



# NBAF

NATIONAL BIO AND  
AGRO-DEFENSE FACILITY



**KANSAS STATE**  
UNIVERSITY



# National Bio & Agro-defense Facility

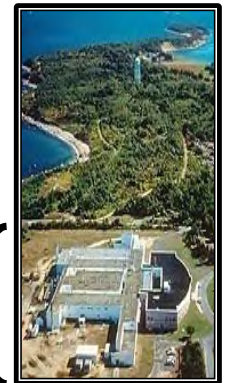
**MISSION:** To Protect U.S. Livestock from Foreign Animal Diseases (FADs) including Zoonotic [Animals ↔ People] Threats



- ❑ TO SAFEGUARD FOOD ANIMAL HEALTH + PUBLIC HEALTH AS WELL
- ❑ TO PRESERVE AMERICA'S FOOD SUPPLY & AG ECONOMY

## GOALS:

- To replace the obsolete 1954 Plum Island facility that is too out-of-date – *and unsafe* – to permit zoonotic disease R&D
- To develop 21<sup>st</sup> century diagnostics, vaccines, and other therapeutics



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Right-Sized to the NBAF Mission



# NBAF Disease Priorities from 2006\*

## Foreign Animal Diseases FADs: CDC & USDA “Select Agents”

- African Swine Fever [ASF] ✓
- Classical Swine Fever [CSF] ✓
- Rift Valley Fever [RVF<sup>(Z)</sup>] ✓
- Japanese Encephalitis [JE<sup>(Z)</sup>] ✓
- Bovine Pleuropneumonia [BP] ✓
- Foot & Mouth Disease [FMD] ✓
- Nipah Virus [NV<sup>(Z)</sup>] # <sup>Viral Model</sup> →
- Hendra Virus [HV<sup>(Z)</sup>] #



## Biocontainment Space Biosafety Level (BSL)

- BSL-3: ✓ To work on select agents causing serious diseases; treatments exist
- BSL-3Ag: ✓ To study select agents in livestock; the animal rooms provide the primary biocontainment
- BSL-4: # To work in space suits on lethal diseases; NO treatments exist

