

Joint Manufacturing and Technology Center

**INSTALLATION
FAMILIARIZATION BRIEF**

at Watervliet

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Commanding
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AGENDA

- **Who We Are & What We Do**
- **Future Focus**
- **Site Opportunities**
- **Site Transformation**

Only Qualified
US Source For
Cannons, Gun
Tubes And
Mortars

High Tech
Partnerships
W/Government,
Universities,
Industry

Organic R&D,
Engineering,
Prototyping, &
Manufacturing
Capability

\$5B Technology
Expansion In
Albany Region –
Center Of
Excellence In
Nanoelectronics

*Unique &
Valuable Product*

+

*Difficult (Costly)
to Imitate*

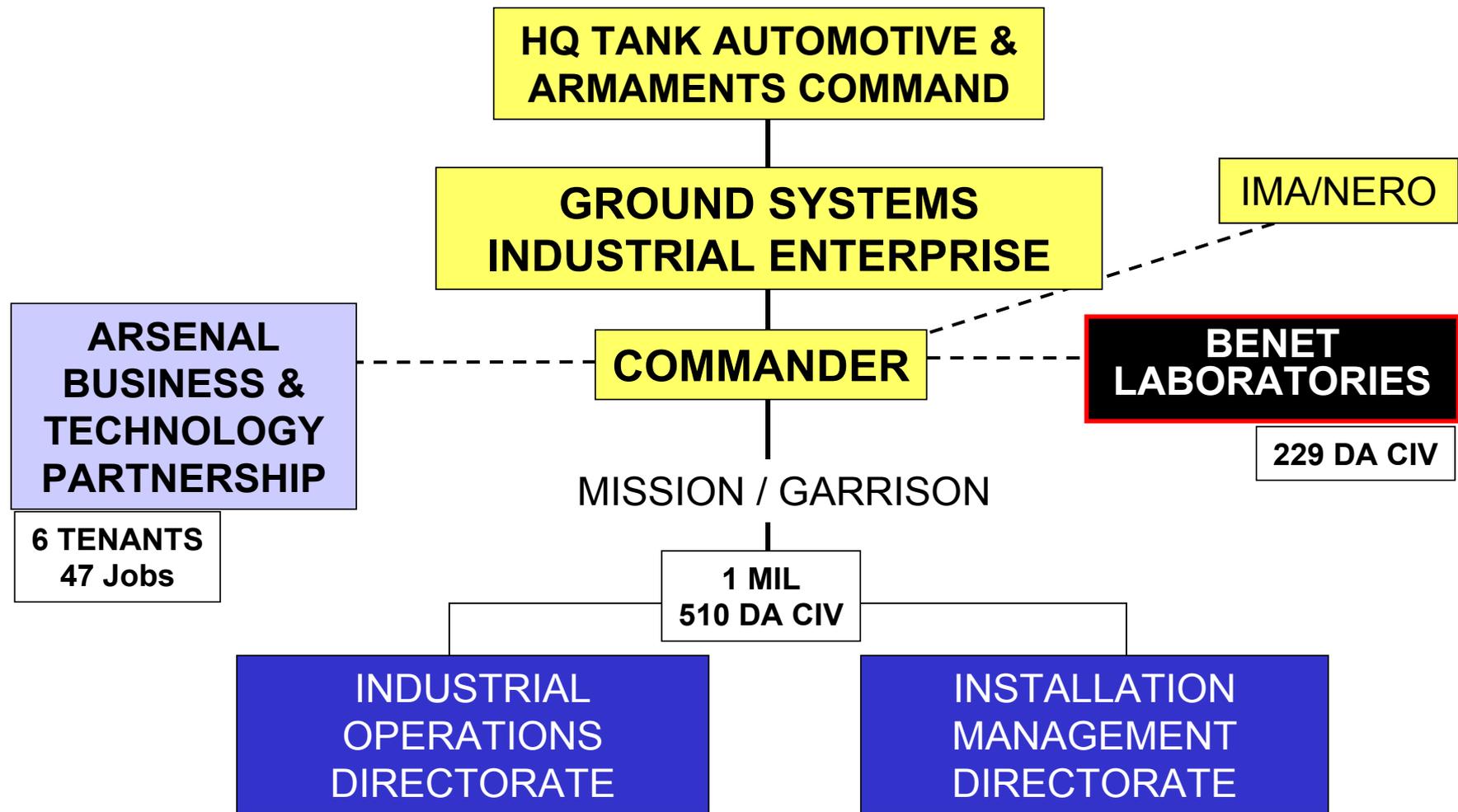
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*Supports ALL
Services' Needs*

+

*Strong Industry
Partnerships*

Joint Manufacturing and Technology Center - Watervliet – Weapons to Warfighters

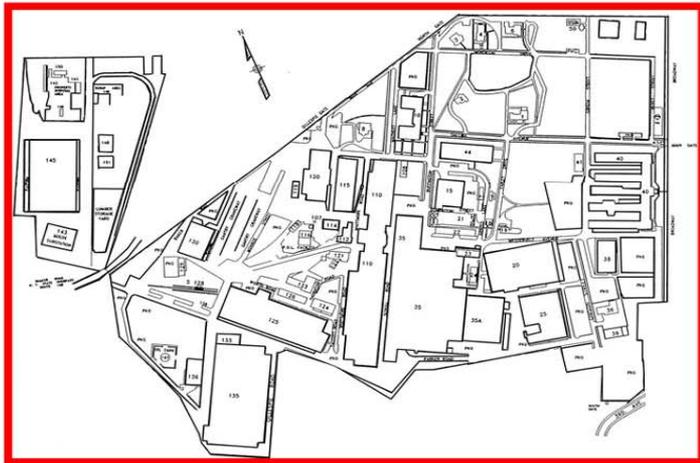
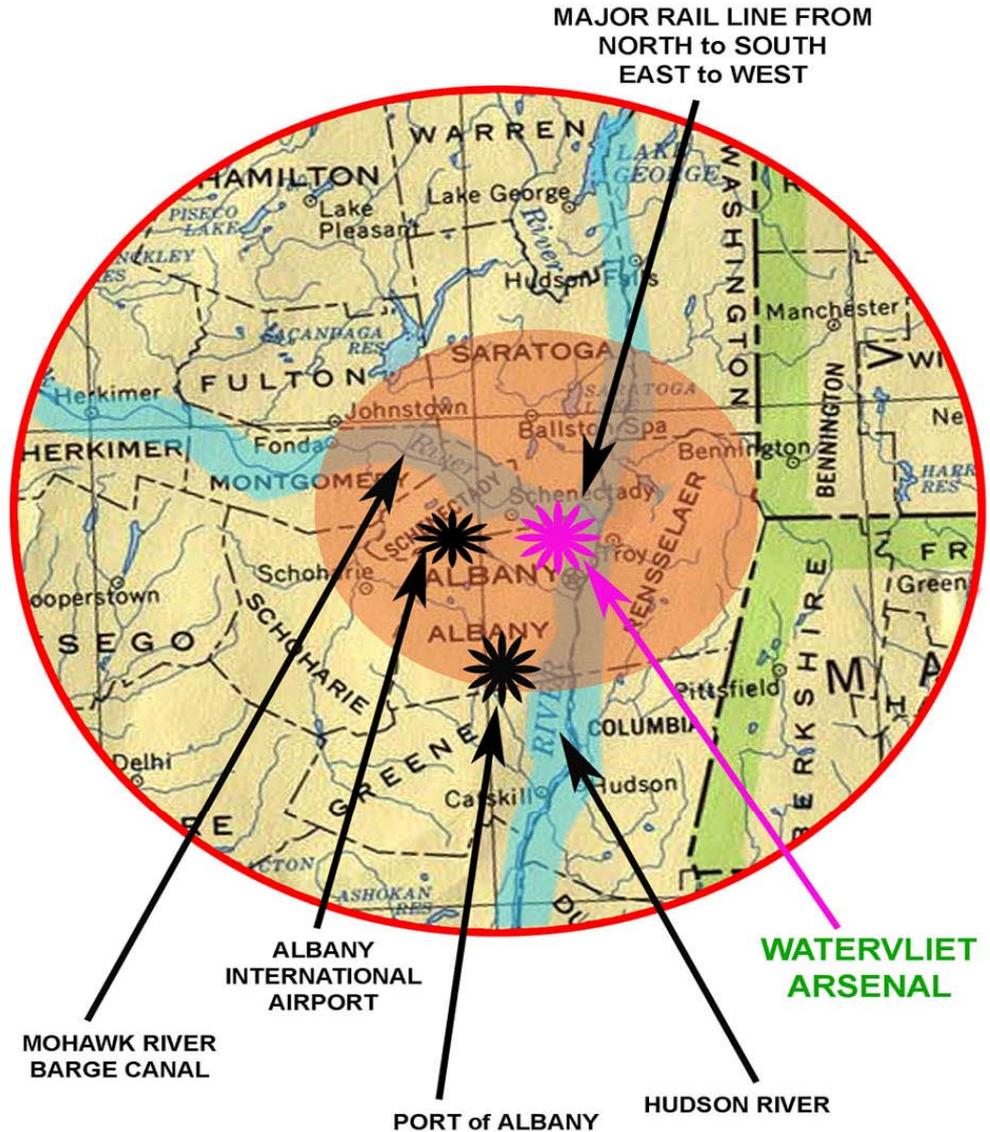
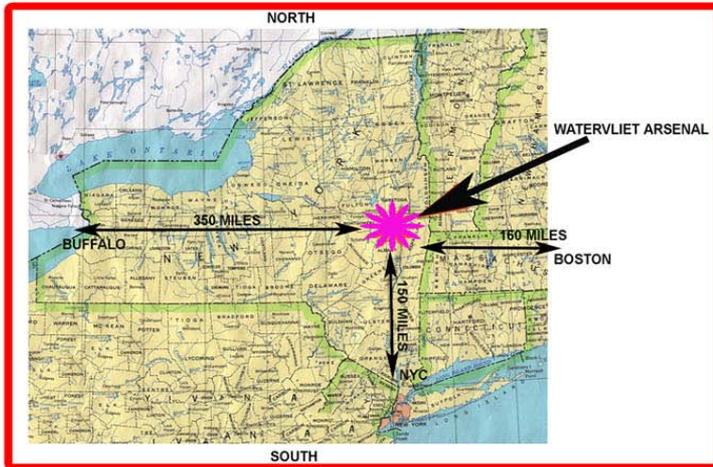


- 60 Additional Contractors on Site
- 65 Temp Employees Recently Hired

Manufacturing & Technology Center at Watervliet, *Benét Labs* & Arsenal Business And Technology Partnership

Joint Manufacturing and Technology Center - Watervliet – Weapons to Warfighters

WHERE WE ARE





ROTARY FORGE
ROUGH MACHINING

DEDICATED RAIL ACCESS

RAIL GANTRY YARD

NY NATIONAL GUARD
HUB & SPOKE OPNS

SWAGE & GUIDE
BORE

A/P EXPANSION

COMPOSITES LAB

MATERIALS SCIENCE LAB

CHEMICAL ANALYSIS LAB

FATIGUE & FRACTURE LAB

CYLINDRICAL MAGNETRON
SPUTTERING FACILITIES

FATIGUE SIMULATION FACILITIES

COMPOSITE
MANUFACTURING

ARMY RECRUITERS

CHROME PLATE
FACILITY

WATERVLIET HQ'S

HOUSING AREA

A/P TENANTS

MINOR
COMPONENTS

BENET LABS

ARSENAL
PARTNERSHIP

IWTP

MUSEUM

ALBANY INTERNATIONAL
AIRPORT - 5 MILES

USMC RECRUITERS

POST EXCHANGE

FITNESS CENTER

MATERIALS ENGINEERING LAB

HEALTH CLINIC

RAPID PROTOTYPING LAB

INTERSTATE ACCESS

JOINT TENANT ACTIVITIES



**NEW YORK ARMY
NATIONAL GUARD**
- Plans, directs, coordinates
and controls Supply and
Service support including
management and logistical
support to the entire New
York Army National Guard
(NYARNG) with a strength of
over 12,780 soldiers.



