

Overarching Narrative

A. Synopsis

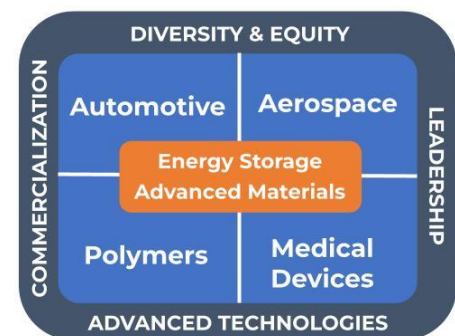
This application is submitted by the Manufacturing Advocacy & Growth Network (“MAGNET”), a nonprofit economic development organization dedicated to growing Northeast Ohio’s manufacturing industry – in collaboration with the State of Ohio and Governor Mike DeWine; JobsOhio, Ohio’s private economic development corporation; Team NEO, Northeast Ohio’s affiliate in the JobsOhio network; and numerous public and private partners.

Description of Growth Cluster. Northeast Ohio (NEO) is transforming from a rustbelt legacy economy to one that is more competitive, innovative, and inclusive. The region is a powerhouse of manufacturing with nearly 10,000 highly-concentrated manufacturing companies constituting a critical hub in America’s supply chain. Our industrial history has created momentous opportunities around competitive advantages, disruptive technologies, and nationally significant assets. It also has left conditions of extreme disinvestment and inequity, including some areas with incredibly high rates of poverty, such as Akron (24%), Canton (31%), Cleveland (33%), and Youngstown (35%).¹ The region’s transformation potential and resulting supply chain resilience is inextricably linked to the solutions to these challenges.

NEO makes the hard tech² pieces and parts that run the world. The North Star in this proposal is to become the world’s most advanced and resilient hard tech supply chain. The North Star comes from MAGNET’s Blueprint for Manufacturing in Northeast Ohio (www.makeitbetterohio.org), which plots a course for transformation via cluster strategies. The Blueprint advances a theory of change focused on building platform initiatives to help our innovation clusters: 1) develop equitable talent, suppliers, and ownership, 2) invest in emerging advanced technologies, 3) accelerate product commercialization, and 4) align the leading networks and organizations.

As the nation seeks to decarbonize the economy and improve energy and supply chain resilience, hard tech manufacturers are innovating rapidly in areas including electrification and sustainable materials. Building on the Blueprint’s platform initiatives, this proposal strengthens a convergent cluster focusing on the intertwined technologies of **energy storage and advanced materials**. These technologies promote tremendous interdependence among the organizations and supply chains in our region’s driver sectors, including aerospace, electric vehicles/automotive, medical devices, and polymers. To capitalize on our assets in these fields, the region intends to bolster a dynamic and innovative cluster that values technology convergence, open innovation, and technology adoption. This proposal invests in new initiatives and leverages existing work in a holistic approach with equity threaded throughout. Across all of the components, an EDA investment of \$75 million will be matched with \$40.4 million. Anticipated outcomes include 13,119 jobs created, 6,986 jobs retained, and \$1.075B generated in private investment; and projected \$12.339B GRP growth within 10 years.

Figure 1: Convergent Cluster



¹ US Census Bureau, QuickFacts. Accessed February 20, 2022.

² Hard technologies are tangible components that can be assembled into technology systems.

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Why Now and Why Is This Different? NEO is experiencing tremendous growth in hard tech manufacturing that, coupled with reshoring trends and national recognition that supply chain and energy vulnerabilities are solvable in places like Ohio, opens a window of opportunity to advance this cluster.³ Intel, a nationally important contributor to supply chain and energy resilience, announced in January 2022 that it is building a new \$20B factory here. The chipmaker said the plant could become “the largest silicon manufacturing location on the planet,” which is just one example of Ohio’s potential.⁴ The state’s hard tech capabilities, including in advanced polymeric materials, are central to why Intel chose to locate here.

NEO has engaged in manufacturing cluster development for decades, which lays the groundwork to advance this convergent cluster. For example, an Industry 4.0 technology-focused initiative called the Smart Manufacturing Cluster, plus cluster initiatives in aerospace, automotive, medical devices and polymers, marshal the region’s tremendous assets. Nationally prominent public and private assets such as NASA Glenn Research Center, University of Akron Goodyear Polymer Center (ranked #1 globally in polymers), and Ultium (battery manufacturer for GM/ Chevy and Honda EVs) hold the region’s potential along with a network of regional supply chain companies connected via MAGNET’s ready-made governance and communications initiatives.