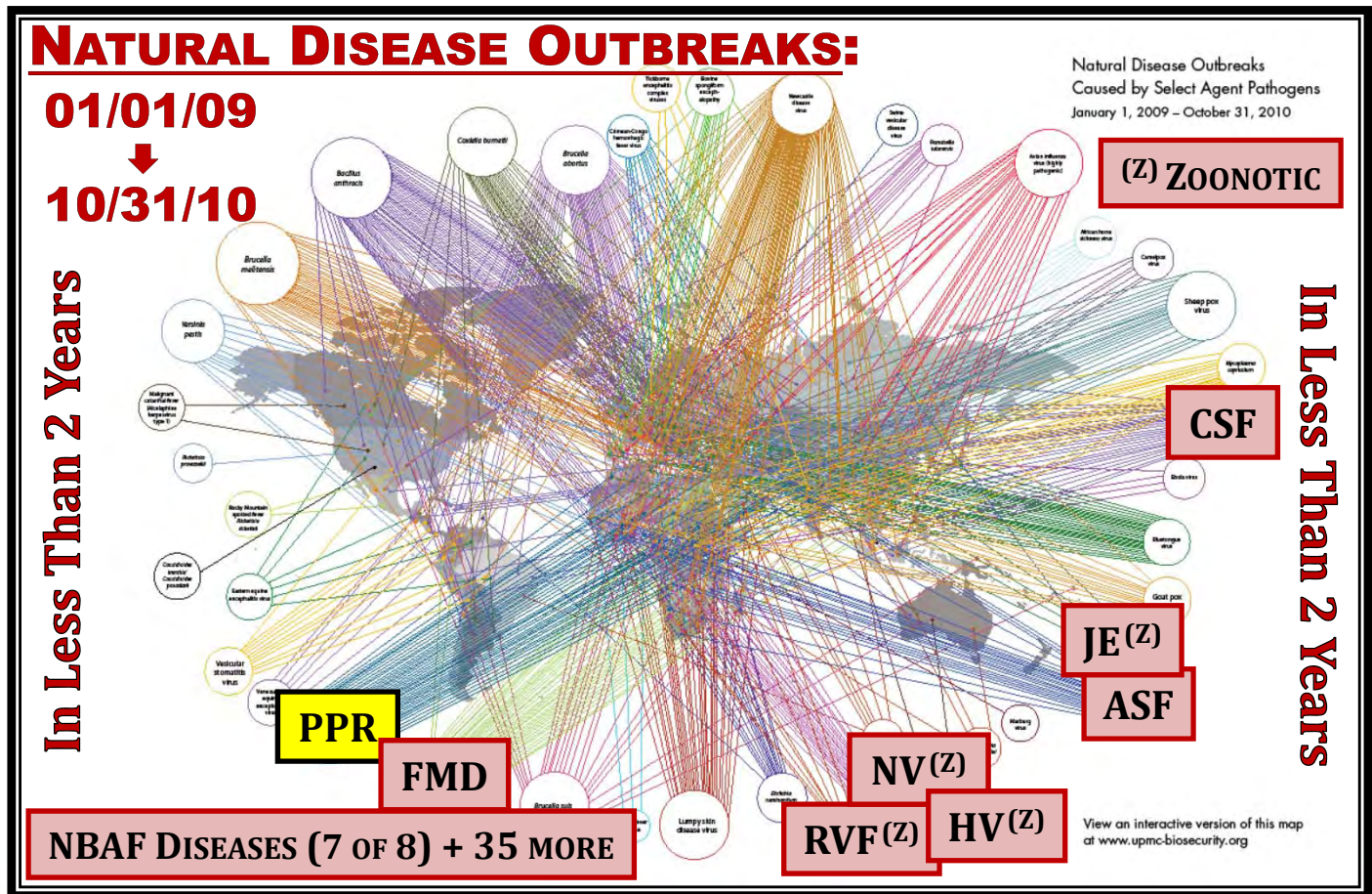


# Biothreats to U.S. Homeland Security

Pathogens  
 CDC & USDA  
 "Regulate"  
 to Limit U.S.  
 Disease  
 Outbreaks

**FROM:** K.J. Rambhia,  
 A.S. Ribner and G.K.  
 Gronvall; Biosecurity  
 and Bioterrorism:  
 Biodefense Strategy,  
 Practice and Science,  
 9(1): 69-71, 2011.

[www.upmc-biosecurity.org](http://www.upmc-biosecurity.org)





# NBAF: Why Manhattan, Kansas?



- ❑ Manhattan was selected for NBAF in 2009 after a 3-year competition that assessed scientific, environmental, threat, and security issues
- ❑ The site is on the Kansas State University campus which provides:
  - Broad-base expertise in livestock-focused animal health and food security
  - The ability to launch NBAF research in the Biosecurity Research Institute
- ❑ It's in the Animal Health Corridor, a veterinary pharmaceutical hub
- ❑ NBAF is strongly supported by public & private-sector stakeholders



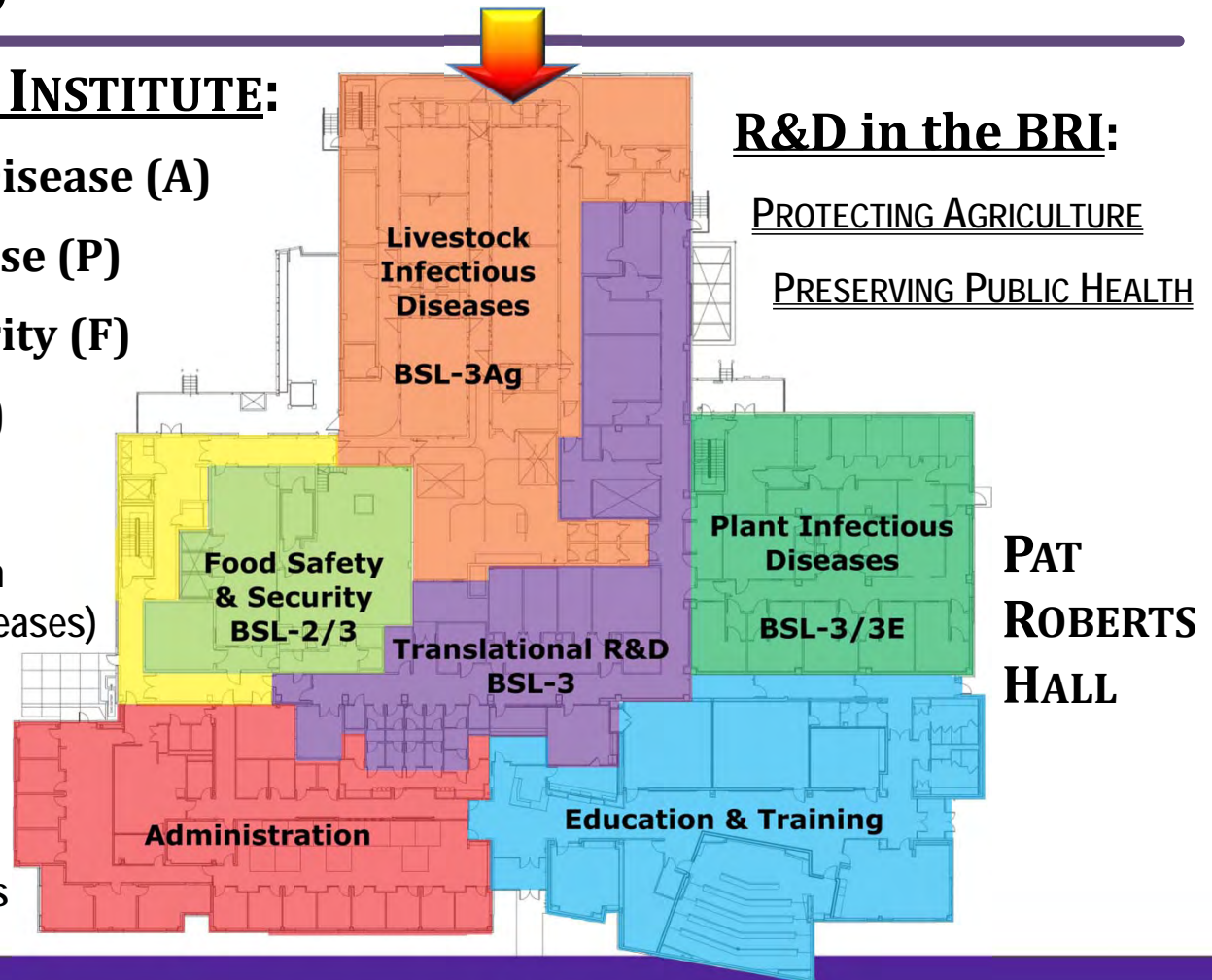
# Accelerating the NBAF R&D Mission

## BIOSECURITY RESEARCH INSTITUTE:

- Livestock Infectious Disease (A)
- Plant Infectious Disease (P)
- Food Safety and Security (F)
- Translational R&D (E)

