



Massachusetts School Building Authority (MSBA)  
**Story of a Building**  
 Norfolk County Agricultural High School  
 May 1, 2018




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MEET THE PANEL 

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**TUROWSKI2 ARCHITECTURE, INC.**  
 Peter J. Turowski – Principal-in-Charge

**Role and Responsibility include:**

- Lead Project Designer
- Feasibility Study through Construction Administration

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**COMPASS PROJECT MANAGEMENT**  
 Tim Bonfatti – President

**Role and Responsibility include:**

- Owner's Project Manager

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**NORFOLK COUNTY AGRICULTURAL HIGH SCHOOL**  
 Rick Fitzpatrick – Business Manager  
 Tammy Quinn – Superintendent

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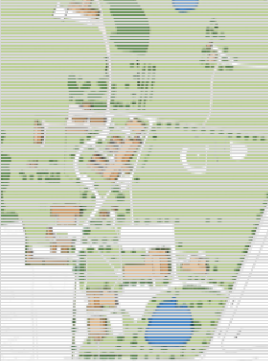
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SCHOOL HISTORY | CAMPUS OVERVIEW 

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- NORFOLK COUNTY AGRICULTURAL HIGH SCHOOL, FOUNDED IN 1915, PROVIDES AN ALTERNATIVE TO TRADITIONAL EDUCATION OFFERING PROGRAMS RELATED TO AGRICULTURE, HORTICULTURE, ANIMAL SCIENCE AND ENVIRONMENTAL
- ORIGINAL BUILDINGS WERE CONSTRUCTED BETWEEN 1917 AND 1922 WITH MODIFICATIONS IN THE 30'S AND 40'S
- SEVERAL MAJOR NEW BUILDINGS WERE CONSTRUCTED IN THE 1950'S AND 1980'S. ALSO IN THE 1980'S MANY OF THE ORIGINAL BUILDINGS WERE RENOVATED
- THE CAMPUS SITS ON 365 ACRES IN WALPOLE, MA
- 20 INDIVIDUAL STRUCTURES ON CAMPUS
- SERVES 540 STUDENTS FROM 26 TOWNS AND 3 CITIES OF NORFOLK COUNTY AND MORE THAN 40 OUT OF COUNTY TOWNS.



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SCHOOL HISTORY | HISTORIC PHOTOS 



1917-1920'S NEW ADMINISTRATION, CLASSROOM AND FARM BUILDINGS 1952 CONTINUED DEVELOPMENT OF WORKING FARM AND OUTBUILDINGS

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SCHOOL HISTORY | HISTORIC PHOTOS 



1970'S ADDITIONAL CLASSROOM SPACE AND CAFETERIA BUILDING

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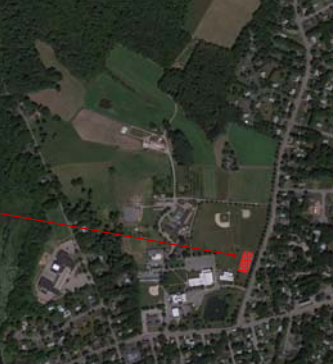
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SCHOOL HISTORY | CAMPUS OVERVIEW 

**WHAT CAUSED THE DISTRICT TO EVALUATE A MASTER PLAN?**

- NEED TO ADDRESS ISSUES DURING SCHOOL FUNDING MORATORIUM
- DECISIONS MADE WITHOUT PLANNING DOCUMENTS
  - HORSE RING



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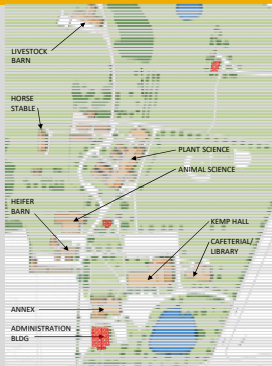
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SCHOOL HISTORY | CAMPUS OVERVIEW



- ADMINISTRATION (OFFICES & RESIDENCES)



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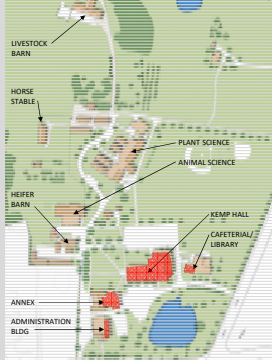
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SCHOOL HISTORY | CAMPUS OVERVIEW



- ADMINISTRATION (OFFICES & RESIDENCES)
- ACADEMIC PROGRAM



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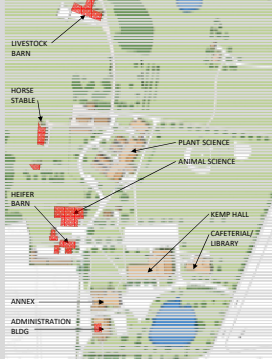
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SCHOOL HISTORY | CAMPUS OVERVIEW