This is different from previous cluster development efforts because the region is aligned behind a vision to a degree not previously seen. Over 250 public and private partners, including 150 manufacturing CEOs, with representation from across the region’s 18 counties and extant cluster initiatives, created the Blueprint vision in 2020. Industry-wide platform initiatives emerged from recognition that many manufacturers in NEO have a legacy mindset. The pace of advanced manufacturing adoption has been slow among supply chain companies; and, the industry is disproportionately white and male in the rank-and-file workforce and executive and ownership ranks, which does not reflect the values or diversity of thinking the region needs if it is to be truly competitive. The existence of platform initiatives creates the conditions for this to succeed.

Coalition Members and Component Projects. This proposal strengthens a convergent cluster by 1) leveraging and advancing platform initiatives, and 2) advancing new initiatives that support cross-cutting innovation. The coalition of component leads and projects are listed below.

Table 2: Coalition Members and Component Projects

Leads	Project Title and Description
Governance	
MAGNET	Cluster Governance and Outreach. An industry-led governance structure bolsters a dynamic cluster coalition of business intermediaries,

³ Team NEO. 2021 Manufacturing Report.

<https://teamneo.org/wp-content/uploads/2021/10/2021-team-neo-manufacturing-qer.pdf>.

⁴ Walsh, Emily. Intel CEO discusses plans to create “the largest silicon manufacturing location on the planet”. Yahoo News. January 23, 2022. <https://news.yahoo.com/intel-ceo-reveals-plans-rebuild-184837750.html?fr=syrsrp>.

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	commercialization intermediaries, equity-focused civic organizations, philanthropy, national assets, and research organizations.
Platform Initiatives: Equity and Commercialization	
MAGNET	Increasing Diverse Companies Equitably. This non-construction project serves as a platform initiative for the other component projects, addressing the issues of diversity in workforce, leadership, and company ownership.
JumpStart, Inc.	Commercialization Growth & Access. This non-construction project serves as a platform initiative, seeking to expand commercialization capabilities to increase startup diversity and underrepresented business growth.
Convergent Technology Initiatives Around Energy Storage and Advanced Materials	
University Hospitals (UH) Ventures	Care at Home (Medical Devices). This non-construction project seeks to establish a smart medical device open technology platform drawing on energy storage, advanced materials, and commercialization components.
BRITE Energy Innovators	BRITE Labs Expansion (Automotive & EVs). This construction project seeks to expand R&D, commercialization, and workforce spaces supporting energy storage innovation for electric vehicles and driver sector applications.
University of Akron	Polymer R&D and Production Facility (Polymers). This construction project seeks to improve R&D and commercialization space to innovate and test new polymeric materials for use in automotive, aerospace, and key sectors.
Ohio Aerospace Institute (OAI)	Materials Innovation in Aerospace (Aerospace). This non-construction project seeks to establish an accelerator program that drives aerospace growth by readying advanced materials research for commercialization.
County of Cuyahoga	Resilient and Green Energy Infrastructure. This construction project seeks to install energy microgrids in industrial districts, transforming manufacturing energy utilization with smart technologies and renewable resources.

Alignment to CEDS or CEDS-equivalents. This proposal derives from MAGNET’s Blueprint. Additionally, nine of the 18 counties are covered by CEDS, which are listed in the table below. The CEDS agencies were engaged in the development of the Blueprint and have provided Letters of Support.

Table 3: CEDS Alignment

CEDS or CEDS-Equivalent	Alignment
NEO Four County Regional Planning and Development Organization ⁵	Prioritizes manufacturing and public-private collaborations to address regional needs and equity.

⁵ Northeast Ohio Four County Regional Planning and Development Organization. 2018 Comprehensive Economic Development Strategy.

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Eastgate Regional Council of Governments ⁶	Prioritizes manufacturing and public-private collaborations, and promotes equity.
Ohio Mid-Eastern Governments Association ⁷	Prioritizes regional resiliency, workforce development, and manufacturing.
Northeast Ohio Areawide Coordinating Agency	NOACA is currently developing a CEDS. Letter of support indicates alignment with emerging priorities.

