

## Department of Homeland Security Federal Emergency Management Agency

### General Info

<b>Project #</b>	34081	<b>Project Type</b>	Standard
<b>Project Category</b>	C - Roads and Bridges	<b>Applicant</b>	San Augustine, City of (405-65024-00)
<b>Project Title</b>	Damaged Culvert on Asphalt Roads	<b>Event</b>	4332DR-TX (4332DR)

### Damage Description and Dimensions

The Disaster # 4332DR, which occurred between *08/23/2017* and *09/15/2017*, caused:

#### Damage #49637; Bridge/Culvert and Roadway at Golden Way Street

##### General Facility Information:

- **Facility Type:** Culverts
- **Facility:** culvert
- **Facility Description:** one CMP half ellipse culvert and two CMP circular culverts
- **Approx. Year Built:** 1960
- **Location Description:** 301 South Harrison St in San Augustine, Texas
- **GPS Latitude/Longitude:** 31.53284, -94.11262
- **Shape:** one half ellipse and two circular
- **Material:** Corrugated Metal/Steel
- **Dimensions Description:** 28 FT long and 48 IN diameter (half ellipse), 28 FT long and 30 IN diameter (both circular)
- **Number:** Triple

##### General Damage Information:

- **Date Damaged:** 8/30/2017
- **Cause of Damage:** surface water flooding

##### Culvert Damage:

###### A1:

- Culvert, 4 CF of asphalt surface, 6 FT long x 4 FT wide x 2 IN deep, compromised and washed away due to heavy flood waters, 0% work completed.
- Culvert, 12 CF of base, 6 FT long x 4 FT wide x 6 IN deep, compromised and washed away due to heavy flood waters, 0% work completed.
- Culvert, 8 CF of subbase, 6 FT long x 4 FT wide x 4 IN deep, compromised and washed away due to heavy flood waters, 0% work completed.

###### A2:

- Culvert, 9.5 CF of asphalt surface, 19 FT long x 3 FT wide x 2 IN deep, compromised and washed away due to heavy flood waters, 0% work completed.
- Culvert, 28.5 CF of base, 19 FT long x 3 FT wide x 6 IN deep, compromised and washed away due to heavy flood waters, 0% work completed.
- Culvert, 76 CF of subbase, 19 FT long x 3 FT wide x 16 IN deep, compromised and washed away due to heavy flood waters, 0% work completed.

###### A3:

- Culvert, 14 CF of asphalt surface, 14 FT long x 6 FT wide x 2 IN deep, compromised and washed away due to heavy flood waters, 0% work completed.

- Culvert, 42 CF of base, 14 FT long x 6 FT wide x 6 IN deep, compromised and washed away due to heavy flood waters, 0% work completed.
- Culvert, 294 CF of subbase, 14 FT long x 6 FT wide x 42 IN deep, compromised and washed away due to heavy flood waters, 0% work completed.

**Culverts:**

- Culvert, 1 each of CMP half ellipse culvert, 28 FT long x 48 IN in diameter, culvert became separated from head walls and started to compact due to heavy flood waters and internal fill piping, 0% work completed.
- Culvert, 2 each of CMP circular culvert, 28 FT long x 30 IN in diameter, culvert became separated from head walls and started to compact due to heavy flood waters and internal fill piping, 0% work completed.

**Damage #49638; Milam Street Culvert and Roadway**

**General Facility Information:**

- **Facility Type:** Culverts
- **Facility:** culvert
- **Facility Description:** Milam St
- **Approx. Year Built:** 1960
- **GPS Latitude/Longitude:** 31.54150, -94.10270
- **Shape:** Circular
- **Material:** Concrete
- **Dimensions Description:** 42" diameter / 24 Ft long
- **Number:** Single

**General Damage Information:**

- **Date Damaged:** 8/30/2017
- **Cause of Damage:** strong current of excessive amounts of water flowing down stream causing erosion and collapsing of culvert

**Culvert Damage:**

- Culvert, 1 each of round concrete culvert, 42 IN long x 24 FT wide, collapsed from excessive amounts of running water flowing downstream, 0% work completed.
- Culvert, 21 CY of base material base covering culvert, 8 FT long x 20 FT wide x 42 IN deep, erosion from large amounts of water flowing downstream, 0% work completed.
- Culvert, 53 CF of asphalt asphalt surface covering base fill on top of culvert, 8 FT long x 20 FT wide x 4 IN deep, erosion from large amounts of water flowing downstream, 0% work completed.

