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Prepared By: Knight EA, Inc.

221 North LaSalle Street Suite 300 Chicago, IL 60601-1211 Telephone (312) 577-3300 Fax (312) 577-3526 www.knightea.com

EXECUTIVE SUMMARY

This is an Operations Assessment and Logistics Plan for the Forest Preserve District of DuPage County's (FPDDC) Grounds and Natural Resource Management Department (GNR). There has been a pressing need within the FPDDC to take a holistic approach to reviewing the operations and spatial needs, as well as identifying where efficiencies and deficiencies occur. Previous studies focused on the Blackwell campus. This document's focus is a review of all the potential properties and structures that can be utilized to accommodate the current staff and equipment, as well as potential future needs.

FPDDC prides itself on their maintenance of the preserves that the public enjoys using. The Grounds and Natural Resource Management crews operate out of buildings and leased trailers located on the Blackwell Campus and utilized storage at other locations spread throughout the county. Many of these structures are in poor physical condition; and do not adequately provide for the current needs of the staff and equipment. During our site visit review of these structures, it was determined that many are not in compliance with current building and energy codes, and accessibility requirements need to be addressed. Furthermore, the flow and circulation within the Blackwell campus is not optimal, creating operational and mobilization delays daily. Addressing these operational and logistic concerns will open the opportunity for the expansion of trails and preserves which benefit all County residents and visitors, helping further the District's mission of Preserving, Protecting, and Restoring Open Spaces.

1.0 Previous Documentation Review

Review of Historic Data is an essential starting place in facility assessments as it brings important components of past facility usage and understanding into view as evaluations are made for incorporation into future spaces and programs. The primary take away from the reports from 2007 and 2020 was the assessment of two strategies: Campus Consolidation or Decentralized Expansion and Renovation.

2.0 Preserve Usage and Access Analysis – Summary of Findings

Information was extracted from historic data to define the locations where the public appeared to focus their attention when visiting the County's Preserves. Blackwell and Herrick Lake located within 3.5 miles of each other near the center-west of the County garnered nearly 20% of the recorded public visits with over 200,000 vehicles reported entering each of the sites in 2020. It is notable that the County's preserves experienced a 37% increase in visits in the year following Covid-19.

A cross check on this data was performed by evaluating the locations where the crews were required to expend the most time and effort in maintenance and facility development. The Crew Access Analysis shows the number of manhours spent in the following areas:

Crew Services	Inside Focus Area	Outside Focus Area
Trails systems	12%	88%
Roadways and Parking Lots	14%	86%
Landscaping	25%	75%
Forestry	23%	77%
Natural Resources	2%	98%

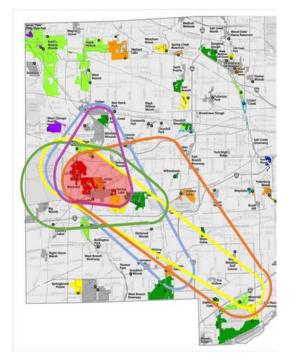
Again, the data confirms that of the 337 square miles within DuPage County; nearly 22% (56,976 man hours) of all work performed by the FPDDC Crews is done within this 9 mile radius; therefore placement of a consolidated facility

within this focus area would be the most beneficial with regards to minimizing the time and resources required to access these spaces.

Locating crews, equipment, and supplies in the areas of the highest concentration of effort required to serve the highest population of the county would allow for a more efficient process. In turn, saving the District time and money. This portion of the analysis identified a common boundary of centrally located preserves that would best support the placement of these components. This assessment includes five (5) preserves to be evaluated further. They included:

- Blackwell
- Danada
- Herrick Lake
- St. James Farms
- Warrenville Grove

An analysis of their Pros and Cons resulted in one standout location for consideration. (**Blackwell**) With the potential of placing lesser needed supplies in the other locations as space and resources permitted and required. Significant characteristics that contributed to this determination included the following:





- 1. Proximity to Current Resources
 - Adjacent to Fleet Management previous studies for Fleet Management placement pointed to Blackwell as being a centralized location.
 - Adjacent to Fuel Island, Nursery and Facilities Management
 - Central to a majority of physical assets the District maintains.
- 2. Utility Resources
 - Sanitary Sewer Existing Available
 - Water Existing Available
 - Natural Gas Existing Available
 - Electric Existing Available
- 3. Open Land Availability
 - The property is currently utilized for this facility with adequate space for the proposed work. The current site, not taking into account the Fleet Management Building, represents roughly 170,000 square feet of already disturbed land.
 - Additional temporary staging area is available on the West portion of the property.
 - Minimal need for additional natural resource impacts, i.e tree removals, etc.
- 4. Proximity to Residences

