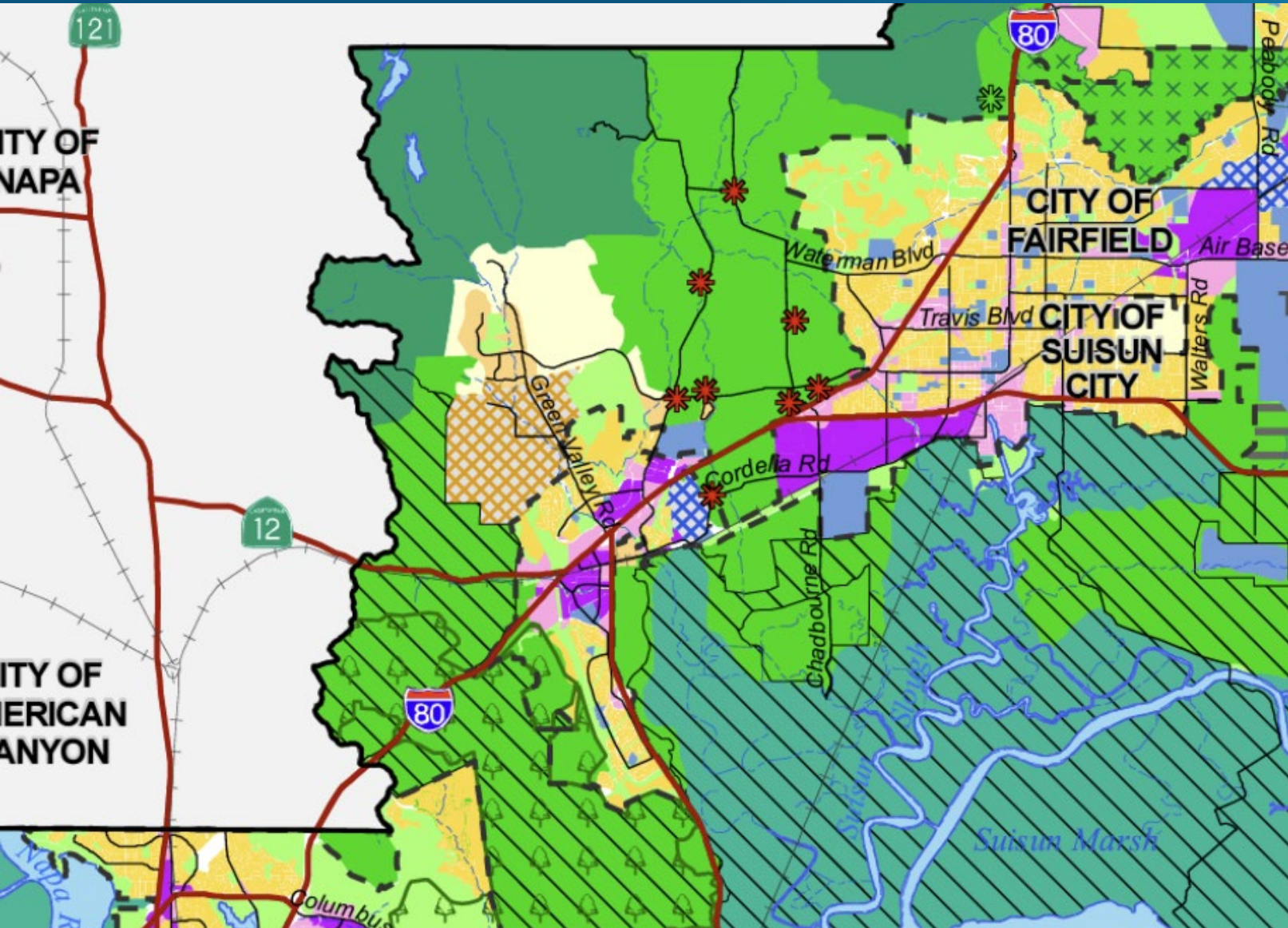
Wastewater

FSSD, VFWD, City of Benicia

-  Fairfield-Suisun Sewer District
-  Vallejo Flood and Wastewater District
-  City of Benicia
-  Ag Area: Green Valley
-  Ag Area: Suisun Valley
-  Ag Area: Western Hills



Agri-Tourism Zoning in the Green/Suisun Valley Ag Area



* Neighborhood Agricultural/
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→ Solano Co's Land Use Plan has designated 7 ATC areas in Suisun Valley, totaling 75 acres of land.