**Damage #49639; Bierhalter Street**

**General Facility Information:**

- **Facility Type:** Culverts
- **Facility:** culvert
- **Facility Description:** culvert crossing underneath Bierhalter Street
- **Approx. Year Built:** 1960
- **Location Description:** 301 South Harrison Street, San Augustine TX 75972 / Bierhalter
- **GPS Latitude/Longitude:** 31.53683, -94.10736
- **Shape:** Circular
- **Material:** Corrugated Metal/Steel
- **Dimensions Description:** 22' long , 30" diameter
- **Number:** Single

**General Damage Information:**

- **Date Damaged:** 8/30/2017
- **Cause of Damage:** a combination of heavy vehicle traffic and severe amounts of surface water flooding over-saturating and washing away both the asphalt surface and base course

### Culvert Damage:

- Culvert, 1 each of CMP culvert, 22 FT long x 30 IN in diameter, heavy vehicle traffic and surface water flooding, 0% work completed.
- Head Wall, 3.7037 CY of concrete, 25 FT long x 8 FT wide x 6 IN thick, heavy vehicle traffic and surface water flooding, 0% work completed.

### Associated Road Damage:

Road surface and base course, a 10ft wide x 20ft long, 2 lane Asphalt roadway

- Surface, 1.8519 CY of asphalt, 25 FT long x 12 FT wide x 2 IN deep, stream over-topped road and washed away the road surface and base, 0% work completed.
- Base, 7.4074 CY of road section, 25 FT long x 12 FT wide x 8 IN thick, stream over-topped road and washed away the road surface and base, 0% work completed.
- Sub Base, 12.4444 CY of fill dirt, 14 FT long x 6 FT wide x 4 FT thick, stream over-topped road and washed away the road surface and base, 0% work completed.

### Damage #49640; Park Street

#### General Facility Information:

- **Facility Type:** Culverts
- **Facility:** culvert
- **Facility Description:** CMP and concrete culvert
- **Approx. Year Built:** 1960
- **Location Description:** 310 S. Harrison St. San Augustine Texas 75972 / Park St.
- **GPS Latitude/Longitude:** 31.53474, -94.11062
- **Shape:** Circular
- **Material:** CMP and concrete
- **Dimensions Description:** 30" Diameter 24Ft long
- **Number:** Single

#### General Damage Information:

- **Date Damaged:** 8/30/2017
- **Cause of Damage:** heavy flood waters that caused severe erosion around the area surrounding the culvert

### Culvert Damage:

Sinkhole, a 1.33ft wide x 3ft long, 2 lane Asphalt roadway

- Asphalt Surface, 1 CF of unclassified fill, 16 IN long x 36 IN wide x 2 IN deep, sinkhole from down stream flow of rising water, 0% work completed.
- Base Fill, 12 CF of unclassified fill, 16 IN long x 36 IN wide x 36 IN deep, sinkhole from down stream flow of rising water, 0% work completed.

## Scope of Work

### 49637 Bridge/Culvert and Roadway at Golden Way Street

#### Work to be Completed

The Applicant will utilize contract for bridge, culvert, and roadway repairs located at Golden Way Street, San Augustine, Texas, GPS coordinates 31.532843, -94.112619, to bring this facility back to its pre-disaster design, function, and capacity.

- A. Remove and replace 82.22 SY of existing asphalt roadway

- B. Remove and reset 40 LF of existing guardrail
- C. Remove and replace 2 existing CMP concrete headwalls
- D. Remove and replace 28 LF of 48 IN diameter CMP half ellipse
- E. Remove and replace two (2) 30 IN diameter CMPs x 28 FT long (ea.)