- Single-family residences border the site on the East by about 900 feet. There is adequate space for planted visual barrier along with the old buildings being replaced with new.
- Potential neighborhood association conflict Blackwell Fleet Management Building encountered issues but were able to reach a suitable solution. Existing facilities are already on site and would not intensify the use of the property.
- Current gravel areas proposed to be asphalt so less dust / pollutants in the air.
- 5. Impact to traffic
 - Low Already operating out of this location traffic patterns already established. No additional traffic planned or anticipated on Mack Rd.
- 6. Environmental Impact
 - Low Environmental impact would be minimal to non-existent since the new development will be on existing development areas.
 - New facilities will have lower energy costs and have heating and cooling efficiencies. There will be measures in place to comply with Dark Skies initiatives.
 - Reduces need to duplicate resources that other sites do not have but Blackwell does.
 - Environmental impact would improve with proper storage of equipment and efficiencies of a new building. No well and septic, gravel parking lot, and reduced run off of pollutants.

Financial Affects

The following financial affects can be realized by the location of the Grounds and Natural Resources Campus:

- 1. Locating a new campus outside of the Focus Area would have a negative effect on the budget as additional time and fueling costs would be necessary to get crews, materials, and equipment to each worksite.
- Maintaining the campus within the Focus Area as the centralized location for the placement of a new consolidated facility maintains the current efficiencies based solely on location. Chapter 4 Property & Building Assessments (below) takes a closer look at the individual structures and evaluates the benefits and deficits of each in the long-term planning of the site including the effects of deferred maintenance, site logistics and life safety.
- 3. There would be a significant cost increase in infrastructure needs for a location at a different site, i.e. water, sewer and increased traffic on a different community.

3.0 Crew Operations and Assessments – Summary of Findings

Asset Management is a vital component in the efficiencies we strive to improve as we go about our daily tasks. How and when we interact with each other and how we start and close our days sets the tone for how we will achieve improved task management as well.

The following represents commonalities between most if not all crews.

- Biggest Productivity Challenge:
 - Congested yard space along with limited turning movement and circulation space around current configuration.

- o Keeping tools and equipment organized and in one location due to lack of storage.
- Mobilization takes from 30mins 1 hour due to gathering supplies and equipment needed for the day's tasks. This includes trips to other facility locations to pick-up supplies or equipment.
- o Parking, storing, and extracting vehicles and equipment from various buildings and spaces.
- Having to move equipment around for accessibility. Trucks are often in and out of storage space when not being used.
- Outdoor equipment storage requires tools to be unloaded and relocated each day in secure buildings.
- Negatives:
 - Equipment and materials are difficult to keep clean due to insufficient indoor storage space. There are many contributors to the uncleanliness: gravel site, animal feces, mold, dirt floors in barns, leaks, and aging structures.
 - o Equipment depreciates faster and creates more downtime.
 - o Limited private conference areas.
 - Lack if indoor storage space exposes equipment to inclement weather, which accelerates end of life cycles and maintenance issues.
 - o General overcrowding in storage areas.
 - o Insufficient locker space for all personal and specialty gear needed for all seasons.
 - o Insufficient restrooms available for number of staff both male and female.
 - Separate changing areas for clean and dirty gear is needed along with shower facilities. A shower area for proper chemical clean-up is needed.
 - No commercial washer or dryer.
 - o Building deterioration increases risk of injury to staff.
- Positives:
 - o Centrally located near Fleet Management facility, nursery and fuel island.
 - Near facilities and provides opportunity to connect property in a more efficient manner (i.e. parking entrance).

