DETROIT ARSENAL REGIONAL DEFENSE ASSESSMENT OF RESILIENCE

(DAR2)

PROCESS AND PROJECT CONCEPTS

Distribution A. This document is approved for public release distribution. (4 March 2022).

FEBRUARY 2022

Prepared for:

Office of Local Defense Community Cooperation

Macomb County Office of Economic Development

U.S. Army Garrison - Detroit Arsenal

Prepared by:

Converge Strategies, LLC

CONVERGE STRATEGIES

ABOUT OFFICE OF LOCAL DEFENSE COMMUNITY COOPERATION (OLDCC)

The Office of Local Defense Community Cooperation is a Field Activity within the Department of Defense and provides technical and financial assistance to states and communities that are invested in defense missions. OLDCC assistance supports the readiness and resiliency of both defense installations and defense communities, a priority for the country's National Defense Strategy.

ABOUT MACOMB COUNTY DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

The Macomb County Department of Planning & Economic Development supports an environment where businesses prosper and people thrive. Its activities and programs are focused on stimulating the local economy through business retention, expansion, and attraction while improving the overall quality of life for residents.

ABOUT U.S. ARMY GARRISON – DETROIT ARSENAL (DTA)

U.S. Army Garrison-Detroit Arsenal is in the city of Warren in Macomb County, Michigan. DTA is dedicated to providing installation support services and enhancing the quality of life for Soldiers, Families, and Civilians supporting the Warfighter. DTA is home to 32 tenant units, including the Tank-automotive and Armaments Command (TACOM) headquarters. It is located with manufacturing and military operations nearby (including nearby Selfridge Air National Guard Base), is the only active-duty U.S. military installation in the state of Michigan, and is the only active duty Army installation in a tri-state area (Michigan, Ohio and Indiana). Besides TACOM, DTA also hosts the Life Cycle Management Command, PEO Combat Support & Combat Service Center, PEO Ground Combat System, the Ground Vehicle Systems Center, and the Rapid Capabilities and Critical Technologies Office.

ABOUT CONVERGE STRATEGIES, LLC (CSL)

Converge Strategies, LLC (CSL) is a consulting company focused on the intersection of clean energy, resilience, and national security. CSL works with civilian and military partners to develop new approaches to energy resilience policy and planning in the face of rapidly evolving threats, vulnerable infrastructure, and determined adversaries.

ABOUT IDAHO NATIONAL LABORATORY (INL)

Idaho National Laboratory (INL) is part of the U.S. Department of Energy's (DOE) complex of national laboratories. The laboratory performs work in each of the strategic goal areas of DOE: energy, national security, science, and environment. INL is the nation's laboratory for nuclear energy research and development. INL is managed by Battelle Energy Alliance for the Department of Energy's Office of Nuclear Energy.

ACKNOWLEDGMENTS

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ACRONYMS

AHA	All Hazards Analysis
CSL	Converge Strategies, LLC
DAR2	Detroit Arsenal Regional Defense Assessment of Resilience
DoD	Department of Defense
DOE	Department of Energy
DTA	U.S. Army Garrison Detroit Arsenal
ECM	energy conservation measure
EGLE	Environment, Great Lakes, and Energy - State of Michigan
FEMA	Federal Emergency Management Agency
GLWA	Greater Lakes Water Authority
IAS	Infrastructure Alert System
IEM	Installation Energy Manager
IEWP	Installation Energy and Water Plan
INL	Idaho National Laboratory
MPSC	Michigan Public Service Commission
OLDCC	Office of Local Defense Community Cooperation
PPD-21	Presidential Policy Directive 21
PV	Photovoltaics
RICC	Regional Infrastructure Cybersecurity Coalition
SANBG	Selfridge Air National Guard Base
SEMR	Southeastern Michigan Region
TACOM	Tank-automotive and Armaments Command
TTX	Tabletop exercise

COMMONLY USED PHRASES

DAR2 Coalition	DTA, SANGB, and Macomb County
Macomb County	Macomb County, Michigan
The Team	CSL and INL
Utility Providers	DTE Energy, Consumers Energy, Verizon, AT&T, Comcast

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1. BACKGROUND AND NEED

Presidential Policy Directive 21 (PPD-21) identifies 16 critical infrastructure sectors (chemical; commercial facilities; communications; critical manufacturing; dams; emergency services; energy; financial services; food and agriculture; government facilities; healthcare and public health; information technology; nuclear reactors; materials, and waste; transportation systems; water and wastewater systems).[1] The operational status of each of these sectors is directly related to the ability of modern society to function. The loss or breakdown of services from these sectors may result in cascading negative impacts to civilian and military functions. Of the critical infrastructure sectors listed above, four are particularly important for the execution of defense missions: energy (including natural gas and electricity), water and wastewater systems, communication, and transportation.

