

**February 18, 2025**

**SUBJECT: FEMA-4626-DR-MS, BAY ST. LOUIS, CITY OF, FIPS# 045-03980-00**

**Obligation Notification**

Project Worksheet (PW) No: **00180(2)**

Obligated Amt: \$1,864,970.53

New PW Total: \$3,415,799.02

The Federal Emergency Management Agency (FEMA) recently obligated one or more of your Project Worksheet(s); a copy is attached. This/these PW(s) and related documents describe the scope of work and funding amount obligated for disaster damages as a result of the declared event. Please compare each attached obligated PW with the previously provided Project Worksheet for the change(s) made during FEMA's review.

In accordance with Title 44 Code of Federal Regulations Section 206.206, you have the right to appeal any FEMA determination. The appeal must be submitted in writing within 60 days of FEMA's determination, contain documentation supporting your position, and include a statement regarding the amount of funds in dispute. The appeal must also cite the applicable provisions of the Federal law, regulation and/or policy with which you believe FEMA's determination is inconsistent. The appeal must be processed through the Mississippi Emergency Management Agency and should be sent to the following address:

Mr. Stephen C. McCraney, Executive Director  
Mississippi Emergency Management Agency  
P. O. Box 5644  
Pearl, MS 39288  
Attention: John M. "Mike" Siler, Office of Public Assistance

As the recipient of public funds, you are subject to an audit by the State of Mississippi and the Department of Homeland Security (DHS) Office of the Inspector General (OIG) for any and all projects funded by MEMA and FEMA. You must therefore maintain accurate records of disaster costs for a period of three years from the date your application has been closed.

If you have any questions or require further information, please contact Diane Sager, Bureau Director at 228-234-4835.

## Department of Homeland Security Federal Emergency Management Agency

### General Info

|                                 |                       |             |     |                            |                                       |
|---------------------------------|-----------------------|-------------|-----|----------------------------|---------------------------------------|
| <b>Project #</b>                | 552697                | <b>PW #</b> | 180 | <b>Project Type</b>        | Standard                              |
| <b>Project Category</b>         | C - Roads and Bridges |             |     | <b>Applicant</b>           | Bay St. Louis, City of (045-03980-00) |
| <b>Project Title</b>            | Bay St. Louis Roads   |             |     | <b>Event</b>               | 4626DR-MS (4626DR)                    |
| <b>Project Size</b>             | Large                 |             |     | <b>Declaration Date</b>    | 10/23/2021                            |
| <b>Activity Completion Date</b> | 10/21/2025            |             |     | <b>Incident Start Date</b> | 8/28/2021                             |
| <b>Process Step</b>             | Obligated             |             |     | <b>Incident End Date</b>   | 9/1/2021                              |

### Damage Description and Dimensions

The Disaster # 4626DR, which occurred between **08/28/2021** and **09/01/2021**, caused:

#### Damage #934311; Bay St. Louis Roads (Group Ave B)

Hurricane Ida generated strong winds and heavy rains that caused various damage including washouts, potholes, and shoulder erosion to approximately 22 roads in the Bay of St. Louis of (Group Ave B)

##### General Facility Information:

- **Facility Type:** Roads (No Culverts)
- **Facility:** City of Bay Saint Louis Roads
- **Facility Description:** All of the city streets service public access and including school bus, 911 routes and all other emergency services.
- **Approx. Year Built:** 1978
- **Location Description:** 688 Hwy 90 Bay Saint Louis MS 39520 City Hall meeting Location GPS below is also the meeting location
- **Road Type:** Asphalt
- **GPS Latitude/Longitude:** 30.31706, -89.34446
- **Width (ft):** 12.6
- **Number of Lanes:** 2

##### General Damage Information:

- **Date Damaged:** 8/28/2021 to 9/1/2021
- **Cause of Damage:** Gale-force winds and rains caused medium velocity waters over-topping an roadway pulling off surface materials. Being in a flood zone a large bulk of the roads sat underwater for several days.

##### Road Damage:

###### 10th Street Ave B:

###### GPS Start 30.320218, -89396440, Stop 30.320218, -89.396859:

- Surface, 7.583333 CY of Double Bituminous Surface Treatment, 130 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive

resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**10th Street to 15th Street Ave A:**

**GPS Start 30.320219, -89.393442, Stop 30.323342, -89.393460:**

- Surface, 83.333333 CY of Double Bituminous Surface Treatment, 1,200 FT long x 15 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**12th Street Ave D:**

**GPS Start 30.321553, -89.400219, Stop 30.321585, -89.399824:**

- Surface, 6.296296 CY of Double Bituminous Surface Treatment, 100 FT long x 13.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**13th Street Ave B:**

**DP1:**

**GPS 30.322116, -89.394528:**

- Sub Base, 2.444444 CY of Sand with less than 20% passing 200, 9 FT long x 11 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 1.833333 CY of 610 stone or crushed concrete, 9 FT long x 11 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.322539, -89.395815, Stop 30.322156, -89.393471:**

- Surface, 49.583333 CY of Double Bituminous Surface Treatment, 850 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**14th Street Ave B:**

**DP1:**

**GPS 30.322754, -89.397557:**

- Base, 1.555556 CY of 610 stone or crushed concrete, 21 FT long x 4 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP2:**

**GPS 30.322808, -89.399375:**

- Base, 1.222222 CY of 610 stone or crushed concrete, 11 FT long x 6 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.322839, -89.396099, Stop 30.322805, -89.400249:**

- Surface, 75.833333 CY of Double Bituminous Surface Treatment, 1,300 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**15th Street Ave B:**

**GPS Start 30.323741, -89.395181, Stop 30.323471, -89.396717:**

- Surface, 12.541667 CY of Double Bituminous Surface Treatment, 215 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**17th Street Ave B:**

**GPS Start 30.324883, -89.396095, Stop 30.325088, -89.398872:**

- Surface, 8.75 CY of Double Bituminous Surface Treatment, 150 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**18th Street Ave B:**

**DP1:**

**GPS 30.325073, -89.397590:**

- Sub Base, 2.419753 CY of Sand with less than 20% passing 200, 14 FT long x 7 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 1.814815 CY of 610 stone or crushed concrete, 14 FT long x 7 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.325402, -89.396018, Stop 30.325524, -89.399108:**

- Surface, 59.208333 CY of Double Bituminous Surface Treatment, 1,015 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**2nd Street to Ave A Ave B:**

**GPS Start 30.314805, -89.396081, Stop 30.314340, -89.393492:**

- Surface, 48.416667 CY of Double Bituminous Surface Treatment, 830 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**7th Street Ave B:**

**GPS Start 30.318190, -89.396099, Stop 30.318246, -89.397351:**

- Surface, 22.75 CY of Double Bituminous Surface Treatment, 390 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**8th Street Ave B:**

**DP1:**

**GPS 30.318860, -89.395133:**

- Sub Base, 3.422222 CY of Sand with less than 20% passing 200, 11 FT long x 12.6 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive

bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

- Base, 2.566667 CY of 610 stone or crushed concrete, 11 FT long x 12.6 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP2:**

**GPS 30.318882, -89.396534:**

- Sub Base, 2.8 CY of Sand with less than 20% passing 200, 9 FT long x 12.6 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 2.1 CY of 610 stone or crushed concrete, 9 FT long x 12.6 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.318802, -89.393486, Stop 30.318905, -89.400269:**

- Surface, 125.008333 CY of Double Bituminous Surface Treatment, 2,143 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**9th Street Ave B:**

**GPS Start 30.319413, -89.396383, Stop 30.319377, -89.396362:**

- Surface, 13.416667 CY of Double Bituminous Surface Treatment, 230 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Ave A & Sixth ST to Ave B:**

**DP1:**

**GPS 30.317587, -89.395077:**

- Sub Base, 0.222222 CY of Sand with less than 20% passing 200, 3 FT long x 3 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 0.166667 CY of 610 stone or crushed concrete, 3 FT long x 3 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.317548, -89.33497, Stop 30.317563, -89.396054:**

- Surface, 63.466667 CY of Double Bituminous Surface Treatment, 1,088 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Ave A & 4th Street To Ave D:**

**DP1:**

**GPS 30.316004, -89.89.401101:**

- Sub Base, 0.444444 CY of Sand with less than 20% passing 200, 6 FT long x 3 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 0.333333 CY of 610 stone or crushed concrete, 6 FT long x 3 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.316243, -89.393467, Stop 30.316397, -89.400384:**

- Surface, 129.225833 CY of Double Bituminous Surface Treatment, 2,215.3 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the

cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Ave A to 6th Street:**

**DP1:**

**GPS 30.315849, -89.393504:**

- Base, 0.814815 CY of 610 stone or crushed concrete, 11 FT long x 4 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.314340, -89.393492, Stop 30.317487, -89.393442:**

- Surface, 65.041667 CY of Double Bituminous Surface Treatment, 1,115 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Ave B & 5th Street To Ave D:**

**DP1:**

**GPS 30.316934, -89.398698:**

- Base, 2.851852 CY of 610 stone or crushed concrete, 22 FT long x 7 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS 30.617557, -89.396393, Stop 30.317063, -89.396254:**

- Surface, 124.075 CY of Double Bituminous Surface Treatment, 2,127 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Ave B & Sixth ST to Ave D:**

**GPS Start 30.617557, -89.396393, -89.396139, Stop 30.317571, -89.396492:**

- Surface, 75.833333 CY of Double Bituminous Surface Treatment, 1,300 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.



## **Chapman to DeRoche Garden:**

### **GPS Start 30.322913, -89.378365, Stop 30.321893, -89.375831:**

- Surface, 59.722222 CY of Double Bituminous Surface Treatment, 860 FT long x 15 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

## **Second Street Ave C:**

### **GPS Start 30.315207, -89.398684, Stop 30.316888, -89.401183:**

- Surface, 36.75 CY of Double Bituminous Surface Treatment, 630 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

## **Third Street Ave B to Ave A:**

### **DP1:**

#### **GPS 30.315495, -89.395143:**

- Sub Base, 8.444444 CY of Sand with less than 20% passing 200, 38 FT long x 9 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 6.333333 CY of 610 stone or crushed concrete, 38 FT long x 9 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

### **GPS Start 30.314854, -89.396063, Stop 30.315541, -89.393526:**

- Surface, 47.541667 CY of Double Bituminous Surface Treatment, 815 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

## **Third Street Ave B to Ave C:**

### **GPS Start 30.615552, -89.397145, Stop 30.315371, -89.395978:**

- Surface, 20.462963 CY of Double Bituminous Surface Treatment, 340 FT long x 13 FT wide x 1.5 IN deep, Medium velocity water over-topped road

and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

## **Damage #1201007; Bay St louis Roads (Group Road 556 & 558)**

Hurricane Ida generated strong winds and heavy rains that caused various damage including washouts, potholes and shoulder erosion to approximately 11 roads in the Bay of St. Louis (Rd 556 & 558) group.

### **General Facility Information:**

- **Facility Type:** Roads (No Culverts)
- **Facility:** City of Bay Saint Louis Roads
- **Facility Description:** All the city streets service public access and including school bus, 911 routes and all other emergency services.
- **Year Built:** 1978
- **Location Description:** 688 Hwy 90 Bay Saint Louis MS 39520 City Hall meeting Location GPS below is also the meeting location
- **Road Type:** Double Bituminous Surface
- **GPS Latitude/Longitude:** 30.31706, -89.34446
- **Width (ft):** 12.6
- **Number of Lanes:** 2

### **General Damage Information:**

- **Date Damaged:** 8/20/2021 to 9/1/2021
- **Cause of Damage:** Gale-force winds and rains caused medium velocity waters over-topping an roadway pulling off surface materials. Being in a flood zone a large bulk of the roads sat underwater for several days.

### **Road Damage:**

#### **12th Street 556 to Ave A:**

##### **GPS Start 30.321426, -89.392394, Stop 30.321499, -89.393383:**

- Surface, 21.666667 CY of Double Bituminous Surface Treatment, 360 FT long x 13 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

#### **12th Street 558 to East End (dead end):**

##### **GPS Start 30.321520, -89.389919, Stop 30.321460, -89.388914:**

- Surface, 21.546296 CY of Double Bituminous Surface Treatment, 358 FT long x 13 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

#### **13th Street Dead End to 556:**

##### **DP1:**

**GPS 30.322145, -89.389938:**

- Sub Base, 4.237037 CY of Sand with less than 20% passing 200 sieve, 26 FT long x 6.6 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 3.177778 CY of 610 stone or crushed concrete, 26 FT long x 6.6 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.322131, -89.387670, Stop 30.322181, -89.392286:**

- Surface, 88.351852 CY of Double Bituminous Surface Treatment, 1,468 FT long x 13 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**14th Street 556 to Dead End:**

**DP1:**

**GPS 30.322842, -89.391816:**

- Sub Base, 6.518519 CY of Sand with less than 20% passing 200 sieve, 33 FT long x 8 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 4.888889 CY of 610 stone or crushed concrete, 33 FT long x 8 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP2:**

**GPS 30.322787, -89.391407:**

- Sub Base, 13.82716 CY of Sand with less than 20% passing 200 sieve, 40 FT long x 14 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the

surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

- Base, 10.37037 CY of 610 stone or crushed concrete, 40 FT long x 14 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP3:**

**GPS 30.3228880, -89.390564:**

- Sub Base, 13.08642 CY of Sand with less than 20% passing 200 sieve, 53 FT long x 10 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 9.814815 CY of 610 stone or crushed concrete, 53 FT long x 10 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP4:**

**GPS 30.322845, -89.390199:**

- Sub Base, 10.37037 CY of Sand with less than 20% passing 200 sieve, 42 FT long x 10 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 7.777778 CY of 610 stone or crushed concrete, 42 FT long x 10 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from

the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.322865, -89.382245, Stop 30.322757, -89.390017:**

- Surface, 49.930556 CY of Double Bituminous Surface Treatment, 719 FT long x 15 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**15th Street 558 to Jordan River Drive:**

**GPS Start 30.323473, -89.389906, Stop 30.323433, -89.388034:**

- Surface, 59.944444 CY of Double Bituminous Surface Treatment, 830 FT long x 15.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**2nd Street 556 to 560:**

**DP1:**

**GPS 30.314588, -89.391165:**

- Sub Base, 2.592593 CY of Sand with less than 20% passing 200 sieve, 15 FT long x 7 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 1.944444 CY of 610 stone or crushed concrete, 15 FT long x 7 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP2:**

**GPS 30.314346, -89.390018:**

- Sub Base, 0.493827 CY of Sand with less than 20% passing 200 sieve, 5 FT long x 4 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is

washed off., 0% work completed.