Financial Affects

The following "yearly" financial affects can be realized by replacing the existing Grounds and Natural Resources Campus with a more efficient layout and rectifying the Challenges and Negatives previously outlined. The potential

to save time/money in relation to crew costs is estimated as follows:

Total		\$173,745 - \$231,660 Savings per year 4,390 – 5,853 Manhours Savings per year	
Total		\$ 69,498 - \$92,664 / Year	
	<u>X</u>	<u>65 Business "Winter" Days/Year</u>	
	Х	\$39.58 / Hour (\$0.66/minute - includes salary and benefits)	
	Х	54 current Crew Staff	
Winter Activities:		30-40 minutes per person	
		\$104,247 - \$138,996 / Year	
	<u>X</u>	195 Business "Summer" Days/Year	
	Х	\$39.58 / Hour (\$0.66/minute – includes salary and benefits)	
	Х	54 current Crew Staff	
Summer Activities:	15-2	0 minutes per person	

The potential to save money in relation to storing equipment out of the elements realizes cost savings due to expanding the equipment longevity is estimated as follows (reference Cost Savings analysis in Section 4.2 of the Evaluation Report):

542 existing District Assets represents \$8,000,000.

If stored outdoors it would cost the District approximately \$50 million+, in lieu of spending \$16.3 million now plus operation and maintenance of brand new buildings (heated and unheated) over 50 years to store these assets indoors.

This represents a savings of \$30 million+.

NOTE:

This estimate is based on the understanding that all vehicles will be stored within an enclosed and heated building and that trailers can remain attached overnight with equipment and supplies fully loaded. Properly stored equipment will result in longer life spans, reduced mechanical failures and minimal chance for theft or vandalism. Additionally, handheld equipment will be readily accessible within the same structure for ease of access and asset protection.

Fully enclosed, unheated structures on the same site will allow for seasonal items to be stored more efficiently and out of the way therefore reducing congestion and energy costs.

It is also evident after studying the workflow of GNR crews, that there are several tasks that overlap. Multiple sites throughout the FPDDC were visited and evaluated for their optimal usage. After additional review of these current locations and review of daily workflows, it is our recommendation that the **Blackwell Campus** makes the most

logistical sense to keep these groups consolidated.

- Its centralized location in the County allows for easy access to major thoroughfares.
- The infrastructure is already in place.
- Proximity to Fleet Management for maintenance.
- Proximity to Facilities Building.
- Opportunity for the creation of a campus with shared resources.
- Proximity to Fuel Island.
- Proximity to Nursery.
- Operations already have an established presence in the area.
- Blackwell has been identified as one of the most frequented Preserves by the public, thereby necessitating more time by crews spent there for maintenance.
- Provides opportunity for phasing.

4.0 Property & Building Assessments – Summary of Findings

There are several takeaways from the review of FPDDC existing and potential facilities. A 9-component system was used to review each structure in order to determine the viability for possible re-use. Each structure and site was evaluated for Life Safety, Accessibility, Structure, MEP Systems, Fire Protection, Utilities, Site Circulation, Site Access and Accessory Storage. A Facility Condition Matrix which rates each building under these criteria was created to help identify the viability of each and its capital improvement requirements.

In addition, the report contains data collected from in person site visits. There are three (3) main components to the evaluation of an existing building, which include:

- Deferred Maintenance (DM)
- Code Compliance (CC)
- Accessibility Compliance (AC)

In the survey and analysis of the conditions of the existing structures that support the Grounds and Natural Resources staff it is evident that maintaining the primary GNR Campus at the Blackwell location best meets the needs and efficiencies of the Forest Preserve District of DuPage County. The structures located within this campus represent a mix of the best and worst facility conditions.



Demolish the poorest structures that have reached their useful life (<50%), including:

- o GNR Barn BW-003
- Equipment Barn BW-003 A&B
- o Equipment Barn BW-017 A-D

This allows the site to open up to receive a series of new buildings that can house the GNR fleet within fully enclosed structures that will protect valuable assets including all fleet vehicles, trailers and equipment.

There are two buildings with approximately 65% of useful life remaining, however they pose logistical hardships that lower their value:

- Administration Office Building BW-020
- Vehicle Wash Building BW-003

Based on Deferred Maintenance, Code Non-Compliance and Accessibility Non-Compliance these structures are collectively worth \$2,935,333.57. It is estimated that bringing them into compliance would cost approximately an additional \$3,500,000.00, but this would have a minimal effect on their overall function and useability. Based upon this analysis, it is recommended they both be demolished and replaced.

The adjacent newer structures have nearly 95% of their useful life remaining, including:

- Fleet Maintenance Building
- o Fuel Island
- Facilities Maintenance Shop
- o Sign Shop

These buildings would remain and be incorporated into the larger campus. This retains the holistic approach to functionality and reduces the time needed to travel from site to site.

