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December 16, 2019

Alpaugh GSA
Delano Earlimart Irrigation District GSA
Eastern Tule GSA
Lower Tule River Irrigation District GSA
Pixley Irrigation District GSA
Tri-County Water Authority GSA

Re: **Comments on Tule Subbasin Groundwater Sustainability Plans**

To: The Directors and Staff of the Referenced Groundwater Sustainability Agencies

The Friant Water Authority (FWA), which operates the 152-mile long Friant-Kern Canal (FKC or Canal) on behalf of the United States Department of Interior's Bureau of Reclamation (Reclamation) and which Canal conveys contract water to 34 water agencies and municipalities that in turn serve tens of thousands of residential customers and over 1 million acres of farmland, respectfully submits this comment letter on the Groundwater Sustainability Plans (GSPs) that have been drafted by each of the Groundwater Sustainability Agencies (GSAs) addressed in this letter pursuant to the Sustainable Groundwater Management Act (SGMA).[1]

As a preliminary matter, we commend the various boards, staff members and technical consultants for the efforts that have gone into the preparation of the draft GSPs and for the transparent and collaborative manner in which the GSAs have engaged with stakeholders such as FWA. We are in this together, and your leadership to date, as evidenced by the outreach to our agency, has been exemplary. With the exception of the issues noted below, FWA fully supports the adoption and implementation of the GSPs. To that end, FWA looks forward to continuing our collaboration in order to achieve the "Sustainability Goal" of the Tule Subbasin, which, as defined in the Tule Subbasin Coordination Agreement (Coordination Agreement), is "the absence of significant and unreasonable undesirable results associated with groundwater pumping."[2]

In our initial comment letter of May 28, 2019, we notified each GSA that FWA would be carefully reviewing the draft GSPs in terms of the description and definition of undesirable results with respect to subsidence impacts to the Canal, and noted that while SGMA established a 20-year planning period to bring the Tule Subbasin into sustainability, the continuation of unmitigated land subsidence impacts to the Canal would be unacceptable and that feasible solutions must be identified. With that

[1] Water Code § 10720 and following.
[2] Coordination Agreement, § 4.2.

outcome in mind, we provide our specific comments on the draft GSPs, particularly the GSP of the Eastern Tule GSA (ETGSA).

We support the stated intent in the Coordination Agreement as to the purpose of avoiding undesirable results in the context of land subsidence: "the avoidance of an undesirable result of land subsidence is to protect critical infrastructure for the beneficial uses within the Tule Subbasin, including excessive costs to fix, repair, or otherwise retrofit such infrastructure and may also result in an interim loss of benefits to the users of such infrastructure."[3] It cannot be disputed that the FKC is one of if not THE most critical infrastructure facility in the Tule Subbasin with respect to the conveyance of water for beneficial use. It also cannot be disputed, as documented in the GSPs, that groundwater pumping in the vicinity of the Canal has resulted in upwards of 9 feet of land subsidence in recent decades - several feet of which has occurred in recent years even after the adoption of SGMA.[4] Because the Canal's conveyance system relies on a "gravity" design, this subsidence has reduced the conveyance capacity of the Canal to 40% of its original capacity (from 4,000 to 1,650 cubic-feet per second (cfs)) in these subsided areas. The resulting constriction in the Canal is precluding the delivery of significant amounts of water to Friant Division Contractors (Friant Districts) below the subsided areas and also affects the ability to Friant Districts above the constricted area to engage in exchanges or transfers of water.

As a result of the persistent overdraft conditions in the Tule Subbasin, FWA, at considerable expense, is developing plans, undertaking environmental review, and pursuing permitting to address these existing subsidence impacts by restoring capacity through a project referred to as the "Friant-Kern Canal Middle Reach Capacity Correction Project" (Project). The current engineering estimates place the cost of the Project in excess of $500 million.

