OVERARCHING NARRATIVE – New York SMART I-Corridor

1. Executive Summary

Last year, the New York SMART I-Corridor, inclusive of the Buffalo, Rochester, Ithaca, and Syracuse MSAs, Auburn and Batavia MiSAs, was designated as a Tech Hub at the intersection of the high-performance computing and advanced manufacturing technology focus areas.[i] Our region has a generational opportunity to shift the trajectory of Upstate New York by building a globally leading semiconductor cluster.

Today, the I-Corridor is home to five fabs and ~100 semiconductor supply chain firms. In the next decade, we are poised for transformational growth as we build a supply chain ecosystem that fuels adjacent fab facilities, all while building upon Micron's Syracuse megafab, which will be the largest US semiconductor facility. Accounting just for planned investments, one in four American-made chips will be produced within 350 miles of the I-Corridor by 2034.[ii] No other area will account for a greater share of domestic production. As nations compete to build silicon clusters, the I-Corridor has global significance.

Our region's opportunity cannot be overstated but success is not assured. As an industrial and rural region that has weathered decades of economic contraction and stagnation, our civic capacity must scale to fully meet this moment. Thus, we have assembled our Corridor's leading civic institutions to co-design solutions that will transform our economic competitiveness and serve our national security. To catalyze efforts, we propose five component projects that will spur regional growth and close equity gaps in the I-Corridor.

2. Vision

Consortium details: Since designation we have organized 100+ institutions, including 89[iii] that have provided commitment letters to support the Tech Hub as initial consortium members; they include 27 industry partners, 22 institutes of higher learning, 10 labor and workforce partners, 9 economic development organizations, 8 organizations specifically focused on underserved populations, 3 venture development organizations, and 3 manufacturing extension centers, 3 public sector partner, and 1 manufacturing USA institute. Our central governance body is comprised of regional conveners, industry leads, and component leads, all of which ensures joint ownership across the I-Corridor's core MSAs. These organizations are:

- Convenors: **CenterState CEO** (Syr.), **Buffalo Niagara Partnership** (Buff.), **ROC2025** (Roc.)
- Industry leads: **Micron Technology** (Syr.), **Moog Inc**. (Buff.), **Corning Inc**. (Roc.)
- Component project leads: **University at Buffalo** (Supply Chain – SCAN), **Monroe Community College** (Workforce – STEP UP), **Syracuse University** (Commercialization of New Technology – C3), **and Empire State Development's Division of Science, Technology and Innovation (NYSTAR)** (Innovation - SCALE)

Our Tech Hub Conveners have been carefully chosen. We have staying power and experience developing and implementing long-term strategic economic development plans, and experience shifting and adjusting implementation to ensure program success. CenterState CEO in Syracuse is Upstate New York's largest institutional membership organization with 1.5K+ members, and a core negotiating partner for Micron's $100B investment in Central NY. Buffalo Niagara Partnership (BNP) in Buffalo – with members representing 250k+ jobs – will serve as partner engagement and communications lead; ROC2025 is the regional economic alliance driving $25M+ in capacity-building investments in business growth and talent strategy.[iv] ROC2025's President and CEO, Dr. Joseph Stefko, will serve as Regional Innovation Officer (RIO) to lead Hub administration; and CenterState CEO will serve as lead applicant for the Innovation Office and facilitate industry and equity roundtables. The Office will be supported by several roles including

a Senior Director of Industry Engagement and Director of DEIA (Juhanna Rogers, CenterState CEO). Additional board responsibilities (e.g., labor, equity) are detailed in the Governance Component Project.

Component activities: We propose five component projects which will support a scalable semiconductor industrial base, accelerate innovation in manufacturing processes, and improve end-product performance:

Supply chain (SCAN): The Supply Chain Activation Network (SCAN) will support local firms to enter this rapidly expanding domestic market, amplify the economic benefits of CHIPS and Science Act for local communities, and build greater resiliency for the US-based semiconductor supply chain. We have identified 4,000+ local I-Corridor businesses[v] that could expand into the semiconductor sector, beyond the ~100 local firms already serving the industry today. EDA funds will be allocated to (i) scale capacity at three regional Manufacturing Extension Partnerships (MEPs) to provide training, direct engineering support, and certification services for firms pursuing a transition into the semiconductor supply chain, with specific focus on MWBE firms; (ii) establish an I-Corridor Purchaser Roundtable to promote networking and visibility of supply chain opportunities; (iii) build and maintain a directory of regional semiconductor supply chain assets and needs to track regional growth opportunities; and (iv) assist firms with access to capital, leveraging seed funding for process improvements and existing governmental resources to support SMEs.

Workforce (STEP UP): The Semiconductor Talent & Employer Partnership in Upstate New York (STEP UP) will close critical gaps in upskilling, hiring, and retention – predominantly for middle-skilled positions in semiconductor-specific roles – and will ensure federal investments create economic opportunity and career pathways for those that have been historically excluded from tech and manufacturing roles. Following the I-Corridor's designation as a Tech Hub, New York State and Empire State Development (ESD) proposed a $200M workforce development program (ON-RAMP) for advanced manufacturing specifically targeting disadvantaged communities, and named I-Corridor co-lead entity, CenterState CEO, as the flagship training partner, alongside coordinated investments in Buffalo, Rochester, and Syracuse.[vi] In addition to this $200M in leveraged State support, EDA funds will be allocated to: (i) establish a workforce collaborator corps to pair industry partners across the region with each of the semiconductor supply chain firms, integrating employer demand into the regional training system; (ii) jumpstart employer-led training initiatives at regional institutions with the aim of rapidly scaling workforce; and (iii) convene regional semiconductor companies in an Industry Council to inform hiring volumes and requirements, curriculum development, monitor training and hiring results, and recommend follow-on investments.