- Marine Corps Recruitment
Office



- Army Recruiting Offices



- US Army Health Clinic



- Retirement Services Office
(RSO)



- Naval Surface Warfare Center



- Defense Security Service



- Defense Contract Management
Agency

* 117 Govt Tenant Employees on Site

Diverse Tenants – Multi-Service Missions On Site

Joint Manufacturing and Technology Center - Watervliet – Weapons to Warfighters

WEAPONS TO WARFIGHTERS

**World Class
R&D/Manufacturing
facilities**

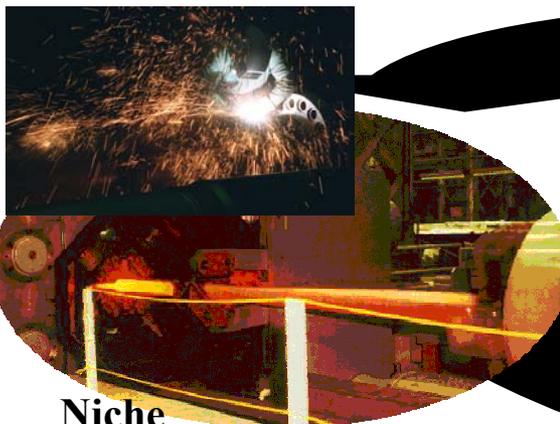


Technology

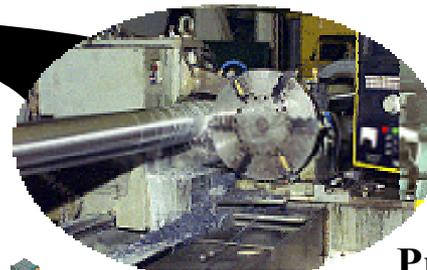
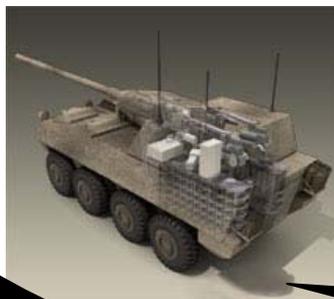
**Significant
intellectual
resources**



Engineering



**Niche
Manufacturing**



Prototyping



From Concept to Product to the Joint Warfighter – One Facility

Joint Manufacturing and Technology Center - Watervliet – Weapons to Warfighters

Deliberative Document - For Discussion Purposes Only - Do Not Release Under FOIA

CORE CAPABILITIES

Maintain a Combat Ready, Deployable Force

- Abrams, Stryker, M198 Howitzer, M119 Howitzer, M777 Howitzer, M109 Howitzer, 60mm, 81mm, 120mm Mortar

Supporting Core Capabilities

- Ø Cannon, Gun Tube and Mortar Manufacturing
- Ø Component Fabrication
- Ø Subsystem Assembly
- Ø Machining

Key Processes and Skills on Site

Processes

- Ø Rotary Forge
- Ø Chrome Plate
- Ø Continuous Heat Treat
- Ø Swage
- Ø Composite Manufacturing
- Ø Stress Relieve/Shrinkage

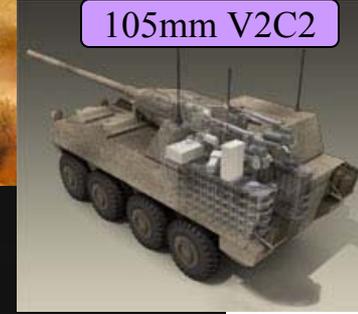
Skills

- Ø Machining
- Ø Engineering
- Ø Metallurgist
- Ø Tool & Die Making
- Ø Quality

Abrams



105mm V2C2



Mortars



Stryker



Paladin



Lt Wt 155



HMMWV ASK



Avg Annual Revenue (FY03/04) \$135M

Number of Employees: 739 Gov't

Only qualified US source for Cannons, Gun Tubes and Mortars. Highly skilled workforce would NOT relocate - will cost around \$500M to qualify new source & 6-10 years to establish capability.

UNIQUE PROCESSES



ROTARY FORGING



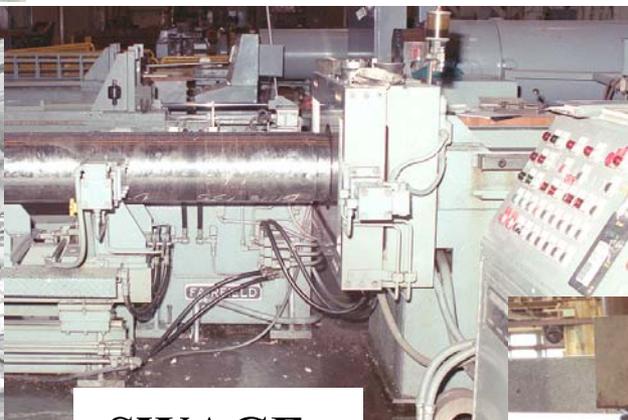
Characteristics

- Ready and controlled capability
- Large investment - low demand
- Supports rapid development cycles
- Near net shape technology
- Ammo technology driven
- Minimize materiel cost
- Accuracy, lethality
- Extend tube life

Critical Skills Employed

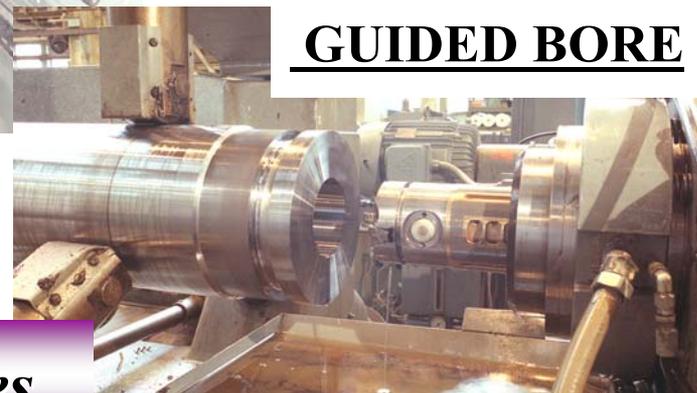
- Metallurgy
- Rotary Forge Operation
- Heat Treating
- Production & Tool Engineering
- Tool design & manufacturing
- High pressure cold working
- Machining
- Electronic maintenance/calibration

BORE COATING



SWAGE

GUIDED BORE



One-of-a-Kind Facilities

Joint Manufacturing and Technology Center - Watervliet – Weapons to Warfighters

SUPPORT TO THE JOINT WARFIGHTER

- **Key Joint Projects/Capabilities**
 - **Tank & Howitzer Cannon – All Services**
 - **Mortars – US Army, US Marine Corps**
 - **Propulsion Shafting – Navy & Army COE**
 - **Helicopter Structural Parts – Flight Safety Certified**
 - **HMMWV Armor Door Production – OIFII**
- **Key Partnering Projects**
 - **Direct Sales – GDLS For M256 (Korea) And M68 (Stryker)**
 - **Direct Sales – UDLP M198 Upgrade (Egypt)**
 - **FMS – 120mm Tank Cannon – Egypt Co-Production**
 - **Site Manager Through ASPI – Arsenal Partnership**
 - **On-site Barrel Plating Production – Hartchrom**
- **Unique Special Considerations**
 - **Certified To New ISO 9001:2000 Quality Standards**
 - **Environmental Permits – Air, Water, Land**



Only US Source For Cannon, Gun Tubes & Mortars
All Services!!

JOINT-SERVICE SUPPORT R&D/Manufacturing



**EEH60A & HH60L Helicopter
AC130 Gunship
F18
Joint Strike Fighter**

**Component Reverse Engineering
Tech Support for 105mm How
Component Reverse Engineering
Medium Cal Adv Bore Coating**



**AGS (Adv Gun System)
DD-X Destroyer
Indian Head
Fast Frigate
Destroyer
EM Program**

**Bore Coating
Tech support 155mm Cannon
Water Cannon Design/EOD
Re-engineer Thrust Assembly
Re-engineer Lube Oil Pump
Tech Support Launcher**



**81mm Mortar
Engineer Fighting Vehicle
155mm Towed Howitzer
AV8B Harrier Jet
CH46 Helicopter
Abrams Tank**

**Redesign Weight Reduction
Bore Coating
Design/Dev Cannon/Primer Feed Mech
Component Reverse Engineering
Component Failure Analysis
Specialized Testing
Redesign Bustle Rack
Design/Integrate Assault Breacher Veh
Design/Integrate FO/FAC Radio
Integrate Mine Plow**

'One-Stop-Shop'

IRAQI FREEDOM SUPPORT

- **HMMWV Armor Survivability Kit Production**
- **WVA & Benet Deploy To Kuwait/Iraq**
 - **Commands Forward Repair Activity & HMMWV Service Center**
 - **DA Civilian Volunteers Deploy To Kuwait & Afghanistan**
- **Key Cannon System Component Production**
 - **15 Different Weapon Systems & Spare Components (Commercial Industry Could Not Provide)**
- **Tank & Howitzer Cannon Tube Inspection**
 - **Establish True Condition For Over 240 Tubes**
 - **Reclaim 45 “*Out Of Service*” Tank Tubes**
 - **Savings Over \$4.5m**
- **USMC Forward Observer Forward Air Controller Radio Suite Adapter Kit**



Rapid Response

Joint Warfighter Support

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BENÉT CURRENT BUSINESS SEGMENT

ARTILLERY CANNON DESIGN & DEVELOPMENT

- FCS NLOS
- 155MM XM776 Cannon for LW155 Towed Howitzer
- Animation Modeling & Simulation

TANK GUN DESIGN & DEVELOPMENT

- FCS Vehicle Dynamic Response
- FCS Multi-Role Armament System
- 105MM M68A1E4 Gun for MGS/BCT



MUNITION HANDLING MECHANISMS DESIGN & DEVELOPMENT

- Transfer Device for 155MM Ammunition Resupply Module Multi-Purpose (ARMM)
- Primer Feed Mechanism for XM776 Cannon (LW155)
- Controls and Power Dist. for Automated Cannons

CANNON PRODUCTION ENGINEERING

- Cannon for Paladin SPH, M198 & M199 Towed Howitzers
- 120MM/81MM/60MM Mortars
- 120MM M256 Tank Gun (Abrams Tank)
- Cannon Manufacturing Process Improvements

TANK TURRET COMPONENTS PRODUCTION ENGINEERING

- M1 Abrams Series Tanks
- Foreign Military Sales Vehicle Programs
- Training Vehicles

GUN TECHNOLOGY INVESTIGATION

- Bore Protection
- KE & Momentum Management
- Mechanism / Environment Modeling & Simulation
- Component Fracture Analysis
- Lab Simulation of Fatigue
- Adv Lightweight Materials

