



NBAF Economic Growth Opportunities

Kansas House Commerce, Labor, and
Economic Development Committee

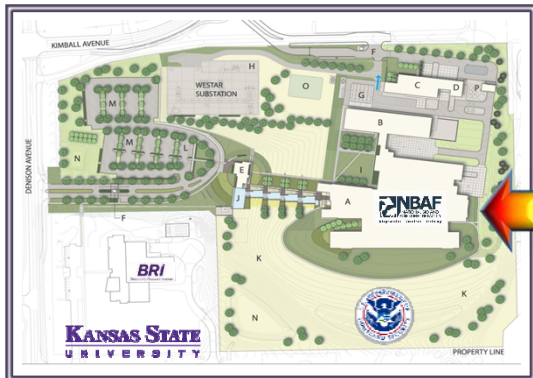
Ron Trewyn
Kansas State University
NBAF Liaison



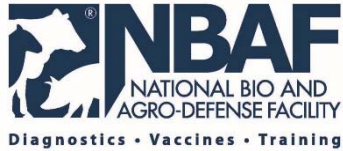
NATIONAL BIO AND AGRO-DEFENSE FACILITY

\$1.25 Billion
DHS Lab

NBAF
in Kansas
Hits the Mission Bull's-eye!



KANSAS STATE
UNIVERSITY



NATIONAL BIO AND AGRO-DEFENSE FACILITY

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



☐ **TO SAFEGUARD FOOD ANIMAL HEALTH AND PUBLIC HEALTH**

☐ **TO PRESERVE AMERICA'S FOOD SUPPLY AND AG ECONOMY**

FOREIGN ANIMAL DISEASES/PATHOGENS PROPOSED FOR NBAF:

 **LIVESTOCK-ONLY THREATS: African Swine Fever; Classical Swine Fever; Bovine Pleuropneumonia; and Foot and Mouth Disease**

 **ZOONOTIC THREATS: Rift Valley Fever; Japanese Encephalitis; Nipah Virus; and Hendra Virus**

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Select Agents
CDC & USDA
“Regulate”
to Limit U.S.
Disease
Outbreaks

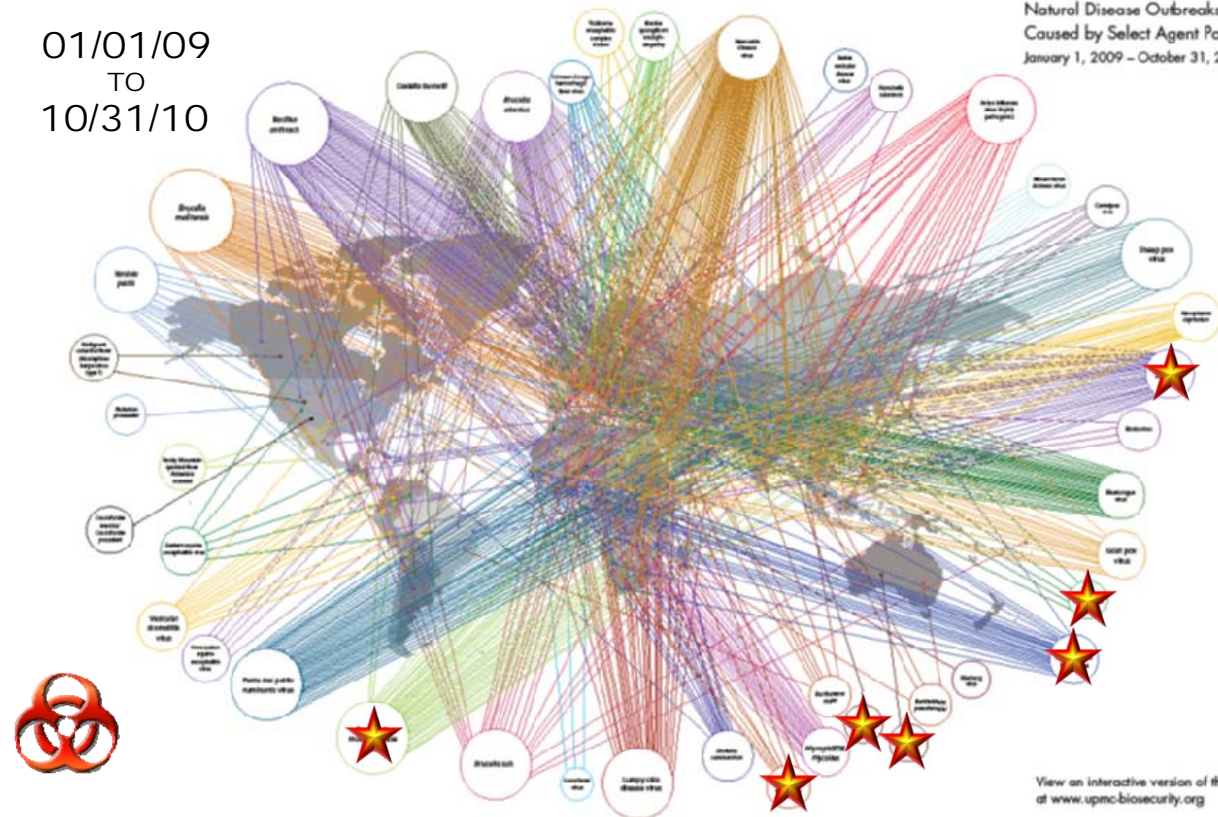
FROM: K.J. Rambhia,
A.S. Ribner and G.K.
Gronvall; Biosecurity
and Bioterrorism:
Biodefense Strategy,
Practice and Science,
9(1): 69-71, 2011.

