



North Fork Kings
Groundwater Sustainability Agency

Groundwater Sustainability Plan (GSP) Status Report

Kevin Johansen
Provost & Pritchard Consulting Group

BOARD OF DIRECTORS MEETING

December 18, 2019

RIVERDALE EDUCATION CENTER



Presentation Overview

1. Schedule
2. Draft GSP Comments Received and Responses
3. Revisions to GSP



Schedule

- December 13, 2019 submission to Board:
 - Responses to comments received on public draft GSP
 - Sections where changes made to GSP (track changes)
- December 18, 2019:
 - Review response to comments and revisions to GSP
 - NFKGSA adoption of GSP
- December 19, 2019 – January 31, 2020:
 - Accept changes and finalize GSP
 - Upload GSP to DWR SGMA Portal online, Kings Basin plan manager to click 'submit' after all Kings Basin GSPs have been uploaded

Comment Letters Received on Public Review Draft GSP

Comment letters on the NFKGSA Draft GSP were received from the following entities/individuals:

Comment Letter	Entity/Individual	Abbreviation
A	California Wildlife Foundation – California Oaks Program	CWF
B	Leadership Counsel & Self-Help Enterprises	LC
	B1 Letter from Leadership Counsel	
	B2 Focused Technical Review from Self-Help Enterprises and Leadership Counsel	
C	California Poultry Federation	CPF
D	Bill Miguel	Miguel
E	The Nature Conservancy	TNC
F	Self-Help Enterprises (included Technical Review B2)	SHE
G	North Kings Groundwater Sustainability Agency	NKGSA
H	Department of Fish and Wildlife	DFW
I	Westlands Water District	WWD
J	Clean Water Action, Clean Water Fund, Community Water Center, Local Government Commission, Audubon California, The Nature Conservancy	CWA et al

Review comments grouped by similar topics and summarized.



Comment Response Summary - Topics

1. Public Engagement / Notice & Communication
2. Water Budgets
3. Groundwater Levels
4. Groundwater Quality
5. Undesirable Results
6. Sustainable Management Criteria
7. Impacts on DACs and domestic water users
8. Monitoring Network
9. Interconnected Surface Water
10. Groundwater Dependent Ecosystems
11. Sustainability Goal
12. Projects and Management Actions
13. General Comments

Review comments summarized – 150+ comments with responses prepared.



Comment Response Summary - Considerations

Some comments are valid, but the GSA may not be able to address at this time because of lack of information. Items the GSA needs to consider in responding to comments:

- NFKGSA is a new regional agency organizing a very diverse area
- Best available data was used in preparing the GSP, but in some cases, data was not very good and numerous data gaps have been identified
- Water level data has historically been collected by multiple agencies throughout the area with inconsistent monitoring
- Most water level data aren't associated with a known aquifer zone



Comment Response Summary - Considerations

- Water quality data is only available from publicly available community water systems, which is sometimes inconsistent in timing and constituents tested
- The GSA is not required by SGMA to address undesirable results that occurred before January 1, 2015, i.e., GSA is not required to restore conditions to pre-SGMA levels
- SGMA does not affect surface water rights; the GSA has no ability to impact delivery (timing, location or duration) of surface water
- Only thing the GSA can control is groundwater management activities - such as groundwater pumping and intentional recharge - and the impact of those activities
- Funding is limited – need to balance need for additional information vs. constructing projects to help solve the problem