## BRI RESEARCH PROGRAMS:

- ✓ Infectious diseases that threaten livestock & people (zoonotic diseases)
- ✓ Pathogen threats to food crops
- ✓ Food processing methods that yield safer foods
- ✓ Biology of pathogens & diseases





**(FAD)**

# NBAF Foreign Animal Disease R&D

## Protecting U.S. Food Animals

Five BSL-3Ag rooms for R&D on disease threats to livestock

### BSL-3Ag to Develop FAD Vaccines with “at Risk” Livestock

BIOSECURITY RESEARCH INSTITUTE



**FAD PENDING:**  
Rift Valley Fever  
African Swine Fever  
Classical Swine Fever



Penning for Cattle

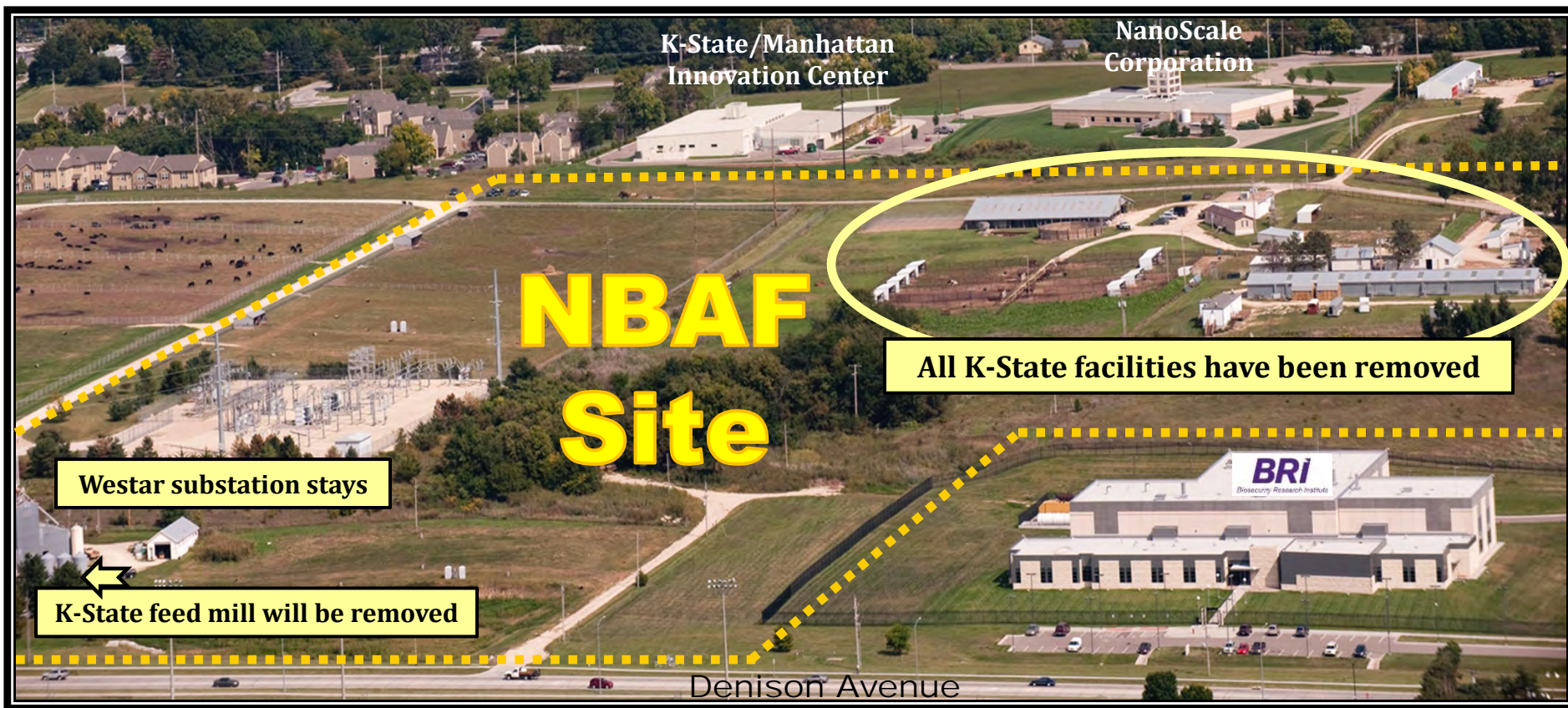


Penning for Pigs





# Flyover of the NBAF Site in 2009



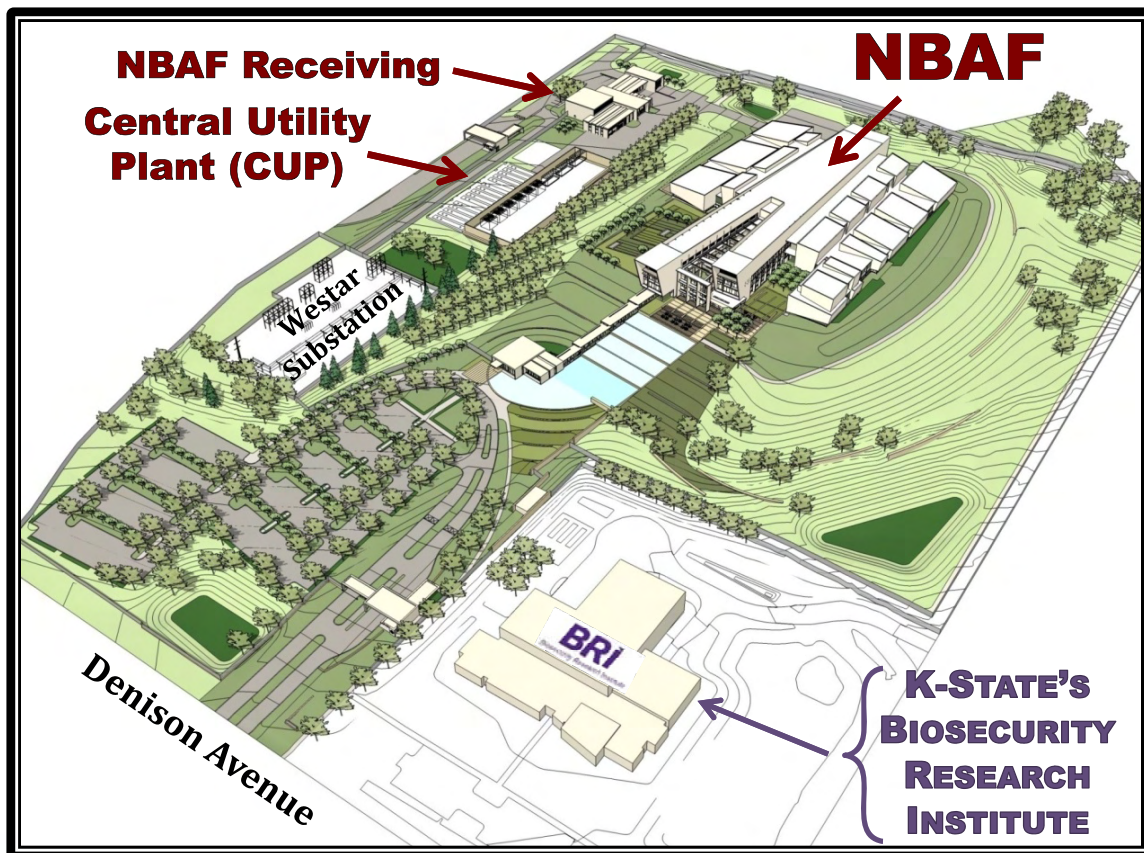




# The Projected NBAF Aerial View

## To Safeguard Food & Health

### Defending America Against Foreign Animal Diseases



# Recent NBAF Site Panorama



- All city and university utilities crossing the site were rerouted off site
- K-State animal facilities are off the site; new feed mill is being built
- General contractor has been working on site since November 2010