Watervliet & Benét – Inseparable Winning Team

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R&D CORE COMPETENCIES

- **Armament Technologies**

Fatigue and Fracture of Materials

Modeling & Simulation

Performance Coatings

- **Armament Designs**

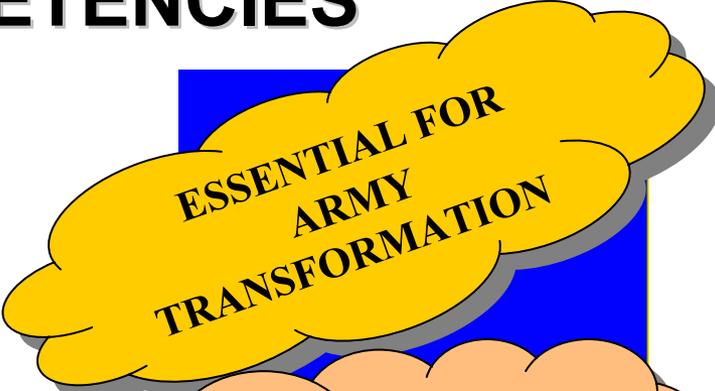
Artillery, Tank, and Mortar Launchers

Munitions Handling and Control Mechanism

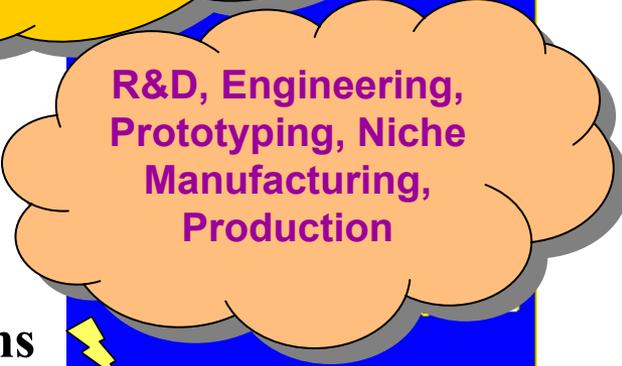
Turret Components, Mounts & Recoil Mechanisms

- **Manufacturing Technologies**

Process, Material, and Product Engineering



ESSENTIAL FOR
ARMY
TRANSFORMATION



R&D, Engineering,
Prototyping, Niche
Manufacturing,
Production



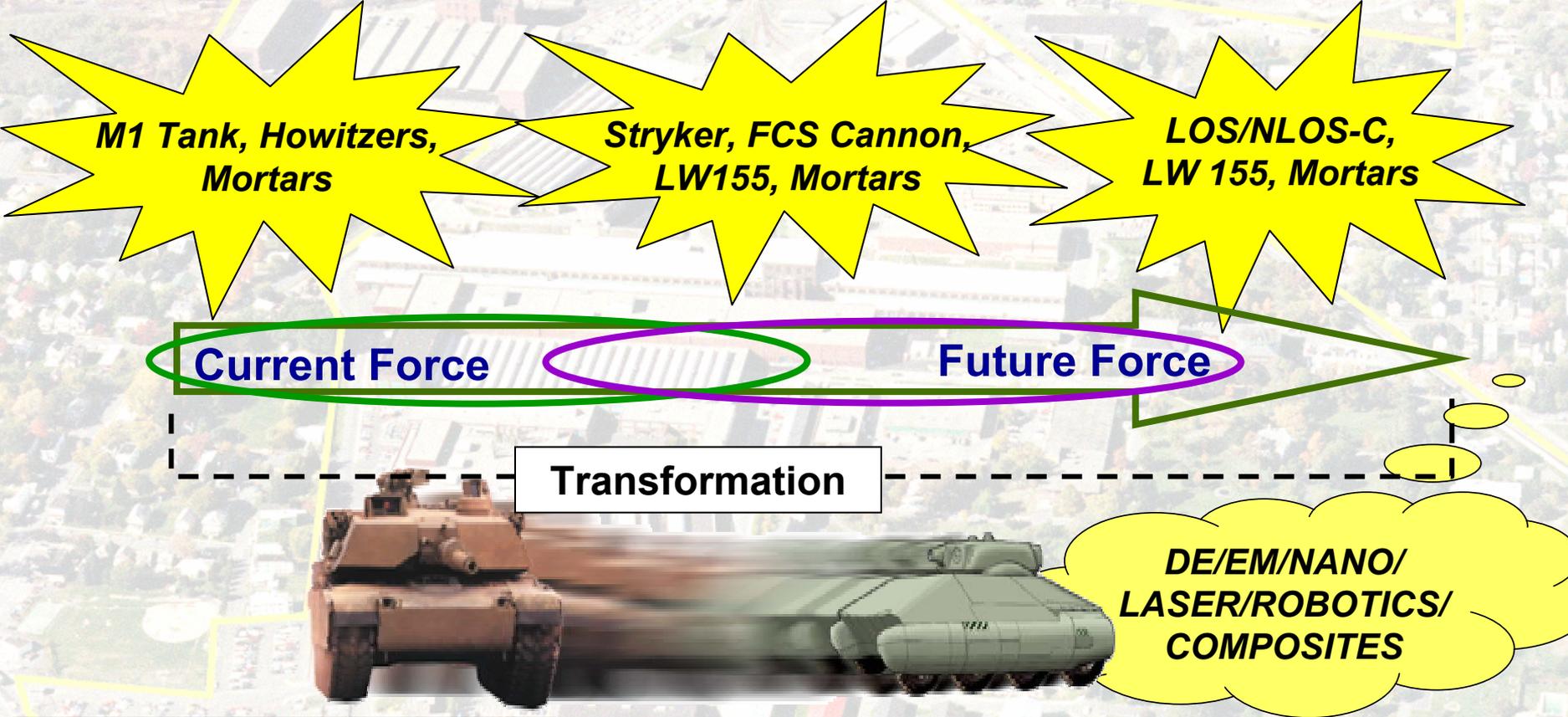
Manufacturability!
Technology
Integration!
One Team!!

World-Class Scientific & Engineering Capability

State-of-the-Art Manufacturing Facilities

Joint Manufacturing and Technology Center - Watervliet – Weapons to Warfighters

JOINT MANUFACTURING & TECHNOLOGY CENTER AT WATERVLIET



FCS – FUTURE CANNON SYSTEM
LOS/NLOS – LINE OF SITE/NON LINE OF SITE
LW 155 – LIGHTWEIGHT ARTILLERY SYSTEM
DE – DIRECTED ENERGY
EM – ELECTROMAGNETIC
NANO - NANOTECHNOLOGIES

Essential for Army Transformation
Indispensable in War

Joint Manufacturing and Technology Center at Watervliet – Weapons to Warfighters



FUTURE FORCE Future Combat System

System Requirements Now Defined by Users

Lead System Integrator Selected (BOEING/SAIC)

Workshare Announced for Vehicle Developers

General Dynamics: **Line-Of-Sight (LOS)**

United Defense: **Non-LOS** (Cannon & Mortar)

LW120 Gun –
Benet Designed,
Watervliet
Manufactured –
FOR GD - 100
rounds fired

Benet,
Watervliet, GD
– Partner for
Line of Sight
Cannon
System

NLOS Cannon –
Benet Designed,
Watervliet
Manufactured for
UDLP – Test
Firings at Yuma

LW 105 Gun –
Benet Designed
– Proposed
Concept to GD

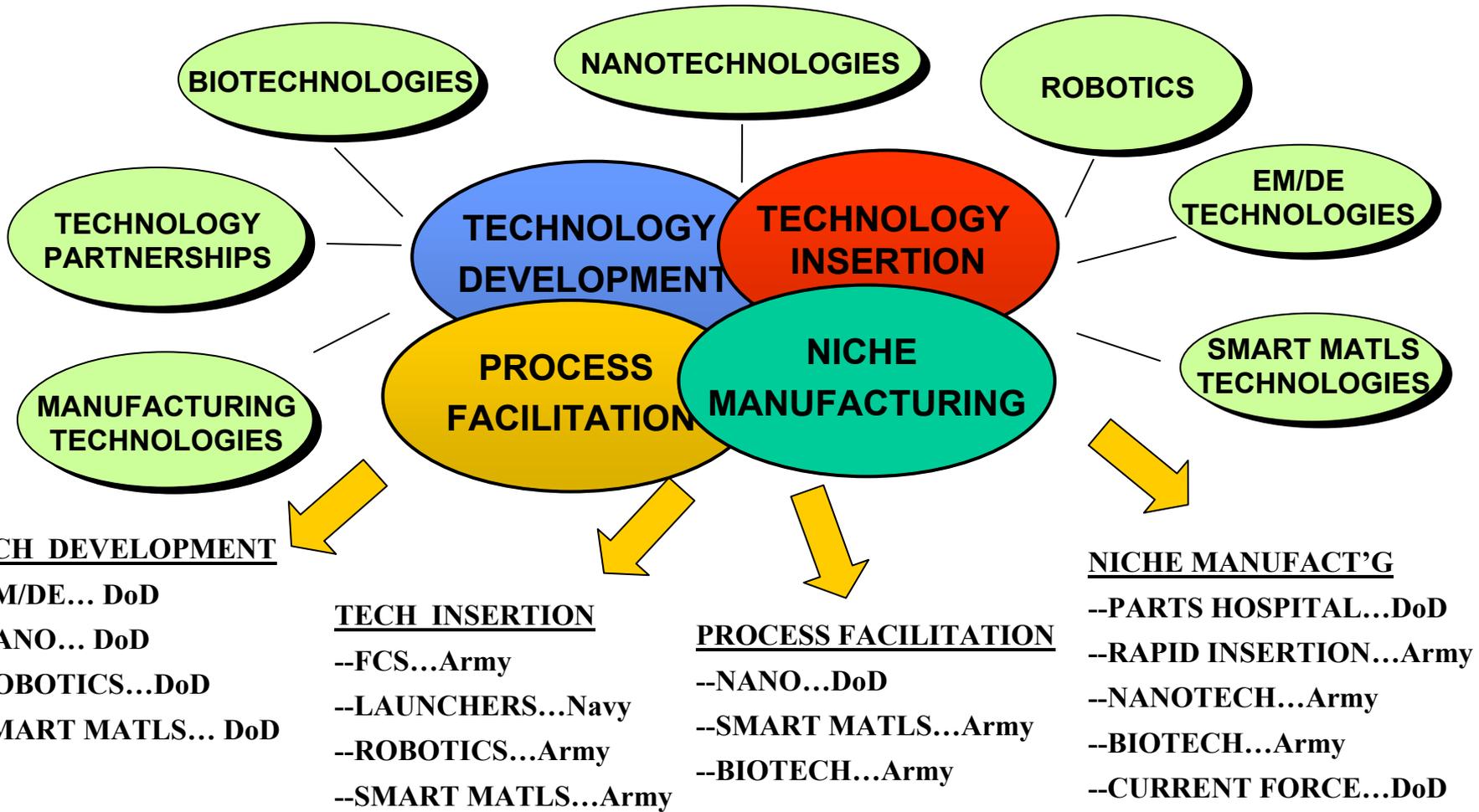
NLOS Mortar –
Benet Designed,
Watervliet will
Manufacture – Tech
Base Proposal at
UDLP

*Vehicle Developers Teaming with Benét Labs and Watervliet for
Main Armament Development and Manufacturing*

SITE FOCUS

PREMIER DOD MULTIFUNCTIONAL MANUFACTURING AND TECHNOLOGY CENTER ... WATERVLIET & BENET

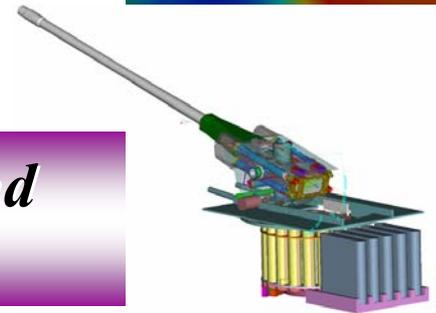
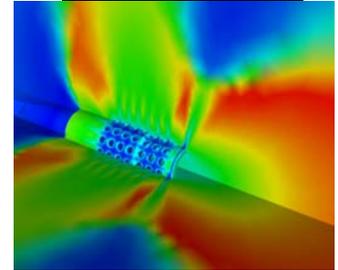
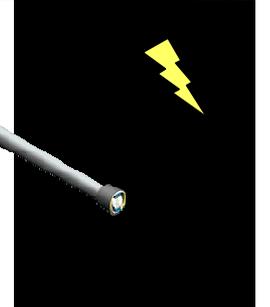
PUBLIC/PRIVATE PARTNERSHIPS ... ARSENAL PARTNERSHIP



\$5 Billion in Technology Investment - in Immediate Area!