Commercialization of new technology (C3): The Commercialization & Collaboration Center (C3) will be a one-stop-shop for access to regional semiconductor R&D assets, facilitating collaboration across research institutions and linking university research to the Tech Hub agenda in ways that stimulate innovation in semiconductor manufacturing. Coordinated by a team including Vice Presidents of Research (VPRs) from the I-Corridor's R1 and R2 institutions, C3 will include many of the country's leading labs and cleanrooms (e.g., Cornell NanoScale Facility, University of Rochester URNano, NY CREATES Albany Nanotech Complex, AIM Photonics Test Assembly and Packaging facility). The I-Corridor seeks to become the epicenter for American semiconductor commercialization efforts, with C3 integrating the region's extensive assets into a single "point of entry" for small and medium-sized businesses.

EDA funds will be allocated to (i) expand access to our region's facilities by creating a centralized resource inventory (e.g., cleanrooms, equipment specs, faculty and student profiles) across universities on a public online portal / booking tool and providing campus-based "innovation concierges" to facilitate navigation for small businesses; (ii) subsidize access to facilities for prototyping for small and minority-owned businesses through an innovation voucher program; (iii) establish a new cross-institution IP-sharing architecture that standardizes licensing agreements, provides greater transparency to industry, and enables identification of potential risks and mitigation pathways in areas where licensing agreements have disincentivized past

investment; (iv) host semiconductor innovation conferences and convenings in underserved communities; and (v) fund semiconductor-related research experiences (e.g., internships, co-ops) for students from underrepresented communities to gain hands-on semiconductor experience

Innovation (SCALE): The Semiconductor Advancement, Leadership, and Entrepreneurship (SCALE) Initiative will launch a venture studio that invests in early-stage founders, commercializing IP in core regional technology areas (e.g., optics and photonics, software development, clean water, climate and decarbonization) to improve semiconductor manufacturing processes. EDA funds will be allocated to: (i) identify investment theses for new businesses, collaborating with C3 to surface new IP across the I-Corridor; (ii) recruit founders, including students from our higher education and industry networks, minority, women and veteran founders, and founders from outside the region; (iii) provide non-dilutive seed-funding to semiconductor firms in the I-Corridor based on these investment theses, with a focus on recruiting underrepresented founders; and (iv) provide hands-on support for entrepreneurs and researchers looking to start new semiconductor technology businesses in the region. Support will entail training and individual coaching for vetting business ideas, product-market-fit, accounting, legal, marketing, operations.

Governance: The SMART I–Corridor Innovation Office will create an integrated governance function supporting all components of the Tech Hub. We have long partnered across the region to deliver broad-based economic development programs and are enhancing our governance model to stand up a hands-on transformation office across component projects. This office will rapidly identify which initiatives are working (to scale) and which initiatives are lagging (to refine). EDA funds will be allocated to (i) administration and data management of the Tech Hub; (ii) targeted engagement with federal agencies and other stakeholders; (iii) marketing and branding resourcing (to be deployed across component initiatives); (iv) industry engagement to strengthen regional collaboration and drive Hub priorities; (v) equity efforts, including an equity roundtable and support for consortium members to reach DEIA goals; and (vi) stewardship of discretionary 'impact funding' in coordination with component projects (e.g., SCALE company investments).

Commitments: In addition to the investments these component projects reflect the I-Corridor consortium has obtained $10M in committed matching funds ($10M cash through ESD, $385,100 in-kind through ROC2025), or ~15% of the total application. Additionally, ~$30.5M of in-kind contributions has been committed from 22 consortium partners. All five I-Corridor component leads—Empire State Development ($10M), University at Buffalo (~$4.1M), Monroe Community College (~$29K), Syracuse University (~$20.4M), CenterState CEO (~$169K)—have committed to providing cash or in-kind contributions in commitment letters. As component lead for C3, Syracuse is prepared to commit ~$10M towards new semiconductor facilities (a new state-of-the-art semiconductor manufacturing facility) and ~$10M to invest in new semiconductor personnel (hiring of ~10 new faculty within in semiconductor manufacturing fields).

Path to global competitiveness: The I-Corridor's integrated portfolio of component projects is designed to address headwinds and capitalize on opportunities on the path to creating a globally leading semiconductor and related supply chain cluster. This includes addressing **workforce gaps and inequities** (from planned investments, the US will be short 70-90K semiconductor jobs[vii]; our region will be short ~14K[viii] such jobs without intervention); **supply chain vulnerabilities** (US semiconductor production has dropped from 37% of global output in 1990 to 12%, with high reliance on foreign-sourced materials, fabrication[ix]); and **dearth of innovation** (<1% of all US venture funding is focused on commercialization of semiconductor IP[x]).

Members of our consortium are already stewards of several of our nation's largest-ever commitments to close these gaps. Examples include: ESD's $200M ON-RAMP workforce training investment announced by New York State after Tech Hub designation; Micron Technology's 20-30% supplier diversity in the I-Corridor, and $500M+ Community Fund investment with NYS; and NY CREATES's new $10B partnership for nation's first publicly owned EUV research center. Our component

projects knit these efforts together, marrying existing investments with a corresponding effort that brings the top regional stakeholders to the table to steer funding and build a globally competitive cluster. We strive to not just close our own region's gaps but also to become a lighthouse for other US-based semiconductor efforts. We are committed partners to EDA beyond execution; our team is ready to engage with EDA and other semiconductor regions to share learnings on this journey.