- ADMINISTRATION (OFFICES & RESIDENCES)
- ACADEMIC PROGRAM
- ANIMAL SCIENCE PROGRAM



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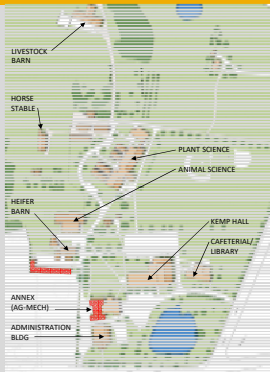
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SCHOOL HISTORY | CAMPUS OVERVIEW 

- ADMINISTRATION (OFFICES & RESIDENCES)
- ACADEMIC PROGRAM
- ANIMAL SCIENCE PROGRAM
- **AG-MECH PROGRAM**



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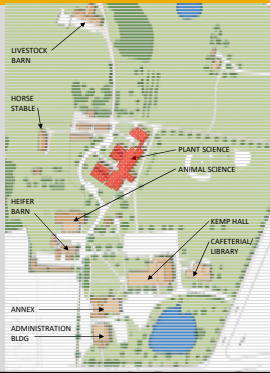
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SCHOOL HISTORY | CAMPUS OVERVIEW 

- ADMINISTRATION (OFFICES & RESIDENCES)
- ACADEMIC PROGRAM
- ANIMAL SCIENCE PROGRAM
- AG-MECH PROGRAM
- **PLANT SCIENCE PROGRAM**



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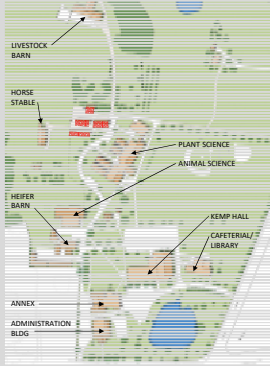
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SCHOOL HISTORY | CAMPUS OVERVIEW 

- ADMINISTRATION (OFFICES & RESIDENCES)
- ACADEMIC PROGRAM
- ANIMAL SCIENCE PROGRAM
- AG-MECH PROGRAM
- PLANT SCIENCE PROGRAM
- **FARM RELATED BUILDINGS**



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**MASTER PLAN | PROJECT GOALS**

- RESOLVE CURRENT SPACE USE AND PROGRAMMING CONFLICTS
- RESOLVE UNDESIRABLE SITE CIRCULATION PATTERNS
- IDENTIFY FUTURE SPACE REQUIREMENTS
- DEVELOP MASTER PLAN WHICH CREATES A CAMPUS THAT IS ATTRACTIVE AND FUNCTIONAL WHILE PROVIDING FOR THE CHANGING NEEDS OF THE SCHOOL
  - NEW AGRICULTURAL MECHANICAL BLDG
  - IMPROVE ANIMAL SCIENCE FACILITIES
  - RENOVATIONS TO THE EXISTING AGRICULTURAL MECH. BLDG. INTO ACADEMIC SPACES
  - MODERNIZATION AND EXPANSION TO THE CAFETERIA
  - MODERNIZATION OF THE EQUIPMENT AND ANIMAL FEED/HAY STORAGE AREAS
  - IMPROVEMENTS TO THE GYM AND KEMP HALL
  - EXPANSION AND IMPROVEMENTS TO THE LIBRARY/MEDIA CENTER
  - LIMITED RENOVATION TO THE ADMINISTRATION BLDG.

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**MASTER PLAN | DESIGN OPTIONS**  
by Dodson Associates, Ltd. and Peter Turowski

DESIGN OPTION #1 SITE PLAN      DESIGN OPTION #2 SITE PLAN

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**MASTER PLAN | FINAL PLAN 2005**  
by Dodson Associates, Ltd. and Peter Turowski

- DEMOLISH EXISTING CAFETERIA BUILDING, STABLE FACILITY AND A SERIES OF SHEDS
- IMPROVEMENTS TO THE AG-MECH DEPARTMENT
- FREE SPACE IN THE ANNEX BUILDING FOR DIFFERENT USE, NEW ADDITION FOR CAFETERIA AND STUDENT CENTER/LIBRARY
- AUXILIARY GYM ADDITION TO KEMP HALL
- IMPROVE ACADEMIC CLASSROOMS
- RENOVATE ADMINISTRATION BUILDING TO UPGRADE SYSTEMS
- IMPROVEMENTS TO THE ANIMAL SCIENCE DEPARTMENT
- NEW STABLES FACILITY FOR 20 HORSES AND RIDING RING
- NEW 6,000 SF HAY STORAGE BUILDING
- CIRCULATION WOULD REMAIN AS IS WITH MINOR MODIFICATIONS FOR NEW PARKING AREAS

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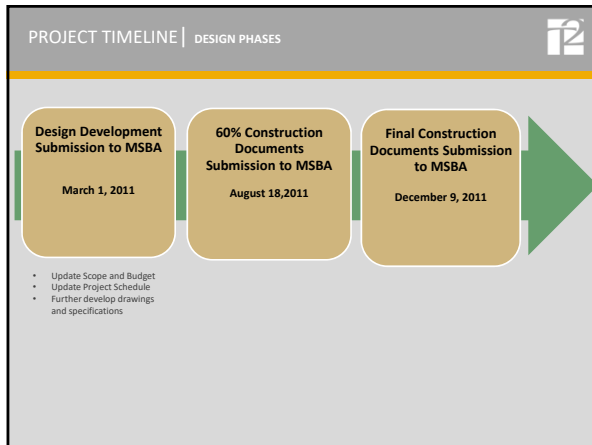
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**AFFORDABLE COST MODEL**

