



Economic Development Committee
July 26, 2016

Call to order

A meeting of the Economic Development Committee was held at the NC Department of Military and Veterans Affairs, 413 N. Salisbury Street, Raleigh, NC as well as via teleconference on July 26, 2016.

Attendees

Attendees included:

- Gary McKissock (committee chair)
- Creswell Elmore (on committee) [on phone]
- Jimmy Stewart (on committee)
- Joy Thrash (on committee)
- Steven Ratti (on committee)
- Will Best NC (Dept of Commerce designee)
- Leanna Redford (FRC East)
- Dominick Stephenson (NC State)
- Sheila Pierce-Knight (Jacksonville Onslow Economic Development) [on phone]
- Sebastian Montague (NC DOT)
- Scott Dorney (NCMBC)
- Denny Lewis (NCMBC)
- Ron Massey (City of Jacksonville) [on phone]
- Secretary Cornell Wilson (NC DMVA)
- Jeremy Schmidt (NC DMVA)

Members not in attendance

Members not in attendance included:

- Dan McNeill (on committee)

Approval of minutes

Chair called meeting to order at 9:30am. Minutes from second quarter require revisions and were not approved. Minutes and accompanying documents will be available on the NCMAC website.

Reports

Topic: FRC East Command Brief and Discussion

Discussion: Leanna Redford presented the group with a background of FRC East, its current capabilities, and its reasoning to expand to expand for Cherry Point.

Action Items: Committee wants all board members, especially ED members to push information out to Community Leaders.

Resolution: Efforts will need to continue for FRC East.

Topic: OEA Grant Update

Discussion: Dominick Stephenson (NC State) offered update for the OEA Grant that NC State would manage

Action Items: Mr. Stephenson will provide additional documentation to the Committee.

Resolution: Committee proposed further discussion and presentation to the full commission.

Topic: Tech Transition Brief

Discussion: Mr. Dorney gave presentation about enabling technology transition in North Carolina. Explained the solutions NC can provide DoD.

Action Items: Mr. Dorney asked DMVA for support.

Resolution: Committee proposed further discussion and presentation to the full commission.

Topic: Funding Update

Discussion: Mr. Schmidt explained the delays regarding funding NC4ME and EDPNC (organizations which were approved for funding by NC4ME)

Action Items: DMVA will continue to work with NCDOC and NCMAC to ensure final dollars are distributed.

Resolution: At this point DMVA is waiting for NC.

Unfinished business

Not applicable

New business

Not applicable

Open Discussion

Not applicable

Announcements

Not applicable

Adjournment

Adjourn at 12:40pm

FLEET READINESS CENTER EAST

DOD VERTICAL LIFT CENTER OF EXCELLENCE



**North Carolina Military Affairs Commission
Economic Development Subcommittee**

26 July 2016

**Col V. E. Clark
Commanding Officer**



**Col C.T. Harper III
Executive Officer**

History

FRC EAST

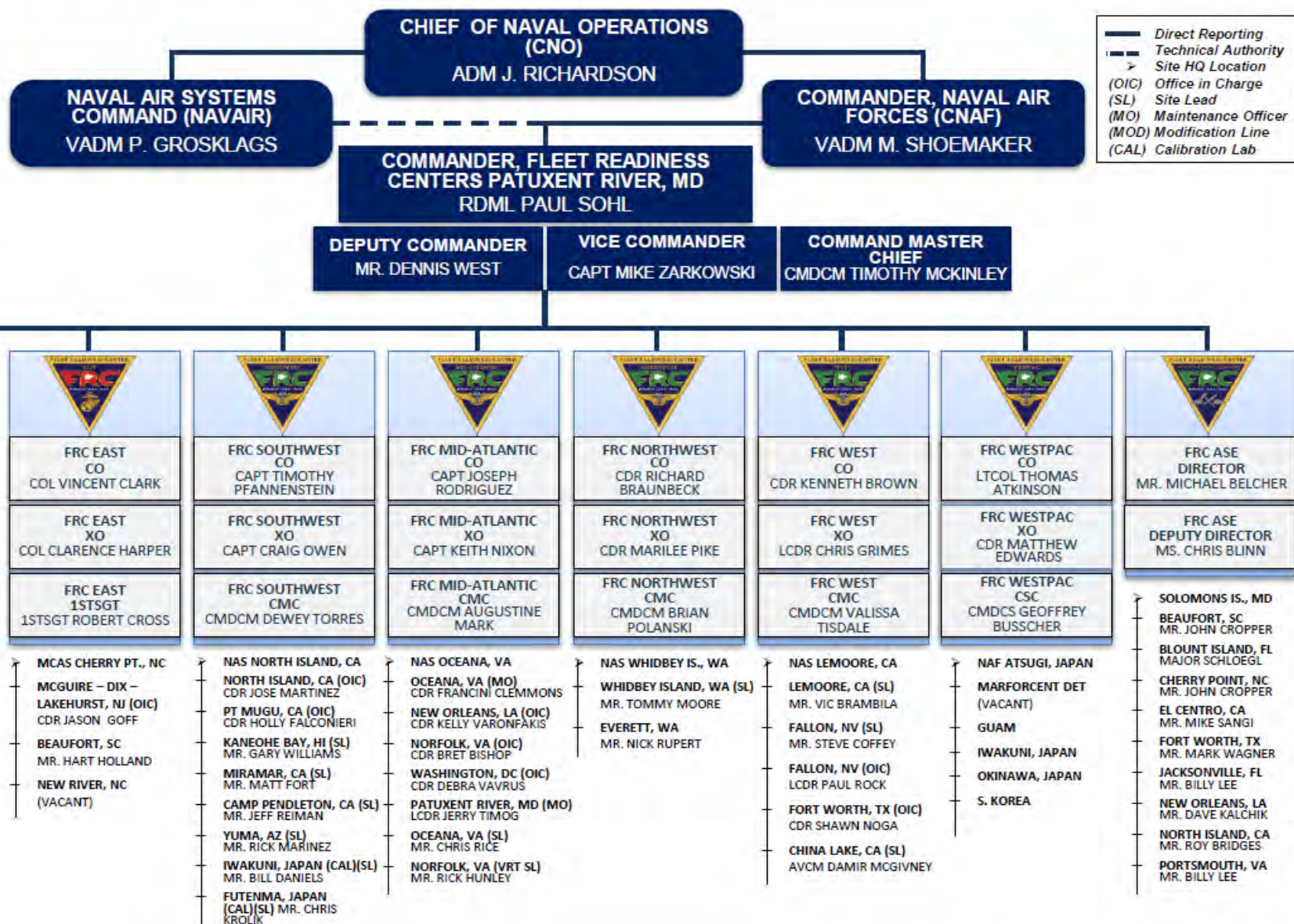


- 1943 – Assembly and Repair Department**
- 1946 – Overhaul and Repair Department**
- 1967 – Naval Air Rework Facility (NARF)**
- 1987 – Naval Aviation Depot**
- 2002 – NAVAIR Depot**
- 2006 – Fleet Readiness Center East**





Commander, Fleet Readiness Centers Commands



the **Mission**

GENERATING COMBAT AIR POWER
for America's Marines and Naval Forces.

our **Vision**

To be the most dependable provider of choice for American Air Power
through comprehensive and innovative integration of our
People, Processes and Resources.