With this well-documented and undisputed background in mind, including the extensive information, analysis and modeling in the GSPs and their supporting technical appendices, FWA must express its dissatisfaction with both the proposed "minimum thresholds" for subsidence and the criteria used to define "undesirable results" with respect to future subsidence as applied to the FKC. Specifically, the draft GSPs provide for **up to three feet of additional subsidence along the Canal** caused by transitional pumping/use **BEFORE** the identified ***minimum thresholds*** are exceeded. This impact will be compounded by the reliance of the GSPs on the definition of undesirable results in the Coordination Agreement, which provides as follows:

> § 4.3.4.2 Criteria to Define Undesirable Results: "*the criteria for an undesirable result for land subsidence is defined as the unreasonable subsidence below minimum thresholds at* ***greater than 50% of GSA Management Area RMS*** *resulting in significant impacts to critical infrastructure*." (Emphasis added.)

Figure 5-1 of the GSP for the ETGSA identifies seven Representative Monitoring Sites (RMS) along the most severely subsided portion of the FKC covering a distance of approximately 12 miles measured from the Tule River at Avenue 152 to Avenue 80. Using the proposed criteria for defining an undesirable result, the "transitional" overdraft pumping will be permitted to potentially cause 3 additional feet of

[3] Coordination Agreement, § 4.3.4.3.
[4] ETGSA GSP, § 4.3.5; see also FWA's Friant-Kern Canal Fact Sheet (attached).

subsidence over at least a 4-6 mile area (the distance of 4 of 7 RMS (i.e., more than 50% of the Representative Monitoring Sites)) BEFORE being deemed an undesirable result.[5] This is not acceptable to FWA unless there is concurrent and corresponding mitigation in the form of compensation to FWA and the Friant Districts to pay for the damages resulting from such pumping as discussed further below.[6] If the GSAs agree to incorporate the prompt adoption of management actions that would provide reasonable compensation to address "interim" subsidence (i.e., the continuation of subsidence until the proposed "minimum thresholds" are reached), then FWA would not object to the GSPs maintaining these objectives, not as minimum thresholds that must be exceeded before management action is taken, but rather, as a basis for ***additional*** management actions, including greater compensation for damages to the Canal and Friant Districts and potential additional reductions in groundwater pumping to achieve sustainability sooner and avoid further impacts to the Canal if these so-called minimum thresholds are exceeded.

In addition to establishing a uniform zero-tolerance for additional subsidence impacts to the Canal absent appropriate compensation/mitigation, the criteria for monitoring any continued undesirable results for land subsidence as pertaining to the Canal need to be site specific and should be based on <u>any additional subsidence detected at a</u> <u>single RMS location</u>. Furthermore, because the FKC is critical infrastructure, FWA recommends that the Tule Subbasin GSPs incorporate additional RMS along the FKC for the entire length of the Tule Subbasin and that such RMS locations be spaced not more than one mile apart. Some of the Friant Districts are adding such monitoring sites for their own water banking/recharge projects near the FKC, and we would encourage the GSAs to incorporate these facilities as part of their subsidence monitoring management actions with respect to the FKC.

While the GSPs do not calculate the amount of capacity loss to the Canal from the contemplated 3 additional feet of subsidence that is predicted over the first 15 years of the GSPs, FWA estimates this capacity reduction to be on order of 460 cubic feet per second (cfs), which would result in a conveyance capacity of 1,140 cfs (based on current deficient conditions) and put the Canal capacity at 2,860 cfs below the original design capacity of 4,000 cfs. FWA further estimates that the 3 additional feet of subsidence contemplated under the GSPs will result in further reduced water deliveries to Friant Districts below the impacted area on the order of at least 30,000 to 40,000 acre feet (AF) per year, in addition to the already significant inability to convey water during wet years such as 2017 and 2019 where FWA estimates that upwards of 300,000 AF could have been delivered to Friant Districts <u>but for</u> the capacity restrictions caused by subsidence due to overdraft groundwater pumping in the Tule Subbasin. Under such conditions, Friant Districts' imported surface water supplies through the FKC will be even further restricted, which in turn will diminish their ability to contribute to the sustainable management of their own respective subbasins in the future.