Climate and environmental responsibility: The I-Corridor is well situated to address critical environmental sustainability challenges that could hamper the American semiconductor industry. Our region is home to an abundance of land, fresh water, and renewable energy. The region hosts significant hydroelectric (Niagara Power Plant is 2nd largest US reservoir) and nuclear power plants (e.g., Nine Mile Point, James A. FitzPatrick, R.E. Ginna). Many of our consortium partners have already made specific commitments to using renewable energy, putting them in the top of EPA's Green Power Partnership rankings comparing peer institutions. Micron has announced a target to reach net-zero emissions by 2050, to use 100% renewable energy in its US operations by the end of 2025, and to reduce greenhouse gas emissions from its global operations by 42% by 2030. New York's Climate Leadership and Community Protection Act requires the State to generate 70% of its electricity from renewable sources and reduce greenhouse gas emissions 40% by 2030, and the State is committed to 100% zero emission electricity generation by 2040.

Several facilities partnering with our C3 component project are leaders on issues of sustainability (e.g., SUNY ESF and Clarkson University's Healthy Water Solutions partnership, Syracuse University's Center of Excellence on sustainability, and the Rochester Institute of Technology's Golisano Institute for Sustainability). Through C3, these lab spaces and resources will be integrated into the semiconductor asset base for small and medium sized businesses in the region. Climate and environmental responsibility will be a core investment theme of SCALE as described in corresponding component narrative.

Equity: In the past, advanced industries in the I-Corridor have not provided a vehicle for equitable growth and job creation (e.g., in Buffalo and Syracuse, machinists are disproportionately white by ~14 p.p., male by ~46 p.p.[xi]). We embed equity as a foundational objective for the Hub as a whole and every component:

- **SCAN (Supply Chain):** Today, only 2 of 98 supply chain players in our region are minority owned (~2%). SCAN has been established to increase this to reach a program-wide goal of 20% by 2035.
- **STEP UP (Workforce):** Building-off proven models to engaged and serve underrepresented communities, STEP-UP seeks to reach 30% workforce participation in the supply chain from un- and underrepresented communities by 2035, up from ~18-25% today.
- **C3 (Commercialization):** Coalition funding will enable investment of ~$2.1M for ~30 women and minority owned businesses to access lab and prototyping spaces.
- **SCALE (Innovation):** 30% of supported startups funded by the venture studio will be led by founders from underrepresented backgrounds.
- **Innovation Office (Governance):** DEIA resource established for all 100+ industry players; region-wide equity roundtable established as core component of governance structure for the Tech Hub.

Timeline: We will kick off all component projects by Q4 2024 (e.g., staff hired for all funded component leads and implementation partners); launch programming by Q2 2025 (e.g., direct investments where applicable – C3 voucher programs, SCALE grants); and achieve sustainable long-run financial backing for programs proven effective by Q4 2028. Component project narratives provide further details.

3. Project quality, ability to execute, and private sector integration

We have the right conditions in place to deliver across component projects and are poised to capture a historic opportunity. Important ingredients include:

Unmet Private Sector Demand: Micron's $100B Syracuse fab will help support 50,000 jobs in our region, including 9,000 direct jobs.[xii] Additional committed I-Corridor investments this next 10 years include: Wolfspeed – 600 jobs, Edwards Vacuum – 600 jobs, TTM – 400 jobs, Corning – 270 jobs, AMD – 165 jobs[xiii], Menlo Microsystems – 100 jobs.[xivxv] We have a near-term opportunity to meet these hiring needs, and a long-term opportunity to create a supply chain and talent ecosystem that attracts follow-on investments.

An I-Corridor Innovation Inflection Point: The I-Corridor is a national leader in semiconductor R&D (e.g., #1 in US in patents per capita in Optics, Photonics, and Imaging) with world-class research spaces focused on semiconductor research (e.g., AIM Photonics, Cornell NanoScale). Recent investments in our regional innovation ecosystem will propel our growth further. This year, consortium member NY CREATES organized a $10B partnership to create the US's first EUV lithography center[xvi]; several members (e.g., NY CREATES, RPI, Cornell) won DOD's $40M investment to stand up an advanced packaging microelectronics commons; and though not yet awarded, the I-Corridor and immediately surrounding region is a finalist for federal investment from the DOD's $400M+ National Advanced Packaging Manufacturing Program[xvii] and the $10B+ National Semiconductor Technology Center. The C3 and SCALE initiatives are designed to knit together this ecosystem, standing up an integrated front-door for small and medium sized businesses to access facilities and creating a new region-wide IP architecture with Tech Hubs funding.

The Right Industry Players Bought In: Our region's (1) largest fabs (Micron, Wolfspeed, Menlo Microsystems); (2) largest local semiconductor suppliers (e.g., Corning, Linde, Edwards Vacuum, TTM, INFICON, Materion); and (3) largest 'end-users' of chips (e.g., Moog Inc., Saab, Lockheed Martin) have all been engaged and are supportive of our effort. Micron, Corning, Moog will serve as founding Tech Hub board members, bringing representation across all three categories, and representation across MSAs. These three firms have provided substantial time-bound commitments; each has an interest to work with the Tech Hub to document and source hiring needs, and will work with local firms interested in entering the supply chain to provide information on their procurement processes and requirements.