personal **Values**

Honesty Courage
Commitment
Innovation Passion

Products

- **Airframes:** AV-8B, V-22, H-1, H-46, H-53, EA6-B, H-2, H-3, H-60, C-130, MQ-8, F-18, F-35
- **Engines:** F402, T400, T58, T64
- **Components:** DRP for 18,790 items; supporting over 197 Type/Model/Series
- **Engineering/Logistics** for all Naval Rotary Wing, V/STOL, C-130 and other systems

FY 15 Production

- **Airframes:** 125
- **Engines:** 111
- **Components:** 20,203
- **Manufactured parts:** 119,672
- **Field Team Repairs:** 578



**US Navy, US Marine Corps,
US Army, US Air Force,
US Coast Guard,
DLA Aviation & Distribution
24 Foreign Nations
and Commercial Partners**



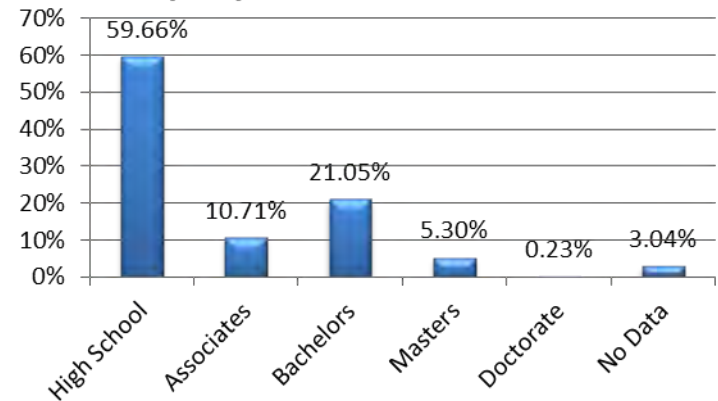
Who We Are

FRC EAST

- **3,818 Civilian/Contractor/Military Employees**
- **Mechanics, Engineers, Logisticians, Support Personnel**
- **Military Experience: 45%**
- **Average Age of Workforce: 43**
- **5 Labor Unions**



Employee Education Levels



International Association of
Machinists and Aerospace Workers
•LL 2297
•LL1859



American Federation of Government
Employees
•LL 451
•LL2065



National Association of
Aeronautical Examiners
•Local 2

Facilities

FRC EAST

Acres	147
Expansion Acres	104
Assigned Facilities	119 (6 Joint)
Buildings (sq. ft.)	2.1 million
Production Space (sq. ft.)	1.6 million (77%)
Est. Replacement Value (Equipment and Buildings)	\$1.36 billion
Average Age of Facilities	36.2 years



FRC East is a tenant of the Marine Corps Air Station, Cherry Point, North Carolina





ISO9001: Quality Management Systems
AS9100: Quality Management Systems- for Aviation,
Space, and Defense Organizations
AS9110: Quality Management Systems-
Aviation Maintenance

ISO14001: Environmental Management Systems

OHSAS 18001: Occupational Health and Safety

Others: 2 Shingo Prizes, North Carolina Awards for Excellence, Secretary of Defense Robert T. Mason

FY 2004 Department of Defense Authorization Bill

Partnering With:

*Academia: NC State; Craven Community College, ECU,
Industry , Other Governmental Agencies*

In Order to:

*Set the standard for long-term sustainment, environmental
excellence, and cost effective maintenance and repair for vertical lift
aircraft within the Department of Defense*



~1000 Engineers, Logisticians, Program Management

- Dynamic Components
- Rotor Systems / Blades
- Vibrations
- Structures
- Thrust Vectoring
- Control Systems
- Avionics
- Propulsion
- Composite Repair Development / Failure Analysis
- Mod Management
- Configuration Management
- Support Equipment Design and Management
- CASS
- Quality Engineering
- Maintenance Planning
- Design Interface
- RCM / IMC
- Supply Support
- Technical Data

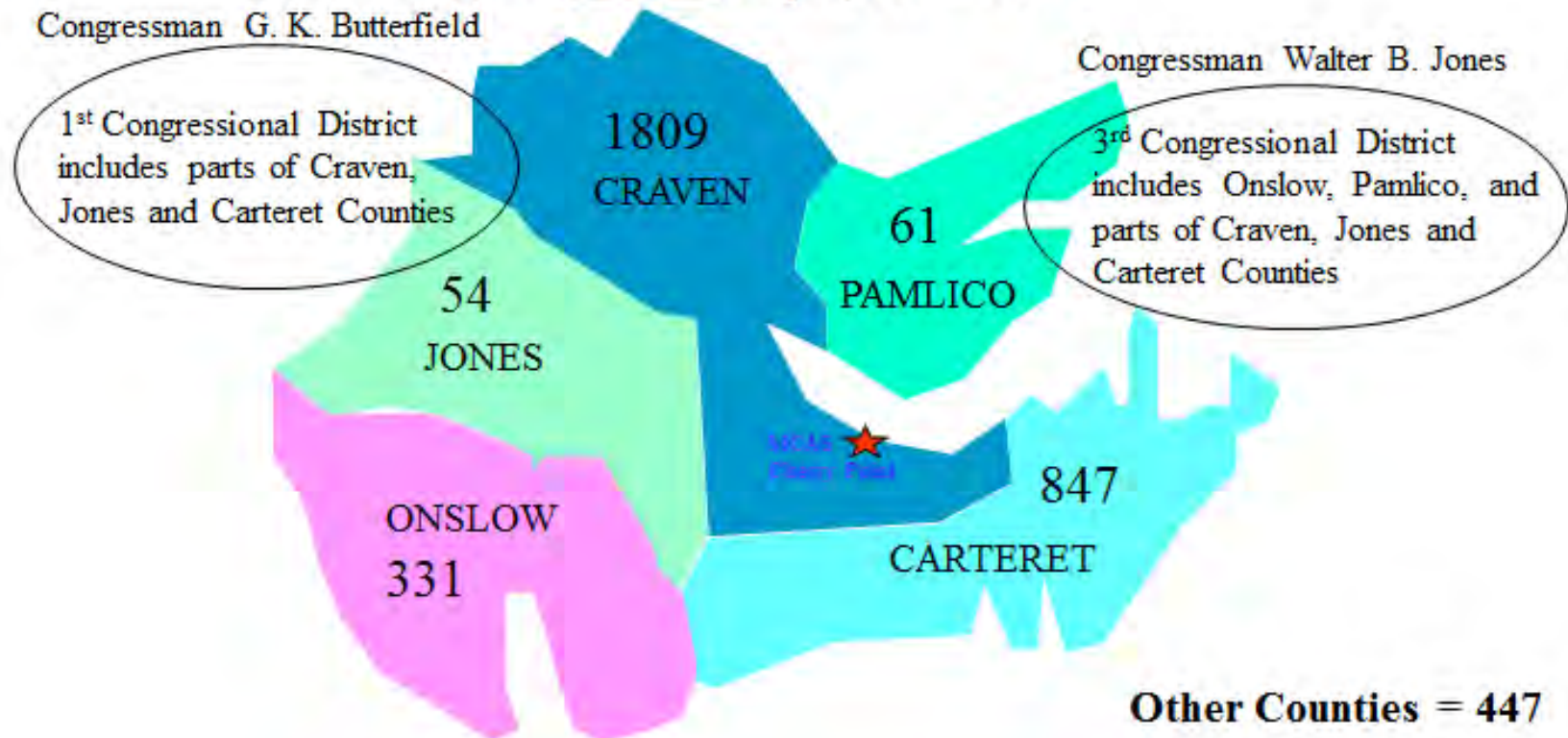


...we cultivate an environment where we can meet the immediate and future needs of our customers.