Summary of Additional Complementary Initiatives Outside the Component Projects.

A variety of complementary initiatives fulfill important functions supporting this application.

Table 4: Complementary Initiatives

Complementary Initiatives	Alignment
Governance Initiatives	
Public and Philanthropic	<ul style="list-style-type: none"> ● The Fund for Our Economic Future leads a network of 40+ funders, civic and business alliances, and government entities that has deployed over \$100 million to drive regional growth; contributing \$200,000 in match. ● JobsOhio is Ohio’s private economic development corporation; contributing \$2,875,000 in match via its NEO affiliate TeamNEO.
Higher Education	Team NEO’s Talent Development Council (TDC) provides a forum through which the majority of the region’s higher education and workforce organizations collaborate on talent development initiatives.
Equity Initiatives	
Underrepresented Businesses	<ul style="list-style-type: none"> ● Greater Cleveland Partnership leads regional partnerships to increase underrepresented businesses through the Ohio Minority Business Development Agency Business Center and other initiatives. ● Northeast Ohio Hispanic Center for Economic Development providing economic and entrepreneurial technical assistance, training, and advocacy for the region’s Hispanic business owners. ● The Presidents’ Council develops African American entrepreneurs for sustainable wealth creation through business and entrepreneurial support, ecosystem building, and capital formation and investments.
Commercialization Initiatives	
Incubators, Accelerators, and Capitalization	JumpStart, resourced by Ohio’s Third Frontier program, leads a regional network of incubators and accelerators supporting startups and small companies, including commercialization partnerships with government and academic researchers and venture investors.
Advanced Manufacturing/ Supply Chain Transformation Initiatives	

⁶ Eastgate Regional Council of Governments. Comprehensive Economic Development Strategy 2020-2022.

⁷ Ohio Mid-Eastern Governments Association. CEDS 2020 Update.

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Manufacturing Modernization	The Smart Manufacturing Cluster (Team NEO) promotes Industry 4.0 tech adoption throughout the supply chain.
Supply Chain Modernization	MAGNET’s R-7 grant funded by EDA CARES provides business technical assistance to Cuyahoga County companies on the adoption of advanced manufacturing technologies; this application expands the program regionally.
Convergent Cluster and Emerging Technology Initiatives	
Hard Tech Clusters and Technology Initiatives	Cluster initiatives in aerospace (OAI), medical devices (UH), energy storage (BRITE), and polymers (Greater Akron Chamber and University of Akron) are promoting dynamic interactions in energy storage and advanced materials across their industries.

Specific Metrics of Success. The following metrics are projected across all components.

Table 5: Metrics	Total	Underrepresented Stakeholders
Businesses served in component projects	2,094 businesses	900 underrepresented businesses
Economic Growth	Jobs Created: 13,119 Jobs Retained: 6,986 Private Investment: (including capital raised) \$1,075,150,000	Jobs Created: 4,040 Jobs Retained: 2,152 Private Investment: (including capital raised) \$331,150,000
Input-output modeling projects \$12.339B of GRP growth within 10 years		

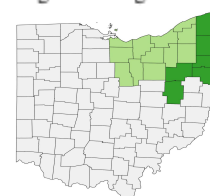
General timeline for Implementation, Including Completion of Any Construction. The general timeline is envisioned as follows:

- First six months: Project readiness, contract and subaward processes, permits (as needed for construction). All projects launch/construction begins within six months of Phase 2 award.
- Construction projects complete within 36 months of award.
- Non-construction projects will be implemented for up to 48 months and sustained thereafter.

B. Description of the Project’s Location and Region

This proposal serves an 18-county region in NEO; FIPS are footnoted.⁸ The region is a JobsOhio-designated economic development area anchored by the Akron, Canton-Massillon, Cleveland-Elyria, Mansfield, and Youngstown-Warren-Boardman MSAs. Shaded on the map, four counties are designated as “coal producing counties” by the Ohio Coal Association (Columbiana, Mahoning, Stark, and Tuscarawas)⁹ and five counties are

Figure 6: Region



⁸ Ashland (39005), Ashtabula (39007), Columbiana (39029), Crawford (39029), Cuyahoga (39035), Erie (39043), Geauga (39055), Huron (39077), Lorain (39093), Lake (39085), Mahoning (39099), Medina (39103), Portage (39133), Richland (39139), Stark (39151), Summit (39153), Trumbull (39155), Wayne (39169)

⁹ Coal Producing Counties. Ohio Coal Association.

