



Memorandum



Memorandum originally prepared by CDM Smith for the FY 2024 grant cycle; updated by the Town of Denton for the FY 2025 grant cycle.

Date: June 24, 2026

Subject: Technical Feasibility Summary Denton Critical Facilities Risk Reduction Project

The Town of Denton Maryland (town) is applying for Fiscal Year (FY) 2025 funding under the Federal Emergency Management Agency's (FEMA's) Building Resilient Infrastructure and Communities (BRIC) grant program.

The town was a recipient of BRIC non-financial Direct Technical Assistance (DTA), which was utilized to prepare this sub-application and to support the technical feasibility evaluation summarized under the FEMA GO sub-application.

Denton Community Overview

Demographic and Economic Characteristics

The Denton Critical Facilities Risk Reduction Project will provide community-wide benefits to Denton. The town has a population of approximately 4,836 people (per the 2022 census), all of whom benefit when the Denton Volunteer Fire Department and Police Station maintains power. Denton is listed as a disadvantaged population, scoring a 0.76 on the Centers for Disease Control (CDC) Social Vulnerability Index (SVI). The RAPT tool lists Denton's CRCI value as 47th percentile out of 100. The project reduces the population's vulnerability by making them more resilient to disaster by improving emergency access to critical infrastructure.

Hazard Mitigation Plan

The Town of Denton is covered by the 2024 Draft Caroline County Maryland Multi-Hazard Mitigation Plan (MHMP) Update, in compliance with 44 Code of Federal Regulations (CFR) Part 201:

2024 Multi-Hazard Mitigation Plan Update, Caroline County, Maryland

Town Council adopted February 6th, 2025

The project will address all hazards and directly aligns with Goal 5 and Objectives 5.6, 5.7, and 5.8. Additionally, the project aligns with Goal 6 and Objectives 6.1 and 6.2.

Scope of Work

The town is proposing the purchase and installation of two generators and associated systems: a 120/208-volt (V) 25-kilowatt (kW) generator with a 400-ampere (A) automatic transfer switch (ATS) at the Denton Police Station, and a 277/480V 60 kW generator with a 400A ATS at the Denton Fire Station. Both generators will be powered by propane and will use the existing fuel tank infrastructure already in

place at each site. The Police Station has a 1,000-gallon underground propane tank, while the fire station has a 1,000-gallon aboveground propane tank, both of which are currently used regularly.

Currently, the Police Station has a portable generator hookup with a 60A manual transfer switch, but this system is only designed to provide backup power to part of the critical infrastructure. The air-conditioning system is not connected to this hookup, which could result in extreme temperatures during power outages in the summer. The existing hookup was installed in 2002, and the on-site portable generator was last serviced in 1986, highlighting the outdated nature of the equipment. There is currently no fixed backup generator with sufficient capacity to support the entire Police Station. The fire station has a non-functional fixed generator that is not connected to its electrical system, rendering it entirely ineffective. It also has no identifying placards or name plates, so the age or output of the current unit cannot be determined. The proposed project will mitigate risk by providing a reliable secondary power source for both critical facilities.

The Police Station generator will be connected to the existing 120/208V 400A main distribution panel (MDP) via a 400A ATS, while the fire station generator will connect to the existing 277/480V 400A MDP through a similar 400A ATS. The ATS units will intercept each facility's incoming service just before each MDP and will act as a switch between the utility and the generator. Given limited space in the electrical rooms, the ATS units will be placed outside in NEMA 3R enclosures mounted on equipment racks. The design and installation will fully comply with relevant codes, including the National Fire Protection Association (NFPA) and the National Electric Code (NEC). As both locations are outside the Special Flood Hazard Area (SFHA), there is no requirement to elevate the generators according to the American Society of Civil Engineers (ASCE) Standard 24. The generators will be placed on concrete pads, secured with fencing, protected by weatherproof sound-attenuated enclosures, and properly anchored to withstand the seismic and wind loads of Denton, Maryland.

The proposed generator capacities were chosen based on 24 months of utility usage data for each facility. For the Police Station, the peak load was 17 kW, and the minimum load was 9 kW. Thus, a 25 kW generator is proposed to allow for 25% future load growth/fluctuations while ensuring that the operational load stays above 30% even during periods of minimal use. For the fire station, the annual gun bash in June is not part of the critical load, but it causes a temporary peak of 90 kW. Excluding this annual event, the peak load is 46 kW, and the minimum is 17 kW. Accordingly, a 60 kW generator is proposed to accommodate future growth/fluctuations and ensure that the operational load remains above approximately 30% during low usage times. The final equipment capacities will be selected by an appropriate design professional or vendor to completely serve the critical facilities.

