IN THE UNITED STATES COURT OF FEDERAL CLAIMS

Electronically filed November 21, 2022

IN RE DOWNSTREAM ADDICKS AND BARKER (TEXAS) FLOOD-CONTROL RESERVOIRS	)	Master Docket No. 17-9002
	)	Senior Judge Loren A. Smith
THIS DOCUMENT RELATES TO:	)	
ALL DOWNSTREAM CASES	)	

UNITED STATES' MOTION FOR SUMMARY JUDGMENT UNDER RCFC 56 (CORRECTED)

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INTRODUCTION AND SUMMARY OF ARGUMENT

Since its construction in the 1940s—during Hurricane Harvey included—the Buffalo Bayou and Tributaries Project ("Project"), which includes the Addicks and Barker Dams and Reservoirs located in Harris County, Texas, has been operated for the purpose of reducing flood damage to areas downstream of the Reservoirs. The Project was authorized by Congress in 1938 following two devastating floods that caused the loss of eight lives and millions of dollars in damages. In the decades before Hurricane Harvey, the Project prevented significant flooding downstream of the dams and prevented billions of dollars of damage to downstream properties that would have occurred if the Project was not there. This is true even as development along Buffalo Bayou has reduced the capacity of that channel to carry floodwaters without damaging private property.

Hurricane Harvey made landfall in Texas on August 25, 2017. Stalling over the Houston region, the storm dropped an average of 33.7 inches of rain upon Harris County over a four-day period, causing catastrophic flooding. Plaintiffs own twelve properties located downstream of Addicks and Barker Dams and Reservoirs. They are among the tens of thousands of landowners in the Houston region who experienced flooding in connection with Hurricane Harvey. Plaintiffs contend that the flooding of their properties was caused by the United States' operation of the Project in response to this extraordinary storm—specifically, the opening of the dams' gates to begin releasing floodwaters in accordance with established operating procedures. The Court should reject Plaintiffs' claims that the operation of the Project under these conditions effected a Fifth Amendment taking, and grant summary judgment in favor of the United States under RCFC 56, for at least five independent reasons.

First, Plaintiffs' takings claims fail for the same reason that the Federal Circuit rejected the claims in *St. Bernard Parish Government v. United States,* 887 F.3d 1354 (Fed. Cir. 2018), *cert. denied*, 139 S. Ct. 796 (2019): a failure of proof on causation under the correct legal standard. Plaintiffs contend that the government's flood risk reduction project failed to prevent the flooding of their downstream properties during Hurricane Harvey. There is no claim, and no corresponding proof, that Plaintiffs' properties would have experienced less flooding during Hurricane Harvey without the Project. To the contrary, the operation of the Project during Hurricane Harvey is estimated to have reduced the level of flooding that the subject properties would have experienced without the Project by approximately 7-8 feet. Plaintiffs' narrow focus on the Corps' action in opening the floodgates on the dams during Hurricane Harvey, to the exclusion of the entirety of the government action, replicates the errors of the plaintiffs in *St. Bernard Parish*. Plaintiffs' failure of proof on the crucial element of causation is fatal to their claims and requires the entry of summary judgment in favor of the United States.

Second, even assuming that Plaintiffs could meet their burden of proof on the required element of causation, the relative benefits doctrine provides an additional, independent basis for rejecting Plaintiffs' takings claims. Under that doctrine, no takings liability attaches when the Government's flood control program, measured in its entirety, confers benefits on Plaintiffs' properties that outweigh the detriments. Here, the construction and operation of the Addicks and Barker Reservoirs and Dams since the 1940s—and during Harvey—has conferred significant benefits to Plaintiffs' downstream properties by reducing flooding and flood risk. On these facts, the Court should conclude that the relative benefits of this Project—whether viewed over the nearly 80 years of the Project's existence or more narrowly during the response to Hurricane Harvey alone—outweigh the harm from flooding during Hurricane Harvey.

Third, although the Court's analysis need not go any further than the absence of proof on causation and the substantial proof of the relative benefits of the Project, the police powers doctrine provides an independent basis for granting summary judgment in favor of the United States. Plaintiffs' property rights are subject to the exercise of governmental police powers in an emergency that threatens life and property. The operation of the Project during an epic and catastrophic storm—declared as a natural disaster by both the Governor of Texas and the President—falls squarely within the police powers doctrine. The actions taken by the Corps in response to that natural disaster do not constitute a taking.

Fourth, Plaintiffs' claims are premised on flooding that resulted from a singular, catastrophic hurricane that resulted in extraordinary levels of precipitation and uncontrolled runoff. Such flooding, at most, sounds in tort, and does not constitute a taking.

Fifth, to the extent that Plaintiffs' claims are premised on the failure of the United States to take specified actions in connection with the construction or operation of the Project, it is well-established that there is no takings liability for inaction.

I. PROCEDURAL HISTORY

On September 5, 2017, Y and J Properties, Ltd. filed the first complaint in this Court alleging a taking of private property under the Fifth Amendment arising from the United States Army Corps of Engineers' operation of the Addicks and Barker Dams and Reservoirs during Hurricane Harvey. *See Y & J Properties, Ltd. v. United States*, No. 17-1189L (Fed. Cl.). There are now approximately 547 individual cases (and over 6,600 claims) pending before this Court brought by plaintiffs who own property both upstream and downstream of the Addicks and Barker Dams and Reservoirs in Texas. Under the case management structure established by former Chief Judge Braden, all of these cases were joined in a Master Docket (No. 17-3000L),

and then divided into an Upstream Sub-Docket (No. 17-9001L) and a Downstream Sub-Docket (No. 17-9002L). *See* Order Severing Claims into Two Separate Dockets, ECF No. 102 (No. 17-3000L) (Dec. 5, 2017).

Due to the large number of claims in the Downstream Sub-Docket—approximately 195 individual cases (and over 3,000 claims) are currently pending in the Downstream Sub-Docket—the parties agreed to focus their attention on a select group of plaintiffs. *See, e.g.*, Joint Status Rep. Re: Test Prop. Selection, ECF No. 63 (Mar. 1, 2018); Joint Status Rep. Re: Parties Meet and Confer About Proposed Test Props., ECF No. 76 (Mar. 22, 2018). Based on the parties' filings, the Court designated fourteen subject properties to serve as bellwethers and administratively stayed all other claims. Order Re: Test Prop. Sel., ECF No. 81 (Mar. 28, 2019); Case Mgmt. Order No. 5, ECF No. 27 (Jan. 29, 2018). Twelve bellwether claims remain at issue. *See* Stipulation of Dismissal as to Becky Ho, July 5, 2018, ECF No. 109; *see also Banes v. United States*, No. 17-1191L, Judgment, ECF No. 37 (Aug. 24, 2020) (dismissing claim of bellwether plaintiff Timothy Stahl with prejudice).

The United States moved to dismiss the downstream complaints on February 20, 2018. U.S. Mot. to Dismiss, ECF No. 48 (Feb. 20, 2018). The Court deferred ruling on that motion and instead issued a scheduling order calling for the completion of both fact and expert discovery by the end of the year. Mem. Op. and Sch. Order, ECF No. 92 (Apr. 19, 2018). A month later, following the Federal Circuit's decision in *St. Bernard Parish Government v. United States*, the United States moved for reconsideration of the decision to defer ruling on the motion to dismiss. U.S. Mot. for Recons. of Decision to Defer Ruling on Mot. to Dismiss and for a Stay of Disc. and All Pre-Trial Matters, ECF No. 95 (May 17, 2018). The Court denied that motion, but allowed for its renewal at a later date. Mem. Op. and Order, ECF No. 97 (Jun. 6, 2018).

The parties proceeded with discovery in accordance with the Court's scheduling orders, ECF No. 106 (Jul. 2, 2018); ECF No. 143 (Nov. 2, 2018); ECF No. 144 (Nov. 14, 2018), completed fact discovery in October 2018, and exchanged expert reports on November 13, 2018. The parties have not yet taken expert depositions and they are not necessary for this motion.

Following the reassignment of the case, Order, ECF No. 152 (Jan. 7, 2019), the Court vacated as "infeasible and inoperable" future pre-trial deadlines and turned its attention first to the fully-briefed motion to dismiss. Order, ECF No. 154 (Jan. 8, 2019); Hr'g Tr., ECF No. 164 (Feb. 12, 2019). The Court then requested additional briefing concurrent with summary judgment motions. *See* Order, ECF No. 169 (Apr. 1, 2019); Order, ECF No. 172 (June 6, 2019).

On February 18, 2020, the Court issued an Opinion and Order granting Defendant's Motion to Dismiss and Cross-Motion for Summary Judgment. ECF No. 203. The Court then entered a series of case management orders preceding the entries of final judgment in the downstream cases. *See* Order Rescinding Amended Management Order No. 3 As It Relates to Newly Filed Claims, ECF No. 236 (Sept. 9, 2020); Order Directing the Entry of Judgment in Downstream Cases, ECF No. 237 (Sept. 9, 2020). As a result of these and subsequent orders, the Court's Opinion and Order of February 18, 2020, was determined to apply to all of the downstream claims and final judgments were entered in each of the individual cases. The appeals filed in 178 of those cases were consolidated by the Federal Circuit under *Milton v. United States*, No. 2021-1131. A second group of appeals was later consolidated under *Olsen v. United States*, No. 2021-2034, and held in abeyance pending the outcome in *Milton*.

On June 2, 2022, the United States Court of Appeals for the Federal Circuit issued its decision in *Milton.* The Federal Circuit concluded that, contrary to this Court's holding, the Plaintiffs had asserted a "cognizable property interest." *Milton v. United States*, 36 F.4th 1154,

1162 (Fed. Cir. 2022). Without reaching any other issues left unresolved by this Court's decision, the Federal Circuit reversed and remanded for further proceedings consistent with its opinion. *Id*. at 1163. The Federal Circuit stated in particular that,

> it is appropriate to remand this case to the Court of Federal Claims to address the second prong of the takings analysis in the first instance. In other words, we leave it for the lower court to consider: (1) whether Appellants have shown that a temporary taking occurred under the test applicable to flooding cases, *Ark. Game & Fish Comm'n v. United States*, 568 U.S. 23, 39 (2012); (2) whether Appellants have shown that a permanent taking occurred; (3) whether Appellants have established causation when considering "the impact of the entirety of the government actions that address the relevant risk," *St. Bernard Par. Gov't v. United States*, 887 F.3d 1354, 1364 (Fed. Cir. 2018), *cert. denied* 139 S. Ct. 796 (2019); and (4) whether the Government can invoke the necessity doctrine as a defense.

Id. The Federal Circuit's Mandate was docketed by this Court in the *Milton* case July 25, 2022. *Milton*, No. 17-1235, Mandate, ECF No. 35 (July 25, 2022). On August 30, 2022, the Federal Circuit issued an order as a mandate for *Olsen* and remanded those cases for further proceedings consistent with *Milton*. *See Olsen*, No. 21-2034 (Fed. Cir.), ECF No. 18.

On remand, the United States and the remaining 12 bellwether Plaintiffs filed a joint motion for a status conference and proposal for proceedings on remand. *Milton v. United States*, No. 17-1235, ECF No. 36 (Sept. 2, 2022). On September 14, 2022, the Court held a status conference in *Milton* regarding further proceedings following the Federal Circuit's decision and mandate. The Court requested that the participants confer and propose a schedule for filing motions for summary judgment on the previously designated bellwether claims. On September 28, 2022, the Court re-opened the Sub-Master Docket for the downstream claims and reappointed lead counsel for Plaintiffs. *See* ECF No. 253. Two days later, the parties filed a joint status report proposing a briefing schedule for cross motions for summary judgement, ECF No. 254, which the Court adopted on October 3, 2022. ECF No. 255.

II. STANDARD OF REVIEW

Under Rule 56, "[t]he court shall grant summary judgment if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." RCFC 56(a). The moving party has the burden of showing "the absence of any genuine issue of material fact and entitlement to judgment as a matter of law." *Crater Corp. v. Lucent Techs., Inc.*, 255 F.3d 1361, 1366 (Fed. Cir. 2001) (citing *Celotex Corp. v. Catrett,* 477 U.S. 317, 323–24 (1986)). The nonmoving party then bears the burden of establishing, by a showing of specific facts, that there are genuine issues of material fact for trial. *See Celotex,* 477 U.S. at 324-25. "A fact is material if it will make a difference in the result of a case under the governing law." *Kingman Reef Atoll Dev., LLC v. United States*, 116 Fed. Cl. 708, 742 (2014) (citations omitted).

Here, the grounds for summary judgment include Plaintiffs' failure of proof on the element of causation, which they have the burden of proving. *See St. Bernard Parish*, 887 F.3d at 1362 ("The burden of proof is on the plaintiff to establish causation."). The failure of proof on an essential element of Plaintiffs' case, such as causation, is a proper basis for summary judgment. As explained by the Supreme Court in *Celotex Corp. v. Catrett*:

> [T]he plain language of Rule 56(c) mandates the entry of summary judgment, after adequate time for discovery and upon motion, against a party who fails to make a showing sufficient to establish the existence of an element essential to that party's case, and on which that party will bear the burden of proof at trial. In such a situation, there can be "no genuine issue as to any material fact," since a complete failure of proof concerning an essential element of the nonmoving party's case necessarily renders all other facts immaterial. The moving party is "entitled to a judgment as a matter of law" because the nonmoving party has failed to make a sufficient showing on an essential element of her case with respect to which she has the burden of proof.

477 U.S. 317, 322-23 (1986); *see also Dairyland Power Co-op. v. United States*, 16 F.3d 1197, 1202 (Fed. Cir. 1994) ("A nonmoving party's failure of proof concerning the existence of an

element essential to its case on which the nonmoving party will bear the burden of proof at trial necessarily renders all other facts immaterial and entitles the moving party to summary judgment as a matter of law.").

III. STATEMENT OF MATERIAL FACTS[1]

A. The Buffalo Bayou and Tributaries Project

The Houston area has a long history of flooding. *See* Def. Ex. 56; Def. Ex. 34 at 3257-58; Def. Ex. 57. The area experienced six major floods along Buffalo Bayou between 1854 and 1935. Def. Ex. 1 at 2010. Two storms that struck the region in the early twentieth century—in May 1929 and December 1935—resulted in catastrophic flooding along Buffalo Bayou, including downtown Houston. Def. Ex. 1 at 2010-11; Def. Ex. 5 at 2247.