- Base, 0.37037 CY of 610 stone or crushed concrete, 5 FT long x 4 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP3:**

**GPS 30.314165, -89.388884:**

- Sub Base, 2.444444 CY of Sand with less than 20% passing 200 sieve, 11 FT long x 9 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 1.833333 CY of 610 stone or crushed concrete, 11 FT long x 9 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.314723, -89.392286, Stop 30.314133, -89.388331:**

- Surface, 75.351852 CY of Double Bituminous Surface Treatment, 1,252 FT long x 13 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**3rd Street 560 to 556:**

**DP1:**

**GPS 30.315078, -89.390066:**

- Sub Base, 0.592593 CY of Sand with less than 20% passing 200 sieve, 8 FT long x 3 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 0.444444 CY of 610 stone or crushed concrete, 8 FT long x 3 FT wide x 6 IN deep, Medium velocity water over-

topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.314819, -89.388392, Stop 30.315450, -89.392352:**

- Surface, 77.037037 CY of Double Bituminous Surface Treatment, 1,280 FT long x 13 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**4th Street 556 to 560:**

**DP1:**

**GPS 30.315788, -89.390764:**

- Sub Base, 2.074074 CY of Sand with less than 20% passing 200 sieve, 14 FT long x 6 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 1.555556 CY of 610 stone or crushed concrete, 14 FT long x 6 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP2:**

**GPS 30.315814, -89.390772:**

- Sub Base, 0.987654 CY of Sand with less than 20% passing 200 sieve, 8 FT long x 5 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 0.740741 CY of 610 stone or crushed concrete, 8 FT long x 5 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the

bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.316015, -89.392349, Stop 30.315729, -89.390055:**

- Surface, 44.236111 CY of Double Bituminous Surface Treatment, 735 FT long x 13 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**558 Street 14th to 15th:**

**DP1:**

**GPS 30.315694, -89.390122:**

- Sub Base, 11.407407 CY of Sand with less than 20% passing 200 sieve, 42 FT long x 11 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 8.555556 CY of 610 stone or crushed concrete, 42 FT long x 11 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.322736, -89.389949, Stop 30.323271, -89.389971:**

- Surface, 17.62963 CY of Double Bituminous Surface Treatment, 238 FT long x 16 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**558 Street 1st to 10th:**

**DP1:**

**GPS 30.314168, -89.390063:**

- Sub Base, 31.604938 CY of Sand with less than 20% passing 200 sieve, 160 FT long x 8 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the



bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

- Base, 23.703704 CY of 610 stone or crushed concrete, 160 FT long x 8 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP2:**

**GPS 30.319457, -89.389962:**

- Sub Base, 8 CY of Sand with less than 20% passing 200 sieve, 27 FT long x 12 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 6 CY of 610 stone or crushed concrete, 27 FT long x 12 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.313752, -89.390031, Stop 30.320125, -89.389963:**

- Surface, 162.15463 CY of Double Bituminous Surface Treatment, 2,399 FT long x 14.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**8th Street 560 to 556:**

**DP1:**

**GPS 30.318885, -89.391037:**

- Sub Base, 1.555556 CY of Sand with less than 20% passing 200 sieve, 9 FT long x 7 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 1.166667 CY of 610 stone or crushed concrete, 9 FT

long x 7 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP2:**

**GPS 30.318961, -89.392042:**

- Sub Base, 1.125926 CY of Sand with less than 20% passing 200 sieve, 6 FT long x 7.6 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 0.844444 CY of 610 stone or crushed concrete, 6 FT long x 7.6 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.31875, -89.390017, Stop 30.318891, -89.392242:**

- Surface, 43.935185 CY of Double Bituminous Surface Treatment, 730 FT long x 13 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Damage #1201009; Bay St. Louis Roads (Group Garden Isle)**

Hurricane Ida generated strong winds and heavy rains that caused various damage including washouts, potholes, and shoulder erosion to approximately 7 roads in the Bay of St. Louis (Ave b) group.

**General Facility Information:**

- **Facility Type:** Roads (No Culverts)
- **Facility:** City of Bay Saint Louis Roads
- **Facility Description:** All the city streets service public access and including school bus, 911 routes and all other emergency services.
- **Year Built:** 1978
- **Location Description:** 688 Hwy 90 Bay Saint Louis MS 39520 City Hall meeting Location GPS below is also the meeting location
- **Road Type:** Double Bituminous Surface Treatment (chip and seal)
- **GPS Latitude/Longitude:** 30.31706, -89.34446
- **Width (ft):** 13
- **Number of Lanes:** 2

## General Damage Information:

- **Date Damaged:** 8/28/2021 to 9/1/2021
- **Cause of Damage:** Gale-force winds and rains caused medium velocity waters over-topping roadway pulling off surface materials. Being in a flood zone a large bulk of the roads sat underwater for several days

## Road Damage:

### Beverly to DeRoach:

#### GPS Start 30.321684, -89.378953, Stop 30.320534, -89.375797:

- Surface, 71.296296 CY of Double Bituminous Surface Treatment, 1,100 FT long x 14 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

### Chapman to DeRoche Garden:

#### GPS Start 30.322913, -89.378365, Stop 30.321893, -89.375831:

- Surface, 59.7222 CY of Double Bituminous Surface Treatment, 860 FT long x 15 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

### Clara Street Chapman to House:

#### DP1:

##### GPS 30.3229777, -89.379942:

- Sub Base, 0.444444 CY of Sand with less than 20% passing 200 sieve, 9 FT long x 2 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 0.333333 CY of 610 stone or crushed concrete, 9 FT long x 2 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

#### DP2:

##### GPS 30.322836, -89.380153:

- Sub Base, 0.074074 CY of Sand with less than 20% passing 200 sieve, 3 FT long x 1 FT wide x 8 IN deep,

Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

- Base, 0.055556 CY of 610 stone or crushed concrete, 3 FT long x 1 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.3223251, -89.378760, Stop 30.323288, -89.381047:**

- Surface, 53.925926 CY of Double Bituminous Surface Treatment, 832 FT long x 14 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Clara Street DeRoach to Chapman:**

**DP1:**

**GPS 30.321561, -89.326920:**

- Sub Base, 0.296296 CY of Sand with less than 20% passing 200 sieve, 6 FT long x 2 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 0.222222 CY of 610 stone or crushed concrete, 6 FT long x 2 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP2:**

**GPS 30.321629, -89.322035:**

- Sub Base, 4.148148 CY of Sand with less than 20% passing 200 sieve, 21 FT long x 8 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive

bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

- Base, 3.111111 CY of 610 stone or crushed concrete, 21 FT long x 8 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP3:**

**GPS 30.322181, -89.378367:**

- Sub Base, 1.333333 CY of Sand with less than 20% passing 200 sieve, 18 FT long x 3 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 1 CY of 610 stone or crushed concrete, 18 FT long x 3 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP4:**

**GPS 30.322312, -89.378596:**

- Sub Base, 1.08642 CY of Sand with less than 20% passing 200 sieve, 11 FT long x 4 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 0.814815 CY of 610 stone or crushed concrete, 11 FT long x 4 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.321227, -89.375829, Stop 30.32291, -89.378719:**

- Surface, 64.555556 CY of Double Bituminous Surface Treatment, 996 FT long x 14 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Daffodil Drive Chapman to Primrose:**

**DP1:**

**GPS 30.323542, -89.375749:**

- Sub Base, 4 CY of Sand with less than 20% passing 200 sieve, 54 FT long x 3 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 3 CY of 610 stone or crushed concrete, 54 FT long x 3 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP2:**

**GPS 30.322683, -89.375538:**

- Sub Base, 1.125926 CY of Sand with less than 20% passing 200 sieve, 6 FT long x 7.6 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 0.844444 CY of 610 stone or crushed concrete, 6 FT long x 7.6 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Dafodil Drive Chapman to Primrose:**

**GPS Start 30.323542, -89.378083, Stop 30.322445, -89.375273:**

- Surface, 70.075926 CY of Double Bituminous Surface Treatment, 958 FT

long x 15.8 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Lilac from Chapman:**

**DP1:**

**GPS Start 30.324403, -89.376653 End 30.324254, -89.376250:**

- Sub Base, 19.407407 CY of Sand with less than 20% passing 200 sieve, 131 FT long x 6 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 14.555556 CY of 610 stone or crushed concrete, 131 FT long x 6 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP2:**

**GPS Start 30.324142, -89.375967:**

- Sub Base, 10.864198 CY of Sand with less than 20% passing 200 sieve, 40 FT long x 11 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 8.148148 CY of 610 stone or crushed concrete, 40 FT long x 11 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP3:**

**GPS 30.323793, -89.374701:**

- Sub Base, 76.049383 CY of Sand with less than 20% passing 200 sieve, 280 FT long x 11 FT wide x 8 IN deep,

Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

- Base, 57.037037 CY of 610 stone or crushed concrete, 280 FT long x 11 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP4:**

**GPS 30.324684, -89.377072:**

- Sub Base, 3.259259 CY of Sand with less than 20% passing 200 sieve, 22 FT long x 6 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 2.444444 CY of 610 stone or crushed concrete, 22 FT long x 6 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP5:**

**GPS 30.324361, -89.376064:**

- Sub Base, 6.888889 CY of Sand with less than 20% passing 200 sieve, 31 FT long x 9 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 5.166667 CY of 610 stone or crushed concrete, 31 FT long x 9 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the



cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP6:**

**GPS 30.324321, -89.376238:**

- Sub Base, 4.839506 CY of Sand with less than 20% passing 200 sieve, 28 FT long x 7 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 3.62963 CY of 610 stone or crushed concrete, 28 FT long x 7 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.329726, -89.378111, Stop 30.324014, -89.375511:**

- Surface, 56.064815 CY of Double Bituminous Surface Treatmeant, 865 FT long x 14 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Marigold Primrose to Chapman:**

**DP1:**

**GPS 30.323523, -89.89.376529:**

- Sub Base, 12.451852 CY of Sand with less than 20% passing 200 sieve, 41 FT long x 12.3 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 9.338889 CY of 610 stone or crushed concrete, 41 FT long x 12.3 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally form the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work

completed.

**GPS Start 30.323078, -89.375046, Stop 30.323990, -89.377845:**

- Surface, 80.083333 CY of Double Bituminous Surface Treatment, 961 FT long x 18 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of the adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Damage #1201012; Bay St. Louis Roads (Group Lagan)**

Hurricane Ida generated strong winds and heavy rains that caused various damage including washouts, potholes and shoulder erosion to approximately 4 roads in the Bay of St. Louis (Lagan) group.

**General Facility Information:**

- **Facility Type:** Roads (No Culverts)
- **Facility:** Local community, including school bus & 911 emergency routes.
- **Facility Description:** Multiple community roadways, with varying widths and lengths.
- **Approx. Year Built:** 1950
- **Location Description:** 688 Hwy 90 Bay Saint Louis MS 39520 City Hall meeting Location GPS below is also the meeting location
- **Road Type:** Double Bitumen (chip n seal)
- **Width (ft):** 14
- **Number of Lanes:** 2

**General Damage Information:**

- **Date Damaged:** 8/28/2021
- **Cause of Damage:** Gale-force winds and rains caused medium velocity waters over-topping a roadway pulling off surface materials. Being in a flood zone a large bulk of the roads sat underwater for several days.