More than 98% of Department of Defense (DoD) installations are reliant on the civilian electric grid for power.[2] Challenges to maintaining grid reliability, and thereby national security, are becoming more difficult as natural disasters increase in frequency and severity, human cyber-physical threats proliferate, and an aging and expansive grid infrastructure incorporates digital technology and distributed energy resources. These challenges are not only limited to the electric industry, but they are found across each of the 16 critical infrastructure sectors identified in PPD-21.

ELECTRICITY	TELECOMM	NATURAL GAS	WATER
98%	98%	87%	76%
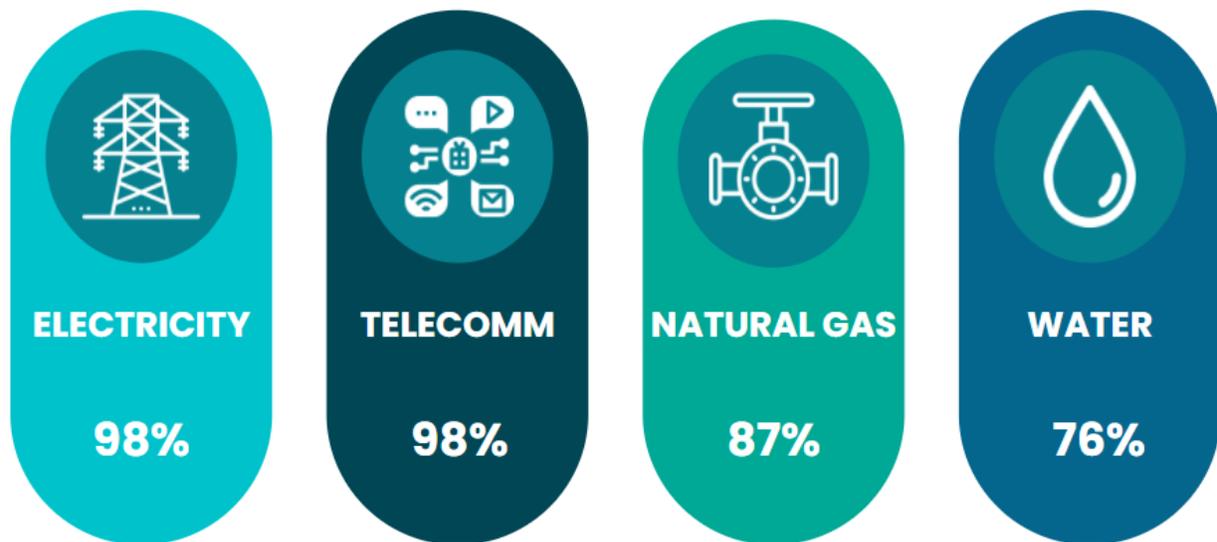
Figure 1. Percentage of DoD Installation Reliant on Community Infrastructure[3]

The Installation Energy Manager (IEM) at the U.S. Army Garrison Detroit Arsenal (DTA) has experienced mission assurance challenges in the face of more frequent and severe natural and manmade disasters. DTA has withstood the consequences of critical infrastructure failure, resulting in mission degradation and significant financial impact, from three major

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[1] Critical Infrastructure Sectors | CISA
[2] Regulatory Considerations for Utility Investments in Defense Energy Resilience | NARUC
[3] Adapted from: GAO-21-46, CLIMATE RESILIENCE: DOD Coordinates with Communities, but Needs to Assess the Performance of Related Grant Programs | GAO

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flooding events in the last five years alone. Further, in 2019, the installation was asked to curtail natural gas and electricity usage due to a polar vortex that caused demand for natural gas to skyrocket while a fire at a nearby natural gas compressor station reduced natural gas supply.[4,5] Fire at the compressor station, which supplies 64% of natural gas within the region, forced the utility provider to engage large customers to curtail usage. This event highlighted a growing reliance on natural gas critical infrastructure in the Southeastern Michigan Region (SEMR).[6] These experiences, combined with the findings of the Michigan Public Service Commission's (MPSC) Statewide Energy Assessment in 2019, spurred DTA's IEM to seek funding from DoD's Office of Local Defense Community Cooperation (OLDCC) for a study of regional critical infrastructure resilience. Together, OLDCC and DTA identified the Macomb County Department of Planning and Economic Development, herein "Macomb County," as the management partner and co-funder for the Detroit Arsenal Regional Defense Assessment of Resilience (DAR2).