Economic Impact

FRC EAST

Total Civilian Employees = 3549



- North Carolina's largest Industrial Employer East of I-95
- Budgeted Payroll: \$296.4M
- Average Salary: \$67K
- Budgeted FY16 Sales: \$666.3M
- Budgeted FY16 Direct Labor Hours: 3.2M

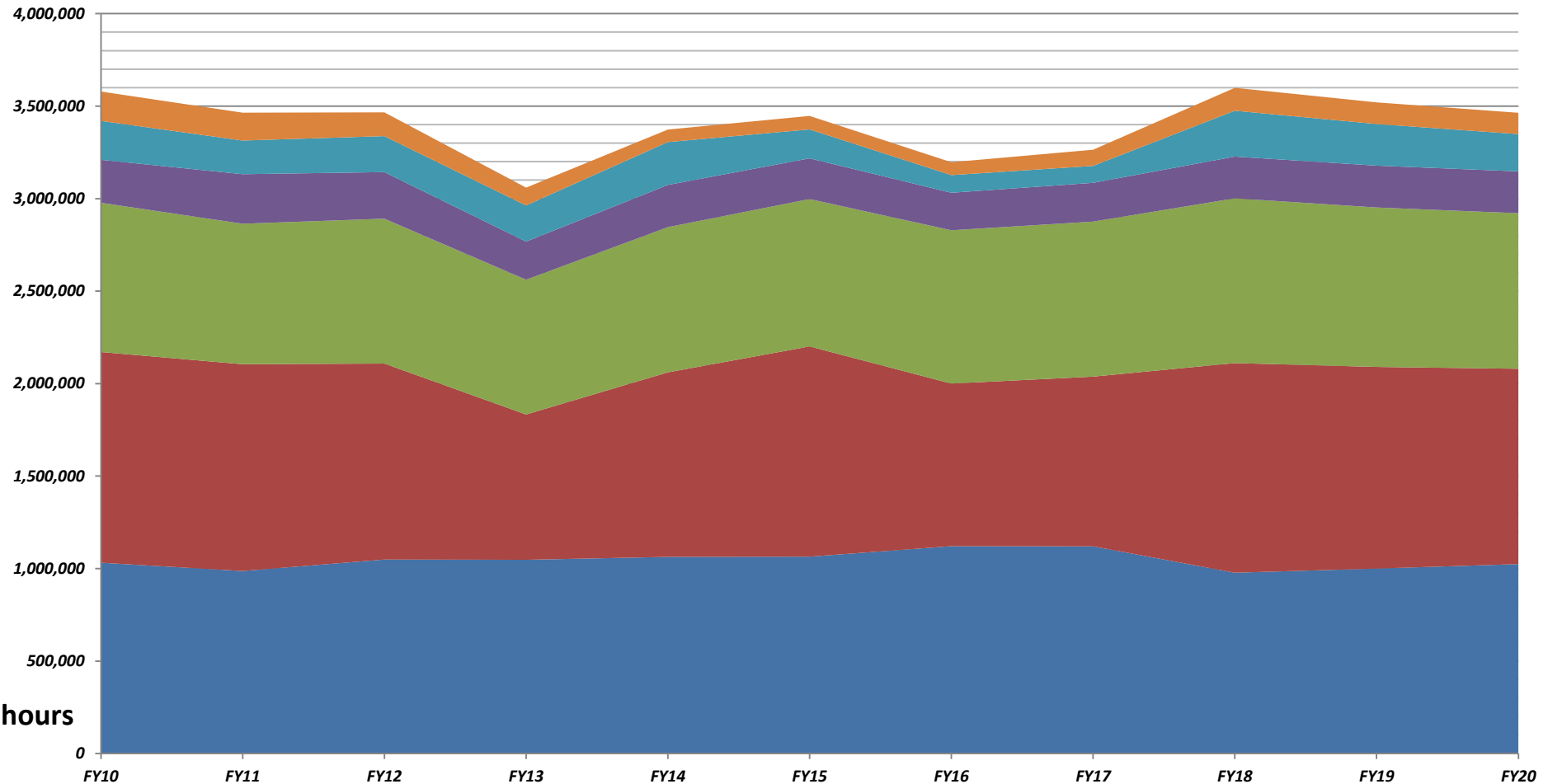
- **V-22**
 - **Integrated Maintenance Concept (IMC) Events at Cherry Point, New River (MV-22); Hurlburt Field (CV-22)**
 - **Boeing Partnership for A to B Modifications (Phase II)**
 - **Component Capability Establishment Ongoing with 29 additional components in FY17/18**
- **F-35**
 - **Airframes Modifications Accelerated Capability; Instrumental in USMC IOC**
 - **F-35 Component Capability Establishment Ongoing with 35 + Lift Fan System FY 17-24**
- **H-1 Y/Z Airframe Workload at New River**
 - **32 Component Capability FY 17/18/19**
- **H-53K**
 - **435 Component Capability FY19-23**
- **MCAS Beaufort Detachment (F-18/F-35)**
- **New Technology Initiatives**
 - **Additive Manufacturing**

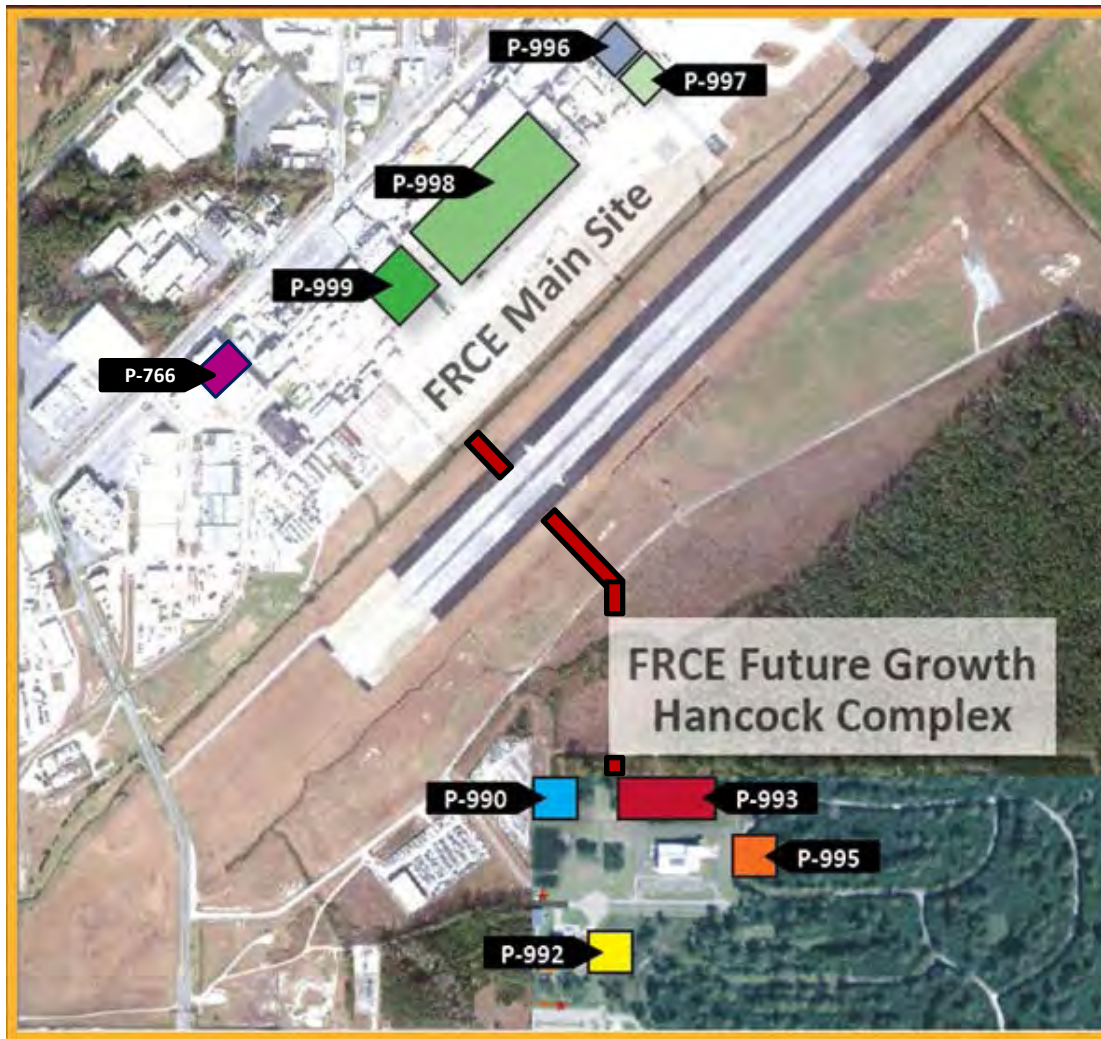
80 New Capability Projects per year through 2024