**Road Damage:**

**1st Street (Lagan to End):**

**DP1:**

**GPS 30.323647, -89.415307:**

- Sub Base, 3.45679 CY of 610 stone or crushed concrete, 17.5 FT long x 8 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 2.592593 CY of Sand with less than 20% passing 200 sieve, 17.5 FT long x 8 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP2:**

**GPS 30.323787, -89.415511:**

- Sub Base, 5.432099 CY of 610 stone or crushed concrete, 27.5 FT long x 8 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 4.074074 CY of Sand with less than 20% passing 200 sieve, 27.5 FT long x 8 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP3:**

**GPS 30.323847, -89.415595:**

- Sub Base, 2.350617 CY of 610 stone or crushed concrete, 11.9 FT long x 8 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 1.762963 CY of Sand with less than 20% passing 200 sieve, 11.9 FT long x 8 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP4:**

**GPS 30.324001, -89.415885:**

- Sub Base, 58.666667 CY of 610 stone or crushed concrete, 118.8 FT long x 20 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 44 CY of Sand with less than 20% passing 200

sieve, 118.8 FT long x 20 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP5:**

**GPS 30.324491, -89.416664:**

- Sub Base, 25.037037 CY of 610 stone or crushed concrete, 50.7 FT long x 20 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 18.777778 CY of Sand with less than 20% passing 200 sieve, 50.7 FT long x 20 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.323233, -89.414584, Stop 30.324584, -89.416803:**

- Surface, 83.185185 CY of Double Bituminous Surface Treatment, 898.4 FT long x 20 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**1st Street to Ave H:**

**DP1:**

**GPS 30.321355, -89.411517:**

- Sub Base, 3.753086 CY of Sand with less than 20% passing 200 sieve, 30.4 FT long x 5 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 2.814815 CY of 610 stone or crushed concrete, 30.4 FT long x 5 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement

mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP2:**

**GPS 30.321970, -89.412486:**

- Sub Base, 1.333333 CY of Sand with less than 20% passing 200 sieve, 9 FT long x 6 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 1 CY of 610 stone or crushed concrete, 9 FT long x 6 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP3:**

**GPS 30.322046, -89.412759:**

- Sub Base, 1.777778 CY of Sand with less than 20% passing 200 sieve, 6 FT long x 12 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 1.333333 CY of 610 stone or crushed concrete, 6 FT long x 12 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP4:**

**GPS 30.322231, -89.412918:**

- Sub Base, 10.824691 CY of Sand with less than 20% passing 200 sieve, 8 FT long x 54.8 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the

aggregate separates from the layers and is washed off., 0% work completed.

- Base, 8.118519 CY of 610 stone or crushed concrete, 8 FT long x 54.8 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP5:**

**GPS 30.322467, -89.413306:**

- Sub Base, 1.975309 CY of Sand with less than 20% passing 200 sieve, 10 FT long x 8 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 1.481481 CY of 610 stone or crushed concrete, 10 FT long x 8 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP6:**

**GPS 30.322666, -89.413710:**

- Sub Base, 19.664198 CY of Sand with less than 20% passing 200 sieve, 72.4 FT long x 11 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 14.748148 CY of 610 stone or crushed concrete, 72.4 FT long x 11 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP7:**

**GPS 30.322910, -89.414048:**

- Sub Base, 35.506173 CY of Sand with less than 20%

passing 200 sieve, 71.9 FT long x 20 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

- Base, 26.62963 CY of 610 stone or crushed concrete, 71.9 FT long x 20 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.321057, -89.411090, Stop 30.323174, -89.414513:**

- Surface, 129.62963 CY of Double Bituminous Surface Treatment, 1,400 FT long x 20 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**2nd Street from Logan:**

**DP1:**

**GPS Start 30.323900, -89.413519:**

- Sub Base, 25.802469 CY of Sand with less than 20% passing 200 sieve, 55 FT long x 19 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 19.351852 CY of 610 stone or crushed concrete, 55 FT long x 19 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**DP2:**

**GPS Start 30.323456, -89.412759:**

- Sub Base, 1.728395 CY of Sand with less than 20% passing 200 sieve, 14 FT long x 5 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface

and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

- Base, 1.296296 CY of 610 stone or crushed concrete, 14 FT long x 5 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.324098, -89.413764, Stop 30.321980, -89.410293:**

- Surface, 117.518519 CY of Double Bituminous Surface Treatment, 1,336 FT long x 19 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Ave H:**

**DP1:**

**GPS 30.321678, -89.410518:**

- Sub Base, 0.987654 CY of 610 stone or crushed concrete, 5 FT long x 8 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 1.9753 CY of Sand with less than 20% passing 200 sieve, 16 FT long x 5 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.322137, -89.410103, Stop 30.321057, -89.411090:**

- Surface, 28.525 CY of Double Bituminous Surface Treatment, 489 FT long x 12.6 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Damage #1201014; Bay St. Louis roads (Group HWY 603)**

Hurricane Ida generated strong winds and heavy rains that caused various damage including washouts, potholes and shoulder erosion to approximately 12 roads in the Bay of St. Louis (HWY 603) group.



## General Facility Information:

- **Facility Type:** Roads (No Culverts)
- **Facility:** General community use, including school bus routes and 911 emergency service routes.
- **Facility Description:** These roads are of varying widths and lengths.
- **Approx. Year Built:** 1950
- **Location Description:** 688 Hwy 90 Bay Saint Louis MS 39520 City Hall meeting Location GPS below is also the meeting location
- **Road Type:** Double bitumen (chip & seal)
- **Width (ft):** 14
- **Number of Lanes:** 2

## General Damage Information:

- **Date Damaged:** 8/28/2021
- **Cause of Damage:** Gale-force winds and rains caused medium velocity waters over-topping a roadway pulling off surface materials. Being in a flood zone a large bulk of the roads sat underwater for several days.

## Road Damage:

### Boat Launch Service Roads:

#### GPS Start 30.327479, -89.422656, Stop 30.329087, -89.423849:

- Surface, 49.925926 CY of Double Bituminous Surface Treatment, 674 FT long x 16 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

### Elbrus:

#### GPS Start 30.324672, -89.422524, Stop 30.323903, -89.424488:

- Surface, 49.86 CY of Double Bituminous Surface Treatment, 718 FT long x 15 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

### Etna:

#### DP1:

#### GPS 30.327854, -89.425022:

- Sub Base, 1.037037 CY of Sand with less than 20% passing 200 sieve, 14 FT long x 3 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 0.777778 CY of 610 stone or crushed concrete, 14 FT long x 3 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement

mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.328771, -89.425736, Stop 30.327508, -89.424827:**

- Surface, 30.111111 CY of Double Bituminous Surface Treatment, 542 FT long x 12 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Everest:**

**GPS Start 30.326991, -89.423590, Stop 30.324167, -89.422189:**

- Surface, 95.083333 CY of Double Bituminous Surface Treatment, 1,141 FT long x 18 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Irazu:**

**DP1:**

**GPS 30.322476, -89.419386:**

- Sub Base, 0.625 CY of Double Bituminous Surface Treatment, 15 FT long x 9 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 3.333333 CY of Sand with less than 20% passing 200 sieve, 15 FT long x 9 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.321966, -89.420173, Stop 30.322936, -89.418982:**

- Surface, 39.7037 CY of Double Bituminous Surface Treatment, 536 FT long x 16 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed of, 0% work completed.

**Logan:**

**GPS Start 30.325262, -89.424901, Stop 30.326185, -89.423222 (no Damage):**

- Surface, 45.111111 CY of Double Bituminous Surface Treatment, 609 FT long x 16 IN wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Nile:**

**DP1:**

**GPS 30.316941, -89.408831:**

- Sub Base, 18.469136 CY of Sand with less than 20% passing 200 sieve, 68 FT long x 11 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 13.851852 CY of 610 stone or crushed concrete, 68 FT long x 11 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.316480, -89.408101, Stop 30.317760, -89.410180:**

- Surface, 66.666667 CY of Double Bituminous Surface Treatment, 800 FT long x 18 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Pearl:**

**DP1:**

**Gps 30.317807, -89.411445:**

- Sub Base, 2.419753 CY of Sand with less than 20% passing 200 sieve, 14 FT long x 7 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 1.814815 CY of 610 stone or crushed concrete, 14 FT long x 7 FT wide x 6 IN deep, Medium velocity water

over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.317826, -89.410303, Stop 30.317785, -89.412501:**

- Surface, 51.925926 CY of Double Bituminous Surface Treatment, 701 FT long x 16 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Rainer:**

**DP1:**

**GPS 30.326627, -89.424468:**

- Sub Base, 12.641975 CY of Sand with less than 20% passing 200 sieve, 64 FT long x 8 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 9.481481 CY of 610 stone or crushed concrete, 64 FT long x 8 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.326301, -89.425270, Stop 30.327077, -89.423287:**

- Surface, 76.111111 CY of Double Bituminous Surface Treatment, 685 FT long x 24 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Rushmore Street:**

**GPS Start 30.328777, -89.425736, Stop 30.328608, -89.426326:**

- Surface, 11.333333 CY of Double Bituminous Surface Treatment, 204 FT long x 12 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

off., 0% work completed.

## Damage #1201017; Bay St. Louis Roads (Group Central)

Hurricane Ida generated strong winds and heavy rains that caused various damage including washouts, potholes and shoulder erosion to approximately 4 roads in the Bay of St. Louis (Central) group.

### General Facility Information:

- **Facility Type:** Roads (No Culverts)
- **Facility:** General residential community use, including School bus routes & 911 emergency service routes.
- **Facility Description:** Varying road lengths and widths.
- **Approx. Year Built:** 1950
- **Location Description:** 688 Hwy 90 Bay Saint Louis MS 39520 City Hall meeting Location GPS below is also the meeting location
- **Road Type:** Double bitumen (chip & seal)
- **Width (ft):** 14
- **Number of Lanes:** 2

### General Damage Information:

- **Date Damaged:** 8/28/2021
- **Cause of Damage:** Gale-force winds and rains caused medium velocity waters over-topping a roadway pulling off surface materials. Being in a flood zone a large bulk of the roads sat underwater for several days.

### Road Damage:

#### Gull:

##### GPS Start 30.331841, -89.-89.406126, Stop 30.333843, -89.404563:

- Surface, 46.851852 CY of Double Bituminous Surface Treatment, 880 FT long x 11.5 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

#### Heron:

##### DP1:

##### GPS 30.331948, -89.405193:

- Sub Base, 2.37037 CY of Sand with less than 20% passing 200 sieve, 12 FT long x 8 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.
- Base, 1.777778 CY of 610 stone or crushed concrete, 12 FT long x 8 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from

the layers and is washed off., 0% work completed.

**DP2:**

**GPS 30.331948, -89.405193:**

- Sub Base, 0.888889 CY of Sand with less than 20% passing 200 sieve, 6 FT long x 6 FT wide x 8 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS 30.331948, -89.405193:**

- Base, 0.666667 CY of 610 stone or crushed concrete, 6 FT long x 6 FT wide x 6 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**GPS Start 30.333875, -89.403577, Stop 30.331866, -89.405209:**

- Surface, 62.083333 CY of Double Bituminous Surface Treatment, 894 FT long x 15 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

**Kingfisher:**

**GPS Start 30.331887, -89.404316, Stop 30.333813, -89.404578:**

- Surface, 63.736111 CY of Double Bituminous Surface Treatment, 917.8 FT long x 15 FT wide x 1.5 IN deep, Medium velocity water over-topped road and saturated the surface material below thus "the progressive functional deterioration of a pavement mixture by loss of adhesive bond between the bituminous and the aggregate surface and/or loss of the cohesive resistance within the bituminous principally from the action of water," generally speaking the aggregate separates from the layers and is washed off., 0% work completed.

## Final Scope

### 934311 Bay St. Louis Roads (Group Ave B)

\*\*\*\*\*GM Version 2\*\*\*\*\*

Per Amendment Request from Applicant, FEMA Management has increased the cost estimate for each Damage Inventory item as per the lowest Bid costs and added prorated Mobilization and Traffic Maintenance costs as well. For a complete breakdown of costs per individual road and line item, see the attached extract document, 'DR 4626 Bay St Louis [552697] Request to Amend Cost based on Bid - Bid extract.pdf'. HMP costs were decreased in the Bid cost

estimate and will be adjusted to align with the Amendment Request and this version.

## Work to be Completed

The applicant will utilize contract and/or force account for repairs to City of Bay St. Louis to restore this facility back to its pre-disaster design, function and capacity (in-kind) within the existing footprint.

### 10th Street Ave B:

GPS Start 30.320218, -89.396440, Stop 30.320218, -89.396859:

1. Remove and Replace 7.583333 CY of Double Bituminous Surface Treatment, 130 FT long x 12.6 FT wide x 1.5 IN deep.

### 10th Street to 15th Street Ave A:

GPS Start 30.320219, -89.393442, Stop 30.323342, -89.393460:

2. Remove and Replace 83.333333 CY of Double Bituminous Surface Treatment, 1,200 FT long x 15 FT wide x 1.5 IN deep.

### 12th Street Ave D:

GPS Start 30.321553, -89.400219, Stop 30.321585, -89.399824:

3. Remove and Replace 6.296296 CY of Double Bituminous Surface Treatment, 100 FT long x 13.6 FT wide x 1.5 IN deep.

### 13th Street Ave B:

#### DP1:

GPS 30.322116, -89.394528:

4. Remove and Replace 1.833333 CY of 610 stone or crushed concrete, 9 FT long x 11 FT wide x 6 IN deep.
5. Remove and Replace 2.444444 CY of Sand with less than 20% passing 200, 9 FT long x 11 FT wide x 8 IN deep.