Revisions made to Draft GSP

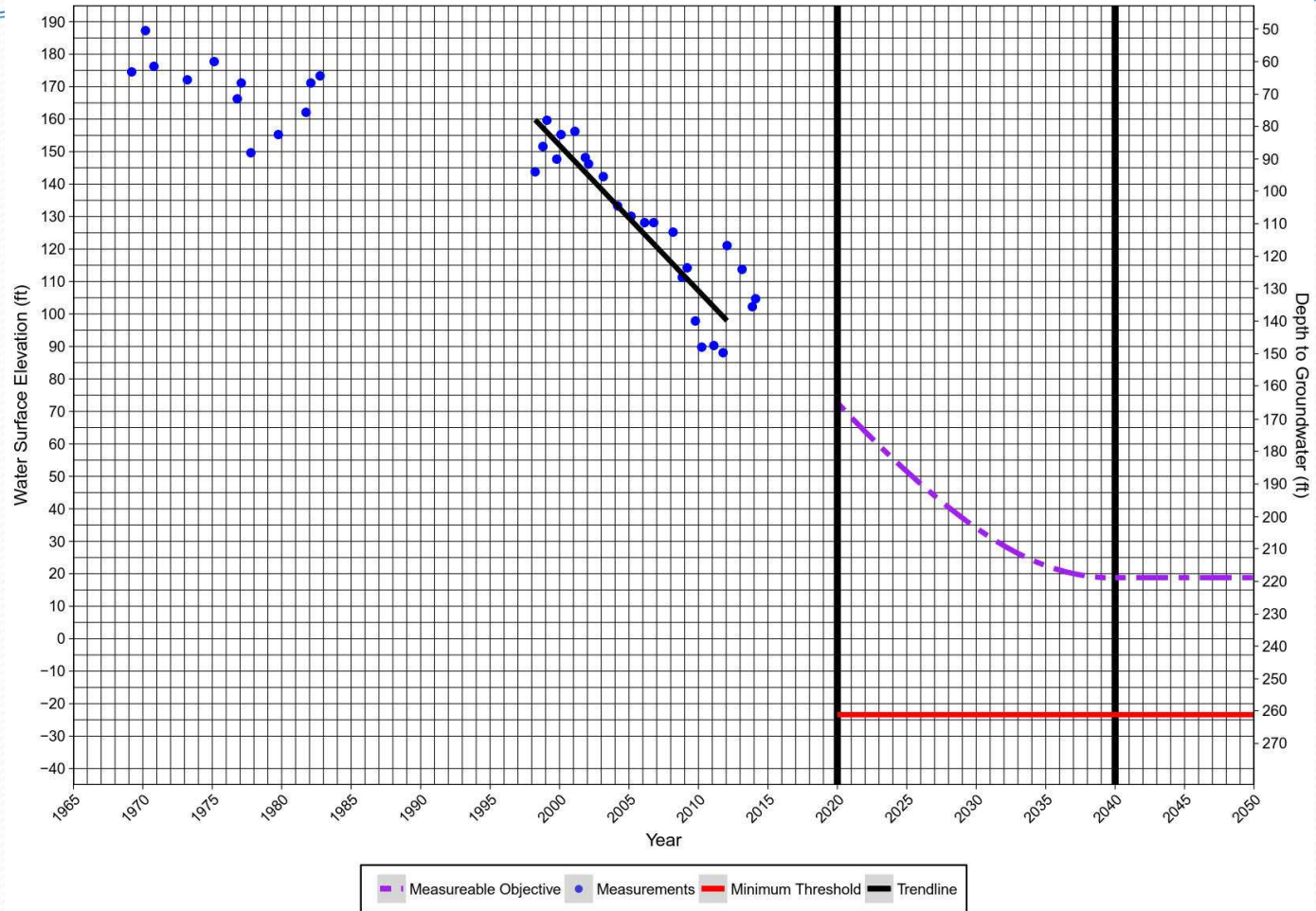
- Updated Water Level
MO's & MT's and
corresponding
hydrographs

Well ID	Measurable Objective (Elevation in feet)	Measurable Objective (Depth in feet)	Minimum Threshold (Elevation in feet)	Minimum Threshold (Depth in feet)
18S20E02A001M	9.8	233	-41.8 -56.8	284.6 299.6
17S18E09R001M	-87.4	285.2	-126.1 -141.1	323.9 338.9
17S20E12Q001M	14	228.7	-40.3 -55.3	283 298.0
17S21E09M001M	90.7	162	40.2	212.5
17S20E08L001M	-24.4	257.1	-78.6	311.3
17S19E11H001M	-49.8	272.5	-93 -108.0	315.7 330.7
17S22E07A001M	129.4	143.3	81.2	191.5
17S19E03L001M	-48.7	268.7	-96	316
17S20E02M001M	18.8	218.9	-23.4 -48.4	261.1 286.1
16S18E33Q001M	-100.2	298.9	-145.2 -160.2	343.9 358.9
16S20E31P001M	-32.2	269.9	-72.3 -87.3	310.0 325.0
16S20E35J001M	51.9	197.8	16.9 1.9	232.8 247.8
16S21E31J001M	81.5	176.2	38.9	218.8
16S19E25B001M	-8.5	245.2	-59.7	296.4
16S21E30C001M	81.6	176.1	38.3	219.4
B06	-29.8	212.5	-61.8	244.5
B22	-26.9	226.1	-49.6	248.8
B31	-29.9 -30.9	237.9 238.9	-81.4 -67.8	289.4 275.8
CID51	44.2	199.3	2.5 -12.5	241 256.0
LID14	23.0 41.6	212.9 224.3	-12.1 -47.2	248 283.1
LID21	26.6	208.3	-20.5	256.4
LID25	-37.5 -76.1	250.4 289.0	-120.9 -145.3	333.8 358.2
LID26	-28.3 -36.9	242.2 250.8	-74.3 -83.2	288.2 297.1

