City of Mount Pleasant

STORMWATER

Municipal Technical Advisory Service

INSTITUTE *for* PUBLIC SERVICE

In 2021, Mount Pleasant requested that the Municipal Technical Advisory Service (MTAS) conduct a field visit to make observations on drainage issues with a tributary to Sugar Creek and to use those observations to make a report and recommendations to the City.

Examination in the field and interviews with staff, photo evidence, citizen complaints, all tell the same story. We have here a case where multiple property owners are being flooded: Wall Street, Locust Street, West Cooper, North Main Street, and Railroad Street; and where Locust Street and others are overtopped by flooding

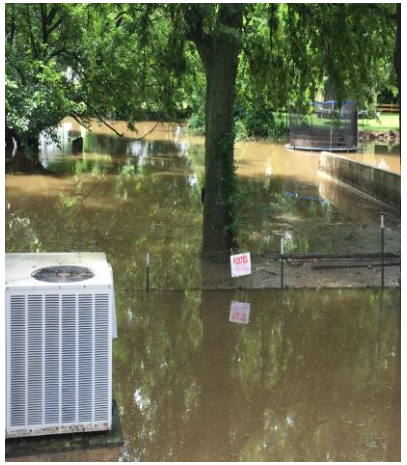
Mount Pleasant Drainage Report April 2021

- **Overview**: Field visit conducted by MTAS to observe drainage issues.
- **Objective**: Provide recommendations to address flooding problems.

Key Locations:

- Wall Street
- Locust Street
- West Cooper
- North Main Street
- Railroad Street

- **Issue**: Streets overtopped by flooding.



MTAS Recommendations

- **Long-Term Solutions**:
  - Develop a comprehensive drainage map and plan.
  - Establish permanent drainage easements.
  - Explore funding options (TEMA, Corps, CBDG, etc.).

- **Conclusion**

- **Key Takeaway**:
  - Addressing drainage issues requires a comprehensive approach to avoid creating new problems.

- **Next Steps**:
  - Consult engineering firms.
  - Implement a stormwater utility.

Proposal for Professional Engineering Services ,Sept 2022

Watershed Analysis of Unnamed Tributary to Sugar Creek City of Mount Pleasant, TN Presented by: Civil & Environmental Consultants, Inc. (CEC)

Project Goal:

Evaluate existing stormwater infrastructure.

Develop conceptual modifications to alleviate flooding.

Focus Area: Bounded by North College Street, Florida Avenue, Hay Long Avenue, and North Main Street.

: Cost & Schedule

Estimated Fee: $100,000

Timeline:

Start within 2 weeks of authorization.

Completion in 6 months.

CEC Scope of Services

Kick-off & Status Meetings:
- Initial meeting and 6 monthly updates.

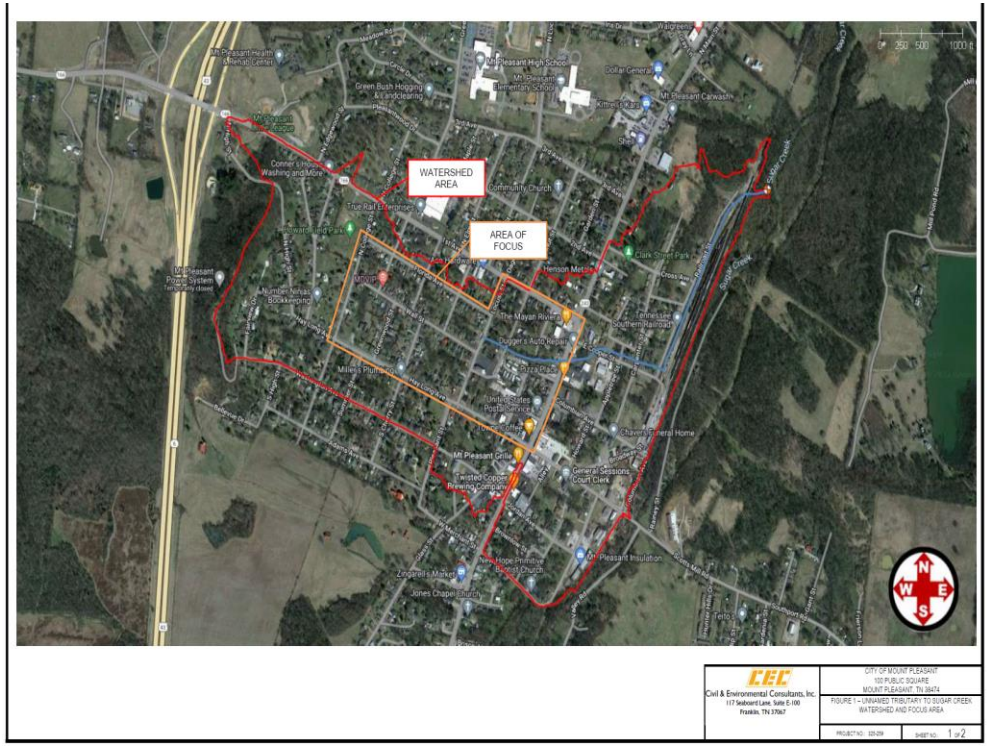
Site Visits:
- 3-4 trips for data collection.