GPS Start 30.322539, -89.395815, Stop 30.322156, -89.393471:

6. Remove and Replace 49.583333 CY of Double Bituminous Surface Treatment, 850 FT long x 12.6 FT wide x 1.5 IN deep.

### 14th Street Ave B:

#### DP1:

GPS 30.322754, -89.397557:

7. Remove and Replace 1.555556 CY of 610 stone or crushed concrete, 21 FT long x 4 FT wide x 6 IN deep.

#### DP2:

GPS 30.322808, -89.399375:

8. Remove and Replace 1.222222 CY of 610 stone or crushed concrete, 11 FT long x 6 FT wide x 6 IN deep.

GPS Start 30.322839, -89.396099, Stop 30.322805, -89.400249:

9. Remove and Replace 75.833333 CY of Double Bituminous Surface Treatment, 1,300 FT long x 12.6 FT wide x 1.5 IN deep.

15th Street Ave B:

GPS Start 30.323741, -89.395181, Stop 30.323471, -89.396717:

10. Remove and Replace 12.541667 CY of Double Bituminous Surface Treatment, 215 FT long x 12.6 FT wide x 1.5 IN deep.

17th Street Ave B:

GPS Start 30.324883, -89.396095, Stop 30.325088, -89.398872:

11. Remove and Replace 8.75 CY of Double Bituminous Surface Treatment, 150 FT long x 12.6 FT wide x 1.5 IN deep.

18th Street Ave B:

DP1:

GPS 30.325073, -89.397590:

12. Remove and Replace 1.814815 CY of 610 stone or crushed concrete, 14 FT long x 7 FT wide x 6 IN deep.

13. Remove and Replace 2.419753 CY of Sand with less than 20% passing 200, 14 FT long x 7 FT wide x 8 IN deep.

GPS Start 30.325402, -89.396018, Stop 30.325524, -89.399108:

14. Remove and Replace 59.208333 CY of Double Bituminous Surface Treatment, 1,015 FT long x 12.6 FT wide x 1.5 IN deep.

2nd Street to Ave A Ave B:

GPS Start 30.314805, -89.396081, Stop 30.314340, -89.393492:

15. Remove and Replace 48.416667 CY of Double Bituminous Surface Treatment, 830 FT long x 12.6 FT wide x 1.5 IN deep.

7th Street Ave B:

GPS Start 30.318190, -89.396099, Stop 30.318246, -89.397351:

16. Remove and Replace 22.75 CY of Double Bituminous Surface Treatment, 390 FT long x 12.6 FT wide x 1.5 IN deep.

8th Street Ave B:

DP1:

GPS 30.318860, -89.395133:

17. Remove and Replace 2.566667 CY of 610 stone or crushed concrete, 11 FT long x 12.6 FT wide x 6 IN deep.

18. Remove and Replace 3.422222 CY of Sand with less than 20% passing 200, 11 FT long x 12.6 FT wide x 8 IN deep.

DP2:

GPS 30.318882, -89.396534:

19. Remove and Replace 2.1 CY of 610 stone or crushed concrete, 9 FT long x 12.6 FT wide x 6 IN deep.

20. Remove and Replace 2.8 CY of Sand with less than 20% passing 200, 9 FT long x 12.6 FT wide x 8 IN deep.

GPS Start 30.318802, -89.393486, Stop 30.318905, -89.400269:

21. Remove and Replace 125.008333 CY of Double Bituminous Surface Treatment, 2,143 FT long x 12.6 FT wide x 1.5 IN



deep.

9th Street Ave B:

GPS Start 30.319413, -89.396383, Stop 30.319377, -89.396362:

22. Remove and Replace 13.416667 CY of Double Bituminous Surface Treatment, 230 FT long x 12.6 FT wide x 1.5 IN deep.

Ave A & Sixth ST to Ave B:

DP1:

GPS 30.317587, -89.395077:

23. Remove and Replace 0.166667 CY of 610 stone or crushed concrete, 3 FT long x 3 FT wide x 6 IN deep.

24. Remove and Replace 0.222222 CY of Sand with less than 20% passing 200, 3 FT long x 3 FT wide x 8 IN deep.

GPS Start 30.317548, -89.33497, Stop 30.317563, -89.396054:

25. Remove and Replace 63.466667 CY of Double Bituminous Surface Treatment, 1,088 FT long x 12.6 FT wide x 1.5 IN deep.

Ave A & 4th Street To Ave D:

DP1:

GPS 30.316004, -89.89.401101:

26. Remove and Replace 0.333333 CY of 610 stone or crushed concrete, 6 FT long x 3 FT wide x 6 IN deep.

27. Remove and Replace 0.444444 CY of Sand with less than 20% passing 200, 6 FT long x 3 FT wide x 8 IN deep.

GPS Start 30.316243, -89.393467, Stop 30.316397, -89.400384:

28. Remove and Replace 129.225833 CY of Double Bituminous Surface Treatment, 2,215.3 FT long x 12.6 FT wide x 1.5 IN deep.

Ave A to 6th Street:

DP1:

GPS 30.315849, -89.393504:

29. Remove and Replace 0.814815 CY of 610 stone or crushed concrete, 11 FT long x 4 FT wide x 6 IN deep.

GPS Start 30.314340, -89.393492, Stop 30.317487, -89.393442:

30. Remove and Replace 65.041667 CY of Double Bituminous Surface Treatment, 1,115 FT long x 12.6 FT wide x 1.5 IN deep.

Ave B & 5th Street To Ave D:

DP1:

GPS 30.316934, -89.398698:

31. Remove and Replace 2.851852 CY of 610 stone or crushed concrete, 22 FT long x 7 FT wide x 6 IN deep.

GPS 30.617557, -89.396393, Stop 30.317063, -89.396254:

32. Remove and Replace 124.075 CY of Double Bituminous Surface Treatment, 2,127 FT long x 12.6 FT wide x 1.5 IN deep.

Ave B & Sixth ST to Ave D:

GPS Start 30.617557, -89.396393, -89.396139, Stop 30.317571, -89.396492:

33. Remove and Replace 75.833333 CY of Double Bituminous Surface Treatment, 1,300 FT long x 12.6 FT wide x 1.5 IN deep.

Chapman to DeRoche Garden:

GPS Start 30.322913, -89.378365, Stop 30.321893, -89.375831:

34. Remove and Replace 59.722222 CY of Double Bituminous Surface Treatment, 860 FT long x 15 FT wide x 1.5 IN deep.

Second Street Ave C:

GPS Start 30.315207, -89.398684, Stop 30.316888, -89.401183:

35. Remove and Replace 36.75 CY of Double Bituminous Surface Treatment, 630 FT long x 12.6 FT wide x 1.5 IN deep.

Third Street Ave B to Ave A:

DP1:

GPS 30.315495, -89.395143:

36. Remove and Replace 6.333333 CY of 610 stone or crushed concrete, 38 FT long x 9 FT wide x 6 IN deep.

37. Remove and Replace 8.444444 CY of Sand with less than 20% passing 200, 38 FT long x 9 FT wide x 8 IN deep.

GPS Start 30.314854, -89.396063, Stop 30.315541, -89.393526:

38. Remove and Replace 47.541667 CY of Double Bituminous Surface Treatment, 815 FT long x 12.6 FT wide x 1.5 IN deep.

Third Street Ave B to Ave C:

GPS Start 30.615552, -89.397145, Stop 30.315371, -89.395978:

39. Remove and Replace 20.462963 CY of Double Bituminous Surface Treatment, 340 FT long x 13 FT wide x 1.5 IN deep.

**Work to be Completed Total: \$303,533.43**

|  |
|--|
|  |
|--|

**Project Notes:**

1. All site estimates for work to be completed were generated by the FEMA CRC using RSMeans, 2022, 2<sup>nd</sup> Quarter, Biloxi, MS. See attachment labeled "552697 - DR4626 - FEMA Cost Estimate.xlsx".
2. All procurement documents have been provided and reviewed. See attachment "Mississippi State Procurement Manual".
3. Applicant will comply with its local, state, federal procurement laws, regulations and procedures.
4. All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow

sources utilized is required at closeout.

5. **Equipment:** When an individual item of equipment is no longer needed for federally funded programs or projects, non-state Applicants must follow the requirements of 2 CFR § 200.313(c)-(e) stipulating that, when an individual item of equipment is no longer needed for this project and/or other federally funded programs or projects, Applicants must calculate the item's current fair market value (FMV). If the per-unit FMV is \$5,000 or more, FEMA will reduce eligible funding by the FMV. The Applicant must demonstrate compliance with the disposition requirements of 2 CFR 200.313 at closeout.

6. **Supplies:** When supplies are no longer needed for federally funded programs or projects, all Applicants, including State and Territorial government Applicants, must calculate the current fair market value of any unused residual supplies (including materials) that FEMA funded for any of its projects and determine the aggregate total. The Applicant must provide the current fair market value if the aggregate total of unused residual supplies is greater than \$5,000. FEMA reduces eligible funding by this amount.<sup>144</sup> If the aggregate total of unused residual supplies is less than \$5,000, FEMA does not reduce the eligible funding.

## 406 HMP Scope

\*\*\*GM Version 2\*\*\*

Per Applicant version request, Bid cost documents submitted with the following HMP scope and cost:

934311 Hazard Mitigation - Placement of Geogrid 27,236.00 SY \$6.00 \$163,416.00  
HMP C/B % =  $(\$163,416.00 / \$781,532.46) \times 100 = 20.91\% \leq 100\%$

### Hazard Mitigation Proposal (HMP):

GM Project # 552697

DR4626- MS

GM Damage Inventory #: 934311

Site Name & Address: Bay St. Louis Roads/688 Hwy 90 Bay Saint Louis, MS 39520

GPS Lat / Lon: 30.31706, -89.34446 (various site locations)

HMP writer Name and Title: Roshan Karna, Civil Engineer & Tamika Ali-Yerima, HM 406 Specialist

HMP Date: May 27, 2022, Revised on September 30, 2022

\*\*\*\*\*

Work to be Completed

#### (I) Damage Description & Dimensions (DDD):

Due to the storm event from Hurricane Ida within August 28 to September 1, 2022, heavy storm wind and rain caused damages to approximately 20 road sections at various locations within City of Bay St. Louis such as road washouts, potholes, and shoulder erosion. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections.

**Total repair cost of damaged elements being protected by the HMP at this DI = \$303,533.43**

**(II) Hazard Mitigation Proposal (HMP) Scope of Work:**

Mitigation consists of using 25,272 SY of geogrid between the pavement section (chip seal) and subbase to strengthen subgrade. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections where geogrid will be placed.

Cost provided by the Applicant,

|                           |                        |                     |
|---------------------------|------------------------|---------------------|
| Installation of geogrid = | 25,272 SY @\$7.50/SY = | <u>\$189,542.98</u> |
|                           | Total =                | \$189,542.98        |

**Total Mitigation Costs for this DI = \$189,542.98**

**(III) Hazard Mitigation Proposal (HMP) Cost:**

A. Gross cost(s) of Mitigation if the HMP is Approved = \$189,542.98

B. Less cost(s) of Items not needed if the HMP is Approved = \$0

**C. Net Hazard Mitigation cost(s): A – B = \$189,542.98**

**(IV) Cost Effectiveness Calculation:**

HMP Cost/Benefit % = (Net Hazard Mitigation Cost /Total like and in-kind repair cost) X 100

**HMP C/B % = (\$189,542.98/\$303,533.43) x 100 = 62.45% ≤ 100%**

**(V) HMP Cost-Effectiveness:**

The Hazard Mitigation Proposal for this single DI #934311 is \$189,542.98 and is 62.45% of the repair and restoration costs being protected. In accordance with FEMA Public Assistance Program and Policy Guide (PAPPG) V4.0 June 2020, Chapter 8, IV Section A and Appendix J. Section I. B, this mitigation measure does not exceed 100 percent of the eligible repair cost and is considered to be cost-effective.

**(VI) Compliances and Assurances:**

This HMP is for estimating purposes only. If the site's final placement and configuration are different than the preliminary estimate,

the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

The Applicant is responsible for final design, placement, configuration, choice of contractors or vendors, permits and compliance with all regulatory codes and standards of the State of Mississippi. FEMA will pay only the incremental difference in cost between repairs and mitigation and will not duplicate funding for repair or replacement of eligible work.

Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws, regulations, and executive orders applicable to the sites.

#### HMP Notes:

1. The mitigation proposal cost estimate was generated using cost estimate provided by the applicant. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections where geogrid will be placed.

### **1201007 Bay St louis Roads (Group Road 556 & 558)**

\*\*\*\*\*GM Version 2\*\*\*\*\*

Per Amendment Request from Applicant, FEMA Management has increased the cost estimate for each Damage Inventory item as per the lowest Bid costs and added prorated Mobilization and Traffic Maintenance costs as well. For a complete breakdown of costs per individual road and line item, see the attached extract document, 'DR 4626 Bay St Louis [552697] Request to Amend Cost based on Bid - Bid extract.pdf'. HMP costs were decreased in the Bid cost estimate and will be adjusted to align with the Amendment Request and this version.

#### **Work to be Completed**

The applicant will utilize contract and/or force account for repairs to City of Bay St. Louis to restore this facility back to its pre-disaster design, function and capacity (in-kind) within the existing footprint.

