

**ARBITRATION SUBMISSION OF APPLICANT,
JEFFERSON PARISH, LOUISIANA, SEEKING
STAFFORD ACT PUBLIC ASSISTANCE FOR
ROADWAY DAMAGE CAUSED BY HURRICANE
KATRINA, DR-1603-LA**

Respectfully submitted,

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JEFFERSON PARISH ARBITRATION SUBMISSION

Factual Background

The instant dispute between Jefferson Parish ("JP") and the Federal Emergency Management Agency ("FEMA") arises out of Hurricane Katrina, which struck the Gulf Coast just east of New Orleans on August 29, 2005 and is far and away the single worst natural disaster ever to befall the United States. Katrina wreaked havoc upon the entire greater New Orleans metropolitan area, including JP, which sustained extensive damage to virtually its entire infrastructure, including its system of roadways. It is this roadway damage -- scientifically quantifiable, using well-established engineering methodologies previously recognized and accepted by FEMA in similar claims -- that forms the subject matter of the instant claim submitted for arbitration.

In the final 24 hours before Katrina made landfall, it became apparent to local, state, and federal officials and emergency personnel that a potential catastrophe was looming.¹ Katrina was originally forecast to hit JP virtually dead on as either a Category 4 or 5 storm, with estimated maximum sustained wind speeds ranging from 131 - 156 mph. Katrina hit the coast in the early morning hours of August 29th, accompanied by heavy rainfall. Rain gauge data reflects that, in different areas of JP, more than 10 inches fell over a 6 hour period, more than 12 inches fell over a 12 hour period, and more than 13 inches fell over a 24 hour period as Katrina passed through. Because most of JP sits below sea level, the rainfall did not drain naturally, but rather accumulated throughout JP, including over streets, roadways, and highways. Additionally, and as is now well known, multiple failures in levees designed, constructed, and maintained by the U.S. Army Corps of Engineers occurred on several of the outfall canals carrying rain water collected by the Orleans Parish and Jefferson Parish drainage systems away from the populated and developed areas of those

¹ See attached Exhibit 1, National Weather Service Forecast of August 28, 2005.

parishes, to be deposited in Lake Pontchartrain, to the north. These levee failures resulted in the cataclysmic flooding of New Orleans for which Katrina is primarily remembered. However, in addition to the more widely publicized flooding of New Orleans, major portions of JP were flooded as well, as the amount of flooding in New Orleans was of such an unparalleled dimension -- once the levees failed, Lake Pontchartrain literally drained into sub-sea level New Orleans until the water levels of the city and lake were equalized -- that the New Orleans flooding eventually carried over into portions of JP, located immediately to the west.

The flooding experienced by JP was massive and extended -- area-wise, volume-wise, duration-wise. It took JP drainage personnel nearly two weeks to get all of the flood water pumped out. In the meantime, large areas of JP, including major portions of JP's roadway infrastructure, remained submerged under fetid, stagnant flood waters simmering in 100 degree late summer Gulf Coast heat.²

In addition to prolonged submersion, JP's roads were subject to traffic of volume, weight, and intensity beyond anything those roads would normally have been expected to handle. Not only was JP itself the scene of a tremendous post-Katrina recovery effort consisting of debris removal, demolition, and rebuilding, but JP also served as the staging area for the recoveries of the even harder hit and more devastated surrounding communities of New Orleans to the east and the Parishes of St. Bernard and Plaquemines to the southeast.³

Recovery Sought by Jefferson Parish

JP seeks recovery for roadway damage directly resulting from Katrina. The damage sustained

² See attached Exhibit 2, photographs of flooded roadways.

³ See attached Exhibit 3, photographs of recovery effort traffic.

by its roadways is comprised of degradation and accelerated deterioration primarily caused by extended submersion under flood waters, the deleterious effects of which were exacerbated by the dramatically increased (again, by both volume and weight) traffic traveling on JP's roads virtually non-stop for months following the storm in connection with the recovery effort. The damage JP seeks to recover is neither hypothetical nor speculative, nor is it calculated by resort to esoteric, smoke and mirrors methodologies; rather, nationally recognized highway engineers retained by JP have measured and quantified actual damage using well-established and long-recognized engineering principles, the validity of which are beyond reproach. In this regard, the damage for which JP seeks recovery, and the underlying engineering testing, analysis, and conclusions utilized by JP to prove that damage, have been previously recognized and accepted by FEMA itself in prior cases involving identical claims for roadway damage resulting from flooding.