The Right Partners to Deliver: Every organization leading a component project has a proven track record:

- **Monroe Community College** (leading Workforce Development) runs the nation's only Precision Optics Associates program, with 100% placement.
- **University at Buffalo** (leading Supply Chain) operates one of the US's only centers dedicated to advanced semiconductor technology focused on manufacturing and minority-owned business growth.
- **Syracuse University** (leading Commercialization) hosts a world-leading precision-metrology group that studies thermal noise in crystalline semiconductor coatings with funding from NSF and the Gordon Moore Foundation, and partners with Micron to place veterans in semiconductor careers.
- **NYSTAR** (leading Innovation) is NYS's lead agency on innovation and commercialization.
- **CenterState CEO** (leading Governance) collaborated on Micron negotiations, runs regional incubator, and was tapped by NYS as flagship ON-RAMP partner. CenterState is our largest regional EDO.

A "One Tech Hub" mindset: Our five component projects are intentionally integrated, interdependent, and designed to complement each other. For example, ***Workforce and Supply Chain:*** We need to train the requisite workforce to enable supply chain growth. Thus, every firm mapped to the supply chain through SCAN will have a workforce relationship manager to support through STEP UP. ***Innovation and Capital***

Access: To attract early-stage start-ups, we need world-class facilities for accessible, affordable prototyping. Thus, C3 assets will be a foundational resource for early-stage firms funded through SCALE.

Moreover, to ensure coordinated delivery, each element of our proposal spans the whole I-Corridor (not just one MSA). Our team has balanced leadership across MSAs for every governance function, every component lead, and every sub-award / implementation partner. This geographically distributed ownership will create and maintain a sense of shared purpose from inception to completion.

4. Technological and commercial advancement challenges

Operating a fab requires integration of 100+ direct supply chain inputs, many of which are the most advanced types of capital equipment and materials in the world (e.g., photolithography, etch, deposition, specialty chemicals, slurries, plasma, ABF substrates, computer software for fabless design). The semiconductor industry has therefore seen massive geographic clustering (e.g., Silicon Valley, Japan, Korea, Taiwan), as industry and R&D stakeholders located in close proximity and launched partnerships for technological progress. Because of this, building US semiconductor 'clusters' has been named a core strategy by the Department of Commerce as part of CHIPS Act implementation. This story – true for the semiconductor industry as a whole – is also true for the I-Corridor given its technology strengths of Memory (led by Micron), compound semiconductors (led by Wolfspeed), and RF MEMS Switches (led by Menlo Microsystems). Innovation across these chip types requires substantial collaboration across industry, supply chain, and academic stakeholders. Examples of collaboration could include:

- **Advanced Packaging:** Memory chips are the #1 application for 3D stacking and heterogenous integration[xviii], with demand driven by growth in data-center servers and GenAI. To drive innovation, we will bring together the largest memory fab in US history with several of the top packaging research institutions (e.g., AIM photonics, SUNY Binghamton's Center for Heterogeneous Integration Research).
- **Photonics:** Micron's fab will be the first with EUV processing technology on the east coast, and our consortium members are uniquely positioned to support innovation in optics: e.g., University of Rochester runs the nation's largest optics program (educating 60% of the Optics PhDs awarded in the US); the region is home to the world's largest startup accelerator program focused on optics, photonics, and imaging companies (NextCorps' Luminate); and NY CREATES is the largest US consortium for leading edge processing technologies (1.65 million sq ft space, onsite presence from IBM, GlobalFoundries, Samsung, Applied Materials, Tokyo Electron, ASML and Lam Research).
- **Compound semiconductors:** Non-silicon materials are a leading source of innovation, anticipated to outpace growth of overall industry by 3X over the next 5 years through clean tech applications (e.g., EVs)[xix]. To innovate, we are poised to bring together stakeholders across the supply chain including materials suppliers (e.g., Linde, Materion), fabs (e.g., Wolfspeed – SiC, Odyssey Semiconductor – GaN), and leading materials research centers (e.g., Cornell NanoScale, Alfred University).

5. Impact on economic and national security

National investments to re-shore semiconductor supply chains have been a central national security issue in recent years. Reinvigorating the US semiconductor industry is a priority for maintaining competitiveness and national security.[xx] Semiconductors are forecasted to be a $1 trillion industry by 2030,[xxi] with the US accounting for 35% of global demand. Globally, companies plan to invest ~$1 trillion in fabs through 2030.[xxii] The industry enables large downstream markets, each valued in the hundreds of billions of dollars. However, despite once accounting for 37% of output in the 1990s, the US now produces just 12% of chips worldwide.[xxiii] This makes the US reliant on foreign-produced chips, with supply chain vulnerabilities across essential economic sectors.[xxiv] Domestic suppliers trail international players in most leading-edge capabilities, which jeopardizes American competitiveness and innovation.[xxv]

The I-Corridor will foster economic and national security by (1) strengthening the resilience of US semiconductor supply chains; (2) building a lighthouse model to train the next generation of semiconductor technicians; and (3) accelerating and protecting American innovation. Detailed in Section 10, the I-Corridor will demonstrate that more equitable outcomes are possible from large-scale industrial policy investments.

