

On Establishing a Commonwealth AI Institute

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JCOTS Testimony, June 3rd, 2026

Executive Summary

Virginia has the assets to benefit from artificial intelligence, but not yet the mechanism to organize them at the scale this moment requires. A *Commonwealth AI Institute (CAII)* would give Virginia a practical, accountable way to connect universities, employers, agencies, and communities so the Commonwealth can train workers, modernize public services, attract outside investment, and compete in emerging industries.

Across the nation, states are moving rapidly to establish coordinated AI ecosystems that connect universities, government, industry, and economic development partners to accelerate innovation, workforce development, and commercialization. Virginia enters this moment with substantial advantages: world-class universities, a globally significant federal and defense presence, expanding technology and data sectors, advanced digital infrastructure, and recognized strengths in areas such as healthcare, manufacturing, law, coastal resilience, and public policy. Yet these assets remain fragmented, limiting the Commonwealth's ability to scale activity, attract investment, and compete effectively in the emerging AI economy.

CAII will provide a statewide structure to align and amplify these existing strengths. The Institute will organize its work around four foundational areas: education and workforce training; research and discovery; innovation and economic development; and trusted, nonpartisan AI expertise and support for government. By connecting universities with industry, government agencies, and regional stakeholders, CAII will expand Virginia's AI workforce pipeline, accelerate commercialization and entrepreneurship, strengthen public-sector capacity, and improve the Commonwealth's ability to attract investment and compete for emerging economic opportunities. Over time, CAII would help position Virginia as a leading hub for applied, responsible, and societally beneficial AI innovation.

The urgency of this effort cannot be overstated. AI is already reshaping industries, labor markets, research ecosystems, and regional competitiveness at extraordinary speed. States that move decisively to organize collaborative AI ecosystems are likely to capture disproportionate advantages in investment, workforce attraction, entrepreneurship, and economic growth, while those that fail to coordinate risk fragmentation, duplication of effort, and missed opportunities. At a time when Virginia must continue strengthening and diversifying its economy, CAII represents an opportunity to organize the Commonwealth's considerable assets into a coordinated strategy for long-term prosperity, resilience, and public benefit.

1. The Emergence of the AI Era: Opportunity, Disruption, and Transformation

Recent advances in generative AI have moved AI from specialized research environments into mainstream use across offices, schools, hospitals, logistics systems, and public agencies. This creates opportunity for productivity and service improvement, but also raises urgent questions about workforce readiness, procurement, privacy, cybersecurity, accuracy, and public trust.

As of February 2026, 58% of the US population aged 18-64 is using generative AI, and 43% do so for work¹. This rapid diffusion presents a significant opportunity for economic growth and public-sector innovation. Businesses across sectors such as finance, healthcare, logistics, and professional services are leveraging AI to increase productivity, reduce costs, and accelerate innovation cycles. Early evidence suggests that AI-enabled workflows can meaningfully augment human labor, allowing workers to focus on higher-value tasks while automating routine or repetitive functions. In the public sector, AI offers the potential to modernize service delivery, improve responsiveness, and enhance data-driven policymaking.

At the same time, the speed and scale of AI adoption are introducing substantial disruption across labor markets, institutions, and regulatory frameworks. Certain existing roles and skills, particularly those involving routine cognitive tasks, are being reshaped or, in some cases, displaced. Organizations are grappling with how to integrate AI into existing workflows while managing associated risks related to accuracy, bias, data privacy, and cybersecurity. In the public sphere, the use of AI raises important questions about transparency, accountability, and the appropriate boundaries of automated decision-making. These challenges are compounded by the fast rate of technological change, which often outpaces the ability of institutions and regulatory systems to adapt.

For policymakers, this moment presents both urgency and opportunity. States that proactively invest in AI capacity through education, research, infrastructure, and governance stand to capture disproportionate economic and societal benefits. At the same time, thoughtful policy frameworks are essential to ensure that AI deployment aligns with public values and the well-being of our communities, protects citizens, and promotes a culture of participation rather than exclusion. The emergence of LLM-driven AI is therefore not simply a technological development; it is a structural shift with far-reaching implications for economic competitiveness, workforce resilience, societal balance, and the role of government in shaping innovation.

2. Virginia at the Crossroads of the AI Revolution

Virginia stands at a critical juncture in the accelerating AI revolution. With nearly a quarter of the Commonwealth's economy tied to federal spending², Virginia remains highly sensitive to shifts in federal budgets and workforce dynamics. At the same time, AI presents a major opportunity to strengthen and diversify the state's economy and move it beyond federal dependence. Virginia possesses many of the foundational assets needed to lead in an AI economy, including world-class digital infrastructure, leading universities, a growing technology workforce, and deep connections to federal agencies and contractors. Yet these strengths remain fragmented and insufficiently coordinated. As AI reshapes industries and public institutions nationwide, Virginia faces a clear choice: emerge as a national leader in applied and responsible AI innovation, or risk falling behind more coordinated competitors.

Notable Strengths: Infrastructure, Higher Education, and Innovation Ecosystem

One of Virginia's most visible relevant strengths lies in its concentration of digital infrastructure. The Data Center Alley in Loudoun County is a global epicenter of data centers³, underpinning much of the nation's cloud computing capacity and supporting the deployment of AI systems at scale. However, that distinction alone does not guarantee AI leadership. While data centers provide a critical backbone, the true drivers of long-term competitiveness are talent, research, and the ability to translate innovation into application. In

¹ <https://www.genaiadoptiontracker.com/>

² Emergency Committee on the Impacts of Federal Workforce and Funding Reductions: Federal Budget Realignment and Implications for Virginia, 2025, bit.ly/4dKvJAI

³ <https://www.vedp.org/industry/data-centers>

this sense, Virginia's infrastructure advantage must be complemented by investments in human capital and institutional coordination.

Another asset for Virginia as it strives to meet rapidly growing AI workforce needs is its strong and increasingly coordinated higher education ecosystem. The Commonwealth's universities have already demonstrated their ability to partner effectively with the state to address emerging strategic priorities, as illustrated by the 2019 Tech Talent Investment Program⁴. Virginia institutions are producing large numbers of graduates in computer science, data science, engineering, and related fields, while expanding programs aligned with AI and other data-intensive disciplines. At the same time, demand for AI talent is accelerating nationally and globally. Reflecting this urgency, the recent Virginia AI Landscape Assessment report⁵ dedicates three of its five strategic objectives to workforce development: AI and data literacy for future workers, AI training and reskilling for incumbent workers, and re-employment pathways for displaced workers.

The labor market effects of AI are already visible across Virginia's economy. AI-related hiring is growing rapidly, particularly in technology, defense, and professional services, while many existing occupations are being reshaped by automation and AI-assisted workflows. According to the Virginia AI Landscape Assessment report⁵, there were nearly 9,000 AI-related job postings in Virginia in July 2025 alone, and since 2022 more than 6,300 employers across the Commonwealth have competed for AI talent. The report further estimates that as many as 1.5 million Virginia jobs (roughly one third of the workforce) could be affected by AI-driven change. Ensuring that educational pathways remain aligned with evolving workforce demands will therefore be essential to sustaining economic growth, supporting employers, and enabling Virginians to participate fully in the AI-enabled economy through continued upskilling and reskilling.

Beyond its infrastructure and universities, Virginia also benefits from a strong and expanding startup ecosystem, recently ranked among the nation's top 10 for technology startups and capital investment, with a record \$2.9 billion in venture funding raised in 2025⁶. AI-driven innovation is growing particularly rapidly in Northern Virginia and the Richmond region, where startups and emerging companies are applying AI across sectors including finance, healthcare, logistics, and cybersecurity, leading to some recent successes in Northern Virginia and the Richmond region⁷.

At the same time, the Commonwealth possesses substantial untapped potential. Virginia is home to six R1 universities, providing a strong foundation for coordinated, high-impact AI research and innovation. Programs like the ones supported by the Virginia Innovation Partnership Corporation⁸ (including Proof-of-Concept, Lab-to-Launch, and Entrepreneur-in-Residence initiatives) offer important mechanisms for translating university research into commercial and societal impact. Strengthening coordination across institutions and improving pathways from discovery to deployment will be essential to ensuring that AI innovation developed in Virginia generates long-term economic growth, startup formation, and high-quality jobs across the Commonwealth.

AI Opportunities Across Virginia's Regional Economies

Virginia's complex position in the AI landscape becomes even more clear when viewed through the lens of its diverse regional economies. Different parts of the Commonwealth are already experiencing the early impacts of AI adoption in ways closely tied to their dominant industries. This diversity creates coordination challenges, requiring collaboration across regions and areas of expertise. At the same time, it represents a major strategic advantage, positioning Virginia to help shape AI applications across sectors critical to both state and national priorities.

⁴ Secretary of Finance: RD139 – Tech Talent Investment Program, 2025, Reports to the General Assembly, <https://rga.lis.virginia.gov/Published/2025/RD139>

⁵ Virginia Chamber Foundation: Virginia AI Landscape Assessment, 2025, bit.ly/4tPNmEy

⁶ Virginia Startups Raise a Record \$2.9 Billion in Venture Capital Investment in 2025, VIPC, 2026, <https://bit.ly/4v68iZg>

⁷ Virginia Business: Northern Virginia AI Startups raise Millions, 2025, <https://bit.ly/4tU9f5Y>

⁸ Virginia Innovation Partnership Corporation: Funding Universities, <https://vipc.org/funding/universities/>

In *Northern Virginia*, AI is rapidly becoming embedded in an ecosystem defined by federal contracting, cloud computing, and advanced digital infrastructure. The region's unparalleled concentration of data centers and proximity to federal agencies create a powerful platform for AI deployment, particularly in cybersecurity, intelligence analysis, and defense operations. Federal contractors and technology firms are increasingly integrating AI into mission-critical functions—ranging from predictive analytics for national security to automation of large-scale data processing. At the same time, the presence of major cloud providers enables the scaling of AI applications across industries. However, this concentration also raises policy considerations around energy consumption, land use, and the resilience of critical infrastructure, all of which are directly relevant to the long-term sustainability of the region's growth.

The *Richmond region* offers a different but equally important lens on AI adoption, particularly through its strengths in healthcare, finance, and state government. Healthcare systems in the region are beginning to deploy AI tools for clinical decision support, patient risk prediction, and administrative efficiency. These applications have the potential to improve health outcomes while reducing costs, but they also require careful oversight to ensure accuracy, fairness, and patient privacy. In the financial sector, AI is being used to enhance fraud detection, risk modeling, and customer service, reinforcing Richmond's role as a center for financial services innovation. As the seat of state government, Richmond is also a natural focal point for the use of AI in public administration, from streamlining permitting processes to improving data-driven policymaking.