JOINT CONTRIBUTIONS TO THE WARFIGHTER -- FUTURE FOCUS --

- **Rapid Infusion Of Advances In Nanoscience, Materials, Coatings, Structures And Power Management Into**
 - Selective Lethality Systems
 - Electromagnetic And Directed Energy Weapons
 - Robotic And Highly Robotic Systems
 - Ultra Lightweight Battlefield Survivable Systems
- **New Manufacturing Methods, Processes And Technologies To Rapidly, Effectively And Efficiently Provision Forward Deployed Units**
- **Continue Support And Improvements To Current Systems**



*Premier DOD Multifunctional Manufacturing and
Technology Center ... Watervliet & Benét*

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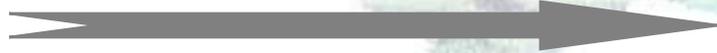
NEW FOCUS AREAS

Nano Sensor



Smart Systems

Robotic



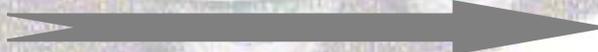
Autonomous Systems

Directed Energy



Elective Lethality

Smart Materials



Adaptive to Environment

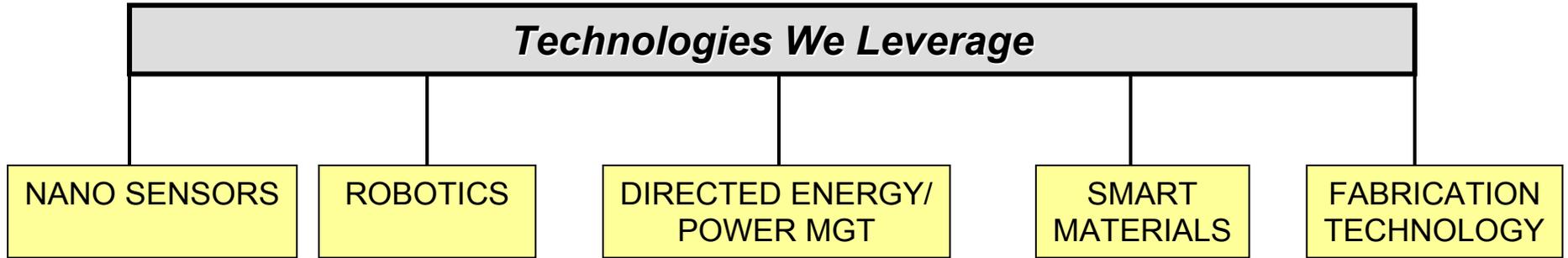
Fabrication Technology



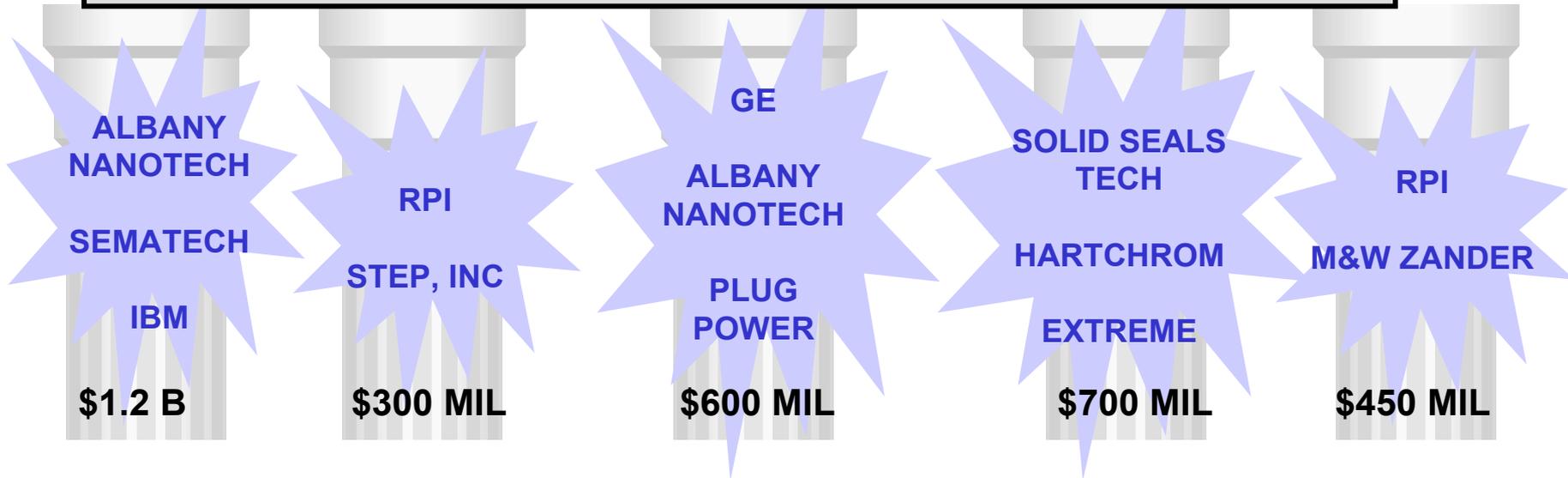
Processes of the Future

Today – Tomorrow - Beyond

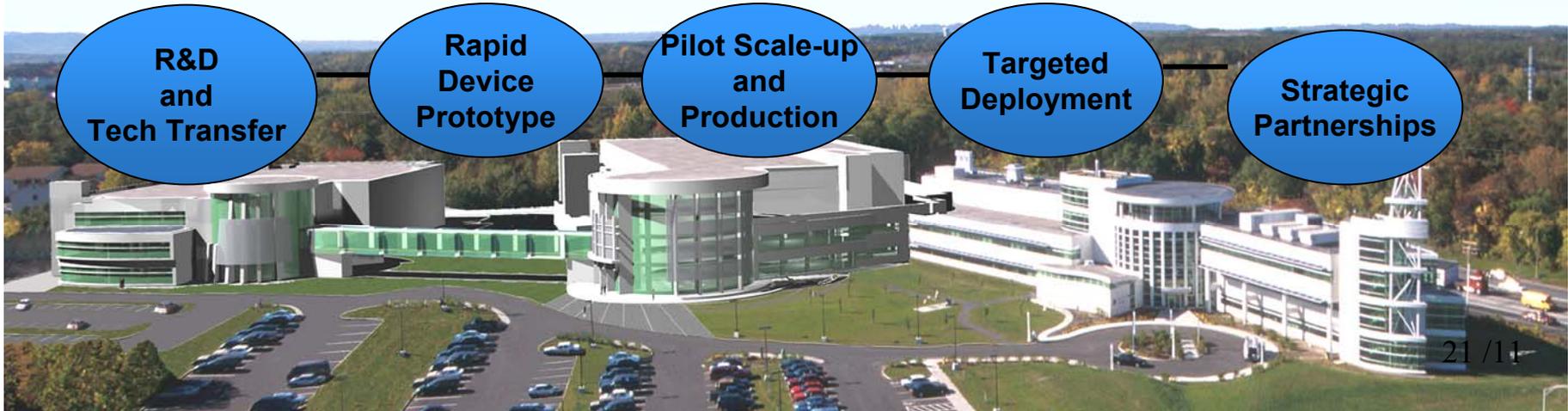
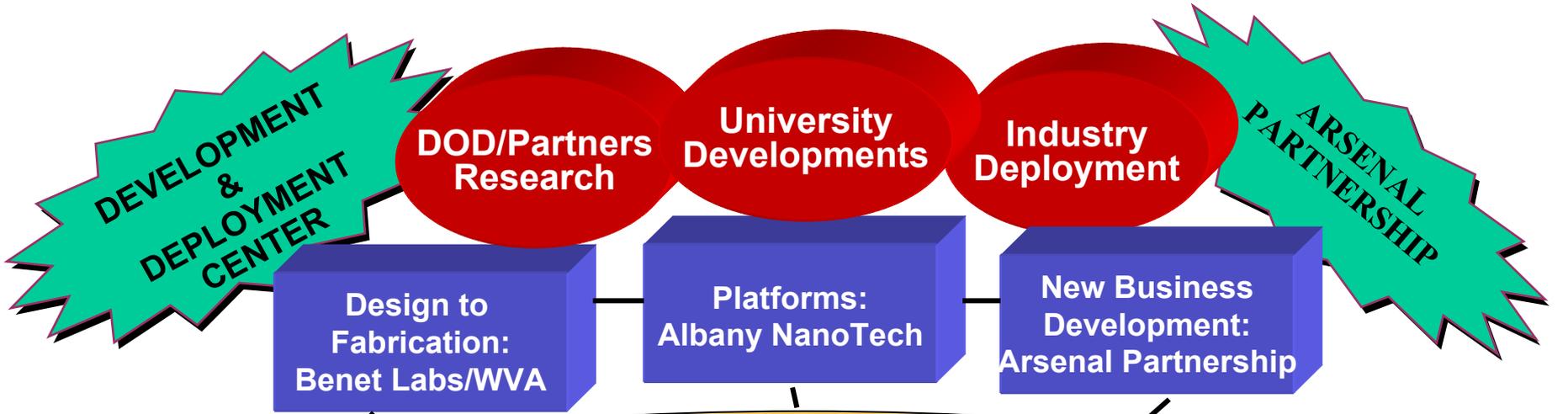
BENÉT LABORATORIES FOCUS CENTER FOR DOD (JOINT) ARMAMENT



Our Local Technology Partners – Our R&D Multiplier



PARTNERSHIP BUSINESS MODEL



21 / 11

SITE TRANSFORMATION

- **Workforce Revitalization**
- **Lean/Six Sigma Implementation**
- **Tech Business Park is a Reality**
- **New Site Master Plan Delivered November 2003**
- **6 High Tech Tenants; 6 *in the pipeline***
- **\$6.3M ASPI Invested '02 -'04**
- **\$3.4M NY State Investment**
- **\$4.7M Private Investment**
- **\$2+M in Revenues to WVA in '02-'03**



**We Are Not
Waiting To
Move Out!!**



**We Need To
To Do
More!!**

Enhance Public/Private Partnership Opportunities By 2010

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SKILL MIX - POSTURING FOR THE FUTURE