Workload Forecast

FRC EAST

ISSC AIRCRAFT/ER/MODS COMPONENTS OTHER SUPPORT ENGINES MANUFACTURING





Planning

- **P-990** F-35 Vertical Lift Fan Facility (FY18, \$15.6M)
- **P-992** Consolidated Engineering & Logistics Center (FY20, \$22.8M)
- **P-993** F-35 Maintenance Hangar (FY21, \$55.7 to 107.8M)
- **P-995** Advanced Composites Repair Facility (FY20, \$33.6M)
- **P-996** Bldg. 245 Utility Upgrades (F-35 LO Booth) (FY15, \$1.3M)
- **P-997** Paint Booth Renovation & Expansion (FY19, \$32.9M)
- **P-998** Bldg. 137 Service Life Recapitalization (FY22, \$115.6M)
- **P-999** Bldg. 4035 Plating Shop Upgrade (FY22, \$45M)
- **P-766** Bldg. 4224 F-35B Lift System Component Repair (FY17 UMC, \$1.7M)

Our Customer

FRC EAST



V.E. Clark
Semper Fidelis



V.E. Clark
Colonel, U.S. Marine Corps Commanding Officer
Fleet Readiness Center East
2015-2017

OEA Grant Status Update

DMVA and NC State have teamed up on a grant proposal to secure funds from DOD's Office of Economic Adjustment (OEA) for a project aimed at gaining a better understanding of the defense supply chain in North Carolina and its vulnerabilities, and helping defense-connected businesses become more competitive. Due to current personnel gaps at DMVA, NC State agreed to take on the full responsibility as the fiscal agent and lead grantee for the project and has committed over \$200,000 toward the non-federal matching requirement. The total project cost is \$1.6 million. The majority of the project costs will be used to hire a contractor to conduct a supply chain study to identify which businesses in North Carolina are part of the defense industry and analyze the challenges they face. The study will include not only prime contractors, which are relatively easy to identify, but also the broader defense supply chain of subcontractors (Tier 1-4). Funds are also requested to offset the costs of strategic growth services for vulnerable defense-connected businesses in North Carolina, which will be provided by NC State's Industry Expansion Solutions (IES). IES offers a broad portfolio of solutions and expertise in many industry sectors while also tailoring solutions to a company's individual needs. Some of these services include Innovation and Growth (such as helping businesses diversity and pursue alternative markets), ISO Certification preparation (ISO 9001; AS 9100) to promote best practices in management standards, Supply/Value Chain Optimization, Technology Driven Market Intelligence, and Strategic Services (such as marketing, email marketing, strategy development, website development, social media coaching).

DMVA is requesting \$107,008.30 in federal grant funding from DOD to fund 85% of a full-time position, which will focus on communications outreach and project management for the grant and travel costs for meetings throughout the state. **DMVA has proposed to contribute 15% toward the salary and benefits for this position (\$17,421.23) from the BRAC Fund to meet the non-federal matching requirement (see attached budget table).**

Last month, North Carolina's proposal was submitted to the OEA for review by the program manager, who is responsible for working with applicants to ensure that their proposal meets eligibility requirements and program objectives. Upon reviewing North Carolina's proposal, the program manager determined that a key vacancy at NC State (Military Segment Manager) would need to be filled before our proposal could move forward for evaluation by OEA's Technical Review Committee. NC State is currently in the process of hiring for this vacancy, and the job posting closes August 21. OEA's program manager is planning to include NC's proposal in the next Technical Review Committee, which meets at the end of August. If North Carolina's project is selected for an award, it will be subject to Fiscal Year 2017 federal appropriations. There is significant disagreement in Congress about how to fund the federal government for FY17. Some Members support a short-term Continuing Resolution, which would fund the government at existing levels for a few months, while others support a longer-term solution. This uncertainty could affect the timeline for the start date for North Carolina's project, should NC be selected for this grant award.

	% FTE	Grant Funding	% FTE	Match
Subaward - NCDMVA				
Salaries				
Director of Communications and Project Management	85%	\$76,498.00	15%	\$13,500.00
Salaries Total		\$76,498.00		\$13,500.00
Fringe Benefits		\$22,222.00		\$3,922.00
Domestic Travel (40 total travel days; 300 miles x .34, lodging 67.30, meals 37.90)		\$8,288.00		
Total Direct Costs		\$107,008.00		\$17,422.00
Base****		\$107,008.00		\$17,422.00
Facilities and Administrative Costs (Indirect) Rate: 0%		\$0.00		\$0.00
Total Project Costs		\$107,008.00		\$17,422.00

NORTH CAROLINA MILITARY BUSINESS CENTER

DEFENSE TECHNOLOGY TRANSITION IN NORTH CAROLINA **** AN UPDATE ****

*"We want to partner with businesses on everything from autonomy to **robotics** to **biomedical** to **engineering**; from **power, energy** and **propulsion** to **distributed systems, data science** and the **Internet of things**... if we are going to leverage these technologies to defend our country and help make a better world, the DoD cannot do everything in all of these areas alone." - Secretary of Defense Ash Carter*