Across the *Virginia Peninsula and Hampton Roads*, AI is beginning to intersect with advanced manufacturing, logistics, defense-related industries and, also, coastal resilience. Shipbuilding, one of the region's cornerstone sectors, is incorporating AI-driven design optimization, predictive maintenance, and supply chain management to increase efficiency and reduce costs. These technologies have the potential to strengthen the competitiveness of one of the nation's most important industrial bases, but to do so require a workforce that is increasingly skilled in digital and data-driven tools. More broadly, the region's role in maritime operations and defense logistics positions it well to benefit from AI applications in areas such as autonomous systems, port operations, and transportation networks. Furthermore, AI offers transformative potential for coastal resilience in Virginia by enabling advanced modeling, real-time monitoring, and predictive analytics for flooding, sea-level rise, storm surge, shoreline erosion, and ecosystem health, all essential given the Commonwealth's extensive coastline, major naval infrastructure, and vulnerable coastal communities in regions such as Hampton Roads and the Chesapeake Bay. AI can also strengthen Virginia's marine and fishing industries by supporting sustainable fisheries management, precision aquaculture, seafood supply-chain optimization, vessel logistics, and environmental monitoring, helping protect a sector that contributes significantly to the Commonwealth's economy, workforce, and food security.

In *Southwest and Southside Virginia*, where economic challenges have historically been more pronounced, AI presents both an opportunity and a risk. On one hand, AI-enabled remote work, digital services, and precision agriculture could help expand economic opportunities and reduce geographic barriers to participation in the modern economy. For example, AI tools can support more efficient agricultural practices, improve access to telehealth services, and enable small businesses to reach broader markets. On the other hand, these benefits depend heavily on access to broadband infrastructure, digital literacy, and workforce training—areas where disparities persist. Without targeted investment, there is a risk that the AI transition could deepen existing regional inequalities.

From Challenges to Opportunity

Across these regions, the labor market implications of AI are becoming increasingly tangible. In Northern Virginia, demand for highly skilled technical workers continues to grow, outpacing supply. In manufacturing and logistics hubs, workers are being asked to adapt to new technologies that augment traditional roles. In healthcare and public service sectors, professionals are integrating AI tools into their daily workflows, changing how services are delivered. These shifts underscore the importance of a coordinated workforce strategy that includes not only degree programs, but also short-term credentials, reskilling initiatives, and strategic partnerships between universities and employers.

Beyond workforce considerations, AI carries significant societal implications that are particularly relevant for a geographically and economically diverse state like Virginia. The Commonwealth includes rapidly

growing urban regions alongside rural communities that face persistent economic challenges. AI has the potential to help bridge these divides, for example, through improved access to healthcare, education, and government services delivered digitally. At the same time, there is a risk that unequal access to technology, infrastructure, and training could exacerbate existing disparities, leaving some communities further behind.

Issues of opportunity, access, and trust will play a central role in shaping Virginia's AI future. Policymakers must ensure that the benefits of AI are broadly shared while addressing concerns related to data privacy, algorithmic bias, and the transparency of automated systems. These considerations are not abstract; they directly influence how Virginians experience AI in education, employment, healthcare, public services, and government decision-making. Building public confidence in AI systems will be essential to their responsible and successful adoption.

Taken together, these regional dynamics underscore both the promise and the complexity of Virginia's position in the AI revolution. The Commonwealth's strength lies not in a single industry or geography, but across a diverse network of capabilities spanning technology, healthcare, manufacturing, defense, and public service. Realizing this potential will require a coordinated strategy that recognizes regional differences while aligning them toward common statewide goals. Without such coordination, Virginia risks not only lost opportunities, but also uneven development that widens regional disparities across the Commonwealth and does not reflect our values and priorities. The choices made now will determine whether Virginia fully realizes the opportunities of the AI revolution while managing its risks, or whether it falls short of its potential at a critical moment of technological, economic, and societal transformation.

3. A Commonwealth AI Institute

The question before Virginia is not whether AI will shape our economy and public institutions. It already is. The question is whether the Commonwealth will respond with coordinated action that prepares workers, strengthens regional economies, modernizes public services, and keeps Virginia competitive in a rapidly evolving landscape. As outlined above, Virginia already possesses vital assets to lead in the AI era. What it lacks is the mechanism to organize these assets at the scale that this moment requires, coordinating them around shared priorities in economic growth, workforce readiness, public-sector innovation, and responsible AI deployment.

Universities are uniquely positioned to serve as the backbone of a coordinated AI strategy in Virginia. First and foremost, *they anchor the talent pipeline that underpins the entire AI ecosystem*. From undergraduate education to graduate training and professional development, institutions of higher education produce the workforce that designs, deploys, and governs AI systems. Beyond workforce development, *universities play a critical role in the AI innovation ecosystem*: advancing foundational research, generating new discoveries, and translating breakthroughs into real-world applications. While industry often focuses on near-term commercialization, universities are uniquely positioned to pursue long-horizon, high-risk basic research that drives the next generation of AI technologies, methods, and scientific understanding. Equally important is the role of universities as *neutral conveners* across sectors. In contrast to private firms, which are driven by market incentives, and government agencies, which are shaped by regulatory and political constraints, universities occupy a unique position of trust.

Accordingly, in response to the current AI challenge, Virginia universities are proposing the establishment of a **Commonwealth AI Institute (CAII)**: a lean, accountable statewide structure to connect universities, employers, agencies, and communities so the Commonwealth can train workers, modernize public services, attract outside investment, and compete in emerging industries. Although initial state support will be critical for its launch, CAII is designed to soon scale up its operations and become a multiplier for additional investment through federal grants, university contributions, corporate partnerships and in-kind resources, and philanthropic support.

Vision and Mission

The Commonwealth AI Institute (CAII) is envisioned as a coordinating framework that strengthens university connections in the space of AI and bridges the gaps that exist between these universities,

industry partners, and government agencies to advance the Commonwealth's leadership in artificial intelligence. Rather than duplicating existing efforts, the Institute would align, connect, and amplify institutional strengths across research, education, workforce development, innovation, and public service, creating a more connected and strategically coordinated statewide ecosystem. By fostering meaningful collaboration among academia, employers, entrepreneurs, and public-sector stakeholders, the Institute will accelerate the translation of AI research into real-world impact, support the development of a highly skilled workforce, and position Virginia as a national leader in the responsible and economically transformative deployment of AI.

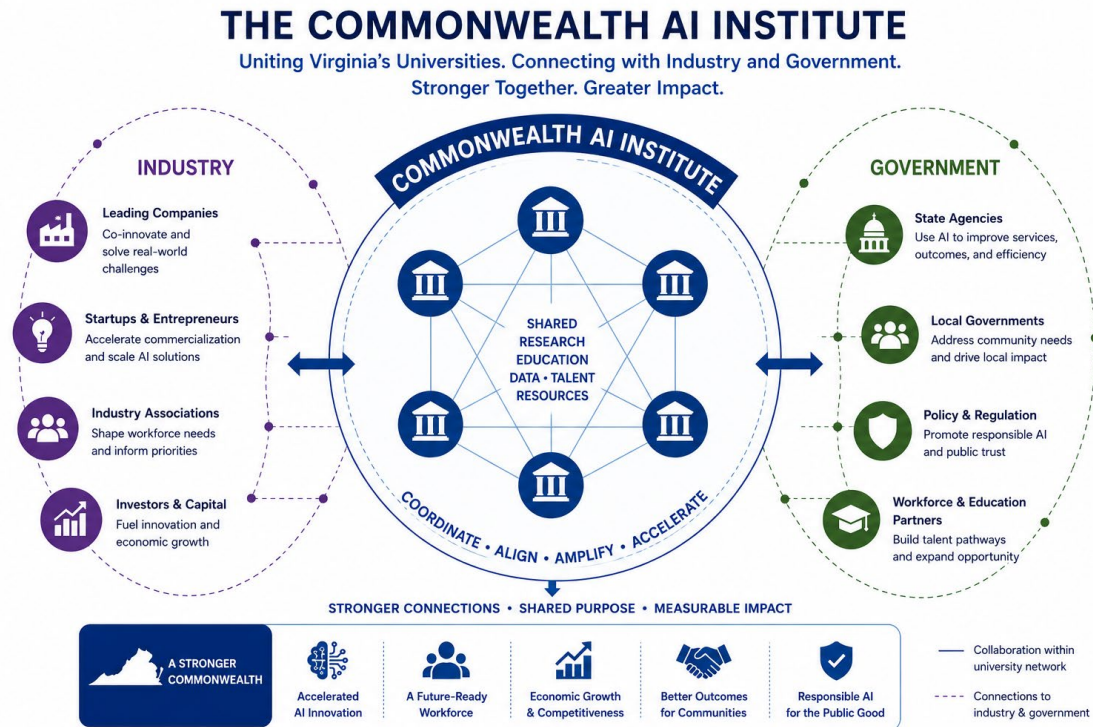


Figure 1: CAII, the Commonwealth AI Institute, a coordinating framework that strengthens university connections in the space of AI and brings together these universities with industry partners, and government agencies to advance the Commonwealth's leadership in artificial intelligence

To best pursue these goals, CAII operations are structured around four foundational activities, and five thematic areas as presented below.

Foundational Activities and Priority Thematic Areas

CAII will serve as a statewide platform for coordinating Virginia's strengths in artificial intelligence across education, research, innovation, and public service. Accordingly, its activities will be organized around four foundational operational pillars that together support talent development, scientific advancement, economic growth, and responsible governance (see Fig. 2).

- *Education and workforce training*

A core mission of the Commonwealth AI Institute (CAII) will be to strengthen Virginia's AI talent pipeline through coordinated education and workforce initiatives spanning K–12 engagement, community colleges, undergraduate and graduate education, professional training, and workforce reskilling. The Institute will help align academic and training programs with rapidly evolving industry and government needs, support the development of AI-related curricula and credentials, and expand AI literacy across disciplines and regions of the Commonwealth. By connecting universities, employers, and public-sector partners, CAII will help prepare Virginians not only for specialized AI careers, but also for the broader workforce transformation AI is expected to drive across nearly every sector of the economy.