The December 1935 storm produced a 3-day rainfall which averaged about 15 inches over the White Oak and Buffalo Bayou watersheds. Def. Ex. 1 at 2010. The estimated peak streamflow rate[2] during the storm in Buffalo Bayou measured at Waugh Drive, which is located about 25 stream miles downstream of where the Addicks and Barker Dams and Reservoirs are located today (but still about 1.5 miles west of downtown Houston), was 40,000 cubic feet per second ("cfs"). Def. Ex 5 at 2257. The estimated flow in Buffalo Bayou downstream of its

[1] This statement includes those facts that are uncontroverted and material to the United States' motion. The United States relies on many of the same documents the parties attached to their cross-motions for summary judgment filed in 2019. *See* ECF No. 175 (Pls.' 2019 Appendix); ECF No. 183 (U.S. 2019 Appendix). For ease of reference in this remand, the United States has compiled an appendix supporting this motion in accordance with RCFC 56(c) and RCFC 5.4(a)(2)(G). All of Defendant's Exhibits ("Def. Ex.") cited in this brief are in the updated Defendant's Appendix filed with this brief. That Appendix begins with page number US_SJ_2001, with the page numbers abbreviated to just the number itself. Thus, Def. Ex. 1 at US_SJ_2001 is cited as Def. Ex. 1 at 2001.

[2] "Streamflow (also known as discharge) is the volume of water flowing past a given point in the stream in a given period of time. Streamflow is reported as cubic feet per second." *See* https://help.waterdata.usgs.gov/tutorials/surface-water-data/how-do-i-interpret-gage-height-and-streamflow-values (last visited Nov. 18, 2022).

intersection with White Oak Bayou at the edge of downtown Houston, was 53,000 cfs. *Id.* The resulting flooding caused the loss of eight lives and property damage estimated at $2,528,000. Def. Ex. 1 at 2010.

In response to these devastating floods, the Texas Legislature established the Harris County Flood Control District ("HCFCD") in 1937. The mission of HCFCD is to implement flood damage reduction projects across Harris County. *See* Def. Ex. 53; *see also* Def. Ex. 34 at 3247. As a result of those same floods, the United States Congress directed the U.S. Army Corps of Engineers ("Corps") to study flood protection along Buffalo Bayou, which flows from Katy, Texas, through Houston and the Houston Ship Channel, and into the Gulf of Mexico. Def. Ex. 1 at 2005. Following that study, Congress authorized the Addicks and Barker Dams as part of the Buffalo Bayou and Tributaries Project ("Project") by the Rivers and Harbors Act of June 20, 1938. Def. Ex. 1 at 2005-08; Def. Ex. 3 at 2140-41; Def. Ex. 5 at 2247. The Corps developed the Project jointly with local interests, including HCFCD. Def. Ex. 1 at 2005-06, 2013-14.

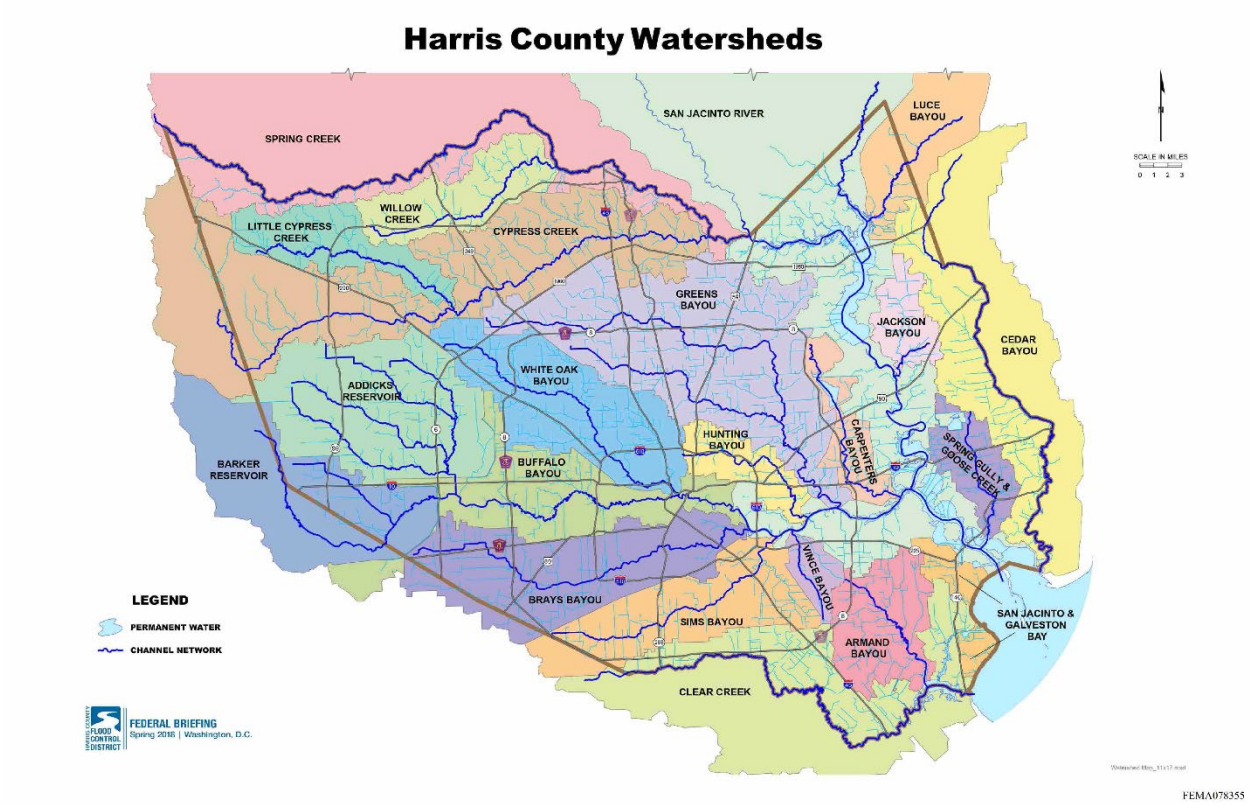
The Project was authorized to reduce flood risk in the downstream floodplain of Buffalo Bayou through the city of Houston. Def. Ex. 2 at 2055; Def. Ex. 5 at 2244; Def. Ex. 3 at 2140-41. Flood risk reduction is the Project's only purpose. *See* Def. Ex. 5 at 2244, 2247, 2270, 2276-77, 2283-84; Def. Ex. 4 at 2169.

The Addicks and Barker Dams and Reservoirs, which are floodwater detention structures, are "significant features of the Buffalo Bayou Project." Def. Ex. 3 at 2141. The construction of Barker Dam began in February 1942 and was completed in February 1945. Def. Ex. 4 at 2171; Def. Ex. 6 at 2403. The construction of Addicks Dam began in May 1946 and was completed in December 1948. *Id.* The two reservoirs serve "as detention basins and were designed to collect

excessive amounts of rainfall which would then be released into Buffalo Bayou at a controlled rate" to reduce flood risks to downstream properties. Def. Ex. 6 at 2404. The reservoirs "serve in conjunction with approximately 7.4 miles of Buffalo Bayou channel improvements immediately downstream of the dams to provide flood protection along Buffalo Bayou."[3] Def. Ex. 5 at 2245. The Addicks and Barker Dams and Reservoirs are owned by the United States and operated by the Corps. *Id.* at 2241. The improved Buffalo Bayou channel is owned and maintained by HCFCD. Def. Ex. 54.

Four watersheds shown on the map below impact the Project:

[3] The original concept for the Project contemplated the construction of three floodwater detention reservoirs, a levee and canal system to carry excess flows. Def. Ex. 1 at 2016-17; Def. Ex. 6 at 2401 (2013 Dam Safety Mod. Report) (description and map of Project's concept features); Def. Ex. 5 at 2248-49. The project authorization also contemplated "clearing, straightening and enlarging [Buffalo] bayou from the Houston Ship Channel to the dams, 27 miles upstream." Def. Ex. 3 at 2142. The Project was designed to be built in stages, but several components of the original Project were never constructed. Def. Ex. 1; Def. Ex. 5 at 2248-49; Def. Ex. 6 at 2400. With respect to Buffalo Bayou, other than the channel improvements along the 7.4 miles of Buffalo Bayou immediately downstream of the dams, the additional channel construction "was never performed due to public opposition concerned with aesthetic and environmental effects to Buffalo Bayou, and the rapid development of the area." Def. Ex. 5 at 2245. *See also* Def. Ex. 3 ("Further planning or construction of the originally authorized improvements in the main stem of Buffalo Bayou have been deferred because of strong public opposition on the part of conservationist and environmental groups.").



Def. Ex. 21 at 2894; *see also* Def. Ex. 52; Def. Ex. 42 at 3725.

- Addicks watershed and Barker watershed are located upstream of the dams. Def. Ex. 5 at 2252, 2358; Def. Ex. 52; Def. Ex. 53.
- Cypress Creek watershed is also located upstream of the dams. During large rain events, water from the Cypress Creek watershed can overflow into the Addicks watershed and increase the pool levels in Addicks Reservoir. Def. Ex. 5 at 2252, 2258 ("Under major flood events, Addicks Reservoir receives about one-third of its total volume from the 130 square mile drainage area of the Upper Cypress Creek Basin."); Def. Ex. 52; Def. Ex. 5 at 2358.
- The Buffalo Bayou watershed, where the subject properties are located, lies downstream of the dams. Def. Ex. 54; Def. Ex. 21 at 2993.

The dams in place during Harvey, as designed and constructed, each had an outlet structure consisting of five concrete box conduits. The original design included a downstream rectified channel with a capacity of approximately 18,000 cfs, and the outlets (4 ungated and 1 gated on each dam) permitted a combined uncontrolled discharge of floodwater into Buffalo Bayou of approximately 15,700 cfs. Def. Ex. 5 at 2249, 2272; Def. Ex. 6 at 2415; Def. Ex. 31.

In 1948, the Corps constructed gates on two additional conduits on each dam so that three of the five conduits were gated. This design reduced the combined uncontrolled discharge into Buffalo Bayou to approximately 7,900 cfs, which was considered at that time to be the capacity of that channel. Def. Ex. 6 at 2415; Def. Ex. 5 at 2249. However, increasing urban development along Buffalo Bayou in the 1940s and 1950s created a potential flood threat from uncontrolled releases at that level. Def. Ex. 6 at 2415. After the feasibility of gating the remaining conduits was studied, the Corps added gates to those conduits in the early 1960s to provide additional protection to developing downstream areas. Def. Ex. 6 at 2415; Def. Ex. 31. With all of the conduits gated, "[t]he total of all releases, plus local runoff downstream of the dams, would start at 4,000 cfs and be gradually increased to 6,000 cfs except under emergency conditions." Def. Ex. 5 at 2249.

Continued residential development along Buffalo Bayou downstream of the reservoirs resulted in channel encroachment and by late 1970, water flows in excess of 3,000 cfs in the unimproved channel below the dams would begin to threaten the first floor elevations of some residences, and release rates of 2,500 to 2,800 cfs would produce nuisance type flooding of flower beds, trees and lawns in some areas along Buffalo Bayou and its tributaries. Def. Ex. 5 at

2249-51. Consequently, the dams are generally operated to limit downstream flows in Buffalo Bayou to prevent or reduce flood damages.[4] Def. Ex. 5 at 2272; *see also* Def. Ex. 6 at 2415.

The Addicks and Barker Dams and Reservoirs are "dry dams," meaning that the reservoirs behind the dams are generally empty. *See* Def. Ex. 5 at 2244 ("The two reservoirs provide floodwater detention for flood risk management on the Buffalo Bayou watershed, and except during periods of rainfall, do not normally impound significant water."); Def. Ex. 6 at 2399 ("Both Addicks and Barker Reservoirs provide flood control only and do not maintain permanent pools."). The Addicks and Barker Dams and Reservoirs are operated by the Corps in accordance with a Water Control Manual. The first Water Control Manual for the operation of the dams was issued in April 1962, in connection with the gating of all five conduits or outlets on each dam. *See* Def. Ex. 2 at 2055-56, 2076 (1962 Reservoir Regulation Manual).

The 1962 Reservoir Regulation Manual contains provisions for operations under normal conditions, under flood or potential flood conditions, and for operations to empty detained floodwaters from the reservoirs. Under the 1962 Manual, the Corps closed the gates when there was sufficient rainfall over the watershed below the reservoirs or "when flooding [was] predicted downstream." *Id.* at 2076-78. "During major floods," the emergency regulation would apply,

[4] Under the 2012 Water Control Manual and a standing deviation associated with the construction of new outlet structures on both dams, the Corps regulated releases to limit downstream flows (as measured at the Piney Point gage) to 2,000 cfs during normal conditions, and up to 4,000 cfs when the reservoirs are at Stage 2 elevations. *See* Def. Ex. 17; Def. Ex. 31 (R. Thomas Dep. Tr. Vol. I at 61:9-62:13) (discussing Emergency Action Plan and the Stage 1 and Stage 2 extended watch elevations); Def. Ex. 23; Def. Ex. 7 at 2494-95. The 4,000 cfs level was selected because combined flows in Buffalo Bayou at this level will not inundate structures downstream. Def. Ex. 33 (Zetterstrom Dep. Tr. at 20:23-26:16). That deviation was in place during Hurricane Harvey, but did not have any impact on the induced surcharge regulations in the WCM. Def. Ex. 31 (R. Thomas Dep. Tr. Vol. I at 132:2-133:21).

and the Dam Tender would monitor and report the stages and other data to the district office hourly and receive regulation instructions. *Id.* at 2084.

> If the data necessary for a reliable prediction of the inflow hydrographs [were] not available, the outflow for each reservoir [was] determined from the regulation curves show on plates 14 and 15, for Addicks and Barker reservoirs, respectively, ... If plates 14 and 15 … dictated releases, they [would] be made regardless of channel capacities downstream. If the inflow is decreasing and pool elevations are falling, the maximum gate opening attained [would] be continued until pool elevation 110.0 at Addicks and 103.0 at Barker [was] reached.

Id. at 2084-85.

The Water Control Manual was updated in November 2012 ("2012 WCM"), and this manual was in effect during Hurricane Harvey in 2017.[5] The 2012 WCM includes detailed operating instructions for both "Normal Flood Control Regulation" and "Induced Surcharge Flood Control Regulation." Def. Ex. 5 at 2274-75.[6] Normal conditions are defined in the 2012 WCM "to exist when the reservoir pools are not in the range of induced surcharge schedule." *Id.* at 2274.

During normal flood control operations, the gates on the dams are set to allow normal water flows to pass through the gates when the reservoirs are empty and flooding on Buffalo Bayou downstream of the dams is not occurring or expected. *Id.* at 2274. The Corps closes the

[5] The Corps issued a revised Water Control Manual in 2019 to update the reservoir regulations for the new outlet works constructed at both Addicks and Barker as part of the dam safety modifications. *See* 2019 Water Control Manual at 1-1, *available at* https://www.swg.usace.army.mil/Portals/26/2019%2010%2024%20-%20Addicks%20and%20Barker%20WCM_Redacted_1.pdf (last visited Nov. 18, 2022). Each of the dams now has a new outlet structure consisting of three circular steel lined conduits. *Id*. (2019 Water Control Manual at 2-1 to 2-2).