- **NY SMART I-Corridor will be at the center of transforming the US semiconductor supply chain**. As noted, by 2034, one in four American-made chips will be produced within 350 miles of the I-Corridor's core.[xxvi] No other region in the US will account for a greater share of domestic production. While the Hub is first and foremost focusing on local production in target chip markets, activities can further boost US national supply by playing an increasing role in the national supply chain.
- **NY SMART I-Corridor will lead the US in building our 21st century semiconductor workforce**. Nationally, the US is short 70-90K semiconductor workers required to fuel supply chain expansion— a need ~3X greater than Micron's global workforce. NYS's ON-RAMP investment of $200M—to be kicked off in Syracuse by CenterState CEO—is a flagship opportunity not just for NYS but also for the US. By investing in STEP UP to ensure the needs of every local semiconductor firm are fully met, we can build an ecosystem that meets NYS's demand, exports workers to marquee facilities across the country, and serves as a lighthouse example for standing up at-scale semiconductor-specific training programs.
- **NY SMART I-Corridor can accelerate American Innovation.** Our consortium has brought together leading semiconductor innovation assets, including early-stage capital access organizations (e.g., Excell Partners, Silicon Catalyst, Luminate), university labs in the I-Corridor, and key consortium players in and adjacent to the I-Corridor (e.g., AIM Photonics, Albany Nanotech). By integrating these assets around a shared commercialization agenda funded through our Tech Hub's C3 and SCALE initiatives, we can drive innovation in manufacturing efficiency, manufacturing sustainability, and end-product performance.

6. Investment and policy commitments: Private sector participation and commitments

Semiconductor manufacturers, tier 1 suppliers, and local manufacturers are providing leadership throughout each NY SMART I-Corridor component project. Corning, Micron, and Moog will hold the first rotation of three dedicated industry seats on our Governing Board to coordinate activities and leverage industrial competitive strengths. Overall, 10 local employers have joined the Industry Council, and 9 fabs/tier 1 suppliers and SMEs have joined an I-Corridor Purchasing Purchaser (SCAN), providing networking opportunities for supply chain activation. To foster innovation and business development, industry partners will help craft a common innovation agenda with academia (C3) to align semiconductor technology verticals to regional strengths and will be connected to start ups supported by a venture studio (SCALE) to stimulate entrepreneurship and accelerate commercialization.

This formal engagement by the private sector is underscored by commitments from 19 firms and industry groups—all tailored to support the success of the Tech Hub project. Industry commitments span all component projects, including: Edwards Vacuum (will collaborate with STEP UP on the hiring of 280 new roles), Danfoss (will support in the technical evaluation of SCALE applicants), INFICON (will provide access to 10K minifab cleanroom for C3 program), SoPark (will provide technical support to MWBE firms interested in entering the supply chain – as one of just two MWBE semiconductor firms in the Corridor today).

7. Investment and policy commitments: Public sector commitments and investments

New York State is committed to the success of the NY SMART I-Corridor and the resurgence of American leadership in semiconductor manufacturing. To support the success of the Tech Hub, ESD has committed to matching funding of $10M, amounting to a match rate of ~15%. ESD NYSTAR will play a

key role in several component projects, including leading SCALE and implementing C3 through its network of CATs and COEs.[xxvii] More broadly, ESD is leading the establishment of the Governor's Office of Semiconductor Expansion, Management (GO SEMI) to foster public-private collaboration in the semiconductor ecosystem[xxviii] and will provide leadership to STEP UP through the ON-RAMP initiative.[xxix]

EDA funding will complement parallel federal investments in semiconductor fabrication, electricity and infrastructure, and defense, including $1.5B to support GlobalFoundries expand its presence in Malta, NY (Commerce),[xxx] ~$24M to support electricity grid resilience (DOE),[xxxi] ~$11M to maintain and upgrade hydroelectric facilities and infrastructure in upstate NY (DOE), and $5M to support New York State Microelectronics Defense Manufacturing, Supply Chain, and Workforce consortium (DoD).[xxxii]

8. Labor and workforce

Creating jobs where people thrive: We expect the I-Corridor to face a gap of ~14K jobs including: 5K middle-skill jobs (e.g., electrical assemblers, processing technicians) that do not require a 4-year degree, 4K construction jobs (e.g., electricians, welders), 2.5K high-skill engineering jobs (e.g., industrial engineers, software developers), and more, by 2034. These jobs present unmet need and a meaningful economic development opportunity for our region. Wages will range $18-$77 per hour as compared to $24 median wage across the I-Corridor. That said, many skill-based needs (e.g., technicians) require technical training and capital equipment access (e.g., cleanrooms, CNC machinery). To close this gap, 75+ of our regional partners will invest $140M+ over the next 10 years in advanced manufacturing workforce development. To ensure we seize this opportunity, EDA funding leveraged through the STEP UP and Governance components would support pillars in line with the Department of Commerce's Good Jobs framework:

Leading with labor: Labor organizations are critical partners in meeting the Tech Hub's primary goal of creating Good Jobs[xxxiii] in the I-Corridor and ensuring their accessibility. Three labor councils and federations are consortium members: Western NY Labor Federation, UNiCON, and Central NY Building & Trade Council – in total our consortium will bring 30+ locals to the table through these regional bodies.[xxxiv] Our labor partners have been at the forefront of innovating workforce development to ensure growing and diversifying labor pools, particularly in the pre-apprenticeship and apprenticeship spaces – expertise that is essential to the Tech Hub's objectives. Our Governing Board and Equity Roundtable will have dedicated at-large seats to ensure formal and consistent labor leadership and engagement. Labor will have a direct opportunity to fund training and apprenticeship programs through the STEP UP initiative.

Supporting recruitment and hiring in underserved communities: We will conduct outreach and support career exploration in the semiconductor industry – funding direct grassroots outreach through K-12 school districts and community organizations (e.g., Say Yes Buffalo) to recruit in urban and rural communities that historically lacked visibility into new manufacturing opportunities.