Scott Dorney
Executive Director, NCMBC
910-678-0190
dorneys@ncmbc.us

Dennis Lewis
Federal Business, NCMBC
703-217-3127
lewisd@ncmbc.us

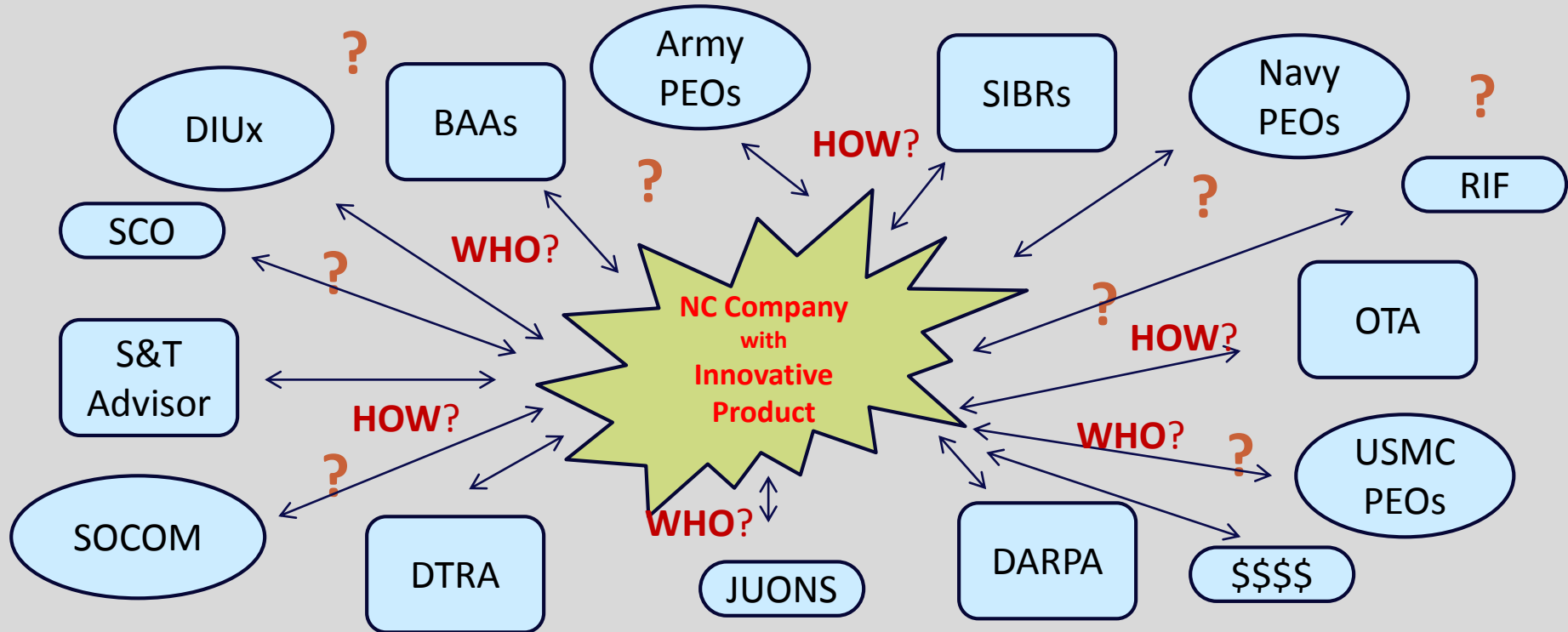
Purpose

To update you on the North Carolina
Defense Technology Transition Initiative

DEFTECH

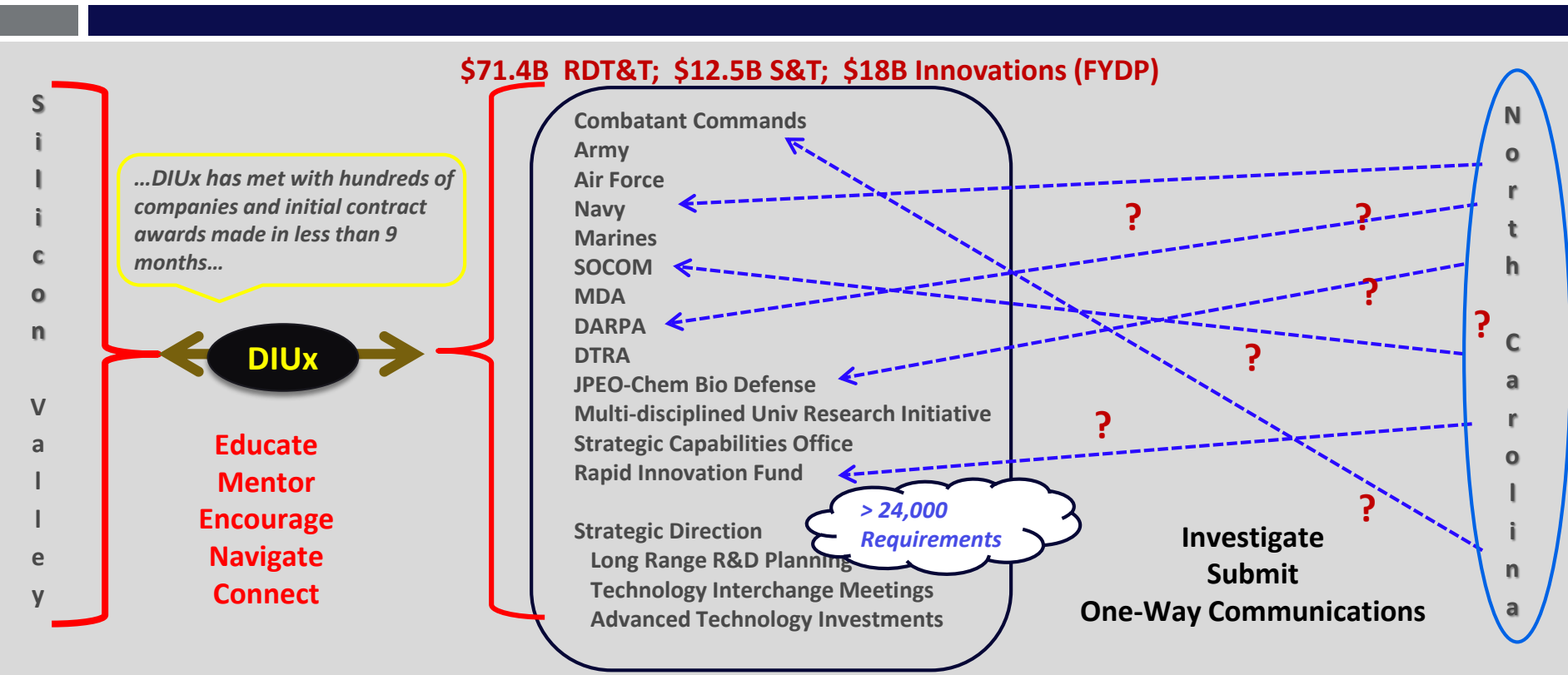
NC Industry Challenge

suspicion *IP* *cost to pursue*
distrust *time* *ROI* *Pwin*

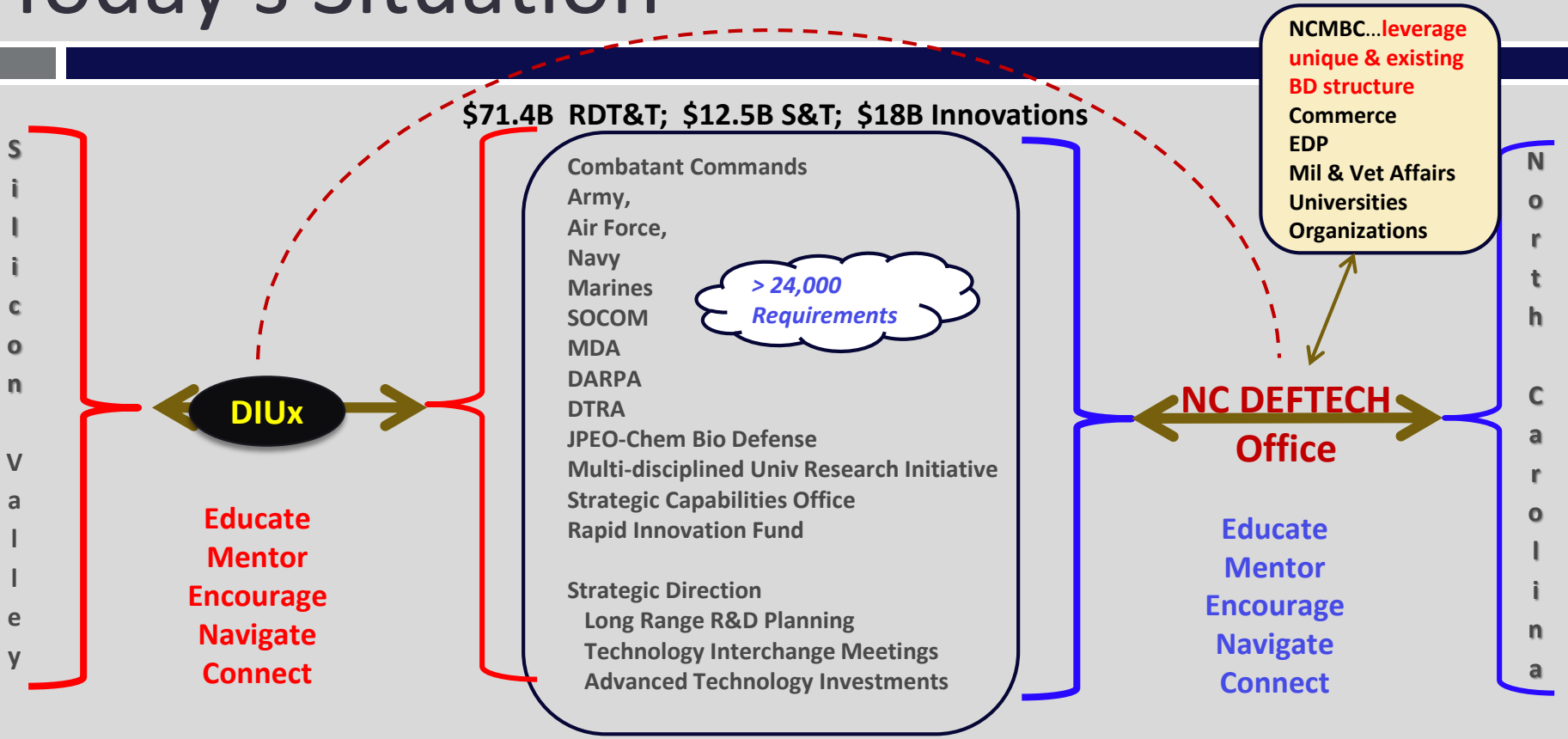


Yesterday's Situation

In an increasingly competitive and fast- moving technology environment, the Department of Defense (DoD) relies on innovation from a variety of different sources, both internally and externally, to disruptive change that will keep us ahead of the Nation's adversaries. DIUx



Today's Situation



NC Defense Technology Transition Office (DEFTECH)

- NCMBC, under the community college system, has established an NC Defense Technology Transition Office to facilitate increased communications and collaboration between DoD and companies and other stakeholders across the North Carolina innovation ecosystem.

- Significant Actions to Date
 - 20 JUN Established DEFTECH Website and initial emails to > 2700 NC companies
 - 7 JUL Telecon with DIUx East to discuss this initiative. Positive feedback and request for providing them a “sense of cyber innovations in NC”
 - 25 JUL >20 NC Innovative companies registered on DEFTECH data base
 - 28 JUL *Response to DIUx with NC Cyber capability overview & 16 specific technologies as a sample of what we can offer*

The ASK

- NCMBC's DEFTECH initiative is currently being funded "out of hide." Funding allows for only "part time staffing" of this position and no travel, and the person who works this does so at the expense of other necessary duties & NCMBC functions.
- NCMBC must "do this right" so we can have a valid assessment of the ROI by next spring.
- NCMBC requests support for bridge funding for FY2017 (Annual first year cost \$183,000; NCMAC ask \$42,232)

Estimated DEFTECH Costs

	BUDGET	NCMBC FROM CURRENT RESOURCES	DEFER OR OTHER SOURCE ASK	NCMAC ASK
Salaries and Benefits	\$ 139,603.00	\$ 35,000.00	\$ 77,371.00	\$ 27,232.00
Contracted SVCs (Intel service, website)	\$ 11,000.00	\$ -	\$ 8,000.00	\$ 3,000.00
Office Rental, Internet, Supplies, etc.	\$ 12,447.00	\$ 12,447.00	\$ -	\$ -
Travel	\$ 17,100.00	\$ -	\$ 5,100.00	\$ 12,000.00
Support Services (Advertising)	\$ 600.00	\$ -	\$ 600.00	\$ -
Outreach Events, Memberships	\$ 2,250.00	\$ 1,125.00	\$ 1,125.00	\$ -
Total:	\$ 183,000.00	\$ 48,572.00	\$ 92,196.00	\$ 42,232.00



BACK UP SLIDES

Estimated Annual Budget (First Year)

Estimated First Year DEFTECH Costs		
	Salaries and Benefits (estimate)	\$ 139,603.00