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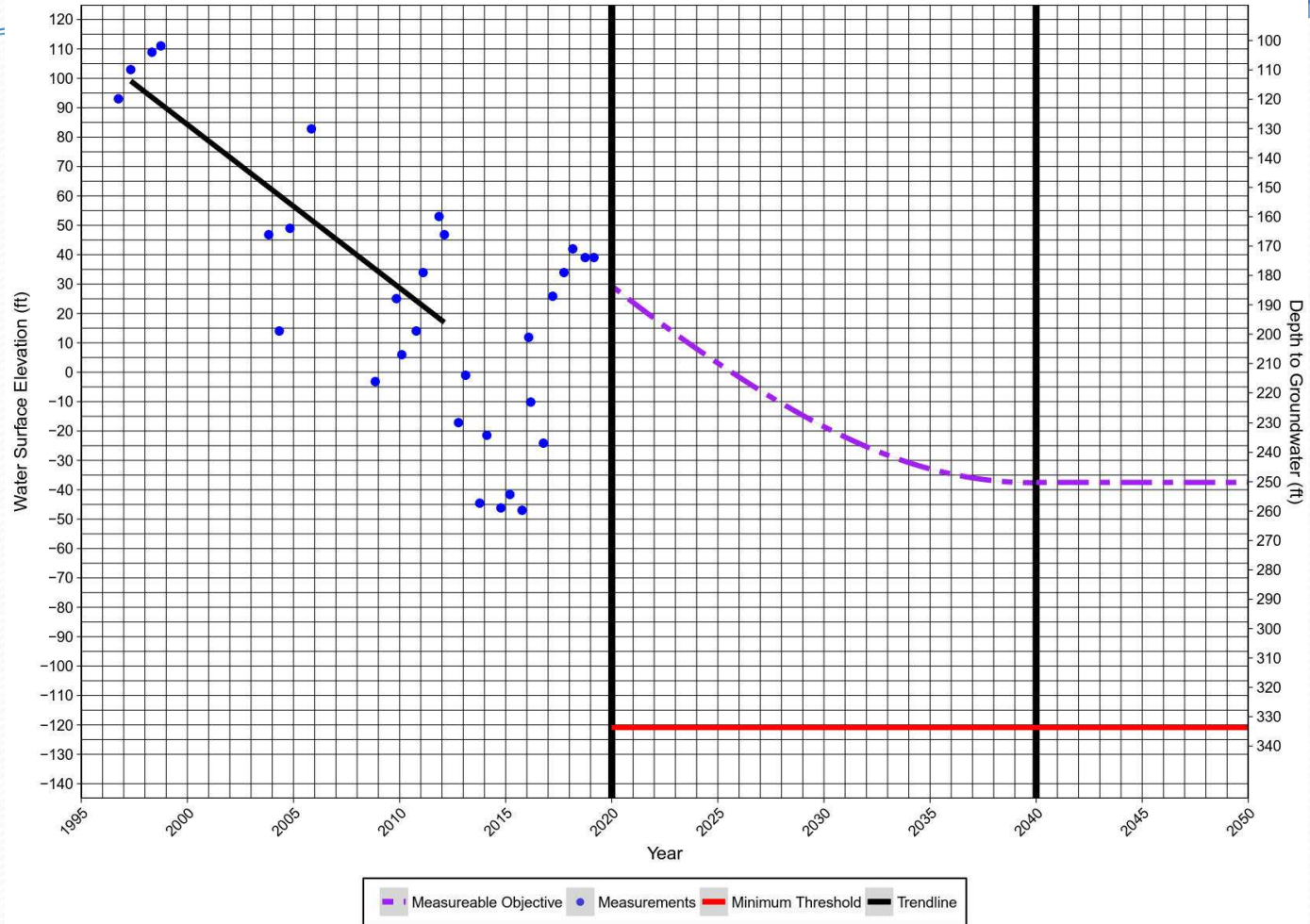
State Well ID: 17S20E02M001M

Ground Surface Elevation: 238 ft, Perforated Depth: 280 ft Open Bottom
North Fork Kings GSA



LID25

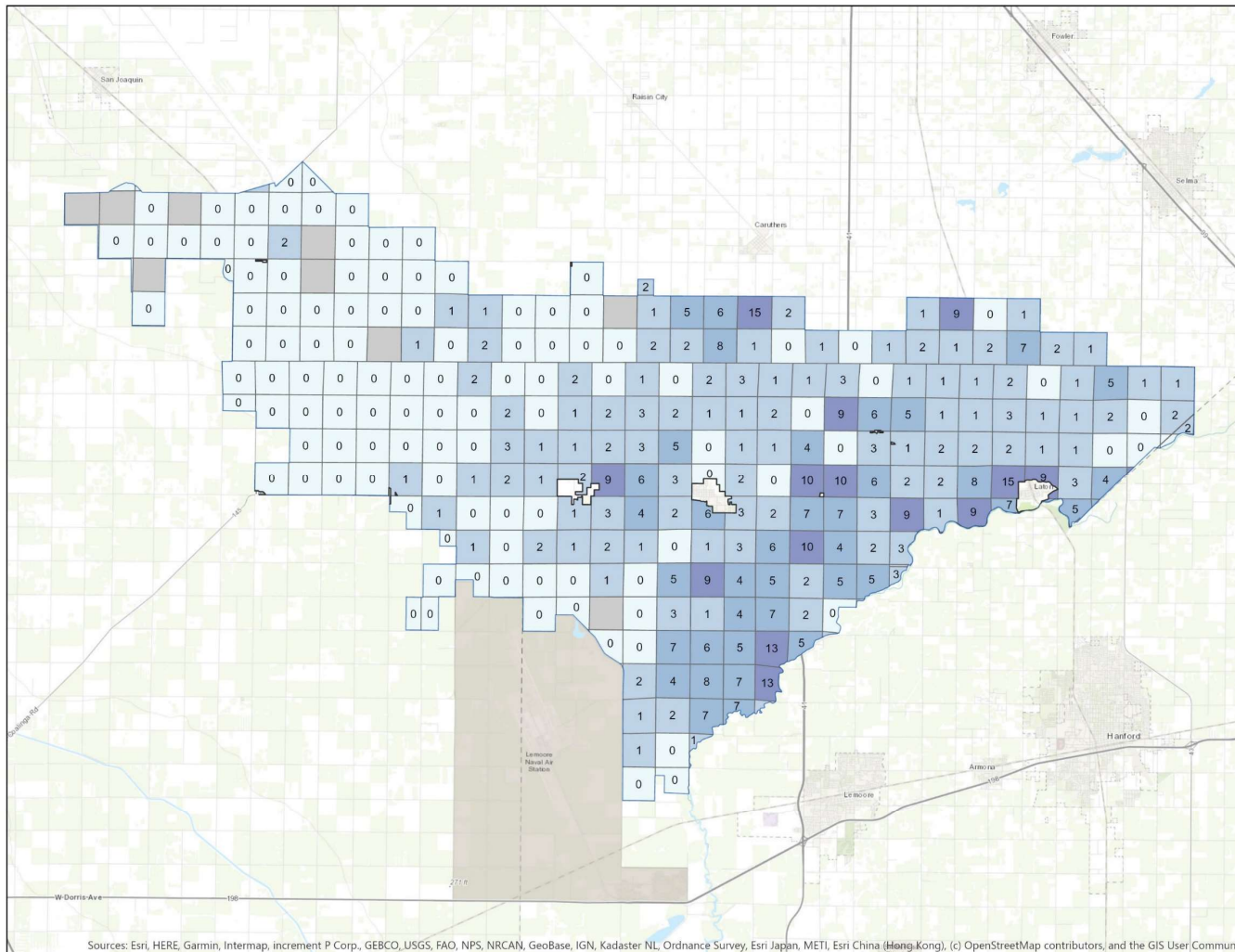
Ground Surface Elevation: 213 ft, Perforated Depth: 258– 498 ft
North Fork Kings GSA