##### 12th Street 556 to Ave A:

GPS Start 30.321426, -89.392394, Stop 30.321499, -89.393383:

1. Remove and Replace 21.666667 CY of Double Bituminous Surface Treatment, 360 FT long x 13 FT wide x 1.5 IN deep.

##### 12th Street 558 to East End (dead end):

GPS Start 30.321520, -89.389919, Stop 30.321460, -89.388914:

2. Remove and Replace 21.546296 CY of Double Bituminous Surface Treatment, 358 FT long x 13 FT wide x 1.5 IN deep.

##### 13th Street Dead End to 556:

DP1:

GPS 30.322145, -89.389938:

3. Remove and Replace 3.177778 CY of 610 stone or crushed concrete, 26 FT long x 6.6 FT wide x 6 IN deep.

4. Remove and Replace 4.237037 CY of Sand with less than 20% passing 200 sieve, 26 FT long x 6.6 FT wide x 8 IN deep.

GPS Start 30.322131, -89.387670, Stop 30.322181, -89.392286:

5. Remove and Replace 88.351852 CY of Double Bituminous Surface Treatment, 1,468 FT long x 13 FT wide x 1.5 IN deep.

14th Street 556 to Dead End:

DP1:

GPS 30.322842, -89.391816:

6. Remove and Replace 4.888889 CY of 610 stone or crushed concrete, 33 FT long x 8 FT wide x 6 IN deep.

7. Remove and Replace 6.518519 CY of Sand with less than 20% passing 200 sieve, 33 FT long x 8 FT wide x 8 IN deep.

DP2:

GPS 30.322787, -89.391407:

8. Remove and Replace 10.37037 CY of 610 stone or crushed concrete, 40 FT long x 14 FT wide x 6 IN deep.

9. Remove and Replace 13.82716 CY of Sand with less than 20% passing 200 sieve, 40 FT long x 14 FT wide x 8 IN deep.

DP3:

GPS 30.3228880, -89.390564:

10. Remove and Replace 9.814815 CY of 610 stone or crushed concrete, 53 FT long x 10 FT wide x 6 IN deep.

11. Remove and Replace 13.08642 CY of Sand with less than 20% passing 200 sieve, 53 FT long x 10 FT wide x 8 IN deep.

DP4:

GPS 30.322845, -89.390199:

12. Remove and Replace 7.777778 CY of 610 stone or crushed concrete, 42 FT long x 10 FT wide x 6 IN deep.

13. Remove and Replace 10.37037 CY of Sand with less than 20% passing 200 sieve, 42 FT long x 10 FT wide x 8 IN deep.

GPS Start 30.322865, -89.382245, Stop 30.322757, -89.390017:

14. Remove and Replace 49.930556 CY of Double Bituminous Surface Treatment, 719 FT long x 15 FT wide x 1.5 IN deep.

15th Street 558 to Jordan River Drive:

GPS Start 30.323473, -89.389906, Stop 30.323433, -89.388034:

15. Remove and Replace 59.944444 CY of Double Bituminous Surface Treatment, 830 FT long x 15.6 FT wide x 1.5 IN deep.

2nd Street 556 to 560:

DP1:

GPS 30.314588, -89.391165:

16. Remove and Replace 1.944444 CY of 610 stone or crushed concrete, 15 FT long x 7 FT wide x 6 IN deep.

17. Remove and Replace 2.592593 CY of Sand with less than 20% passing 200 sieve, 15 FT long x 7 FT wide x 8 IN deep.

DP2:

GPS 30.314346, -89.390018:

18. Remove and Replace 0.37037 CY of 610 stone or crushed concrete, 5 FT long x 4 FT wide x 6 IN deep.

19. Remove and Replace 0.493827 CY of Sand with less than 20% passing 200 sieve, 5 FT long x 4 FT wide x 8 IN deep.

DP3:

GPS 30.314165, -89.388884:

20. Remove and Replace 1.833333 CY of 610 stone or crushed concrete, 11 FT long x 9 FT wide x 6 IN deep.

21. Remove and Replace 2.444444 CY of Sand with less than 20% passing 200 sieve, 11 FT long x 9 FT wide x 8 IN deep.

GPS Start 30.314723, -89.392286, Stop 30.314133, -89.388331:

22. Remove and Replace 75.351852 CY of Double Bituminous Surface Treatment, 1,252 FT long x 13 FT wide x 1.5 IN deep.

3rd Street 560 to 556:

DP1:

GPS 30.315078, -89.390066:

23. Remove and Replace 0.444444 CY of 610 stone or crushed concrete, 8 FT long x 3 FT wide x 6 IN deep.

24. Remove and Replace 0.592593 CY of Sand with less than 20% passing 200 sieve, 8 FT long x 3 FT wide x 8 IN deep.

GPS Start 30.314819, -89.388392, Stop 30.315450, -89.392352:

25. Remove and Replace 77.037037 CY of Double Bituminous Surface Treatment, 1,280 FT long x 13 FT wide x 1.5 IN deep.

4th Street 556 to 560:

DP1:

GPS 30.315788, -89.390764:

26. Remove and Replace 1.555556 CY of 610 stone or crushed concrete, 14 FT long x 6 FT wide x 6 IN deep.

27. Remove and Replace 2.074074 CY of Sand with less than 20% passing 200 sieve, 14 FT long x 6 FT wide x 8 IN deep.

DP2:

GPS 30.315814, -89.390772:

28. Remove and Replace 0.740741 CY of 610 stone or crushed concrete, 8 FT long x 5 FT wide x 6 IN deep.

29. Remove and Replace 0.987654 CY of Sand with less than 20% passing 200 sieve, 8 FT long x 5 FT wide x 8 IN deep.

GPS Start 30.316015, -89.392349, Stop 30.315729, -89.390055:

30. Remove and Replace 44.236111 CY of Double Bituminous Surface Treatment, 735 FT long x 13 FT wide x 1.5 IN deep.

558 Street 14th to 15th:

DP1:

GPS 30.315694, -89.390122:

31. Remove and Replace 8.555556 CY of 610 stone or crushed concrete, 42 FT long x 11 FT wide x 6 IN deep.

32. Remove and Replace 11.407407 CY of Sand with less than 20% passing 200 sieve, 42 FT long x 11 FT wide x 8 IN deep.

GPS Start 30.322736, -89.389949, Stop 30.323271, -89.389971:

33. Remove and Replace 17.62963 CY of Double Bituminous Surface Treatment, 238 FT long x 16 FT wide x 1.5 IN deep.

558 Street 1st to 10th:

DP1:

GPS 30.314168, -89.390063:

34. Remove and Replace 23.703704 CY of 610 stone or crushed concrete, 160 FT long x 8 FT wide x 6 IN deep.

35. Remove and Replace 31.604938 CY of Sand with less than 20% passing 200 sieve, 160 FT long x 8 FT wide x 8 IN deep.

DP2:

GPS 30.319457, -89.389962:

36. Remove and Replace 6 CY of 610 stone or crushed concrete, 27 FT long x 12 FT wide x 6 IN deep.

37. Remove and Replace 8 CY of Sand with less than 20% passing 200 sieve, 27 FT long x 12 FT wide x 8 IN deep.

GPS Start 30.313752, -89.390031, Stop 30.320125, -89.389963:

38. Remove and Replace 162.15463 CY of Double Bituminous Surface Treatment, 2,399 FT long x 14.6 FT wide x 1.5 IN deep.

8th Street 560 to 556:

DP1:

GPS 30.318885, -89.391037:

39. Remove and Replace 1.166667 CY of 610 stone or crushed concrete, 9 FT long x 7 FT wide x 6 IN deep.

40. Remove and Replace 1.555556 CY of Sand with less than 20% passing 200 sieve, 9 FT long x 7 FT wide x 8 IN deep.

DP2:

GPS 30.318961, -89.392042:

41. Remove and Replace 0.844444 CY of 610 stone or crushed concrete, 6 FT long x 7.6 FT wide x 6 IN deep.

42. Remove and Replace 1.125926 CY of Sand with less than 20% passing 200 sieve, 6 FT long x 7.6 FT wide x 8 IN deep.

GPS Start 30.31875, -89.390017, Stop 30.318891, -89.392242:

43. Remove and Replace 43.935185 CY of Double Bituminous Surface Treatment, 730 FT long x 13 FT wide x 1.5 IN deep.

|  |
|--|
|  |
|--|

**Work to be Completed Total: \$227,082.10**

**Scope Notes:**



1. Damage date was originally incorrectly entered for DI #1201007 in DDD. Correct Damage Dates between 8/28/2021 and 9/1/2021.

## 406 HMP Scope

\*\*\*GM Version 2\*\*\*

Per Applicant version request, Bid cost documents submitted with the following HMP scope and cost:

1201007 Hazard Mitigation - Placement of Geogrid 15,883.00 SY \$6.00 \$95,298.00

HMP C/B % =  $(\$95,298.00 / \$510,145.28) \times 100 = 18.68\% \leq 100\%$

### Hazard Mitigation Proposal (HMP):

GM Project # 552697

DR-4626- MS

GM Damage Inventory #: 1201007

Site Name & Address: Bay St. Louis Roads/688 Hwy 90 Bay Saint Louis, MS 39520

GPS Lat / Lon: 30.321426, -89.392394 (various site locations)

HMP writer Name and Title: Roshan Karna, Civil Engineer & Tamika Ali-Yerima/ HM 406 Specialist

HMP Date: May 27, 2022; Revised on September 30, 2022

\*\*\*\*\*

Work to be Completed

#### (I) Damage Description & Dimensions (DDD):

Due to the storm event from Hurricane Ida within August 28 to September 1, 2002, heavy storm wind and rain caused damages to approximately 10 road sections at various locations within City of Bay St. Louis such as road washouts, potholes, and shoulder erosion. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections.

Total repair cost of damaged elements being protected by the HMP at this DI = \$227,082.10

#### (II) Hazard Mitigation Proposal (HMP) Scope of Work:

Mitigation consists of using 15,883 SY of geogrid between the pavement section (chip seal) and subbase to strengthen subgrade.

See document with filename “HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of” for GPS coordinates of each damaged road sections where geogrid will be placed.

Cost provided by the Applicant,

|                           |                        |                     |
|---------------------------|------------------------|---------------------|
| Installation of geogrid = | 15,883 SY @\$7.50/SY = | <u>\$119,121.17</u> |
|                           | Total =                | \$119,121.17        |

**Total Mitigation Costs for this DI = \$119,121.17**

**(III) Hazard Mitigation Proposal (HMP) Cost:**

|                                                              |              |
|--------------------------------------------------------------|--------------|
| A. Gross cost(s) of Mitigation if the HMP is Approved =      | \$119,121.17 |
| B. Less cost(s) of Items not needed if the HMP is Approved = | \$0          |

**C. Net Hazard Mitigation cost(s): A – B = \$119,121.17**

**(IV) Cost Effectiveness Calculation:**

HMP Cost/Benefit % = (Net Hazard Mitigation Cost /Total like and in-kind repair cost) X 100

**HMP C/B % = (\$119,121.17/\$227,082.10) x 100 = 52.46% ≤ 100%**

**(V) HMP Cost-Effectiveness:**

The Hazard Mitigation Proposal for this single DI #1201007 is \$119,121.17 and is 52.46% of the repair and restoration costs being protected. In accordance with FEMA Public Assistance Program and Policy Guide (PAPPG) V4.0 June 2020, Chapter 8, IV Section A and Appendix J. Section I. B, this mitigation measure does not exceed 100 percent of the eligible repair cost and is considered to be cost-effective.

**(VI) Compliances and Assurances:**

This HMP is for estimating purposes only. If the site's final placement and configuration are different than the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

The Applicant is responsible for final design, placement, configuration, choice of contractors or vendors, permits and compliance with all regulatory codes and standards of the State of Mississippi. FEMA will pay only the incremental difference in cost between repairs and mitigation and will not duplicate funding for repair or replacement of eligible work.

Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws,

regulations, and executive orders applicable to the sites.

#### HMP Notes:

1. The mitigation proposal cost estimate was generated using cost estimate provided by the applicant. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections where geogrid will be placed.

### 1201009 Bay St. Louis Roads (Group Garden Isle)

\*\*\*\*\*GM Version 2\*\*\*\*\*

Per Amendment Request from Applicant, FEMA Management has increased the cost estimate for each Damage Inventory item as per the lowest Bid costs and added prorated Mobilization and Traffic Maintenance costs as well. For a complete breakdown of costs per individual road and line item, see the attached extract document, 'DR 4626 Bay St Louis [552697] Request to Amend Cost based on Bid - Bid extract.pdf'. HMP costs were decreased in the Bid cost estimate and will be adjusted to align with the Amendment Request and this version.

#### Work to be Completed

The applicant will utilize contract and/or force account for repairs to City of Bay St. Louis to restore this facility back to its pre-disaster design, function and capacity (in-kind) within the existing footprint.

