ALABAMA STATE EXPENDITURE PLAN (SEP)

Project #20: Mobile County Dirt Road Paving (Sediment Reduction) Program

Project Description/Summary

a) The proposed project includes both engineering and design and implementation over an 8-year period in south Mobile County. Mobile County Commission District 3 encompasses south Mobile County and is bordered by Mobile Bay to the east and the Mississippi Sound to the south. This district is home to the villages of south Mobile County (Bayou La Batre and Coden) and Dauphin Island. Residents and visitors depend on the many rivers, bays, and bayous for commercial and recreational fishing, water sports, and nature-based recreation.

   Waterways and wetlands in the Bayou La Batre, West Fowl River, and Fowl River are intersected by approximately 57 miles of unpaved roads. The County Public Works/Engineering Department maintains these roads by placing material, smoothing/grading, maintaining and repairing eroded ditches. Records from these maintenance activities demonstrate that approximately 8,000 cubic yards of material were placed on these unpaved roads in 2017.

   Activities also include the comprehensive administration of this grant, including, but not limited to, project development and oversight, contracting, and sub-recipient monitoring.

   a. **Need**: Sediment transport from unpaved roads is a problem in south Mobile County, causing increased turbidity, smothering stream and wetland habitats, thereby reducing biodiversity and negatively impacting water quality. Sedimentation in streams can also reduce flood water storage capacity. Paving dirt roads in environmentally sensitive areas eliminates negative impacts due to sediment transport.

      Purpose: The purpose of this project is to protect water quality and the beneficial functions of the floodplain by developing and implementing a dirt road paving program to reduce the number of miles of unpaved roads in environmentally sensitive areas of south Mobile County. In addition, this project also includes stabilization of grass shoulders and ditches that erode and carry sediment into sensitive areas.

      This will be achieved through the development and implementation of a Dirt Road Paving (Sediment Reduction) Program that undertakes road improvement projects based on selection and ranking criteria targeted towards improving environmental conditions and meeting road maintenance needs. A Geographic Information Systems approach will be utilized to identify environmentally sensitive roads to include in the program. Selection and prioritization criteria will include unpaved roads that are within the Alabama Coastal Area (below the 10-foot contour), the regulatory floodplain, and/or near marsh or wetlands in the project area. Preliminary identification indicates that there are at least 13 unpaved roads in the Bayou La Batre, Mississippi Sound Complex, and Fowl River watersheds to consider for this program. Further alternatives analyses will be performed to finalize the list

of roads to be paved during the preliminary engineering phase of this project. Estimated costs to pave the preliminary list of priority roads were obtained from preliminary Mobile County Pay-As-You-Go Program analysis which includes a rating of all unpaved roads. This analysis accounts for maintenance details as well as estimated costs to improve each road to meet requirements of the Mobile County Commission Design Guidelines for Improving Existing County Maintained Unpaved Local Roads and Alabama Department of Transportation (ALDOT) Standard Specifications for Highway Construction.

Objective: The primary objective of this project is to:

- Reduce the potential for erosion and sedimentation from unpaved roads and their unstable/unimproved drainage systems in the coastal areas, wetlands, and floodplains of the unincorporated areas of the southern portion of Mobile County Alabama.

b. This activity is located in the Gulf Coast region and will be carried out in south Mobile County, Alabama.

c. This project is anticipated to begin on 7/1/19 and end 6/30/27 (8 years).

d. This project will be implemented by Mobile County.

b) This project will reduce the amount of sedimentation eventually entering south Mobile County's rivers, bays, and bayous. Decreasing sedimentation in these environmentally sensitive areas will improve water quality and enhance community resilience, thereby resulting in the restoration of the Gulf economy.

Eligibility and Statutory Requirements

This activity is located in the Gulf Coast Region and is eligible for Spill Impact Component funding under Category #1 – Restoration and protection of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches and coastal wetlands of the Gulf Coast region (primary). Secondary activities include Category #3 - Implementation of a federally approved marine, coastal, or comprehensive conservation management plan, including fisheries monitoring and Category #6 - Infrastructure projects benefiting the economy or ecological resources, including port infrastructure.