Revisions made to Draft GSP

- Potential Impacts to Domestic Wells at revised MT elevations.

Domestic Wells	Estimated Dry at MT	Total Domestic Wells	% of All Domestic Wells
All Years	608	1084	56.0%
Post 1990	290	516	56.2%



Kings Subbasin Coordinated Effort

Per Section
Review of DWR WCR Data
Domestic Wells
All Years

North Fork Kings
Groundwater Sustainability
Agency

Community Water Systems

Wells Where MT is
Deeper than 10' Above
the Total Depth or
Bottom of Perforation

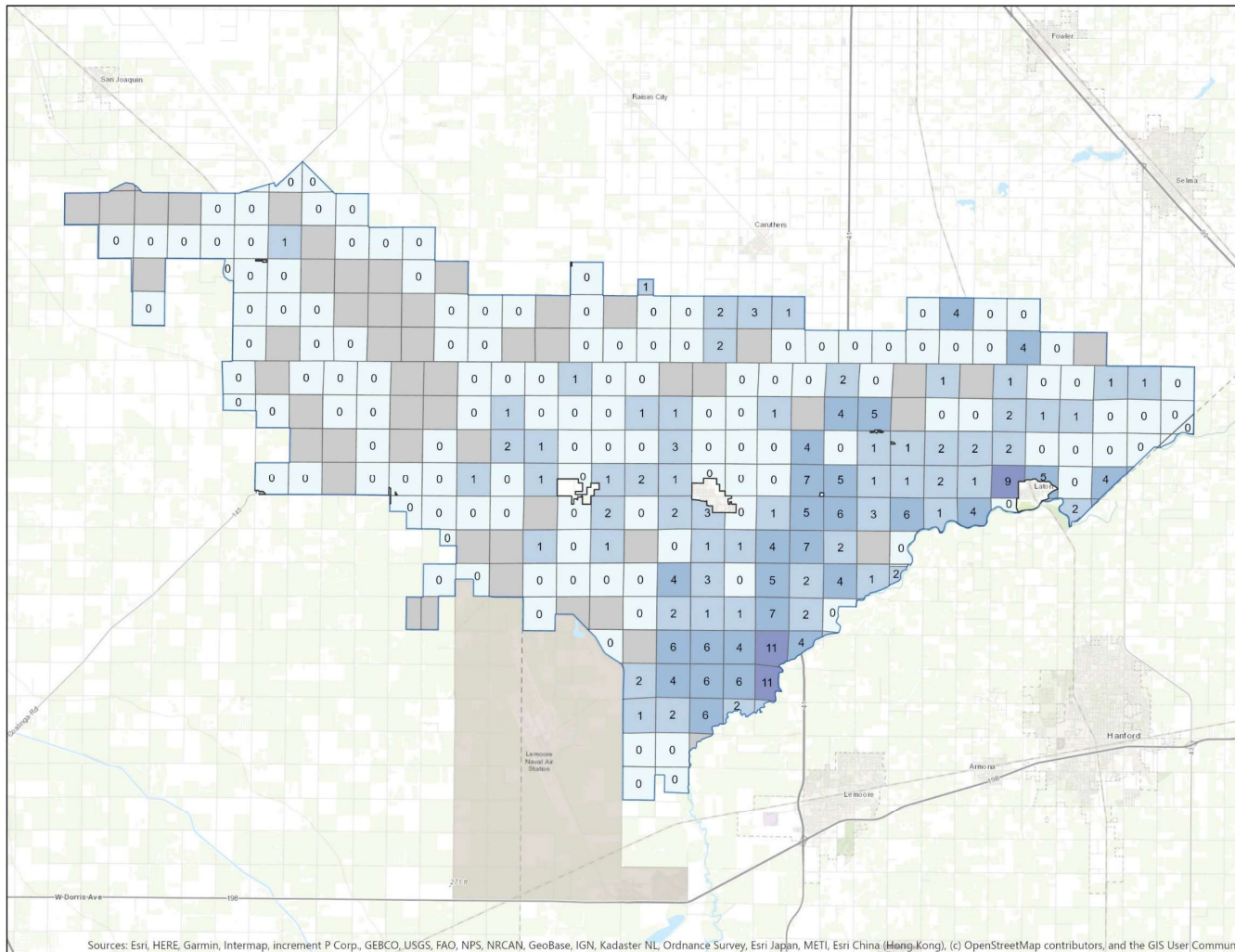
- 0
- 1-3
- 4-8
- 9-15
- 16-25
- >25
- No WCR Records