<https://www.ohiocoal.com/information-library/interactive-ohio-map.php>.

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within the Appalachian Regional Commission region (Ashtabula, Columbiana, Mahoning, Trumbull, and Tuscarawas).

Targeted Participants and Stakeholders Engaged. Collectively, these projects engage manufacturing businesses throughout the region, underrepresented businesses, and organizations involved in the energy storage and advanced materials innovation and commercialization ecosystems. Projects are principally located in the highly distressed communities of Akron, Canton, Cleveland, and Youngstown/Warren. Component strategies ensure that primary and secondary beneficiaries include businesses and workforce participants in those communities.

Assets. The following regional assets are leveraged.

Table 7: Assets	Organizations
Research and Development Assets, Including Labs	
National Labs	Air Force Research Lab at Wright Patterson Air Force Base; NASA Glenn Research Center
Academic Labs	Case Western Reserve Univ.; Cleveland State Univ.; Kent State Univ.; Univ. of Akron; Youngstown State Univ.
Research Intermediaries	America Makes Manufacturing USA Institute; BRITE Energy Innovators; Great Lakes Energy Institute; Ohio Aerospace Institute; Ohio Space Grant Consortium; University of Akron Research Foundation
Business Intermediaries, Commercialization Intermediaries, Civic and Labor Orgs	
Business Intermediaries	Greater Akron Chamber; Greater Cleveland Partnership; Minority Business Assistance Center; Northeast Ohio Hispanic Center for Economic Development; Ohio Energy Storage Association; American Chemical Society; Presidents’ Council; Youngstown Warren Regional Chamber
Commercialization Intermediaries	Bounce Innovation Hub; JumpStart, Inc.; Great Lakes Innovation Development Enterprise; MAGNET; Ohio Aerozone Alliance; University Hospitals Ventures; Youngstown Business Incubator
Civic and Labor Organizations	Akron Urban League; IBEW Local 573; IBEW Local 38; Urban League of Greater Cleveland
Higher Education and Talent Development	
Higher Education Institutions	Ashland Univ.; Baldwin Wallace Univ.; Case Western Reserve Univ.; Cleveland State Univ.; Cuyahoga Community College; Kent State Univ.; Lakeland Community College; Lorain County Community College; Notre Dame College; Stark State College; Univ. of Akron
Industry Sector Partnerships	
Manufacturing Sector Partnerships	Conxus NEO; Lorain County Manufacturing Sector Partnership; Mahoning Valley Manufacturers Coalition; Stark County Manufacturing Partnership; Workforce Connect Manufacturing Sector Partnership

C. Expected Participation from Private Sector Entities, Including Philanthropies

As described in depth in the Cluster Governance and Outreach component project, MAGNET will serve as the governance lead. The governance approach adapts an existing infrastructure to integrate and coordinate regional initiatives, assets, and partners. The MAGNET-facilitated Manufacturing Innovation Council (MIC) is the industry-led coordinating body responsible for carrying out the Blueprint. The MIC comprises a representative body of 25 regional manufacturers, including large OEM manufacturers, small and medium-sized enterprises, and companies with underrepresented ownership. Reporting to the MIC, a Cluster Operating Board was established in BBBRC Phase 1 to advance the objectives of this cluster. The Operating Board includes leadership from complementary initiatives, philanthropy, regional assets, equity-focused organizations, and component project leads (see Governance component).

Figure 8: Governance Overview



In total, component projects will engage 10,000 manufacturers. As a subset of the total projected outcomes, 170+ employers have provided 900Bs or Letters of Support directly committing 6,994 new jobs, 4,560 retained jobs, and \$279M+ in private investment. Private sector match includes \$2.75M from 7 corporations; nonprofit and philanthropic match includes \$21.6M from 33 organizations. (See 900Bs, Letters of Support, and Letters of Match Commitment)

D. Plan for Sustainability

The plan for sustainability has four elements: 1) a durable governance structure that carries the cluster vision forward; 2) sustained partnerships and initiatives that advance the cluster; 3) systems for inclusively incorporating underrepresented stakeholders; and 4) a vision for component project sustainability.