[6] "An induced surcharge is 'a release made to optimize the available [reservoir] storage and protect the integrity of the dams.'" *In re Upstream Addicks & Barker (Texas) Flood-Control Reservoirs*, 146 Fed. Cl. 219, 239 (2019) (quoting 2019 Upstream Trial Tr. 103:6-9 (R. Thomas)).

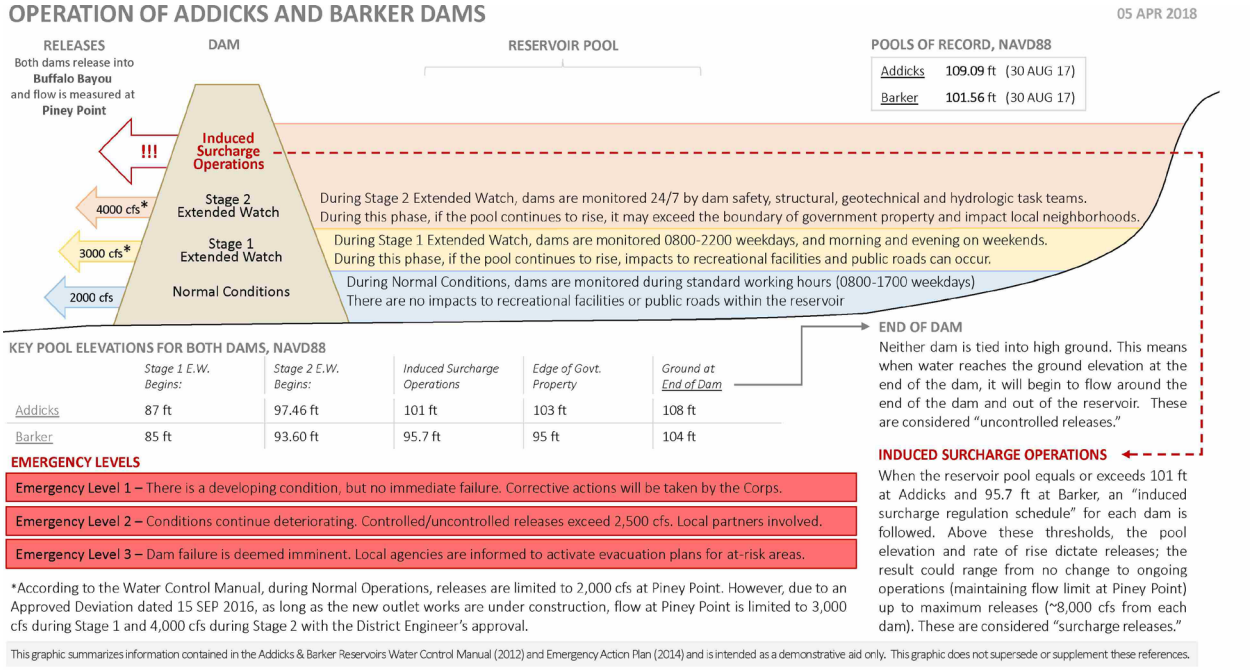
gates on both reservoirs when there is a risk of downstream flooding due to rainfall over the watersheds either above or below the reservoirs. *Id.*; *see also* Def. Ex. 31 at 3213-14. Once the downstream runoff has receded to non-damaging levels, the gates are opened gradually "to release amounts which, when combined with uncontrolled runoff, will not exceed 2,000 cfs at Piney Point."[7] Def. Ex. 5 at 2274; *see also* Def. Ex. 31 at 3213-15. When the reservoirs are again empty, the Corps returns the gates to a setting that allows for the passage of normal, non-damaging water flows. Def. Ex. 5 at 2275.

The operation of the reservoir moves from "normal flood control" to "induced surcharge flood control" under the following conditions:

> Induced Surcharge Flood Control Regulation. At any time the reservoir pool equals or exceeds 101 feet NAVD 1988 in Addicks Reservoir and 95.7 feet NAVD 1988 in Barker Reservoir monitoring of pool elevation should immediately ensue to determine if inflow is causing pool elevation to continue to rise. If inflow and pool elevation conditions dictate, reservoir releases will be made in accordance with the induced surcharge regulation schedules shown on plates 7-03 and 7-04. The gates should remain at the maximum opening attained from the induced surcharge regulation schedules until reservoir levels fall to elevation 101 feet NAVD in Addicks and 94.9 NAVD 1988 feet in Barker. Then, if the outflow from both reservoirs when combined with the uncontrolled runoff downstream is greater than channel capacity, adjust the gates until the total discharges do not exceed channel capacity and follow the normal operating procedures.

Id. at 2275; *see also id.* at 2344. Once conditions allow for a return to normal flood control operations, the Water Control Manual provides for the release of detained floodwaters until the reservoirs are empty. *Id.* at 2274-75. These operations are summarized in the following schematic:

[7] The Piney Point gage is located on Buffalo Bayou approximately 10.7 stream miles downstream of Barker Dam and serves as a control point for making releases during normal flood control operations. Def. Ex. 5 at 2258, 2285; Def. Ex. 31 at 3213-14.



Def. Ex. 23.

B. The Benefits of the Project from the 1940s through 2016

The Addicks and Barker dams and reservoirs "fulfill their mission by reducing the damage to property downstream of the dams caused by flooding." Def. Ex. 4 at 2217. The Corps is responsible for estimating the value of this and other flood risk reduction projects that it constructs and operates throughout the country. Given that the purpose of the Project is to reduce downstream flooding and resulting damages, one way the Corps measures the value of Addicks and Barker "is by estimating the monetary amount of flood damages avoided by the presence and operation of the reservoirs." *Id.* This is a "with" and "without" the Project comparison.[8] The Corps' 2009 Master Plan for Addicks and Barker reports the estimate of flood damages prevented from 1947 through 2008, with annual flood damages prevented listed for 1979 through 2008, as well as a cumulative total. For the 1947 to 2008 time period, the

[8] This "with" and "without" Project comparison for certain storms is included in the Corps' Annual Water Control Reports. *See* Def. Ex. 8 at 2575-87; Def. Ex. 25 at 3116-21.

cumulative total of flood damages prevented downstream of the two dams is approximately $4.6 billion. *Id*. at 2218. *See also* Def. Ex. 5 at 2260-61 (Table 4-05 Damages Prevented by Addicks and Barker Reservoirs, FY 1980 through FY 2010). Prior to Hurricane Harvey, the estimated cumulative benefits from flood damages prevented by Addicks and Barker through Fiscal Year 2016 had risen to over $16.5 billion.[9] Def. Ex. 8 at 2573.

C. Hurricane/Tropical Storm Harvey

On August 25, 2017, Hurricane Harvey made landfall along the Texas coast, near Rockport, Texas, as a Category 4 hurricane. Pls.' Statement of Undisputed Material Facts ("Pls.' SUMF") ¶ 26 (ECF No. 175); Def. Ex. 22 at 3014; Def. Ex. 19 at 2653; Def. Ex. 26 at 3132. Harvey weakened into a tropical storm within 12 hours of making landfall, but stalled over the Houston area for several days before moving into Louisiana on August 30, 2017. Pls.' SUMF ¶ 27. Harvey maintained tropical storm intensity the entire time the storm was inland over southeast Texas. Pls.' SUMF ¶ 27; Def. Ex. 26 at 3133; Def. Ex. 42 at 3721-22.

Hurricane Harvey was an extraordinarily large and rare storm. The post-storm report prepared by Harris County Flood Control District ("HCFCD") estimates that the total rainfall amounts from Harvey ranged from 26 to 47 inches across Harris County, and that the average rainfall across Harris County was 33.7 inches. Def. Ex. 26 at 3135-36. In the Project area, HCFCD reported 4-day rainfall amounts based on stream gages ranging from 27.0 to 36.3 inches in the Barker watershed, 29.6 to 33.2 inches in the Addicks watershed, and 29.7 to 35.4 inches in the Buffalo Bayou watershed. *Id.* at 3158. *See also* Pls.' SUMF ¶ 28 ("During the entire period of the storm, the Reservoir watersheds received 32-35 inches of rain . . . ."); Def. Ex. 20 at 2869 ("The Addicks and Barker dams' watersheds received between 32-35 inches of rain during a

[9] The Fiscal Year for these estimates is from October through September. Def. Ex. 5. at 2261.

4-day period, August 25, 2017 through August 29, 2017, when Hurricane Harvey stalled over the region.").

The federal, state and local governments responded to Hurricane Harvey as the natural disaster that it was. On August 23, 2017, the Governor of Texas issued a disaster proclamation certifying that Hurricane Harvey posed a threat of imminent danger for several counties, including Harris County. Def. Ex. 41 at 3710. The Governor issued proclamations renewing the disaster declaration each month from that initial declaration through March 2019. *Id*. On March 15, 2019, the Governor issued a further proclamation "that a state of disaster continues to exist in Texas as a result of catastrophic damage caused by Hurricane Harvey" for 60 Texas counties, including Harris County. *Id*. at 3709.

The President of the United States issued the initial federal disaster declaration for areas affected by Hurricane Harvey on August 25, 2017, including Harris County. Def. Ex. 46. Federal disaster relief was then made available to individual and households and to local governments. This included FEMA disaster assistance for Hurricane Harvey, which now exceeds $1.656 billion in approved grants through the individual and household program and over $2.36 billion in obligated public assistance grants. *See id.*

Harvey remains the second costliest tropical storm in United States history (adjusted for inflation), behind only Katrina in 2005.[10] The impacts of the storm led the World Meteorological Organization to retire the name Harvey so that no tropical storm or hurricane large enough to earn a name will ever bear the name Harvey again.[11]

[10] *See* Def. Ex. 47 (NOAA National Center for Environmental Information, Costliest U.S. Tropical Cyclones (values based on 2022 Consumer Price Index adjusted cost)).

[11] *See* Def. Ex. 24 (NOAA Press Release). *See also* Def. Ex. 26 at 3133-34; Def. Ex. 42; Def. Ex. 25 at 3118 (reports summarizing impacts in Harris County).

D. Project Operations During Hurricane Harvey

In 2007, the Corps formed the Addicks-Barker Multi-Agency Emergency Coordination Team, known as "ABECT." The ABECT group includes points of contact for federal, state and local agencies that need to be in communication with the Corps during storm or flood events that involve Addicks and Barker Dams and Reservoirs. Def. Ex. 34; Def. Ex. 21 at 2992. ABECT members include the Corps, National Weather Service, U.S. Geological Survey, HCFCD, Harris County Office of Emergency Management, Fort Bend County Office of Emergency Management, City of Houston Office of Emergency Management, and the Texas Department of Public Safety. Def. Ex. 21 at 2992.

In addition to conducting emergency exercises, the group has developed Emergency Action Response Charts for each reservoir based on water elevation levels that define the roles and responsibilities of each federal, state and local agency during flooding or emergency events. *See* Def. Ex. 21 at 2992; Def. Ex. 34 (J. Lindner Dep. Tr. at 139:10-142:22); Def. Ex. 36 (S. Fitzgerald Dep. Tr. at 365:9-13). During storm events, the Corps shares technical information about the Project's operations so that ABECT members can communicate and coordinate with their respective emergency management officials. Def. Ex. 36 (S. Fitzgerald Dep. Tr. at 365:9-13); *see also* Def. Ex. 58 at 3870; Def. Ex. 9-11, 13-16 (transmittal of CWMS forecast reports).

The Corps activated ABECT in anticipation of Harvey. The group held its first call on or about Wednesday, August 23, 2017, and held scheduled conference calls twice per day after that, while also exchanging information by electronic mail. Def. Ex. 36 (S. Fitzgerald Dep. Tr. at 166:20-169:12, 190:7-191:5). The information distributed to ABECT members by email included the Corps' modeling results and daily Corps Water Management System ("CWMS")

Forecast, which reports on existing and forecasted conditions at the reservoirs. Def. Ex. 36 (S. Fitzgerald Dep. Tr. at 190:7-191:5); Def. Ex. 35 (M. Kauffman Dep. Tr. at 31:2-36:22). *See also* Def. Ex. 9-11, 13-16 (select CWMS forecast reports distributed during Hurricane Harvey event). The CWMS Forecasts and other evidence show the following:

- August 25, 2017: Both reservoirs were empty and the gates were set at standard settings that allow the daily reservoir inflows to pass through. Def. Ex. 9 at 2596, 2598; Def. Ex. 25 at 3120; Def. Ex. 31 (R. Thomas Dep. Tr. Vol. I at 154:6-156:24). That evening, the Corps closed the flood gates on both Addicks and Barker Dams. Def. Ex. 10 at 2603-04; Def. Ex. 31 (R. Thomas Dep. Tr. Vol. I at 156:21-24); Def. Ex. 58 at 3870.
- August 26, 2017: The Corps stated that "[w]ith rainfall continuing over the next 5+ days, the reservoirs are expected to exceed record pools. At this time we are not expected to make mandatory releases for surcharge operations." Def. Ex. 10 at 2603.
- August 27, 2017: The CWMS Forecast noted:

> The Addicks and Barker watersheds have received 10-18 inches across the watersheds in the last 48 hours. Gates are currently closed. Forecasted rainfall amounts are in flux. The 7-day accumulation assumed for this forecast is approximately 30 inches as received from the River Forecasting Center.
>
> At this time, mandatory releases are expected to be necessary for surcharge operations at Addicks later tonight and at Barker on Wednesday.

Def. Ex. 11 at 2609-10; *see also* Def. Ex. 12 (Corps Press Release). The peak inflows to the reservoirs recorded on August 27 were approximately 70,000 cfs into Addicks and 77,000 cfs into Barker. Def. Ex. 25 at 3119-20. In accordance with the Corps' Emergency Action Plan for Addicks and Barker Dams, a Stage 2 Extended Watch alert was activated on August 27 and the Corps began 24/7 monitoring of the dams. Def. Ex. 20 at 2869. In addition, as the reservoir levels continued to rise, the pool of floodwater behind Barker Reservoir exceeded

the government-owned land behind Barker Dam on August 27, and early the following day (August 28), the pool of floodwater behind Addicks Reservoir exceeded the government-owned land behind Addicks Dam. Def. Ex. 14 at 2625-27.