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[5] See ETGSA GSP, § 5.8.3.1.2 (Quantified Minimum Thresholds).

[6] See Civil Code section 3479: "**Anything which is injurious to** health, including, but not limited to … an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, or unlawfully obstructs **the free passage or use**, in the customary manner, **of any** …**canal** … **is a nuisance**." (Emphasis added.) It is FWA's position that any pumping activity causing further subsidence to the Canal constitutes a nuisance unless appropriate compensation/mitigation is provided.

FWA is encouraged that the GSP for ETGSA establishes a "Friant-Kern Canal Subsidence Management Area." However, neither that Plan nor any of the other GSPs establish specific management actions or mitigation to address the continued subsidence impacts to the Canal despite the fact that the GSPs contemplate continued overdraft conditions (aka "transitional pumping/use") through the implementation period of 2040.[7]

For the above reasons, **all** further subsidence along the Canal as contemplated in the GSPs should be considered significant and unreasonable and deemed to substantially interfere with surface land uses unless appropriate mitigation is provided to fairly compensate FWA and the Friant Districts for such interference.[8] Accordingly, the GSPs should be revised to mandate the prompt adoption of management actions (following adoption of the GSP) that provide for such equitable compensation as a condition of the transitional groundwater pumping permitted under each GSP in areas where such pumping can reasonably be demonstrated to cause continued subsidence impacts to the Canal.

Given the acknowledged effects of continued subsidence proximate to the FKC, these immediate management actions to mitigate such impacts are required. To this end, concurrent with the adoption of the final GSPs, as amended to address the comments provided herein, FWA respectfully request that the Board of each GSA direct staff to continue to work with FWA and Friant Districts to promptly develop and bring back for adoption management actions that would establish mechanisms to mitigate future subsidence impacts in the form of compensation to FWA and Friant Districts to pay for the costs of repairs to the FKC resulting from the transitional pumping/use permitted under the GSPs as well as the reduced water deliveries to Friant Districts until such repairs are completed. This mitigation could come in the form of fees or charges imposed on groundwater pumping and/or assessments or charges spread over the lands benefitting from groundwater pumping permitted under the GSPs that have caused, and can reasonably be demonstrated will continue to cause, undesirable results to the Friant-Kern Canal.

On behalf of FWA, I appreciate your consideration of these comments. FWA staff looks forward to continued collaboration on prompt and appropriate actions that will help us move forward with our mandate to restore critically needed capacity to the Friant-Kern Canal.