##### Road Damage:

##### Beverly to DeRoach:

GPS Start 30.321684, -89.378953, Stop 30.320534, -89.375797:

1. Remove and Replace 71.296296 CY of Double Bituminous Surface Treatment, 1,100 FT long x 14 FT wide x 1.5 IN deep.

##### Chapman to DeRoche Garden:

GPS Start 30.322913, -89.378365, Stop 30.321893, -89.375831:

2. Remove and Replace 59.7222 CY of Double Bituminous Surface Treatment, 860 FT long x 15 FT wide x 1.5 IN deep.

##### Clara Street Chapman to House:

##### DP1:

GPS 30.3229777, -89.379942:

3. Remove and Replace 0.333333 CY of 610 stone or crushed concrete, 9 FT long x 2 FT wide x 6 IN deep.

4. Remove and Replace 0.444444 CY of Sand with less than 20% passing 200 sieve, 9 FT long x 2 FT wide x 8 IN deep.

##### DP2:

GPS 30.322836, -89.380153:

5. Remove and Replace 0.055556 CY of 610 stone or crushed concrete, 3 FT long x 1 FT wide x 6 IN deep.

6. Remove and Replace 0.074074 CY of Sand with less than 20% passing 200 sieve, 3 FT long x 1 FT wide x 8 IN deep.

GPS Start 30.3223251, -89.378760, Stop 30.323288, -89.381047:

7. Remove and Replace 53.925926 CY of Double Bituminous Surface Treatment, 832 FT long x 14 FT wide x 1.5 IN deep.

Clara Street DeRoach to Chapman:

DP1:

GPS 30.321561, -89.326920:

8. Remove and Replace 0.222222 CY of 610 stone or crushed concrete, 6 FT long x 2 FT wide x 6 IN deep.

9. Remove and Replace 0.296296 CY of Sand with less than 20% passing 200 sieve, 6 FT long x 2 FT wide x 8 IN deep.

DP2:

GPS 30.321629, -89.322035:

10. Remove and Replace 3.111111 CY of 610 stone or crushed concrete, 21 FT long x 8 FT wide x 6 IN deep.

11. Remove and Replace 4.148148 CY of Sand with less than 20% passing 200 sieve, 21 FT long x 8 FT wide x 8 IN deep.

DP3:

GPS 30.322181, -89.378367:

12. Remove and Replace 1 CY of 610 stone or crushed concrete, 18 FT long x 3 FT wide x 6 IN deep.

13. Remove and Replace 1.333333 CY of Sand with less than 20% passing 200 sieve, 18 FT long x 3 FT wide x 8 IN deep.

DP4:

GPS 30.322312, -89.378596:

14. Remove and Replace 0.814815 CY of 610 stone or crushed concrete, 11 FT long x 4 FT wide x 6 IN deep.

15. Remove and Replace 1.08642 CY of Sand with less than 20% passing 200 sieve, 11 FT long x 4 FT wide x 8 IN deep.

GPS Start 30.321227, -89.375829, Stop 30.32291, -89.378719:

16. Remove and Replace 64.555556 CY of Double Bituminous Surface Treatment, 996 FT long x 14 FT wide x 1.5 IN deep.

Daffodil Drive Chapman to Primrose:

DP1:

GPS 30.323542, -89.375749:

17. Remove and Replace 3 CY of 610 stone or crushed concrete, 54 FT long x 3 FT wide x 6 IN deep.

18. Remove and Replace 4 CY of Sand with less than 20% passing 200 sieve, 54 FT long x 3 FT wide x 8 IN deep.

DP2:

GPS 30.322683, -89.375538:

19. Remove and Replace 0.844444 CY of 610 stone or crushed concrete, 6 FT long x 7.6 FT wide x 6 IN deep.

20. Remove and Replace 1.125926 CY of Sand with less than 20% passing 200 sieve, 6 FT long x 7.6 FT wide x 8 IN deep.

Dafodil Drive Chapman to Primrose:

GPS Start 30.323542, -89.378083, Stop 30.322445, -89.375273:

21. Remove and Replace 70.075926 CY of Double Bituminous Surface Treatment, 958 FT long x 15.8 FT wide x 1.5 IN

deep.

Lilac from Chapman:

DP1:

GPS Start 30.324403, -89.376653 End 30.324254, -89.376250:

22. Remove and Replace 14.555556 CY of 610 stone or crushed concrete, 131 FT long x 6 FT wide x 6 IN deep.

23. Remove and Replace 19.407407 CY of Sand with less than 20% passing 200 sieve, 131 FT long x 6 FT wide x 8 IN deep.

DP2:

GPS Start 30.324142, -89.375967:

24. Remove and Replace 8.148148 CY of 610 stone or crushed concrete, 40 FT long x 11 FT wide x 6 IN deep.

25. Remove and Replace 10.864198 CY of Sand with less than 20% passing 200 sieve, 40 FT long x 11 FT wide x 8 IN deep.

DP3:

GPS 30.323793, -89.374701:

26. Remove and Replace 57.037037 CY of 610 stone or crushed concrete, 280 FT long x 11 FT wide x 6 IN deep.

27. Remove and Replace 76.049383 CY of Sand with less than 20% passing 200 sieve, 280 FT long x 11 FT wide x 8 IN deep.

DP4:

GPS 30.324684, -89.377072:

28. Remove and Replace 2.444444 CY of 610 stone or crushed concrete, 22 FT long x 6 FT wide x 6 IN deep.

29. Remove and Replace 3.259259 CY of Sand with less than 20% passing 200 sieve, 22 FT long x 6 FT wide x 8 IN deep.

DP5:

GPS 30.324361, -89.376064:

30. Remove and Replace 5.166667 CY of 610 stone or crushed concrete, 31 FT long x 9 FT wide x 6 IN deep.

31. Remove and Replace 6.888889 CY of Sand with less than 20% passing 200 sieve, 31 FT long x 9 FT wide x 8 IN deep.

DP6:

GPS 30.324321, -89.376238:

32. Remove and Replace 3.62963 CY of 610 stone or crushed concrete, 28 FT long x 7 FT wide x 6 IN deep.

33. Remove and Replace 4.839506 CY of Sand with less than 20% passing 200 sieve, 28 FT long x 7 FT wide x 8 IN deep.

GPS Start 30.329726, -89.378111, Stop 30.324014, -89.375511:

34. Remove and Replace 56.064815 CY of Double Bituminous Surface Treatmeant, 865 FT long x 14 FT wide x 1.5 IN deep.

Marigold Primrose to Chapman:

DP1:

GPS 30.323523, -89.89.376529:

35. Remove and Replace 9.338889 CY of 610 stone or crushed concrete, 41 FT long x 12.3 FT wide x 6 IN deep.

36. Remove and Replace 12.451852 CY of Sand with less than 20% passing 200 sieve, 41 FT long x 12.3 FT wide x 8 IN deep.

GPS Start 30.323078, -89.375046, Stop 30.323990, -89.377845:

37. Remove and Replace 80.083333 CY of Double Bituminous Surface Treatment, 961 FT long x 18 FT wide x 1.5 IN deep.

|  |
|--|
|  |
|--|

**Work to be Completed Total: \$140,820.95**

## **406 HMP Scope**

\*\*\*GM Version 2\*\*\*

Per Applicant version request, Bid cost documents submitted with the following HMP scope and cost:

**1201009 Hazard Mitigation - Placement of Geogrid 10,938.00 SY \$6.00 \$65,628.00**

**HMP C/B % = (\$65,628.00/\$390,866.16) x 100 = 16.79% ≤ 100%**

## **Hazard Mitigation Proposal (HMP):**

**GM Project #: 552697**

**DR-4626- MS**

**GM Damage Inventory # 1201009**

**Site Name & Address: Bay St. Louis Roads/688 Hwy 90 Bay Saint Louis, MS 39520**

**GPS Lat / Lon: 30.321227, -89.375829 (various site locations)**

**HMP writer Name and Title: Roshan Karna, Civil Engineer & Tamika Ali-Yerima, HM 406 Specialist**

**HMP Date: May 27, 2022, Revised on September 30, 2022**

\*\*\*\*\*

**Work to be Completed**

### **(I) Damage Description & Dimensions (DDD):**

Due to the storm event from Hurricane Ida within August 28 to September 1, 2002, heavy storm wind and rain caused damages to approximately 6 road sections at various locations within City of Bay St. Louis such as road washouts, potholes, and shoulder

erosion. See document with filename “HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of” for GPS coordinates of each damaged road sections.

**Total repair cost of damaged elements being protected by the HMP at this DI = \$140,820.95**

**(II) Hazard Mitigation Proposal (HMP) Scope of Work:**

Mitigation consists of using 8,959 SY of geogrid between the pavement section (chip seal) and subbase to strengthen subgrade. See document with filename “HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of” for GPS coordinates of each damaged road sections where geogrid will be placed.

Cost provided by the Applicant,

|                           |                       |                    |
|---------------------------|-----------------------|--------------------|
| Installation of geogrid = | 8,959 SY @\$7.50/SY = | <u>\$67,196.00</u> |
|                           | Total =               | \$67,196.00        |

**Total Mitigation Costs for this DI = \$67,196.00**

**(III) Hazard Mitigation Proposal (HMP) Cost:**

A. Gross cost(s) of Mitigation if the HMP is Approved = \$67,196.00

B. Less cost(s) of Items not needed if the HMP is Approved = \$0

**C. Net Hazard Mitigation cost(s): A – B = \$67,196.00**

**(IV) Cost Effectiveness Calculation:**

HMP Cost/Benefit % = (Net Hazard Mitigation Cost /Total like and in-kind repair cost) X 100

**HMP C/B % = (\$67,196.00/\$140,820.95) x 100 = 47.72% ≤ 100%**

**(V) HMP Cost-Effectiveness:**

The Hazard Mitigation Proposal for this single DI #1201009 is \$67,196.00 and is 47.72% of the repair and restoration costs being protected. In accordance with FEMA Public Assistance Program and Policy Guide (PAPPG) V4.0 June 2020, Chapter 8, IV Section A and Appendix J. Section I. B, this mitigation measure does not exceed 100 percent of the eligible repair cost and is considered to be cost-effective.

**(VI) Compliances and Assurances:**

This HMP is for estimating purposes only. If the site's final placement and configuration are different than the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

The Applicant is responsible for final design, placement, configuration, choice of contractors or vendors, permits and compliance with all regulatory codes and standards of the State of Mississippi. FEMA will pay only the incremental difference in cost between repairs and mitigation and will not duplicate funding for repair or replacement of eligible work.

Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws, regulations, and executive orders applicable to the sites.

#### HMP Notes:

1. The mitigation proposal cost estimate was generated using cost estimate provided by the applicant. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections where geogrid will be placed.

### **1201012 Bay St. Louis Roads (Group Lagan)**

\*\*\*\*\*GM Version 2\*\*\*\*\*

Per Amendment Request from Applicant, FEMA Management has increased the cost estimate for each Damage Inventory item as per the lowest Bid costs and added prorated Mobilization and Traffic Maintenance costs as well. For a complete breakdown of costs per individual road and line item, see the attached extract document, 'DR 4626 Bay St Louis [552697] Request to Amend Cost based on Bid - Bid extract.pdf'. HMP costs were decreased in the Bid cost estimate and will be adjusted to align with the Amendment Request and this version.

#### **Work to be Completed**

The applicant will utilize contract and/or force account for repairs to City of Bay St. Louis to restore this facility back to its pre-disaster design, function and capacity (in-kind) within the existing footprint.

##### 1st Street (Lagan to End):

##### DP1:

##### GPS 30.323647, -89.415307:

1. Remove and Replace 2.592593 CY of Sand with less than 20% passing 200 sieve, 17.5 FT long x 8 FT wide x 6 IN deep.
2. Remove and Replace 3.45679 CY of 610 stone or crushed concrete, 17.5 FT long x 8 FT wide x 8 IN deep.

##### DP2:

##### GPS 30.323787, -89.415511:

3. Remove and Replace 4.074074 CY of Sand with less than 20% passing 200 sieve, 27.5 FT long x 8 FT wide x 6 IN deep.
4. Remove and Replace 5.432099 CY of 610 stone or crushed concrete, 27.5 FT long x 8 FT wide x 8 IN deep.



DP3:

GPS 30.323847, -89.415595:

5. Remove and Replace 1.762963 CY of Sand with less than 20% passing 200 sieve, 11.9 FT long x 8 FT wide x 6 IN deep.
6. Remove and Replace 2.350617 CY of 610 stone or crushed concrete, 11.9 FT long x 8 FT wide x 8 IN deep.

DP4:

GPS 30.324001, -89.415885:

7. Remove and Replace 44 CY of Sand with less than 20% passing 200 sieve, 118.8 FT long x 20 FT wide x 6 IN deep.
8. Remove and Replace 58.666667 CY of 610 stone or crushed concrete, 118.8 FT long x 20 FT wide x 8 IN deep.

DP5:

GPS 30.324491, -89.416664:

9. Remove and Replace 18.777778 CY of Sand with less than 20% passing 200 sieve, 50.7 FT long x 20 FT wide x 6 IN deep.
10. Remove and Replace 25.037037 CY of 610 stone or crushed concrete, 50.7 FT long x 20 FT wide x 8 IN deep.

GPS Start 30.323233, -89.414584, Stop 30.324584, -89.416803:

11. Remove and Replace 83.185185 CY of Double Bituminous Surface Treatment, 898.4 FT long x 20 FT wide x 1.5 IN deep.

1st Street to Ave H:

DP1:

GPS 30.321355, -89.411517:

12. Remove and Replace 2.814815 CY of 610 stone or crushed concrete, 30.4 FT long x 5 FT wide x 6 IN deep.
13. Remove and Replace 3.753086 CY of Sand with less than 20% passing 200 sieve, 30.4 FT long x 5 FT wide x 8 IN deep.

DP2:

GPS 30.321970, -89.412486:

14. Remove and Replace 1 CY of 610 stone or crushed concrete, 9 FT long x 6 FT wide x 6 IN deep.
15. Remove and Replace 1.333333 CY of Sand with less than 20% passing 200 sieve, 9 FT long x 6 FT wide x 8 IN deep.