In order to be eligible under the Stafford Act for reimbursement by FEMA, 44 CFR 206.223(a)(1) simply requires that the repair work in question must be the direct result of a major disaster event. Specifically, Section 206.223(a)(1) reads in full as follows:

§ 206.223 General work eligibility.

(a) *General.* To be eligible for financial assistance, an item of work must:

(1) Be required as the result of the major disaster event.

JP submits that the measurable and quantifiable degradation of its roads which directly resulted from Katrina's flooding, as well as the cost of repairing that damage so as to bring those degraded roads up to the same condition as the non-flooded roads, clearly constitutes repair work "eligible for financial assistance," as contemplated by both the Stafford Act and 44 CFR

206.223(a)(1), and thus is a proper subject for FEMA reimbursement. Initially, it hardly bears mentioning that Katrina constitutes the precise type of “major disaster event” the Stafford Act and related CFRs were intended to cover. However, in denying JP’s original claim and first appeal, FEMA ruled that the type of roadway degradation for which JP sought recovery merely constituted “potential,” “speculative” damage which, while it might require repair in the future, did not “directly result” from Katrina and hence was not recoverable. As hereafter demonstrated, FEMA’s analysis regarding the eligibility of JP’s road degradation damages is not supported by the available engineering data, nor is it consistent with FEMA’s own rulings issued in similar cases wherein recovery was sought for the same type of damages.

Attached hereto is a report prepared by Stantec⁴, an internationally recognized traffic and roadway engineering firm⁵ specializing in, among other disciplines, the investigation, quantification, and analysis of the precise type of flood-induced roadway degradation and accelerated deterioration, along with the calculation of the cost of repairing same, as were sustained by JP as a direct result of Katrina’s massive flooding. Utilizing methodologies recognized and accepted throughout the traffic and highway engineering industry, Stantec tested a statistically significant portion (18%) of JP’s overall roadway network. Based on the hard scientific engineering data resulting from that testing, Stantec concluded that, as a direct result of Katrina’s flooding, JP’s roadways clearly sustained a measurable degree of degradation which has resulted in accelerated deterioration and will thus require repair at a much earlier date than would have been necessary had the flooding not occurred. Stantec further states that, due to the broad and statistically valid sampling methodology used in its

⁴ See attached Exhibit 4, Stantec report.

⁵ *Ibid.*, Appendix F.

testing of the 18% of JP's roadways actually inspected, the results obtained for that 18% may be validly extrapolated to the 82% of untested roadways, so as to accurately calculate the extent of Katrina-related degradation sustained by 100% of JP's flooded roadways. Finally, Stantec has calculated the cost of performing the repairs necessary, not to provide JP with a brand new, state of the art replacement roadway network, but rather simply to bring JP's damaged roads back to the condition, with the same life expectancy, as the non-flooded roads. JP submits that the Stantec analysis clearly refutes and rebuts any contention by FEMA that JP's Katrina-related roadway degradation, and the cost of repairing same, are not eligible for FEMA reimbursement under the Stafford Act and related CFRs.

Of perhaps equal significance, and notwithstanding its prior rulings on JP's claim, FEMA itself, in other cases, has recognized the eligibility and recoverability of the identical type of damages for which JP presently seeks reimbursement. As a result of heavy rains occurring during winter storms of December, 2005 and January, 2006, the City of Napa, California, experienced heavy flooding resulting from the overflow of the Napa River and its tributaries. Napa's downtown area was covered by water up to three feet in depth. The flood waters deposited large quantities of debris throughout downtown Napa. Napa claimed that the flooding of its streets, combined with the traffic and road scraping associated with debris removal, caused disaster-related damage to various of its streets. As it did in the instant JP case, FEMA initially denied Napa's request, holding that the roadway damage for which Napa sought recovery was not "disaster-related." In a subsequent appeal, Napa, as does JP herein, claimed that various of its roads sustained moderate to severe damage as a result of disaster-related flooding. Napa, and again as JP does herein, submitted hard evidence confirming the cost of repairing the damage. FEMA, in response to Napa's appeal and in contrast

to its prior rulings on JP's claim, reversed its earlier denial of Napa's claim and held that Napa had successfully demonstrated that "the disaster [*i.e.*, the flooding] contributed to the accelerated damage to [Napa's] streets." Specifically, FEMA found as follows:

As part of the second appeal, the Applicant established that it uses the Pavement Conditions Index (PCI) to determine the life expectancy of the city-maintained roads. The methodology is well established and is used in conjunction with the city's participation in the federally-mandated Pavement Management Program (PMP). Under that program, city-wide streets are evaluated every two years using PCI. The applicant performed PCI evaluations in 2004 and in 2006, just after the disaster. The post-disaster PCI review found greater than expected degradation of the inundated streets. In addition to the results of the PCI survey, the Applicant provided a list of the equipment used in the debris removal operations and provided photographs showing evidence of damage to road surfaces due to the scraping and traffic associated with the cleaning of the road surfaces.⁶

JP also has a Pavement Management System which is vastly more extensive than the PMP utilized by the City of Napa; it is this historical data from JP's PMS that Stantec has utilized to determine the accelerated deterioration of the flooded JP roads as compared to the non-flooded roads.

JP submits that the evidence it has submitted in support of its claim, as contained in the attached Stantec report, goes well beyond, and proves to an even greater degree of engineering certainty than was required by FEMA in the Napa case, the identical type of flood-induced roadway degradation which JP claims. As demonstrated by the attached Stantec report, Stantec tested and analyzed a more extensive percentage of JP's roadway system than Napa did; tested and analyzed 100% of the selected roadway segments rather than the 10% area of the selected roads in accordance with the protocol of Napa's testing procedure; and tested and analyzed not only the functional

⁶ See attached Exhibit 5, FEMA Napa ruling dated October 14, 2008.

condition of the roadways like Napa did, but also the more reliable, objective, and quantifiable structural condition, which was then compared to similar historical data. Finally, Stantec was able to test, on a structural basis, roads containing both flooded and non-flooded sections, thereby eliminating from the condition analysis all variables but one -- flooding.

Prior Claim History and Arbitration Eligibility

Pursuant to Section 601 of the American Recovery and Reinvestment Act of 2009 and the implementing regulations, 44 CFR 206.209, JP must have had an appeal of a determination by FEMA pending on or after February 17, 2009. JP meets this requirement as well as the monetary threshold of \$500,000.00.

FEMA denied JP's application for assistance under the Public Assistance program of the Stafford Act by PW 17437 on January 30, 2008.⁷ On March 11, 2008, JP appealed the denial of the \$400,000,000.00 application⁸ which was supported by the State of Louisiana on April 11, 2008.⁹ On June 2, 2008, FEMA formally denied the Parish's First Appeal.¹⁰ The State of Louisiana informed JP of this denial on June 26, 2008.¹¹

On July 29, 2008, JP formally appealed FEMA's denial of the First Appeal.¹² On August 29,

⁷ See attached Exhibit 6, FEMA PW-17437 dated January 30, 2008.

⁸ See attached Exhibit 7, JP Appeal dated March 11, 2008.

⁹ See attached Exhibit 8, State letter dated April 11, 2008.

¹⁰ See attached Exhibit 9, FEMA Denial dated June 2, 2008.

¹¹ See attached Exhibit 10, State letter advising denial dated June 26, 2008.

¹² See attached Exhibit 11, JP Second Appeal dated July 29, 2008.

2008, the State of Louisiana supported the Second Appeal.¹³ As of February 17, 2009, the Second Appeal had not been ruled upon by FEMA. In fact, an oral presentation in support of the Second Appeal was given to FEMA on March 24, 2009.

Accordingly, on February 17, 2009, JP had pending a Second Appeal of a FEMA determination on an application for public assistance in excess of \$500,000.00. Also in accordance with the regulations, JP has formally requested arbitration by its letter of October 29, 2009¹⁴ and has withdrawn JP's Second Appeal by its letter of October 29, 2009.¹⁵

Quantification of JP Roadway Damage

Following Katrina, JP suspected that the flooding and increased traffic from the clean up of the debris and building damage resulted in long term damage to JP's flooded roads. JP expressed such concerns to FEMA in the months following Katrina, and was advised that if JP had proof, like a Pavement Management System, and could substantiate "pre-storm conditions," FEMA would consider the evidence.