• MAXIMUM ACCEPTABLE DEBT LOAD PER YEAR	\$500,000
• AMOUNT OF DEBT @ MKT INTEREST RATE	\$13 TO 15 MILLION
• SOFT COSTS AS % OF TOTAL PROJECT COST	25% TO 27%
• EFFECTIVE REIMBURSEMENT RATE	45% TO 55%
• <b>TOTAL PROJECT BUDGET</b>	<b>\$27 TO 29 MILLION</b>
• <b>TOTAL CONSTRUCTION BUDGET</b>	<b>\$21 TO 23 MILLION</b>

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**FEASIBILITY | EXISTING ANALYSIS**

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**PRELIMINARY ALTERNATIVES | OPTION A**

**Summary**

ANIMAL SCIENCE	\$12,463,527
AG/MECH	8,057,165
ANNEX	8,402,007
SITE DEVELOPMENT	2,134,820
EQUINE LAB	1,033,850
KEMP HALL	363,925
CAFE/LIBRARY	5,137,429
DAIRY BARN	0
HEIFER BARN	0
<b>TOTAL</b>	<b>\$37,592,723</b>

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**PRELIMINARY ALTERNATIVES | OPTION B**

**Summary**

ANIMAL SCIENCE	\$13,204,514
AG/MECH	8,057,165
ANNEX	6,554,604
SITE DEVELOPMENT	2,134,820
EQUINE LAB	1,033,850
KEMP HALL	363,925
CAFE/LIBRARY	5,262,429
DAIRY BARN	0
HEIFER BARN	0
<b>TOTAL</b>	<b>\$36,601,307</b>

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**PRELIMINARY ALTERNATIVES | OPTION B-1**

**Summary**

ANIMAL SCIENCE	\$13,204,514
AG/MECH	8,057,165
ANNEX	6,554,604
SITE DEVELOPMENT	2,134,820
EQUINE LAB	1,033,850
KEMP HALL	363,925
CAFE/LIBRARY	5,137,429
DAIRY BARN	172,500
HEIFER BARN	172,500
<b>TOTAL</b>	<b>\$36,821,307</b>

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**PRELIMINARY ALTERNATIVES | OPTION C-1**

**Summary**

ANIMAL SCIENCE	\$13,204,514
AG/MECH	8,057,165
ANNEX	9,015,313
SITE DEVELOPMENT	2,134,820
EQUINE LAB	1,033,850
KEMP HALL	363,925
CAFE/LIBRARY	0
DAIRY BARN	172,500
HEIFER BARN	172,500
<b>TOTAL</b>	<b>\$34,154,586</b>

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**PRELIMINARY ALTERNATIVES | OPTION D**

**Summary**

ANIMAL SCIENCE	\$13,204,514
AG/MECH	8,057,165
ANNEX	10,674,900
SITE DEVELOPMENT	2,134,820
EQUINE LAB	1,033,850
KEMP HALL	363,925
CAFE/LIBRARY	0
DAIRY BARN	172,500
HEIFER BARN	172,500
<b>TOTAL</b>	<b>\$35,814,173</b>

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**MASTER PLAN | REVISED PROJECT PRIORITIES**



- DEMOLISH EXISTING CAFETERIA BUILDING, STABLE FACILITY AND A SERIES OF SHEDS
- IMPROVEMENTS TO THE AG-MECH DEPARTMENT
- FREE SPACE IN THE ANNEX BUILDING FOR DIFFERENT USE, NEW ADDITION FOR CAFETERIA AND STUDENT CENTER/LIBRARY
- AUXILIARY GYM ADDITION TO KEMP HALL
- IMPROVE ACADEMIC CLASSROOMS
- RENOVATE ADMINISTRATION BUILDING TO UPGRADE SYSTEMS
- IMPROVEMENTS TO THE ANIMAL SCIENCE DEPARTMENT
- NEW STABLES FACILITY FOR 20 HORSES AND RIDING RING
- NEW 6,000 SF HAY STORAGE BUILDING
- CIRCULATION WOULD REMAIN AS IS WITH MINOR MODIFICATIONS FOR NEW PARKING AREAS

**TO MAINTAIN THE PROJECT BUDGET, PRIORITIES FROM THE ORIGINAL MASTER PLAN WERE ADJUSTED**

**PRIORITY ITEMS ARE FOCUSED ON VOCATIONAL AND ACADEMIC PROGRAMS**

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**PREFERRED SCHEMATIC DESIGN**



**Summary**

ANIMAL SCIENCE	\$8,304,853
AG/MECH	6,592,034
ANNEX	1,435,947
CLASSROOM BLDG	1,814,147
SITE DEVELOPMENT	2,380,811
EQUINE LAB	1,382,616
KEMP HALL	0
CAFE/LIBRARY	0
DAIRY BARN	0
HEIFER BARN	0
<b>TOTAL PROJECT</b>	<b>\$28,549,185</b>