DP3:

GPS 30.322046, -89.412759:

16. Remove and Replace 1.333333 CY of 610 stone or crushed concrete, 6 FT long x 12 FT wide x 6 IN deep.
17. Remove and Replace 1.777778 CY of Sand with less than 20% passing 200 sieve, 6 FT long x 12 FT wide x 8 IN deep.

DP4:

GPS 30.322231, -89.412918:

18. Remove and Replace 8.118519 CY of 610 stone or crushed concrete, 8 FT long x 54.8 FT wide x 6 IN deep.
19. Remove and Replace 10.824691 CY of Sand with less than 20% passing 200 sieve, 8 FT long x 54.8 FT wide x 8 IN

deep.

DP5:

GPS 30.322467, -89.413306:

20. Remove and Replace 1.481481 CY of 610 stone or crushed concrete, 10 FT long x 8 FT wide x 6 IN deep.

21. Remove and Replace 1.975309 CY of Sand with less than 20% passing 200 sieve, 10 FT long x 8 FT wide x 8 IN deep.

DP6:

GPS 30.322666, -89.413710:

22. Remove and Replace 14.748148 CY of 610 stone or crushed concrete, 72.4 FT long x 11 FT wide x 6 IN deep.

23. Remove and Replace 19.664198 CY of Sand with less than 20% passing 200 sieve, 72.4 FT long x 11 FT wide x 8 IN deep.

DP7:

GPS 30.322910, -89.414048:

24. Remove and Replace 26.62963 CY of 610 stone or crushed concrete, 71.9 FT long x 20 FT wide x 6 IN deep.

25. Remove and Replace 35.506173 CY of Sand with less than 20% passing 200 sieve, 71.9 FT long x 20 FT wide x 8 IN deep.

GPS Start 30.321057, -89.411090, Stop 30.323174, -89.414513:

26. Remove and Replace 129.62963 CY of Double Bituminous Surface Treatment, 1,400 FT long x 20 FT wide x 1.5 IN deep.

2nd Street from Logan:

DP1:

GPS Start 30.323900, -89.413519:

27. Remove and Replace 19.351852 CY of 610 stone or crushed concrete, 55 FT long x 19 FT wide x 6 IN deep.

28. Remove and Replace 25.802469 CY of Sand with less than 20% passing 200 sieve, 55 FT long x 19 FT wide x 8 IN deep.

DP2:

GPS Start 30.323456, -89.412759:

29. Remove and Replace 1.296296 CY of 610 stone or crushed concrete, 14 FT long x 5 FT wide x 6 IN deep.

30. Remove and Replace 1.728395 CY of Sand with less than 20% passing 200 sieve, 14 FT long x 5 FT wide x 8 IN deep.

GPS Start 30.324098, -89.413764, Stop 30.321980, -89.410293:

31. Remove and Replace 117.518519 CY of Double Bituminous Surface Treatment, 1,336 FT long x 19 FT wide x 1.5 IN deep.

Ave H:

DP1:

GPS 30.321678, -89.410518:

32. Remove and Replace 1.9753 CY of Sand with less than 20% passing 200 sieve, 16 FT long x 5 FT wide x 8 IN deep.

33. Remove and Replace 0.987654 CY of 610 stone or crushed concrete, 5 FT long x 8 FT wide x 8 IN deep.

GPS Start 30.322137, -89.410103, Stop 30.321057, -89.411090:

34. Remove and Replace 28.525 CY of Double Bituminous Surface Treatment, 489 FT long x 12.6 FT wide x 1.5 IN deep.

**Work to be Completed Total:\$119,773.56**

|  |
|--|
|  |
|--|

## **406 HMP Scope**

\*\*\*GM Version 2\*\*\*

Per Applicant version request, Bid cost documents submitted with the following HMP scope and cost:

1201012 Hazard Mitigation - Placement of Geogrid 8,613.00 SY \$6.00 \$51,678.00

HMP C/B % =  $(\$51,678.00 / \$371,822.32) \times 100 = 13.90\% \leq 100\%$

## **Hazard Mitigation Proposal (HMP):**

**GM Project # 552697**

**DR-4626- MS**

**GM Damage Inventory #: 1201012**

**Site Name & Address: Bay St. Louis Roads/688 Hwy 90 Bay Saint Louis, MS 39520**

**GPS Lat / Lon: 30.321057, -89.411090 (various site locations)**

**HMP writer Name and Title: Roshan Karna, Civil Engineer & Tamika Ali-Yerima, HM 406 Specialist**

**HMP Date: May 27, 2022, Revised on September 30, 2022**

\*\*\*\*\*

Work to be Completed

### **(I) Damage Description & Dimensions (DDD):**

Due to the storm event from Hurricane Ida within August 28 to September 1, 2002, heavy storm wind and rain caused damages to approximately 4 road sections at various locations within City of Bay St. Louis such as road washouts, potholes, and shoulder erosion. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project

#552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections.

**Total repair cost of damaged elements being protected by the HMP at this DI = \$119,773.56**

**(II) Hazard Mitigation Proposal (HMP) Scope of Work:**

Mitigation consists of using 9,015 SY of geogrid between the pavement section (chip seal) and subbase to strengthen subgrade. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections where geogrid will be placed.

Cost provided by the Applicant,

|                           |                       |                    |
|---------------------------|-----------------------|--------------------|
| Installation of geogrid = | 9,015 SY @\$7.50/SY = | <u>\$67,610.00</u> |
|                           | Total =               | \$67,610.00        |

**Total Mitigation Costs for this DI = \$67,610.00**

**(III) Hazard Mitigation Proposal (HMP) Cost:**

A. Gross cost(s) of Mitigation if the HMP is Approved = \$67,610.00

B. Less cost(s) of Items not needed if the HMP is Approved = \$0

**C. Net Hazard Mitigation cost(s): A – B = \$67,610.00**

**(IV) Cost Effectiveness Calculation:**

HMP Cost/Benefit % = (Net Hazard Mitigation Cost /Total like and in-kind repair cost) X 100

**HMP C/B % = (\$67,610.00/\$119,773.56) x 100 = 56.45% ≤ 100%**

**(V) HMP Cost-Effectiveness:**

The Hazard Mitigation Proposal for this single DI #1201012 is \$67,610.00 and is 56.45% of the repair and restoration costs being protected. In accordance with FEMA Public Assistance Program and Policy Guide (PAPPG) V4.0 June 2020, Chapter 8, IV Section A and Appendix J. Section I. B, this mitigation measure does not exceed 100 percent of the eligible repair cost and is considered to be cost-effective.

**(VI) Compliances and Assurances:**

This HMP is for estimating purposes only. If the site's final placement and configuration are different than the preliminary estimate,

the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

The Applicant is responsible for final design, placement, configuration, choice of contractors or vendors, permits and compliance with all regulatory codes and standards of the State of Mississippi. FEMA will pay only the incremental difference in cost between repairs and mitigation and will not duplicate funding for repair or replacement of eligible work.

Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws, regulations, and executive orders applicable to the sites.

#### HMP Notes:

1. The mitigation proposal cost estimate was generated using cost estimate provided by the applicant. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections where geogrid will be placed.

### 1201014 Bay St. Louis roads (Group HWY 603)

\*\*\*\*\*GM Version 2\*\*\*\*\*

Per Amendment Request from Applicant, FEMA Management has increased the cost estimate for each Damage Inventory item as per the lowest Bid costs and added prorated Mobilization and Traffic Maintenance costs as well. For a complete breakdown of costs per individual road and line item, see the attached extract document, 'DR 4626 Bay St Louis [552697] Request to Amend Cost based on Bid - Bid extract.pdf'. HMP costs were decreased in the Bid cost estimate and will be adjusted to align with the Amendment Request and this version.

#### Work to be Completed

The applicant will utilize contract and/or force account for repairs to City of Bay St. Louis to restore this facility back to its pre-disaster design, function and capacity (in-kind) within the existing footprint.

##### Boat Launch Service Roads:

GPS Start 30.327479, -89.422656, Stop 30.329087, -89.423849:

1. Remove and Replace 49.925926 CY of Double Bituminous Surface Treatment, 674 FT long x 16 FT wide x 1.5 IN deep.

##### Elbrus:

GPS Start 30.324672, -89.422524, Stop 30.323903, -89.424488:

2. Remove and Replace 49.86 CY of Double Bituminous Surface Treatment, 718 FT long x 15 FT wide x 1.5 IN deep.

##### Etna:

##### DP1:

GPS 30.327854, -89.425022:

3. Remove and Replace 0.777778 CY of 610 stone or crushed concrete, 14 FT long x 3 FT wide x 6 IN deep.

4. Remove and Replace 1.037037 CY of Sand with less than 20% passing 200 sieve, 14 FT long x 3 FT wide x 8 IN deep.

GPS Start 30.328771, -89.425736, Stop 30.327508, -89.424827:

5. Remove and Replace 30.111111 CY of Double Bituminous Surface Treatment, 542 FT long x 12 FT wide x 1.5 IN deep.

Everest:

GPS Start 30.326991, -89.423590, Stop 30.324167, -89.422189:

6. Remove and Replace 95.083333 CY of Double Bituminous Surface Treatment, 1,141 FT long x 18 FT wide x 1.5 IN deep.

Irazu:

DP1:

GPS 30.322476, -89.419386:

7. Remove and Replace 3.333333 CY of Sand with less than 20% passing 200 sieve, 15 FT long x 9 FT wide x 8 IN deep.

8. Remove and Replace 0.625 CY of Double Bituminous Surface Treatment, 15 FT long x 9 FT wide x 1.5 IN deep.

GPS Start 30.321966, -89.420173, Stop 30.322936, -89.418982:

9. Remove and Replace 39.7037 CY of Double Bituminous Surface Treatment, 536 FT long x 16 FT wide x 1.5 IN.

Logan:

GPS Start 30.325262, -89.424901, Stop 30.326185, -89.423222 (no Damage):

10. Remove and Replace 45.111111 CY of Double Bituminous Surface Treatment, 609 FT long x 16 IN wide x 1.5 IN deep.

Nile:

DP1:

GPS 30.316941, -89.408831:

11. Remove and Replace 13.851852 CY of 610 stone or crushed concrete, 68 FT long x 11 FT wide x 6 IN deep.

12. Remove and Replace 18.469136 CY of Sand with less than 20% passing 200 sieve, 68 FT long x 11 FT wide x 8 IN deep.

GPS Start 30.316480, -89.408101, Stop 30.317760, -89.410180:

13. Remove and Replace 66.666667 CY of Double Bituminous Surface Treatment, 800 FT long x 18 FT wide x 1.5 IN deep.

Pearl:

DP1:

Gps 30.317807, -89.411445:

14. Remove and Replace 1.814815 CY of 610 stone or crushed concrete, 14 FT long x 7 FT wide x 6 IN deep.

15. Remove and Replace 2.419753 CY of Sand with less than 20% passing 200 sieve, 14 FT long x 7 FT wide x 8 IN deep.

GPS Start 30.317826, -89.410303, Stop 30.317785, -89.412501:

16. Remove and Replace 51.925926 CY of Double Bituminous Surface Treatment, 701 FT long x 16 FT wide x 1.5 IN deep.

Rainer:

DP1:

GPS 30.326627, -89.424468:

17. Remove and Replace 9.481481 CY of 610 stone or crushed concrete, 64 FT long x 8 FT wide x 6 IN deep.

18. Remove and Replace 12.641975 CY of Sand with less than 20% passing 200 sieve, 64 FT long x 8 FT wide x 8 IN deep.

GPS Start 30.326301, -89.425270, Stop 30.327077, -89.423287:

19. Remove and Replace 76.111111 CY of Double Bituminous Surface Treatment, 685 FT long x 24 FT wide x 1.5 IN deep.

Rushmore Street:

GPS Start 30.328777, -89.425736, Stop 30.328608, -89.426326:

20. Remove and Replace 11.333333 CY of Double Bituminous Surface Treatment, 204 FT long x 12 FT wide x 1.5 IN deep.

|  |
|--|
|  |
|--|

**Work to be Completed Total: \$146,645.26**

## **406 HMP Scope**

\*\*\*GM Version 2\*\*\*

Per Applicant version request, Bid cost documents submitted with the following HMP scope and cost:

**1201014 Hazard Mitigation - Placement of Geogrid 12,380.00 SY \$6.00 \$74,280.00**

**HMP C/B % =  $(\$74,280.00 / \$371,561.98) \times 100 = 19.99\% \leq 100\%$**

## **Hazard Mitigation Proposal (HMP):**

**GM Project # 552697**

**DR-4626- MS**

**GM Damage Inventory # 1201014**

**Site Name & Address: Bay St. Louis Roads/688 Hwy 90 Bay Saint Louis, MS 39520**

**GPS Lat / Lon: 30.31706, -89.34446 (various site locations)**

**HMP writer Name and Title: Roshan Karna, Civil Engineer & Tamika Ali-Yerima, HM 406 Specialist**

\*\*\*\*\*

**Work to be Completed**

**(I) Damage Description & Dimensions (DDD):**

Due to the storm event from Hurricane Ida within August 28 to September 1, 2002, heavy storm wind and rain caused damages to approximately 10 road sections at various locations within City of Bay St. Louis such as road washouts, potholes, and shoulder erosion. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections.