Accordingly, JP retained Stantec to conduct an engineering study to determine if the flooding (and increased loading from vehicles, hauling trucks, and heavy equipment engaged in recovery activities) caused damage to the JP street network. The study was initiated in the middle of 2006 and Stantec issued a report in July 2007 confirming that JP's flooded streets were damaged by flooding from Katrina.

This 2007 report was presented to FEMA in support of JP's application for assistance under

¹³ See attached Exhibit 12, State letter dated August 29, 2009.

¹⁴ See attached Exhibit 13, JP arbitration request dated October 29, 2009.

¹⁵ See attached Exhibit 14, JP Second Appeal withdrawal dated October 29, 2009.

the Stafford Act. Stantec has continued to assist JP in connection with this application, PW 17437, and the related appeals of the PW determination, culminating in the Stantec report prepared for the instant arbitration.

At the outset of its task in 2006, well before the Napa decision, Stantec chose to test and analyze JP's flooded roads under two different standards, functional and structural, in order to develop the best data for determining the conditions of the flooded roadways. This choice was facilitated by the fact that JP had historical statistical test data for the roads on both a functional and structural basis, thanks to its PMS program and Stantec's assistance in setting up that program and its parameters. In layman's terms, the functional analysis relates more to the visual deterioration of the roads which can be assessed essentially on a visual basis applying standardized, nationally accepted distress characteristics which can be graded in degrees of severity. The functional approach results in a number referred to as a PCI or PQI which can be compared to historical indices to determine whether a given stretch of pavement has uncharacteristically deteriorated over time. These numbers can also be used to establish a curve predicting the normal or expected rate of deterioration which can be used to determine if the current condition of the tested road has deteriorated more or less than expected over time since the last testing period. This is the type of data which FEMA accepted in the Napa case to award assistance to Napa for the deterioration of Napa's city streets resulting from the December 2005 - January 2006 floods.

The attached 2009 Stantec report proves, like the Napa PCI data, that JP's roads which were flooded by Katrina, a "major disaster event" under the Stafford Act, were directly damaged by that flooding and that the degradation and advanced deterioration of those damaged roads is not only proven by the PCI data but also quantifiable.

However, the 2009 Stantec report also proves that the flooded roads were damaged and their integrity reduced by structural statistics and analysis, an engineering process which is not only more accurate than the PCI condition analysis, but also can conclusively demonstrate the amount of overlay or repair necessary to compensate for the direct deterioration caused by Katrina's floods. The data relied upon by FEMA and the other parties in the Napa case did not include any structural analysis proving the extent of the Napa road deterioration, but FEMA found the PCI data alone warranted an award. The structural proof provided by JP's Stantec report is even stronger evidence supporting JP's claim that the flooding caused by Katrina damaged JP's roadways and that such damage is eligible for assistance as "direct" damage under the Stafford Act.

In summary, the Stantec report concludes on every level of analysis that, from a functional standpoint, the flooded roads had greater deterioration than the non-flooded roads when comparing the historical data, and that the increased rate of deterioration of the flooded roads was caused by Katrina flooding. Stantec's conclusion that the flooded roads deteriorated more than the non-flooded roads as a result of Katrina flooding applies to both the asphalt (AC) and concrete (PCC) roadways. This functional analysis is similar to the PCI analysis in the Napa case where a similar deterioration was shown and accepted by FEMA. JP's Stantec report and the statistical test data are even more extensive than the proof provided by Napa. First of all, Stantec analyzed more functional indices than just the PCI. Second, the testing conducted by Napa relies on testing only 10% of the area of randomly selected stretches of roadway, while Stantec tested 100% of the JP roadway surfaces selected.

Stantec reached the same conclusion based upon the more reliable and objective structural analysis, once again on all levels - systemwide, block by block, and roadway. The flooded roadways

exhibited greater deterioration than the non-flooded roadways for both the asphalt and concrete pavements; that deterioration was a direct result of the Katrina flooding.