Work to be Completed Total: **\$32,308.24**

**DAC:** The Applicant is claiming Direct Administrative Costs for gathering documentation and meetings with FEMA to discuss the project. 40 hours \$1,949.54

**Total Damage Inventory: \$34,257.78**

Scope Notes:

1. The culvert damage repairs stated in Damage Inventory (DI) 49637, will require excavation and roadway demolition that will include the damage roadway areas that are identified as A1, A2, and A3 in the Damage Description and Dimensions (DDD). The work area dimensions required for culvert repairs are based on dimensions stated in the site inspection report for DI 49637 and typical best practices. See attachment labeled, *WO 4493 DI 49637 – DR4332TX – Site Inspection Report* and attachment labeled, *ST34081-4332DR-TX-Estimate-City of San Augustine*.

2. The cost estimate for Damage Inventory (DI) 49637 is based solely on the repair costs to remove and replace the damage culverts. The estimated costs for asphalt roadway repairs, identified in A1, A2, and A3, are incidental and included in the site estimate costs for Culverts. See attachment labeled, *ST34081-4332DR-TX-Estimate-City of San Augustine*.

3. The asphalt paving repairs are based on an area 40 FT long x 18.50 FT wide, consisting of 2 IN depth asphalt surface, 6 IN depth aggregate base, and 6 IN sub-base. See attachment labeled, *WO 4493 DI 49637 – DR4332TX – Site Inspection Report* and attachment labeled, *ST34081-4332DR-TX-Estimate-City of San Augustine*.

4. The culvert damage repairs will require additional work items not specifically stated in the Damage Description and Dimensions (DDD). The following work items are incidental and necessary to facilitate the replacement of CMP culverts listed in DI 49367:

- Remove and reset 40 LF of metal guardrail.
- Remove and replace 12.47 CY of existing cast in place concrete headwalls.

See attachment labeled, *WO 4493 DI 49637 – DR4332TX – Site Inspection Report* and attachment labeled, *ST34081-4332DR-TX-Estimate-City of San Augustine*.

5. The culvert and ditch have a small continuous artesian spring water flow during times when ground water tables are high. During periods of drought conditions, the spring does not flow. Repairs to the culvert, roadway, and bridge may require temporary measures to interrupt the water flow to facilitate repairs. The Applicant should consult all local, state, and federal regulations/agencies for compliance prior to commencement of repairs. See attachment labeled, *ST34081-4332DR-TX-Email Clarifications 1*, and attachment labeled *ST34081-4332DR-TX-Email Clarifications 2*.

Project Notes:

1. All site estimates for work to be completed were generated using Texas Department of Transportation Average Low Bid Ur Prices, April 30, 2018. See attachment labeled, *ST34081-4332DR-TX-Estimate-City of San Augustine*.

2. The use of fill material from a borrow source that was in use prior to the disaster, or comes from a conventional borrow source, may be used. If fill material comes from a new borrow source, the location of the borrow source must be reviewed for compliance with all federal laws and executive orders prior to procuring the fill material. Consultation and regulatory permitting may be required. Particular attention should be given to the project conditions before and during project implementation.

Failure to comply with these conditions may jeopardize federal funding.

3. All work will be completed within the applicants ROW, if staging of equipment and materials would be needed they will be staged within the applicants ROW.

## 49638 Milam Street Culvert and Roadway

### Work to be Completed

The applicant will utilize contract for roadway and culvert repairs located at Milam Street, San Augustine, Texas, GPS coordinates, 31.541501, -94.102701, to bring this facility back to its pre-disaster design, function, and capacity.

- A. Remove and replace 24 LF of 42 IN diameter RCP
- B. Replace 20.74 CY of limestone aggregate base
- C. Replace 53.33 SY of 4 IN thick asphalt surface course

Work to be Completed Total: **\$13,896.28**

#### Scope Note:

1. The estimated cost for 4 IN depth asphalt surface repair is based on the area of asphalt repair required for the installation of the 42 IN diameter RCP culvert. The dimensions of existing asphalt roadway, to be removed for the installation of the 42 IN RCP culvert are, 20 FT long x 24 FT wide, totaling 53.33 SY. The dimensions for asphalt surface repair stated in the Damage Description and Dimensions (DDD) are 8 FT long x 20 FT wide, totaling 17.77 SY. The quantity used for the cost estimate and scope of work for Damage Inventory (DI) 49638 is 53.33 SY. See attachment labeled, *ST34081-4332DR-TX-Estimate-City of San Augustine*.