By evaluating the need for immediate use tempered facilities versus off season unconditioned facilities it is possible to create new spaces that support the most efficient first cost and energy saving campus.

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The Natural Resources Program Support, which is currently at Waterfall Glen, should be relocated as they operate out of former residences that were retrofitted to be used for the deer management program.

These buildings are at < 49% of their useful life and do not function optimally for their current use due to lack of efficient movement between the processing space and the cooler as well as cooler to truck pick-up. This land would be more suitable for more recreational opportunities taking into consideration the concurrent Waterfall Glen master-planning.

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A facility located at Greene Valley landfill, currently operated by Waste Management, would be a more appropriate location to renovate for the purpose of deer processing. It is currently at nearly 60% of its useful life and is situated more appropriately to address the needs of the program.

5.0 Observations

Circulation and flow are a continual problem at the Blackwell campus due to tight site constraints. This creates opportunity for accidents and damage to equipment and structures. The structures are in disrepair and risk further deterioration or collapse to a degree where repairs are more cost prohibitive than replacement. Building deterioration also puts at risk damage to assets stored within them and an increase in safety concerns for the staff. For example, rotting roof joists, dirt floors, leaking roofs, gas leaks, etc, all contribute to an unsafe work environment.

Continuing limited indoor storage for vehicles and equipment also keeps FPDDC costs up unnecessarily. Staff spend more time than necessary moving equipment around daily. This keeps them from the primary tasks that their job entails.

Space in general is at a premium and future needs may not be accommodated by the current facility locations.

The overwhelming problem the crews face is the length of time it takes to mobilize and shutdown (demobilize) each day. The inefficiency of the campus layout along with many resources being stored in spaces throughout the campus and county leads to a loss in productivity. The current facilities do not have optimal layouts for crews to operate out of due to most facilities were not built for their current function. Over time, the crews have adapted the facilities for their use; this results in an approach that works for today but is not easily adaptable for future needs. Further, several of the facilities toured have accessibility deficiencies, leaving the FPDDC open to liabilities.

The GNR crews currently begin their days at the same time, however a staggered start and finish time due to Covid-19 policies, established in 2020, were done at that time and may return to that. They typically work five (5) days a week and at the beginning of each day the crew's tasks are coordinated between the supervisors. Crews traditionally have had larger meetings and training sessions, which lead to a lot of collaboration at the start of each day for either sharing equipment or staff. The new facilities will need to be designed to accommodate a different arrangement for these activities and allow adaptability for staggered crew times, should the need arise once again.

6.0 **Recommendations**

The FPDDC prides itself in its impeccable care of all preserves. It was evident while touring many of them that they are well maintained, clean and inviting.

The FPDDC mission is to preserve, protect and restore open spaces. Due to the Covid Pandemic, the general population has been spending more time outdoors, especially in forest preserves as it gives people the respite needed from being cooped up in doors away from normal daily activity. While the pandemic surely will end, the desire and connection to nature that most have found a new appreciation for, will stay.

As the FPDDC looks towards the future, it will be important to maintain the same level of care and quality of service that it has today. It is anticipated over time that the FPDDC will continue to add to the trail systems and acreage. This cannot be achieved without strengthening the infrastructure for the Operations, Grounds and Natural Resources function.

Our Recommendation is as follows:

Blackwell Campus East -

New Construction and Site Renovation

GNR crews not only share tasks, but they also share tools and resources. The development of the Blackwell East Campus would allow for aging and beyond repair buildings to be removed so that the campus can be reconfigured allowing for safer vehicular movement and a consolidation of material storage, equipment, and shop space into a more efficient layout. We propose a multi-building campus with indoor vehicle/equipment storage, maintenance shops, and washroom/locker room facilities with and office/meeting spaces. The building should be located to accommodate vehicle circulation at its perimeter. Site perimeter covered storage should remain where possible with additional enclosed (unheated) trailer and equipment sheds being provided. These changes would accommodate the following:

- Grounds Management Forestry Crew (8-person)
 - Office space
 - Indoor vehicle and equipment storage
 - Maintenance shop
- Grounds Management Roads Crew (9-person)
 - Office space
 - Indoor vehicle and equipment storage
 - Maintenance shop
 - Grounds Management Landscape Crew (13-person)
 - Office space
 - Indoor vehicle and equipment storage
 - Maintenance shop
- Grounds Management Trails and Streams Crew
 - Office space (12-person)
 - Indoor vehicle and equipment storage
 - Maintenance shop
 - Natural Resources Crew (12-person)
 - Office space
 - Indoor vehicle and equipment storage
 - Maintenance shop
- Stewardship (3-person)
 - Office space
 - Storage space
- Fleet Management building to remain.
- Vehicle wash and herbicide storage building to be incorporated into new layout.

