



PROJECT INFORMATION

Project Title: Transportation Resiliency through Storm Water Mitigation in A/P MPO UZA

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Organization Type: The Rapides Area Planning Commission (RAPC) is a regional organization providing land use planning, development, technical assistance, geographical information, and other planning services for member governments. RAPC also houses the Metropolitan Planning Organization (MPO), which provides transportation planning for the urbanized area of Rapides Parish and Transit Planning for the Kisatchie-Delta Planning and Development District. Additionally, RAPC staffs the Central Louisiana Highway Safety Coalition.

Abstract: RAPC is working to integrate stormwater mitigation/ flood prevention into land use and transportation planning. This study will effectively identify those roadways most vulnerable to water related natural disasters such as flooding based on disaster information from the past decade. The most recent federal transportation legislation, the FAST Act, expands the scope of consideration of the metropolitan planning process to include: a) transportation system resiliency and reliability; b) reducing (or mitigating) the stormwater impacts of surface [transportation](#). RAPC aims to uphold the MTP 2040 goal of system preservation and maintenance through storm water mitigation and transportation resiliency. CenLA is prone to flooding owing to large tracts of land cover under National Forests, flood plains and watersheds of Red River. CenLA receives average rainfall of 60 inches, almost double of the national average of 39 inches. Additionally, the study aims to identify key strategies to alleviate roadway flooding (e.g. mitigating stormwater runoff through adopting the use of more porous roadway pavement); identify and list funding sources specific to stormwater management for future project development and implementation; and develop a hydrologic and hydraulic

modeling tool to aid in better investment decisions and incident preparedness and to assist in incorporating stormwater mitigation as a key selection criterion into the TIP project prioritization.

PLAN GOALS & TASK DESCRIPTIONS

In the past decade, there is a marked increase in natural disasters throughout the country and more so pertaining to large scale water related disasters such as flooding relevant to CenLa. As recently as February 2016 and March 2017, the A/P MPO urbanized area was hit with multiple days of flooding owing to excessive rainfall and hurricane aftermath showers leading to many roadway closures. Additionally, the most recent update to the long-range transportation plan MTP 2040, as well as the recently completed Rapides Parish Resiliency Plan, effectively show the need to improve stormwater mitigation, protecting roadway networks in the process. Impervious surfaces such as roads, parking lots, drive-ways, and rooftops do not allow infiltration of stormwater into the ground and have increased stormwater runoff. The increase in stormwater runoff causes obvious flooding and washouts to our roadway network, while the pollutants the runoff picks up from the impervious surfaces, cause major problems for our [waterways](#).

Specifically, **the goals** are:

- Identify disaster prone vulnerable transportation infrastructure including roadways, port, airport etc.
- Develop a hydrologic and hydraulic model to accurately depict stormwater activity and identify methods to mitigate roadway flooding
- Reduce roadway closures and ease traffic flow by adopting stormwater mitigation-based strategies and promoting mitigation-based projects
- Prioritize TIP projects using stormwater vulnerability as a selection criterion for prioritization
- Summarize a listing of current best practices in stormwater mitigation and identify federal/state/private funding sources for identified projects

Task Description:

RAPC will carry out the following tasks to fulfill the above goals:

1. Existing Conditions Report

The first and foremost step of is to develop a Geographic Information System (GIS) database for existing conditions of identified areas prone to water related disasters. The database should include but not be limited to the following information:

- Roadway Pavement Conditions (Fugro)
- Floodplain and Watershed Maps
- Inventory and Assessment of Drainage Infrastructure

- Population statistics affected by water incidents
- Inundated risk prone areas in the past disasters (5 years)

Staff will also gather information about existing applicable laws, policies, ordinances and plans from the Parish, the City of Alexandria, The City of Pineville, the LADOTD-08, OHSEP and other relevant jurisdictions based on the current documents, GIS, and safety data. Staff will then conduct a series of spatial and planning analysis to identify preliminary issues such as connectivity during flood events and resiliency.

2. **Background Research, Previously Planned and Funded Improvements to the System**

RAPC staff will compile a list of previous and on-going projects for the corridors and/or watersheds prone to water disasters and integrate analysis from task 1 to deliver a comprehensive knowledge base for the entire planning area, covering historical trends and existing situations; as well as identifying hot-spot issues and targets. Staff will compile a list of current best practices for stormwater mitigation in relation to transportation infrastructure. Also, the aspects of land use management related techniques will be explored to avoid unnecessary rain water runoff owing to paved surfaces (parking/roadway).

3. **Identification of Stakeholders, Needs Assessment, and Public Outreach**

RAPC will actively reach out to stakeholder and potential partners to better understand and guide this effort, including but not limited to:

- Elected officials (City)
- Parish and city employees
 - Planning and engineering
 - Public Works
- Interested citizens and grassroots organizations
- DOTD, FHWA, FEMA

Staff will present findings to stakeholders and capture public input using meetings, online survey tool (Metroquest or equivalent) and distribution of mail-in surveys. With direction from local stakeholders, RAPC will identify the missing gaps in data and work with the public and stakeholders to supplement the efforts of the previous tasks.

4. **Hydrologic and Hydraulic Model Development**

Hydraulic/Hydrology modeling for the A/P MPO UZA is quintessential for understanding the existing water run-off as well as forecasting run-off based from anticipated development. RAPC plans to hire a consultant to assist in the development of the model and the selection of appropriate software/hardware as well as to provide more detailed data from many field surveys. Model aspects will include but not be limited to:

- Accurate, up-to-date LIDAR data
- Existing Hydrology
- Natural and Man-made drainage infrastructure not previously captured
- Data from Field Surveys and Infrastructure Inventory and Assessment
- Drainage barriers

5. **Draft and Final Report**

Based on background research and analysis of existing conditions as well as future stormwater related forecasts, RAPC will conduct model runs of stakeholder and public recommended improvements to develop a list of recommended stormwater mitigation-based projects to alleviate and improve transportation resiliency. The report will also document a process to incorporate stormwater mitigation into TIP project development and prioritization especially in relation to pavement management and preservation. The plan will have special emphasis in adhering to the FAST Act guidelines pertaining to stormwater mitigation and transportation resiliency. RAPC will follow protocol in accepting the draft and final report through Transportation Advisory Committee and the Transportation Policy Committee after duly adhering to public input via public meetings.

TIMELINES and FUNDING OUTLINE

Estimated project timeline is two years from Notice to Proceed. We would propose to use the Excess/Remainder PL funds for the first year and the STBGP funds for the first and second year, given the time restriction of the PL dollars.