Hydrologic & Hydraulic Models:
- Analyze existing conditions and up to 6 conceptual improvements.

Conceptual Plans:
- Layouts, narratives, permitting requirements, and cost estimates.

Public Meeting Participation:
- Present findings and answer questions.

Deliverables:
- Narrative report, GIS products, prioritization list of projects.



CEC Engineering Results January 2024

South Tributary Watershed

Existing Conditions Modeling

10-year, 24-hour storm event = 5.43 inches

North Tributary Watershed

Existing Conditions Modeling

10-year, 24-hour storm event = 5.43 inches

Probable Cost

- Wall Street: $ 1,421,750
- Walnut St. $ 509,080
- N. Main @ Laundromat : $ 1,843,600
- Florida Ave: $4,056,352
- Haylong: $4,478,610
- Goodloe: $1,471,272
- Edgewood & 1st Ave: $ 951,352
- **Total: $14,732,016**

Stormwater additional projects

Mockingbird and Sugar Creek , MTAS, February 2021.

The recommendations made in the document are as follows:

1. **Middle School Athletic Field**: Investigate using the athletic field at the middle school for its originally intended dual purpose, functioning as a dry detention basin to mitigate flooding.
2. **Detention Pond Improvement**: Work with the school to address the detention pond issue, as it is not detaining water properly. An engineer could design an outlet structure to slow the release of water, potentially costing less than $5,000.
3. **Immediate Actions**: While not obligated, Mount Pleasant could pursue using the athletic field as a dry detention basin to address flash flooding in the Mockingbird and Sugar Creek subdivision area.
4. **Long-Term Study**: Support the ongoing study by The University of Tennessee's Municipal Technical Advisory Service and Institute for Agriculture to address short-duration, high-intensity rainfall events and their impact on drainage systems.

These recommendations aim to address the localized flooding issues caused by intense rainfall events.

Glass Street-

Municipal Technical Advisory Service

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The Municipal Technical Advisory Service was asked to review and analyze a drainage complaint received by the City of Mount Pleasant in response to "flooding" on Glass Street in Mount Pleasant.

Based on my field visit and the responses what I have been told by the City, the flooding occurs during relatively short, but extremely intense rainfall events.

These brief, intense rains have exceeded the capacity of the drainage infrastructure associated with the city street in the area of concern. The stormwater in the side ditches has overtopped the culvert of a driveway entrance and caused scouring and subsequent damage to the entrance.

The complainant is the Glass Street Church of Christ, which is located at 500 Glass Street.

Pic. 1

The Church has two entrances on Glass Street. An aerial view of the location is provided in Pic. 1. The blue arrows generally depict the direction that drainage flows.

Conway & Gray

Overview:
Ongoing drainage concerns at Conway and Gray Streets have resulted in persistent standing water within the right-of-way, creating infrastructure and public safety issues. To address these challenges, the city will engage in following steps aimed at developing a stormwater management solution.

Actions:

Engineering Evaluation: Partner with the City's third-party stormwater engineers to conduct an on-site assessment and provide solution-oriented design recommendations.

Strategic Site Utilization: Incorporate the Conway Street parcel acquired in 2018 into the stormwater mitigation design, maximizing land use and drainage efficiency.

Right-of-Way Improvements: Identify and implement interventions to alleviate chronic ponding within the right-of-way, with a focus on long-term water conveyance and infrastructure resilience.

General Fund Expense 2021-2026

❖ Locust Street Culvert Replacement 2021:	$220,614.00
❖ Redwood Circle Culvert Replacement 2022:	$ 173,938.00
❖ CEC analysis, modeling, and cost opinions 2022-2024:	$ 100,000.00
❖ CEC Stormwater Utility Development 2025:	$55,000.00
❖ Stormwater specifications and standards:	$ 29,000.00
Total:	$ 578,552.00

Next Steps: Establishing a Stormwater Utility

Over the past five years, the City has funded stormwater needs through the General Fund. Due to limited resources, this approach has only allowed us to address emergent or reactive situations—rather than proactively invest in comprehensive infrastructure improvements.

In contrast:

Water and sewer services are supported by dedicated utility revenues.

Streets and sidewalks are also financed through the General Fund.

With an estimated $15 million in stormwater repairs needed, the General Fund alone cannot sustainably support future stormwater infrastructure. To ensure financial stability and long-term resilience, we recommend creating a dedicated stormwater utility, funded through a user fee. This will allow the City to:

Prioritize system-wide upgrades

Address deferred maintenance

Proactively manage stormwater challenges