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**AFFORDABLE COST MODEL**



- MAXIMUM ACCEPTABLE DEBT LOAD PER YEAR: \$500,000
- AMOUNT OF DEBT @ MKT INTEREST RATE: \$13 TO 15 MILLION
- SOFT COSTS AS % OF TOTAL PROJECT COST: 25% TO 27%
- EFFECTIVE REIMBURSEMENT RATE: 45% TO 55%
- TOTAL PROJECT BUDGET: \$27 TO 29 MILLION**
- TOTAL CONSTRUCTION BUDGET: \$21 TO 23 MILLION**

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**SCHEMATIC DESIGN**

**Summary**

ANIMAL SCIENCE	\$6,391,421
AG/MECH	5,085,687
ANNEX	1,177,106
CLASSROOM BLDG	1,396,196
SITE DEVELOPMENT	1,845,590
EQUINE LAB	1,064,062
KEMP HALL	0
CAFE/LIBRARY	0
DAIRY BARN	0
HEIFER BARN	0
<b>EST. CONS COST</b>	<b>\$22,301,709</b>

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**CONSTRUCTION DOCUMENTS**

**Summary**

ANIMAL SCIENCE	\$6,170,227
AG/MECH	\$4,949,180
ANNEX RENOVATION	\$1,831,648
CLASSROOM BLDG	\$1,549,686
ADMIN RENOVATION	\$114,077
SITE DEVELOPMENT	\$3,122,308
EQUINE CENTER	\$1,294,436
KEMP HALL(TEL/DATA)	\$11,960
CAFE/LIBRARY (TEL/DATA)	\$4,980
DAIRY BARN	\$0
HEIFER BARN	\$0
<b>TOTAL PROJECT</b>	<b>\$21,997,104</b>
<b>TOTAL SF ADDED</b>	<b>95,704 SF</b>
<b>TOTAL COST PER GSF</b>	<b>\$229.85</b>

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**CONSTRUCTION DOCUMENTS**

**Alternates**

1. NEW EQUIPMENT GARAGE	\$328,473
2. CLASSROOM BUILDING RENOVATIONS NEW SIDING	\$128,068
3. NEW ROOF AND MASONRY WORK AT ANNEX	\$116,045
4. NEW WINDOW AT ANNEX	\$164,933
5. NEW MEP AT ANNEX	\$37,797
6. RENOVATED CLASSROOM AT ANNEX	\$162,905
7. PLANTING PER THE LANDSCAPE PLANS AND SCHEDULES	\$291,596
8. ADD DENSE DECK AT AG AND AS FLAT AND PITCHED ROOF	\$85,524
9. WIRELESS CLOCKS	\$11,975
<b>ALTERNATE TOTAL</b>	<b>\$1,327,316</b>
<b>Total Project Cost Plus Alternatives:</b>	<b>\$23,324,420</b>

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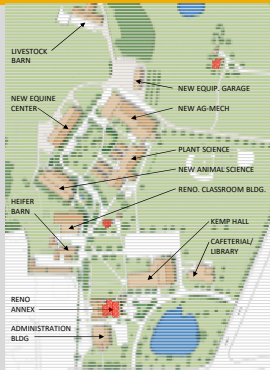
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CONSTRUCTION DOCUMENTS | CAMPUS OVERVIEW



- ADMINISTRATION (OFFICES & RESIDENCES)



LIVESTOCK BARN  
NEW EQUINE CENTER  
HEIFER BARN  
RENO ANNEX  
ADMINISTRATION BLDG  
NEW EQUIP. GARAGE  
NEW AG MCHX  
PLANT SCIENCE  
NEW ANIMAL SCIENCE  
RENO CLASSROOM BLDG.  
KEMP HALL  
CAFETERIAL/LIBRARY

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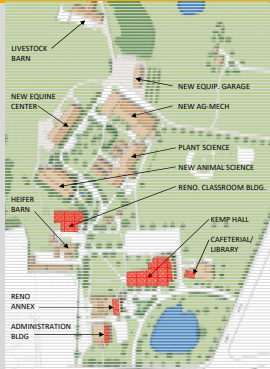
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CONSTRUCTION DOCUMENTS | CAMPUS OVERVIEW



- ADMINISTRATION (OFFICES & RESIDENCES)
- ACADEMIC PROGRAM



LIVESTOCK BARN  
NEW EQUINE CENTER  
HEIFER BARN  
RENO ANNEX  
ADMINISTRATION BLDG  
NEW EQUIP. GARAGE  
NEW AG MCHX  
PLANT SCIENCE  
NEW ANIMAL SCIENCE  
RENO CLASSROOM BLDG.  
KEMP HALL  
CAFETERIAL/LIBRARY