DoD is increasingly concerned about its reliance on civilian utility providers for DoD mission assurance. To address these concerns, OLDCC supports states and local governments in their efforts to support the local military missions.[7] DAR2 is a regional infrastructure analysis and workshop process that includes stakeholder input from the DTA, Selfridge Air National Guard Base (SANGB), Macomb County, the MPSC, the Department of Homeland Security, other local government entities, utilities, and critical infrastructure owners. The DAR2 project brings these stakeholders together to characterize and prioritize electricity, natural gas, water, wastewater, and communications interdependencies and vulnerabilities. Once DAR2 stakeholders have a common understanding of utility interdependencies and vulnerabilities within the region, they then collaborate to develop project concepts that enhance the resilience postures of DTA, SANBG, and the greater SEMR. This report summarizes the project concepts resulting from the DAR2 project and identifies the necessary next steps to advance those project concepts.

1.1 Why Southeastern Michigan

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4 MPSC Statewide Energy Assessment (SEA) | MPSC
5 Michigan Public Service Commission Case No. U-20463 | MPSC
6 Staff Investigation Report | MPSC
7 Introduction | Office of Local Defense Community Cooperation | OLDCC

OLDCC and DTA understand the strategic importance of the Detroit Metropolitan area and, more broadly, the entire SEMR. OLDCC and DTA partnered to scope the DAR2 project to the entire SEMR for several reasons, including:

- The Detroit Metropolitan area, comprising a 6-county region, is home to approximately 4.4 million people. It is the 14th largest metropolitan area in the U.S.[8]

- The SEMR is home to both DTA, the only active duty base in MI, and SANGB. These installations host organizations representing five branches of the U.S. Armed Forces including the Ground Vehicles Systems Center, U.S. Army TACOM, and the 127th Air National Guard Wing.

- The SEMR contains the Macomb County Defense Corridor, an area which represents defense contractors executing more than 65% (2018) of all defense contracts awarded within Michigan.[9] The Detroit Chamber of Commerce estimates that over 100,000 people are employed in aerospace and defense sectors within the Detroit region.[10]

- Michigan has the highest military vehicle production in the U.S. with 37% of total contracts in the country.[11] The concentration of significant activities located in the Detroit Metropolitan Area is critical to DoD missions across the country.

- The SEMR contains an 87-mile border, and several border crossings therein, with Canada. These border crossings are essential for international trade, tourism, and retail between the U.S. and Canada. Over 40% of U.S. trade with Canada passes through the SEMR border crossings.[12]

- The SEMR remains a center for the U.S. automotive industry. The United States' "Big Three" automakers (GM, Ford, and Chrysler) are headquartered in the region. The Detroit region currently produces more cars and trucks than any other state in the country. In 2017, more than 2.0 million cars and trucks rolled off 11 Michigan assembly lines – over 1.7 million at assembly plants located in the Detroit region. In addition to many Tier 1 and 2 automotive suppliers, several single source manufacturers for critical DOD components are located within the Macomb County Defense Corridor.

- The Port of Detroit, which provides 16,000 jobs, is located in the SEMR. The Port Authority provides passage between Lake Huron and Lake Erie and oversees millions of tons of cargo at 29 private and public sector terminals.[13]

- Michigan has 44 natural gas storage fields with almost 1.1 trillion cubic feet of underground storage capacity, more than any other state and almost one-eighth of the nation's gas storage capacity.[14]

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[8] U.S. Census Quick Facts - Macomb, Oakland, and Wayne Counties, Detroit City, Michigan | U.S. Census Bureau
[9] Macomb County Business Registrations | Macomb County Planning and Economic Development
[10] Regional Overview | Detroit Regional Chamber
[11] Advanced Manufacturing | Industries | Michigan Business
[12] Borders | SEMCOG
[13] Overview | Port of Detroit
[14] Michigan State Energy Profile | Energy Information Administration

- The regional water source is the Great Lakes which holds approximately 84% of North America's surface fresh water and approximately 21% of the world's surface fresh water supply. The Great Lakes support more than 30 million people - roughly 10% of the U.S. population and more than 30% of the Canadian population. They also support 25% of Canadian agricultural production and 7% of American farm production.[15]

1.2 The DAR2 Team

Macomb County served as the project administrator and principal investigator for DAR2. Macomb County then selected, through competitive solicitation, Converge Strategies (CSL) to develop and execute the DAR2 project. CSL and technical and analytical subject matter expert support from Idaho National Laboratory (INL) (together, the "Team") relied heavily on their experience and lessons learned in a similar effort - Regional Identification of Gaps in Operational Resilience (RIGOR) - performed in collaboration with Joint Base Elmendorf Richardson in Anchorage, Alaska in 2019.[16] The Team also used INL's All Hazards Analysis (AHA) methodology and prior military energy resilience work with DTA to successfully execute the DAR2 project. This report summarizes the Team's process and methodology for conducting the DAR2 project (Section 2), provides an overview of project concepts developed from the DAR2 Workshop (Section 3), and shares recommended next steps (Section 4).