- August 28, 2017: In accordance with the Corps' Water Control Manual, the Corps began releasing water from both Addicks and Barker Reservoirs at approximately midnight (12:00 a.m.) on August 28, 2017. Def. Ex. 13 at 2618; Def. Ex. 31 (R. Thomas Dep. Tr. Vol. I at 139:5-17); *see also* Def. Ex. 20 at 2869; Pls.' SUMF ¶¶ 31-32 (began no later than 1:00 a.m.). Even after these releases began, the reservoir pools behind the dams continued to rise. Def. Ex. 14; Def. Ex. 15.
- August 30, 2017: Both reservoirs experienced record pool levels on the morning of Wednesday, August 30, 2017, with Addicks Reservoir reaching a pool elevation of 109.1 feet and Barker Reservoir reaching a pool elevation of 101.6 feet.[12] Def. Ex. 20 at 2869; Def. Ex. 25 at 3118-20; Def. Ex. 58 at 3874; Def. Ex. 16. In the CWMS Forecast issued on August 30, 2017 (Def. Ex. 15), the Corps reported that:
    - The Addicks and Barker watersheds had received 32-35 inches since the beginning of the Harvey rainfall event.
    - Addicks was releasing approximately 7,500 cfs and Barker was releasing approximately 6,300 cfs for a combined discharge of 13,800 cfs.

[12] The prior pools of record for both reservoirs occurred in connection with the 2016 Tax Day storm. That rainfall resulted in a peak pool elevation in Addicks of 102.65 feet, and a pool size of 123,067 acre-feet, which was approximately 94,659 acre-feet smaller than the peak Addicks pool during Harvey of 217,726 acre-feet. Def. Ex. 18; Def. Ex. 8 at 2577. For Barker, the peak pool elevation was 95.24 feet and a pool size of 85,816 acre-feet, which was approximately 85,131 acre-feet smaller than the peak Barker pool during Harvey of 170,941 acre-feet. *Id.*

- Water had begun to flow around the north end of Addicks dam on August 29, 2017.

- August 31, 2017: The CWMS Forecast reported that the uncontrolled water flows around the north end of Addicks Dam were expected to cease on September 2. Def. Ex. 16. The Corps also forecasted that "[e]levated discharges are expected to continue for at least 10+ days, before resuming normal rates of less than 4000 cfs combined total discharge." *Id.*

Surcharge releases of floodwaters from the reservoirs continued until September 16, 2017, when normal operations resumed. Def. Ex. 58 at 3876. The reservoirs were not fully drained until mid-October 2017. Def. Ex. 26 at 3148.

E. Plaintiffs' Expert Reports

Plaintiffs produced two expert reports in this case. The first report was prepared by Phillip B. Bedient, Ph.D., P.E. Def. Ex. 37 (Bedient Downstream Expert Report (Nov. 12, 2018)). Dr. Bedient was also retained by the plaintiffs in the Upstream Sub-Docket, and testified there that Houston is the most flood-prone city in the United States. Def. Ex. 40 (Bedient Upstream Dep. Tr. at 106:15-107:20 (Dec. 18, 2018)); Def. Ex. 43.

For the areas downstream of Addicks and Barker Dams, Dr. Bedient did not model or develop an opinion as to the inundation area, the depth of inundation, or the duration of inundation that would have occurred without the Project or if the Project had been operated differently. *See* Def. Ex. 37. However, Dr. Bedient testified at his Upstream deposition that if Addicks and Barker Dams and Reservoirs were not there, the damage during Hurricane Harvey to downstream properties would have been far more significant. Def. Ex. 40 (Bedient Dep. Tr. at 120:12-121:5 (Dec. 18, 2018)); *see also* Def. Ex. 40 (Bedient Dep. Tr. at 249:8-10 (Dec. 18,

2018) ("Oh, I think there's no question that there were significant downstream benefits from Addicks and Barker, yes I do.")); Def. Ex. 43.

Plaintiffs' second expert report was prepared by Matthew Bardol, P.E. and Robert Bachas, Ph.D., P.E., of Geosyntec Consultants, Inc. ("Geosyntec"). Def. Ex. 38. Geosyntec used hydraulic modeling to estimate the depth and duration of the floodwater inundation of each of the subject properties in connection with Hurricane Harvey based on the Corps' actual operation of the Addicks and Barker project during that storm event. *See id.* at 3371-82. Geosyntec did not model or develop any opinion as to whether any of the subject properties would have flooded in connection with Hurricane Harvey without the Project or had the gates never been closed. *See id.* at 3332-3413.

F. The Subject Properties

Each of the subject properties was developed for residential use after the construction of the Addicks and Barker Dams and Reservoirs.[13] The properties owned by plaintiffs Good Resources LLC and Memorial SMC Investment 2013 LP are multi-unit residential rental properties. The remaining properties are single-family residential properties. The houses and related structures on the subject properties were built between 1962 and 2016. *See* Def. Ex. 59. Plaintiffs purchased the subject properties between 1976 and 2015.[14] *Id.*; Pls.' SUMF ¶ 22.

All of the subject properties are located in Harris County, Texas, and are located within the Buffalo Bayou watershed downstream of Addicks and Barker Dams and Reservoirs, along

[13] The physical or street address of the subject properties is listed in the Court's Order Regarding Test Property Selection, filed March 28, 2018, ECF No. 81, and in the summary table included in the Appendix as Def. Ex. 59.

[14] Four of the bellwether properties were sold by the Plaintiffs following Harvey. Plaintiff Phillip Azar's property was transferred to his Estate following his death in 2019, and then sold by the Estate in 2020. *See* Def. Ex. 59.

Buffalo Bayou. Pls.' SUMF ¶ 1; Def. Ex. 38 at 3331; *see also* Def. Ex. 21. At the time that Hurricane Harvey hit the region, three of the subject properties were located within the 100-year floodplain, meaning they are expected to flood during a storm that has a return frequency of 100 years or more, and eight properties were located within the 500-year floodplain, meaning they are expected to flood during a storm that has a return frequency of 500 years or more.[15] Pls.' SUMF ¶ 23. The remaining two subject properties are located outside the 500-year floodplain, meaning they are expected to flood only during storms with return frequencies greater than 500 years. *Id.*

Each of the subject properties experienced flooding during or immediately following Hurricane Harvey. *See generally* Consol. and Am. Downstream Master Compl., ECF No. 23 (Jan. 16, 2018). The depth and duration of the floodwater inundation varied for each of the subject properties. *Id.*; Pls.' SUMF ¶¶ 40-41, 43.

IV. ARGUMENT

A. The Court Should Grant Summary Judgment in Favor of the United States Because Plaintiffs Cannot Prove Causation Under the Correct Legal Standard

Plaintiffs' failure of proof on the element of causation is fatal to their claims. Here, because proof of causation in a flooding case requires Plaintiffs to show that their properties

[15] A 100-year flood refers to a flood with an annual exceedance probability of 1%, meaning that in any year there is a 1% chance that a flood of that level will occur. A 500-year flood has an annual exceedance probability of 0.2%. *See* https://www.fema.gov/glossary/flood-zones (last visited Nov. 16, 2022); Def. Ex. 42 at 3725.

HCFCD, in partnership with the Federal Emergency Management Agency ("FEMA") is working on updates to the flood hazard maps that identify the 100-year and 500-year floodplains in Harris County. *See* https://www.maapnext.org/about (last visited Nov. 13, 2022); https://www.hcfcd.org/Activity/Additional-Programs/MAAPnext-Development-Program (last visited Nov. 13, 2022); https://www.maapnext.org/Understand-Your-Risk (last visited Nov. 13, 2022).

experienced more flooding than they would have experienced absent government action addressing the relevant risk, Plaintiffs must prove that their properties experienced more flooding during Hurricane Harvey than their properties would have experienced if the Corps had never built the Project, including the Addicks and Barker Dams and Reservoirs.[16] Throughout this case, Plaintiffs have ignored this legal requirement and have, therefore, prepared no evidence that addresses the proper causation standard. Instead, Plaintiffs erroneously single out one aspect of the government action—the opening of the gates on the dams in the midst of Harvey pursuant to the Water Control Manual—and contend that this isolated action is the but-for cause of the flooding of their properties. That evidence, however, cannot establish causation under the correct legal standard. Plaintiffs' failure of proof on causation "necessarily renders all other facts immaterial and entitles [the United States] to summary judgment as a matter of law." *Dairyland Power Co-op.*, 16 F.3d at 1202.

1. Plaintiffs Must Prove That Absent the Government Action, They Would Not Have Suffered the Injury

The Federal Circuit has established a clear legal standard for causation:

> Causation requires a showing of "what would have occurred" if the government had not acted. *United States v. Archer*, 241 U.S. 119, 132, 36 S. Ct. 521, 60 L. Ed. 918 (1916). In order to establish causation, a plaintiff must show that in the ordinary course of events, absent government action, plaintiffs would not have suffered the injury.

St. Bernard Parish, 887 F.3d at 1362. Otherwise stated, "the causation analysis requires the plaintiff to establish what damage would have occurred without government action." *Id.* at 1363. *See also United States v. Sponenbarger*, 308 U.S. 256, 266 (1939) (explaining that a takings

[16] In this memorandum, we use the phrase "during Hurricane Harvey" as including both the 4-5 day time period when rain was falling in the greater Houston area and the time-period during which that rainfall was draining through the reservoirs and into and through the Buffalo Bayou watershed downstream of the reservoirs. Due to the magnitude of the rainfall and runoff, the reservoirs were not fully drained until mid-October 2017.

plaintiff must prove that the government subjected his land to "additional flooding, above what would [have] occur[ed] if the Government had not acted"). Plaintiffs bear the burden of proof on this element. *St. Bernard Parish*, 887 F.3d at 1362 ("It is well established that a takings plaintiff bears the burden of proof to establish that the government action caused the injury.").

In *St. Bernard Parish*, the plaintiffs alleged that the flooding of their properties during Hurricane Katrina was caused by the Corps' construction and operation of the Mississippi River Gulf Outlet ("MRGO") channel. *Id.* at 1357-58. But the plaintiffs did not consider what, if any, effect the Lake Pontchartrain and Vicinity Hurricane Protection Project ("LPV project"), which was authorized during construction of the MRGO channel and included the levees and floodwalls along the banks of the MRGO channel to reduce the risk of flooding, had on their properties. *See id.*.

On appeal, the Federal Circuit held that the plaintiffs failed to meet their burden of proof on causation under the correct legal standard, which was fatal to the claims:

> Here, the plaintiffs failed to present evidence comparing the flood damage that actually occurred to the flood damage that would have occurred if there had been no government action at all. The plaintiffs' proof of causation rested entirely on the premise that it was sufficient to establish that the plaintiffs' injury would not have occurred absent the construction and operation of the MRGO channel without taking account of the impact of the LPV flood control project.

Id. at 1363 (footnote omitted). The *St. Bernard Parish* plaintiffs had "addressed the wrong question—asking not whether the whole of the government action caused the plaintiffs' injury, but rather whether isolated government actions, the construction and operation of MRGO, caused their injury." *Id.* at 1363-64. The correct legal standard requires plaintiffs to prove causation "based on the entirety of government action," *id*. at 1364-65, and that showing must include "the impact of the entirety of government actions that address the relevant risk"—which was, as here, flood risk. *Id.* at 1364. The causation test cannot focus simply on some isolated federal action

taken at the moment a storm hits—"the causation analysis must consider both risk-increasing *and risk-decreasing government actions over a period of time* to determine whether the totality of the government's actions caused the injury." *Id.* at 1365 (emphasis added). Thus, "[w]hen government action mitigates the type of adverse impact that is alleged to be a taking, it must be considered in the causation analysis, regardless of whether it was formally related to the government project that contributed to the harm." *Id*. at 1367.

This same causation standard applies when government releases from a dam are at issue. For example, *Arkansas Game and Fish Commission v. United States* presented takings claims based on allegations that changes in the scheduled releases from a flood control dam built in the 1940s on the Black River in Arkansas had increased the duration of seasonal flooding on their downstream property, resulting in damage to growing trees. On remand from the Supreme Court, the Federal Circuit revisited the element of causation. *See Ark. Game & Fish Comm'n v. United States*, 736 F.3d 1364, 1370-72 (Fed. Cir. 2013). The Federal Circuit found that the evidence showed a substantial increase in the duration of flooding below the dam during the years in which releases were made based on the deviation from the dam's water control manual (1994 to 1998) when compared to (1) the period prior to the construction of the dam, and (2) the period between 1953 and 1993, which was after the construction of the dam but before releases were changed by the deviation. *Id*. at 1371-72. Although the Court found that causation was established under both alternative scenarios, it noted that "[a]t oral argument, the parties acknowledged that in determining the scope of any invasion of [private] property rights, the proper comparison would be between the flooding that occurred *prior to the construction of*

Clearwater Dam and the flooding that occurred during the deviation period."[17] *Id*. at 1372 n.2 (emphasis added); *see also St. Bernard Parish*, 887 F.3d at 1364-65 (stating that in the *Arkansas Game* case "[w]e explained that 'the proper comparison would be between the flooding that occurred prior the construction of [the dam] and the flooding that occurred during the deviation period.'" (alteration in original and citation omitted)).

And in *Accardi v. United States*, the plaintiffs alleged that the government's operation of the dams and reservoirs on the Trinity River (a project referred to as "the Trinity River division") caused the flooding of their downstream property during a large storm event. 599 F.2d 423, 425 (Ct. Cl. 1979). On the element of causation, the Court of Claims held that "plaintiffs have wholly failed to show that defendant's construction [and] operation of the Trinity River division subjected their lands to any additional flooding above what would have occurred in consequence of the severe January 1974 storm *had defendant not constructed the division at all.*" *Id.* at 429-30 (emphasis added). In holding that there was no taking, the court stated that "it is fair to find from the record that the flooding which actually occurred in consequence of that storm was far less than would have been the case had the Trinity River division never been built." *Id*. at 430. The *Accardi* court also rejected the plaintiffs' arguments that a different result was appropriate because of their "assertedly justifiable reliance" on government "maintaining a low level release rate . . . without exception." *Id*. The court held that "[p]laintiffs' legal position is plainly contrary to the rationale in *Sponenbarger* and repeated decisions in this court." *Id.*

[17] The Federal Circuit further observed that the water release policy for the period before the deviation was intended to mimic the pre-dam water flows, so that the parties' comparison of pre-deviation flows with post-deviation flows appeared to have "no effect on the outcome" of the case. *Ark. Game & Fish Comm'n*, 736 F.3d at 1372 n.2.

A string of Supreme Court decisions likewise articulates this same requirement for establishing causation. In *United States v. Archer*, the plaintiffs alleged that the government's construction of a dike on their property caused a taking by depositing sand and gravel on the land. Because the dike was constructed to provide flood protection and the property may have been permanently submerged without the dike, the Supreme Court remanded the case for a determination of "what would have occurred if the dike had not been constructed." *Archer*, 241 U.S. at 132. In *Sanguinetti v. United States*, the plaintiffs alleged a taking of their property by flooding allegedly caused by a government canal. 264 U.S. 146, 147 (1924). On the element of causation, the Supreme Court identified the relevant inquiry as whether the plaintiffs' property "would have been flooded if the canal had not been constructed." *Id*. And, in *Sponenbarger*, the Supreme Court found no liability for a taking where the "Government has not subjected [petitioners'] land to any additional flooding, above what" would have occurred "if the Government had not acted[.]" 308 U.S. at 266; *see also id.* at 265 ("[T]o hold the Government responsible for such floods would be to say that the Fifth Amendment requires the Government to pay a landowner for damages which may result from conjectural major floods, even though the same floods and the same damages would occur had the Government undertaken no work of any kind.").