Today's Hires – Tomorrow's Capabilities

- Gas Dynamics
- Plasma Physics
- Electrical Engineering
- Dynamic Modeling
- Composites Sciences

Benét @ 2010 – Focus

- Nano Sciences
- Advanced Materials
- Controls/Software
- Electronics
- BioTech

Revitalize
Workforce With
Skills To Support
Tomorrow's
Capability

Benét
Workforce 85%
Technical

Benét
Revitalizes 28%
Of Workforce in
Past 4 Years

9 RIF's in
10 Years

Instituted
Machinist
Apprentice
Program – 1st
In 10 Years

Apprentices, Interns,
and VSIPs Will
Reduce Average Age
From 48.6 to 37.4 by
End of FY08

Postured for the Future

ENTERPRISE EXCELLENCE TRANSFORMATION

Manufacturing Initiatives

Major Weapon Systems

Reduced Direct Labor Hours - 17,740

Reduced Material Handling - 22%

Manufacturing Process Tooling

Inventory Reduction - 66%

Tooling Investment Reduction - \$500K

Administrative

Reduced Acquisition Processing Time - Over 40%

BIC Initiative to Reduce FAR Notices of Contract Actions

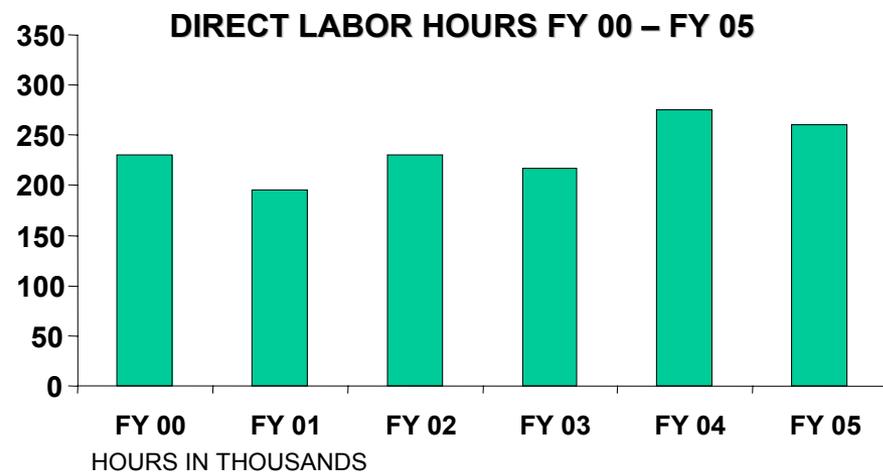
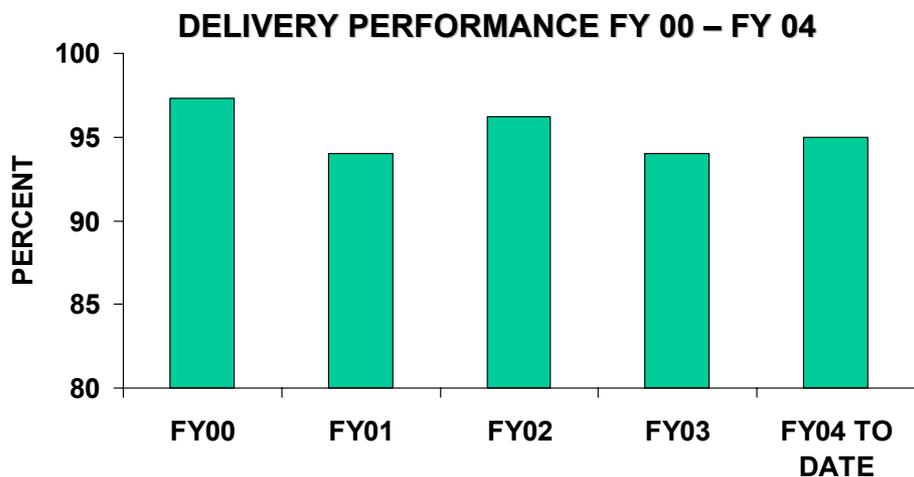
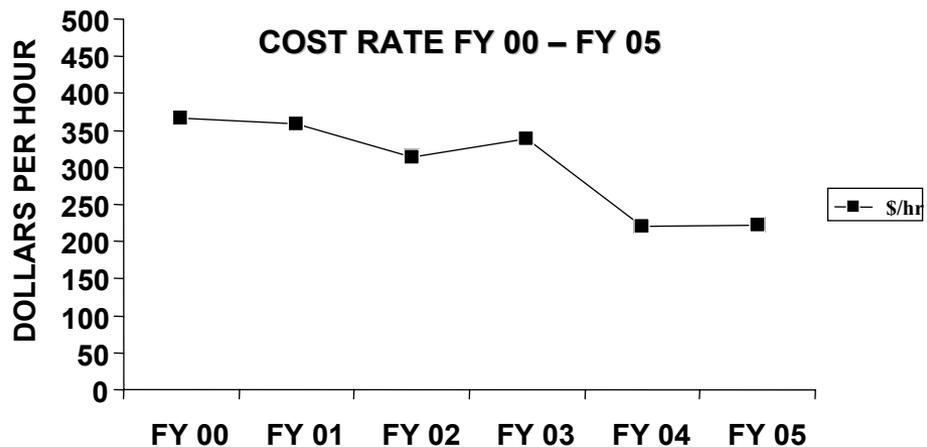
- 15 days to 7 days
- Federal-Wide Application - Potential to Reduce Procurement Costs by \$2.5B



Increased Capability – Reduced Costs!!

BUSINESS METRICS

COST, QUALITY, DELIVERY PERFORMANCE



WATERVLIET, BENET & THE ARSENAL BUSINESS & TECHNOLOGY PARTNERSHIP

Goals

- **Market Underutilized Space and Assets - Negotiate Agreements - Act As Facility Manager**
- **Reduce Army's Cost of Ownership, Preserve Critical Mission Skills, Modernize Facilities & Infrastructure**

History

- **1998: NY State, Albany County Join to Plan Private Development of Unused Assets**
- **1999: WVA Designated as NYS "Empire Zone" – First of Its Kind in the Nation**
- **1999: Arsenal Partnership Formed; MOA Signed for Site Development**
- **2002: Site Manager Partnership Contract**

SITE MANAGER FUNCTIONS

- **Exclusive economic developer for the site**
- **Create a tech park in unused capacity**
- **Attract synergistic firms with new tech**
- **Market site, set prices, negotiate deals, contract with tenants**
- **Oversee tenant performance**
- ***Prepare Future Site Master Plan***
 - Phase I - Complete

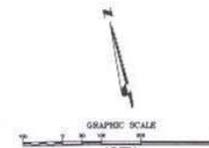
Fully Utilize Facilities – Enhance Private Investment Opportunities

CURRENT SITE CONFIGURATION



-  ARMY DISTRICT
-  PRIMARY AP OCCUPIED BUILDINGS/NEW DEVELOPMENT
-  BENET

CURRENT CONFIGURATION



THE WAY AHEAD

Some Successes – BUT - We Need to do More

- **Infrastructure and Mission Compete for Limited Funds**
- **Real Estate Management Detracts from Mission**

Enhanced Use Lease (EUL)/Efficient Facilities Initiative (EFI) Designation/Conveyance

- **Increase Private/State Funding for Infrastructure Improvements**
- **Enhance Technological Synergies w/Private Industries**
- **Offer Long-Term Options for Prospective Tenants – Not Available now**

Enhance Public/Private Partnership Opportunities

MASTER PLAN IMPLEMENTATION STRATEGY

- **Identify Opportunities for EUL**
- **Use Brooks AFB/San Antonio EFI Model**
- **Convey site to Arsenal Partnership**
- **Army leaseback mission essential facilities**
- **Obtain Refootprint Funding**
- **Create secure area within new tech park**
- **Army focus on core responsibilities and capacities**
- **Expand synergistic private uses**

**Synergistic
Commercial
Growth Supports
DOD Programs**

**Leverage
State, Federal,
& Private
Investment**

**Refootprint
Manufacturing
Area \$21M**

**Refootprint
Benet Labs
\$45M**

**EFI Designation
& Support**

Solid Vision for Overall Site Development

Joint Manufacturing and Technology Center - Watervliet – Weapons to Warfighters

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MASTER PLAN OUTCOMES

- **Maximizes Joint Armaments Capabilities**
 - Joint Manufacturing & Technology Center
 - High Technology (Partnered) Park
- **Minimizes Burdens On DOD**
 - Enhanced Technology Development And Application
 - Reduced Base Operating Cost
 - Reduced Ownership Distraction
 - Districted Site With Distributed Costs
- **Establishes Efficiently Sized Core Organic Capability**
- **Focus On Public-private Partnership & Economic Development**
- **Model For Industrial Support To Transformation**

Creates High
Tech Business
Park

Maintains
Military
Unique
Capability

Canon Cost
Reduced Up
To 60%

Reduce
BASOPS
Cost By
85%

*Manufacturing & Technology Center at Watervliet Provides
Critical Warfighting Capability – Current & Future*

Joint Manufacturing and Technology Center - Watervliet – Weapons to Warfighters

MASTER PLAN SUMMARY

- **Manufacturing Mission Sized To The Joint Requirement**
- **Unique Capabilities Maintained On Site**
 - “Essential And Unique Capabilities Not Found Elsewhere” (DCMA Industrial Base Phase I Study)
 - Navy Cannon Production Can Be Absorbed At Watervliet
- **Low Cost/Risk To Pursue EUL Opportunities & EFI Designation/Conveyance**
- **High Cost/Risk/Mission Impact To Relocate From Watervliet**
 - TACOM Study; Business Case Analysis
- **Promotes Industrial Flexibility And Technology Transition To Support Joint Service Armament Needs**
- **Supports Armament Transformation – Current & Future Force – All Services**
- **Reduces Army Facility Ownership & Management Resources**
- **Maximizes Private/Local/State Investment & Local Economic Development**
- **Focuses On Public-Private Partnering**

Refootprint
Enhances EUL
Opportunities

EFI
Designation
Enhances
Tenant
Prospects

Long-term
Vision For
Site
Development

Leverages
State, Federal,
& Private
Investment

Enhanced Site Development Opportunities

Joint Manufacturing and Technology Center - Watervliet – Weapons to Warfighters

SITE SUMMARY

IT'S ALL ABOUT THE WARFIGHTER!