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[15] [Facts and Figures about the Great Lakes | US EPA](#)
[16] [Anchorage Bowl Infrastructure Resilience Project Concepts | Converge Strategies, LLC](#)

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2. DAR2 PROCESS

Together, Macomb County and OLDCC contributed the funding to execute the DAR2 project with DTA organizing the project team and leading community stakeholder outreach. The region includes DTA, SANGB, and hundreds of defense contractors, together representing billions of dollars in defense contracts annually, within the Macomb County Defense Corridor. Each of these stakeholders provide direct support to DoD missions in the SEMR and across the nation. As discussed in Section 1, vulnerabilities to natural threats within energy and water infrastructure the SEMR have caused mission degradation as recently as 2019.[17,18] Further disruption to any of the identified critical sectors (i.e., natural gas, water, or electricity) is likely to impact civilian, defense, and homeland security missions.

The DAR2 process follows a three-phase, six-step process outlined in Table 1 below and discussed in Sections 2.1–2.6.

Table 1. DAR2 Process Overview

Phase	Step
1 - Analysis	2.1 Perform Initial Outreach
	2.2 Identify Critical Infrastructure
	2.3 Map and Validate Multi-sector Critical Infrastructure and Interdependencies
2 - Collaboration	2.4 Understand Impacts and Consequences of Threats to Critical Infrastructure
	2.5 Develop Resilience Project Opportunities
3 - Action	2.6 Make Recommendations for Military Installation Resilience Implementation Activities

2.1 Perform Initial Outreach

The Team conducted the Analysis phase of regional interdependencies and vulnerabilities by gathering and analyzing publicly available data (e.g., the MPSC 2019 State Energy Assessment [19]), recent energy studies and plans, industry studies, and after-action reports that captured findings from recent natural disasters in the region. Through this preliminary analysis, the Team identified the major lifeline sectors and corresponding infrastructure owners in the SEMR to be included in the DAR2 process.

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[17] Climate Resiliency and Flooding Mitigation Study | SEMCOG
[18] Michigan 2019 Statewide Energy Assessment, 2-year Implementation Update | MPSC
[19] Statewide Energy Assessment | MPSC

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2.1.1 Initial Stakeholder Outreach

Initial outreach meetings were critical for cementing stakeholder buy-in. In partnership with DTA, SANGB, and Macomb County, herein the "DAR2 Coalition," the Team scheduled a series of initial outreach meetings with critical infrastructure stakeholders. The DAR2 Coalition provided the Team with initial recommendations for critical infrastructure stakeholder outreach. During these meetings, the Team socialized the DAR2 project concept and goals and began the process of identifying appropriate infrastructure owner stakeholders to be involved in the entire DAR2 process.

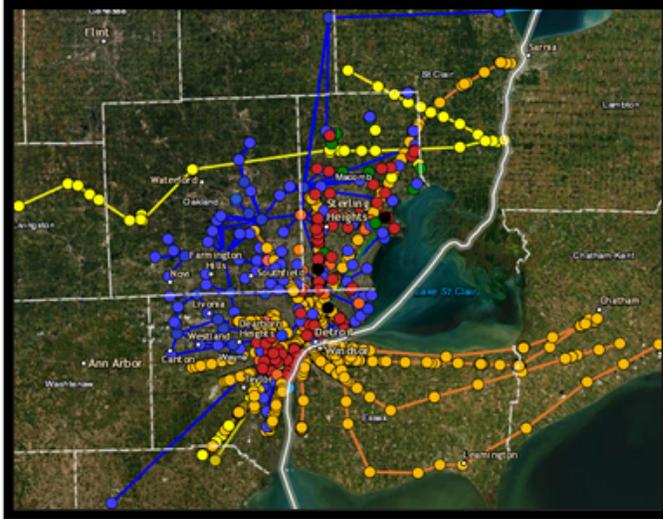## 2.2 Identify Critical Infrastructure

In parallel with initial stakeholder outreach, the Team reviewed publicly available reports, studies, flood plain maps, and news articles that captured the critical infrastructure threats and vulnerabilities in the SEMR. DTA collected, reviewed, and distributed reports, plans, and publications for the Team to use as the basis of critical infrastructure identification. DTE Energy, Consumers Energy, Verizon, AT&T, and Comcast, herein "Utility Providers," provided additional information and validation and verification of data collected by the DAR2 Team. Macomb County, the Greater Lakes Water Authority (GLWA), and other municipal stakeholders provided similar information and review. The Team used this data, along with publicly available data sources, to map SEMR critical infrastructure (see section 2.3.1 for more information). The DAR2 project is Unclassified, and the Team took appropriate precautions not to share aggregate information regarding critical infrastructure interdependencies outside of the Team and DAR2 Coalition.

2.3 Map and Validate Multi-sector Critical Infrastructure and Interdependencies

The Team mapped critical infrastructure throughout the SEMR, specifically identifying interdependencies within the electricity, natural gas, water, wastewater, and communications sectors. The Analysis Phase culminated with the review and validation of the Team's findings with critical infrastructure stakeholders.