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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
12/12/2019 : \\ppeng.com\pzd\data\clients\Kings River East GSA-2664\266417001-Kings Basin SGMA Coordination\GIS\Map\Wells\MonitorNetwork\MeasObjectives\WCR Review\KingsSubbasinMMoStats\KingsSubbasinMMoStats.aprx



Kings Subbasin Coordinated Effort

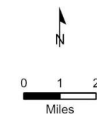
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12/12/2019 : lppeng.com\pzdata\clients\Kings River East GSA-2664\266417001-Kings Basin SGMA Coordination\GIS\Map\Wells\MonitorNetwork\MeasObjectives\WCR Review\KingsSubbasinMMoStats\KingsSubbasinMMoStats.aprx

Revisions made to Draft GSP

- Subsidence Minimum Threshold set to 25% more than Measurable Objective (or 1.25x multiplier)

Minimum Threshold Parameter	Minimum Threshold Quantity
Annual Land Subsidence Rate	20 <u>12.5</u> inches/year
Maximum Cumulative Land Subsidence	160 <u>100</u> inches over 20 years



Revisions made to Draft GSP

- EO-3 Water Level Impacts to Beneficial Uses and Users (partial excerpt)

In an effort to improve continued communication and outreach regarding the potential impacts related to declining water levels, the Board of Directors may appoint a **working group** to engage with various stakeholders including, but not limited to, the **RCAC, DACs, NGOs, CDFW, and environmental groups**, to continually consider the interests of all beneficial uses and users of groundwater during plan implementation. The specific goals of the ad hoc working group would seek to accomplish the following:

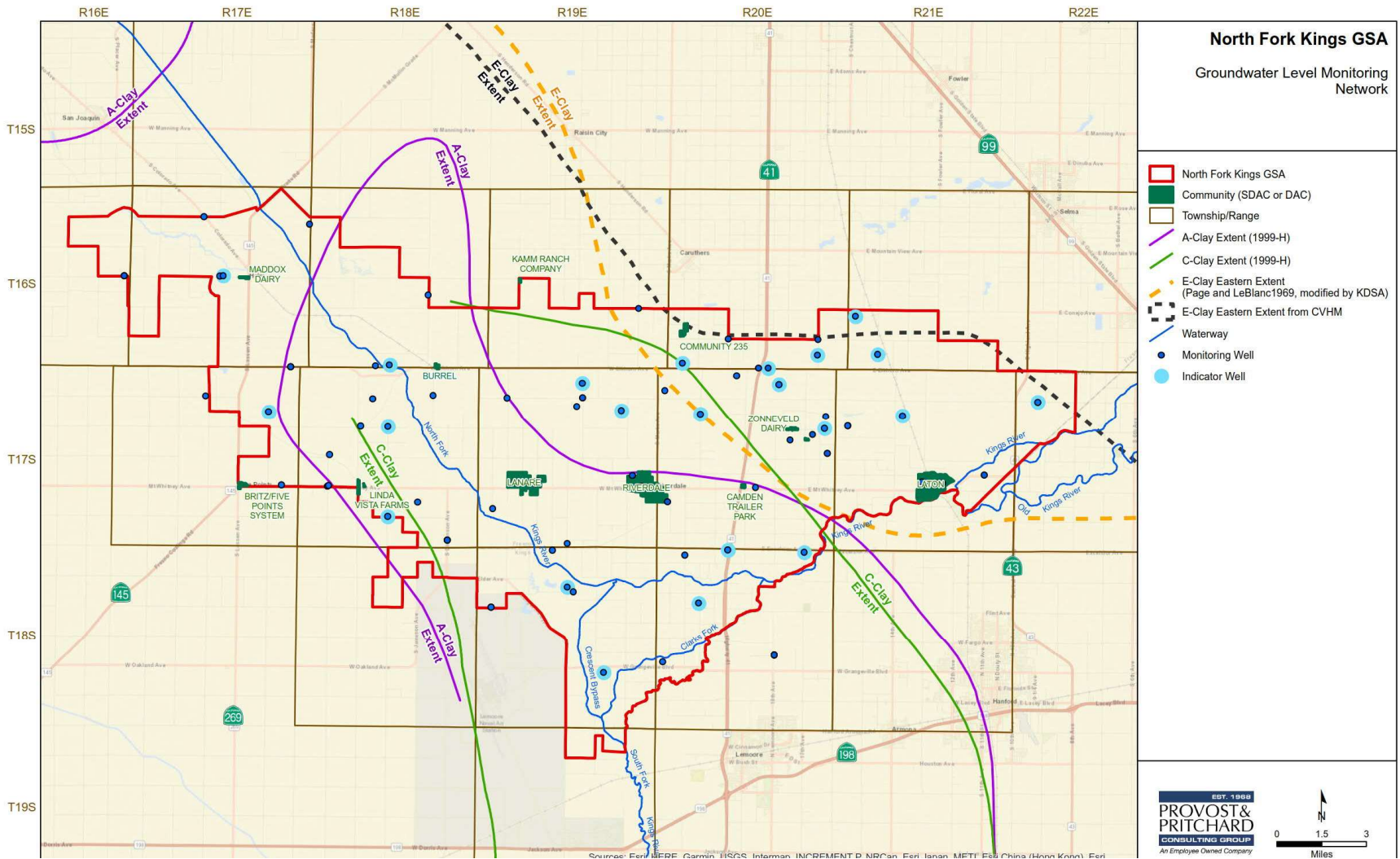
- Promote communication between stakeholders and the NFKGSA Board.
- Demonstrate willingness to consider and incorporate public input.
- Solicit and gather information that was not publicly or readily available during the preparation of this GSP.
- Seek partnerships with various entities to foster perpetual data sharing.
- Develop specific plans to fill identified data gaps to allow for future detailed analyses.
- Identify funding or potential cost-sharing opportunities with other programs, agencies, entities, and individuals.
- Provide supporting information to the NFKGSA Board for potential policies and management actions.