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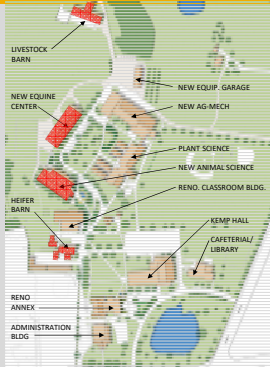
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CONSTRUCTION DOCUMENTS | CAMPUS OVERVIEW



- ADMINISTRATION (OFFICES & RESIDENCES)
- ACADEMIC PROGRAM
- ANIMAL SCIENCE PROGRAM



LIVESTOCK BARN  
NEW EQUINE CENTER  
HEIFER BARN  
RENO ANNEX  
ADMINISTRATION BLDG  
NEW EQUIP. GARAGE  
NEW AG MCHX  
PLANT SCIENCE  
NEW ANIMAL SCIENCE  
RENO CLASSROOM BLDG.  
KEMP HALL  
CAFETERIAL/LIBRARY

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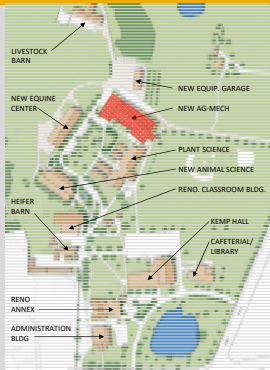
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CONSTRUCTION DOCUMENTS | CAMPUS OVERVIEW



- ADMINISTRATION (OFFICES & RESIDENCES)
- ACADEMIC PROGRAM
- ANIMAL SCIENCE PROGRAM
- **AG-MECH PROGRAM**



LIVESTOCK BARN  
NEW EQUINE CENTER  
HEIFER BARN  
RENO ANNEX  
ADMINISTRATION BLDG  
NEW EQUIP. GARAGE  
NEW AG-MECH  
PLANT SCIENCE  
NEW ANIMAL SCIENCE  
RENO CLASSROOM BLDG.  
KEMP HALL  
CAFETERIA/LIBRARY

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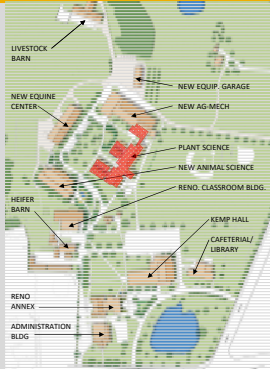
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CONSTRUCTION DOCUMENTS | CAMPUS OVERVIEW



- ADMINISTRATION (OFFICES & RESIDENCES)
- ACADEMIC PROGRAM
- ANIMAL SCIENCE PROGRAM
- AG-MECH PROGRAM
- **PLANT SCIENCE PROGRAM**



LIVESTOCK BARN  
NEW EQUINE CENTER  
HEIFER BARN  
RENO ANNEX  
ADMINISTRATION BLDG  
NEW EQUIP. GARAGE  
NEW AG-MECH  
PLANT SCIENCE  
NEW ANIMAL SCIENCE  
RENO CLASSROOM BLDG.  
KEMP HALL  
CAFETERIA/LIBRARY

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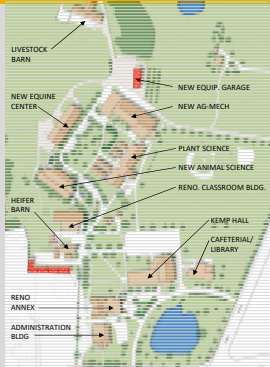
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CONSTRUCTION DOCUMENTS | CAMPUS OVERVIEW



- ADMINISTRATION (OFFICES & RESIDENCES)
- ACADEMIC PROGRAM
- ANIMAL SCIENCE PROGRAM
- AG-MECH PROGRAM
- PLANT SCIENCE PROGRAM
- **FARM RELATED BUILDINGS**



LIVESTOCK BARN  
NEW EQUINE CENTER  
HEIFER BARN  
RENO ANNEX  
ADMINISTRATION BLDG  
NEW EQUIP. GARAGE  
NEW AG-MECH  
PLANT SCIENCE  
NEW ANIMAL SCIENCE  
RENO CLASSROOM BLDG.  
KEMP HALL  
CAFETERIA/LIBRARY