Source: Solano County General Plan, 2008.
"Figure LU-1 Land Use Diagram"

Challenges/Needs: Wastewater (Discussion)

- Agricultural-supported businesses limited by lack of centralized sewer services?
- Lack of septic system maintenance by property owners
- Water quality/health issues related to septic system
- Changes in land capability (e.g. rising groundwater, ADUs) for septic
- Financial and institutional challenges to maintaining/extending wastewater infrastructure
- Pending SFRWQCB nitrogen regulations may impact whether FSSD can add high strength waste service (especially if EBMUD discontinues)
- Recycled water is potential approach to address nitrogen regulations
 - Little demand for recycled water; not feasible due to cost of delivery
- FSSD service area expansion limitations because of Bay Delta Plan
 - Currently expansion only for human health needs
- Talent/Workforce Development

Completed & Ongoing Actions: Wastewater (Discussion)

- Completed and Ongoing actions for wastewater:
 - **Solano Co. & FSSD:** coordination re: expanding sewer services to properties in Green/Suisun Valley area (e.g., Middle Green Valley, Woodcreek 60)
 - Middle Green Valley Specific Plan
 - **FSSD:** Development and implementation of FSSD Resilient and Green Master Plan
 - Incorporating natural processes into treatment such as wetlands
 - **Solano Co. Dept. of Agriculture & CA Dept. of Conservation:** Grant accepted to develop agricultural infrastructure plan (water, wastewater, energy) needed to support buildout of Solano Co agricultural uses.

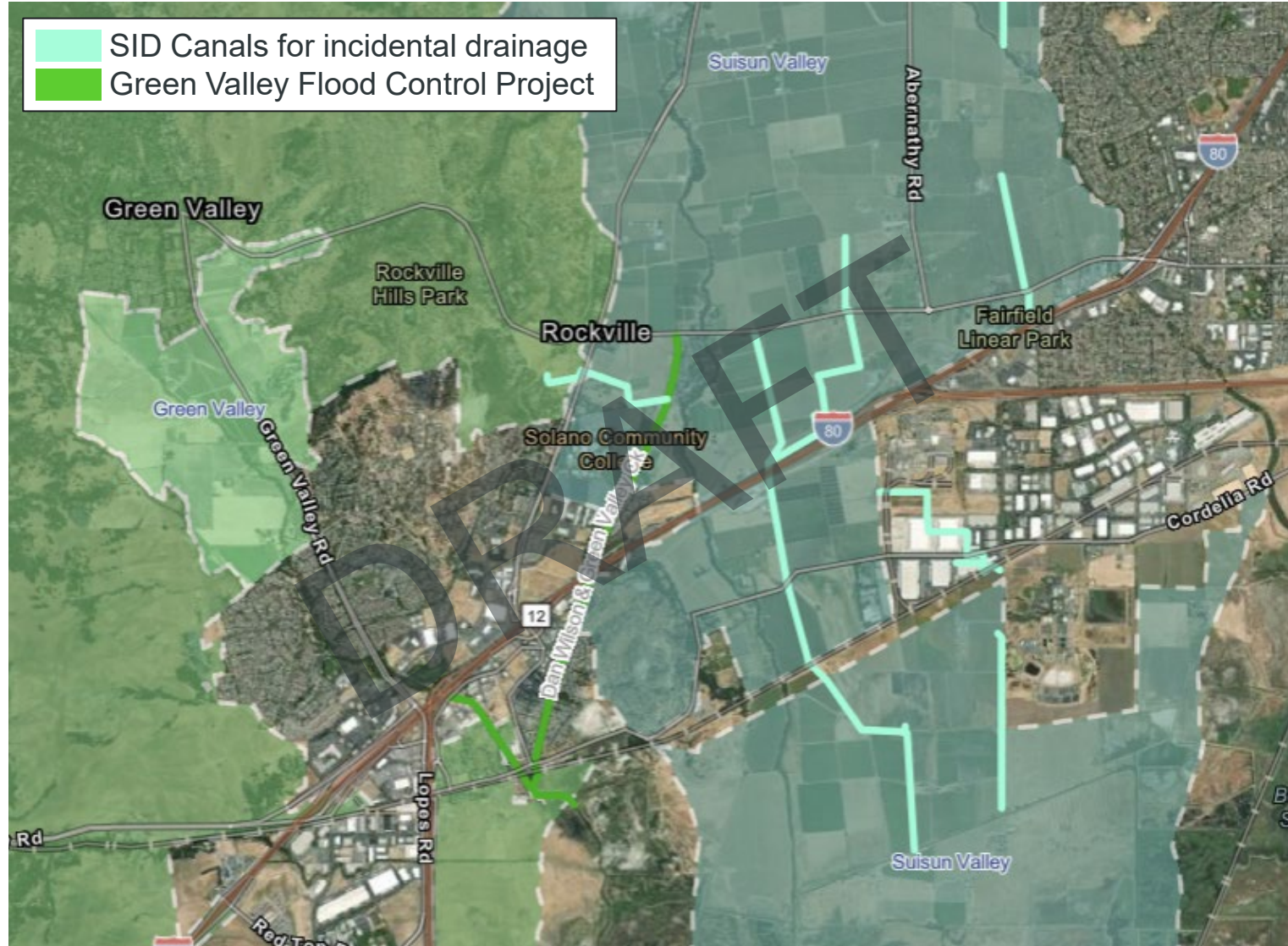
Potential Future Actions: Wastewater (Discussion)

