

# Comparative Study for Improvements to Facilities Palm Beach County Animal Care and Control

Final Report, May 5, 2020



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Project Number 19201

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## A. Executive Summary

## A. Executive Summary

### 1 Goals of the Comparative Study

The goal of the **Comparative Study** for improvements to the Palm Beach County Animal Care and Control (PBCACC) was to identify different Options, with cost estimates, for improvements to the existing primary animal shelter facilities located at 7100 Belvedere Road in West Palm Beach. Modernization of the Pahokee facility in Western Palm Beach County, while not the focus of the Comparative Study, is addressed as a long-term goal to accommodate human population growth in the county.

Palm Beach County retained PGAL, a national architectural firm with an office in Boca Raton, Florida, to assemble a team that includes Animal Arts, an animal care design specialist in Boulder, Colorado, as well as other engineering and operational consultants to conduct the Comparative Study. In addition to this design team, Palm Beach County selected construction manager Wharton-Smith to provide construction management services throughout the project, beginning with the construction cost estimating information contained in this report.

#### The following primary project drivers guided the Comparative Study Options:

Administrative and Clinical Space	Providing for: rightsizing of all areas (i.e. offices, isolation, clinic, warehouse, educational spaces, etc.), improving overall layout and necessary separations/adjacencies. Operational (ACC) requirement that aligns with industry best practices. Provide facilities for public spay/neuter services.
Animal Housing (Dogs)	Providing for: single, appropriately sized housing (industry standard), indoor/outdoor access where possible. Industry standard and operational (ACC) requirement for cleaning/operational safety.
Animal Housing (Cats)	Providing for: single, appropriately sized housing (adult cats). Operational (ACC) requirement due to health and welfare considerations.
Building Finishes	Providing for: durability and ease of maintenance. Operational (ACC) requirement and industry best practice.
HVAC	Providing for: adequate humidity, ventilation (i.e. air exchanges), and temperature. Operational (ACC) and industry standard that relates to overall animal health standards.
Interior Drainage	Providing for: well-drained housing units that facilitate cleaning. Operational (ACC) requirement.
Interior Lighting	Providing for: well-lit areas. Operational (ACC) and statutory (OSHA) requirement.

Intake Rates	Providing for: existing with 10 percent growth capacity, peak-month seasonal intakes, and extended stays. Operational (ACC) and statutory (C2Z, PBC Ordinances) requirement.
Sound Control/Noise Reduction	Providing for: noise attenuation. Statutory (NIOSH) requirement.

**The following Items are significant cost drivers for the Options:**

HVAC	All interior space (human, support, and animal spaces) recommended to be air conditioned. This has capital (one time) and operational (long-term) budgetary implications. Alternative technologies to reduce HVAC tonnage (which impacts capital cost) were considered but discarded at this point due to reliability and operational considerations.
Kennel Space	Single housing design policies call for additional kennel space to be built under Options 1 and 2. Option 3 reduces the total new space by combining single/double housing. Option 4 significantly reduces kennel capacity and requires a larger percentage of double housing.
Continuity of Operations	Depending on the option chosen, different construction phasing approaches are needed to ensure continuity of operations.

The Options developed within the Comparative Study must support the innovative work already being done by Palm Beach County Animal Care and Control. The Options are forward-thinking and consider the needs of this community now and up to the year 2040.

## **2 Description of Options 1, 2, 3, and 4**

The Options listed below all accommodate the operational programs in place at the current shelter, as well as a Program of Spaces for facility requirements, developed within the study.

The Options developed within the Comparative Study are as follows:

- Option 1: A renovation and addition that allows for key building replacements.
- Option 2: New construction to completely replace the existing facility.
- Option 3: A reduced scope option that maintains program requirements but reduces square footage through various means, including cohousing of dogs. This Option prioritizes renovations.
- Option 4: An Option that significantly reduces scope of the base project to below \$30 million and provides five add alternate projects that can be constructed now or in the future.

### 3 Summary of Process

The Comparative Study incorporates input from a rigorous process that included:

- Two Public Community Meetings.
- Two Charrettes with experts in the field of animal care and control.
- An operational study performed by Humane Network, which evaluated current animal shelter operations and protocols.
- Weekly meetings with county project management and Animal Care and Control throughout the Comparative Study.
- Feedback from Wharton-Smith, the Construction Manager, on constructability, cost, and viability of facility options.