Stantec's conclusions are all the more significant because they are based upon a 95% confidence level which, in layman's terms, would be 100%. Secondly, Stantec tested 18% of JP's roads, which statistically is significantly more reliable than a 10% sampling. That is one of the reasons why Stantec is able to state its conclusions with 95% confidence. Another reason was the fact that Stantec was able to test a number of roads containing both flooded and non-flooded sections. This enabled a comparison of the structural integrity of statistically identical road sections to each other where the only variable between them was the flooding.

Calculation of Repair Costs

Based specifically on the structural testing data, Stantec has calculated the cost for the repairs necessary to bring the weakened flooded roads back to the same condition as the non-flooded roads. This calculation is based upon competitively bid JP contract costs for repairs to the tested flooded streets and takes into account the practical operational requirements that, for example, a one inch overlay on concrete (PCC) roadways is not a proper maintenance practice, but replacing individual roadway panels, up to 30% in the Parish experience, is.

Weighing these considerations, Stantec has calculated that to bring all of the roads flooded by Katrina up to the condition of the non-flooded roads would cost \$271,101,570.00. Furthermore, not only does this quantification of the repair costs (based upon proposed type of repair, amount of material, and square footage) satisfy one of the grounds for FEMA's denial of JP's application, it also is consistent with the type of calculations provided by Napa and accepted by FEMA in its Napa ruling.

Conclusion

JP emphasizes that it is not seeking to have its entire roadway infrastructure repaired or replaced, nor claiming that its roads would not have been subject to normal wear and tear so as to eventually require repair or replacement had Katrina never hit. Rather, JP is seeking recovery only for those damages recognized and authorized by the Stafford Act, *i.e.*, disaster-caused roadway degradation identified and quantified by an internationally known highway engineering firm recognized as an authority in this field, utilizing industry-recognized and well-established engineering methodologies which FEMA itself has previously accepted in cases involving the identical types of damage for which JP seeks recovery herein.¹⁶

JP submits that the Stantec report not only confirms recoverable roadway damage, along with the costs of repairing that damage, for the 18% of JP roadways actually tested (\$1,800,000.00); Stantec further confirms, using hard engineering data, the validity of extrapolating the damage sustained by the tested 18%, and the cost of repairing that 18%, to the full 100% of JP roadways which experienced Katrina-related flooding, at a total cost of repair of \$271,101,570.00.

FEMA denied JP's original application on the grounds that the roadway degradation and accelerated deterioration caused by Katrina's flooding was not recoverable "damage" under the Stafford Act. JP submits that its instant arbitration submission has, consistent with FEMA's ruling in the Napa case, proved that JP's roads suffered direct, demonstrable, and quantifiable damage resulting from Katrina's flooding. Like the City of Napa, JP has a Pavement Management System

¹⁶ Indeed, FEMA has recently agreed to pay a Louisiana political subdivision a significant amount of money in reimbursement for Katrina-caused damage to roadway infrastructure based on nothing more than a "walking tour" visual inspection of damaged streets. See attached Exhibit 15, FEMA press release dated October 28, 2009, reporting on FEMA award of \$70.6 million for St. Bernard Parish roadway restoration project.

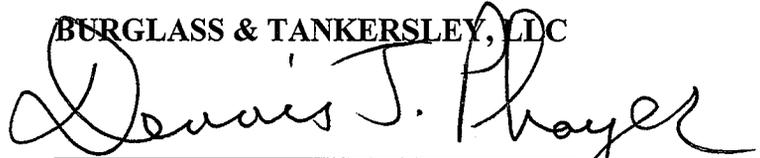
with historical data, and the Stantec report proves, to an even greater extent than was required by FEMA in the Napa case, that the flooded JP roads suffered greater degradation than the non-flooded roads. JP has proved not only that such damage is eligible for FEMA reimbursement, but also that actual, direct damage was sustained.

A second basis for FEMA's prior denial of JP's application was that JP had not quantified its damages. As exhaustively documented in the Stantec report, JP has now quantified those damages to an even greater degree of engineering certainty than did Napa in its claim for flood-induced roadway damage.

Accordingly, JP urges this arbitration panel to render an award in favor of JP for the full 100% of damages documented in the Stantec report -- \$271,101,570.00.

Respectfully submitted,

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