Documentation to support the sizing for each generator is provided with this application in the attached .zip folder: Proposed Generator Capacities.

The cost estimate for the generators and supporting infrastructure was developed using cut sheets for generators sized based on the 24 months of utility usage data. These cut sheets are provided in the attached .zip folder: Proposed Gen&ATS Cutsheets.

A preliminary site layout for each generator is attached to this application.

Once the installation of the generators and supporting infrastructure is complete, the Town of Denton will be responsible for any long-term maintenance. The town will either maintain the equipment with

qualified personnel or execute a third-party agreement to provide regular maintenance, per the attached signed maintenance agreement.

Project Location and Population Impacted

The entire population of Denton, approximately 4,836 people according to the 2022 census, will benefit from the installation of backup power at the Denton Police Station (located at 100 N 3rd St, Denton, MD 21629), whose service area is the town limits.

Beyond this, the fire station (located at 400 S 5th Ave, Denton, MD 21629) also services a 72-square-mile area that extends far beyond the Denton town limits. To determine the population impacted by the installation of a generator at the Denton Volunteer Fire Department, the fire station service area was digitized in GIS, and Esri Enrich was used to fill the polygon with total population from both the 2020 Census and 2022 ACS 5-Year. The Enrich tool uses census-block-level weights to apportion data within custom areas; this process resulted in 10,000 people (an estimated population) impacted.

Description of Design Completed to Date

Through the Direct Technical Assistance provided by CDM Smith, the town was able to complete the following 30% preliminary design effort to date.

Data Collection and Studies

- Evaluated the existing generator hookups at both the police station and the fire station, including the associated electrical infrastructure and equipment.
- Determined the appropriate fuel system (propane) for the proposed generators. Verified existing fuel system capacity.
- Collected and evaluated historical utility usage data at each facility to determine the current electrical loads.

Preliminary Design

- Reviewed and analyzed historical utility usage data to establish generator sizing requirements for each facility.
- Determined how the proposed generators will be connected to the existing electrical infrastructure and the associated requirements for the proposed Automatic Transfer Switches.
- Developed a preliminary site layout and associated ground disturbance for each generator.
- Developed a preliminary cost estimate for each generator.

Community Outreach

- The town provided a presentation to the Town Council at a Working Session open to the public provide an update on overall project status.

Description of Final Design

The final design of the Denton Critical Facilities Generator Project includes the following design, permitting, and outreach activities.

There has been a lapse in time since the Town received Direct Technical Assistance, which was cancelled by FEMA in early 2025, and the current funding application. As such, the town will need to revisit and finalize the choice of generator.

Data Collection and Studies

- Perform a wetland delineation survey and assessment of the condition of existing wetlands that could be impacted by project construction.
- Define endangered species that are potentially present in the project area and ascertain appropriate habitat mitigation measures.
- Collect and provide information to FEMA, as necessary, to confirm compliance with any other federal environmental or historical preservation requirements.
- Perform a comprehensive load study to confirm the capacity of the generator for each facility.

Permitting and Property Acquisitions

- Submit/obtain applications, approvals, and required mitigation measures for permits with Maryland Department of the Environment, the Critical Area Commission, floodplain administrator, and building department.
- Acquire property and/or easements necessary for project implementation and long-term maintenance, including obtainment of legal services and appraisals, as needed.

Preparation of Construction Documents

- Finalize definition and design of project components (drawings and specifications), including required mitigation measures, at a 50%, 90%, and 100% level of completion.
- Finalize Engineer's Estimate of Construction Cost, construction schedule, and facility operation and maintenance requirements.

Program and Project Management

- Establish an appropriate financing mechanism(s) for generator maintenance and the town's cost share of the mitigation projects.
- Conduct continuous outreach activities with the community and other stakeholders, as needed, to guide project design and build support for needed financing mechanisms.
- Update FEMA Grant administration, including cost-effectiveness data developed through these activities.

Description of the Construction

Construction of the Denton Critical Generator Project includes the following contract award, equipment procurement, equipment installation, and project closeout activities:

Contract Award

- Issue a Request for Proposal (RFP).
- Review and evaluate bid proposals after the completion of Final Design, focusing on contractor qualifications, pricing, and methodologies.