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2.3.1 Data Mapping - AHA Model Overview

The Team used INL's All Hazards Analysis (AHA) toolset to develop a function-based infrastructure dependency model of critical infrastructure in the SEMR. This model provided all DAR2 participants with a foundation to rapidly evaluate and understand the potential consequences of manmade and natural disasters to infrastructure systems or to identify limitations of existing infrastructure systems. The Team used the AHA model to display multiple views and analyses of the major critical infrastructure locations on a map (see Figures 2 and 3). Raw, aggregate AHA data and simulations, created from publicly available sources, were not shared with DAR2 participants.

Figure 2. Overview- AHA model of the Greater Southeast Michigan Region
[Provides an illustration of critical infrastructure nodes, mapped with the AHA toolset, by sector.]
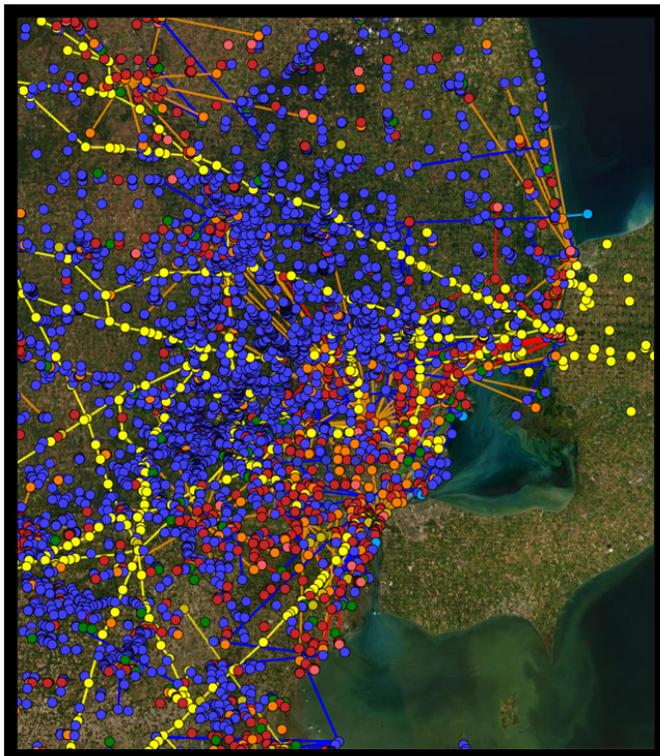
Figure 3. Detailed - AHA model of the Greater Southeast Michigan Region
[Provides a detailed look at critical infrastructure nodes, mapped with the AHA toolset, by sector.]

The Team color-coded critical infrastructure data points in the SEMR according to its critical infrastructure sector so that DAR2 participants could identify the overall system of utilities and critical infrastructure assets in the region. Using the AHA model, the Team displayed the interconnections between infrastructure assets with lines drawn between nodes.

- Electricity - red
- Natural gas - yellow
- Water - blue
- Wastewater - green
- Communications - orange

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2.3.2 Critical Infrastructure Owner Validation Meetings

Beyond initial outreach, the Team organized and executed meetings with critical infrastructure owners in each sector to validate and augment the Team's preliminary analysis using the AHA model. The Team provided infrastructure owners with short overview presentations on AHA. Then, the Team outlined electricity, natural gas, water, wastewater, and communications sector infrastructure and reviewed this data, along with areas of importance or high degrees of interconnectivity, with infrastructure owners. In these meetings, the Team gained valuable information from Utility Providers, the DAR2 Coalition, GLWA, and other stakeholders, which they used to edit and augment their original findings in advance of the DAR2 Workshop.

2.3.3 Overview - Critical Infrastructure and Vulnerabilities Findings

Throughout the Analysis phase, the Team identified two primary vulnerabilities in the SEMR which created the foundation for simulated disruptions conducted at the DAR2 Workshop (see section 2.4). These vulnerabilities were:

- **Reliance on imported natural gas.** Natural gas supply could be disrupted during a polar vortex or severe winter storm. This risk is mitigated by several large natural gas storage farms. Disruption at one of these locations during a polar event could negatively impact the populace.

- **Reliance on clustered electrical generation assets.** Generation units, particularly north of Detroit, are clustered closely together and located within proximity flood plains, as identified by the Federal Emergency Management Agency (FEMA). Severe flooding could disrupt these assets, as well as transmission and distribution lines, resulting in cascading power failures and fluctuations.

These findings are significant for the DAR2 process and for DTA's future planning. DTA, along with all DoD installations, must create and annually update an Installation Energy and Water Plan (IEWP).[20] At the time of this report, DTA is writing its IEWP and will incorporate the DAR2 vulnerability findings and relevant project concepts into its IEWP. IEWPs drive Army funding requirement prioritization. While the DAR2 project has a "beyond the fence line" scope, its findings will directly impact energy and water decisions made within DTA's installation boundaries.