These decisions collectively and consistently hold that to prove causation in a flooding case such as this, Plaintiffs must show that their properties were subjected to additional flooding above which would have occurred during Hurricane Harvey without the Project.

2. Causation Requires Consideration of the Impact of the Buffalo Bayou and Tributaries Project

Plaintiffs' legal theory of causation suffers from the same fatal flaw present in *St. Bernard Parish*. Plaintiffs cherry-pick an isolated "government action"—the Corps' opening of

the outlet gates on the dams on or about August 30, 2017—and contend that this isolated action caused their flooding. *See, e.g.*, Consol. and Am. Downstream Master Compl., ECF No. 23, at ¶¶ 6-46 (each referring to the "release of flood water from the reservoirs" as the cause of the flooding); *see also* Pls.' 2019 Summ. J. Mot., ECF No. 175, at 32 ("The Government caused the flooding of Plaintiffs' property by opening the gates and releasing water from the Reservoirs."); Pls.' 2019 Summ. J. Reply, ECF No. 190, at 1 (erroneously contending that Plaintiffs "need only prove what would have occurred had the Government not taken that affirmative act" of "opening the Reservoir gates"). But Plaintiffs' selection of the Corps' "opening of the gates" during Harvey disregards "the entirety of government actions that address the relevant risk" and is therefore legally insufficient.[18] *St. Bernard Parish*, 887 F.3d at 1364. As was the case in *St. Bernard Parish*, Plaintiffs do not address the correct predicate question.

The government's actions addressing the relevant risk—the risk of flooding along Buffalo Bayou in Houston—include the construction and operation of the Buffalo Bayou and Tributaries Project, not simply the last one of the many actions the Corps took during the operation of that Project during Hurricane Harvey. The very purpose of the Project, as authorized by Congress, is to *reduce* flood risk in the Buffalo Bayou watershed downstream of the Addicks and Barker dams and reservoirs. The Addicks and Barker Dams and Reservoirs are "significant features" of the Project. Def. Ex. 3 at 2141. They protect downstream properties—including the subject properties here—by temporarily detaining rainfall and runoff from the watersheds above or upstream of the dams. If the Corps had never built the Project, there would

[18] Indeed, the Project reservoirs were only empty when Hurricane Harvey hit the area because the Corps had operated the Project during a rainfall event on August 8, 2017, and after closing the gates to detain floodwaters and reduce downstream flooding, had then opened the gates to release those floodwaters so that the reservoirs were again empty and available during Hurricane Harvey. Def. Ex. 25 at 3116-17.

have been no detention of the floodwaters during Harvey, and without the Project properties along Buffalo Bayou would have experienced much greater flooding. Instead of being detained completely followed by controlled releases through the dam gates, all floodwaters from Hurricane Harvey's rainfall would have simply flowed through the watersheds and over hundreds of thousands of properties, including the subject properties.

Instead of seeking to prove that they satisfy the proper standard, Plaintiffs focus only on the single action of opening the gates without taking into consideration the existence of the Project as a whole and in isolation from the Corps' complete operation of the Project during the entire course of responding to the storm. Indeed, Plaintiffs' causation argument asks the Court to ignore the entirety of the government action, including the Corps' development of a flood risk management project that protected their properties from greater flooding than the properties actually experienced during Harvey, and the Corps' *closing* of the gates at the onset of Hurricane Harvey specifically to protect Plaintiffs' properties. But *St. Bernard Parish* and other precedents discussed above require Plaintiffs to prove causation by accounting for the impact from the entirety of the government's actions that address flood risk along Buffalo Bayou. Because Plaintiffs have not alleged—let alone identified any evidence to prove—that their properties experienced more flooding than they would have experienced if the Corps had never constructed the Project, their claims fail. *See Bd. of Supervisors of Issaquena Cnty. v. United States*, 160 Fed. Cl. 300, 306 (2022) (dismissing Fifth Amendment takings claim where the plaintiff failed to "establish what damage would have occurred 'but-for' the totality of government action—i.e., had the government not built the Yazoo Backwater Project at all"), *appeal docketed*, No. 22-2026 (Fed. Cir. July 15, 2022).

Furthermore, even if (contrary to Circuit precedent) the focus was limited to the Corps' actions in response to Hurricane Harvey, Plaintiffs still fail to raise any genuine issue about causation because they fail to consider the flood-risk-reducing actions taken by the Corps during the entirety of its response to Harvey itself. Under this narrower view of causation, Plaintiffs fail to take into account the necessary predicate to opening the gate: *closing* the gates *before* the storm, specifically to protect downstream properties. Before Hurricane Harvey made landfall, the Corps was operating the reservoirs under the "Normal Flood Control Regulation" set forth in the 2012 Water Control Manual as discussed above. *See* Def. Ex. 5 at 2274. On the afternoon of Friday, August 25, 2017, both reservoirs were *empty* and the gates were set at standard settings that allow the daily reservoir inflows to pass through. *Id.*; Def. Ex.9 at 2596. On the evening of August 25, based on the forecasted rainfall from Hurricane Harvey, the Corps *closed the gates* on both dams as the storm neared *to reduce downstream flooding* along Buffalo Bayou. Def. Ex. 10 at 2602; Def. Ex. 32 at 3225 (R. Thomas Dep. Tr. Vol. II at 279:5-12 (Aug. 3, 2018)); Def. Ex. 58 at 3869. The closing of the gates was in accordance with the Water Control Manual. Def. Ex. 5 at 2274; Def. Ex. 31 (R. Thomas Dep. Tr. Vol. I at 131:19-132:7). After the gates were closed, the flood pools behind the dams rose quickly, hitting Stage 2 Extended Watch elevations under the Corps' Emergency Action Plan on August 27, just two days after the gates were closed, and exceeding the government-owned land behind the dams on August 27 (Addicks) and August 28 (Barker). Def. Ex. 14; Def. Ex. 15. The gates remained closed until the combined inflow of water into the reservoirs and the pool elevation levels required the release of water from the reservoirs in accordance with the Induced Surcharge Flood Control Regulation in the Water Control Manual. Def. Ex. 5 at 2275; Def. Ex. 31 (R. Thomas Dep. Tr. Vol. I at 139:5-140:20). Releases of flood water from both Addicks and Barker Dams under the

induced surcharge flood control regulation began in the early morning hours of Monday, August 28, 2017. Def. Ex. 31 (R. Thomas Dep. Tr. Vol I at 139:5-140:20).

At their peak levels during Harvey, Addicks Reservoir was detaining a flood-pool volume of 217,726 acre-feet that reached a surface elevation of 109.1 feet, and Barker Reservoir was detaining a flood-pool volume of 170,941 acre-feet that reached a surface elevation of 101.56 feet. Def. Ex. 18 at 2652. Had the Corps not closed the Project gates before Harvey arrived, this enormous volume of floodwater from the storm would have flowed through the open gates, down Buffalo Bayou and flooded thousands of downstream properties, including the subject properties.[19] In that scenario, the flooding of downstream properties would have been worse than any flooding that Plaintiffs actually experienced during the same storm. Def. Ex. 39 at 3427; Def. Ex. 43. Plaintiffs ignore the closing of the Project gates despite this protective government action being "directed to the same risk that is alleged to have caused the injury to plaintiffs." *St. Bernard Parish*, 887 F.3d at 1365.

The potential that the Corps would open the dam gates during a large enough storm has *always* been contemplated since the gates were installed on all the conduits. Both the closing of the dam gates under the Normal Flood Control Regulations and the subsequent releases made under the Induced Surcharge Flood Control Regulations are set forth in the 2012 Water Control Manual. And similar regulations were likewise included in the 1962 Reservoir Regulation Manual. Any argument that these risk-*reducing* actions of the Corps need not be considered because of the sequence of events must therefore be rejected. *See St. Bernard Parish*, 887 F.3d

[19] The original design of the dams provided for four of the five outlet conduits to be uncontrolled, permitting a combined uncontrolled discharge of about 15,700 cfs into Buffalo Bayou. Def. Ex. 5 at 2249. With all conduits gated, the outlet structures in use during Hurricane Harvey had a combined maximum discharge capacity of approximately 16,586 cfs. Def. Ex. 4 at 2175.

at 1367 n.14 (discussing dicta from *John B. Hardwicke Co. v. United States*, 467 F.2d 488 (Ct. Cl. 1972) and noting that "if the risk-reducing government action preceded the risk-increasing action, the risk-reducing action would only be considered in assessing causation *if the risk-increasing action was 'contemplated' at the time of the risk-reducing action*." *Id.* at 490-91 (emphasis added)).

Any attempt by Plaintiffs to distinguish *St. Bernard Parish* should be rejected. Throughout this case, Plaintiffs have asserted that the Federal Circuit "held that causation must be connected to the government's affirmative act" and contend that the affirmative act in this case was the release of water from the Reservoirs. *See, e.g.*, Pls.' 2019 Summ. J. Mot. at 34 n.18. Plaintiffs are wrong. The government's "affirmative act" includes the construction of the Project in the 1940s, the operation of the Project to reduce flood risk below the dams since that time, as well as the closing of the gates at the onset of Hurricane Harvey, not just the opening of the gates during that storm. Plaintiffs' focus on a single, cherry-picked government action, in isolation, disregards the Federal Circuit's direction in the *Milton* mandate that this Court consider "whether [Plaintiffs] have established causation when considering 'the impact of the *entirety of the government actions that address the relevant risk*[.]'" *Milton*, 36 F.4th at 1163 (emphasis added) (citing *St. Bernard Parish*, 887 F.3d at 1364). Any suggestion by Plaintiffs that the Court should act contrary to the mandate should be rejected.

The Court should conclude here, as a matter of law and based on the undisputed facts, that to prove causation Plaintiffs must show that if the flood risk reduction Project had not been built or operated, their properties would have flooded significantly less or not at all during Hurricane Harvey.

3. The Case Should Not Proceed to Trial Because Plaintiffs Will Not Even Attempt to Prove Causation Under the Proper Legal Standard

Plaintiffs' proof on causation is based on their flawed legal theory: that the only relevant government action is an isolated part of the entire government action, namely, the "opening of the gates" on the Addicks and Barker Dams on August 28, 2017. Pls.' 2019 Summ. J. Mot. at 32-34. Thus, Plaintiffs' proffered witnesses from Geosyntec attempted to compare the actual flooding that occurred during Hurricane Harvey to the flooding that would have occurred if the Corps had left the gates closed. Plaintiffs' expert analysis—considering what would have happened if the dam gates had been kept closed for a longer period of time (or any other variation on the operation of the reservoirs that would have been inconsistent with the Water Control Manual) cannot prove causation for the reasons discussed above. Even so, keeping the gates closed during Harvey would not have prevented all flooding in the vicinity of the Project, but would have simply changed how the floodwaters drained and where flooding occurred. For example, Dr. Nairn testified about a gates-closed hypothetical he modeled in connection with the Upstream case, and concluded that had the gates been kept closed, the depth of inundation for the Upstream trial properties would have been 0.6 to 0.7 feet higher in the Addicks area, and 1.1 to 1.2 feet higher in the Barker area. Def. Ex. 44 (Upstream Trial Tr. at 2754:23-2756:17 (Nairn)); *see also* Def. Ex. 43 at 3775; Pls.' SUMF ¶34. Similarly, if the gates had been kept open during the entire storm, the flooding of downstream properties would have been *worse* than they actually experienced during Harvey. Def. Ex. 39 at 3427; Def. Ex. 43 at 3776.

Such evidence is legally insufficient to prove causation under the standard discussed above. Under that standard, Plaintiffs must compare actual flooding with flooding that would have occurred if the Corps had never built Addicks and Barker Dams. None of Plaintiffs' retained experts has developed opinions that, if accepted, establish causation under the correct

legal standard. This absence of evidence is fatal to Plaintiffs' takings claims. The only expert to have analyzed the flooding that the subject downstream properties would have experienced without the Project is the United States' expert, Dr. Robert Nairn. Dr. Nairn's analysis shows that the subject properties "would have experienced flood depths up to 8.6 feet greater without the federal project than they actually experienced." Def. Ex. 39 at 3427. However, given Plaintiffs' failure of proof on causation under the correct legal standard, there are no conflicting expert opinions on the causation standard to weigh. In addition, the Court need not consider Dr. Nairn's analysis in order to grant the United States' motion for summary judgment based on Plaintiffs' failure to meet their burden of proof on causation. Plaintiffs' failure of proof on the key element of causation requires that summary judgment be granted in favor of the United States. *See St. Bernard Parish*, 887 F.3d at 1357 (reversing the judgment entered in favor of the plaintiffs for "failure of proof on a key legal issue" of causation).

B. The Doctrine of Relative Benefits Precludes Liability for a Taking

Even assuming Plaintiffs could meet their burden of proving causation in this case—which they have not and cannot—the relative benefits doctrine provides an additional, independent basis for rejecting Plaintiffs' takings claims. The Project has reduced or prevented flooding of Plaintiffs' downstream properties during each storm in which the Corps activated the reservoirs by closing the dam gates, detaining flood waters, and reducing the water levels of Buffalo Bayou below the dams. Plaintiffs' properties will continue to receive these flood-control benefits in the future. Under these circumstances, the United States is not liable for a taking because the relative benefits of the Project during Hurricane Harvey—and over the nearly 80 years since the dams were constructed—far outweigh any harm from flooding that the Plaintiffs' downstream properties sustained during the Hurricane Harvey flooding in 2017.

1. When a Government Project Bestows More Benefit Than Detriment, No Takings Liability Results

The relative benefits doctrine "is closely related to, but distinct from, the issue of causation." *Alford v. United States*, 961 F.3d 1380, 1383 (Fed. Cir. 2020). The relative benefits doctrine was articulated by the Supreme Court in *United States v. Sponenbarger*. There, the Supreme Court explained that,

> An undertaking by the Government to reduce the menace from flood damages which were inevitable but for the Government's work does not constitute the Government a taker of all lands not fully and wholly protected. When undertaking to safeguard a large area from existing flood hazards, the Government does not owe compensation under the Fifth Amendment to every landowner which it fails to or cannot protect. In the very nature of things the degree of flood protection to be afforded must vary. And it is obviously more difficult to protect lands located where natural overflows or spillways have produced natural floodways.