# NBAF Site Photos: October, 2011

## Denison Entry Near the BRI

“Future Home”  
Sign & Front Gate





# NBAF Site Photos: May, 2012

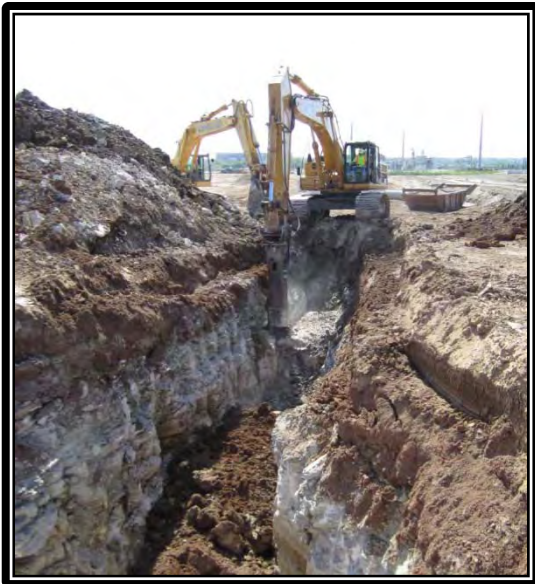
## Sanitary Sewer Installation





# NBAF Site Photos: June, 2012

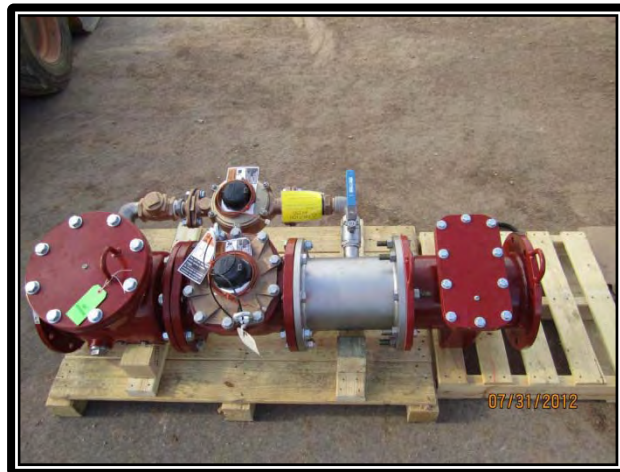