2.4 Understand Impacts and Consequences of Threats to Critical Infrastructure

During the Collaboration phase of the DAR2 process, the Team facilitated an in-person stakeholder Workshop. The objectives of the Workshop were to convene public and private sector stakeholders from the SEMR, create common threat prioritization, identify common vulnerabilities, and coordinate a way forward on mitigation solutions based on the analysis completed to this point in the DAR2 project. To open the Workshop, OLDCC highlighted the unique importance and timing for resilience projects, various funding avenues for pre-and-post disaster resilience projects, and DoD and community collaboration opportunities.

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[20] Installation Energy Plan | Office of the Secretary of Defense

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The DAR2 Workshop had three goals:

- Develop a shared understanding of critical infrastructure and interdependencies.
- Generate clear problem statements to support future resources and advocacy.
- Create project concepts and action plans.

2.4.1 Critical Infrastructure Owner Presentations

The Team asked Utility Providers to present slides at the workshop on their current infrastructure in the Southeast Michigan region based on a) AHA findings and b) their understanding of their own infrastructure system. The presentations included a description of each issue related to the system, the importance to the asset owner and/or region, the challenges or risks within the system, and the interdependencies that exist between systems. This exercise provided critical asset owners the opportunity to bring forth their concerns, discuss common issues with their counterparts from other sectors, and create a level of candid sharing among the participants at the kickoff of the DAR2 Workshop.

2.4.2 AHA Simulated Disruptions and Regional Impacts

The Team provided two demonstrations of the AHA model's capabilities by creating simulated outages within critical infrastructure systems in the SEMR. Each simulation focused on the potential system disruptions stemming from one primary regional threat:

- 100-year flood event
- extended Polar Vortex in the SEMR

The Team selected these threats for simulation, from stakeholder engagement and research, as likely events that could cause a chain of interdependent infrastructure outages, and eventual mission disruption to DTA or SANGB. The simulated effects of these disruptions spread through the interconnected infrastructure nodes in the SEMR and, in some cases, resulted in significant loss of operational capacity across multiple critical infrastructure sectors. These simulations thus provided DAR2 Workshop participants with a visual understanding of how the region's critical infrastructure assets are tied together and an understanding of which interdependent nodes might be important to protect.

At the DAR2 Workshop, the Team asked participants to consider and discuss the simulated disruptions and list out vulnerabilities that concerned them most. Specifically, participants were asked to answer the following questions:

- What vulnerabilities or disruptions could impact your day job or operations?
- What vulnerabilities or disruptions could impact someone else in the room?
- What other general reactions and concerns do you have about critical infrastructure interdependence in the region?

The Team used these discussions to develop a list of major vulnerabilities that Workshop participants were concerned with. Vulnerabilities included:

- Fuel diversity + generation mix
- Cybersecurity

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- Aging infrastructure
- Single water chain + wastewater single point of failure
- Resilience standards, common operating picture
- Meeting future natural gas + electricity demand

2.5 Develop Resilience Project Opportunities

During the Collaboration phase, the Team executed facilitated exercises to guide Workshop participants through problem identification, solution prioritization, and project concept development and planning. Over the course of the two-day Workshop, the Team led participants to develop four project concepts to address the vulnerabilities, threats, and consequences to critical infrastructure consequences as discussed above. To achieve this, participants self-selected into four groups, which were developed through down-selection from the vulnerabilities identified in section 2.4.

Participants developed four concrete project concepts, described in section 3.0, and identified concrete project milestones, stakeholders, and next steps. Workshop small groups presented project concepts to all Workshop participants for iterative feedback, offers of support, and additional recommendations.

2.6 Make Recommendations for Military Installation Resiliency Implementation Activities

The DAR2 Action phase is, at the time of this report, still in progress. In the Action phase, the Team maintains and builds the momentum for DAR2 Workshop project concepts. With the DAR2 Coalition, the Team continues to engage critical infrastructure stakeholders, regulators, and industry players in the SEMR. Ultimately, the Team will make recommendations to funders and stakeholders for concrete actions they can take to guide project concepts to fruition. The Team will help project champions to identify funding sources including, but not limited to:

- DoD, including OLDCC
- FEMA
- Department of Energy
- Environmental Protection Agency

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3. OVERVIEW OF SOUTHEASTERN MICHIGAN RESILIENCE PROJECT CONCEPTS

Below are the project concepts developed by DAR2 Workshop attendees.