308 U.S. at 265. Under the relative benefits doctrine, "[e]ven if a causal relationship exists between the Government's action and plaintiff's damage . . . no liability attaches if the Government's conduct bestowed more benefit than detriment on plaintiff's property." *Laughlin v. United States*, 22 Cl. Ct. 85, 111 (1990), *aff'd*, 975 F.2d 869 (Fed. Cir. 1992) (Table). The doctrine of relative benefits exists because the Supreme Court "has never held that the Government takes an owner's land by a flood program that does little injury in comparison with far greater benefits conferred." *Sponenbarger*, 308 U.S. at 266-67 (citing *Bauman v. Ross*, 167 U.S. 548, 574 (1897)). As the Supreme Court explained in *Sponenbarger*, "if governmental activities inflict slight damage[s] upon land in one respect and actually confer great benefits when measured in the whole, to compensate the landowner further would be to grant him a special bounty." *Id*. at 266-67. *See, e.g.*, *Ark-Mo Farms, Inc. v. United States*, 530 F.2d 1384, 1386 (Ct. Cl. 1976) (per curiam) (rejecting flood-related takings claim based on relative benefits analysis).

In *Sponenbarger*, the Supreme Court held that flooding from a flood control program does not constitute a taking where the program "*measured in its entirety* greatly reduces the general flood hazards, and actually is highly beneficial to a particular tract of land." 308 U.S. at 266 (emphasis added). *See also Stueve Bros. Farms, LLC v. United States*, 737 F.3d 750, 753 (Fed. Cir. 2013) ("[C]onstruction of [a flood control] project would constitute a taking only if the construction 'would put upon this land a burden, actually experienced, of caring for floods greater than it bore prior to construction." (quoting *Danforth v. United States*, 308 U.S. 271, 286 (1939)).

The Supreme Court's decision in *Sponenbarger* thus instructs courts to compare the benefits received with the resultant harms rather than looking at harms in isolation. Otherwise stated, "[i]n analyzing relative benefits, a court must balance the overall benefits and detriments of the Government's conduct in relationship to their impact on a claimant's property." *Laughlin*, 22 Cl. Ct. at 112. *See also Bartz v. United States*, 633 F.2d 571, 578 (Ct. Cl. 1980) (per curiam) ("The Fifth Amendment does not make the government an insurer against all damages from flood which may be incidental to projects conferring major benefits far outweighing detriments."); *Alford*, 961 F.3d at 1385-86 ("the relative benefits doctrine requires determining whether the burden on the plaintiffs' property is outweighed by the benefits conferred on that property."). This analysis requires consideration of "what would have occurred absent government action." *Alford*, 961 F.3d at 1385 (citing *Sponenbarger* and other cases on this point).

2. The Relative Benefits of the Buffalo Bayou and Tributaries Project Provided to Plaintiffs' Downstream Properties Far Outweigh the Harvey-Related Flood Damages

The Buffalo Bayou and Tributaries Project is an important and highly effective flood-risk reduction project for the Houston region generally and the Buffalo Bayou watershed, including

Plaintiffs' properties, in particular. The Corps' construction and subsequent operation of this single, integrated Project, "when measured in the whole," *Sponenbarger*, 308 U.S. at 266-67, greatly benefits Plaintiffs' downstream properties by reducing or eliminating flooding due to rainfall and resulting runoff from the watersheds upstream of the subject properties. This Project has reduced flood risk for areas downstream of the Addicks and Barker dams for nearly 80 years, including during Hurricane Harvey and its aftermath, and continues to do so today. This flood protection has benefited Plaintiffs' properties for decades, and those benefits far outweigh the flood-related damages sustained from the release of Hurricane Harvey flood waters into Buffalo Bayou in 2017, when floodwaters overwhelmed the Corps' capacity to control them.

The Corps' management of the Project includes calculating an estimate of the flood damages prevented by the Addicks and Barker Dams and Reservoirs, based on a "with" and "without" the Project comparison. These estimates are reported on an annual basis, with cumulative totals for the life of the Project. Through Fiscal Year 2016 – prior to Hurricane Harvey – the estimated cumulative benefits from flood damages prevented by Addicks and Barker through Fiscal Year 2016 had risen to over $16.5 billion. Def. Ex. 8 at 2573.

3. The Project Reduced Flooding During Hurricane Harvey

During Hurricane Harvey, when the surcharge releases of detained flood waters were made for the first time in the Project's history, the Project still provided benefits to properties downstream by reducing flood levels.

The peak inflow to Addicks Reservoir during Hurricane Harvey was 70,000 cfs and the peak releases from Addicks Dam were only 6,500 cfs or 9.3% of the peak inflow. Def. Ex. 25 at 3119. The peak inflow to Barker Reservoir during Hurricane Harvey was 77,000 cfs, and the peak outflow from Barker Dam was only 4,821 cfs or 6.3% of the peak inflow. *Id*. at 3120.

Assuming a peak release of approximately 13,000 cfs, those peak releases were approximately 8.8% of the combined peak inflows. *See* Def. Ex. 58 at 3874-75 (Thomas timeline); Def. Ex. 20 at 2869. The peak flows (or discharge volume) measured in Buffalo Bayou at locations downstream of Addicks and Barker Dam and the corresponding water surface elevations associated with those flows were as follows:

	Hurricane Harvey		Previous Record		
Location	Discharge	Stage	Discharge	Stage	Previous Record Date
...					
Buffalo Bayou at Dairy Ashford Rd.	13,800	77.3	11,200	78.1	August-45
Buffalo Bayou at W Belt Dr.	14,600	71.2	7,290	65.3	March-92
Buffalo Bayou at Piney Point Dr.	15,000	62.8	7,990	57.3	April-09
Buffalo Bayou at Shepherd Dr.	36,400	41.9	19,000	41.0	May-29

Def. Ex. 26 at 3144. A FEMA report on Hurricane Harvey precipitation and streamflow reported the peak flow at the Buffalo Bayou W. Belt Drive gage of 18,900 cfs, with a peak stage or surface elevation of 71.18 feet, and a peak flow at the Piney Point gage of 18,500 cfs, with a peak stage or surface elevation of 63.89 feet.[20] Def. Ex. 19 at 2682 (FEMA Risk Management Directorate Report). It is undisputed that Plaintiffs' downstream properties experienced various levels of flooding at or below these peak flows.[21]

[20] With the Project, and prior to any releases from the dams, the elevation of Buffalo Bayou at Piney Point peaked at 63.94 feet with flows recorded at 12,200 cfs. Def. Ex. 25 at 3120.

[21] The 2012 WCM (Def. Ex. 5) includes constant flow inundation maps showing the areas along Buffalo Bayou, downstream of Addicks and Barker Dams, that would experience flooding at water flow levels at 6,000 cfs, 10,000 cfs and 20,000 cfs. These constant flow maps, marked with the approximate location of the Plaintiffs' properties, are included in Def. Ex. 60. Additional constant flow inundation maps are included in the Corps' 2014 Emergency Action Plan for Addicks and Barker Reservoirs, Def. Ex. 7 at 2459-64. These maps "indicate areas that may be inundated when the flow in Buffalo Bayou is known for the approximate area in question." Def. Ex. 7 at 2473. Although these "maps are the result of modeling assumptions

Without the Project, the peak flows in Buffalo Bayou below the dams (measured at Piney Point) would have been approximately 25,240 cfs with a surface elevation of 70.77 feet and would have resulted in significantly more flooding downstream. Def. Ex. 25 at 3210; *id.* at 3119 (Fig. 3 showing with versus without project inundation during Harvey). A comparison of the actual "with Project" flows and corresponding water surface elevation during Harvey (when Plaintiffs' properties experienced flooding) with these estimated "without Project" flows and corresponding water surface elevation during Harvey, shows that the surface level of the flood water (measured at Piney Point) would have been approximately 7 to 8 feet higher without the Project.[22]

All of this information shows that, without the Project, Plaintiffs' properties would have experienced flooding during Harvey at higher depths than they did with the Project. That is underscored by the fact that even with the peak releases from the Project, the water flowing downstream was *less than one-tenth* of the peak volume of the inflows. There cannot reasonably be any dispute that Plaintiffs would have experienced greater flooding during Harvey without the Project's temporary detention and measured release of these flood waters.

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that are not perfectly reflective of existing conditions[,]" *id*., they provide a visual approximation.

[22] Although the Court need not rely on the parties' expert reports to determine the relative benefits of the Project, the hydraulic study completed by United States' expert Dr. Robert Nairn includes a comparison of the maximum depth of inundation above each bellwether property's first floor elevation during Harvey with the Project (actual conditions) with the maximum depth of inundation without the Project's dams. That analysis shows the subject properties would have experienced approximately 7 to 8 feet of additional flooding without the Project during Harvey. *See* Def. Ex. 39 at 3608 (Nairn Downstream Hydraulic Study, Table 5.10).

4. Prior to Hurricane Harvey, the Project has reduced or eliminated flooding to Plaintiffs' properties

Viewing the relative benefits more broadly over time, the overall benefits that the Project has provided to Plaintiffs' properties is illustrated below by comparing the flooding that would have occurred without the Project during several prior rainfall events with what actually occurred.[23] In recent, specific instances, the Project prevented Plaintiffs' properties from flooding; without the Project, the flooding in the area where Plaintiffs' properties are located would have been substantial. During Harvey, the Corps' operation of the Project reduced the depth of flooding on Plaintiffs' properties below what it would have been without the Project.

a. The Project Prevented Flooding During the October 24-25, 2015 Rainfall Event

For example, during a rainfall event on October 24-25, 2015, the Addicks and Barker watersheds received approximately 6-8 inches of rain, and the main stem of Buffalo Bayou below the dams received 7-8 inches of rain over a 12-hour period. Def. Ex. 8 at 2585. The Addicks Dam held back 21,346 acre-feet of flood water, filling 16.7% of the government-owned storage capacity in the reservoir. *Id.* The Barker dam held back 20,479 acre-feet of flood water, filling 24.7% of the government-owned storage capacity of that reservoir. *Id.* The operation of the reservoirs during this storm "reduced the stage on the main stem Buffalo Bayou below the dams at Piney Point by 19.60 feet." *Id*. This reduction kept approximately 7,550 acres along Buffalo Bayou from being inundated by flood waters, including the areas where Plaintiffs' properties are located. The areas of inundation with and without the Project are shown on the following map:

[23] *See Alford*, 961 F.3d at 1384 ("assuming" but declining to endorse the "narrower view" of the doctrine that examined benefits to the plaintiffs' properties from a single government decision to raise a reservoir level, to reject the takings claim there at issue).

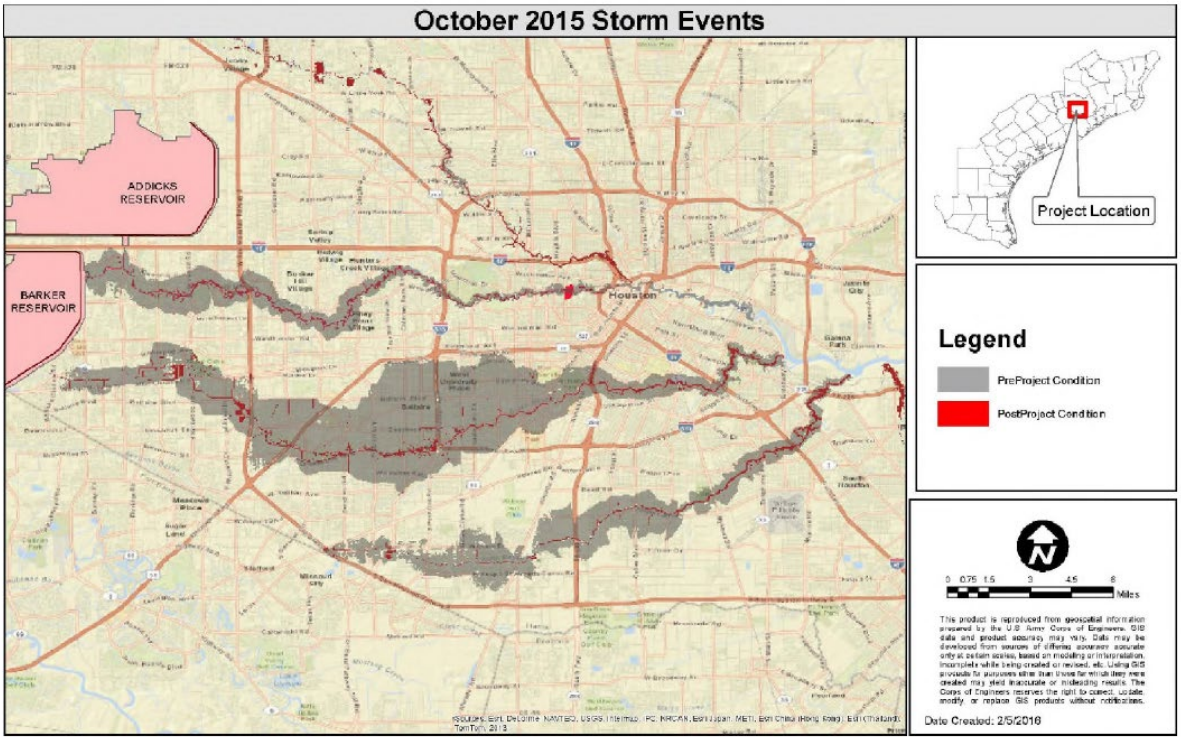

Figure 11 – Without project inundation for Buffalo Bayou, White Oak Bayou, Brays

Def. Ex. 8 at 2587; *see also* Def. Ex. 60 3886-87. The Corps' estimate of damages prevented during this storm from the Project's operation is $554,921,000. [24] *Id*. at 2585.

b. The Project Prevented Flooding During the April 17-19, 2016 "Tax Day" Storm

During the so-called 2016 Tax Day storm (April 17-19, 2016), the Addicks and Barker watersheds received between 10 and 16 inches of rain over a 12-hour period, and the main stem of Buffalo Bayou below the dams received 6 to 10 inches. Def. Ex. 8 at 2577. The peak inflow to Addicks Reservoir was approximately 77,680 cfs, and the reservoir reached a new peak flood pool elevation of 102.65 feet, occupying 97% of the government-owned storage capacity. *Id*. At

[24] Although the flood pools detained by Addicks and Barker during the October 2015 storm were significant, and the flood damages prevented downstream substantial, these flood pools are not even one of the top ten flood pools for either Reservoir. *See* Def. Ex. 18 (table "Top Ten Pools – Addicks and Barker Reservoirs").

that peak level, Addicks was detaining over 40 billion gallons of water. *Id*. The peak inflow to Barker Reservoir during the 2016 Tax Day storm was recorded at approximately 50,205 cfs. Barker Reservoir also reached a record flood pool elevation of 95.24 feet, with the flood pool occupying 85,816 feet, surpassing 100% of the government-owned storage capacity. *Id*. At that peak level, Barker was detaining over 28 billion gallons of water. *Id.*

The operation of the Project's reservoirs during the Tax Day 2016 storm "reduced the stage on main stem Buffalo Bayou below the dams at Piney Point by 31.24 feet reducing the peak flow from around 133,000 cfs to 7,200 cfs."[25] Def. Ex. 8 at 2578. This reduction in the flood stage of Buffalo Bayou is estimated to have kept 31,000 acres and 24,000 structures from being inundated by water from this 2016 storm. *Id*. Once again, the mapping of the area of inundation with and without the Project shows that the Project protected the areas adjacent to Buffalo Bayou where the Plaintiffs' properties are located from flooding during the 2016 Tax Day storm:[26]

[25] Notably, the estimated peak flows of 133,000 cfs that would have occurred without the Project during the 2016 Tax Day storm are *more than three times* the estimated peak flows of 40,000 cfs during the December 1935 storm that caused catastrophic damage and prompted the authorization from Congress and appropriation of money to build the Project. Def. Ex. 5 at 2257.