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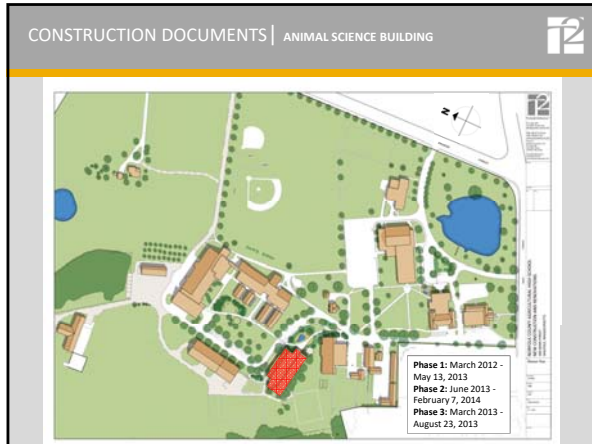
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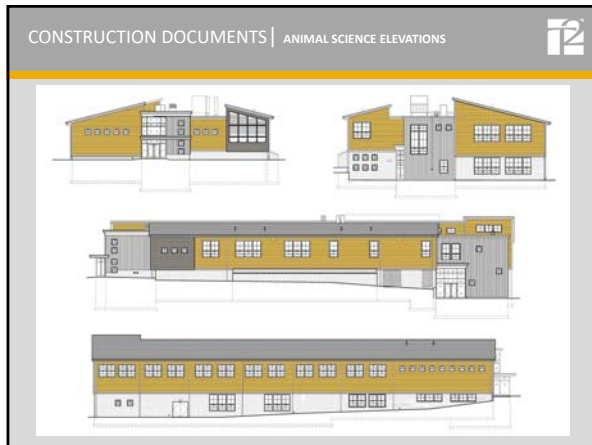
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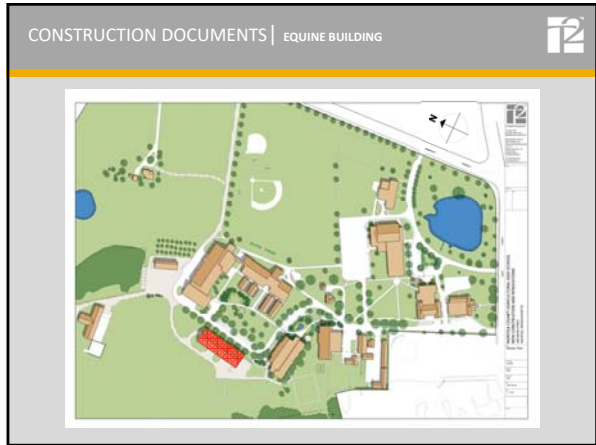
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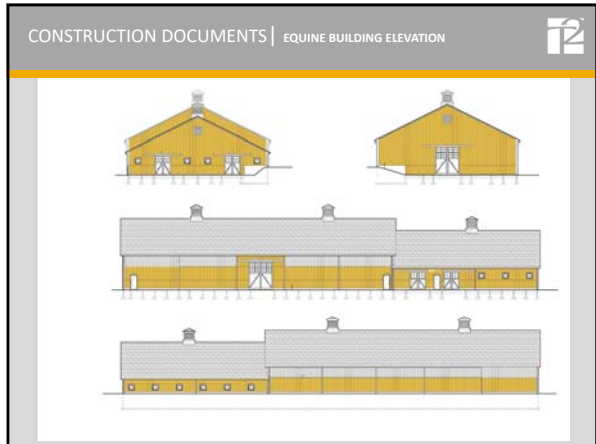
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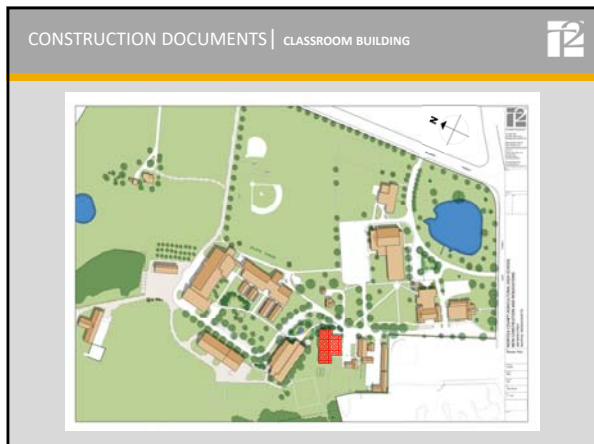
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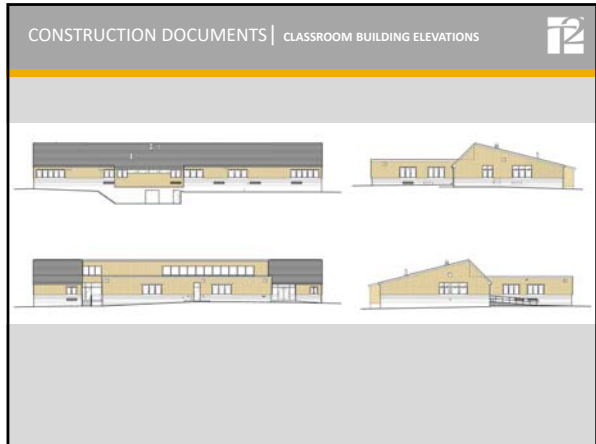
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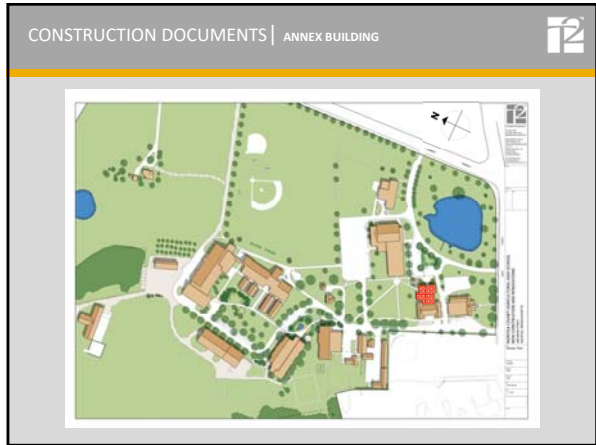