Building employer-led engagement model: STEP UP will be our region-wide platform for semiconductor employers to direct training activities in the region. Our Industry Council will steer talent investments according to evolving needs as fab capacity grows and supply chain needs change. At the component level, STEP UP relationship managers will be dedicated to connecting employers to their talent needs, while using employer input to ensure training programs are aligned with in-demand roles. Relationship managers will also support employers to build practices that improve employee retention, especially among historically underserved groups (e.g., inclusive hiring, coaching, employee ownership). This work will also align with the Northeast University Semiconductor Network to increase highly skilled graduates.

Ensuring a DEIA backbone: Ensuring robust DEIA practices among employers will be supported by the Innovation Office. A full-time DEIA expert will work with STEP UP to advise employers in DEIA practices and facilitate Racial Equity Impact Analysis Training by the Greater Buffalo Racial Equity Roundtable.

9. Self-sustainability beyond period of funded awards

We anticipate that most Tech Hub functions will require funding past a 5-year horizon, and that several (e.g., Innovation Vouchers for Underserved Communities) could require scaling of funds alongside our growing cluster. As such, sustainability is a core function of the I-Corridor's Governance component. CenterState CEO, BNP, ROC2025, Micron, Moog, Corning, and New York State (through ESD) have all made commitments to support sourcing additional funds to sustain and scale successful Tech Hub components. Because of this, we do not anticipate the need for federal funds to support or grow operations of the Tech Hub beyond this initial 5-year period. Pillars of our sustainability plan include:

Day-1 commitments: All 5 component leads have made cash or in-kind contributions totaling ~$37M, and UB has made an initial long-term commitment of to support sustainability of the SCAN program through years 6-10 of the Tech Hub program.

State sponsorship: New York State and ESD have planned investment of $5B+ to date to build a silicon cluster in our I-Corridor. The I-Corridor has a long-term financial sustainability partner in NYS.

Philanthropic commitments: 4 local philanthropic organizations have made commitments to work with the Tech Hub, and our Tech Hub Convenors bring decades-long relationships all local philanthropies

Private Sector Growth: As our cluster grows, private sector investment will increase. As the locus of cluster development, we will be positioned to source private sector investments through new community benefits agreements and/or direct industry investments (e.g., workforce, supply chain, venture studio).

10. Equity and efforts to reach historically underrepresented populations

The Hub's strategies contain enhanced focus on communities that are historically underrepresented, namely: women; racial/ethnic minority groups (22% of our population), with a focus on Black and African American (10% of population); and rural regions (32%).[xxxv] We will focus outreach in communities with high poverty rates, e.g., Eastside of Buffalo and rural counties of Genesee and Cayuga, partnering with trusted community- and faith-based organizations (e.g., Action for Better Community, Elim Christian Fellowship).

Equity is codified into goals across each component and into governance: Detailed in Section 2, these goals include: Governance (reduction in income gaps), STEP UP (increase in middle-skill semiconductor jobs for women and ethnic/racial minorities, SCAN (increasing black-owned businesses in the supply chain), C3 (use of facilities); and SCALE (increase in black and women-owned start-ups). The I-Corridor Board includes 6-9 at-large members, including equity-focused community-based organizations to ensure that equity goals are met. An Equity Roundtable will provide additional accountability and expertise.

Equity-focused programs are built into component projects: (i) Governance – resource to support employers in strengthening DEIA practices on hiring, retention, and promotion; (ii) STEP UP -- equity-focused community-based organizations on Industry Council for workforce governance; work with ON-RAMP physically located in high-need areas to recruit from underserved communities and provide access to wraparound services including childcare and transportation; (iii) SCAN -- technical and business experts dedicated to outreach and mentorship for minority communities; cohorts focused on underrepresented groups; (iv) C3 -- innovation concierge outreach to underrepresented communities to drive awareness of entrepreneurial support, purchasing requirements for event and other programming; and (v) SCALE – partnership with University at Buffalo to fund underrepresented entrepreneurs on commercialization efforts.

11. Outcomes and measuring success

Outcomes and interim goals, described in component project narratives, will be tracked semi-annually by component leads, and will be monitored at both the component and governance levels. The Governing

Board, which meets quarterly, with the input of the Equity Roundtable, will use outcomes tracking to update strategies for the Hub. Annual reports will be published to ensure accountability to the public.

Comp. project	10-Year Goal
SCAN	**Firm participation in supply chain:** 200 regional firms (20% MWBE participation)
STEP UP	**Job placement:** 5k middle-skilled positions (40% women, 30% ethnic and racial minorities); 4k construction positions (20% women, 30% ethnic and racial minorities)
C3	**Patents filed:** 550 patents filed annually in semiconductor-related sectors
SCALE	**Start-ups in ecosystem:** 90 start-ups (30% MWBEs), ~$1.1B+ in total valuation
Innovation Office	**Investments**: $5.2B average in annual semiconductor-related investments **Jobs**: 14K net additional jobs; **GDP**: $18B additional growth **Male/Female median income gap**: 13%; **White/Black median income gap:** 31%

12. Plans to accommodate the growth in housing demand

There is a need to accommodate up to 30K new jobs in the next decade. In Syracuse alone, rental rates have jumped ~57% from 2017-2021, with 2-2.5K new units need to be built in 15 years to meet Micron's demand.[xxxvi] Many units in our region need repair and rehabilitation – with the region having some of the oldest housing stock of any US city (61% of Buffalo's housing stock was built before 1940, 55% in Rochester, 42% in Syracuse, compared to a 12% national average). Increasing housing availability and affordability is a key focus for our consortium. This year, Syracuse completed a Housing and Neighborhood Strategy Project and will establish the Syracuse Housing Trust Fund to close market and affordability gaps; Buffalo established the Affordable Housing Task Force to address affordability and vacancy, and fund rental inspections. The State will direct up to $36M for rural downtown revitalization in the I-Corridor;[xxxvii] Micron's $500M Community Investment Fund will support innovative solutions to our housing challenges. Via the Innovation Office, the Hub will monitor housing data and labor market forecasts to proactively identify needs to inform and advocate for policies and investments for greater access to affordable housing.