- **Solano Co. Dept. of Resource Management & FSSD:** to determine necessary wastewater service, FSSD capacity, and feasibility of providing services to Green/Suisun Valley area.
- Suisun Valley Groundwater/Septic studies (“GSP Light”)
 - Study future WW needs and potential impacts to GW quality
 - Industrial high strength waste production?
 - Action related to pending nitrogen regulation?
 - Evaluate unincorporated lands for septic suitability under changing conditions
- Develop institution (e.g. CSA) and infrastructure to collect WW and deliver to FSSD
- Legislative action to expand FSSD service area (Napa Co example for Ag housing/MHP)
- Targeted outreach surveys to end users


















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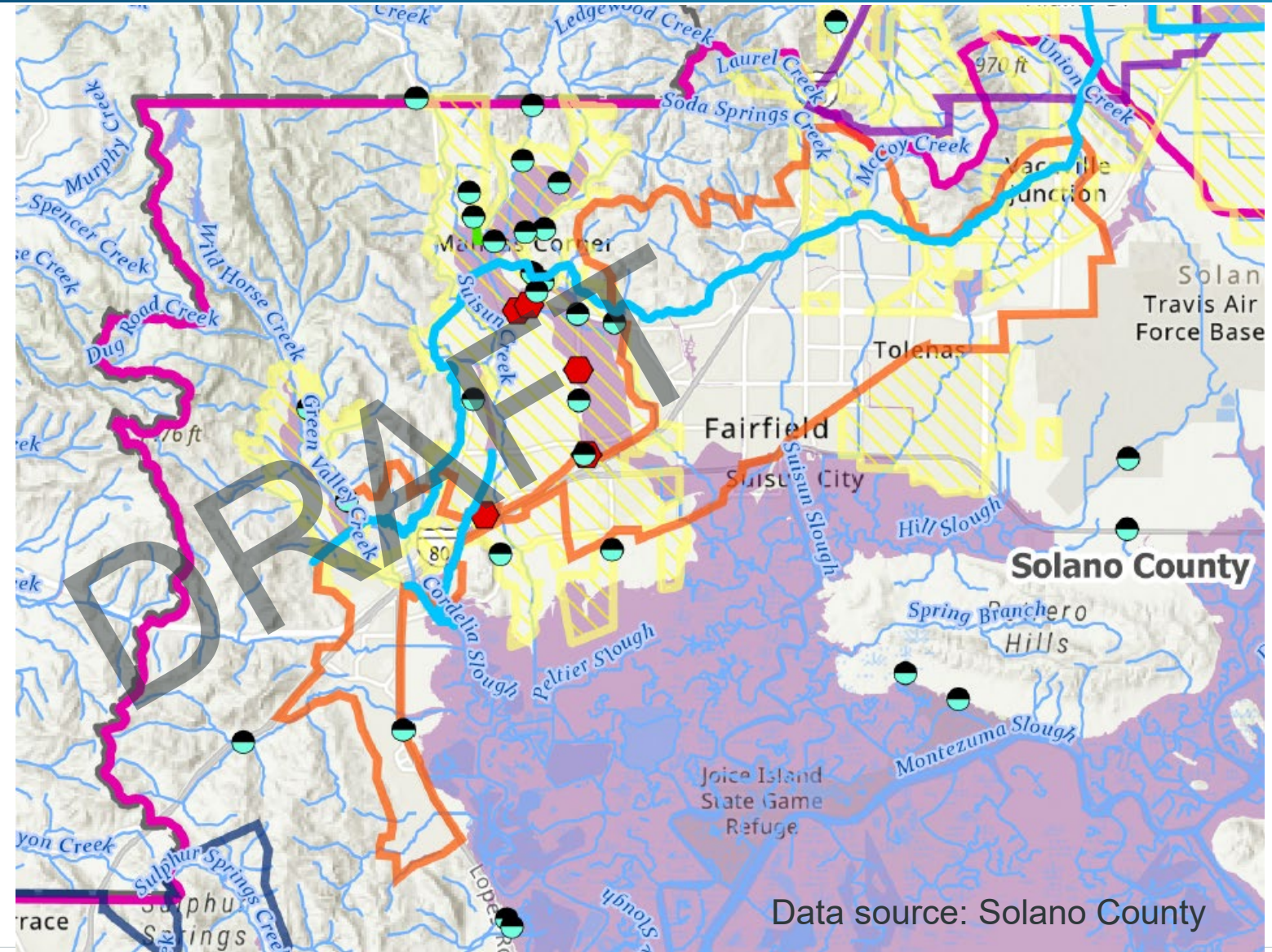
Flood Control & Drainage