Sample outcome metrics to assess progress and success in this activity include: the number of individuals trained, reskilled, or upskilled; the number of AI-related certificates and degrees awarded; participation rates across K–12, higher education, and professional education programs; job placement and career advancement outcomes; employer partnerships and internships established; and the geographic and demographic reach of workforce initiatives across the Commonwealth. Additional measures may include employer satisfaction, growth in AI-related workforce capacity, and the alignment of educational programs with evolving industry and public-sector needs.

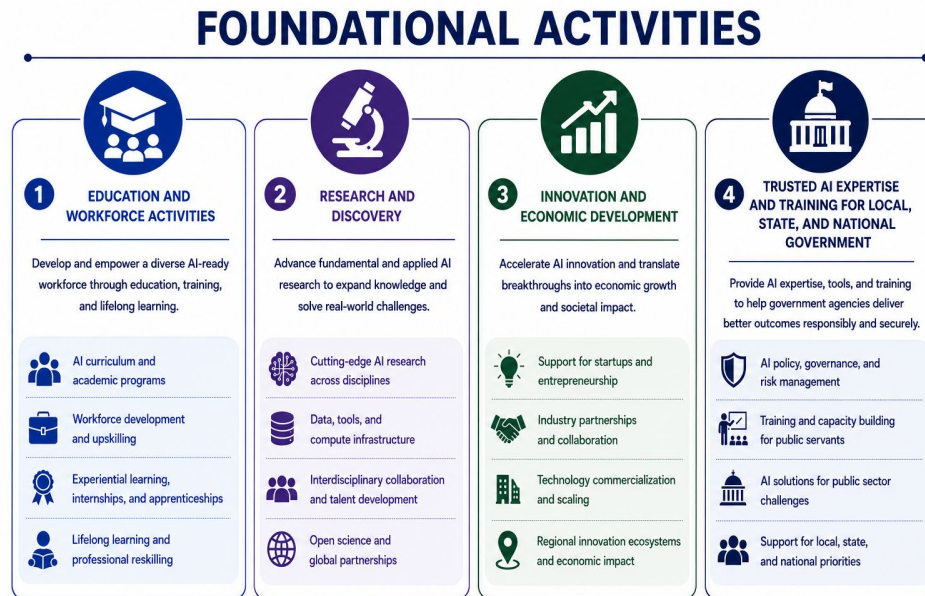


Figure 2: Core foundational activities of CAII

- *Research and discovery*

CAII will serve as a collaborative platform for advancing interdisciplinary and cross-institutional AI research across Virginia’s universities and research institutions. The Institute will support both foundational and applied research by advancing AI technologies themselves while also expanding the use of AI to accelerate discovery and innovation across a wide range of domains. These efforts will contribute to progress in areas such as healthcare, national defense, coastal resilience, advanced manufacturing, law, and business. By identifying and connecting expertise distributed across Virginia’s universities, linking researchers with industry and government partners, and coordinating shared research infrastructure, CAII will help build nationally competitive teams capable of pursuing large-scale, high-impact research initiatives.

Sample outcome metrics to assess progress and success in this activity include: research expenditures and external funding secured; number and scale of collaborative grants and multi-institutional research initiatives; publications, patents, and other scholarly outputs; industry- and government-sponsored research partnerships; utilization of shared research infrastructure; and the recruitment and retention of leading faculty, researchers, and graduate students in AI-related fields.

- *Innovation and economic development*

CAII will help translate AI research and talent into economic growth, entrepreneurship, and regional innovation across the Commonwealth. To support this goal, the Institute will strengthen pathways from discovery to commercialization by connecting researchers, startups, investors, industry partners, and public agencies within a coordinated innovation ecosystem. Through technology transfer, applied research partnerships (especially dedicated fast-deployment focused projects to meet particular stakeholder needs), startup incubation, and workforce alignment, CAII will help attract investment, strengthen existing industries, and support the growth of new AI-enabled enterprises across Virginia’s regions.

Sample outcome metrics to assess progress and success in this activity include: startup formation and survival rates; venture capital and external investment attracted; industry-sponsored research and commercialization partnerships; patents, licenses, and technology disclosures; jobs created in AI-related sectors; participation of Virginia companies in CAII-supported initiatives; and regional economic impact, including growth in AI-related business activity and innovation capacity across the Commonwealth.

- *Serving as a trusted AI think tank to support consulting and training needs of local, state, and national government*

CAII will serve as a trusted, nonpartisan AI think tank supporting the needs of local, state, and national government. Drawing on Virginia’s expertise in technology, policy, law, ethics, cybersecurity, and public administration, the Institute will provide research-based guidance, policy analysis, executive education, and technical consulting related to AI adoption and governance. CAII will support public-sector leaders as they navigate complex issues surrounding AI strategy, regulation, workforce impacts, data governance, and responsible deployment. In doing so, the Institute can help position Virginia as a national leader not only in AI innovation, but also in the effective, trustworthy, and responsible governance of AI technologies.

Sample outcome metrics to assess progress and success in this activity include: the number of government agencies and public-sector organizations engaged; policy studies, guidance documents, and advisory initiatives completed; executive education and training programs delivered; participation by public-sector personnel in Institute-supported activities; external funding and contracts secured for government-facing initiatives; and evidence of AI-informed modernization, governance, and decision-making practices adopted by partner agencies and organizations.

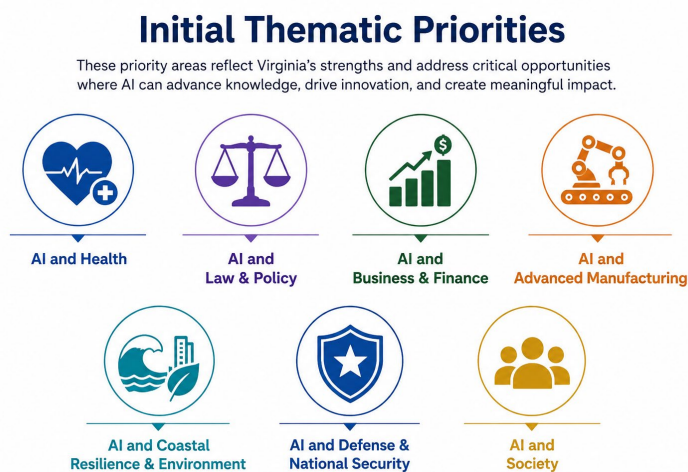


Figure 3: Initial priority CAII thematic areas

In addition to basic AI research, we anticipate an evolving portfolio of thematic areas that will be pursued by CAII. Current discussions have identified some early priority themes that are expected to receive heightened attention by CAII researchers as they are of substantial importance to Virginia (see Fig. 3).

The identification of thematic priority areas helps ground CAII’s activities in Virginia’s existing strengths, strategic needs, and economic opportunities. Using such themes (including additional themes that may emerge in the future) to organize Institute activities will enable stronger engagement with aligned stakeholder communities across academia, industry, and government, while helping identify targeted needs that can be addressed through CAII’s foundational activities. This renders CAII *Virginia’s AI Institute*, as opposed to a generic academic consortium.

This approach will allow the CAII portfolio to keep growing and evolving at the intersections of themes and operations. Examples include developing AI upskilling programs to support Virginia’s coastal resilience workforce, accelerating the commercialization of AI-enabled solutions for advanced manufacturing and smart sensing, and providing guidance to state and local governments on the ethical, privacy, and security implications of emerging AI technologies.

Leveraging a Record of Past Successful Collaborations

Virginia has already demonstrated the ability to support coordinated, university-led initiatives around technology and innovation. The Commonwealth's Tech Talent Investment Program⁹ (TTIP) is a leading example. Launched in 2019 as a historic \$1.1 billion, 20-year investment, TTIP was designed to strengthen Virginia's technology workforce pipeline by expanding the number of graduates in computer science and related fields. By FY25, thirteen institutions and the Virginia Community College System were participating, collectively working toward the goal of producing at least 30,000 additional graduates over two decades - a target the Commonwealth remains on track to achieve. Although TTIP was not specifically designed around AI, it created a strong foundation for future AI workforce growth and helped position Virginia competitively relative to neighboring states such as Maryland, North Carolina, Tennessee, and Georgia.

Virginia has also demonstrated the ability to build truly collaborative statewide research ecosystems. Established by the general assembly in 2018, the Commonwealth Cyber Initiative (CCI) brought together universities, industry, and government to advance cybersecurity research, innovation, and workforce development¹⁰. In just six years, CCI contributed to the creation of more than 4,600 jobs, generated approximately \$370 million in labor income, added more than \$500 million to Virginia's GDP, and helped researchers secure nearly \$400 million in cybersecurity-related funding. CCI illustrates the substantial economic and research impact that coordinated statewide collaboration can achieve when aligned around a strategic technological priority.

The scale and transformative potential of AI, however, extend far beyond cybersecurity, requiring a broader, more agile, and more ambitious framework. Nevertheless, the successes of TTIP and CCI demonstrate that Virginia already possesses both the institutional capacity and collaborative culture needed to pursue a Commonwealth-wide AI strategy. Through CAII, universities - working in partnership with industry and government - can provide the foundation for a coordinated effort that advances research, workforce development, innovation, and responsible AI deployment across the Commonwealth.

Timeline

We are currently in the early planning phase of the Commonwealth AI Institute (CAII). Over the past year, representatives from Virginia's leading universities - including George Mason, James Madison, Old Dominion, University of Virginia, Virginia Commonwealth, Virginia State, Virginia Tech, and William & Mary - have worked collaboratively to develop the initial vision and operational framework for the Institute. This founding network is expected to expand as planning continues. Discussions are already underway with the Virginia Community College System (VCCS), industry representatives, regional stakeholders, and organizations such as VIPC and VEDP. Over the next 12 months (June 2026–May 2027), efforts will focus on stakeholder engagement, governance development, and institutional coordination in preparation for full-scale operations beginning in June 2027.

Benefiting from experiences from past practices, it is anticipated that our management model will be some variant of a spoke and wheel model (considering for example rotating regional nodes to ensure broader participation and impact). CAII governance structures will incorporate representation from higher education, state government, industry, and regional stakeholders to ensure alignment with the Commonwealth's strategic priorities. Accordingly, we anticipate coordination with entities like VIPC, VEDP, SCHEV, and state government entities like the Dept. of Education and Virginia Works. Metrics like the ones described under our foundational activities above are expected to be used to assess our progress, optimize opportunity and risk, and ensure that the benefits of AI reach all regions and sectors of Virginia.