[26] The benefits that the Project provided to the subject properties during the 2016 Tax Day storm are clear from the Corps' post-storm analysis. Although the Court need not rely on the parties' expert reports to determine the relative benefits of the Project, the United States' expert Dr. Rob Nairn, completed a hydrologic study that looked at certain historical storms and modeled the maximum depth of inundation that would have occurred at each property *without the Project*. Def. Ex. 39 at 3609. For the 2016 Tax Day storm, Dr. Nairn concluded that each of these properties would have experienced between 5.8 and 14.5 feet of flooding without the Project. Def. Ex. 39 at 3610 (Table 5.11). None of the Plaintiffs' experts conducted a similar "without Project" analysis for any pre-Harvey storm. *See* Def. Exs. 37-38.

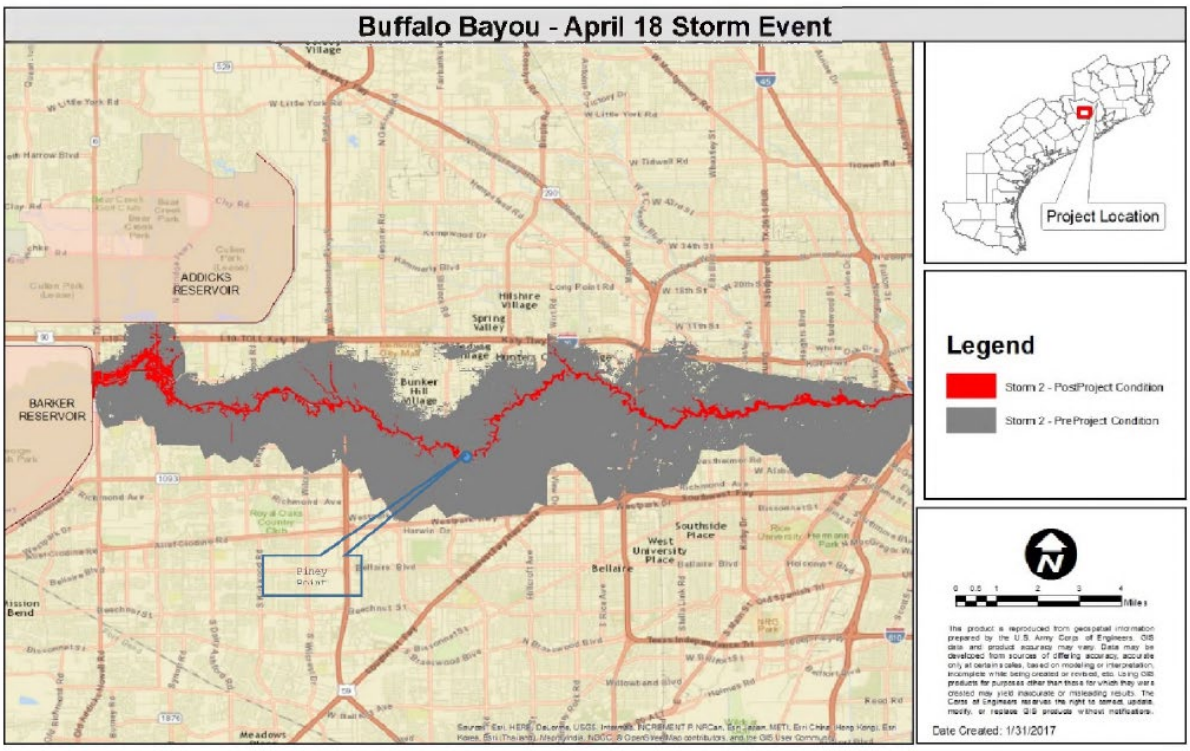

Figure 3 - Without project inundation for Main Stem Buffalo Bayou below the Dams. This does not include damages from downtown to the ship channel.

Def. Ex. 8 at 2578; *see also* Def. Ex. 60 at 3888. A comparison of this map with the Harvey mapping and the constant flow maps from the 2012 WCM further demonstrate that, but for the existence and operation of the Project during the 2016 Tax Day storm, Plaintiffs' properties and many others would have flooded.[27]

The damages prevented along Buffalo Bayou during this 2016 storm are estimated at $5.1 billion. Def. Ex. 8 at 2578. The cumulative benefits from flood damages prevented by Addicks and Barker through Fiscal Year 2016 are estimated to be over $16.5 billion. *Id.* at 2573.

[27] Mr. Phillip Azar is the only bellwether plaintiff who indicated that his property flooded during the 2016 Tax Day storm, but Plaintiffs' claims do not attribute that flooding to the Project. As noted below, the operation of the Project during that 2016 storm, reduced the flood stage on Buffalo Bayou (measured at Piney Point) "by 31.24 feet, reducing the peak flow from around 133,000 cfs to 7,200 cfs." Def. Ex. 8 at 2578.

c. The Project Prevented Flooding During the August 8, 2017 Rainfall Event

Just weeks before Hurricane Harvey, the Project area experienced a rain event on August 8, 2017, that generated peak combined inflows into Addicks and Barker of 77,500 cfs. Def. Ex. 25 at 3117. The operation of the dams and reservoirs during this storm reduced the peak flows in Buffalo Bayou (as measured at Piney Point) from approximately 76,000 cfs to 5,360 cfs. *Id.* The Corps' post-storm analysis estimated that "[t]his reduction in flows prevented over 30,000 structures from being impacted" along Buffalo Bayou downstream of the dams, resulting in an estimated $1.4 billion in damages prevented by the Project. *Id.* Again, the data regarding flows in Buffalo Bayou during Harvey and related mapping, and the constant flow maps, make clear that Plaintiffs' properties all would have experienced significant levels of flooding at the estimated without Project flows of 76,000 cfs.

5. It is Undisputed that Subject Properties Have Derived Benefits from the Project Over the Years

There is no dispute that the subject properties have derived benefits from the Project over the years. Even Plaintiffs' expert, Dr. Phillip Bedient, acknowledged these benefits in his deposition. *See* Def. Ex. 40 (Upstream Dep. of P. Bedient, Dec. 18, 2018, at 120:2-22). Dr. Bedient also agreed that "[i]f the reservoirs weren't there, the damage during Hurricane Harvey to downstream properties would have been far more significant." *Id.* (Upstream Dep. of P. Bedient, Dec. 18, 2018, at 121:1-5). The Corps estimates that the flood damages prevented by Addicks and Barker in fiscal year 2017 were $8,385,029,000. Def. Ex. 25 at 3114. The cumulative benefits from flood damages prevented through Fiscal Year 2017, which includes Hurricane Harvey, are estimated to be over $24.9 billion. *Id.*

The Project's success in reducing flood risk to the downstream areas, including Plaintiffs' properties, is evidenced by the fact that Plaintiffs have identified no prior flooding of their homes

that they attribute to the operation of the Project even though the Project has temporarily detained significant quantities of floodwaters from rainfall events during the period of Plaintiffs' ownership. *See* Pls.' SUMF ¶¶ 22-25; Def. Ex. 39 at 3456 (Nairn Expert Report, Table 2.3, Top 12 pool elevations for Addicks and Barker Reservoirs prior to the Harvey Event); Def. Ex. 18 (Top Ten Pools – Addicks and Barker Reservoirs, including Harvey). In addition, several of the Plaintiffs acknowledge that they wouldn't be able to live on their properties without the Reservoirs. For example, Plaintiff Arnold Milton acknowledged that the Dams have "protected us for almost 40 years." Def. Ex. 29 (A. Milton Dep. Tr. at 187:13-17 (July 10, 2018)). Mr. Wayne Hollis testified that the proximity of his home and the neighborhood to Buffalo Bayou was a factor in the decision to buy their home, they were aware of the dams, and his understanding was that "the dams were built to protect us . . . ." Def. Ex. 30 (W. Hollis Dep. Tr. 17:19-18:11 (July 19, 2018)). Plaintiff Dana Cutts acknowledged that she and her husband wouldn't have bought their home or lived in this location if the Reservoirs had not been built because "our land would have flooded all the time." Def. Ex. 27 (Dana Cutts Dep. Tr. 87:24-88:10 (June 27, 2018)). Mr. Paul Cutts also testified that he understood that there was always some risk that his house could flood and, for that reason, had maintained a flood insurance policy since he purchased the home. Def. Ex. 28 (P. Cutts Dep. Tr. 19:2-11; 20:25-21:7 (June 27, 2018)).

On the facts of this case, there can be no question that the Project, which includes the Addicks and Barker dams and reservoirs, has provided significant protection against flooding to Plaintiffs' properties for decades prior to and during Hurricane Harvey. Even assuming that the flood damages these properties sustained during Hurricane Harvey are attributed to the Corps' operation of the Project during that massive rainfall event, the enormous benefits conferred on

Plaintiffs' properties by the government's construction and operation of this Project for the decades prior to Harvey far outweigh the impacts of that one-time flooding. Under these circumstances, the Court should conclude that the United States is not liable for a taking under the relative benefits doctrine.

C. The Sovereign Actions of the Federal Government Undertaken to Minimize or Mitigate an Inevitable Public Harm from Hurricane Induced Floodwaters Fall Squarely Within the Government's Police Powers and Do Not Constitute a Taking of Private Property

The Federal Circuit's decision in this case resolved only the threshold property rights question, and did not reach the merits of the question of whether the downstream flooding is non-compensable as a taking under the police powers doctrine or the doctrine of necessity. *Milton*, 36 F.4th at 1162. The Federal Circuit observed that,

> the Supreme Court has rejected the notion that private property is subject to "unbridled, uncompensated qualification under the police power." *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1014, 112 S. Ct. 2886, 120 L.Ed.2d 798 (1992). But the Supreme Court has recognized that a taking may be non-compensable if there is "the destruction of 'real and personal property, in cases of actual necessity, to prevent the spreading of a fire' or to forestall other grave threats to the lives and property of others." *Id.* at 1029, 112 S. Ct. 2886 n.16 (quoting *Bowditch v. Boston*, 101 U.S. 16, 18–19, 25 L.Ed. 980 (1880)); *see also Pa. Coal Co. v. Mahon*, 260 U.S. 393, 415–16, 43 S. Ct. 158, 67 L.Ed. 322 (1922); *TrinCo Inv. Co. v. United States*, 722 F.3d 1375, 1377–78 (Fed. Cir. 2013).

Id. The Federal Circuit also left open the question of "whether the Government can invoke the necessity doctrine as a defense." *Id*. at 1163. Here, the actions taken by the United States in response to record-setting rainfall and flooding fall within its police powers and therefore do not constitute a taking. *But see In re Upstream Addicks & Barker (Texas) Flood-Control Reservoirs*, 146 Fed. Cl. 219, 263 (2019) (holding police powers defense did not absolve takings liability where flooding upstream of the Addicks and Barker due to impoundment of water was not unavoidable because "design of the dams contemplated flooding beyond government-owned land onto private properties").

In Harris County, which has 22 watersheds that drain through or around downtown Houston on the way to the Gulf of Mexico, the history of flooding and the investment of the federal and local government to reduce flood risk is well documented. *See* Def. Ex. 21 at 2891-93; Def. Ex. 42 at 3719-39 (HCFCD Harvey report). Indeed, as noted above, it was catastrophic flooding along Buffalo Bayou that led to the original authorization of the Project to reduce flood risk and flood damages in the Buffalo Bayou watershed.

The response of federal, state and local governments to Hurricane Harvey falls within the police powers held by the government to protect the public from flooding. Hurricane Harvey was a widespread, record-setting natural disaster. On August 23, 2017, the Governor of Texas issued a disaster proclamation, certifying that Hurricane Harvey posed a threat of imminent danger for several counties, including Harris County. Def. Ex. 41. That threat was realized as Harvey stalled over the Houston area and dropped record-setting rain over a four-day period. Harvey "shattered" the United States record for 5-day rainfall average over a 2,000 square mile area (about the size of Harris County) at 43.7 inches. Def. Ex. 21 at 2896; Def. Ex. 41 at 3737. The prior record for rainfall for that duration and geographic area was 29.8" set in 1940 in Louisiana. Def. Ex. 21 at 2896. In Harris County, the 4-day rainfall average was 33.7 inches. *Id.*; Def. Ex. 41 at 3721.

That rainfall resulted in widespread flooding. Harris County estimates that 140,000 to 160,000 homes and businesses were flooded during this storm, and that the County sustained $80 million in damages to the drainage infrastructure that it maintains to reduce flood risk. *See* Def. Ex. 21 at 2896; Def. Ex. 41 at 3743. The President of the United States issued a federal disaster declaration for areas affected by Hurricane Harvey, including Harris County, which made

disaster relief available to individuals affected by flooding caused by Harvey's record rainfall. Def. Ex. 46.

In the face of this catastrophic storm, the Corps operated the Project in accordance with the 2012 Water Control Manual. The gates were closed to prepare for the forecasted rainfall with the reservoirs empty. As a result of the rapidly rising reservoir pools and inflow from runoff, the operation of the Project moved, for the first time in the Project's history, from "Normal Flood Control Regulation" to "Induced Surcharge Flood Control Regulation." The purpose of the induced surcharge releases, which have been in place since the dams' outlets were all gated in the 1960s, is "'to optimize the use of the available storage and to protect the integrity of the dams.'" *In re Upstream Addicks & Barker (Texas) Flood-Control Reservoirs*, 146 Fed. Cl. at 239 (quoting 2019 Upstream Trial Tr. 103:6-9 (R. Thomas)). In other words, the induced surcharge releases are intended to protect the integrity of the dams and prevent an even *greater* catastrophe such as a dam failure. *See* Def. Ex. 7 at 2438. Thus, the Corps' operation of the Project in accordance with the 2012 WCM, including making surcharge releases based on the actual conditions that existed during Hurricane Harvey, was taken to prevent an even greater grave threat to lives and property that would have occurred in the event of a catastrophic dam failure. *See TrinCo Inv. Co. v. United States*, 722 F.3d 1375, 1377 (Fed. Cir 2013) (the necessity doctrine absolves the government from liability "for the destruction of 'real and personal property, in cases of actual necessity, to prevent' ... or forestall ... grave threats to the lives and property of others") (quoting *Lucas*, 505 U.S. at 1029 n.16). *See* Def. Ex. 7. That the Corps' actions avoided putting these two dams located upstream of a heavily-populated area at risk of imminent failure during an already epic rainfall event is exactly the point of those surcharge regulations.