	Contracted Services (estimated)	\$ 11,000.00
	Office Rental, Internet, Supplies, etc	\$ 12,447.00
	Travel	\$ 17,100.00
	Support Services	\$ 600.00
	Other	\$ 2,250.00
	Total (first year costs):	\$ 183,000.00

Estimated Annual Budget (Sustained)

Estimated DIU Liaison Costs		
	Salaries and Benefits (estimate)	\$ 139,603.00
	Contracted Services (estimated)	\$ 3,750.00
	Office Rental, Internet, Supplies, etc	\$ 6,697.00
	Travel	\$ 17,100.00
	Support Services	\$ 600.00
	Other	\$ 2,250.00
	Total:	\$ 170,000.00

Why the NCMBC?

- NC Defense Technology Transition is primarily a business development role – the charter of NCMBC
- NCMBC has the organization, reputation and DoD-experienced professionals to support the DoD's Innovation Outreach initiatives – perfect fit
- NCMBC has an established network of 58,000 businesses (enabled in part by MatchForce) that can be leveraged to educate & inform NC businesses
- NCMBC is skilled in arranging and sponsoring trade shows & information exchanges that synch with the this proposed role
- NCMBC can provide an existing support structure for all aspects of this NC DefTech Unit (admin, travel, pay, sponsorship, support, expertise, networking, etc.)

NC DefTech Concept of Operations

- Position funded (including travel) by NC
- Establish an office space in the Research Triangle that will be available to DIUx & other DoD agencies during any visits
- The Federal government will incur no costs for this position or for any support or travel associated with execution of its responsibilities.

NC DefTech Responsibilities

- Liaison between DIUx, other DoD agencies, and relevant NC industries/organizations
- Understanding DoD needs, processes, priorities
- Educating NC businesses & relevant government agencies on same
- Coaching, encouraging, assisting NC businesses who have relevant innovations to submit info to DoD
- Educate and inform DIUx of pertinent innovations occurring in the NC
- Connecting DIUx to NC businesses when appropriate
- Conduct quarterly visits to DIUx for face-to-face liaison and updates
- Travel as required to DIUx and other meetings, events and conferences

NC DefTech Candidate Requirements

- Operational and senior level staff experience within one of the services
- Working knowledge of the DFAR and DoD requirements, funding and acquisition processes
- Experience in industry as both a profit & loss and account executive
- Knowledge, relationships, and understanding of relevant North Carolina companies, organizations, and universities
- Exceptional written and oral communications skills
- Experience, confidence and maturity in dealing with high level executives