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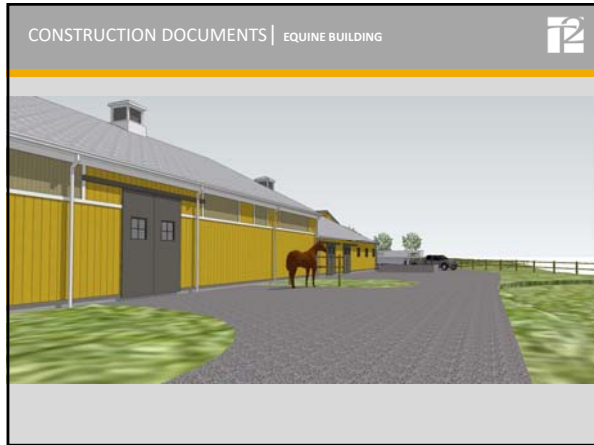
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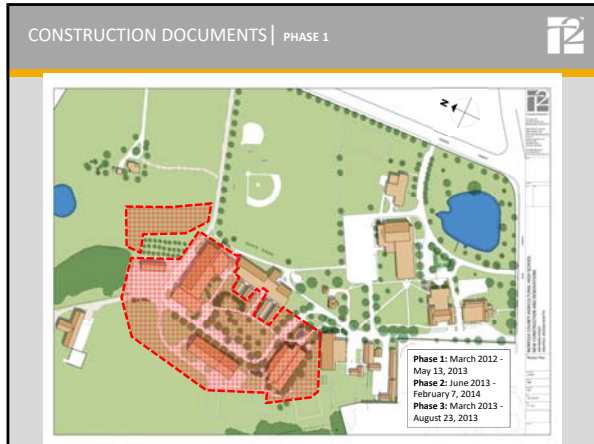
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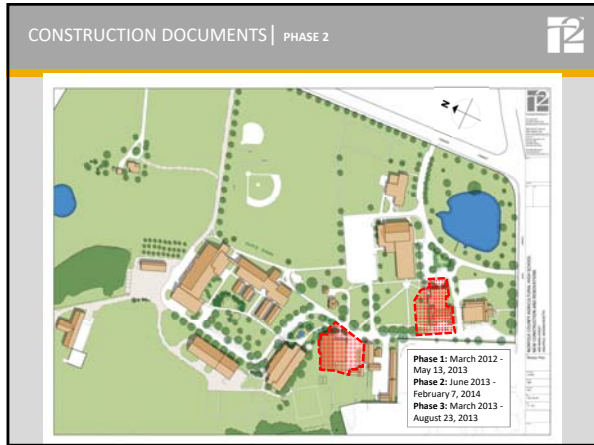
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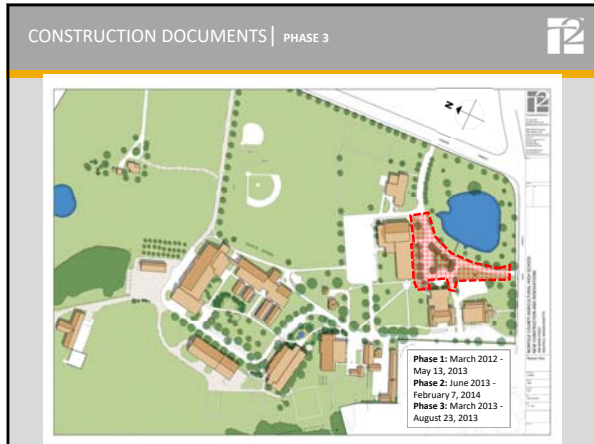
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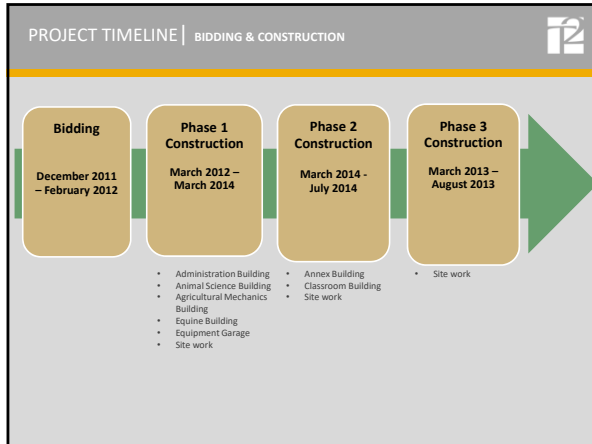
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CONTRACT AWARDED | Construction Under Budget 