National Competition and the Cost of Inaction

Other states are already moving deliberately to organize AI efforts at scale, offering useful models for Virginia to consider. The Empire AI Consortium represents a coordinated investment by New York State to bring together leading public and private research institutions around shared AI infrastructure, talent

⁹ Virginia Secretary of Finance, 2025. RD139 - Tech Talent Investment Program, <https://shorturl.at/py28L>

¹⁰ Commonwealth Cyber Initiative: RD545 – CCI: Fiscal Year 2024 Report, 2024, Reports to the General Assembly, <https://rga.lis.virginia.gov/Published/2025/RD545>

development, and public-interest applications¹¹. Its emphasis on shared computing resources and cross-institutional collaboration is particularly notable. Similarly, the Connecticut AI Alliance focuses on aligning universities, industry, and government to accelerate workforce development, innovation, and responsible AI deployment across the state¹². In April 2026, the universities of Tennessee, Arkansas, Memphis, and Mississippi established the Mid-South AI Research Consortium, aiming to unify their region's fragmented AI capabilities¹³. While these initiatives differ in scale and structure, they share a common principle: intentional, statewide coordination designed to amplify existing strengths and position their states competitively in the AI economy.

While realizing our vision requires some investment, the cost of inaction in this context is arguably higher. Without a coordinated strategy, Virginia risks losing talent to states and regions that offer more integrated AI ecosystems and clearer pathways from education to employment. The absence of coordination could also limit Virginia's ability to attract investment, support startup growth, and capitalize on emerging AI-driven industries. At a time when recent federal cuts¹⁴ have highlighted Virginia's dependence on federal spending, expanding the Commonwealth's non-federal economy has become even more important. AI represents one of the most promising opportunities to achieve that goal. States that successfully align research capacity, workforce development, infrastructure, and industry partnerships will be better positioned to attract high-growth companies, generate high-quality jobs, and maximize the return on prior investments in education and research. At the same time, AI presents a growing challenge and opportunity in governance and public policy. As governments grapple with issues related to data privacy, algorithmic accountability, workforce impacts, and the societal implications of AI, states have an opportunity to help shape frameworks that reflect their priorities and values. Without a coordinated approach that brings together academic expertise, industry insight, and public-sector leadership, Virginia risks falling behind not only in AI innovation, but also in the development of trusted and responsible approaches to AI adoption and governance.

4. Working Together to Shape Virginia's AI Future

The establishment of a Commonwealth-wide AI Institute (CAII) would provide Virginia with the structure needed to align and amplify its considerable assets at a defining moment of technological transformation. By connecting universities, industry, government, and communities across the Commonwealth, CAII would create a coordinated platform for talent development, interdisciplinary research, innovation, shared infrastructure, and public-private partnership at a scale commensurate with the opportunities and disruptions of the AI era. In doing so, the Institute would strengthen Virginia's ability to attract investment, support startup growth, and recruit leading faculty, researchers, and students, while helping position the Commonwealth as a national leader in responsible and societally beneficial AI innovation.

The urgency of this effort cannot be overstated. AI is already reshaping industries, labor markets, research ecosystems, and regional competitiveness at extraordinary speed. States that move decisively to build collaborative AI ecosystems are likely to capture disproportionate advantages in economic growth, workforce attraction, and technological leadership, while those that fail to coordinate risk fragmentation, missed opportunities, and declining competitiveness. Virginia already possesses many of the ingredients needed to lead in this new era: world-class universities, strong federal partnerships, advanced digital infrastructure, and a growing innovation economy. CAII represents an opportunity to bring these assets together within a bold, statewide strategy capable of advancing both the Commonwealth's long-term prosperity and the broader public good.

¹¹ Governor Hochul Launches Empire AI Consortium to Make New York a Global Leader in Artificial Intelligence as Part of FY 2025, 2025 <https://tinyurl.com/2xzyrnut>

¹² Connecticut Forms 'AI Alliance' of 16 Universities, 2025, <https://tinyurl.com/yjt559ck>

¹³ Mid-South AI Research Consortium to Fuel Innovation, 2026, <https://tinyurl.com/5n8354rv>

¹⁴ Virginia Drops in America's Top States for Business Rankings. Federal Job Cuts are a Big Reason. CNBC, 2026, <https://tinyurl.com/2s3tpeju>

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CAII

Introduction and Outline

- The emergence of the era of Artificial Intelligence (AI)
- AI and Virginia: advantages and challenges
- CAII: a university initiative for Virginia, to meet the challenge of scale and geography
- The importance of timely action

The Key Takeaway

*Virginia has the assets to lead in the AI era —
but not yet the mechanism to organize them at the scale that this moment requires.*



The Gap

Virginia's assets — universities, infrastructure, federal partnerships — remain fragmented and uncoordinated.



The Solution

A Commonwealth AI Institute (CAII): a lean, accountable statewide structure connecting universities, industry, agencies & communities.



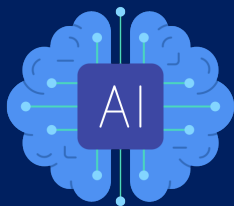
The Outcome

Train workers, modernize public services, attract investment, and compete in emerging AI-driven industries.

The Particularities of AI

- ChatGPT release on 11/30/22: one million users in its first 5 days. Today: 1.5-2 billion people have used GenAI tools at least once, 500-600 million daily users
- Blending transformative opportunity and disruption
- The challenge of scale

The AI Era Is Here



AI has moved from specialized research into mainstream use across offices, schools, hospitals, logistics systems, manufacturing, and public agencies.

58%

of US adults 18–64 use generative AI (Feb 2026)

43%

use it specifically for work

9,000+

AI job postings in Virginia (July 2025)

6,300+

VA employers competing for AI talent since 2022

1.5M

Virginia jobs (~1/3 of workforce) affected by AI

\$2.9B

Virginia venture capital raised in 2025 — record

Virginia's Competitive Strengths



Digital Infrastructure

Data Center Alley in Loudoun County is a global epicenter, underpinning much of the nation's cloud computing and AI deployment capacity.



World-Class Universities

Our universities (incl/ six R1 institutions) are producing CS, data science, and engineering graduates aligned with AI needs.



Innovation Ecosystem

Top-10 nationally for tech startups; \$2.9B venture capital raised in 2025. AI-driven growth in Northern Virginia and Richmond.



Federal & Defense Nexus

Proximity to federal agencies, intelligence community, and defense contractors creates unique AI application and partnership opportunities.

Substantial assets —
but currently
fragmented

Virginia's Regional Economies



Northern Virginia

Data Center Alley in Loudoun County is a global epicenter
Cybersecurity
Defense and tech firms
Critical infrastructure



Hampton Roads / Peninsula

Coastal Resilience
Manufacturing and Logistics
Maritime and naval operations
Fishing and aquaculture
JLab



Central Virginia

Healthcare, biotech, and medicine
Finance
State government



Southwest and Southside

Manufacturing
Precision agriculture
Telehealth

Virginia: A Changing Landscape?

[PAST YEARS](#) | [2025 RANKING](#) | [METHODOLOGY](#)

TOP STATES FOR BUSINESS

Virginia is America's Top State for Business in 2024, with the nation's best schools and solid infrastructure

PUBLISHED THU, JUL 11 2024-8:10 AM EDT | UPDATED THU, JUL 11 2024-9:41 AM EDT



Scott Cohn
@SCOTTCOHN TV

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[PAST YEARS](#) | [2025 RANKING](#) | [METHODOLOGY](#)

TOP STATES FOR BUSINESS

Virginia drops in America's Top States for Business rankings. Federal job cuts are a big reason

PUBLISHED THU, JUL 10 2025-8:21 AM EDT | UPDATED FRI, JUL 25 2025-11:35 AM EDT



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@SCOTTCOHN TV

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Universities as Virginia's Backbone

Where Universities Lead

Talent Pipeline

K–12 through graduate programs & reskilling across all disciplines

Research → Application

Bridge between foundational AI and real-world deployment in health, law, defense, business, security

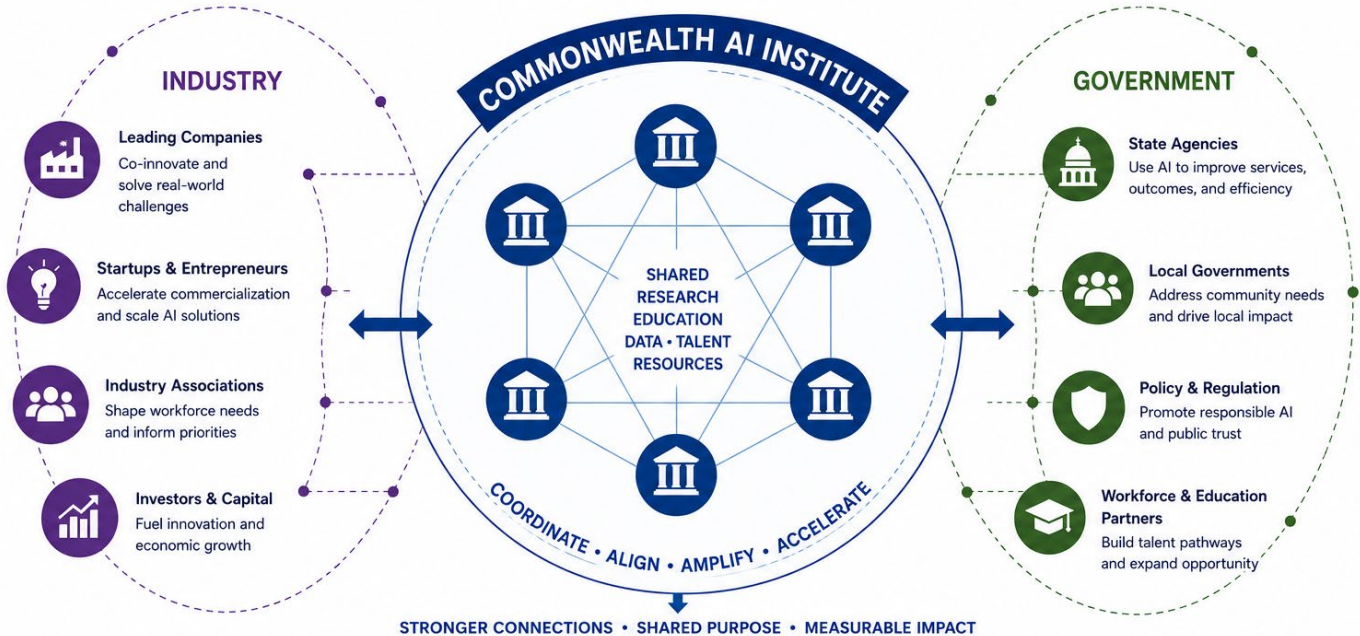
Neutral Conveners

Trusted intermediary — brings industry, government & startups to the table

THE COMMONWEALTH AI INSTITUTE

Uniting Virginia's Universities. Connecting with Industry and Government.
Stronger Together. Greater Impact.