Value Proposition

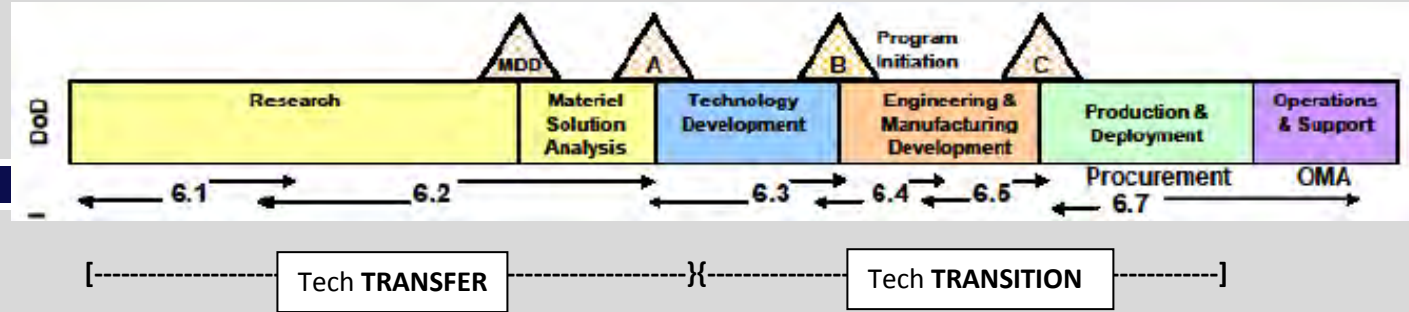
- Our service men and women “win” as today’s innovation will yield better lethality, effectiveness, and protection for them in the future.
- DIUx extends its reach (effectiveness) at no additional cost and has access to more innovations than it would otherwise have.
- NC companies, organizations, universities with innovations are encouraged by DoD’s visible commitment to the RTP area. They also gain better trust/understanding through a facilitated channel for communications, collaboration, and relationships with DIUx and other high-tech companies and executives. This will result in better IRAD investments and potential DoD funding and or revenue streams.

(Note: DIUx does not procure or provide funding for innovations, rather assesses and connects potentially relevant innovations to appropriate DoD agencies/organizations. The NC DIUx and NCMBC can assist in continuing the business development process from “requirements,” “funding,” and “acquisition.”)

Terminology

- ❑ **DoD** - Department of Defense
- ❑ **DIUx** - Defense Innovation Unit-experimental
- ❑ **COTS** – commercial off the shelf
- ❑ **FYDP** - future year defense program (current 2 year budget plus 4 additional years)
- ❑ **“Offset technologies”** - innovations, often COTS, that can be used to improve existing weapons systems and bolster conventional deterrence (FYDP, \$18B)
- ❑ **RDT&E** – Research Development Test and Evaluation (prototype & some low rate production)
- ❑ **S&T** – Science and Engineering (basic & applied research)

Definitions



- Technology Transfer: a partnership between government & industry by means of which technology develop by one party is transferred to the other party for development and use, often with residual rights to the transferring party. (TRL 1-5; SBIR, STTR)
- Technology Transition: the process by which technology deemed to be of significant use to the operational military community is transitioned from the S&T environment to a military operational field unit for evaluation and then incorporated into an existing acquisition program. (TRL 6 +, ATD, ACTD)

DoD Communities of Interest

Mission focus

Roadmaps describe capabilities enabled by advanced technologies and systems

Counter-IED

Counter-WMD

Biomedical (ASBREM)

Systems / Capability focus

Roadmaps describe how multiple technologies are integrated into complex systems to achieve mission impact

Command, Control, Comms, Computers, and Intelligence (C4I)

Human Systems

Cyber

Autonomy

Engineered Resilient Systems

Electronic Warfare

Sensors

Air Platforms

Ground & Sea Platforms

Weapons Technologies

Space

Technology focus

Roadmaps describe technology goals with multiple applications

Advanced Electronics

Energy & Power Technology

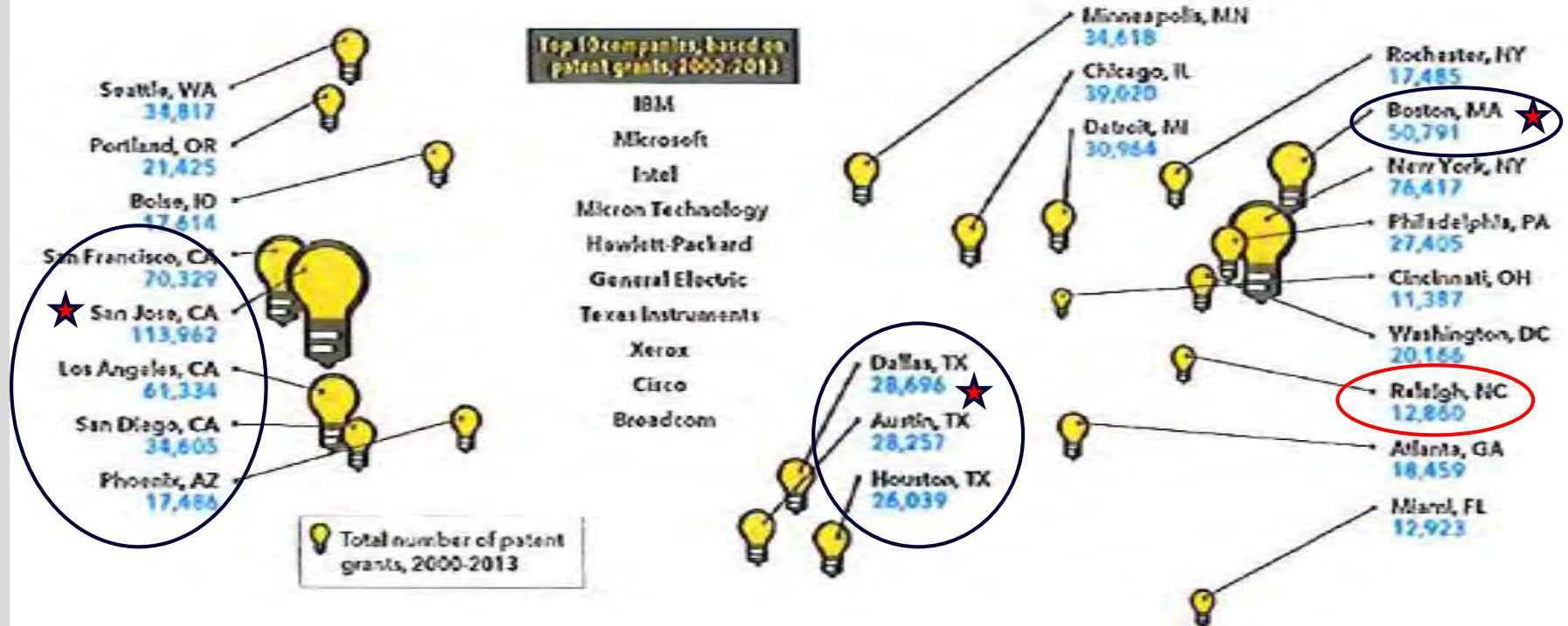
Materials & Manufacturing Processes

The Innovation Nation

From Coast to Coast, U.S. Cities Are on the Cutting Edge of Change

Why not a NC DIUx?

Perhaps eventually but current data may not justify.



Why North Carolina?