3.1 Detroit Arsenal Projects: Reducing Reliance on Natural Gas Through Diversification

Description	DAR2 participants recognize that reducing the region's reliance on natural gas is key to strengthening regional resilience. At the same time, DTA can serve as a testbed for innovative, energy resilience technologies to begin the process of energy supply diversification. Once DTA achieves this demand reduction through energy conservation measures (ECMs), the DAR2 Coalition will work with Utility Providers to prioritize existing energy resilience projects at DTA, including: • Microgrid with controls • Solar photovoltaics (PV) • Propane fuel supply
Vulnerabilities Addressed	Widespread disruptions of utility systems already impact defense installations, and DTA's dependence on a singular fuel source - natural gas - increases the likelihood of these disruptions. This vulnerability, as well as decarbonization goals, can be addressed by diversifying energy generation sources for the installation. This more diverse energy portfolio will ensure DTA has the electricity to meet future mission requirements.
Stakeholders	• DTA • DAR2 Coalition • Utility Providers
Benefits	DTA is well positioned to execute ECMs and demonstrate a reduced reliance on natural gas. By securing a microgrid with controls, solar PV, and propane fuel, DTA will increase the resilience of the installation and decrease their demand on the commercial grid. Together, these projects position the installation to operate more independently and take significant load offline, when necessary, to help prevent regional blackouts.

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3.2 Infrastructure Alert System (IAS)

Description	Significant amounts of utility infrastructure in the greater Southeast Michigan Council of Governments (SEMCOG) region are operating past their expected lifespan and have experienced failures during periods of high stress or demand (e.g., polar vortices, flooding, cyberattacks). The IAS aims to protect critical life support, national defense, civic, and business functions by reducing non-critical demand during those events. To achieve this, IAS will use existing systems and contact lists to notify all relevant individuals about the necessary conservation measures.
Vulnerabilities Addressed	DAR2 workshop participants recognize that there are multiple alert systems, but those systems are siloed and don't allow the region to quickly respond to dynamic events to reduce demand induced or cascading failures.
Stakeholders	• DAR2 Coalition • Utility Providers • MPSC, Emergency Management Division
Benefits	The life support, national defense, civic, and business functions of the region will be able to continue operating through contingency events instead of losing service when it is needed most. IAS will also quickly reduce consumption by predetermining infrastructure stress levels (i.e., trigger points) when notifications to reduce consumption are sent. The IAS will enable the region to coordinate efforts efficiently by leveraging existing alert systems and contact lists.

3.3 Michigan Regional Infrastructure Cybersecurity Coalition (RICC)

Description	Utility Providers servicing DTA and SANGB do not have a unified process for quickly sharing information on emerging cyber threats, cyber incidents, or real cyberattacks. The RICC aims to reduce the risk of catastrophic, cross-system failures due to cyber threats. In the short term, the RICC will provide a forum for Utility Provider and the DAR2 Coalition to perform a tabletop exercise (TTX) and agree to create a unified Regional Incident Response Plan. In the long-term, the RICC will protect regional infrastructure and DoD missions by addressing cybersecurity training standards, data availability, Classification, and sharing concerns across all Utility Provider members.
Vulnerabilities Addressed	DAR2 workshop participants recognize the increasing frequency of cyberattacks on critical civilian infrastructure both domestically and worldwide. These events, paired with trends such as increasing electrification and decreasing information technology/operational technology gap, indicate that the risk for catastrophic cross-system failure due to a cyberattack is growing in Southeastern Michigan. Dealing with cyber threats in utility or company silos is no longer enough to mitigate this risk.
Stakeholders	• U.S. Army Deputy Chief of Staff, G-9 (Installations) • DTA • DAR2 Coalition and Utility Providers
Benefits	While the risk of cyberattack can never be fully eliminated, the RICC will allow for the select sharing of critical information regarding regional cyber threats among the DAR2 Coalition and Utility Providers. This information sharing enhances member awareness of cyber threats, minimizing the threat of a cross-sector failure due to information asymmetry, and thereby protecting the region's life support and national defense missions. In the long term, RICC's members will provide a first-in-class example of cybersecurity training standards across multiple utility sectors. The RICC will serve as a platform for Utility Providers and DTA to address data sharing and data Classification concerns openly and routinely. RICC will also function as a connection point between DTA and Utility Providers so that each can communicate ever-changing cybersecurity standards and lessons learned.

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3.4 Red Run Renovations

Description	The AHA model identified flooding throughout the region as a threat to the DoD missions and industries in the SEMR. Much of the flooding risk is contained within the Red Run watershed, which floods regularly and is vulnerable to flash floods. The project includes two parts:
	
	• Understand the existing studies and analysis that have been conducted in this watershed to develop a regional solution for the flooding risks.
	   ○ Identify and map critical stakeholders, roles, and responsibilities
	   ○ Conduct a literature review of existing and forthcoming studies on the watershed and the regional risk concerns.
	• Identify infrastructure solutions to address the catastrophic stormwater flooding risks within the Red Run watershed.