## Storm Sewer Installation





# NBAF Site Photos: July, 2012

## Water Line Installation



**Backflow Preventer**







# NBAF Site Photos: September, 2012

## Denison Avenue Frontage

K-State  
Feed Mill

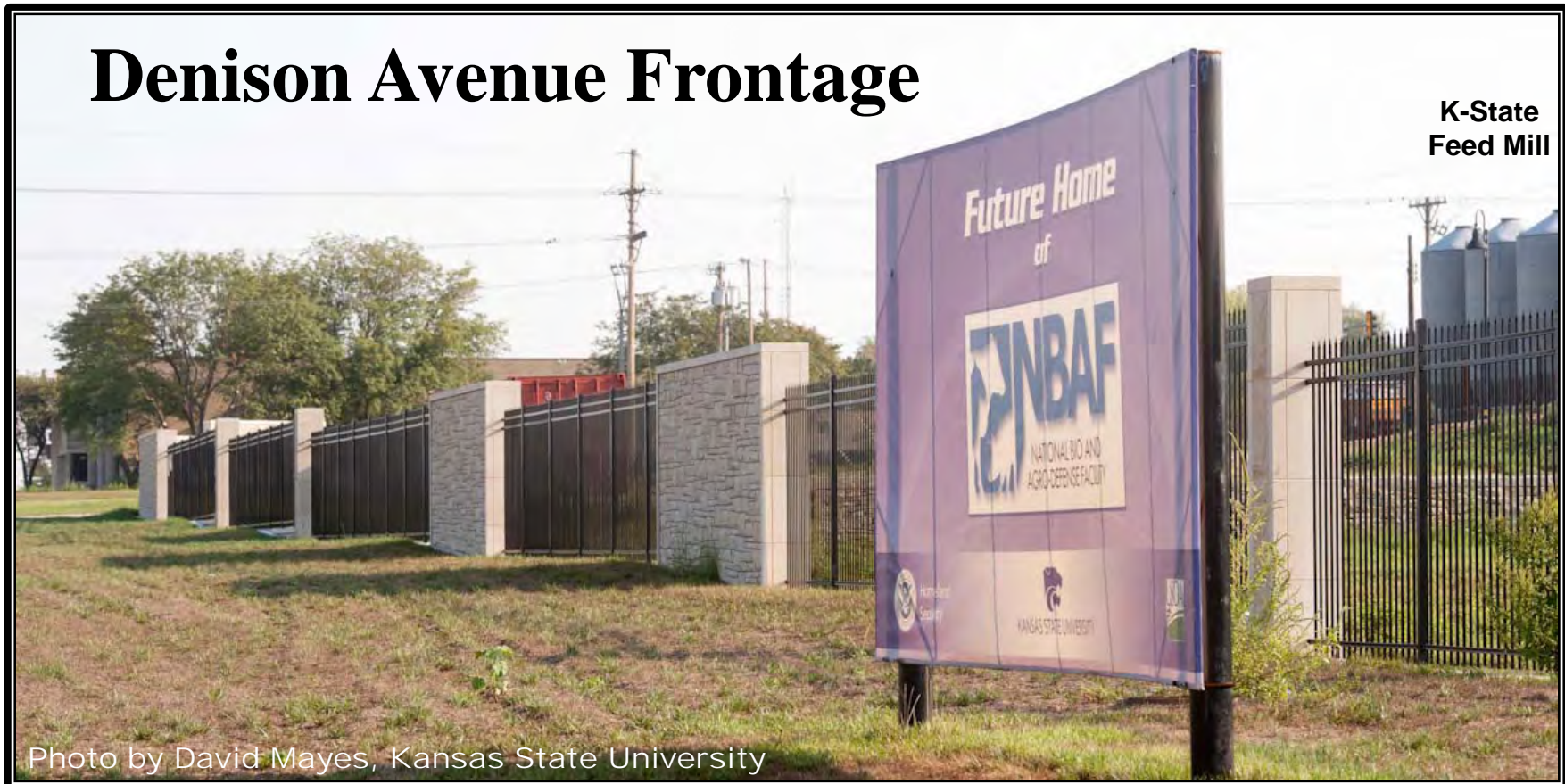
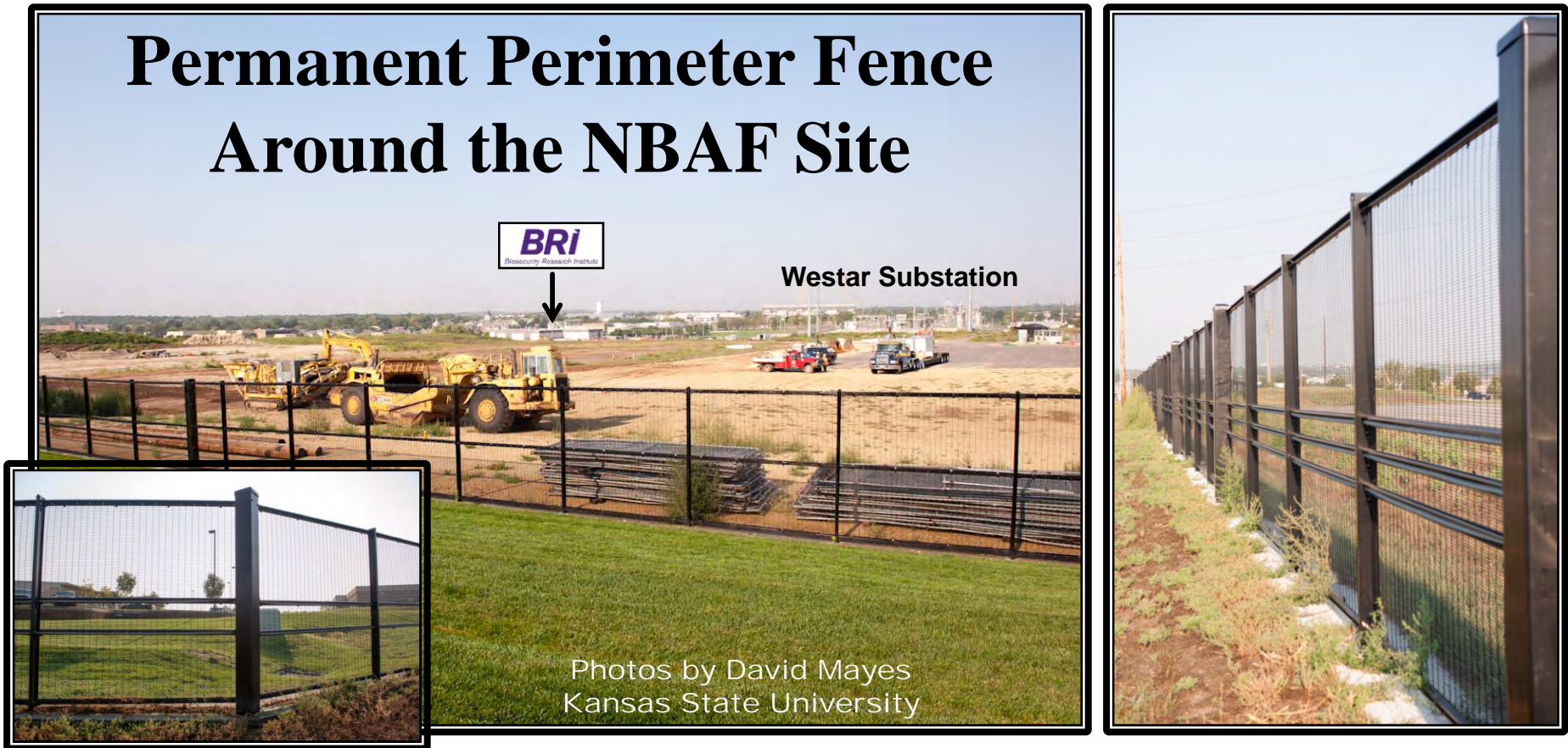