<http://www.upmc-biosecurity.org>

NATURAL DISEASE OUTBREAKS IN < 2 YEARS

01/01/09
TO
10/31/10

Natural Disease Outbreaks
Caused by Select Agent Pathogens
January 1, 2009 – October 31, 2010



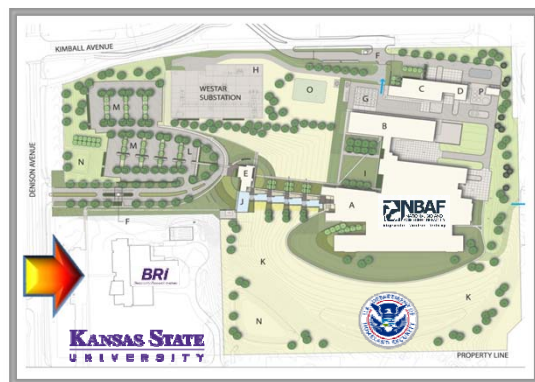
View an interactive version of this map at www.upmc-biosecurity.org



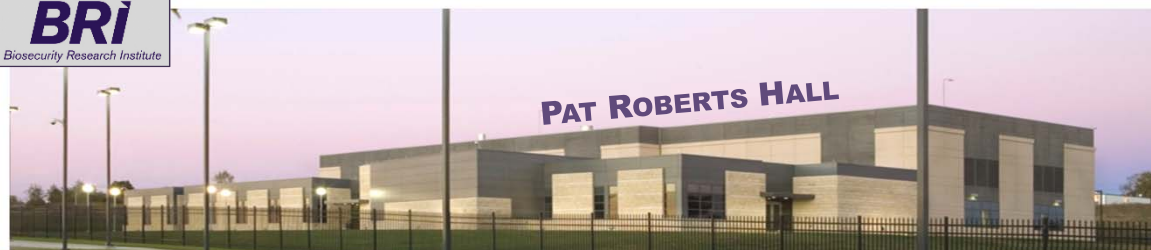
JUMP-STARTING THE MISSION: **KANSAS STATE UNIVERSITY**

Accelerating NBAF R&D

NBAF
in Kansas
Hits the Mission Bull's-eye!