Durable Governance Approach. Described in the Governance component, the governance approach includes robust approaches for communications, accountability and compliance, and dynamic facilitation among partners. MAGNET commits to sustaining cluster leadership and staff capacity after the grant period of performance to coordinate, convene, communicate, and facilitate the activities of the coalition.

Sustained Regional Partnerships and Initiatives. The coalition integrates regional initiatives that intersect and complement this cluster. Each of these initiatives represents a sustained component that contributes long-term infrastructure for the cluster. In total, 170+ public and private partner organizations have indicated support for this proposal, each contributing assets. The component

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projects of this proposal leverage significant local, state, and federal funding support including at least eight current or recent EDA grants¹⁰ and dozens of additional federal grants.

Systems for Inclusively Incorporating Underrepresented Stakeholders. Given the high levels of distress in the region's core legacy cities and recognition that the region's transformation potential is inextricably linked to equitable solutions, the governance approach ensures that initiatives incorporate underrepresented stakeholders and organizational stakeholders such as industry, civic, public, and academic organizations located in distressed communities.

Component Project Sustainability. Each of the proposed component projects has a vision for sustainability and growth beyond the grant. Component projects were developed taking into consideration plans for sustainability such as feasibility studies, market analyses, and availability of resources for sustainability. Under the governance of the Operating Board, all component leads have a vision, goals, objectives, resources, and sustainable partnerships for their projects.

E. Plan for Engaging Community Based Organizations; Plan for Strong Labor Practices

Twelve community-based organizations will be represented on the Operating Board; 80+ public and nonprofit organizations and 2 unions have committed to participating in components; 15+ equity-serving civic organizations will support the engagement of underrepresented groups.

Community-based organizations are contributing as governance partners on the Operating Board and via component projects and platform initiatives. Operating Board partners include Team NEO, the regional connection to the state's economic development agency; Fund for Our Economic Future, a regional philanthropic network coordinator; regional chambers of commerce from each of our major metropolitan areas; equity-focused civic organizations Urban League of Greater Cleveland, Akron Urban League, and Northeast Ohio Hispanic Center for Economic Development; America Makes Manufacturing USA Institute; NASA Glenn Research Center; and MAGNET. Each of these organizations represents a unique network of community-based organizations. Similarly, each component project represents a network, as described in their narratives. Complementary platform initiatives (see Table 4) include organizations focusing on R&D, entrepreneurship and capitalization, supplier development, and workforce development. See attached Letters of Support.

Described in more detail in the Cluster Governance component, the governance approach includes a robust communication strategy that leverages the aforementioned networks to engage stakeholders in the cluster ecosystem including annual events, specialized events, online and social media, published materials, and technical assistance tools and resources.

F. Plan for Ensuring Benefits Are Equitably Shared

Promoting equity is a cross-cutting value in every component in the proposed strategy. In the Phase 1 process, three equity leads guided overarching and component planning processes to

¹⁰ Cleveland State University (2016) University Center Program and (2020) Build to Scale; Cleveland Urban League (2021) Revolving Loan Fund; Lorain County Community College (2016) i6; MAGNET (2021) Sprint Challenge and (2021) R-7 Program; Northeast Ohio Areawide Coordinating Agency (2021) CEDS Planning; Ohio Aerospace Institute (2021) Build to Scale; Workroom Program Alliance (2021) Economic Adjustment Assistance.

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develop inclusive project strategies. In Phase 2, equity leadership will be represented on the Operating Board. Below is the plan for ensuring that benefits are equitably shared.

Projects Are Located in and Designed to Benefit Distressed Areas. NEO struggles with persistent racial disparities and geographic distress. According to the U.S. Census Bureau, Cleveland is the poorest big city in America with a 33% poverty rate.¹¹ Within the last decade, Youngstown has led all American cities in poverty rate (currently 35%).¹² Similarly, Akron (24%), Canton (31%), and Warren (35%) each have extremely high levels of poverty and distress, contributing to regional trends of long-term population decline, high unemployment, and low per capita income, with large gaps along racial lines. The component projects are located in these distressed places and designed to benefit the businesses and people in those places.