### 406 HMP Scope

## B) DI 49638 Milam Street

During the incident period of August 23, 2017 to September 15, 2017 flood waters compromised and washed away the asphalt surface, base, and subbase of the road. The 24-foot long, 42-inch concrete circular culvert collapsed due to the excessive stresses caused by the storm. Reference the DDD in GM for complete details.

**a) Total repair cost of damage elements being protected (reference attached ST34081-4332DR-TX- Estimate-City of San Augustine\_Mitigation.xlsx for details) = \$13,896.28**

### b) Hazard Mitigation Scope of Work

In order to prevent future damages from a similar event, the applicant has requested the following mitigation measures:

- Install concrete headwalls with wing walls to the upstream and downstream sides of the culvert.

Items needed if the HMP is approved and completed (reference attached ST34081-4332DR-TX- Estimate-City of San Augustine\_Mitigation.xlsx for details):

ADD CIP concrete headwalls with 4-foot long wing walls to the upstream and downstream side of the 42-inch concrete culvert: \$5,703.98

*Subtotal of items needed if the HMP is approved = \$5,703.98*

**Net hazard mitigation cost = \$5,703.98**

### c) Cost Effectiveness

Since the net hazard mitigation cost / total repair cost of damage elements being protected =  $\$5,703.98 / \$13,896.28 \times 100 = 41\% < 100\%$ , this HMP is cost effective per FEMA Public Assistance Program and Policy Guide FP 104-009-2, and Appendix J. General, Drainage Structures, Erosion Control.

**General Comment.** If this HMP is approved and the Applicant desires to change the Scope of Work, the Applicant must apply for a change in the SOW so FEMA can review to ensure program and EHP compliance. If this HMP is approved, and the mitigation is not performed, the Applicant must apply for a change in the SOW and de-obligation of the HMP funding. Applicant refusal or failure to complete the work of the HMP may limit future FEMA funding of repairs at the site in the event that a similar disaster event results in similar damage at the site.

#### References

ST34081-4332DR-TX-Estimate-City of San Augustine\_Mitigation.xlsx

#### Note:

This HMP is pending applicant approval.

### 49639 **Bierhalter Street**

#### Work to be Completed

The applicant will utilize contract for culvert, headwall, and roadway repairs to Bierhalter Street, San Augustine, Texas, GPS coordinates 31.536828, -94.107356, to bring this facility back to its pre-disaster design, function, and capacity.

- A. Remove and replace 22 LF of 30 IN diameter CMP
- B. Remove and replace 3.70 CY of concrete headwall
- C. Replace 7.41 CY of 8 IN thick aggregate base
- D. Replace 1.85 CY of 2 IN asphalt surface course
- E. Replace 12.44 CY of fill dirt

Work to be Completed Total: **\$12,043.00**

#### Scope Note:

1. The Applicant completed a temporary asphalt road repair to allow traffic to navigate at the damaged site identified in Damage Inventory (DI) 49639. The cost for the temporary road repair is not captured in this project. The damaged culvert was not part of the temporary road repairs and is included in the cost estimate for DI 49639. See attachment labeled, *ST34081-4332DR-TX-City of San Augustine-Email Clarifications 1*, and attachment labeled, *ST34081-4332DR-TX-San Augustine-Email Clarifications 2*.

2. For work to be completed, the quantities on the Scope of Work and cost estimate for Damage Inventory (DI) 49639 are based on actual calculations of the dimensions provided on the Damage Description and Dimensions (DDD).

#### 406 HMP Scope

### C) DI 49639 Bierhalter Street

During the incident period of August 23, 2017 to September 15, 2017 flood waters and heavy vehicle traffic compromised and washed away the asphalt surface, base, and subbase of the road. The 22-foot long, 30-inch CMP circular culvert was also damaged and needs to be replaced. Reference the DDD for complete details.

a) **Total repair cost of damage elements being protected (reference attached ST34081-4332DR-TX- Estimate-City of San Augustine\_Mitigation.xlsx for details) = \$12,043.00**

#### b) Hazard Mitigation Scope of Work

In order to prevent future damages from a similar event, the applicant has requested the following mitigation measure:

- Install a concrete headwall with wing walls to the upstream side of the culvert.