Comprehensive Plan Goals and Objectives

This project is consistent with the following Comprehensive Plan goals:

- Goal 2: Restore Water Quality and Quantity – Restore and protect water quality of the Gulf Coast region's fresh, estuarine, and marine water;
- Goal 4: Enhance Community Resilience – Build upon and sustain communities with capacity to adapt to short- and long-term changes; and
- Goal 5: Restore and Revitalize the Gulf Economy – Enhance the sustainability and resiliency of the Gulf economy.

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This project supports the following Comprehensive Plan objectives:

- Objective 2: Restore, Improve, and Protect Water Resources – Restore, improve, and protect the Gulf Coast region's fresh, estuarine, and marine water resources by reducing or treating nutrient and pollutant loading; and improving the management of freshwater flows, discharges to and withdrawals from critical systems; and
- Objective 5: Promote Community Resilience – Build and sustain Gulf Coast communities' capacity to adapt to short- and long-term natural and man-made hazards, particularly increased flood risks associated with sea-level rise and environmental stressors. Promote ecosystem restoration that enhances community resilience through the re-establishment of non-structural, natural buffers against storms and flooding.

Major Milestones

a) Milestone 1: Procurement of professional services

b) Milestone 2: Conduct alternatives analyses

c) Milestone 3: Complete preliminary engineering and design

d) Milestone 4: Environmental permitting

e) Milestone 5: Right-of-way acquisition/utility relocation

f) Milestone 6: Complete final design

g) Milestone 7: Complete Construction

Success Criteria/Metrics/Outcomes

The anticipated outcome of the Mobile County Dirt Road Paving (Sediment Reduction) Program will be:

- The prioritization, engineering and design, and improvement of ~57 miles of dirt roads in south Mobile County, Alabama

Table 21. Proposed Projects Success Criteria/Metrics/Outcomes

Activity	Anticipated Project Success Criteria/Metrics	Short-term outcome	Long-term outcome
Pave dirt roads in south Mobile County to reduce sedimentation in local waterways	One competed alternatives report Completed E&D	Reduced sedimentation in local waterways	Improved water quality Greater coastal resiliency

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Activity	Anticipated Project Success Criteria/Metrics	Short-term outcome	Long-term outcome
	Completed ROW acquisition/utilities relocation ~57 miles paved road Develop monitoring plan to assess water quality improvements		

Additional success criteria capturing the ecological benefits of this project will be selected at the grant application stage.

Monitoring and Evaluation

a) Submission of alternative analyses to ADCNR

b) Submission of E&D to ADCNR for review and approval

c) Provide evidence to ADCNR that all required permits were obtained

d) Submit results of procurement/bid process to ADCNR prior to awarding contracts

e) ADCNR will conduct periodic onsite reviews

f) Submission of quarterly and final reports

g) Post construction monitoring as required

Best Available Science

Addressing erosion and sedimentation by paving dirt roads is based upon widely accepted engineering best practices. These engineering best practices and environmental analyses will be used to achieve the objectives of the project.

Wemple et al examined the role of rural, low-volume, unpaved roads on water quality degradation in the northeastern U.S. to identify the likely importance of unpaved roads as a pollutant source in this setting. Their results suggested that roughly 16% of the average annual sediment flux in the Winooski River may be derived from unpaved roads. This study determined that erosion from unpaved roads is a significant source of water quality degradation in rural watersheds and pointed to the effectiveness of design interventions in mitigation.

Turton et al concluded that unpaved roads may contribute up to 35% of the total sediment load in Stillwater Creek Watershed in Oklahoma. Further results of this study documented that sediment yield was significantly reduced with the installation of BMPS.

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In addition, this project is consistent with the values and recommendations set forth in the MBNEP's Comprehensive Conservation and Management Plan 2013-2018, available on the MBNEP website, and the Bayou La Batre Watershed Management Plan, also available on the MBNEP website.

Wemple, B. C., Clark, G. E., Ross, D. S., and Rizzo, D. M. (2017) Identifying the spatial pattern and importance of hydro-geomorphic drainage impairments on unpaved roads in the northeastern USA. Earth Surf. Process. Landforms, 42: 1652–1665. doi: 10.1002/esp.4113.