BRI
Biosecurity Research Institute



TRAINING LAB



INSECTORY



Plus



BSL-3E CROP PATHOGEN R&D



NBAF Diseases



CATTLE PENS



PIG PENS

BSL-3Ag LIVESTOCK DISEASE R&D



Plus

BSL-3/3E FOOD SAFETY R&D



NECROPSY

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2014: Rift Valley Fever; Japanese Encephalitis
2015: Classical Swine Fever; African Swine Fever

CONSTRUCTION TIMELINE *FINALLY* ON TRACK

NBAF Construction Progress to Date + **Future DHS Goals***

Projected Schedule
to Full Operations



KSU Animal Facilities Removed: 10/2010
Construction Manager on Site: 11/2010
\$18M Site Prep Essentially Done: 08/2012
Land Conveyed: Kansas ➡ DHS: 12/2012
KSU Feed Mill on Site Removed: 08/2013
\$834M Lab Construction Signed: 05/2015
\$80M Central Utility Plant Done: 10/2015
Complete Lab Construction: *12/2020
Select Agent Accreditation: *12/2022
Transition from Plum Island: *08/2023



MAIN LABORATORY EXCAVATION ONGOING



CENTRAL UTILITY PLANT WORK COMPLETED



Six 1st Floor EMERGENCY GENERATORS



Seven 2nd Floor BOILERS
SUPERIOR BOILER WORKS, HUTCHINSON, KS

October 8, 2015 
CUP Construction
"Substantial Completion"