Photo by David Mayes, Kansas State University

# NBAF Site Photos: September, 2012

## Permanent Perimeter Fence Around the NBAF Site





# NBAF Site Photos: September, 2012

## Future Location of the NBAF Laboratory





# Flyover of the NBAF Site in 2012

August 1, 2011



Looking East





# Problem: Obama's FY13 Budget = \$0

## NBAF Timeline Unclear, But...

### Projected Schedule to Full Operations



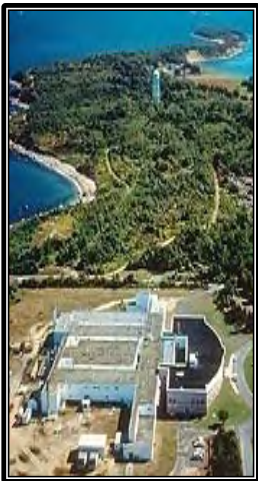
- Updated SSRA Completed: 02/2012
- Final NRC Report Completed: 07/2012
- Start Central Utility Plant: 02/2013?  
(\$40M in FY11 + \$40M from Kansas)  
(Was 02/2012)
- Start Main Lab Construction: 05/2013?  
(\$50M in FY12)  
(FY13 Obama = \$0; House = \$75M; Senate = ?)  
(Was 08/2012)
- Commissioning Complete: 2018/19?
- Initiate Plum Island Transition: 2019/20?
- NBAF to be Fully Operational: 2020/21?



# Plum Island Animal Disease Center



PIADC



NOT AN OPTION FOR THE FUTURE

**NBAF Reassessment Hearing; April 13, 2012:**

- DHS S&T Under Secretary Tara O'Toole Stated: **"WE WILL NEVER BE ABLE TO BRING PLUM ISLAND UP-TO-CODE AS A BSL-3 FACILITY" ... IT WAS "GRANDFATHERED IN."**<sup>(1)</sup>
- NOT **"Up-to-Code"** as a BSL-3 Laboratory Means It's:
  - ✓ **TOO PERILOUS** TO PERFORM RESEARCH OR TRAINING ON ZONOTIC ANIMAL DISEASES (60-75% CAN INFECT PEOPLE);
  - ✓ **TOO HAZARDOUS** TO CONDUCT R&D ON DISEASE TRANSMISSION BY MOSQUITO OR TICK VECTORS; AND EVEN
  - ✓ **TOO RISKY** TO ACCEPT LAB SAMPLES FROM COUNTRIES WITH OUTBREAKS OF ZONOTIC DISEASES NOT IN THE U.S.