Canals



Areas Prone to Flooding

-  2023 Flooded Signs
-  2023 Road Closures due to Flooding
-  Putah South Canal and Green Valley Flood Control Project
-  County Boundaries
-  San Francisco Bay Regional Board
-  1% Annual Chance Flood Hazard
-  Dixon City Of
-  Fairfield City Of
-  Rio Vista City Of
-  Solano Irrigation District
-  Vacaville City Of
-  Vallejo City Of
-  Benicia City Of
-  California Streams
-  Wetland
-  Lakes, Ponds, Reservoirs, and Estuaries
-  Rivers and Streams



Challenges/Needs: Flood Control & Drainage (Discussion)

- County infrastructure mapping for canals/pipes incomplete especially for ag water vs drainage/flood
- Limited locations to store/discharge drainage/flood flows during wet periods
- Multiple entities with responsibilities to maintain/operate natural/engineered drainages
 - Inconsistent creek cleaning especially on segments owned by private landowners
 - Presence of salmonids complicates permitting for creek cleaning
- Limited capacity for stormwater recharge
 - Shallow groundwater
 - Declining groundwater levels in Western Suisun Valley?
- Limited studies and modeling for Suisun Creek and Green Valley Creek; flashy
- Land use changes (i.e. urbanization) that have increased flows to facilities not sized appropriately
- Limited documentation of flooding

Completed, Ongoing, & Potential Future Actions: Flood Control (Discussion)

- Completed actions for flood control & drainage:
 - **Solano Co.:** General Plan Policies (PF.G-1, PF.G-2, PF.P-4, PF. P-32-36)
 - **SCWA:** Flood Management Policy
 - **State of CA:** MS4
- Potential future actions for flood control & drainage?
 - Improve institutional coordination
 - Improved mapping of drainage/flood facilities
 - Database/data collection related to flooding events and impacts
 - Modeling/planning activities based on data
 - Coordinated permitting for creek cleaning on private/public properties
 - Other?

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Discussion

Potential Case Study Topics for Suisun Valley

1. Develop understanding of groundwater basin and develop a groundwater monitoring program.
 - Water supply availability
 - Water quality
 - Other supplies (surface, imported, recycled)
2. Develop understanding of water use (type, seasonality) for changes that might be seen with buildout to the ag zoning such as demand by greenhouses, demand by tasting rooms, demand by temporary events/outdoor events, demands of small hotel businesses.
3. Develop understanding of current and potential wastewater generation that might be seen with buildout to the ag zoning ordinance.
4. Develop policies and strategies others have used to expand infrastructure outside of municipal areas while protecting agriculture (e.g., ag conservation easements)

Other Case Study Topics for Green Valley/Suisun Valley

1. Talent/workforce development/retention
2. Develop options for dealing with high strength waste if groundwater basin unable to assimilate or if EBMUD/others no longer accepts waste.
3. Recycled water program evaluation
4. Flood/drainage management planning, modeling, and administration
 - Coordinate permitting for creek cleaning on private/public properties
5. Recharge pilot studies
6. Other?

Next Steps

- Draft Framework Chapter 4: Actions, Partnerships, and Project Concepts
- Late May/early June: SC Meeting #8: Eastside (Dixon + Elmira Maine Prairie)
 - Challenges, actions, partnerships, case study