COOLING TOWERS
MARLEY COOLING TOWER CO.
OLATHE, KS

Laboratory Excavation Continuing



LAB EXCAVATION SUBSTANTIALLY COMPLETE



December 4, 2015
All 4 Construction Tower Cranes in Place

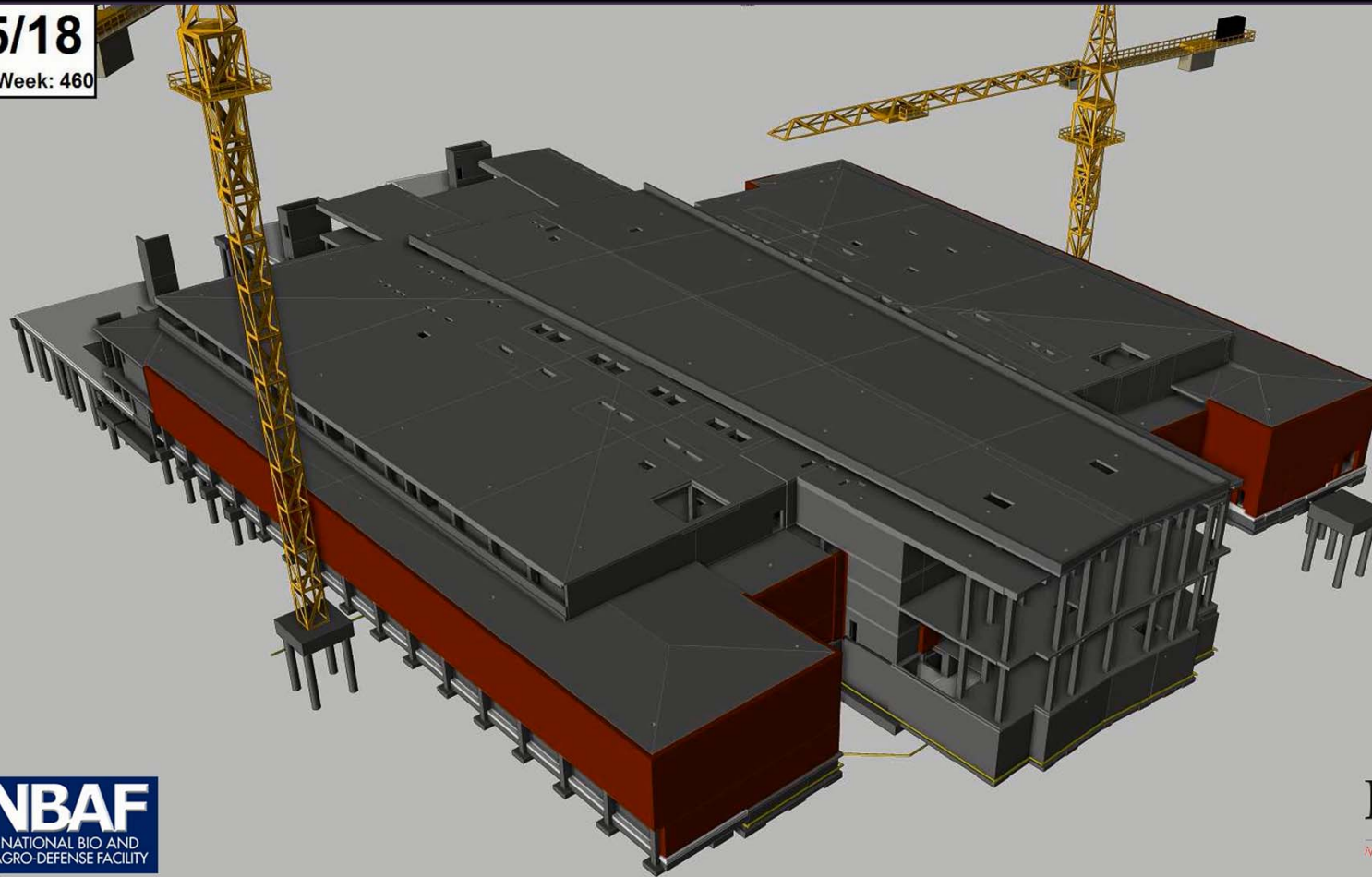


FOOTING & FOUNDATION WORK: 01/28/2016



3/25/18

Week: 460



McMjv
McCarthy Mortenson
National Bio and Agro-Defense Facility

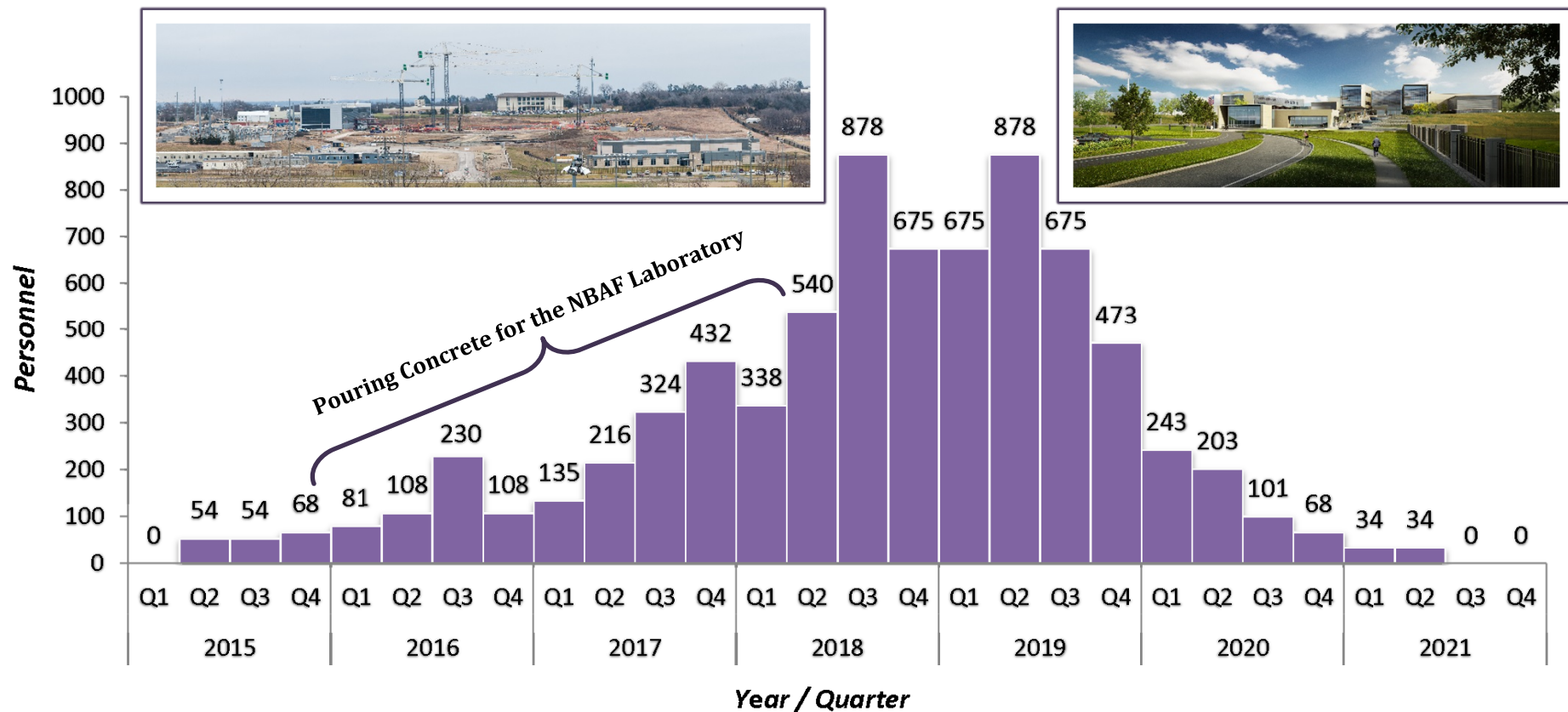
May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 2016	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 2017	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 2018	Feb	Mar	Apr	May	Jun
wk 310	wk 314	wk 319	wk 323	wk 328	wk 332	wk 336	wk 341	wk 345	wk 349	wk 354	wk 358	wk 362	wk 367	wk 371	wk 375	wk 380	wk 384	wk 389	wk 393	wk 397	wk 402	wk 406	wk 410	wk 414	wk 419	wk 423	wk 428	wk 432	wk 436	wk 441	wk 445	wk 449	wk 454	wk 458	wk 462	wk 467	wk 471

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5 MINUTE NBAF STEEL & CONCRETE VIDEO