GMU · JMU · ODU · UVA ·
VCU · VSU · Virginia Tech ·
William & Mary + VCCS +
VIDC +



— Collaboration within university network
- - - Connections to industry & government

Four Foundational Activities

How CAII organizes its work

01



Education & Workforce Training

K–12 through graduate education, professional reskilling, AI literacy across disciplines. Aligning Virginia's talent pipeline with rapidly evolving industry and government needs.

Sample Metrics

Individuals trained · Degrees & certificates
· Job placements · Employer partnerships

02



Research & Discovery

Interdisciplinary, cross-institutional AI research. Foundational and applied work across healthcare, defense, manufacturing, coastal resilience, law, and business.

Sample Metrics

Research funding · Collaborative grants · Publications & patents · Shared infrastructure

03



Innovation & Economic Development

Translating research into growth: technology transfer, startup incubation, applied partnerships, and attracting investment across Virginia's regions.

Sample Metrics

Startups formed · VC attracted · Jobs created · Industry partnerships

04



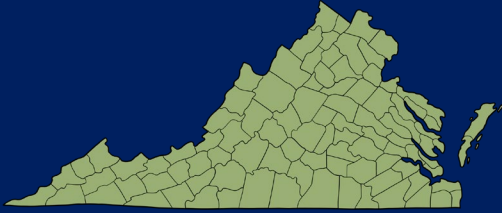
AI Think Tank for Government

Trusted, nonpartisan AI expertise for local, state, and federal agencies. Policy analysis, executive education, and guidance on AI governance and deployment.

Sample Metrics


Agencies engaged · Policy studies · Training programs · Government AI adoptions

Priority Thematic Areas






CAII is Virginia's AI Institute, not a generic academic consortium - Thematic areas ground CAII's activities in Virginia's specific strengths, strategic needs, and regional economic opportunities.


1 AI and Health







Including topics like:

-  Drug discovery
-  Diagnostics
-  Treatment and care


2 AI and Law & Policy








Including topics like:

-  Ethics
-  Risk
-  Regulation and compliance
-  Policy analysis


3 AI and Business & Finance







Including topics like:

-  Advanced data analysis and financial management
-  HR and workforce transformation
-  Data privacy
-  Predictive analytics and demand management
-  Real-time autonomous decision-making


4 AI and Advanced Manufacturing







Including topics like:

-  Agentic AI and autonomous operations
-  Advanced robotics and automation
-  Smart supply chain
-  Predictive maintenance and quality control


5 AI and Coastal Resilience & Environment








Including topics like:

-  Flooding monitoring and response
-  Aquaculture and agriculture
-  Environmental impact of data centers
-  Climate modeling and natural resource management


6 AI and Defense & National Security








Including topics like:

-  Intelligence gathering and analysis
-  Predictive analytics and forecasting
-  Decision support and decision making
-  Cybersecurity and threat detection
-  Mission planning and scenario modeling

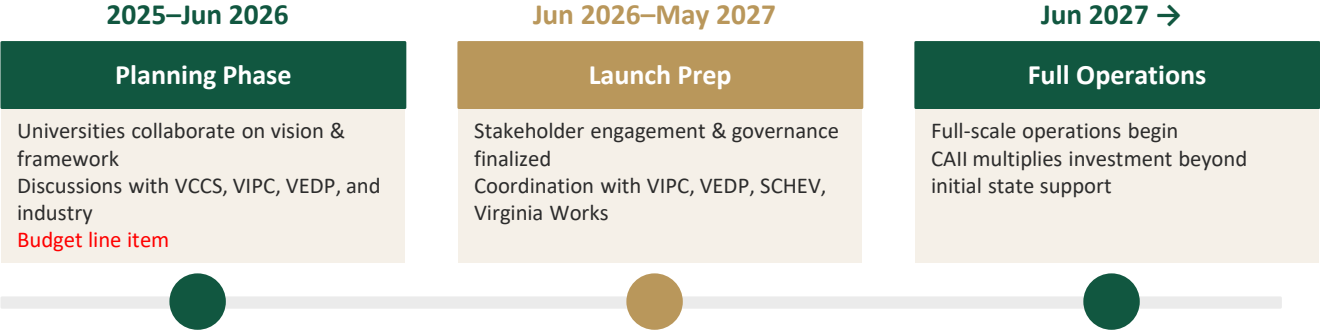
7 AI and Society



Including topics like:

-  Ethics and accountability
-  Governance and policy
-  Social impact and equity
-  Privacy, trust, and transparency
-  AI literacy and public understanding

Timeline & Governance



Governance Structure



Higher Education

Eight founding universities; VCCS joining. Founding network expected to expand.



Industry & Innovation

VIPC, VEDP, corporate partners, and regional stakeholders with decision-making roles.



State Government

SCHEV, Dept. of Education, Virginia Works, and relevant agencies formally represented.



Regional Model

Spoke-and-wheel; rotating regional nodes for Commonwealth-wide reach.

The National Competition Is Already Underway

Other states are moving deliberately. Virginia must too.

The Cost of Inaction

- Losing talent to states with more integrated AI ecosystems
- Limited ability to attract AI investment and startup growth
- Federal spending cuts increase urgency to diversify Virginia's economy
- Risk of widening regional disparities within the Commonwealth
- Falling behind in AI governance as well as AI innovation

New York

Empire AI Consortium

Shared AI infrastructure, cross-institutional research, and public-interest focus. Major investment by New York State.

Connecticut

Connecticut AI Alliance

16 universities aligned around workforce development, innovation, and responsible AI deployment.

TN / AR / MS / Memphis

Mid-South AI Research Consortium

April 2026: four universities unify fragmented regional AI capabilities into a coordinated consortium.

The Key Takeaway

*Virginia has the assets to lead in the AI era —
CAII will be an effective mechanism to organize them at the scale that this moment requires.*



The Gap

Virginia's assets — universities, infrastructure, federal partnerships — remain fragmented and uncoordinated.



The Solution

A Commonwealth AI Institute (CAII): a lean, accountable statewide structure connecting universities, industry, agencies & communities.



The Outcome

Train workers, modernize public services, attract investment, and compete in emerging AI-driven industries.

Thank you

Anthony Stefanidis

astefanidis@wm.edu



CAII

A dynamic splash of clear water with numerous bubbles, set against a light blue background. The water is captured in mid-air, creating a sense of movement and freshness.

SWIFT - The Largest Water Project of Its Kind in the World

Building the Silicon Valley of Water Tech

Jay Bernas, P.E., GM/CEO

June 3, 2026



Regional Wastewater Authority for 20 cities and counties

8 MAJOR TREATMENT PLANTS
6 SMALL TREATMENT PLANTS

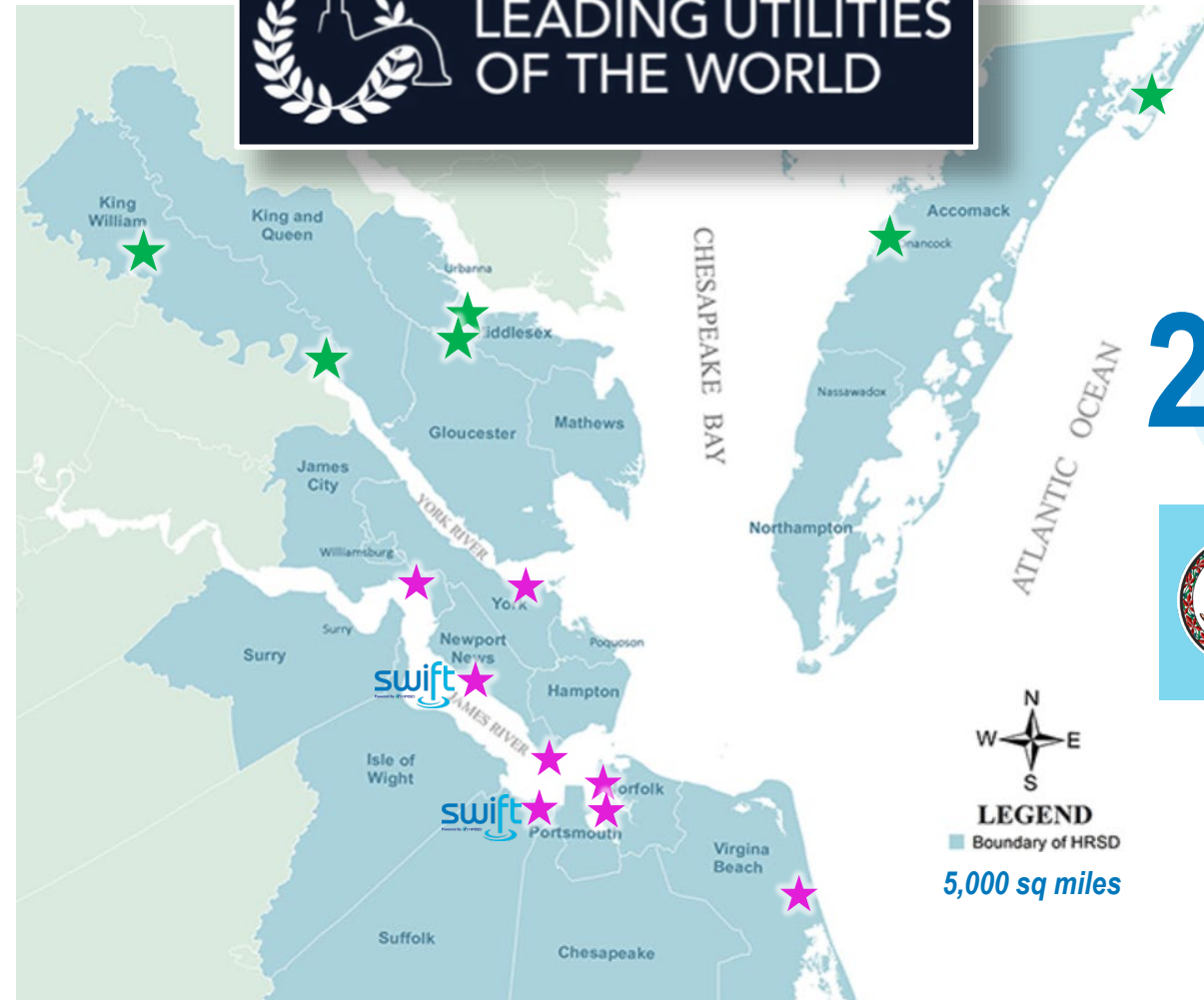
Top-tier R&D

12 Active Patents
4 Patents Pending

32 Active Water Research Foundation Projects

EPA Science Advisory Board (SAB) Chair - Dr. Charles Bott, CTO

LEADING UTILITIES OF THE WORLD



1.9 MILLION INDIVIDUALS SERVED
Over 20% of all Virginians

225 MILLION GALLONS PER DAY OF COMBINED TREATMENT CAPACITY

POLITICAL SUBDIVISION COMMONWEALTH OF VIRGINIA

10-YR CAPITAL BUDGET \$3.4 BILLION

Low-cost Financing is Critical for Affordability

- Largest Borrower of Clean Water Revolving Loan Funds (SRF) in Virginia
- First WIFIA Programmatic Loan @ \$1.3 billion
- **Saved \$390M** with WIFIA/SRF
- HRSD's Subsidized funding results in **9% lower monthly bills**