Vulnerabilities Addressed	Addressing water infrastructure failures within the Red Run watershed will mitigate the risk of further stormwater flooding. Current infrastructure is unable to support the growth of water runoff in the region, increasing the likelihood of catastrophic flooding. This same level of flooding was simulated with the AHA tool and resulted in the degradation of SEMR utilities like electricity and natural gas.
Stakeholders	• DAR2 Coalition • Macomb County Public Works, GLWA. Environment, Great Lakes, and Energy - State of Michigan (EGLE) • Regional water stakeholders (City of Warren, Clinton Township) • FEMA • Michigan State Police, Emergency Management
Benefits	This project includes two phases, each with their own benefits: Currently, responsibility for water access, water infrastructure development, and resilience is spread across multiple organizations. DAR2 Workshop participants recognize regional flooding concerns and are aware that siloed studies are being conducted by various organizations, both public and private sector. This project will identify one or more unified solutions to flooding risks. The project seeks funding to modify infrastructure within Red Run watershed to address current shortfalls, provide improved drainage, and reduce regional flooding. This will subsequently reduce the risk of flooding impacts to DTA and other critical infrastructure assets.

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4. PROPOSED NEXT STEPS

The DAR2 process and Workshop in Southeastern Michigan resulted in four project concepts - opportunities to enhance the resilience posture of the region. Next steps for each of these projects are presented in Table 2 below.

Table 2. Proposed Next Steps

3.1 Detroit Arsenal Projects: Reducing Reliance on Natural Gas Through Diversification	
Next Steps and Description	**Stakeholders**
DTA will execute an energy audit and identify ECMs that will reduce load. DTA will continue work with the DAR2 Coalition to secure funding (likely an Energy Savings Performance Contract or Utility Energy Service Contract) for the proposed microgrid and the addition of solar PV and propane assets. DTA will: ● Brief installation leadership on their goal to reduce demand and pursue ECMs through an energy audit; and ● Meet with the Utility Providers to find funding to secure controls for the in-progress microgrid project and determine how best to incorporate solar PV and propane fuel.	**Lead** ● DTA **Support** ● DAR2 Coalition ● Utility Providers ● MPSC ● DOE

3.2 Infrastructure Alert System (IAS)

Next Steps and Description

The IAS project concept is a high level concept and needs further clarity in implementation details. Creating an operational framework with a proposed pilot will continue building on the momentum from the workshop. In pursuit of the IAS project and to have MPSC approval by fall 2022, the DAR2 Coalition and Utility Providers should:

- Identify the appropriate POCs from each organization that will form a working group;

- Sign any necessary NDAs or MOUs to enable open and direct communication between stakeholders; and

- Determine the information, audience, and contact methods available from each notification system.

Stakeholders

Lead
- DAR2 Coalition

Support
- Utility Providers
- MPSC

3.3 Michigan Regional Infrastructure Cybersecurity Coalition (RICC)

Next Steps and Description

U.S. Army G-9 staff will seek funding for a preliminary DAR2 follow-on effort to initiate a cybersecurity-themed TTX with DAR2 Utility Partners. This follow-on effort will seek to generate awareness among company leadership and, ultimately, gather Utility Provider input on the necessity of the RICC.

The U.S. Army G-9 will:

- Identify funding sources for preliminary RICC standup activities, principally a cybersecurity themed TTX; and

- Collaborate with the Team, DTA, and theDAR2 Coalition to identify and reconvene Utility Providers.

Stakeholders

Lead
- U.S. Army Deputy Chief of Staff, G-9 (Installations)

Support
- DTA
- DAR2 Coalition
- Utility Providers

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3.4 Red Run Renovations

Next Steps and Description

The Team will gather feedback from Workshop participants and identify organizations involved in existing research projects. The DAR2 Coalition will develop a project brief to present to OLDCC for feedback on the Red Run project concept at the Association of Defense Communities Conference taking place in March 2022.

Local government stakeholders and the Team are working to:

- Identify and engage with potential stakeholders that were not in attendance at the DAR2 Workshop;

- Develop project concept document for discussion with OLDCC; and

- Research potential funding opportunities for project phases not aligned within the current scope of OLDCC funding.

Stakeholders

Lead
- DAR2 Coalition

Support
- Macomb County Public Works Department
- OLDCC
- GLWA
- EGLE
- FEMA
- USACE

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APPENDIX A – DAR2 Workshop Attending Organizations

AT&T
City of Centerline
City of Warren
Comcast
Consumers Energy
Converge Strategies, LLC
Detroit Arsenal
Detroit Office of Homeland Security & Emergency Management
DTE Energy
Great Lakes Water Authority
Macomb County Department of Planning and Economic Development
Macomb County Department of Public Works
Michigan Public Service Commission
Office of Local Defense Community Cooperation
Selfridge Air National Guard Base
Transportation Security Administration
U.S. Army
U.S. Coast Guard
Verizon

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