CONSTRUCTION PROJECTIONS: 2015-2021

Average Daily On-Site Construction Personnel



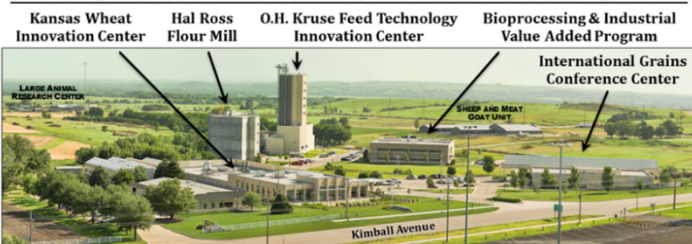
- ❑ **NBAF CONCRETE:** *60,000 cubic yards*; enough to lay a sidewalk from Manhattan to Oklahoma City ... 300 miles
- ❑ **NBAF STEEL:** *13,000 tons*; the weight of about 6,500 cars or 104 million quarter-pound burgers
- ❑ **NBAF ELECTRICAL WIRE:** *4,500,000 linear feet*; enough to run wire from Manhattan to New Orleans ... 800 miles
- ❑ **NBAF ON-SITE LABOR:** *4,000,000 hours*; equals 385 people working 5 years or 1 person working 1,925 years



KANSAS STATE UNIVERSITY | GOVERNMENT ↔ INDUSTRY ↔ UNIVERSITY

TECHNOLOGY ACCELERATION PARTNERSHIP SITES

KANSAS STATE UNIVERSITY GRAIN SCIENCE AND INDUSTRY COMPLEX



LARGE ANIMAL RESEARCH CENTER

KANSAS STATE UNIVERSITY
Office Park
Kimball Avenue



KANSAS STATE UNIVERSITY
Research Park
Manhattan Avenue

MANHATTAN AVE.