13. Overview of progress since Phase 1

Since Phase 1, the NY SMART I-Corridor has integrated EDA feedback to strengthen its governance structure, creating an innovation office and cross-region governance board of the leading academic institutions and major employers with direct nexus to semiconductor industry (Moog, Corning, Micron). The consortium further secured a formal role for NYS ESD as board members and underwriter of the Tech Hub. As noted in Section 4, the consortium identified Dr. Joseph Stefko, of ROC2025, as a RIO to lead the administration of SMART I-Corridor Tech Hub moving forward. ROC2025, an alliance of EDOs, accelerates growth in Rochester through coordinating capacity building across private and public sector institutions. Dr. Stefko will bring his success as President & CEO of ROC2025 to the broader I-Corridor.

The NY SMART I-Corridor has more clearly defined its technological focus with an innovation agenda of: (i) semiconductor manufacturing productivity (i.e., materials characterization and metrology, EUV/DUV); (ii) semiconductor manufacturing sustainability (i.e., water/power usage and storage in fab operations, materials recycling); (iii) and semiconductor chip performance (i.e., memory including DRAM/NAND, advanced packaging, silicon photonics), and aligned on this agenda with industry and academic partners.

Lastly, we have made meaningful progress to ensuring long-term sustainability of the Hub. As noted, we secured $200M for ON-RAMP, began convening philanthropic partners to engage on innovation and sustainability, identified additional industry partners to provide leadership, and engaged our local, state, and federal public sector partners around this strategy and the need to sustain long-term investment.

[i] U.S. Economic Development Administration, "NY SMART I-Corridor Tech Hub", https://www.eda.gov/funding/programs/regional-technology-and-innovation-hubs/2023/NY-SMART-I-Corridor-Tech-Hub.

[ii] SEMI World Fab Forecast.

[iii] Includes 3 joint-letters (Workforce Investment Boards, Regional Economic Development Council, Vice Presidents of Research)

[iv] ROC2025. "ROC2025 2022/2023 Impact Report," 2023. https://roc2025.org/wpcontent/uploads/2023/07/ROC2025-2022-23-Impact-Report.pdf.

[v] Dun and Bradstreet.

[vi] New York State. "Governor Hochul Announces Plan to Grow and Strengthen New York's Economy," January 9 2024. https://www.governor.ny.gov/news/governor-hochul-announces-plan-grow-and-strengthen-new-yorks-economy.

[vii] Ngo, Medeleine, "America's Semiconductor Boom Faces a Challenge: Not Enough Workers" (May, 2023) https://www.nytimes.com/2023/05/19/us/politics/semiconductor-worker-shortage.html.

[viii] 14K Semiconductor demand account for 6K direct jobs (based on ~5K publicly available commitments (~4K Micron, 600 Wolfspeed, 100 Menlo Micro, 165 AMD) from accounting for time lag from semiconductor manufacturers with the assumption of ~1K additional in pipeline) and ~8K indirect (supply chain) jobs calculated using an average of scaled regional multiplier and SIA (Semiconductor Industry association) multiplier. Semiconductor industry refers to NAICS code 3344, 2022. 4K construction demand is based on assumption of first fab construction during Y1-Y3 in Micron's published Phase 1 Capital Expenditures, using Land and Building and Utility Construction expenditures as construction spend. Using internal construction analytics benchmarks, 35% of total construction cost is estimated for cost of labor. An all-in rate of $100/hour is applied to calculate total labor hours required. Estimating ~2520 labor hours/year yields ~4400 annual FTE.

[ix] White House, "Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth: 100-Day Reviews under Executive Order 14017" (June 2021) https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain-review-report.pdf.

[x] Executive Office of the President, President's Council of Advisors on Science and Technology, "Revitalizing the U.S. Semiconductor Ecosystem", https://www.whitehouse.gov/wp-content/uploads/2022/09/PCAST_Semiconductors-Report_Sep2022.pdf.

[xi] Bureau of Labor Statistics.

[xii] New York State. “Micron Will Invest $100 Billion to Establish Leading-Edge Memory Fab in Central NY,” https://esd.ny.gov/micron#:~:text=Micron's%20new%20megafab%20will%20create,semiconductor%20jobs%20to%20the%20U.S.

[xiii] Including both in I-Corridor and in Dutchess County (outside region in NYS).

[xiv] UrbanCNY. “Governor Hochul and Majority Leader Schumer Unveil TTM Technologies’ Plans to Invest Up to $130 Million For Manufacturing Plant In the Town of Dewitt, Boosting Upstate New York’s Transformation Into Global Chipmaking Hub,” November 1, 2023. https://www.urbancny.com/governor-hochul-and-majority-leader-schumer-unveil-ttm-technologies-plans-to-invest-up-to-130-million-for-manufacturing-plant-in-the-town-of-dewitt-boosting-up/.