In addition, the existing parking lot should be connected to the Blackwell Grounds and Natural Resource campus providing additional parking and a driveway to the East parking lot.

The area to the east of the Facilities Management building on the Blackwell West campus could be temporarily surfaced with gravel to accommodate temporary office space and equipment trailers for each crew in the interim while this new construction takes place.



<u>Greene Valley –</u>

Renovation for Relocation of Natural Resources Program Support

The Natural Resources Program Support, which is currently at Waterfall Glen, should be relocated as they operate out of former residences that were retrofitted to be used for the deer management. As a result, the buildings do not function optimally due to lack of efficient movement between the processing space and the cooler as well as cooler to truck pick-up. Further, the deer management program occurs 6-8 weeks out of the year. It is tucked away in the southeast corner of the district, which is not ideally located. This land would be more suitable for more recreational opportunities taking into consideration the concurrent Waterfall Glen master-planning. A facility located at Greene Valley landfill, currently operated by Waste Management, would be a more appropriate location to renovate for this purpose.

The renovation of the building and site would consist of the following:

- New insulated metal panel cladding
- New insulated metal roof panels with skylights, fascia, and gutters/downspouts
- New exterior exit doors
- New Overhead doors and openers
- Repair or Replace concrete floor slab
- New interior door as required
- Interior prep. and painting of exposed steel building frame, mezzanine frame and railings
- Interior painting of partitions, door, etc.
- New walk-in cooler module
- New locked storage area
- New conveyor system
- New toilet room.
- New shower area and locker room.
- New break area
- The well water is not potable. Two 1500-gallon vertical potable water storage tanks (connected in tandem) on a platform are to be utilized for

potable water at hoses (deer processing), sinks, showers and toilets. During the period of deer processing water will need to be delivered more frequently.

- Cistern collection system for wash down water.
- New waste and water piping, water heater, pressure tanks, and/or pumps.
- New underground plumbing connection and piping
- New exit and emergency lights
- New interior and exterior lighting
- New electrical service distribution equipment
- New and restored HVAC equipment
- New ventilation equipment
- New paving for parking, loading and general access to the building.

Blackwell Nursery –

New Construction for Native Nursery Propagation Operations

Seed processing is currently operating out of a trailer on the Blackwell campus and needs a more permanent location. There is a need for more space for cataloguing and processing seed, as well as cooler space. This building would also allow space for expansion of seed processing services. It is estimated that 800-1,000 square



NIGHT

feet of space is needed based on staff feedback. In addition to this, the Nursery is also in need of additional green house space and storage for access to nursery management tools and equipment. Currently there is roughly 225 SF hoop house, and the need is roughly three times the space. This would be a 450 SF addition to the hoop house. The new construction would include this addition along with seed processing, for a total of 1,200-1,400SF.

New construction would include:

- Office space for 1-2 employees
- Layout space for seed drying
- Racks for seed storage
- Walk-in cooler space
- Green house space
- Storage space
- Seed cleaning space with upright equipment



7.0 Proposed Site Layout at Blackwell East



SCHEME – A.1

LEGEND

- A ADMINISTRATIVE OFFICES AND LOCKER ROOMS
- B GARAGES, EQUIPMENT STORAGE & SHOP AREAS (HEATED)
- C NOT USED
- D VEHICLE WASH AND CHEMICAL MIXING
- E SEED PROCESSING & GREENHOUSE
- F NEW PAVED PARKING AREA FOR TEMPORARY OFFICE TRAILER STAGING
- G NEW GRAVEL PAVING FOR TEMPORARY VEHICLE STAGING