- **Only US Capability with Experience & Capacity for Joint Service Cannon/Armament Requirements**
- **Essential for Army Transformation; Indispensable in War**
- **Relocation is Extreme High Risk ; Costly; and Would NOT Support FCS Armament Timelines**
- **Joint Services Armaments Mission is Strengthened Through Technology Partnerships in Albany/Tech Valley**
- **Site Master Plan (EUL/EFI Concept) Maximizes Military Mission and Minimizes Garrison Required Resourcing**
- **Joint Manufacturing & Technology Center Postured to Provide Nation's Armament Transformation Capability**
- **Site can Perform Navy's Cannon Work NOW!!**

*Unique &
Valuable Product*

+

*Difficult (Costly)
to Imitate*

+

*Supports ALL
Services' Needs*

+

*Strong Industry
Partnerships*

Joint Manufacturing and Technology Center - Watervliet – Weapons to Warfighters

BACK-UP CHARTS

✓ **World Class Facility**

✓ **Solid Vision**

**UNIQUE
MILITARY
VALUE**

✓ **Experienced
Partners**

✓ **Customer, State & Community Support**

*Unique &
valuable product*

+

*Difficult (costly)
to imitate*

+

*Supports ALL
Services' needs*

+

*Strong Industry
Partnerships*

JOINT SERVICES' CANNON CAPABILITY

	WVA	UDLP Louisville
Existing Facilities Capable of Meeting All Joint Services' Cannon Requirements	YES	NO
Experienced & Qualified in NAVY, AIR FORCE, & ARMY Cannon Models	YES	NO
Full Cannon Capability on Site - Tube, Breech, Muzzle Break, Evacuator	YES	NO
Experienced w/ Significant Monthly Production Quantity	YES	NO
Quick Turn-around Prototype Capability to Support FCS Manned Vehicle Armament Dev. (Rotary Forge)	YES	NO
Current Design/Prototype Location for UDLP and GD FCS Manned Vehicle Armament	YES	NO
Manufactured the 1st Prototypes for the NAVY Advanced Gun System (AGS) Tubes	YES	NO
Capability to Perform the Other's Cannon Workload??	YES	NO

WHY WVA & BENET - NOT LOUISVILLE??

TACOM UDLP Louisville Assessment (Aug 2002)

“UDLP Low Volume Operation Has Potential Problem Meeting Higher Demands”

“Adequate Training, Additional Staff to Meet Additional Specialized Requirements Would Most Likely Require Years of Additional Investment”

PM TMAS Louisville Analysis (Sep 98)

“UDLP Louisville Facility is Not Capable of the Closely Toleranced, High Volume Production Required by Most ARMY Weapons Programs”

TACOM Industrial Base Mgmt Office Assessment (FY2003)

“Watervliet Capability Essential to Combat Readiness”

“Relocation of WVA Extremely High Risk (5 years) and Costly (\$400-500M)”

“Relocation would Negatively Affect Timelines for FCS Armament Development”

“Retention of Organic Mission at WVA is Most Effective; Least Expensive Option”

DCMA Army Transformation Industrial Base Study (FY2003)

“Capabilities at Watervliet Arsenal for Mortar and Cannon Tubes are Essential, Unique and Not Found Elsewhere in the Industrial Base”

STRONG COMMUNITY SUPPORT

Senator Hillary Rodham Clinton – SASC member – vows Arsenal support “... clear that there would be no possible reason to dismantle one of the only remaining facilities left that can do the work Watervliet does.”

Congressman John Sweeney – cites growth potential “...the Army knows who they can depend on in time of need and know that WVA will deliver. The Arsenal is truly invaluable to the Army and DOD.”

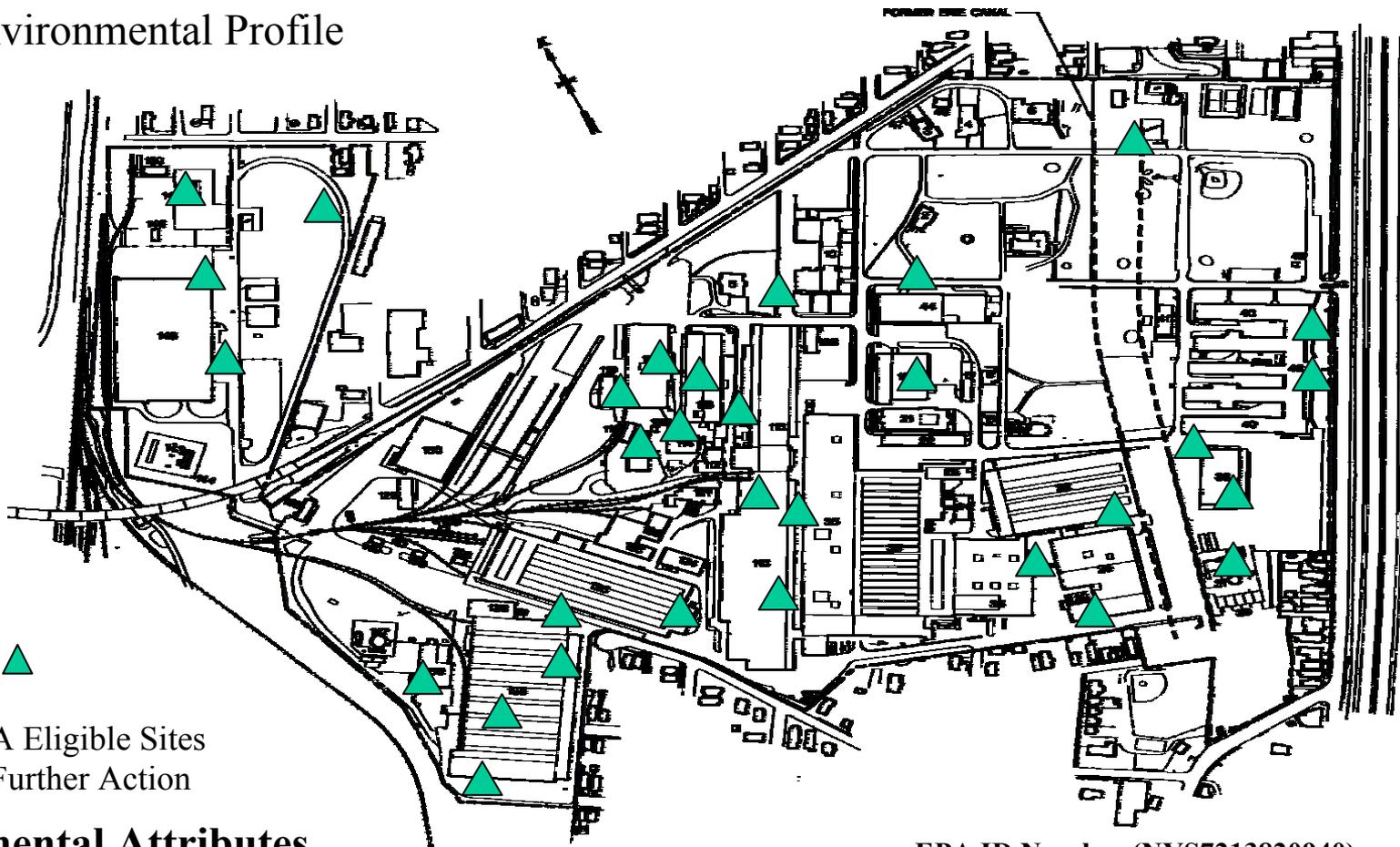
Congressman Mike McNulty – investments lead to jobs “It makes all the sense in the world to reinvent this facility so it can once again become a major economic asset for the entire region.”

Assembly Deputy Majority Leader Ron Canestrari – uniqueness of manufacturing and R&D on site is key to attracting new businesses “The knowledge and skills within Benet can’t be duplicated anywhere...”

NY State Senator Neil Breslin – site as a national treasure “...these announcements of private companies coming to the site remind everyone of the tremendous assets of location and infrastructure the Arsenal has to offer.”

Watervliet Arsenal

Environmental Profile



Air Permits

68 Air Sources

DSERTS Sites ▲

- 31 Sites
- 2 Active ERA Eligible Sites
- 29 Sites No Further Action

Other Environmental Attributes

- Non NPL and is Under RCRA & Corresponding State Regulations
- No Wetlands
- No Endangered Species
- 2 Archaeological Sites (Museum, Parade Grounds)

▲ Defense Site Environmental Restoration Tracking System

EPA ID Number (NYS7213820940)

Watervliet Arsenal

AIR

Environmental Permits

- New York State

- Air Facility Registration Certificate Dtd 09/07/2002
- Registration Identifier: 4-0188-00001/02000
- Capped by Rule (Emissions one half of Title V thresholds)
- Total Number of Emission Points: 68 Sources

WATER

- New York State

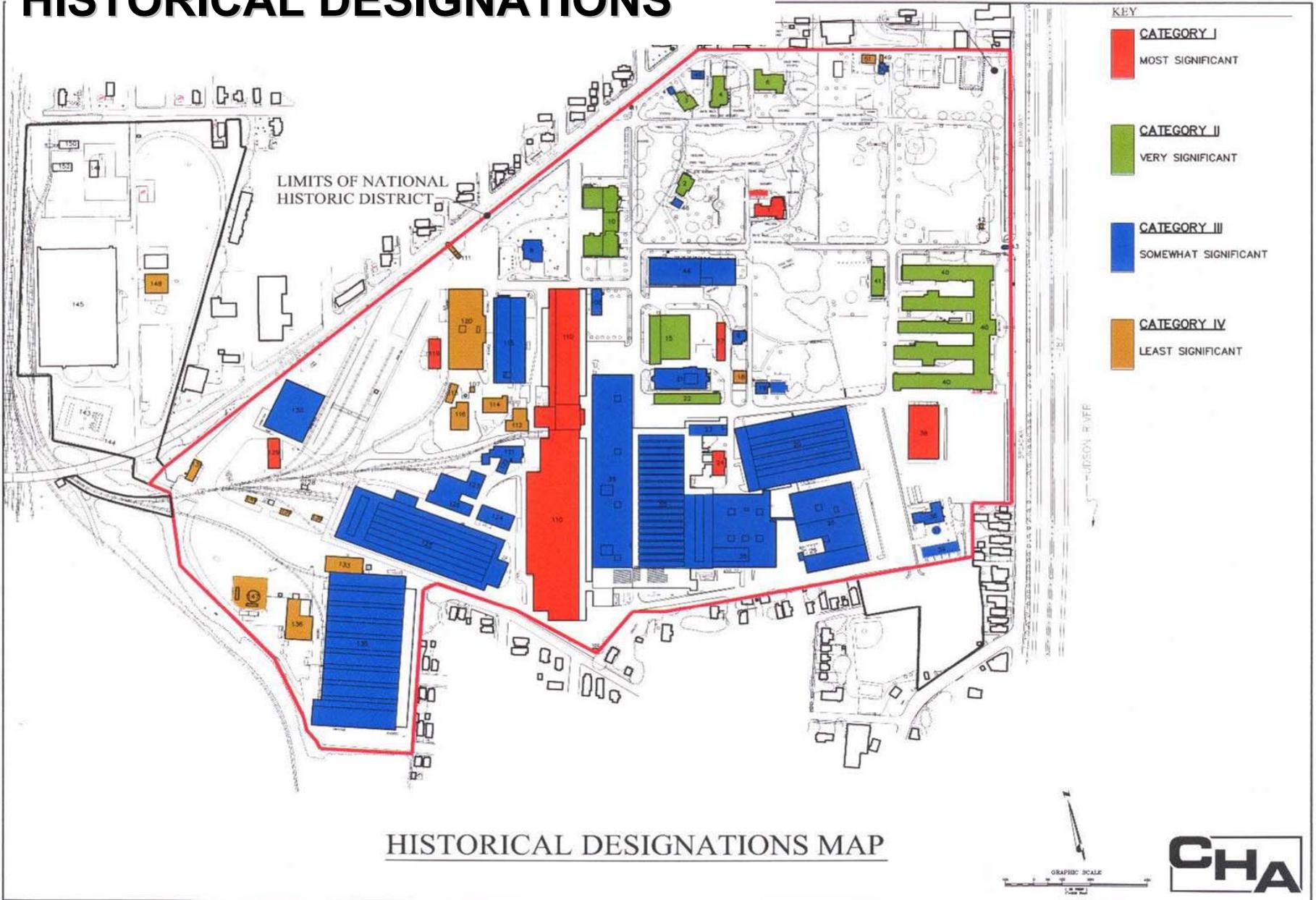
- State Pollutant Discharge Elimination System (SPDES) dtd. 11/14/2003
- SPDES Number: NY0023361
- Expiration Date: 05/01/2009
- 8 Outfalls of which 6 are monitored for SPDES
- Hudson River and Krommakill Creek are Receiving Waters
- 2 Outfalls release into City of Watervliet Storm Drains.