Turton, D.J., Smolen, M.D. and Steber, E. (2009), Effectiveness of BMPs in Reducing Sediment From Unpaved Roads in the Stillwater Creek, Oklahoma Watershed. JAWRA Journal of American Water Resources Association, 45: 1343- 1351. Doi:10.1111/j.1752-1688.2009.00367.x

Budget/Funding

a) Estimated cost of the project and amount to be requested from Spill Impact Component Funds: $10,395,914 (15-25% - Planning, 85-75% - Implementation). While it is noted that funding available under a grant award cannot exceed the amount described in the SEP for this project, the percentages listed in this section are estimated and will be more clearly cultivated in the grant application.

b) No other funding sources are anticipated at this time.

Partnerships/Collaboration (if applicable)

Not applicable at this time.

Leveraged Resources (if applicable)

Not applicable at this time.

Funds Used As Non-Federal Match (if applicable)

Not applicable at this time.

Other

Not applicable at this time.

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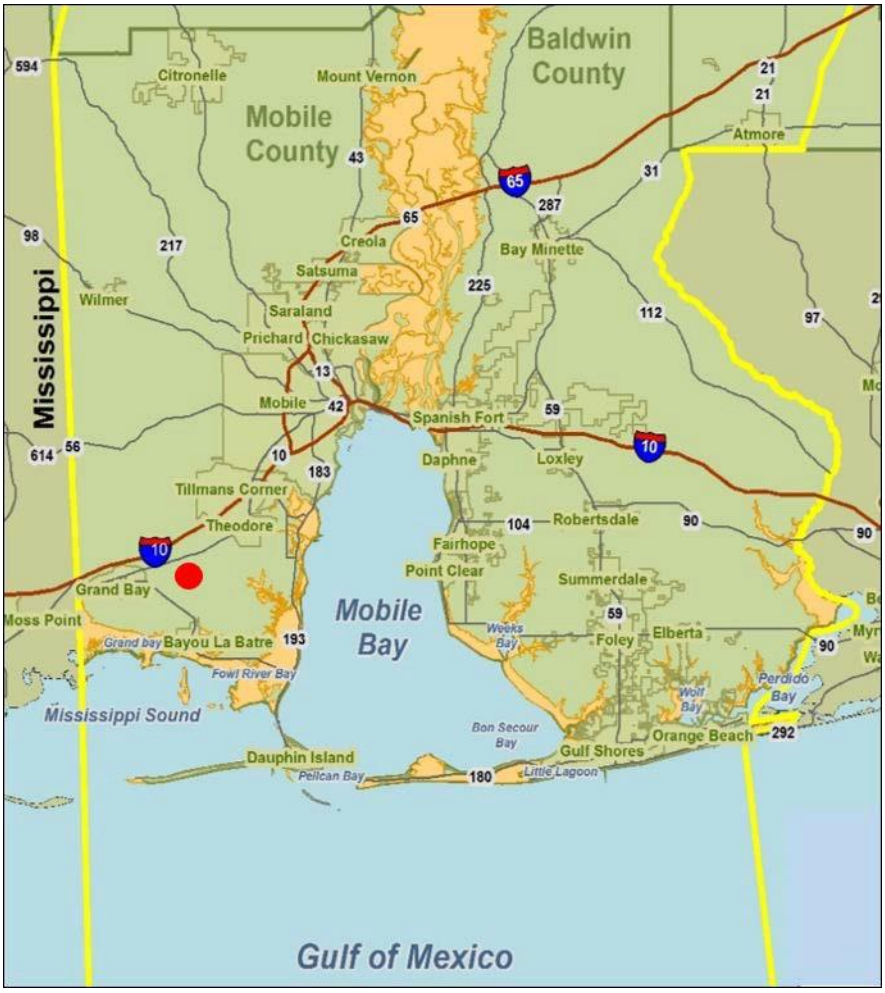

Figure 20. The Mobile County Dirt Road Paving (Sediment Reduction) Program project will be implemented in South Mobile County, Alabama.