There was no way to operate the Project during this epic storm to prevent all flooding, as evidenced by the flooding of properties both upstream and downstream of the Project. The government's response to these reservoir conditions during Harvey falls squarely within the police powers of the government to respond to emergencies, such as flooding from a catastrophic hurricane. The federal, state and local governments took myriad actions in response to Hurricane Harvey. The Corps' operation of the Project was one such action and that action does not result in a taking even though released floodwaters impacted downstream properties. Whether viewed through the lens of the police powers doctrine or the related doctrine of necessity, application of these doctrines to the facts and circumstances that existed during Hurricane Harvey provides an independent basis for granting the United States' motion for summary judgment.

D. The Court Lacks Jurisdiction Over Plaintiffs' Claims Because Flooding From a Singular, Catastrophic Hurricane is not a Taking

Plaintiffs' claims fail too because they do not constitute a taking under the test adopted to distinguish between tort and takings claims in *Ridge Line, Inc. v. United States*, 346 F.3d 1346 (Fed. Cir. 2003). *See* U.S. Mot. to Dismiss 26-33 (ECF No. 48). At summary judgment, Plaintiffs bear the burden of proving "that treatment under takings law, as opposed to tort law, is appropriate under the circumstances." *Ridge Line*, 346 F.3d at 1355. On the undisputed facts at issue in this case, that burden is not met. Instead, the Court should find that the flooding of Plaintiffs' properties from flood waters generated by Hurricane Harvey's significant rainfalls over the Project's watersheds is the type of "invasion" that sounds in tort and therefore falls outside this Court's jurisdiction, rather than a physical taking. *Id.* at 1355; 28 U.S.C. § 1491(a)(1).

Ridge Line sets out a two-part test for "distinguishing potential physical takings from possible tort" over which this Court lacks jurisdiction:

> First, a property loss compensable as a taking only results when the government intends to invade a protected property interest or the asserted invasion is the "direct, natural, or probable result of an authorized activity and not the incidental or consequential injury inflicted by the action." . . . Second, the nature and magnitude of the government action must be considered. Even where the effects of the government action are predictable, to constitute a taking, an invasion must appropriate a benefit to the government at the expense of the property owner, or at least preempt the owner's rights to enjoy his property for an extended period of time, rather than merely inflict an injury that reduces its value.

Ridge Line, 346 F.3d at 1355-56 (citations omitted). Plaintiffs do not meet their burden of proof on either part of the *Ridge Line* test. That failure of proof provides an independent basis for granting summary judgment in favor of the United States in this case.

1. The Unprecedented and Unintentional Flooding of Plaintiffs' Downstream Property During Hurricane Harvey is Incidental or Consequential Damage that is Not Compensable as a Taking

To establish liability for a taking, Plaintiffs must prove, among other things, that their flooding-related damages are "directly attributable to government action." *Bartz*, 633 F.2d at 593. It is not enough to show that the government action was a secondary or contributory factor. *See id*. This requirement is embodied in the first part of the *Ridge Line* test, under which Plaintiffs must show that the flooding of their properties in connection with Hurricane Harvey was intended, or should be deemed intended, because it was the "direct, natural, or probable result of an authorized activity and not the incidental or consequential injury inflicted by the action." *Ridge Line*, 346 F.3d at 1355 (quoting *Columbia Basin Orchard v. United States*, 132 F. Supp. 707, 709 (Ct. Cl. 1955)).

Longstanding precedent makes clear that flooding-related property damage caused by a natural event such as a hurricane or "unprecedented rainfall" is not a taking by the government for which the Fifth Amendment requires compensation, even if the government's action was a contributing factor or played a secondary role in the flooding. In *Columbia Basin Orchard v.*

United States, for example, the plaintiffs alleged a taking of their fruit trees due to lake overflow flooding that they attributed in part to the government's discharge of excess water from the upstream construction of a dam. 132 F. Supp. at 707-09. The court found that "unusually heavy rainfall" had contributed an estimated 38,000 acre-feet of water into the watershed compared with some 2,112 acre-feet of water contributed by the government's discharge. *Id*. at 708-09. On these facts, the court concluded that the government's action would not have caused the lake overflow "except for the unprecedented rainfall" and that it was therefore "impossible to say" that the complained of flooding was the natural or probable consequence of the government's action rather than just an incidental or consequential injury. *Id*. The court held that a tort action may lie, but that the government action did constitute a taking. *Id*.

The court in *Bartz v. United States* reached a similar conclusion. The *Bartz* plaintiffs, who owned properties downstream of a government dam, alleged a taking based on increased releases due to high reservoir levels. *Bartz,* 633 F.2d at 577-78. In rejecting those claims, the court found that "excessive precipitation was the root cause of the flooding" experienced by the downstream plaintiffs during wet years and that the "government's manipulation of releases from the dam played only a secondary role." *Id*. at 577. The court concluded that these "[i]ndirect [and] consequential" flood damages were not the "natural consequence of government action" and therefore were not compensable as a taking. *Id*. *See also Wilfong v. United States*, 480 F.2d 1326, 1329 (Ct. Cl. 1973) (explaining that a taking does not arise from "simply a random [flood] event induced more by an extraordinary natural phenomenon than by Government interference").

Plaintiffs' properties are located downstream of the Project through which Harvey's floodwaters in the upstream watersheds must pass before eventually draining to the Gulf of Mexico. That the rainfall and runoff from Harvey is the direct or root cause of the flooding at

issue in this case is evident from one basic and undisputed fact: both reservoirs were empty prior to the arrival of Hurricane Harvey. Thus, all of the water detained by the dams after the gates were closed on August 25, 2017 was rainfall from Harvey or runoff from that rainfall. But for this sustained and significant rainfall over the watersheds that drain through these reservoirs, there would have been no need to close the dam gates, and no need to subsequently open those gates as the combination of inflow and the reservoir pool levels triggered induced surcharge flood control operations for the first time in the Project's history.

On these undisputed facts, the Court should find that the government's role in the downstream flooding was secondary to the severe rainfall. Hurricane Harvey was the source of all of the water flowing through the Project's infrastructure during the time period at issue in this case. The United States did not contribute any additional water to Buffalo Bayou beyond that which the storm placed in the watersheds. Accordingly, there is no need to compare the government-contributed flows to the rain-induced flows, as the court did in *Columbia Basin Orchard*, because 100% of the flows are attributable to the hurricane. In addition, even though the operation of the Project during the hurricane affected the timing of releases from the upstream watersheds into Buffalo Bayou, that is not somehow a basis for imposing takings liability. Here, as in *Bartz*, "excessive precipitation was the root cause of the flooding" experienced by the downstream plaintiffs in connection with Hurricane Harvey and the release of storm's floodwaters from the dams "played only a secondary role." *Bartz*, 633 F.2d at 577.

Here 100% of the flows in Buffalo Bayou during and immediately following Hurricane Harvey were attributable to this rare and record-setting rainfall event and the resulting drainage of this floodwater. Any flooding of Plaintiffs' downstream properties is, at most, an unintended and consequential result of the construction and operation of the Project during that storm, rather

than a "direct, natural, or probable" result of the Project. Indeed, it would be illogical to conclude that downstream flooding is the direct, natural, or probable result of operating a flood risk reduction project that was authorized, designed, constructed and operated to protect the areas downstream of the dams. There is no dispute that the Project has served its intended purpose since construction and conferred significant benefits on Plaintiffs' downstream properties. That flooding occurred in connection with Hurricane Harvey was merely an unintended and consequential result of operating the Project in the face of a storm of unprecedented magnitude.

Plaintiffs seek to meet their burden of proof on the first part of the *Ridge Line* analysis by showing that the flooding was intentional and foreseeable. However, their analysis misinterprets and misapplies this aspect of the inquiry. Specifically, Plaintiffs' argument focuses on what the Corps knew at the time it opened the dam gates in the midst of Hurricane Harvey, when the focus of the analysis should be at the time the government acted to address the flood risk – which is when the Corps constructed the Project beginning in the 1940s. *See John Horstmann Co. v. United States*, 257 U.S. 138, 146 (1921); *Ark. Game & Fish Comm'n*, 736 F.3d at 1373.

Plaintiffs offer no evidence that the Corps knew, in the 1940s, that these Plaintiffs' properties—which were not developed until decades after the 1940s—would flood allegedly as a result of the Project. And, in fact, the undisputed evidence shows that the sole purpose of the Project was, and remains, to *reduce* flood risk, not to cause flooding on downstream properties through the operation of the Project. The increased development along Buffalo Bayou since the Project was constructed has reduced the non-damaging capacity of Buffalo Bayou to carry floodwaters over time. The Corps responded to such changes by eventually gating all of the dam outlets and operating the Project to keep water flows below that non-damaging capacity limit under normal conditions. However, the conditions created by Hurricane Harvey were not normal

operating conditions. During Hurricane Harvey, for the first time in the Project's 70-plus year history, the Induced Surcharge Flood Control Regulation in the Water Control Manual was triggered, in part to protect the integrity of the dams. *See In re Upstream Addicks & Barker (Texas) Flood-Control Reservoirs*, 146 Fed. Cl. at 239 (one purpose of surcharge releases is to "protect the integrity of the dams" (citing testimony of Robert Thomas)). That the Corps understood that surcharge releases during the hurricane would exceed the non-damaging capacity of Buffalo Bayou does not equate with an intent to take private property.[28]

2. The Interference with Plaintiffs' Property by Hurricane Floodwaters is not Substantial or Frequent Enough to Rise to the Level of a Taking

The second part of the *Ridge Line* test requires a showing that the government's interference with any property rights is "substantial and frequent enough to rise to the level of a taking." *Ridge Line*, 346 F.3d at 1357 (citation omitted). Plaintiffs also cannot meet their burden of proof on this element of their claim. *See Cedar Point Nursery v. Hassid*, 141 S. Ct. 2063, 2078 (2021) ("Isolated physical invasions, not undertaken pursuant to a granted right of access, are properly assessed as individual torts rather than appropriations of a property right.").

Hurricane Harvey was a singular, catastrophic act of nature that resulted in record-setting rainfalls in terms of depth and duration over the watersheds upstream and downstream of the

[28] The surcharge releases were consistent with the approved 2012 WCM that governs the operation of the Addicks and Barker Dams and Reservoirs. There was no option available to the Corps that would have resulted in no flooding of private property either upstream or downstream of the reservoirs. At the time the Corps initiated surcharge releases, the reservoir pools had already exceeded the government-owned land behind the dams and water from the Addicks pool was flowing around the north end of the Addicks dam. Had the Corps kept the gates closed, as Plaintiffs seem to contend it should have (contrary to the 2012 WCM), that action would have increased the flooding of private properties upstream of the dams and different downstream neighborhoods and properties would have flooded from uncontrolled releasing around the ends of the dams. *See* Pls.' SUMF ¶ 34. Making releases under the conditions during Harvey, in accordance with the Manual is also intended to protect the integrity of the dam, thereby preventing conditions that would increased the risk of catastrophic dam failure.

Project. Plaintiffs have not alleged or proven any prior flooding of their properties attributable to the existence or operation of the Project. *See* Pls.' SUMF ¶¶ 22, 25. This is the first time that Plaintiffs' properties have been inundated with floodwaters released from the Project in more than 70 years, and this single flood occurred in the context of a record-setting storm. The Court should conclude on these facts that the subject flooding does not "rise to the level of a taking" under *Ridge Line*. *See Cedar Point*, 141 S. Ct. at 2078 (citing 1 P. Nichols, The Law of Eminent Domain §112, p. 311 (1917) ("[A] mere occasional trespass would not constitute a taking.")).

E. Takings Liability Does Not Arise from the Government's Failure to Act

It is well-established that the government cannot be held liable under the Fifth Amendment for a failure to act. *See St. Bernard Parish*, 887 F.3d at 1360-61. The distinction between a government's affirmative actions and failure to take actions is particularly relevant when the government is acting to provide flood control or reduce flood risk. Ninety years ago, the Supreme Court explained that "[w]hen undertaking to safeguard a large area from existing flood hazards, the Government does not owe compensation under the Fifth Amendment to every landowner which it fails to . . . protect." *Sponenbarger*, 308 U.S. at 265. In 2018, the Federal Circuit applied this principle in *St. Bernard Parish* to reverse the trial court's finding of liability for flood damage based in part on the failure of the government to maintain the MRGO channel or to modify that channel. 887 F.3d at 1360-61. Although a failure to act may give rise to a tort claim, it cannot be the basis for a taking.

Although Plaintiffs frame their liability arguments as based on the Corps' affirmative act of opening the dam gates during Harvey (or perhaps as negligent act), the underlying premise is failure to act or failure to safeguard them against flooding. Plaintiffs contend, for example, that the Government opened the gates "after promising for years that it would not release water at

rates that would damage properties along Buffalo Bayou." Pls.' 2019 Summ. J. Mot. at 2. In other words, Plaintiffs are really contending that the Corps should have operated the gates differently. This premise is also evident in Plaintiffs' erroneous legal theory of causation, in which they contend that their properties would have flooded less or not at all if the gates on the dams had been kept closed during Hurricane Harvey. *See* Pls.' SUMF ¶¶ 46-47. Plaintiffs also point to the government's alleged failure to warn them of releases from the reservoirs. *Id.* ¶ 35.

The failure of the government to take certain actions either expressly stated or implied by Plaintiffs would constitute at most a tort, and not a taking.[29] In addition, this Court does not have jurisdiction over any tort claim premised on a failure to act, or a claim based on detrimental reliance, premised either on tort or promissory estoppel. *See Craig-Buff Ltd. P'ship v. United States*, 69 Fed. Cl. 382, 388-89 (2006) (explaining that the Court of Federal Claims has no jurisdiction over claims based on detrimental reliance, which sound in tort or a theory of promissory estoppel); *Copar Pumice Co., Inc. v. United States*, 112 Fed. Cl. 515, 536-38 (2013) (finding that misrepresentation claims sound in tort and fall outside the court's jurisdiction). No liability for a taking arises here simply because the Corps did not keep the gates closed on the Addicks and Barker Dams for a longer period of time in connection with its response to Hurricane Harvey's floodwaters or based on any other alleged failure to act.

[29] Damaged caused by floodwaters are not recoverable in a tort action against the United States. *See* 33 U.S.C. § 702c.

V. CONCLUSION

For the reasons set forth above, the Court should grant the United States' cross-motion for summary judgment.

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Respectfully submitted,

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