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OF THE NATIONAL ACADEMIES

# NRC Reassessment of Threats/Need

Press Conference: 1:00 p.m. EDT, July 13, 2012

## Meeting Critical Laboratory Needs for Animal Agriculture: Examination of Three Options

Committee on an Analysis of the Requirements and Alternatives for Foreign Animal and  
Zoonotic Disease Research and Diagnostic Laboratory Capabilities

Board on Agriculture and Natural Resources

Board on Life Sciences

Division on Earth and Life Studies

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THE NATIONAL ACADEMIES PRESS  
Washington, D.C.  
[www.nap.edu](http://www.nap.edu)

PREPUBLICATION COPY – UNCORRECTED PROOFS

July 13, 2012: Confirmed the Threats  
are Imminent and Concluded:

- ❑ **“IT IS IMPERATIVE TO ESTABLISH RESEARCH, DIAGNOSTIC, AND SURVEILLANCE LABORATORY CAPABILITIES COMMENSURATE WITH THE SIZE AND VALUE OF U.S. ANIMAL AGRICULTURE ...;”**
- ❑ **“AS CURRENTLY PROPOSED, (NBAF) INCLUDES ALL COMPONENTS OF THE IDEAL LABORATORY INFRASTRUCTURE IN A SINGLE LOCATION AND HAS BEEN DESIGNED TO MEET THE CURRENT AND FUTURE NEEDS OF DHS AND USDA ...;”**

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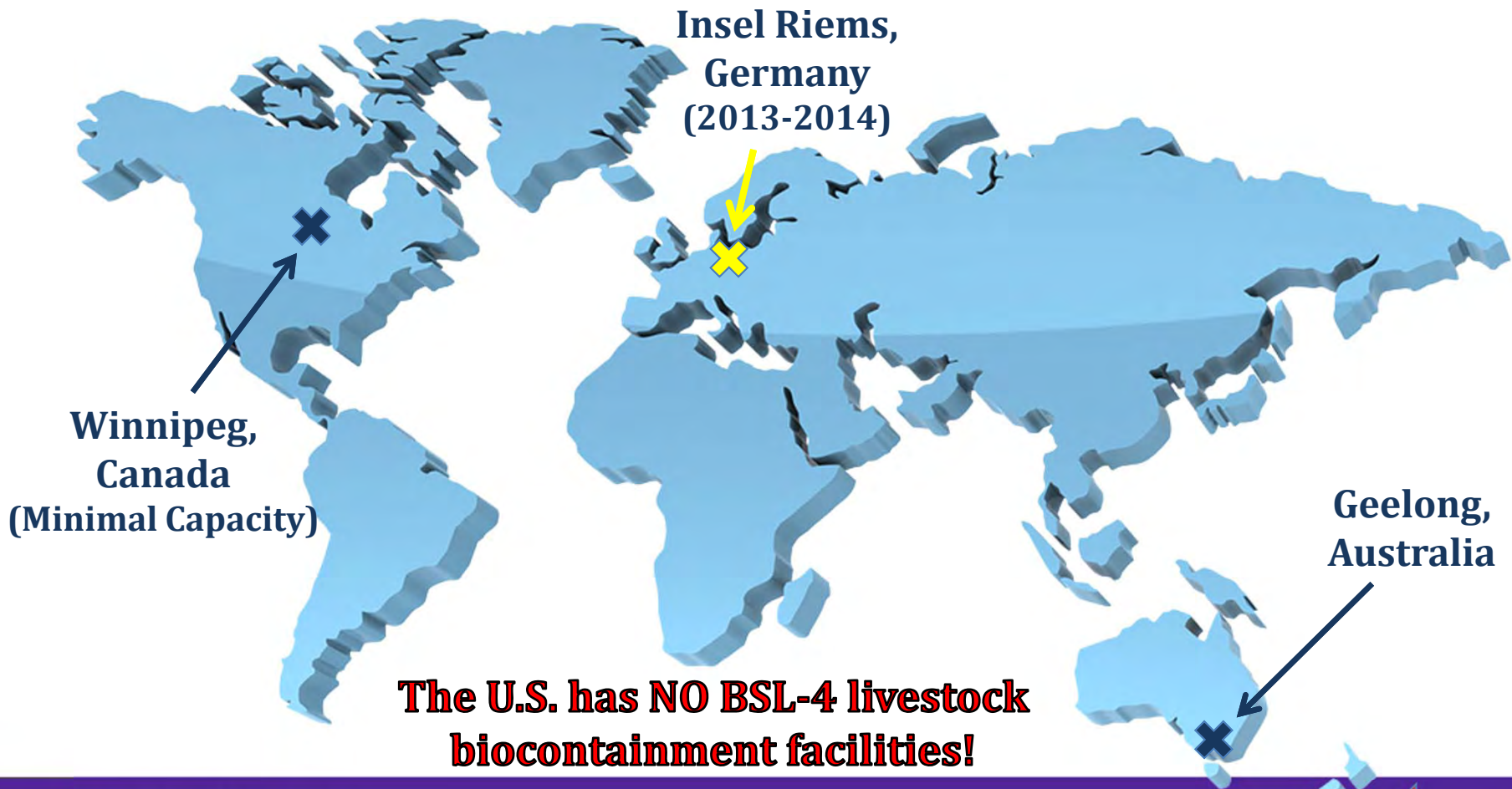
FURTHERMORE, PIADC IS NOT SUSTAINABLE; INFRASTRUCTURE IS FAILING & FACILITIES “DO NOT MEET CURRENT STANDARDS.”





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# BSL-4 Livestock R&D Capabilities



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ADDED NRC CONCLUSION: IT IS "IMPERATIVE TO BUILD  
BSL-4 LARGE-ANIMAL SPACE IN THE UNITED STATES."