Water Affordability Needs Assessment: Report to Congress
DECEMBER 2024
EPA 830-R-24-015

9.3 Increasing Ways to Reduce Water Infrastructure Capital and Operating Costs

Recommendation 6: Promote the Use of Low-Cost Federal Funding and Financing for Water Infrastructure and Water Technical Assistance to Address Affordability Issues

The Clean Water and Drinking Water State Revolving Funds are important programs for investing in the nation's water infrastructure. They are designed to generate significant and sustainable water quality and public health benefits across the country and improve affordability in communities that are facing challenges across the U.S.

Through the federally capitalized SRF programs, states provide below-market interest rate loans and other financing assistance for infrastructure improvements and other water quality projects. States manage their SRF programs and are required to establish specific eligibility criteria and special funding mechanisms, including loan forgiveness and other grant-like options, for economically disadvantaged communities and those that meet each state's affordability criteria. Since 2021, EPA has invested more than \$500 million in EPA Water Technical Assistance (Water TA), which connects communities to experts who help assess and implement solutions for their drinking water, sewage, and stormwater needs. This program has allowed underserved communities across the country access this low-cost federal funding and reduce their overall project costs.

Martin County Water and Sanitation Districts is an example of a utility that struggles with affordability challenges driven by both widespread poverty and aging infrastructure. The District estimates that a significant volume of water is lost from leaks in its distribution pipelines, meaning that a large portion of its operating costs to produce that water are wasted. This highlights the need for a multi-faceted approach to address water affordability, which includes continued investment in infrastructure. Read more about Martin County in the case study in Appendix A.

Recommendation 6: Promote the Use of Low-Cost Federal Funding and Financing for Water Infrastructure and Water Technical Assistance to Address Affordability Issues

saved the region \$5.2 billion

**Lowers
ratepayer
bills by 47%**

Total Compliance Cost = \$8.3 B

\$4.4 B

Clean Water Act Compliance (CD/CO)

- Each Locality builds wet weather capacity = \$2.85 B
- HRSD builds wet weather capacity = \$1.51 B



\$3.9 B

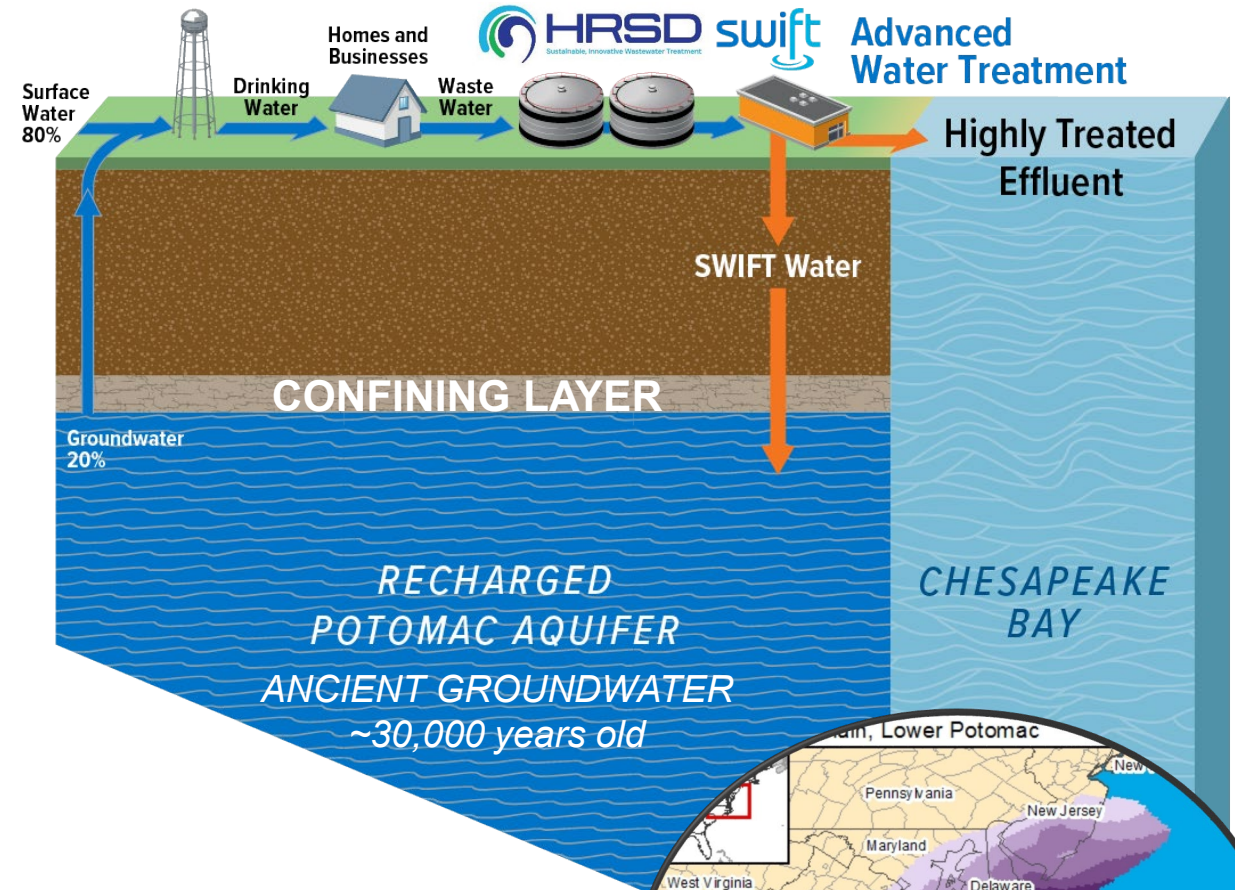
Chesapeake Bay Restoration (TMDL)

- Each Locality builds stormwater retrofits = \$2.31 B
- HRSD builds treatment upgrades = \$1.56 B



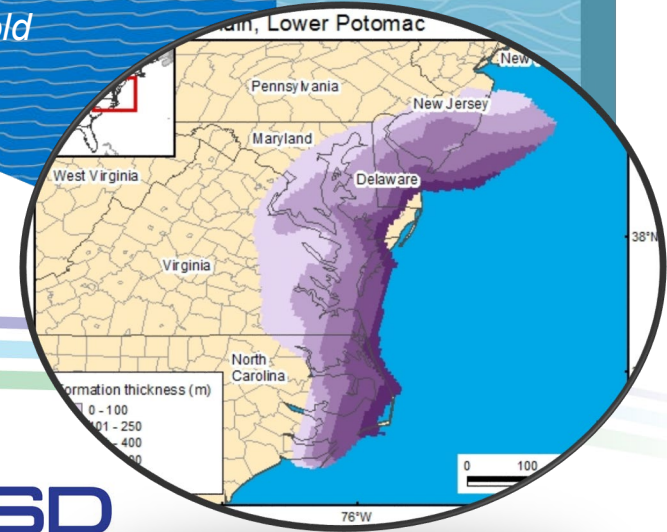
**HRSD's EPA Approved
Integrated Plan = \$3.1 B**





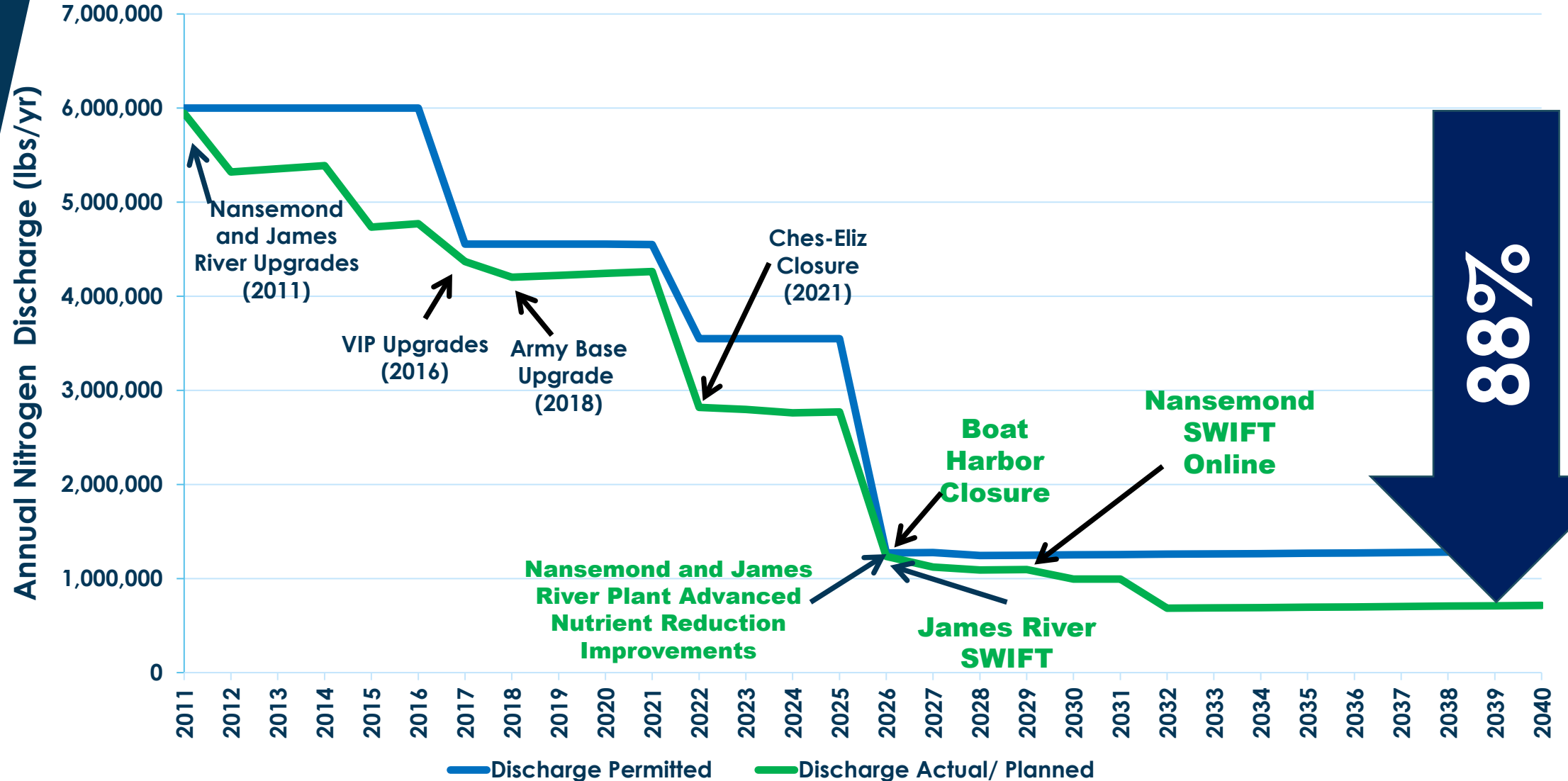
Indirect potable reuse by managed aquifer recharge:

- Reduce nutrient discharge
- Sustainable groundwater supply
- Reduce land subsidence
- Protect from saltwater contamination
- Promote Economic Development
- **Key component of 2021 HB2129 Enhanced Nutrient Removal Certainty Program (ENRCP)**



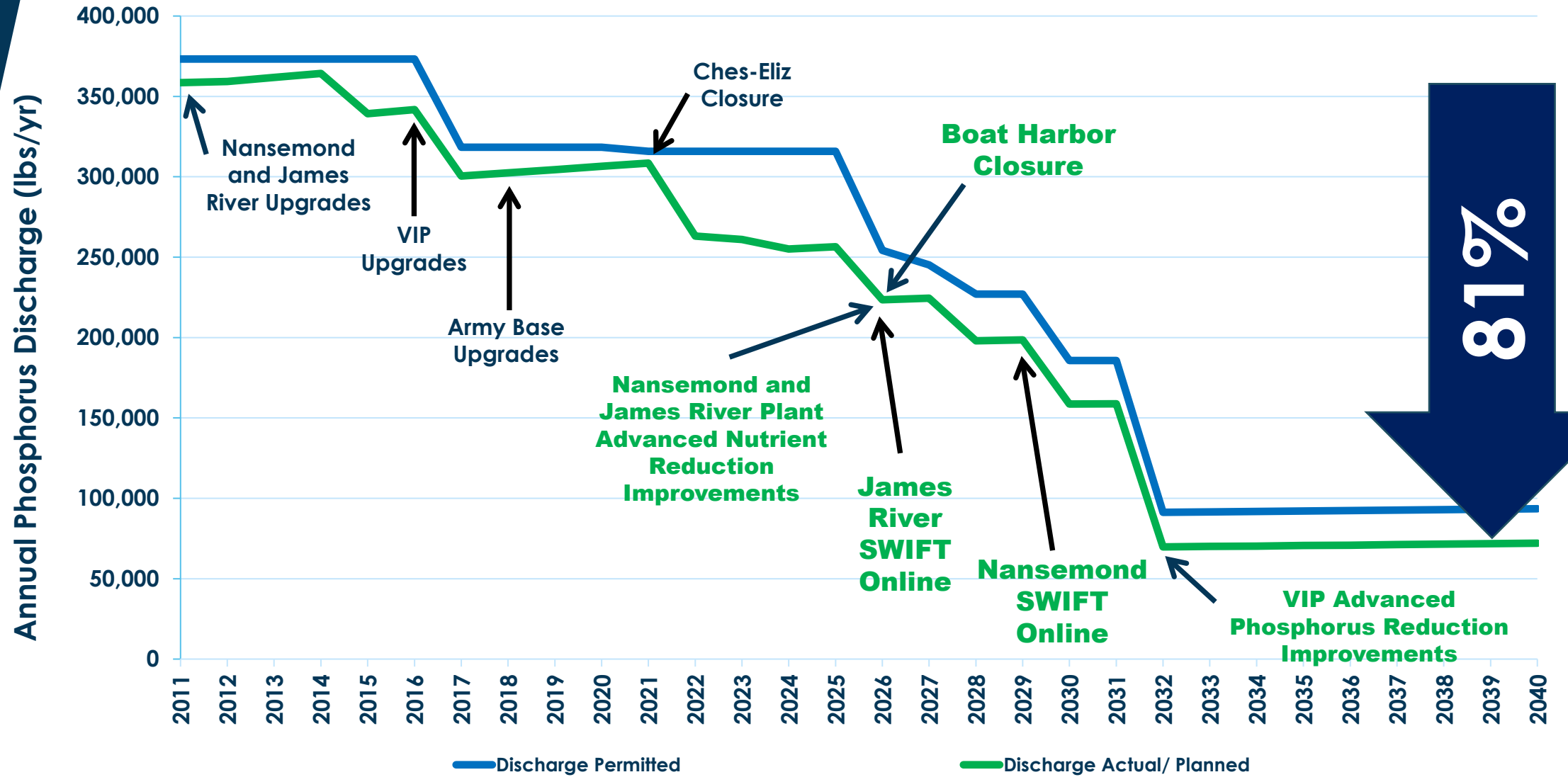
HRSD's WQIF Request Supports SWIFT
 \$189 M (House) to \$200 M (Senate) – Unresolved, Meets FY27 Need

Graph 1 – Nitrogen Discharge Permitted and Discharge Planned/Actual at James River Basin, 2011- 2040



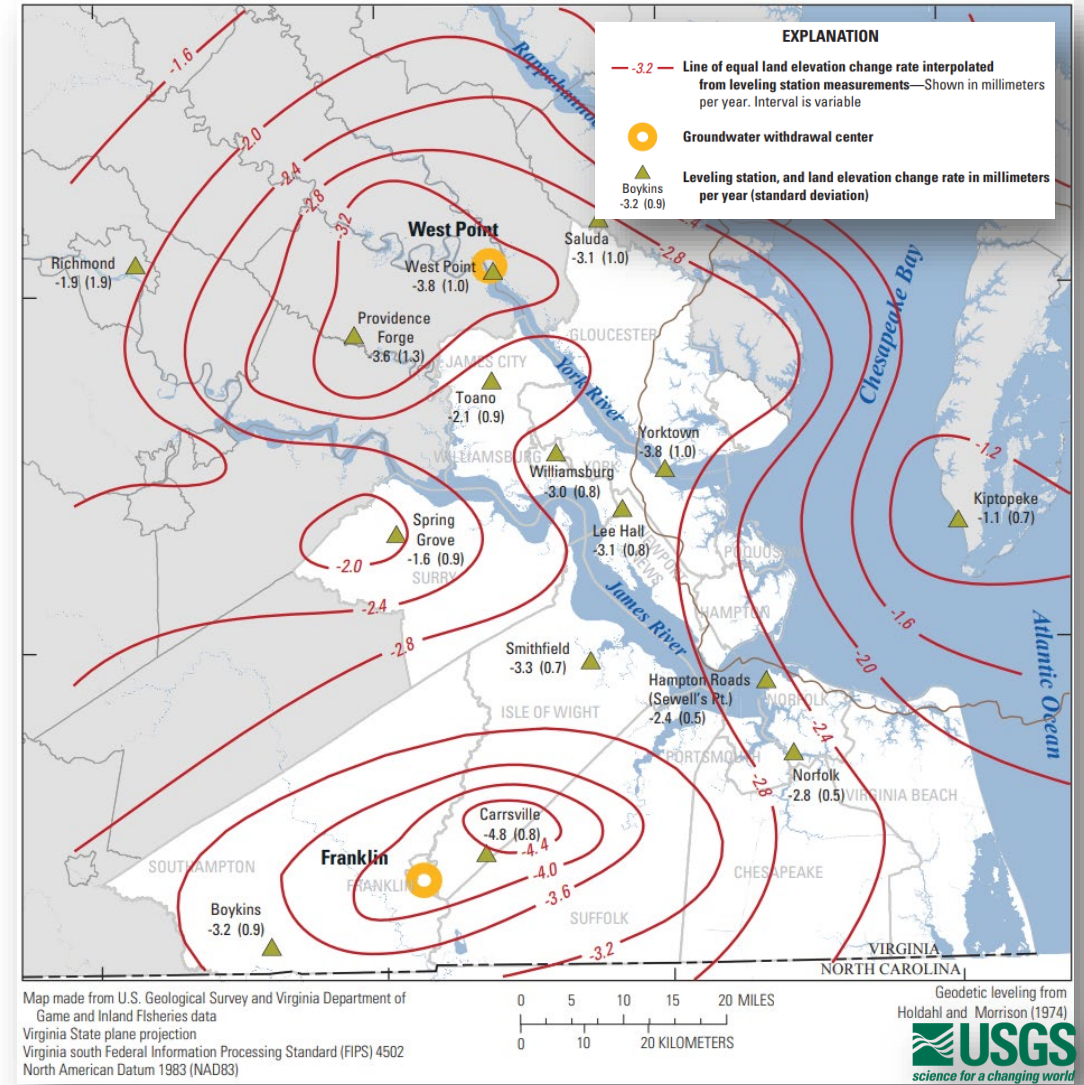
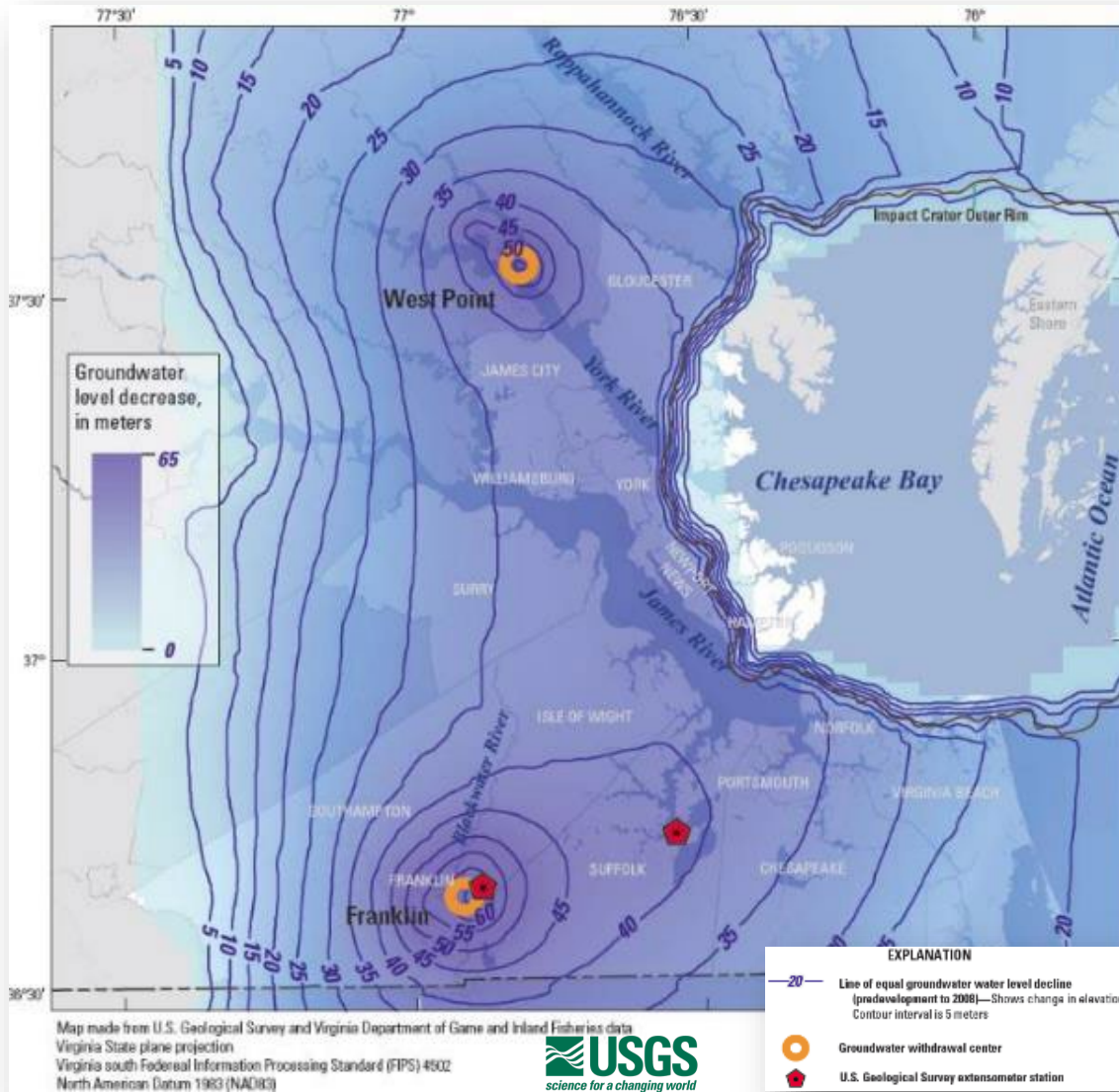
88%