Sincerely,

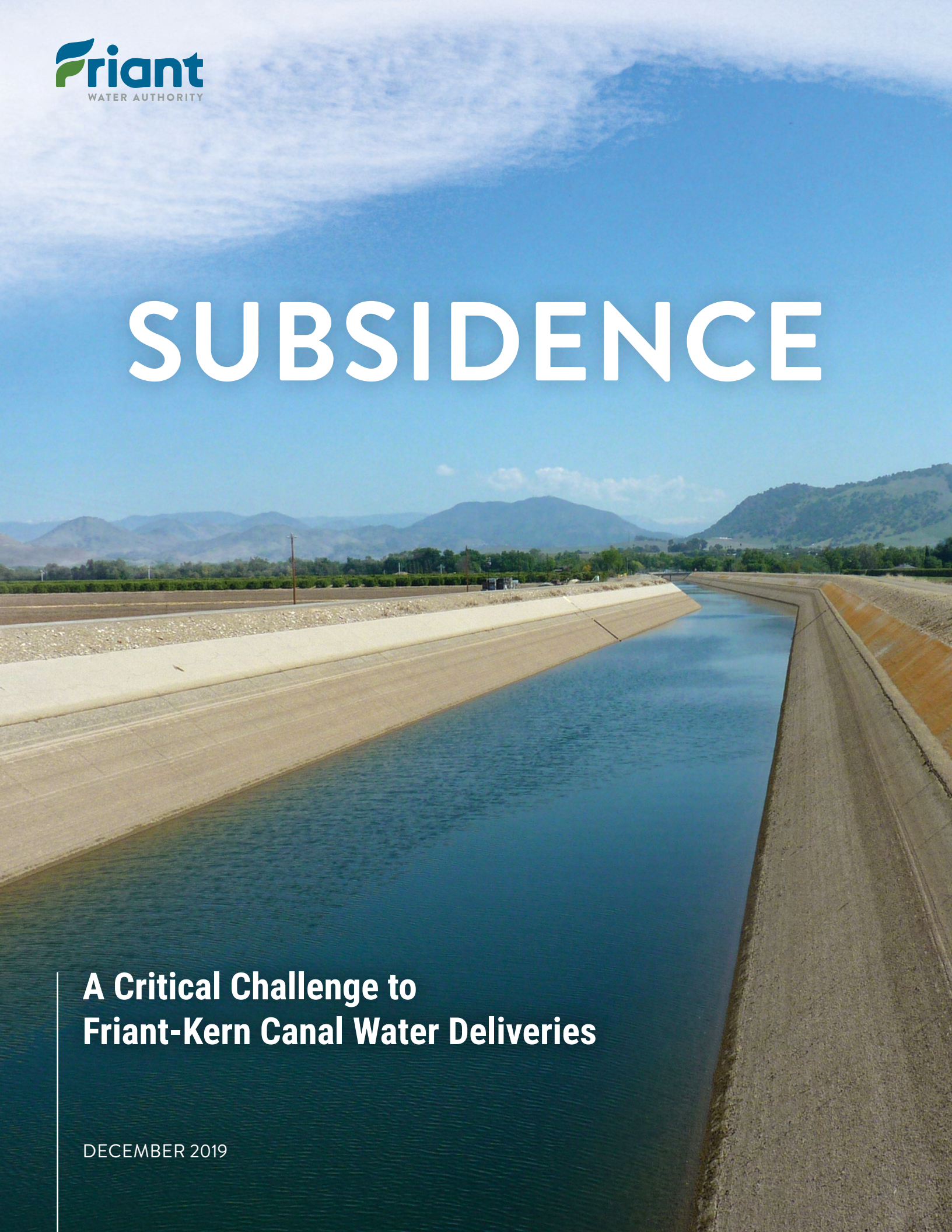
Jason Phillips, CEO

Attachment: FWA Subsidence Fact Sheet

[7] We acknowledge that the Delano-Earlimart GSP does contain management actions that assert it will achieve sustainability, but because the plan still anticipates that future subsidence will occur, more attention to address FWA's concerns regarding compensation for continuing subsidence impacts to the FKC is still warranted.
[8] See Water Code § 10721(x)(5).

Friant
WATER AUTHORITY

SUBSIDENCE



A Critical Challenge to Friant-Kern Canal Water Deliveries

DECEMBER 2019

The Friant Water Authority is facing a critical challenge right now — one that has

REDUCED OUR ABILITY TO DELIVER WATER TO MANY FRIANT DIVISION CONTRACTORS BY NEARLY 60%.

It is a challenge that must be met today if we are to ensure our long-term commitment to delivering high-quality, dependable water, in the amounts needed by farms and cities in the San Joaquin Valley.

A LEGACY OF INNOVATIVE WATER MANAGEMENT

The Friant Division was designed to bring stability to the San Joaquin Valley's groundwater supply, which was threatened at the beginning of the 1900s by decades of groundwater pumping. The Friant Division's two canals — the Friant-Kern and the Madera — source high-quality surface water from the San Joaquin River that supports crops, cities, and groundwater recharge. This investment to establish the Friant Division has paid off by providing stable surface and groundwater supplies that created and sustain a world-class agricultural sector that in turn supports numerous communities and businesses. But in recent years, several challenges have reduced the ability of the Friant Division's existing infrastructure to serve its intended purposes.