Items needed if the HMP is approved and completed (reference attached ST34081-4332DR-TX- Estimate-City of San Augustine\_Mitigation.xlsx for details):

ADD CIP concrete headwalls with 3-foot long wing walls to the upstream side of the 30-inch CMP culvert: \$1,995.18

*Subtotal of items needed if the HMP is approved = \$1,995.18*

**Net hazard mitigation cost = \$1,995.18**

#### c) Cost Effectiveness

Since the net hazard mitigation cost / total repair cost of damage elements being protected =  $\$1,995.18 / \$12,043.00 \times 100 = 17\% < 100\%$ , this HMP is cost effective per FEMA Public Assistance Program and Policy Guide FP 104-009-2, and Appendix J. General, Drainage Structures, Erosion Control.

General Comment. If this HMP is approved and the Applicant desires to change the Scope of Work, the Applicant must apply for a change in the SOW so FEMA can review to ensure program and EHP compliance. If this HMP is approved, and the mitigation is not performed, the Applicant must apply for a change in the SOW and de-obligation of the HMP funding. Applicant refusal or failure to complete the work of the HMP may limit future FEMA funding of repairs at the site in the event that a similar disaster event results in similar damage at the site.

#### References

ST34081-4332DR-TX-Estimate-City of San Augustine\_Mitigation.xlsx

#### Note:

This HMP is pending applicant approval.

### 49640 Park Street

#### Work to be Completed

The applicant will utilize contract for roadway repairs to Park Street, San Augustine, Texas, GPS coordinates 31.53474, -94.11062, to bring this facility back to its pre-disaster design, function, and capacity.

- A. Replace 0.67 CF of asphalt surface course
- B. Replace 12.00 CF of aggregate base

Work to be Completed Total: **\$2,454.33**

**Total Project Cost: \$62,651.39**

Scope Note:

1. For work to be completed, the quantities on the Scope of Work and cost estimate for Damage Inventory (DI) 49640 are based on actual calculations of the dimensions provided on the Damage Description and Dimensions (DDD).

**406 HMP Scope**

**D) DI 49640 Park Street**

During the incident period of August 23, 2017 to September 15, 2017 flood waters undercut the base of the road at the culvert from the upstream side causing a 16-inch by 36-inch sinkhole in the asphalt road. The culvert was not damaged. Reference the DDD for complete details.

**a) Total repair cost of damage elements being protected (reference attached ST34081-4332DR-TX-Estimate-City of San Augustine\_Mitigation.xlsx for details) = \$2,454.33**

**b) Hazard Mitigation Scope of Work**

In order to prevent future damages from a similar event, the applicant has requested the following mitigation measure:

- Install a concrete headwall with wing walls to the upstream side of the culvert.

Items needed if the HMP is approved and completed

ADD CIP concrete headwalls with 3-foot long wing walls to the upstream side of the 30-inch CMP culvert: \$1,995.18

*Subtotal of items needed if the HMP is approved = \$1,995.18*

**Net hazard mitigation cost = \$1,995.18**

**c) Cost Effectiveness**

Since the net hazard mitigation cost / total repair cost of damage elements being protected =  
 $\$1,995.18 / \$2,454.33 \times 100 = 81\% < 100\%$ , this HMP is cost effective per FEMA Public Assistance Program and Policy Guide FP 104-009-2, and Appendix J. General, 1. Drainage Structures, Erosion Control.

General Comment. If this HMP is approved and the Applicant desires to change the Scope of Work, the Applicant must apply for a change in the SOW so FEMA can review to ensure program and EHP compliance. If this HMP is approved, and the mitigation is not performed, the Applicant must apply for a change in the SOW and de-obligation of the HMP funding. Applicant refusal or failure to complete the work of the HMP may limit future FEMA funding of repairs at the site in the event that a similar disaster event results in similar damage at the site.

References

ST34081-4332DR-TX-Estimate-City of San Augustine\_Mitigation.xlsx

Note:

This HMP is pending applicant approval.