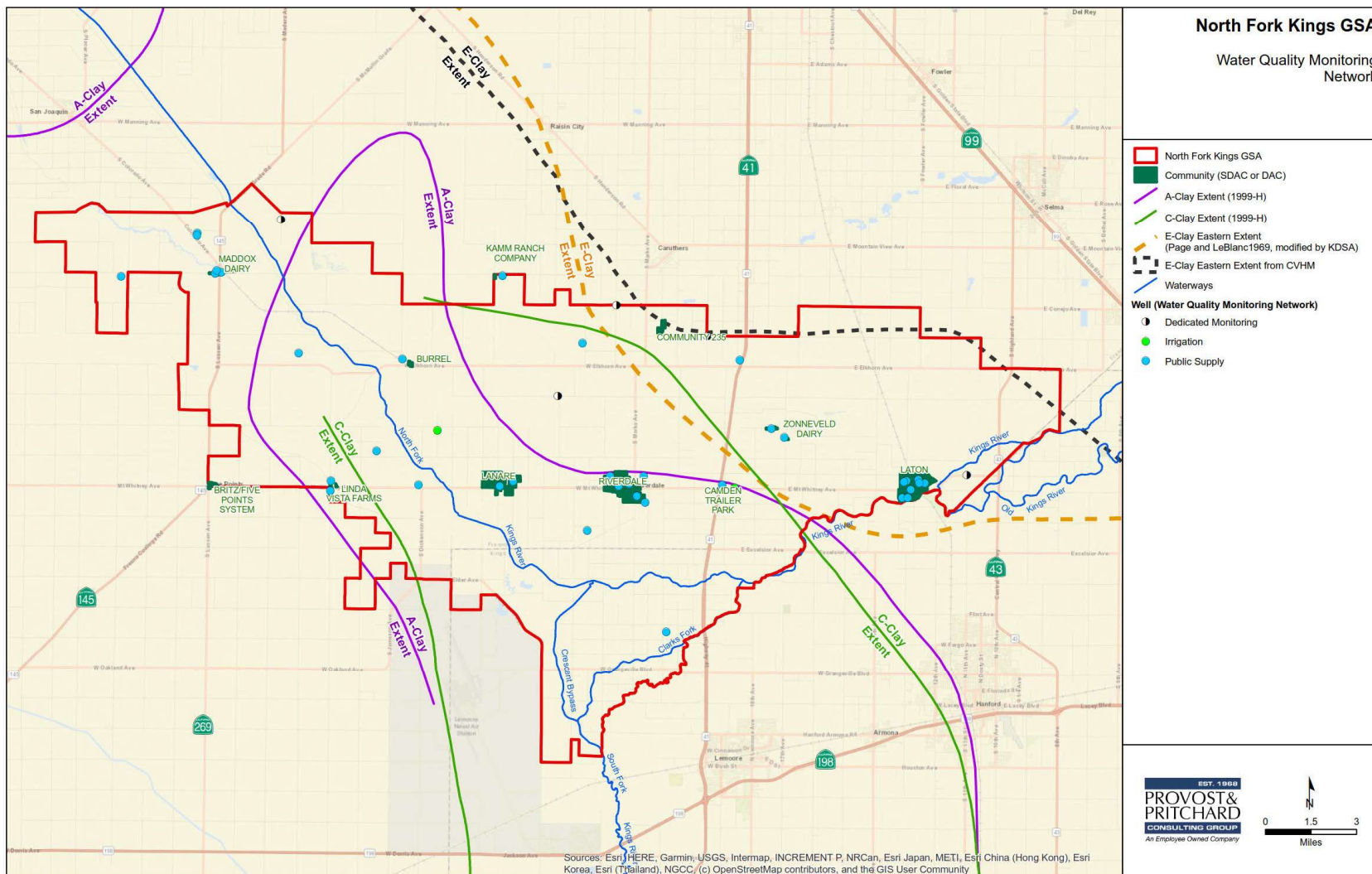
...The intent is to acknowledge the **NFKGSA needs additional information and resources to fully evaluate potential impacts to stakeholders** and successfully implement the GSP and improve future GSP updates...