THE CHALLENGE

In early 2017, Friant Water Authority discovered a problem related to land subsidence that affects the Friant-Kern Canal's carrying capacity and its ability to deliver water to Friant contractors near the southern portion of the canal.

SUBSIDENCE AND CANAL OPERATIONS

The Friant-Kern Canal was designed as a gravity-fed facility and does not rely on pumps to move water. Subsidence (which is the gradual sinking of an area of land) has caused parts of the canal to sink in relationship to other parts. This negatively affects the canal's ability to convey water. When the land elevation lowers, the canal must be operated at a lower flow-stage to ensure that water doesn't overflow the banks.

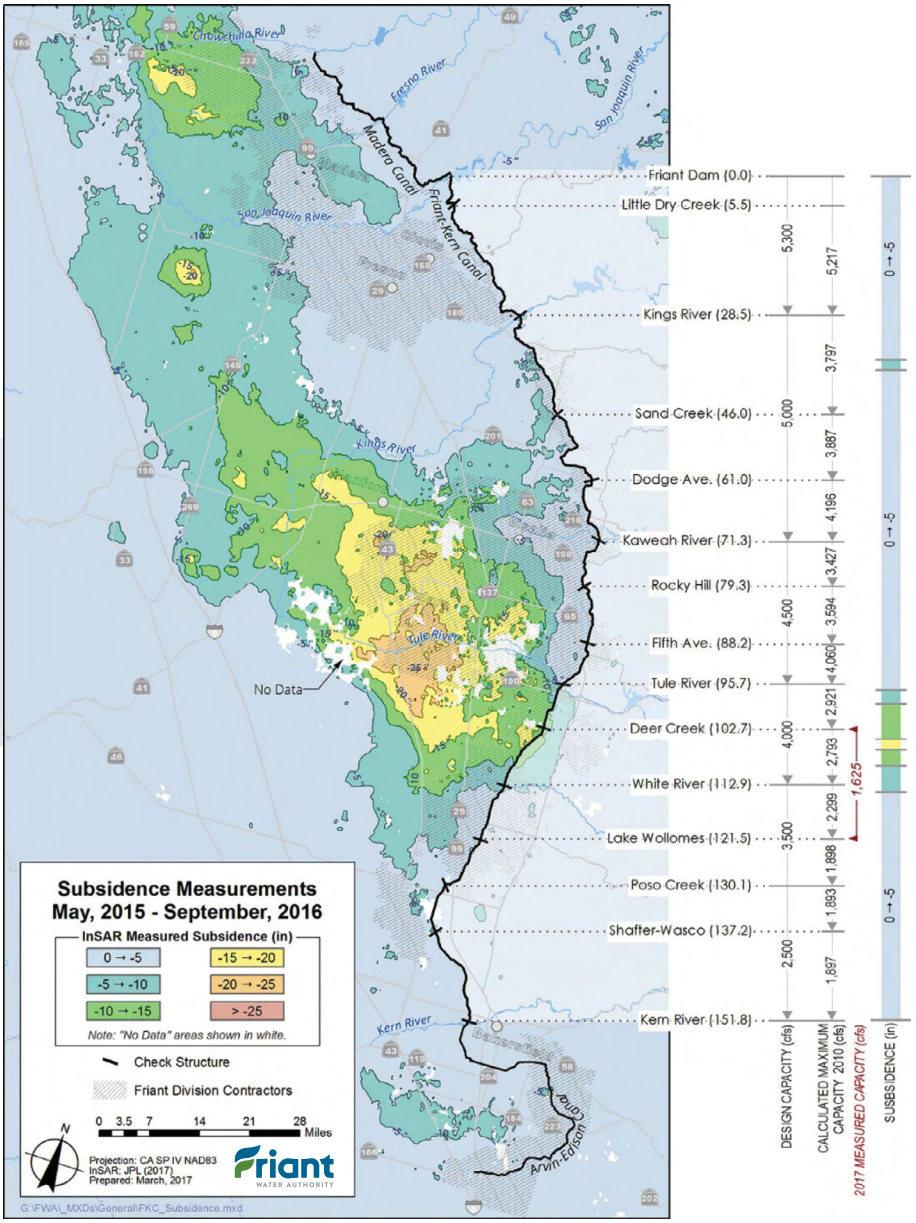
DROUGHT IS THE DRIVING FACTOR

From 2012-2017, California weathered its worst drought on record at the same time that increasingly stringent environmental regulations required more surface water to flow to the ocean. This forced San Joaquin Valley water users to rely heavily on groundwater supplies. In addition, in 2014 and 2015, the Bureau of Reclamation made a decision not to allocate to Friant Contractors their water supply from the San Joaquin River. This action caused most Friant districts to rely solely on groundwater resources to maintain their crops and protect decades of investments in what is among the highest-value, highest-production agricultural areas in the world.

ALARMING SIGNS OF SUBSIDENCE

Evidence of subsidence was noticed when, at full capacity, water in the canal was running up against bridges it would normally pass under quite easily.

The picture on the left shows water passing under the bridge at Avenue 96 as it likely looked prior to the most recent subsidence. The picture on the right shows water hitting the bridge at Avenue 96 under similar flow conditions in 2018.



UNDERSTANDING THE SCOPE OF THE CHALLENGE

The graphic at left shows the areas of subsidence along the Friant-Kern Canal and the degree to which canal capacity has been compromised from its original design.

The darker blue, green and yellow shown in the far left bar are the areas of highest subsidence along the Friant-Kern Canal. The area of greatest subsidence is between the Tule River and Lake Woollomes, particularly in the area of Deer Creek.

The graphic shows that in that section of the canal the current capacity has been reduced to only 40 percent of designed capacity, with a significant portion of that loss happening in the last 6 years.