- Verify contractor credentials, assess past performance, and conduct interviews to clarify details and negotiate terms.
- Once the most qualified contractor is selected, formally award the contract, finalize agreements, and initiate the project with a kickoff meeting to align expectations and communication.

Equipment Procurement

- Order and procure the generators and all related equipment from the designated vendors.
- Ensure that all specifications and requirements are met to avoid any delays in the process. Given the anticipated lead times, which are expected to be at least 6 months, it is critical to initiate this process promptly.
- Confirm the equipment delivery schedules with the vendors to ensure that any potential delays are proactively managed.

Site Preparation and Construction

- Perform site demolition and excavation work to prepare the area for the installation of necessary equipment. This includes clearing the site, removing existing generators and any concrete pads, and digging trenches for the new underground infrastructure.
- Lay in the underground conduits for electrical wiring and gas pipelines to each existing propane tank and backfill the trench accordingly.
- Pour the concrete pads for the generators and install equipment racks to support the automatic transfer switches.
- Install the generators and automatic transfer switches.
- Pull all wiring and modify the existing service entrance, as necessary, to establish electrical interconnections.
- Install security fencing around the generators to protect them from unauthorized access.

Final Inspection and Project Closeout

- Conduct thorough testing of the generators, carefully inspect the entire site for any issues, and carry out any necessary site restoration or remediation tasks.
- Develop comprehensive final documentation outlining all activities, findings, and outcomes, and submit it for the successful closeout of the grant.

Program and Project Management

- Conduct continuous outreach activities with the community and other stakeholders, as needed, to guide project design and build support for needed financing mechanisms.
- Update FEMA Grant administration.

Applicable Design Standards and Codes

According to FEMA's Nationwide Building Code Adoption Tracking website, <https://www.fema.gov/emergency-managers/risk-management/building-science/bcat>, the entire state of Maryland, including Denton, has adopted the 2021 or later versions of the International Building Code

(IBC) and the International Residential Code (IRC) model codes published by the International Code Council (ICC).

The design and installation will fully comply with relevant codes, including the National Fire Protection Association (NFPA) and the National Electric Code (NEC). As both locations are outside the Special Flood Hazard Area (SFHA), there is no requirement to elevate the generators according to the American Society of Civil Engineers (ASCE) Standard 24. The generators will be placed on concrete pads, secured with fencing, protected by weatherproof sound-attenuated enclosures, and properly anchored to withstand the seismic and wind loads of Denton, Maryland.

Risk Reduction/Resilience Effectiveness Against Natural Hazards

Effective Risk Reduction

It is essential to install a generator at the Denton Police Station and the Denton Fire Station to ensure these critical facilities can operate without interruption during power outages. The Denton Police Station relies on continuous power to maintain emergency communication systems, dispatch operations, and critical technology that supports public safety efforts. Similarly, the Denton Fire Station depends on power to operate equipment like bay doors, alarms, and water pumps, ensuring fire crews can respond quickly to emergencies. By installing generators, both facilities can maintain their vital operations, reducing the risk of delays in responding to emergencies and ensuring the safety and well-being of the Denton community, even during power failures.

Effective Increase in Community Resilience

Installing generators at the Denton Police Station and Denton Fire Station will significantly enhance the overall resilience of the Denton community by ensuring these critical facilities remain fully operational during power outages. In times of natural disasters, severe weather, or infrastructure failures, reliable power will allow emergency services to respond swiftly and efficiently, minimizing disruptions and protecting lives and property. This project strengthens the community's preparedness and ability to recover from emergencies by ensuring continuous coordination, communication, and deployment of resources. By pursuing funding for this essential project, the town demonstrates a commitment to safeguarding its residents and fostering a more resilient, secure, and connected community.

Project Schedule

Task		Start (Months from Award)	Duration (Months)
Final Design and Permitting			
1	MDEM Sub-Award	1	1
2	Contract and Startup Meetings	2	2
3	Final Site Assessment	4	2
4	Final Engineering Design	6	5
5	Final Engineering Cost Estimate	11	1
6	Bidding and Request for Proposals	12	2
7	Community Outreach	14	1
Construction			
1	Contract Award	15	1
2	Equipment Procurement	16	8

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4	Equipment Installation	30	3
5	Startup and Final Inspection	33	2
6	Project Closeout	35	2