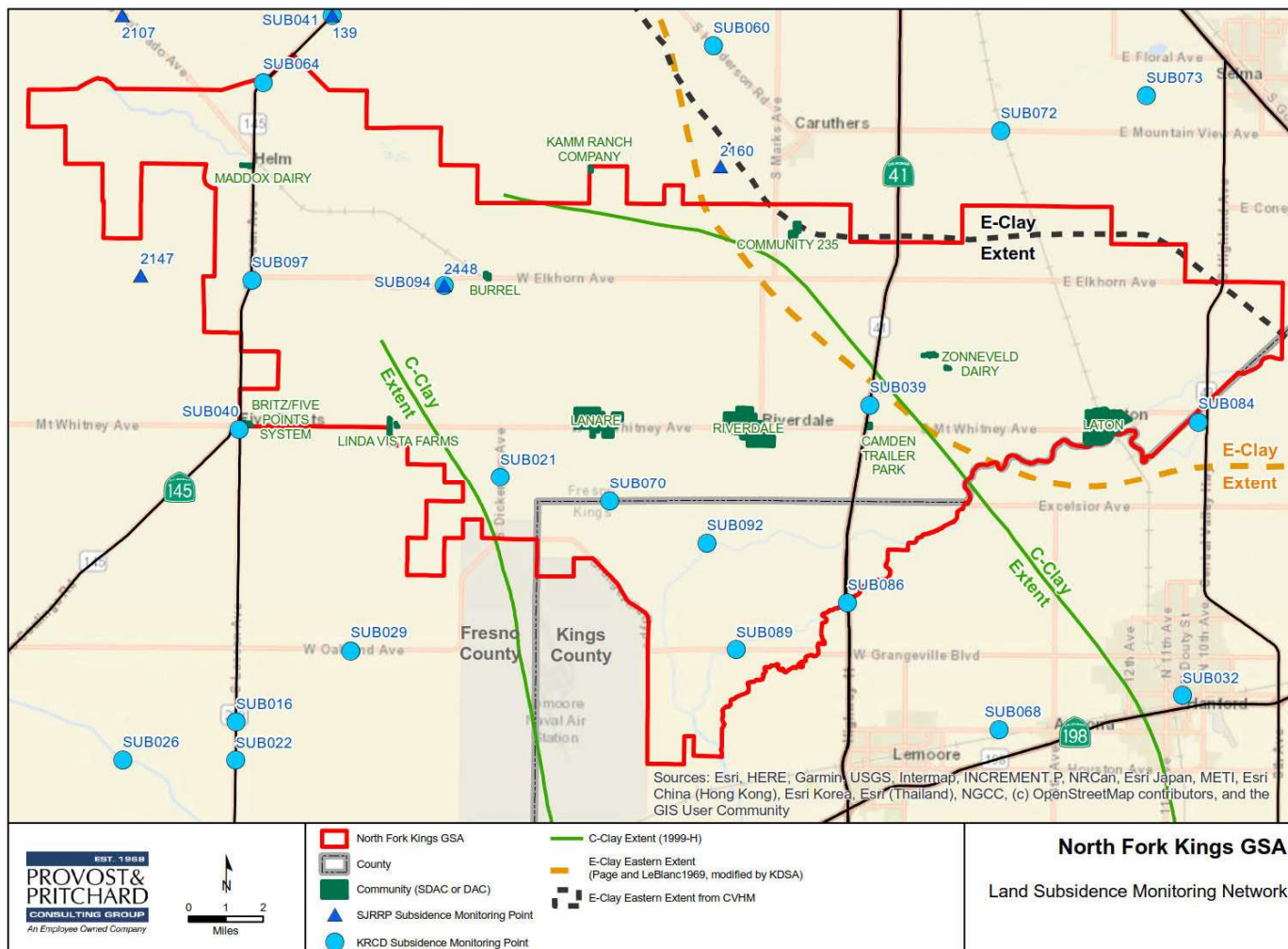
Revisions made to Draft GSP

- Additional information added to Water Budget section in response to comments
- Various minor map updates (shown in following slides):
 - Water Level Monitoring Network – a few additions and a couple removed (dry)
 - Water Level Monitoring Network – new with indicator wells and DACs shown
 - Water Quality Monitoring Network – with DACs shown
 - Subsidence Monitoring Network – with DACs shown
 - Overall Projects Map – new with DACs shown