Graph 2 – Phosphorous Discharge Permitted and Discharge Planned/Actual at James River Basin, 2011- 2040



Water levels have declined by over 200 feet in the last century

Over withdrawal is a significant contributor to sea-level rise impacts – *Land Subsidence (sinking)*





James River SWIFT (Newport News)

Monitor-Merrimack



Nansemond SWIFT (Suffolk)

Water Technology and Research Department

Researching ways to keep costs low

Dr. Charles Bott, PhD, P.E., BCEE – Chief Technology Officer

Dr. Chris Wilson, PhD, P.E. – Director of Process Engineering

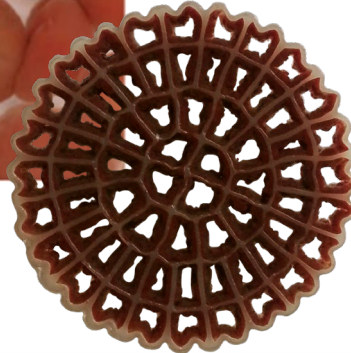
Dr. Jeff Sparks, PhD, P.E. – Director of Digital Water (AI/ML)

✓ 23 Staff, 7 PhDs + 11 PhDs in progress

✓ 32 Active WRF Research Projects 

✓ 12 Active Patents/4 Patents Pending

✓ Royalties help fund R&D



Researching Ways to Keep Our Ratepayer Bills Low

Innovation is the KEY to Affordability

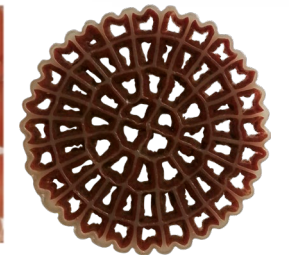
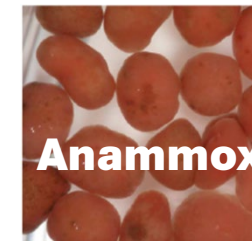
- calDENSE – could **save ratepayers \$400M in Capex**
- Mainstream Deammonification (PdNA) saves \$1M per year O&M, eliminated \$100M in Capex
- Digester Gas to Renewable Natural Gas \$0 Capex, +\$400k to \$500k annual revenue



THE WALL STREET JOURNAL.
NEWSLETTERS • WSJ CLIMATE & ENERGY

A Climate Fix That Could Cut Your Water Bill

 Ed Ballard [Follow](#)
May 14, 2026 9:33 am ET



Building the Silicon Valley of Water Tech in Hampton Roads

HRSD's Innovation Ecosystem – Drives Economic Development

Incubators/Accelerators

Logos for Incubators/Accelerators include: RISE Resilience Innovations, CLIMATEHAVEN WATER INNOVATION HUB (Commercialization and deployment of advanced water technologies to address critical water challenges), xylem Let's Solve Water, VT, YALE, UCONN, 757 COLLAB, INNOVATE HAMPTON ROADS, and IMAGINE H2O.

Global Utility Partners

Logos for Global Utility Partners include: Watercare An Auckland Council Organisation, aarhusvand, PUB SINGAPORE'S NATIONAL WATER AGENCY, and K water.

Startups

Logos for Startups include: CREW, EAOS, TeamSolve, AM Team, WINTEC GLOVIS, T03 TIDEWATER TRIGENT TECHNOLOGIES, Jefferson Lab, and Radiance e-beam Co.

Venture Capital

Logos for Venture Capital include: S2G, PureTerra Ventures, MELIORATE PARTNERS, FERGUSON VENTURES, SNØCAP, Burnt Island Ventures, Ember Infrastructure, Aqualateral, and XPV WATER PARTNERS.

Industry Partners

Logos for Industry Partners include: GARNEY, m3b, TOMORROW WATER, PENTAIR, xylem, VEOLIA, FERGUSON, WASTE MANAGEMENT, world water works, Hazen, AECOM, and Virginia Natural Gas.

Questions?

Jay Bernas, P.E.
GM/CEO
jbernas@hrsd.com



Putting Science in Service of the Commonwealth



..... PARTNER UNIVERSITIES



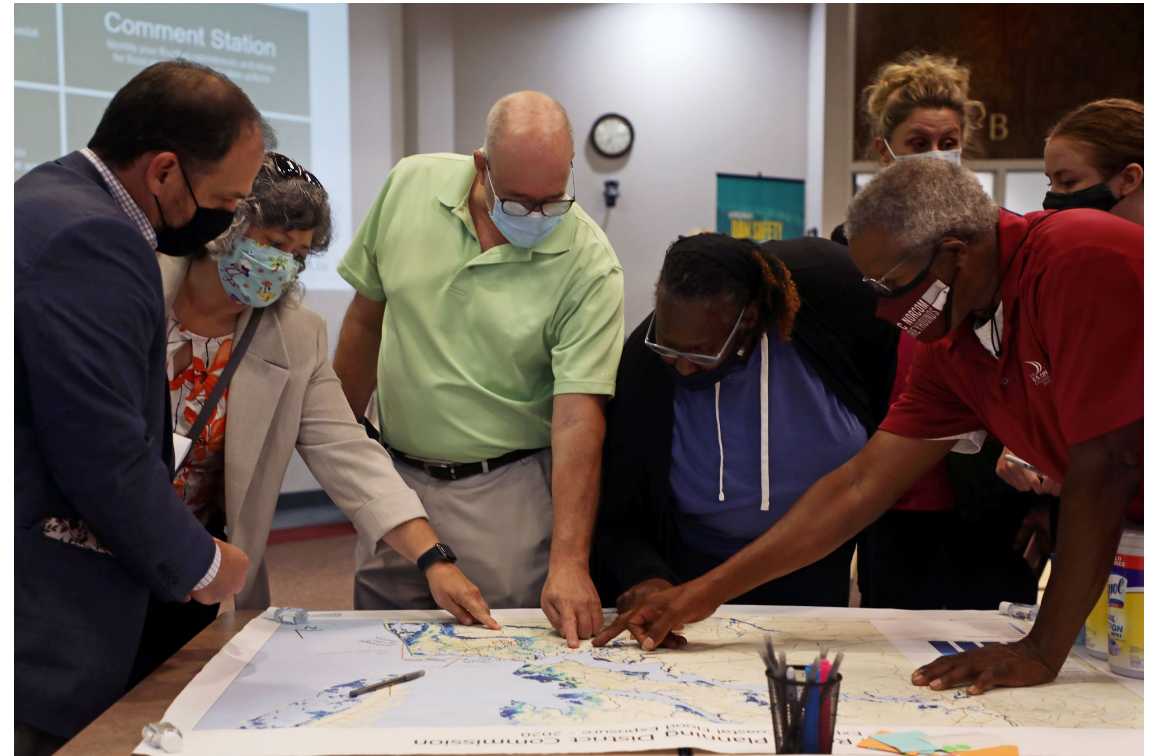
Virginia Sea Grant: A Multi-Institutional Partnership



Promoting Sustainable Fisheries and Aquaculture



Building Community Resilience in the Commonwealth



Improving the Health of our Coastal Ecosystems



Preparing the Next Generation of Environmental Leaders



2025 Commonwealth Fellows

From L to R: Kristy Lapenta, Donya Mohamed, Joe Barnes, Natalie Klesch



Thank you for your time and attention.

Dr. Mona Behl
Director, Virginia Sea Grant

mbehl@vaseagrant.org