Services and Strategies Are Designed to Engage Underrepresented Stakeholders. With the support of the equity leads, each component project developed a vision and strategy for ensuring that benefits are equitably shared, as described in each component narrative. Platform projects are designed to provide cross-cutting resources to ensure that new innovations provide shared benefits and that equitable measures are taken to support underrepresented populations. MAGNET's Diverse Companies platform component project creates new capacities for developing, accelerating, and connecting underrepresented businesses around business ownership, supply chain opportunities, and preparing the next generation of company leadership. And JumpStart's Commercialization, Growth & Access component will expand and focus commercialization capabilities to increase underrepresented business growth.

Accountability. Table 5, above, lists metrics that focus on underrepresented stakeholders. These represent the cumulative sum of the components and are the result of inclusive planning processes. The cluster governance approach incorporates equity leads within the operating structure and will use these metrics to monitor progress as part of an overall accountability and compliance system.

G. Overview of Outcomes from Joint Impact of the Projects

Across all of the components, an EDA investment of \$75 million will be matched with \$40.4 million. Anticipated outcomes include 13,119 jobs created, 6,986 jobs retained, and \$1.075B generated in private investment; input-output modeling projects \$12.339B of GRP growth within 10 years. The impacts will continue to grow over time as the cluster expands and responds to regional opportunities.

The most enduring joint impacts will emerge from a governance structure that encourages synergistic activity and convergence among the components. Described in the Cluster Governance component, the projects dynamically contribute, connect, and draw on one another. For example, the University Hospitals Care at Home component establishes an open source technology platform for sensor-driven home health medical devices. This component encourages advanced materials and energy storage innovation in medical devices, which draws on the objectives of the BRITE, Ohio Aerospace Institute, and University of Akron components. It

¹¹ Campbell, E. "Cleveland poorest big city in the country." September 21, 2020. Center for Community Solutions.

¹² Skolnick, D. "Youngstown leads nation in poverty rate." Youngstown Vindicator, November 3, 2011.

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further relies on deal flow generated by the commercialization ecosystem facilitated by JumpStart's commercialization component, and addresses equity priorities in collaboration with MAGNET's equity component.

If we are to achieve our North Star to become the world's most advanced and resilient hard tech supply chain, we must innovate based on our strengths and then achieve regional scale by activating the network of 10,000 regional manufacturers around these innovations. The Blueprint, which marries platform and innovation initiatives, was designed with this intent. The proposed cluster governance approach includes robust strategies for communication and support for engaging, seeding, and expanding emerging innovations to have supply chain-wide impact.

H. Overview of the Coalition's Work Following Phase 1 Award

The Phase 1 grant submission included identification of the coalition and partners and a sketched outline of the intended component projects. Following the Phase 1 award, over 800 people and 250 organizations have been involved in the preparation of the Phase 2 application as partners, beneficiaries, supporters, or potential vendors. Four principal work flows have occurred:

Cluster Convergence and Governance Planning. MAGNET's core leadership team, component project leaders, and subject matter experts collaborated to sharpen a vision for cluster convergence. This involved the identification of key areas of intersectionality and opportunity resulting in the emergence of energy storage and advanced materials as cross-cutting technologies. A governance structure that encourages true convergence was designed with emphasis on leveraging existing initiatives and adapting existing governance structures to support cross-cutting opportunities, collaborations, and externalities. This included the identification of regional assets and leveraged resources. The Cluster Governance and Outreach component project was added in response to the need for effective governance.

Sub-Component Project Planning. Component project leads and concepts had been determined prior to Phase 1 proposal submission. Following Phase 1 award, the component project leads engaged in detailed planning processes to further develop their applications. This included specification of project goals, partners, workflows, and budgets as described in the component narratives. It included the completion, as appropriate, of all required application pieces. A prospective component project that appeared in our Phase 1 application from the Cleveland Water Alliance was removed due to lack of alignment and readiness.

Equity Planning. The equity leads established definitions, objectives, and accountability processes to ensure equity was represented in all projects with actionable specificity. This included contributing to and guiding all planning processes for cluster governance and component projects.

Extensive Communication and Engagement. MAGNET executed a region-wide communication and engagement strategy in collaboration with coalition members and partners. This included engagement of stakeholder groups in the 18-county area including public-sector and elected officials, private-sector and business leaders, economic development organizations, philanthropic organizations, institutions of higher education, and interested parties.