LEGEND

- A ADMINISTRATIVE OFFICES AND LOCKER ROOMS
- B GARAGES, EQUIPMENT STORAGE & SHOP AREAS (HEATED)
- C GARAGES (UNHEATED)
- D VEHICLE WASH AND CHEMICAL MIXING
- E SEED PROCESSING & GREENHOUSE
- F NEW PAVED PARKING AREA FOR TEMPORARY OFFICE TRAILER STAGING
- G NEW GRAVEL PAVING FOR TEMPORARY VEHICLE STAGING

SCHEME – A.2



LEGEND

- A ADMINISTRATIVE OFFICES AND LOCKER ROOMS
- B GARAGES, EQUIPMENT STORAGE & SHOP AREAS (HEATED)
- C GARAGÈS (UNHÉATED)
- D VEHICLE WASH AND CHEMICAL MIXING
- E SEED PROCESSING & GREENHOUSE
- F NEW PAVED PARKING AREA FOR TEMPORARY OFFICE TRAILER STAGING

G – NEW GRAVEL PAVING FOR TEMPORARY VEHICLE STAGING

SCHEME – A.3

The above Schemes represent possible site plans that would allow for adequate heated and unheated Vehicle Storage, Equipment and Supply Storage, Workshop Space for all GNR Operations Crews including Office and Meeting Space and Locker Rooms and Toilet Facilities. Seed Processing and Greenhouse is shown on the map below.



FPDDC-GNR Seed Processing & Greenhouse

This portion of the facility is common to all three schemes, located in the nursery on the south side of Mack Road.

8.0 Opinion of Construction Cost for Proposed Site Layout

The below represents an **Opinion of Proposed Construction Cost based on Scheme – A.1** that would allow for adequate heated Vehicle Storage, Equipment and Supply Storage, Workshop Space for all GNR Operations Crews including Office and Meeting Space and Locker Rooms, Toilet Facilities and Seed Processing and Greenhouse.

Tag	Description	Cost
Α	Admin, Locker Rooms and Volunteer	\$ 1,953,905
В	Heated Vehicle / Equipment Storage/shops	\$15,484,128
С	Un Heated Vehicle / Equipment Storage	N/A
D	New Structures on East Campus	\$ 866,660
E	Seed Processing & Greenhouse	\$ 345,558
F	New Paved Parking w/Temp Trailers	\$ 479,381
G	New Gravel Paving for Temp Staging	\$ 871,602
н	Demolition	\$ 372,767
J	Underground Detention /Stormwater	\$ 726,335
	Grand Total	\$21,100,335

The below represents an **Opinion of Proposed Construction Cost based on Scheme – A.2** that would allow for adequate heated and unheated Vehicle Storage, Equipment and Supply Storage, Workshop Space for all GNR Operations Crews including Office and Meeting Space and Locker Rooms, Toilet Facilities and Seed Processing and Greenhouse.

Tag	Description	Cost
Α	Admin, Locker Rooms and Volunteer	\$ 1,953,905
B	Heated Vehicle / Equipment Storage/shops	\$1,353,305
С	Un Heated Vehicle / Equipment Storage	\$ 3,108,315
D	New Structures on East Campus	\$ 866,660
E	Seed Processing & Greenhouse	\$ 345,558
F	New Paved Parking w/Temp Trailers	\$ 479,381
G	New Gravel Paving for Temp Staging	\$ 871,602
н	Demolition	\$ 372,767
J	Underground Detention /Stormwater	\$ 726,335
	Grand Total	\$19,070,630

The below represents an **Opinion of Proposed Construction Cost based on Scheme – A.3**, the recommended scheme, that would allow for adequate heated and unheated Vehicle Storage, Equipment and Supply Storage, Workshop Space for all GNR Operations Crews including Office and Meeting Space and Locker Rooms, Toilet Facilities and Seed Processing and Greenhouse.

Tag	Description	Cost
Α	Admin, Locker Rooms and Volunteer	\$ 1,953,905
В	Heated Vehicle / Equipment Storage/shops	\$12,528,372
С	Un Heated Vehicle / Equipment Storage	\$ 3,764,004
D	New Structures on East Campus	\$ 866,660
E	Seed Processing & Greenhouse	\$ 345,558
F	New Paved Parking w/Temp Trailers	\$ 479,381
G	New Gravel Paving for Temp Staging	\$ N/A
н	Demolition	\$ 372,767
J	Underground Detention /Stormwater	\$ 726,335
	Grand Total	\$21,036,981