**Final Cost Estimate including Alternates: \$23,324,420**

**Contractor Bid including Alternates:**  
**TLT CONSTRUCTION \$21,411,592**

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**EDUCATIONAL BENEFITS**

ANIMAL SCIENCE BUILDING  
AGRICULTURAL MECHANICS BUILDING  
EQUINE CENTER  
RENOVATED ANNEX BUILDING  
RENOVATED CLASSROOM BUILDING

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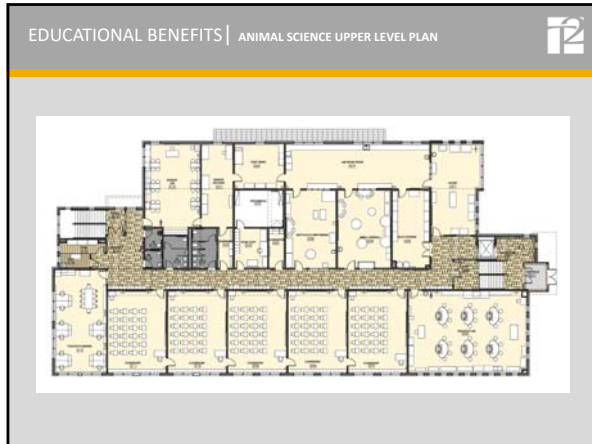
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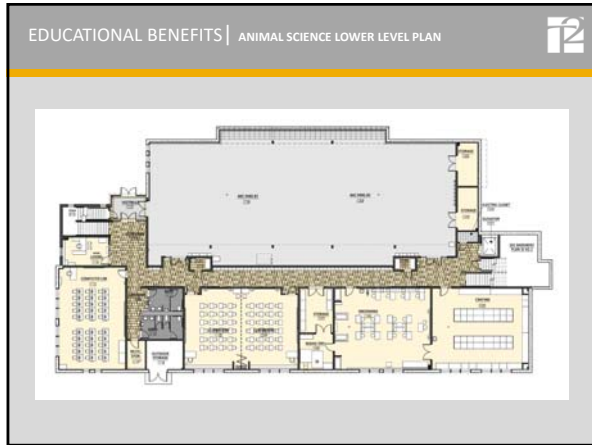
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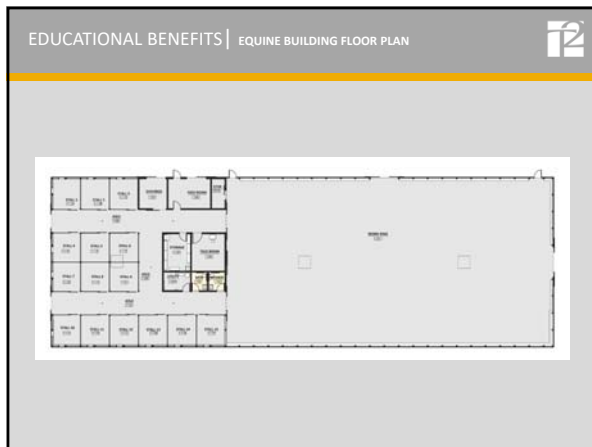
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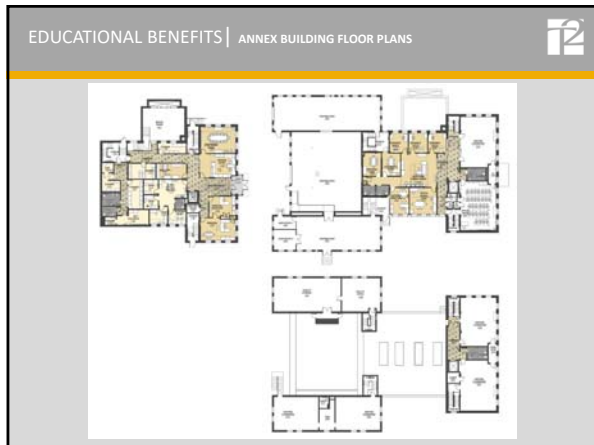
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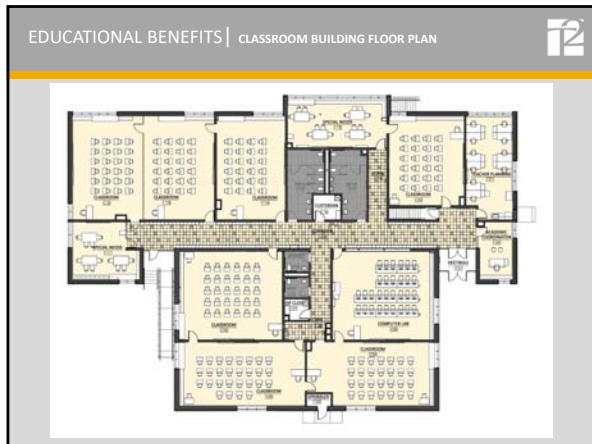
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LESSONS LEARNED | Through Design and Construction

- TIMING OF RFP'S TO TAKE ADVANTAGE OF STAFF RESOURCES AND PLANNING
- *CONSENSUS BUILDING ON PRIORITY*
- *BUILDING TO A BUDGET IS POSSIBLE*
- *ESTABLISH PROTOCOL WITH CONTRACTOR EARLY ON IN CONSTRUCTION*

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**Thank You**

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