LAND

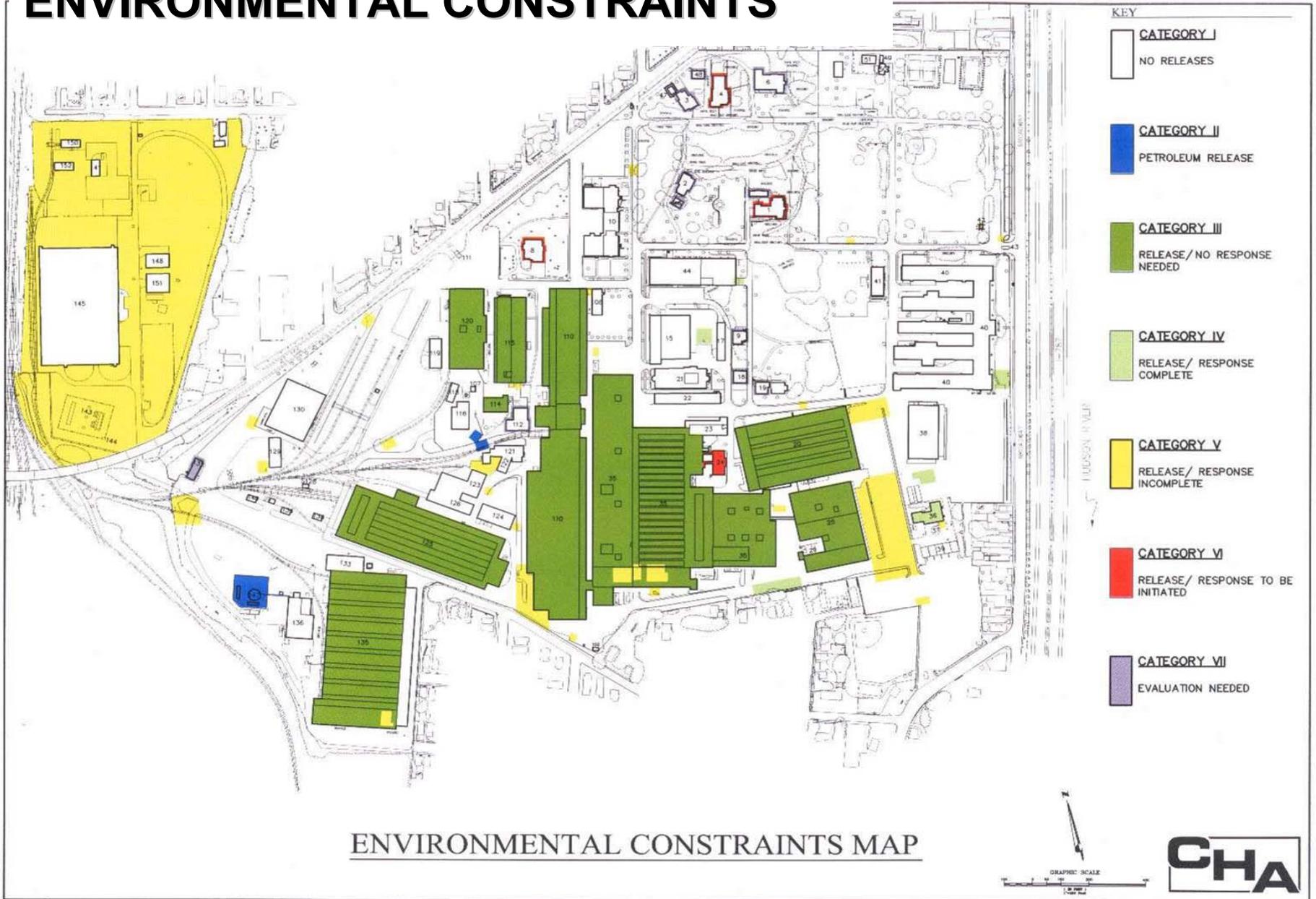
- New York State

- Non RCRA Permitted Facility
- Surface Impoundment (Delisted Sludge, 01/10/1986)
- 90 Day Accumulation Site (Hazardous Waste Storage)
- Large Quantity Generator
- Chemical Bulk Storage License (3 Storage Tanks)
- Major Petroleum License (25 Underground/Aboveground Storage Tanks)