**Total repair cost of damaged elements being protected by the HMP at this DI = \$146,645.26**

**(II) Hazard Mitigation Proposal (HMP) Scope of Work:**

Mitigation consists of using 12,126 SY of geogrid between the pavement section (chip seal) and subbase to strengthen subgrade. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections where geogrid will be placed.

Cost provided by the Applicant,

|                           |                        |                    |
|---------------------------|------------------------|--------------------|
| Installation of geogrid = | 12,126 SY @\$7.50/SY = | <u>\$90,948.33</u> |
|                           | Total =                | \$90,948.33        |

**Total Mitigation Costs for this DI = \$90,948.33**

**(III) Hazard Mitigation Proposal (HMP) Cost:**

A. Gross cost(s) of Mitigation if the HMP is Approved = \$90,948.33

B. Less cost(s) of Items not needed if the HMP is Approved = \$0

**C. Net Hazard Mitigation cost(s): A – B = \$90,948.33**

**(IV) Cost Effectiveness Calculation:**

HMP Cost/Benefit % = (Net Hazard Mitigation Cost /Total like and in-kind repair cost) X 100

**HMP C/B % = (\$90,948.33/\$146,645.26) x 100 = 62.02% ≤ 100%**

**(V) HMP Cost-Effectiveness:**



The Hazard Mitigation Proposal for this single DI #1201014 is \$90,948.33 and is 62.02% of the repair and restoration costs being protected. In accordance with FEMA Public Assistance Program and Policy Guide (PAPPG) V4.0 June 2020, Chapter 8, IV Section A and Appendix J. Section I. B, this mitigation measure does not exceed 100 percent of the eligible repair cost and is considered to be cost-effective.

#### **(VI) Compliances and Assurances:**

This HMP is for estimating purposes only. If the site's final placement and configuration are different than the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

The Applicant is responsible for final design, placement, configuration, choice of contractors or vendors, permits and compliance with all regulatory codes and standards of the State of Mississippi. FEMA will pay only the incremental difference in cost between repairs and mitigation and will not duplicate funding for repair or replacement of eligible work.

Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws, regulations, and executive orders applicable to the sites.

#### **HMP Notes:**

1. The mitigation proposal cost estimate was generated using cost estimate provided by the applicant. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections where geogrid will be placed.

#### **1201017 Bay St. Louis Roads (Group Central)**

\*\*\*\*\*GM Version 2\*\*\*\*\*

Per Amendment Request from Applicant, FEMA Management has increased the cost estimate for each Damage Inventory item as per the lowest Bid costs and added prorated Mobilization and Traffic Maintenance costs as well. For a complete breakdown of costs per individual road and line item, see the attached extract document, 'DR 4626 Bay St Louis [552697] Request to Amend Cost based on Bid - Bid extract.pdf'. HMP costs were decreased in the Bid cost estimate and will be adjusted to align with the Amendment Request and this version.

#### **Work to be Completed**

The applicant will utilize contract and/or force account for repairs to City of Bay St. Louis to restore this facility back to its pre-disaster design, function and capacity (in-kind) within the existing footprint.

Gull:

GPS Start 30.331841, -89.406126, Stop 30.333843, -89.404563:

1. Remove and Replace 46.851852 CY of Double Bituminous Surface Treatment, 880 FT long x 11.5 FT wide x 1.5 IN deep.

Heron:

DP1:

GPS 30.331948, -89.405193:

2. Remove and Replace 1.777778 CY of 610 stone or crushed concrete, 12 FT long x 8 FT wide x 6 IN deep.
3. Remove and Replace 2.37037 CY of Sand with less than 20% passing 200 sieve, 12 FT long x 8 FT wide x 8 IN deep.

DP2:

GPS 30.331948, -89.405193:

4. Remove and Replace 0.888889 CY of Sand with less than 20% passing 200 sieve, 6 FT long x 6 FT wide x 8 IN deep.

GPS 30.331948, -89.405193:

5. Remove and Replace 0.666667 CY of 610 stone or crushed concrete, 6 FT long x 6 FT wide x 6 IN deep.

GPS Start 30.333875, -89.403577, Stop 30.331866, -89.405209:

6. Remove and Replace 62.083333 CY of Double Bituminous Surface Treatment, 894 FT long x 15 FT wide x 1.5 IN deep.

Kingfisher:

GPS Start 30.331887, -89.404316, Stop 30.333813, -89.404578:

7. Remove and Replace 63.736111 CY of Double Bituminous Surface Treatment, 917.8 FT long x 15 FT wide x 1.5 IN deep.

|  |
|--|
|  |
|--|

**Work to be Completed Total: \$48,173.88**

## 406 HMP Scope

\*\*\*GM Version 2\*\*\*

Per Applicant version request, Bid cost documents submitted with the following HMP scope and cost:

**1201017 Hazard Mitigation - Placement of Geogrid 4,042.00 SY \$6.00 \$24,252.00**

**HMP C/B % = (\$24,252.00/\$115,318.82) x 100 = 21.03% ≤ 100%**

**Hazard Mitigation Proposal (HMP):**

**GM Project #: 552697\_**

**DR-4626- MS**

**GM Damage Inventory #: 1201017**

**Site Name & Address Bay St. Louis Roads/688 Hwy 90 Bay Saint Louis, MS 39520**

**GPS Lat / Lon: 30.31706, -89.34446 (various site locations)**

**HMP writer Name and Title: Roshan Karna, Civil Engineer & Tamika Ali-Yerima, HM 406 Specialist**

**HMP Date: May 27, 2022, Revised on September 30, 2022**

\*\*\*\*\*

Work to be Completed

**(I) Damage Description & Dimensions (DDD):**

Due to the storm event from Hurricane Ida within August 28 to September 1, 2002, heavy storm wind and rain caused damages to approximately 3 road sections at various locations within City of Bay St. Louis such as road washouts, potholes, and shoulder erosion. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections.

**Total repair cost of damaged elements being protected by the HMP at this DI = \$48,173.88**

**(II) Hazard Mitigation Proposal (HMP) Scope of Work:**

Mitigation consists of using 4,051 SY of geogrid between the pavement section (chip seal) and subbase to strengthen subgrade. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections where geogrid will be placed.

Cost provided by the Applicant,

|                           |                       |                    |
|---------------------------|-----------------------|--------------------|
| Installation of geogrid = | 4,051 SY @\$7.50/SY = | <u>\$30,380.83</u> |
|                           | Total =               | \$30,380.83        |

**Total Mitigation Costs for this DI = \$30,380.83**

**(III) Hazard Mitigation Proposal (HMP) Cost:**

A. Gross cost(s) of Mitigation if the HMP is Approved = \$30,380.83

B. Less cost(s) of Items not needed if the HMP is Approved = \$0

**C. Net Hazard Mitigation cost(s): A – B = \$30,380.83**

**(IV) Cost Effectiveness Calculation:**

HMP Cost/Benefit % = (Net Hazard Mitigation Cost /Total like and in-kind repair cost) X 100

**HMP C/B % = (\$30,380.83/\$48,173.88) x 100 = 63.06% ≤ 100%**

**(V) HMP Cost-Effectiveness:**

The Hazard Mitigation Proposal for this single DI #1201017 is \$30,380.83 and is 63.06% of the repair and restoration costs being protected. In accordance with FEMA Public Assistance Program and Policy Guide (PAPPG) V4.0 June 2020, Chapter 8, IV Section A and Appendix J. Section I. B, this mitigation measure does not exceed 100 percent of the eligible repair cost and is considered to be cost-effective.

**(VI) Compliances and Assurances:**

This HMP is for estimating purposes only. If the site's final placement and configuration are different than the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

The Applicant is responsible for final design, placement, configuration, choice of contractors or vendors, permits and compliance with all regulatory codes and standards of the State of Mississippi. FEMA will pay only the incremental difference in cost between repairs and mitigation and will not duplicate funding for repair or replacement of eligible work.

Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws, regulations, and executive orders applicable to the sites.

**HMP Notes:**

1. The mitigation proposal cost estimate was generated using cost estimate provided by the applicant. See document with filename "HM DR4626MS HM Applicant Supplied Total Mitigation Scope and Cost Estimate Project #552697 Bay St. Louis, City of" for GPS coordinates of each damaged road sections where geogrid will be placed.

## Cost

| Code                                                                    | Quantity | Unit     | Total Cost   | Section     |
|-------------------------------------------------------------------------|----------|----------|--------------|-------------|
| 9001 (V2 - Adjustment to estimated costs per Bid - Traffic Maintenance) | 1.00     | Lump Sum | \$53,870.96  | Uncompleted |
| 9001 ( V2 - Adjustment to estimated costs per Bid - Mobilization )      | 1.00     | Lump Sum | \$69,262.68  | Uncompleted |
| 9001 (Contract)                                                         | 1.00     | Lump Sum | \$303,533.43 | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid)                       | 1.00     | Lump Sum | \$477,999.03 | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid - Traffic Maintenance) | 1.00     | Lump Sum | \$40,302.43  | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid - Mobilization)        | 1.00     | Lump Sum | \$51,817.40  | Uncompleted |
| 9001 (Contract)                                                         | 1.00     | Lump Sum | \$227,082.10 | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid)                       | 1.00     | Lump Sum | \$283,063.18 | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid - Traffic Maintenance) | 1.00     | Lump Sum | \$24,992.84  | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid – Mobilization)        | 1.00     | Lump Sum | \$32,133.65  | Uncompleted |
| 9001 (Contract)                                                         | 1.00     | Lump Sum | \$140,820.95 | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid)                       | 1.00     | Lump Sum | \$250,045.21 | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid - Traffic Maintenance) | 1.00     | Lump Sum | \$21,257.36  | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid – Mobilization)        | 1.00     | Lump Sum | \$27,330.89  | Uncompleted |
| 9001 (Contract)                                                         | 1.00     | Lump Sum | \$119,773.56 | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid)                       | 1.00     | Lump Sum | \$252,048.76 | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid - Traffic Maintenance) | 1.00     | Lump Sum | \$26,026.53  | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid – Mobilization)        | 1.00     | Lump Sum | \$33,462.68  | Uncompleted |
| 9001 (Contract)                                                         | 1.00     | Lump Sum | \$146,645.26 | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid)                       | 1.00     | Lump Sum | \$224,916.72 | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid - Traffic Maintenance) | 1.00     | Lump Sum | \$8,549.88   | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid – Mobilization)        | 1.00     | Lump Sum | \$10,992.70  | Uncompleted |
| 9001 (Contract)                                                         | 1.00     | Lump Sum | \$48,173.88  | Uncompleted |
| 9001 (V2 - Adjustment to estimated costs per Bid )                      | 1.00     | Lump Sum | \$67,144.94  | Uncompleted |

CRC Gross Cost \$2,941,247.02

Total 406 HMP Cost \$474,552.00

Total Insurance Reductions \$0.00

CRC Net Cost \$3,415,799.02

Federal Share (90.00%) \$3,074,219.12

Non-Federal Share (10.00%) \$341,579.90

## Award Information

### Version Information

| Version # | Eligibility Status | Current Location | Bundle Number               | Project Amount | Cost Share | Federal Share Obligated | Date Obligated |
|-----------|--------------------|------------------|-----------------------------|----------------|------------|-------------------------|----------------|
| 0         | Eligible           | Awarded          | PA-04-MS-4626-PW-00180(271) | \$1,550,828.49 | 90%        | \$1,395,745.64          | 11/30/2022     |

### Drawdown History

| EMMIE Drawdown Status As of Date | IFMIS Obligation # | Expenditure Number | Expended Date | Expended Amount |
|----------------------------------|--------------------|--------------------|---------------|-----------------|
| No Records                       |                    |                    |               |                 |

### Obligation History

| Version # | Date Obligated | Obligated Cost | Cost Share | IFMIS Status | IFMIS Obligation # |
|-----------|----------------|----------------|------------|--------------|--------------------|
| 0         | 11/30/2022     | \$1,395,745.64 | 90%        | Accepted     | 4626DRMSP00001801  |
| 2         | 2/11/2025      | \$1,678,473.48 | 90%        | Accepted     | 4626DRMSP00001801  |

## Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding \$5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.

## Insurance

### Additional Information

12/13/2024 - Lewis McKay, Insurance Specialist - There are no insurance implications that pertain to this project. There will be no requirement to obtain and maintain insurance.

## O&M Requirements

There are no Obtain and Maintain Requirements on **Bay St. Louis Roads** .

## 406 Mitigation

There is no additional mitigation information on **Bay St. Louis Roads** .

## Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders?

Yes

### EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material is from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at closeout
- Construction activities and equipment storage and staging activities are not to be located in or impact any adjacent wetlands.

### EHP Additional Info

There is no additional environmental historical preservation on **Bay St. Louis Roads** .



# Final Reviews

## Final Review

**Reviewed By** WILSON, PAUL R.

**Reviewed On** 01/07/2025 2:04 PM CST

### Review Comments

Project's LPN has been updated and is ready for Recipient review

## Recipient Review

**Reviewed By** Sager, Diane

**Reviewed On** 01/07/2025 2:52 PM CST

### Review Comments

4th State review completed. Cat C project includes 406 HMP funding includes specialized EHP conditions the applicant must comply with for federal funding.

# Project Signatures

**Signed By** Feuerstein, Dana

**Signed On** 01/28/2025