# DHS Secretary's Path Forward #1

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**Janet Napolitano**

**U.S. Secretary of Homeland Security**

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**09/19/2012 SENATE HEARING: When questioned by Kansas Senator Jerry Moran, DHS Secretary Napolitano confirmed that Plum Island is too outdated to protect America's livestock industry and, thus, the NBAF project must move forward. As a result, DHS should be enabling construction of NBAF's central utility plant soon; the required \$80 million has already been appropriated.**



# DHS Secretary's Path Forward #2



**Janet Napolitano**

**U.S. Secretary of Homeland Security**

A 5-member “SWAT Team” was assembled by Secretary Napolitano to advance NBAF<sup>(1)</sup> with a:

- 1) DHS Secretary's Representative
- 2) Kansas Governor's Representative
- 3) Kansas U.S. Senate Members' Representative
- 4) Kansas U.S. House Members' Representative
- 5) Kansas State University Representative







# NBAF Building Design Parameters

NBAF's  
Standards  
to Exceed:

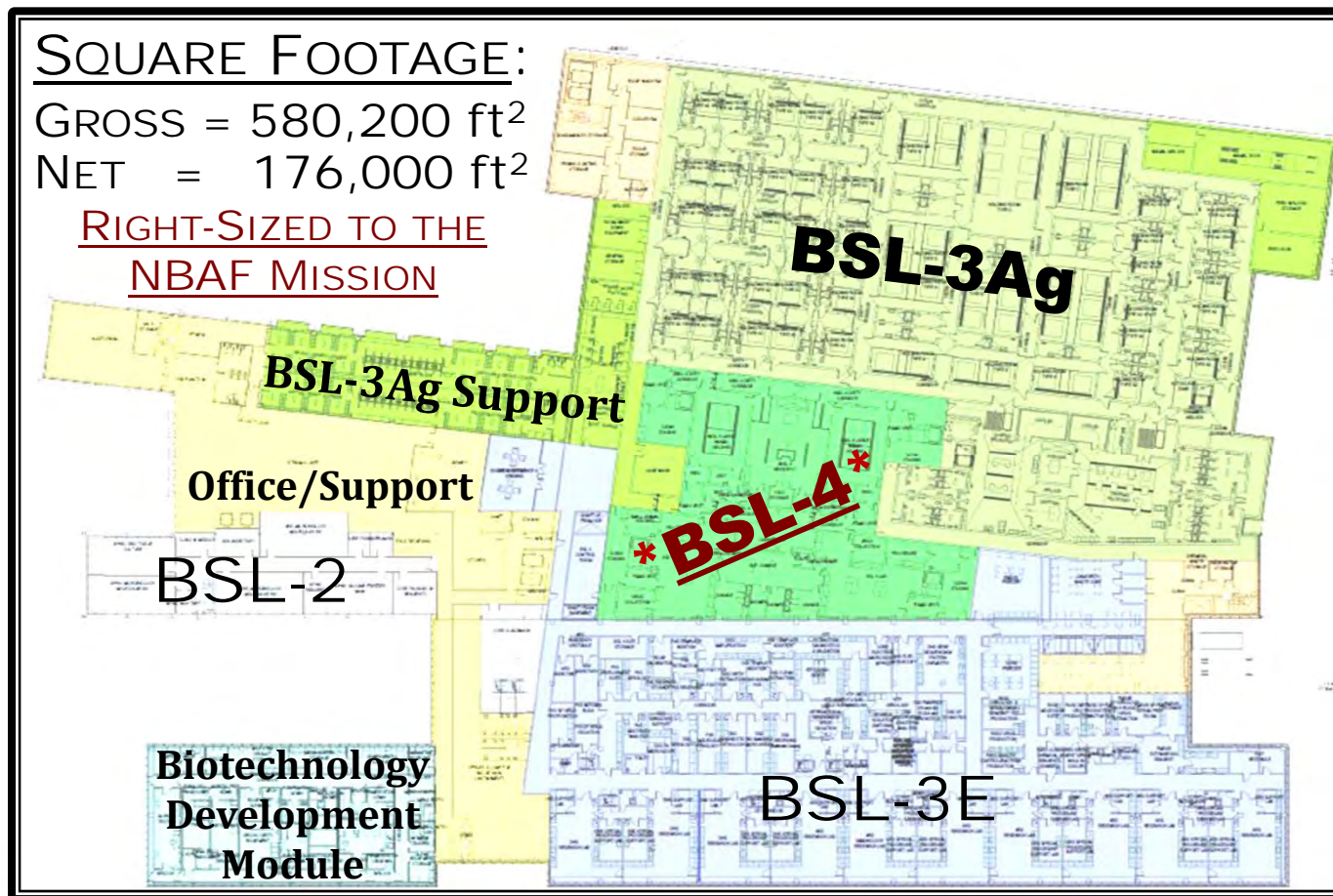
- 1) FEMA's for **Tornado Shelters**
- 2) NRC's for **Nuclear Power Plants**

SQUARE FOOTAGE:

GROSS = 580,200 ft<sup>2</sup>

NET = 176,000 ft<sup>2</sup>

RIGHT-SIZED TO THE  
NBAF MISSION





# Essential to U.S. Homeland Security



Defending America Against  
Foreign Animal Diseases  
[BUT... Not Until It's Built!]



Right-Sized to the NBAF Mission

**KANSAS STATE**  
UNIVERSITY

TO SAFEGUARD AMERICA'S FOOD SUPPLY  
AND PUBLIC HEALTH AS WELL!