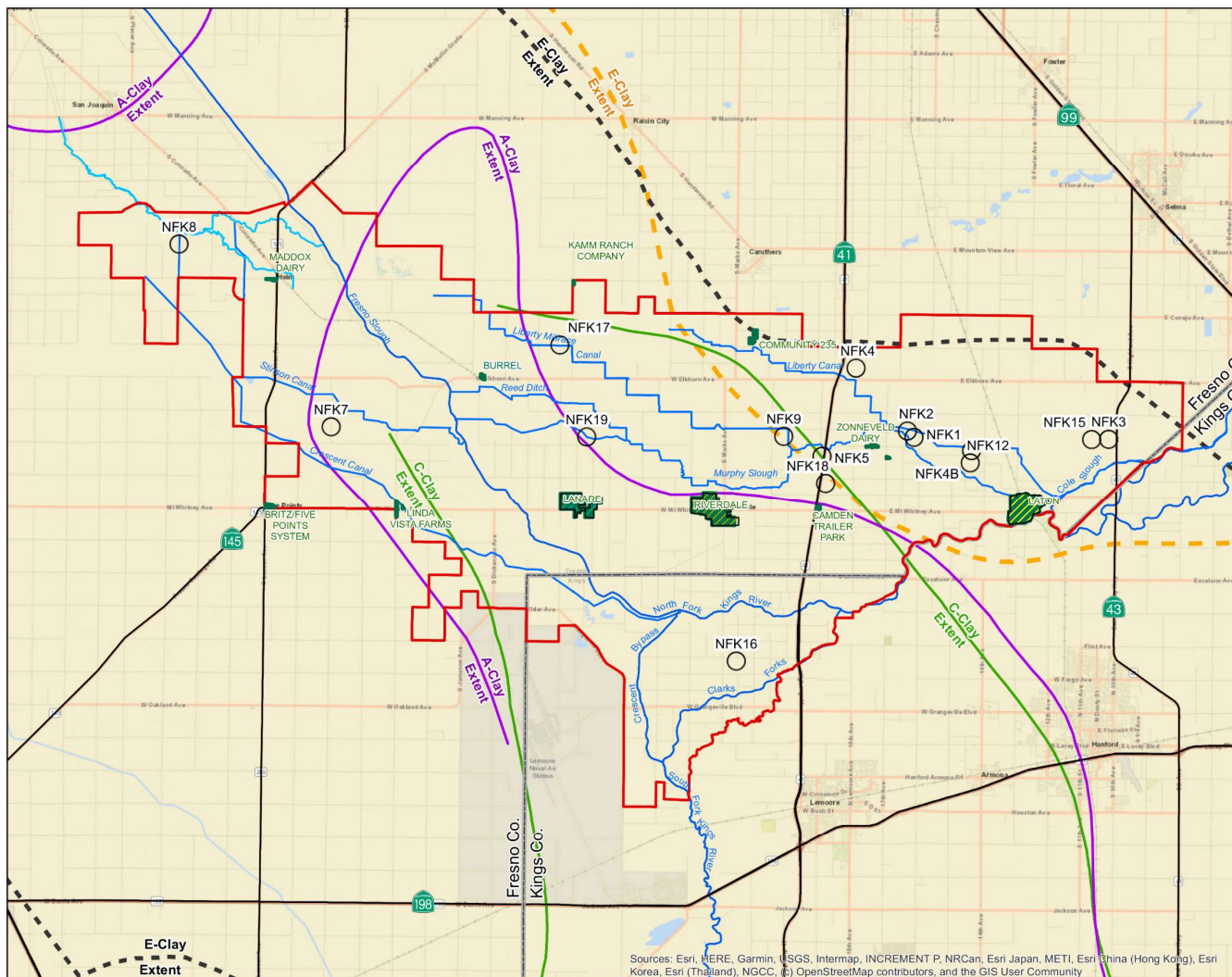




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North Fork Kings GSA

Preliminary Project List And Locations

North Fork Kings GSA

Community (SDAC or DAC)

A-Clay Extent (1999-H)

C-Clay Extent (1999-H)

E-Clay Eastern Extent from CVHM

E-Clay Eastern Extent From Page and LeBlanc 1969, Modified by KDSA

Project Location

Project Note: Projects NFK 6, 10, 11, 13, 14 may occur at various sites, and do not have a specific location.

Project ID	Project Name
NFK1	Basin 11 Improvements
NFK2	Basin 11 Expansion
NFK3	Laton North Recharge Project
NFK4	North Fork Regional Recharge Project
NFK4B	Beeler Recharge Project
NFK5	Zonneveld Pond Improvements
NFK6	On-farm recharge
NFK7	Cerini Recharge Project
NFK8	Kamm Recharge Project
NFK9	Terra Linda (Coelho) Farms Recharge Project
NFK10	Landowner Recharge Basins
NFK11	Upgradient Recharge Outside NFKGSA
NFK12	Mussel Slough Ranch Recharge
NFK13	Dry wells along canal
NFK14	Reverse tile drains
NFK15	Laton North Phase 2 Recharge Project
NFK16	Pires Recharge Project
NFK17	North Fork Channel Recharge Project - Site 16
NFK18	North Fork Group Site 3 (Dias Pond)
NFK19	North Fork Group Site 6

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Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri (China (Hong Kong)), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



Summary

- GSP was prepared using the best available information
- Numerous data gaps have been identified and need to be filled to improve GSP
- Policies and procedures need to be developed
- Various revisions have been incorporated into GSP in response to comments
- NFKGSA needs to work with neighboring GSAs/Subbasins to reconcile plan differences
- The GSP is a living document and will be revised/updated in 5-year increments to reflect additional data that is obtained



Questions?