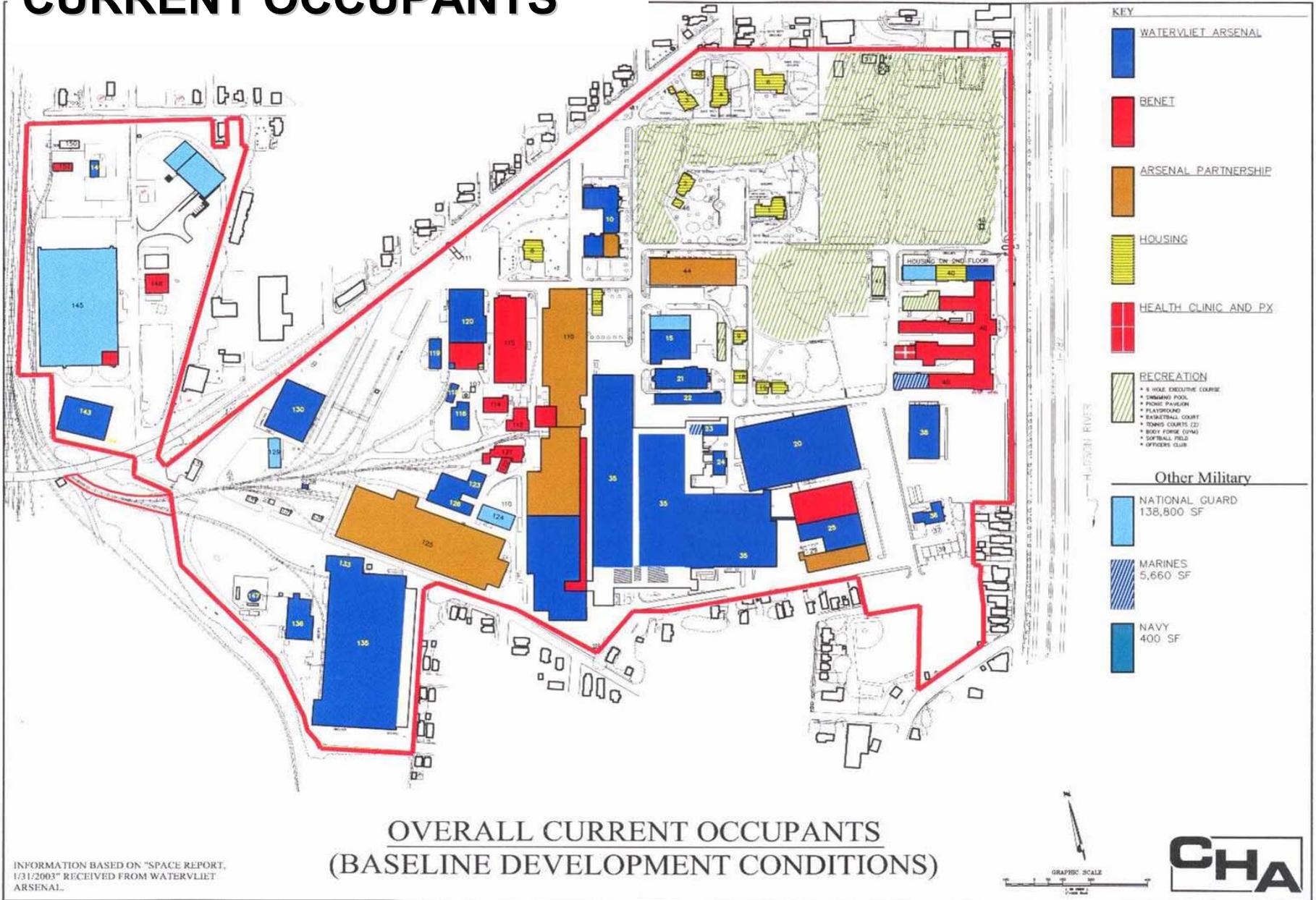
HISTORICAL DESIGNATIONS



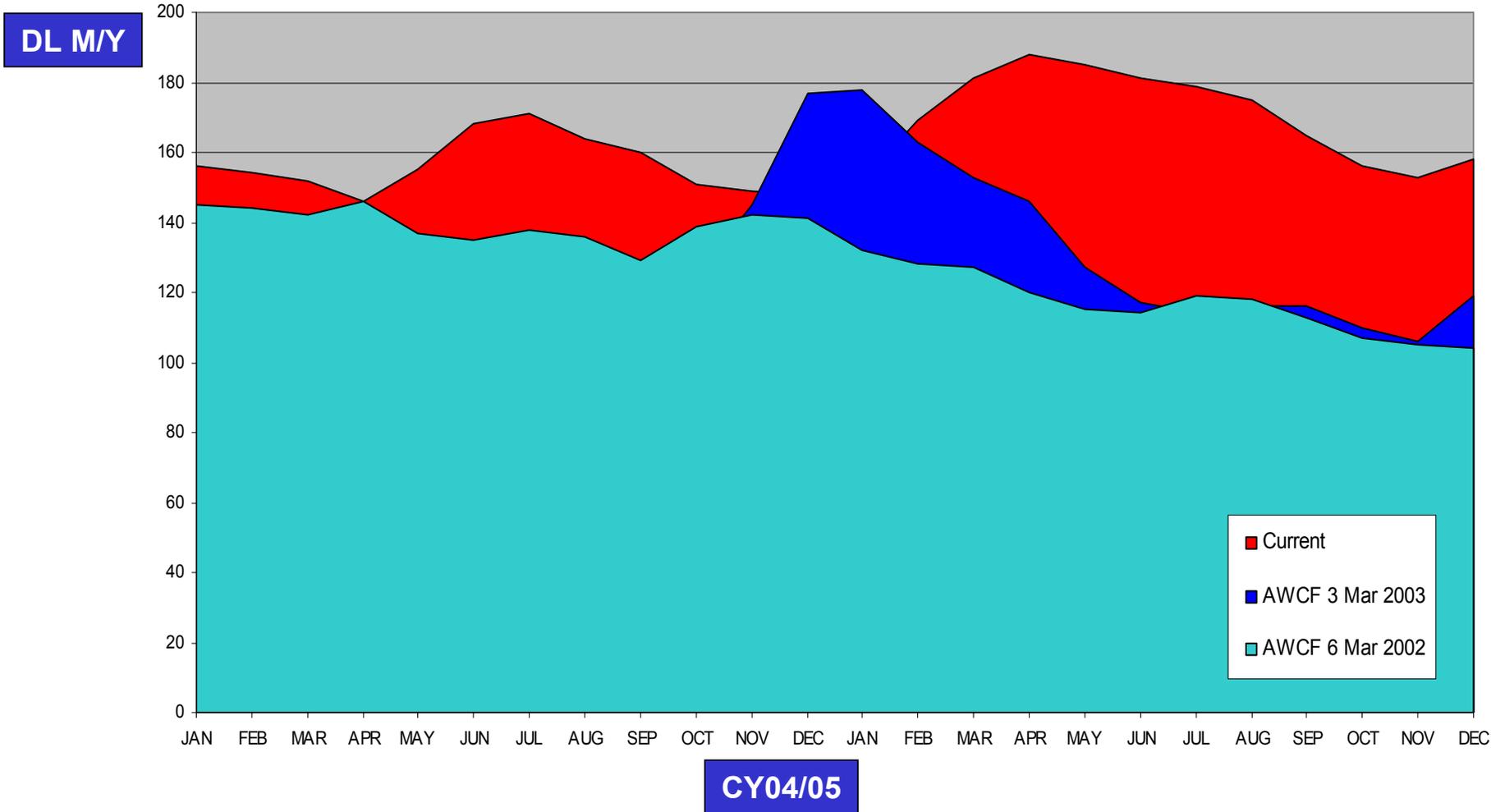
ENVIRONMENTAL CONSTRAINTS



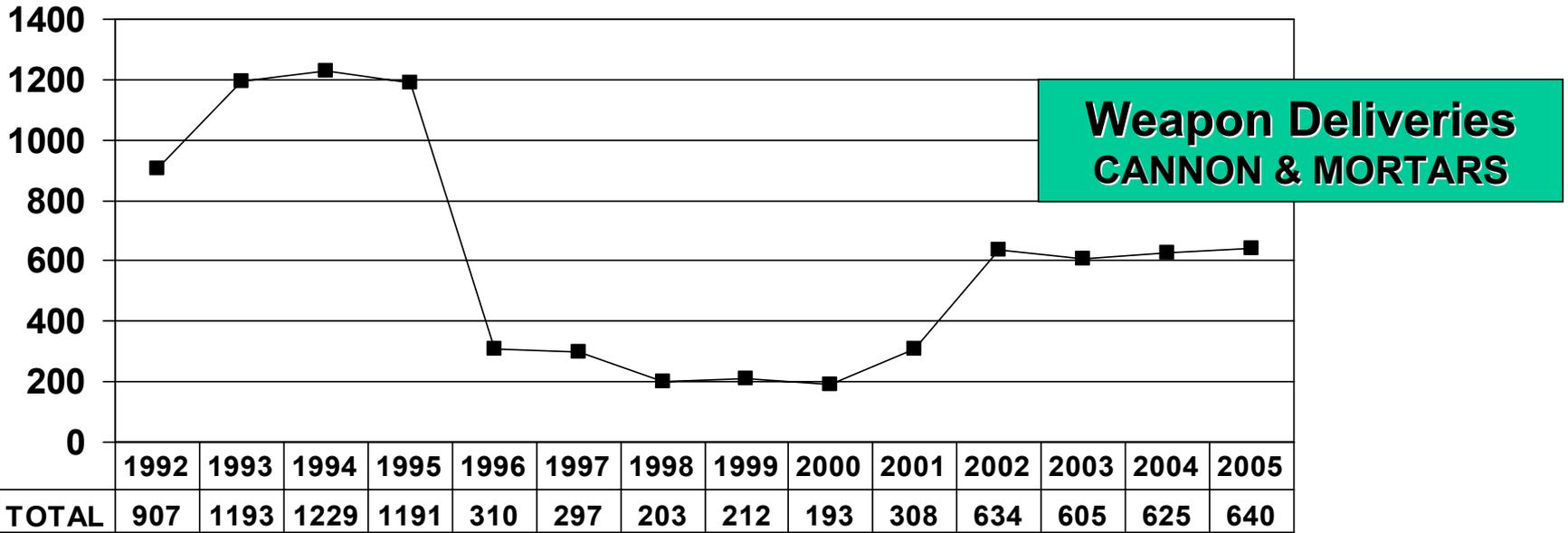
CURRENT OCCUPANTS



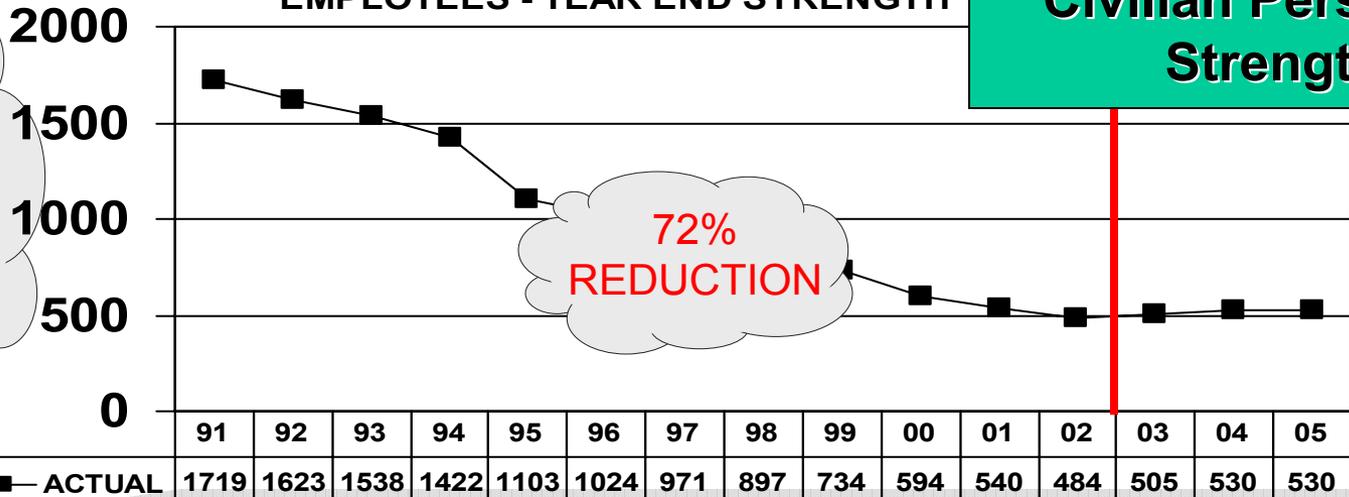
DIRECT LABOR WORKLOAD PROJECTIONS – MAN YEARS



WORKLOAD DRIVES WORKFORCE



EMPLOYEES - YEAR END STRENGTH

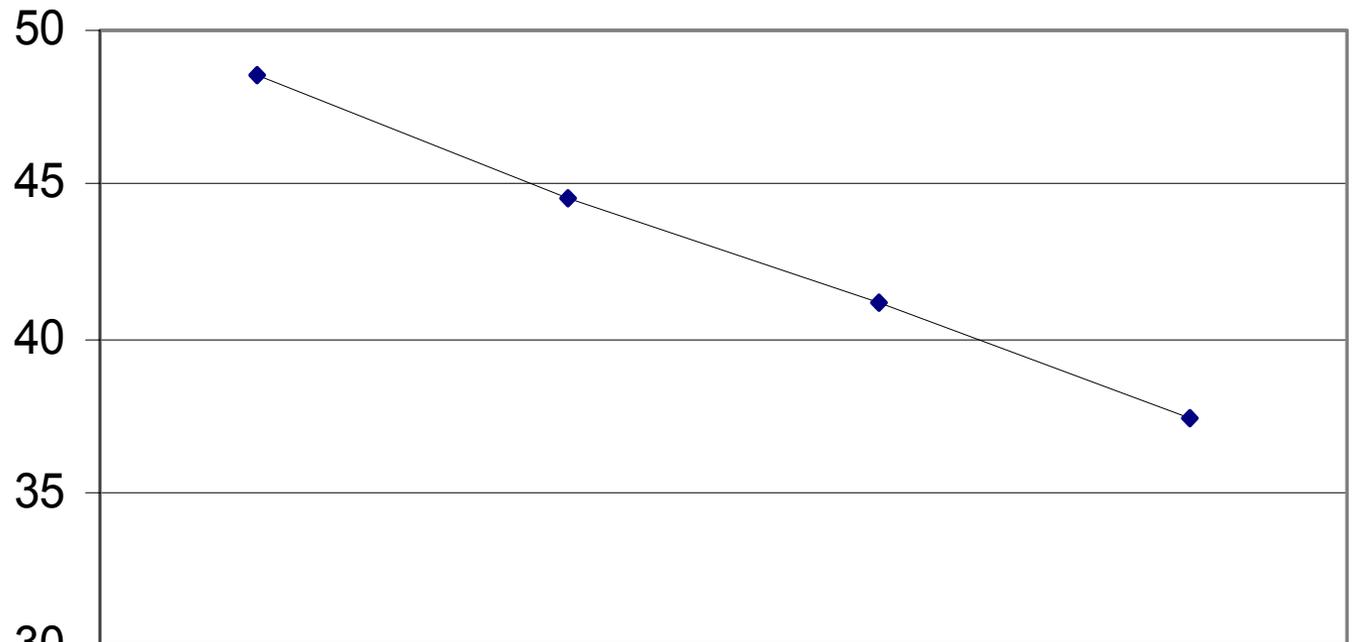


9 RIFS

- FY91 - 1ST QTR
- FY95 - 2NDQTR
- FY96 - 1ST QTR
- FY96 - 4TH QTR
- FY97 - 4TH QTR
- FY98 - 4TH QTR
- FY00 - 1ST QTR
- FY01 - 1ST QTR
- FY02 - 3RD QTR

**72%
REDUCTION**

Watervliet Arsenal Average Age



Year	Retirement Eligibles
Current	74
End 2004	102
End 2006	98
End 2008	130

	Current	End 2004	End 2006	End 2008
Watervliet Arsenal Average Age	48.6	44.5	41.2	37.4

FY04 LEAN PROJECTS

Major Weapon Systems

- 120mm Mortar
- 105mm M68 Cannon
- 155mm LWT Howitzer
- 81mm Mortar
- 60mm Mortar

Conducting Second and Third Passes at Previous Lean Projects

Administrative Support

- Tool Replenishment
- Equipment Maintenance
- ASPI Review & Approval Process
- Material Receipt
- Material Issue
- Acquisition Process
- Information Assurance Vulnerability Alert

M185 Re-Build, 155mm Split Ring, M256 Cannon, 120mm Mortar, M68 Cannon, M776 Howitzer, Tool Replenishment, ASPI Review, Acquisition, Equipment Maintenance, Material Receipt, Material Issue

Incorporating Lean Throughout Our Processes

PHYSICAL PLANT

140 ACRES
6.9 MILES OF ROAD
2.9 MILES OF RAIL



2.2M SQ. FT.
FLOOR SPACE
W/1.2M SQ. FT.
INDUSTRIAL
OPERATION

UTILITIES

ELECTRIC

\$2,861,500

WATER

\$164,500

FUEL OIL

\$934,500

NATURAL GAS

\$755,500

OTHER

\$49,000

TOTAL

\$4,765,000

✓ **\$306M REARM PROJECT**

✓ **New/Rebuilt Machines**

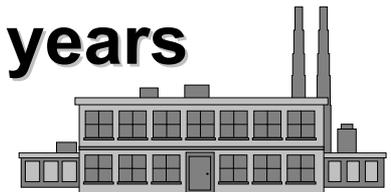
✓ **New Construction**



✓ **REFOOTPRINT TO 653 Machines**

REFOOTPRINT II - \$21M – 5 years

- **Empty 3 Bldgs**
- **Excess 271 Machines**
- **3 Year payback**



**\$ 1.469B
REPLACEMENT**