- The North Carolina Research Triangle is recognized around the world for its critical mass of pioneering research, university-industry partnerships, multinational businesses and a globally competitive talent pool. It is among the largest research parks in the U.S., currently home to more than 200 companies that have created a culture of scientific advancement and collaboration with innovations that span the 17 Defense Communities of Interest. Relevant industry sectors include:
 - **Clean & Green Energy** (Cree, EPA, BlueCell, ...)
 - **Information Technology** (IBM<Watson>, RedHat, EMC, Avaya, Cisco, Alcatel-Lucent, SAS, National Computing Center, ...)
 - **Instruments & Advanced Material** (DuPont, LORD, JMC, Strensor, ...)
 - **Biotechnology & Life Sciences** (over 120 companies, small and large)

Why the RTP Area - University Research

- **NC State University** is a national model for **public-private research campuses**, houses more than 70 government, industry and nonprofit partners along with more than 70 NC State research and academic units. NCSU is working with the National Science Foundation to develop [self-powered medical sensors](#) , the [smart power grid](#), and collaborating with the U.S. Department of Energy and private partners to build a [clean-energy manufacturing industry](#).
- **University of NC at Chapel Hill** is ranked at the highest level as a research-extensive university per the Carnegie Foundation's classifications of colleges and universities. Carolina ranks eighth among leading private and public research universities for the level of federal funding devoted to research and development in all fields (NSF, 2013). Its research strengths include: neuroscience, nanomedicine, fuel cell, lab on a chip, and nanotechnologies.
- **Duke University** is one of the largest biomedical research enterprises in the country, with more than \$600 million in sponsored research expenditures annually. Duke researchers in both basic science and clinical departments are engaged in a wide range of basic science research, studying cell biology, immunology, neurobiology, biochemistry, pharmacology, microbiology, and genetics in organisms from bacteria to human.

Why the RTP Area – Industry and R&D Centers

- National Science Foundation/ ASSIST/ NC Regional Internet of Things (NC RiOT)
- Textiles, Biomanufacturing, and Nonwoven Research Centers
- National Security Agency Big Data Lab
- Institute for Advanced Analytics
- US DOE Nuclear Engineering University Program
- Wireless Research Center
- NC Biotechnology Center
- The Army Research Office is also located in the area with a specific mission to serve as the Army's premier extramural basic research agency in the engineering, physical, information and life sciences. This proposed NC DIUx liaison would coordinate with ARO but would have a much broader DoD focus.

Informational Slides

Defense Innovation Unit Experimental (DIUx)

Defense Innovation Unit Experimental (DIUx)

- "We want to partner with businesses on everything from autonomy to robotics to biomedical to engineering; from power, energy and propulsion to distributed systems, data science and the Internet of things... if we are going to leverage these technologies to defend our country and help make a better world, the DoD cannot do everything in all of these areas alone." - Secretary of Defense Ash Carter
- "PENTAGON INSTITUTES CIVILIAN HIRING FREEZE, reports Defense News' Aaron Mehta and Joe Gould: " The Pentagon has put a civilian hiring freeze in place for the Office of the Secretary of Defense, Defense Agencies and Field Activities, Defense News has learned. The freeze, which went into effect March 20, was ordered by Deputy Secretary of Defense Bob Work in a Feb. 23 memo. It impacts all vacant full-time and part-time, temporary and permanent civilian positions with no tentative offer presented as of March 19."

DIUx Concept of Ops

- DIUx will be a visible and accessible nexus between the commercial and academic innovation ecosystems and the DoD. The team will be made up of approximately 10 civilian, active duty and key reserve and guard personnel. Think of DIUx as an embassy that hosts the Army, Navy, Marines, Air Forces, combatant commands, and Defense Agencies in a common, incubator-like facility where collaboration, coordination, and collisions among the mission partners can occur

DIUx - Innovation Happens Here!

- In an increasingly competitive and fast- moving technology environment, the Department of Defense (DoD) relies on innovation from a variety of different sources, both internally and externally, to disruptive change that will keep us ahead of the Nation' s adversaries.
- Innovators clustered in corridors such as Silicon Valley have a rich history of original thinking and novel applications of technology to solve hard problems.
- The Defense Innovation Unit Experimental (DIUx), located in Mountain View, California, is positioned to make connections and be accessible to the opportunities to accentuate the Department's already rich technology portfolio.

DIUx Vision & Mission

- DIUx is designed to create a hub for increased communication and collaboration with, knowledge of, and access to innovating, high-tech companies and executives and their leading edge technologies, and other stakeholders across the Valley's innovation ecosystem.
- The mission of DIUx is to:
 - strengthen existing relationships and build new ones
 - scout for breakthrough and emerging technologies
 - serve as a local point of presence for the Department of Defense
- As its name implies, DIUx is just that: an "experiment." DIUx may become a model by learning which engagement practices are best in identifying and leveraging novel technology, business practices, and ideas from non-traditional sources.

DIUx & CSO

- DIUx may award funding agreements to nontraditional and traditional defense contractors to carry out prototype projects that are directly relevant to enhancing the mission effectiveness of military personnel and the supporting platforms, systems, components, or materials proposed to be acquired or developed by the Department of Defense, or to improvement of platforms, systems, components, or materials in use by the armed forces.
- This **Commercial Solutions Opening (CSO)** is intended to ensure that to the maximum extent practicable, competitive procedures are used when entering into agreements to carry out these prototype projects.
- ***CSO Procedure***
 - This CSO is seeking proposals for innovative, commercial technologies that accelerate attainment of asymmetric defense capabilities. In this context, innovative means any new technology, process, or business practice, or any new application of an existing technology, process, or business practice that contributes to the sustainment of global peace and U.S. national security.
 - This is an open (available for 5 years), two-step (solution brief/demonstration followed by proposal) CSO.

TRL Levels

1. Basic principles observed and reported.	Lowest level of technology readiness. Scientific research begins to be translated into applied research and development. Example might include paper studies of a technology's basic properties.
2. Technology concept and/or application formulated.	Invention begins. Once basic principles are observed, practical applications can be invented. The application is speculative and there is no proof or detailed analysis to support the assumption. Examples are still limited to paper studies.
3. Analytical and experimental critical function and/or characteristic proof of concept.	Active research and development is initiated. This includes analytical studies and laboratory studies to physically validate analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.
4. Component and/or breadboard validation in laboratory environment.	Basic technological components are integrated to establish that the pieces will work together. This is "low fidelity" compared to the eventual system. Examples include integration of 'ad hoc' hardware in a laboratory.
5. Component and/or breadboard validation in relevant environment.	Fidelity of breadboard technology increases significantly. The basic technological components are integrated with reasonably realistic supporting elements so that the technology can be tested in a simulated environment. Examples include 'high fidelity' laboratory integration of components.
6. System/subsystem model or prototype demonstration in a relevant environment	Representative model or prototype system, which is well beyond the breadboard tested for TRL 5, is tested in a relevant environment. Represents a major step up in a technology's demonstrated readiness. Examples include testing a prototype in a high fidelity laboratory environment or in simulated operational environment.
7. System prototype demonstration in an operational environment	Prototype near or at planned operational system. Represents a major step up from TRL 6, requiring the demonstration of an actual system prototype in an operational environment, such as in an aircraft, vehicle or space. Examples include testing the prototype in a test bed aircraft.
8. Actual system completed and 'flight qualified' through test and demonstration	Technology has been proven to work in its final form and under expected conditions. In almost all cases, this TRL represents the end of true system development. Examples include developmental test and evaluation of the system in its intended weapon system to determine if it meets design specifications.
9. Actual system 'flight proven' through successful mission operations	Actual application of the technology in its final form and under mission conditions, such as those encountered in operational test and evaluation. In almost all cases, this is the end of the last "bug fixing" aspects of true system development. Examples include using the system under operational mission conditions.