WHAT DOES CANAL SUBSIDENCE MEAN TO YOU?

It means that even in 2017 and 2019 — two of the wettest years on record in the San Joaquin River basin — Friant Water Authority could not physically move the amount of water we should have been able to deliver to farms and communities on the San Joaquin Valley's eastside. In 2017, 300,000 acre feet of water available for delivery could not move through the canal and was instead lost. It means that the Friant Division could not operate to its full capability or in the way the facilities were designed.

IS THIS A NEW PROBLEM?

The Friant-Kern Canal's carrying capacity has been compromised by varioius factor, including subsidence, since it began operation in 1951. In the past, water managers could manipulate canal operations to help mitigate some of the lost capacity. However, the new problem that emerged in 2017 is driven by rapid and severe land subsidence in the Corcoran/Tulare Basin areas, which are adjacent to the Friant-Kern Canal near Deer Creek. During 2015-2016, land elevations dropped by two feet near Corcoran. There is no way to operate the canal to eliminate impacts to water users caused by this amount of subsidence.

IMPACTS TO CONTRACTORS

All Friant Contractors who rely on the Friant-Kern Canal will be affected by changes in operations necessary to cope with the subsidence problem as reduced capacity along the canal will likely impact long-standing transfer or exchange partnerships among Friant Contractors, which have helped to balance water supply throughout the Friant Division. The Contractors downstream from the subsidence area (including Arvin-Edison WSD, Shafter-Wasco ID, South San Joaquin MUD, Kern-Tulare WD, Delano-Earlimart ID, Terra Bella ID, Saucelito ID, and Tea Pot Dome WD) will be most affected, however, because they may not get the amount of water they want during the time they need it. This may require farmers to turn to groundwater to make up for the shortage, which could exacerbate the subsidence that is causing the problem in the first place.

FRIANT WATER AUTHORITY

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Download a PDF of this handout, here:

http://bit.ly/FKC-Impacts

FRIANTWATER.ORG

FWA is a joint-powers authority formed in 2004 by a majority of the water agencies receiving water from the Friant Division of the Central Valley Project. Its primary purposes are to operate and maintain the Friant-Kern Canal and to serve the information and representation needs of its member agencies.