[xv] New York State. “Governor Hochul And Majority Leader Schumer Announce Major Semiconductor Supply Chain Manufacturer Edwards Vacuum to Build $319 Million Facility in Genesee County,” November 2, 2022. https://esd.ny.gov/esd-media-center/press-releases/governor-hochul-and-majority-leader-schumer-announce-major-semiconductor-supply-chain-manufacturer.

[xvi] New York State. “Governor Hochul Announces $10 Billion Partnership to Bring Next-Generation Research and Development Center to NY CREATES’ Albany Nanotech Complex,” December 11, 2023. https://www.governor.ny.gov/news/governor-hochul-announces-10-billion-partnership-bring-next-generation-research-and.

[xvii] NIST. “CHIPS for America Releases Vision for Approximately $3 Billion National Advanced Packaging Manufacturing Program.” NIST, November 20, 2023. https://www.nist.gov/news-events/news/2023/11/chips-america-releases-vision-approximately-3-billion-national-advanced.

[xviii] McKinsey & Company, Advanced chip packaging: How manufacturers can play to win, https://www.mckinsey.com/industries/semiconductors/our-insights/advanced-chip-packaging-how-manufacturers-can-play-to-win.

[xix] Yole Group, “Compound semiconductors industry: an unprecedented promise”, https://www.yolegroup.com/press-release/compound-semiconductors-industry-an-unprecedented-promise/.

[xx] White House. “National Security Strategy” (October 2022) https://www.whitehouse.gov/wp-content/uploads/2022/10/Biden-Harris-Administrations-National-Security-Strategy-10.2022.pdf.

[xxi] McKinsey & Company, “Exploring New Regions: The Greenfield Opportunity in Semiconductors.” https://www.mckinsey.com/industries/semiconductors/our-insights/exploring-new-regions-the-greenfield-opportunity-in-semiconductors.

[xxii] *Ibid.*

[xxiii] White House, "Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth: 100-Day Reviews under Executive Order 14017" (June 2021), https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain-review-report.pdf.

[xxiv] US Department of Commerce, "A Strategy for the CHIPS for America Fund" (September 2022) https://www.nist.gov/system/files/documents/2022/09/13/CHIPS-for-America-Strategy%20%28Sept%206%2C%202022%29.pdf.

[xxv] White House, "Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth: 100-Day Reviews under Executive Order 14017" (June 2021), https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain-review-report.pdf.

[xxvi] Source: SEMI World Fab Forecast.

[xxvii] This includes the NYS Center for Applied Technology most directly connected to the semiconductor space: The University of Rochester's Center for Emerging and Innovative Systems, which works closely with the region's OPI sector, fundamental to semiconductor R&D.

[xxviii] New York State. "Governor Hochul Announces GO SEMI: The Governor's Office of Semiconductor Expansion, Management, and Integration," January 10, 2023, https://www.governor.ny.gov/news/governor-hochul-announces-go-semi-governors-office-semiconductor-expansion-management-and.

[xxix] New York State. "Governor Hochul Announces Plan to Grow and Strengthen New York's Economy," January 9, 2024. https://www.governor.ny.gov/news/governor-hochul-announces-plan-grow-and-strengthen-new-yorks-economy.

[xxx] U.S. Department of Commerce. "Biden-Harris Administration Announces Preliminary Terms with GlobalFoundries to Strengthen Domestic Legacy Chip Supply for U.S. Auto and Defense Industries," February 19, 2024. https://www.commerce.gov/news/press-releases/2024/02/biden-harris-administration-announces-preliminary-terms-globalfoundries.

[xxxi] Grid Deployment Office, "Epact 2005 Section 242 Hydroelectric Production Incentive Calendar Year 2021 & 2022 Incentive Recipients," https://www.energy.gov/sites/default/files/2023-12/120823%20Updated%20Section%20242%20Hydroelectric%20Production%20Incentives%20Selections%20List.pdf.

[xxxii] U.S. Department of Defense. "Department of Defense Approves $30 Million in Grants Under Defense Manufacturing Community Support Program," September 25, 2023, https://www.defense.gov/News/Releases/Release/Article/3536350/department-of-defense-approves-30-million-in-grants-under-defense-manufacturing/.

[xxxiii] "The Good Jobs Initiative." Accessed February 28, 2024, http://www.dol.gov/general/good-jobs/principles.

[xxxiv] Bricklayers and Allied Craftworkers Local 3, Construction Industry Association of Rochester, Laborers Local 435, Northeast Regional Council of Carpenters, Upstate NY Operating Engineers Local 158, IBEW Local 86, Mechanical Contractors of Rochester, Rochester NY Chapter of National, Electrical Contractors Association, Sheet Metal, Air, Rail, and Transportation Workers Local 46, Sheet Metal and Air Conditioning Contractors National Assn of Rochester, UA Local 13, Plumbers and Pipefitters, Heat and Frost Insulators and Allied Workers Local 26, Ironworkers Local 33, Teamsters Local 118, Painters and Allied Trades – District Council 4, Rochester Building and Construction Trades Council, Roofers Local 22.

[xxxv] 2020 Census Urban Areas data.

[xxxvi] Coin, Glenn. "Where Micron Stands: Release of Delayed Federal Money Could Unleash Clay Project." Syracuse.com (blog), February 22, 2024. https://www.syracuse.com/business/2024/02/where-micron-stands-release-of-delayed-federal-money-could-unleash-clay-project.html.

[xxxvii] 4 Regional Economic Development Councils will receive up to $9M each, including Finger Lake, Western NY, Central NY, and Mohawk Valley; New York State. "NY Forward." Accessed February 27, 2024. https://www.ny.gov/programs/ny-forward.