KIMBALL AVE.

DENISON AVE.

COLLEGE AVE.



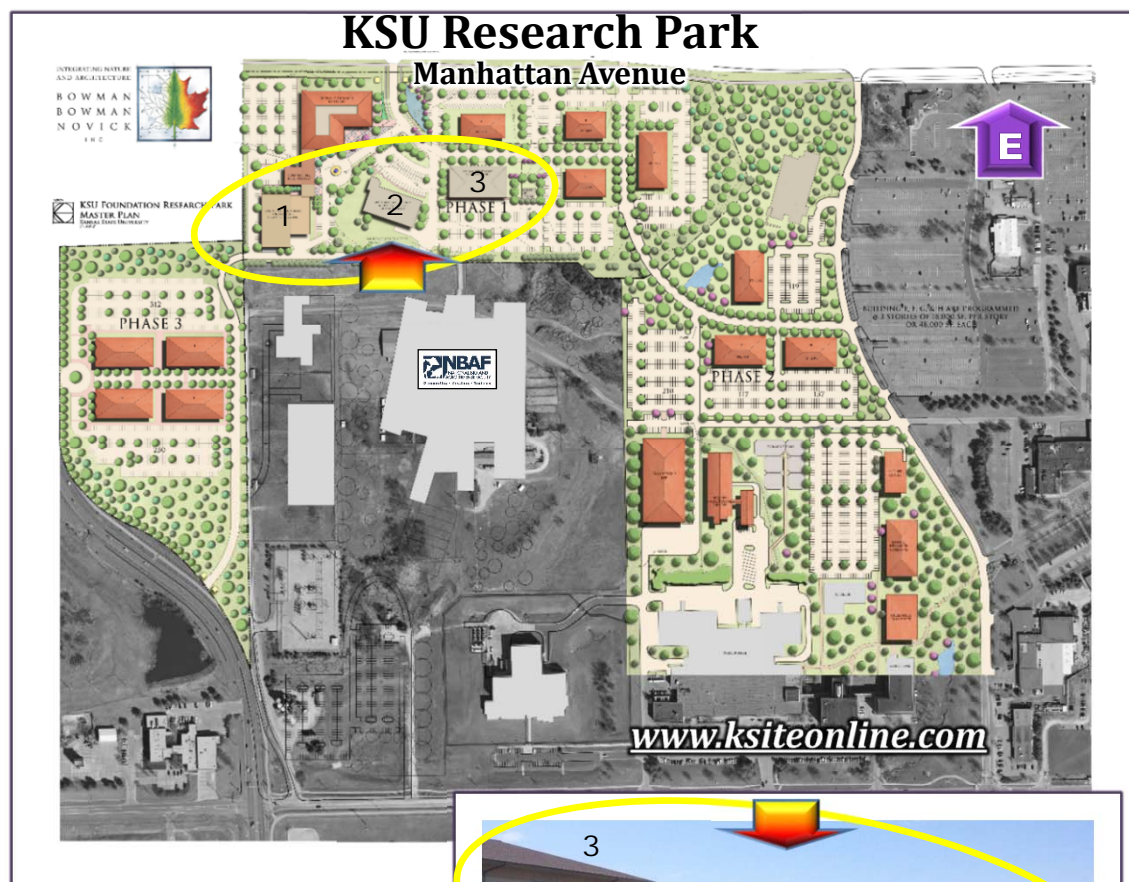
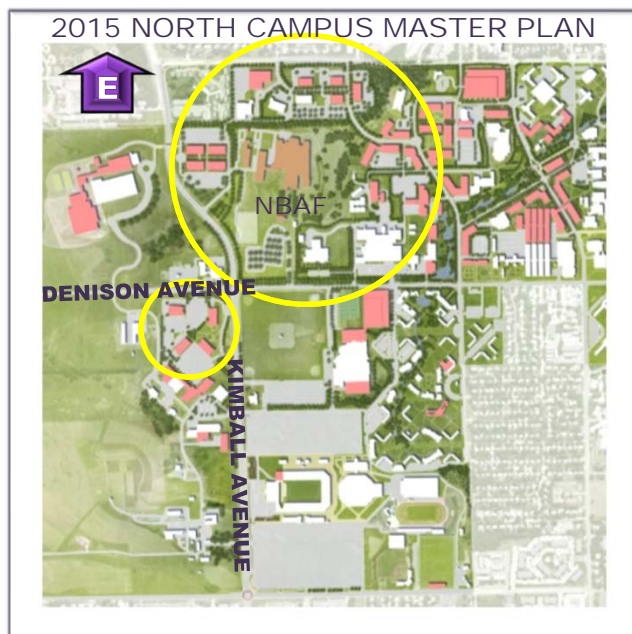
www.ksiteonline.com