## Cost

Damage #	Code	Quantity	Unit	Total Cost	Section
49637	9901 (Direct Administrative Costs (Subgrantee))	1.00	Lump Sum	\$1,949.54	Uncompleted
49637	9001 (Contract)	1.00	Lump Sum	\$32,308.24	Uncompleted
49638	9001 (Contract)	1.00	Lump Sum	\$13,896.28	Uncompleted
49639	9001 (Contract)	1.00	Lump Sum	\$12,043.00	Uncompleted
49640	9001 (Contract)	1.00	Lump Sum	\$2,454.33	Uncompleted

CRC Gross Cost **\$62,651.39**

Total 406 HMP Cost **\$9,694.34**

Insurance Reduction **-\$0.00**

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CRC Net Cost **\$72,345.73**

Federal Share (90.00%) **\$65,111.16**

Non-Federal Share **\$7,234.57**

## Subgrant Conditions

- As described in 2 CFR, Part 200 § 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 sub-recipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions, Part 200.333, (a) – (f), (1), (2). All records relative to this Project Worksheet 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 Subrecipient requested Direct Administrative Costs (DAC) that are directly chargeable to this project. Associated eligible work is related to administration of the PA project only and in accordance with 2 CFR §§ 200.413. These costs are treated consistently and uniformly as direct costs in all federal awards and other Subrecipient activities and are not included in any approved indirect cost rates.
- The terms of the FEMA-State Agreement are incorporated by reference into this project award under the Public Assistance grant 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 Policy and Program Guide; and other FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the date of the declaration of this major disaster are incorporated by reference into this project award 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 2 C.F.R. pt. 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. pt. 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 applicant 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 applicant 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.

## Insurance

### Additional Information

7/24/18

#### FINDINGS

Property insurance coverage for road(s), road right-of-ways, embankment erosion, bridges or culvert damage represented on this project are not insured. No insurance relief is anticipated.

FEMA requires the Applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses, those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance Narrative will be produced or uploaded into documents or attachments.

#### REPETITIVE DAMAGES

No previous disaster requirements found.

#### REQUIREMENTS

No insurance requirements are mandated for work described in this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, and vehicles (FEMA Recovery Policy FP 206-086-1).

Randy Davis, PA Insurance Specialist (TAC) CRC Denton TX

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### O&M Requirements

There are no Obtain and Maintain Requirements on **Damaged Culvert on Asphalt Roads**.

## 406 Mitigation

7/24/18 Applicant expressed an interest to mitigate Site 1 by replacing the existing three culverts with a consolidated, upsized 8' x 8' box culvert with wing walls. As per FEMA PAPPG, 2018, pg 192, Appendix J, I, A, states "Replace the structure with multiple structures or a larger structure... Applicant must consider replacement structures with regard to a total drainage system and cannot upgrade structures without a watershed hydrology study with an emphasis on downstream effects and National Flood Insurance Program regulations." The HMP for Site 1 does not have documentations to support a watershed hydrology study, therefore the proposed mitigation at Site 1 is recommended as ineligible for FEMA 406 mitigation funding. However, the applicant's mitigation proposal to install drainage entrance and exit structures for Site 2, 3, and 4 is technically feasible and cost effective as per the 100% Rule, FEMA PAPPG, 2018, pg 99-100 & 192 section I.B. Therefore, the proposal for Site 2, 3, 4 valued at \$9,694.34 is recommended as eligible for FEMA 406 mitigation funding. D.Hu

## Environmental Historical Preservation

Is this project compliant with EHP laws and orders?

Unanswered

## 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.

## EHP Additional Info

There is no additional environmental historical preservation on **Damaged Culvert on Asphalt Roads**.

## Final Reviews

### Final Review

**Reviewed By** Not Reviewed

**Reviewed On** Not Reviewed

### Review Comments

*No comments available for the Final Review step*

### Recipient Review

**Reviewed By** Not Reviewed

**Reviewed On** Not Reviewed

### Review Comments

*No comments available for the Recipient Review step*

## Project Signatures

**Signed By** Unsigned

**Signed On** Unsigned