SIX MILES

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Laboratory and Office Locations Surrounding NBAF



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TECHNOLOGY ACCELERATION PARTNERSHIP SITES



Building #1: 12,211 ft² Leasable Space



Office Park Building #2

- ☐ **January 2016: Space 20% Leased**
- ☐ **July 2016: If $\geq 50\%$, Construction to Start**

Office Park Building #1:

- ☐ **115 FTE: Kansas State University + 2 Students**
- ☐ **17 FTE: Private-Sector Companies + 29 Student Interns**
 - ✓ **Garmin**
 - ✓ **GE Johnson**
 - ✓ **US Engineering**
 - ✓ **Veterinary and Biomedical Research Center**



BASIC

*Public-sector/
private-sector
concentration of
bio/agro security
science and
innovation assets*

2015 NORTH CAMPUS MASTER PLAN



International Grain Science and Industry Complex



National Bio and Agro-defense Facility



Biosecurity Research Institute



Partnership Park

USDA Center for Grain and Animal Health Research



Kansas Department of Agriculture
and Partnership Park



Veterinary Medicine Complex

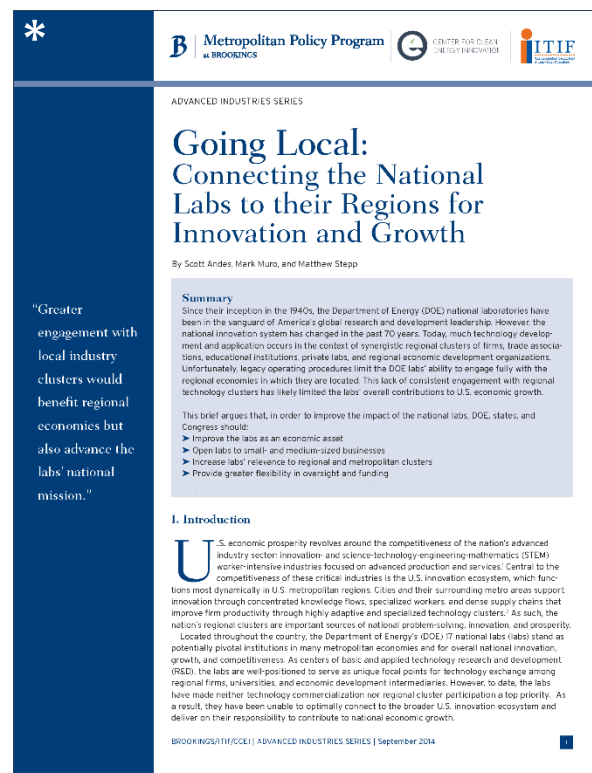


Plant Sciences

"Going Local: Connecting the National Labs to their Regions for Innovation and Growth"

KEY RECOMMENDATIONS FOR SUCCESS:

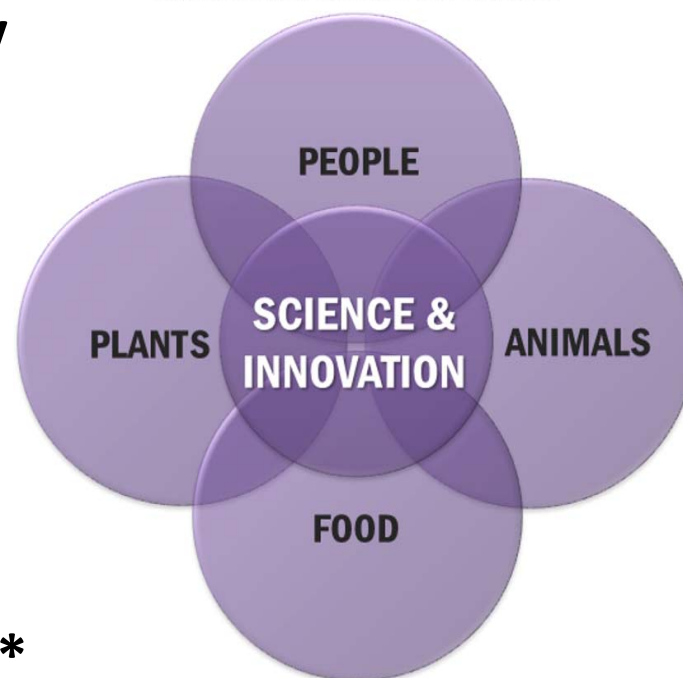
- ☐ Build "microlabs" near the federal facility to engage the private-sector;
- ☐ Create an innovation voucher program to enhance lab usage by early stage companies and universities; and
- ☐ Include the national labs in regional economic development strategies.



BASIC: The Epicenter for Research Leadership in Bio-Agro Security, with Goals of:

- ☐ Fashioning a model federal laboratory innovation ecosystem around NBAF;
- ☐ Becoming the preferred partner for the world's leading food companies;
- ☐ Positioning Kansas as the U.S. capital of bio-agro security; and
- ☐ Operating the BRI as a “microlab” as the Brookings Institution’s Sept. 2014 report – “Going Local” – recommends*

**BIO-AGRO
INNOVATION NEXUS**



U.S. Department of Homeland Security's National Bio and Agro-defense Facility



**Biosecurity Research Institute
(NBAF "microlab" Today)**



"Unfilled Vials"

By Jon Cohen
January 1, 2016

Vaccines against major diseases are critically needed, but not being produced

Proposed NBAF diseases:

- Rift Valley fever
- Classical swine fever
- African swine fever
- Japanese encephalitis
- Foot and mouth disease
- Contagious bovine pleuropneumonia
- Nipah virus
- Hendra virus

Current diseases being studied at the BRI:

- Rift Valley fever
- Classical swine fever
- African swine fever
- Japanese encephalitis
- Chikungunya
- Wheat blast
- Yellow fever
- Avian influenza
- Schmallenberg virus
- Chinese porcine reproductive respiratory syndrome virus

Science magazine top 10:

- Rift Valley fever
- Ebola Sudan
- MERS
- Lassa fever
- Chikungunya
- Marburg
- Paratyphoid fever
- Schistosomiasis
- SARS
- Hookworm

Projected Local Impact	Jobs	Payroll & Operating Budget
Current Opportunities (3 years)	550 jobs	\$33 Million
NBAF (8 years)	400 jobs	\$100 Million
NBAF Life Sciences Estimate* (20 years)	1,200 jobs	\$81 Million
Non-NBAF (20 years)	2,850 jobs	\$236 Million
2035 GOAL	5,000 jobs	\$450 Million

KSU OFFICE PARK FULLY BUILT OUT



KSU RESEARCH PARK FULLY BUILT OUT