### 4 Summary of Animal Housing

Animal housing, especially canine housing, is the largest driver of square footage within any animal shelter facility. Housing recommendations in the Comparative Study are based on the following best practices per the Association of Shelter Veterinarians' (ASV) *Guidelines for the Standard of Care in Animal Shelters*:

- Accommodating existing animal intakes.
- Accommodating existing and reasonable "length of stay" for the time an animal is in care.
- Allowing for peak-month seasonal intakes to prevent crowding.
- Allowing for a 10 percent growth factor to accommodate rapid human population growth in Palm Beach County.
- Housing one dog per kennel and one adult cat per cage.

The animal shelter Options do not accommodate unusual overflow events due to natural disasters such as hurricanes. During these times, housing units are divided in half to accommodate more animals. This is not recommended for daily operations but is acceptable during an emergency in lieu of providing additional housing.

Based on the criteria above, the recommended Animal Housing Capacity is as follows. Note that capacity is broken down into three categories:

- Adoption/flex housing is housing for either adoptable animals or healthy holding. Most of this housing has some public access, for either adoptions or for owner reclaims.
- Bite and court hold housing is non-public access housing for animals in custody.
- Isolation housing is for medically isolated animals.

	Required Per Analysis	Total Provided	Distributed Adopt/Flex	Bite/Court/Holding	Isolation Housing
Large Dog Housing	330	329	211	84	34
Small Dog Housing	11	10	9	-	1
Cat Housing	210	200*	160	28	12
Kitten Housing	152	162*	60	36	66

\* cats/kittens count together

## 5 Summary of Operational Analysis by Humane Network

To assist the county in assessing its animal care and control operations, Humane Network was hired to observe and document recommended improvements. Their report is further summarized in Section E and is included in full in the Appendices.

In general, the operational challenges that Palm Beach County ACC faces currently are overwhelmingly related to facilities. The highlights include:

- Severely undersized veterinary spaces and isolation areas for animals.
- Lack of proper housing for dogs and cats, including lack of permanent air conditioning.
- A public lobby that makes customer service difficult.
- A public lobby that creates significant public safety concerns for staff and visitors, due to the size and configuration of the lobby.
- In addition to facility improvements, the report emphasizes that greater resources should be allocated for staff training.

Humane Network’s recommendations for facilities and operations were incorporated into the Comparative Study and informed the Options for facility improvements.

## 6 Summary of Program of Spaces

To guide Options 1 and 2, the design team developed a program of spaces of project requirements that represents a “base scenario” of a new building, utilizing normal sizes and grossing factors common to animal shelters. This idealized square footage model is summarized below:

**83,247** square feet of interior air-conditioned space including all human, support, and animal spaces



+ **16,040** square feet of exterior covered kennel, catio<sup>1</sup>, and warehouse space

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**99,287** square feet of primary building footprint

In addition, the program has **5,280** square feet of pasture structures (barn, Quonset hut), as well as additional covered walkways and covered dog play areas, which are also categorized in the program as exterior covered space.<sup>2</sup>

*The existing building is approximately 41,732 square feet in footprint, including the modular trailer that is currently being used to house the field/animal control team; thus, the base program of spaces is 2.37 times larger than the existing facilities.*

For Option 3, the square footage was reduced via combining some spaces, cohousing of dogs, and utilizing more single housing for cats than group housing (as the former requires less square footage). All operational programs remain intact. The reduced square footage model is summarized below:

**76,343** square feet of interior air-conditioned space including all human, support, and animal spaces

+ **10,796** square feet of exterior covered kennel, catio, and warehouse space

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**87,139** square feet of primary building footprint

In addition, the program has **5,280** square feet of pasture structures (barn, Quonset hut), as well as additional covered walkways and covered dog play areas, which are also categorized in the program as exterior covered space.

*The reduced square footage in Option 3 is still twice the size of the square footage of existing facilities. This is because existing facilities are so undersized in every functional area, that even when attempting to streamline and reduce every new space, there are still so many spaces needed to meet the programmatic needs of the PBCACC that square footage must grow dramatically. More information regarding the inadequacies of the existing facilities is covered both in Section D and in the Appendices.*

To develop Option 4, which reduces the cost of the project significantly, two strategies were used:

- 1- **Overall Square Footage Reductions:** This was achieved by slightly reducing the sizes of many spaces, so they fit into the existing building envelope and existing building wall layouts. The spaces still meet program requirements and animal care requirements but are less spacious than in the base program.

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<sup>1</sup> A catio is an outdoor covered patio for cats. This is a common feature of modern animal shelters.

<sup>2</sup> The exterior structures consist of the barn and Quonset hut. The barn is the only structure that is addressed in the comparative study for repair and/or replacement. The size of the barn is the same regardless of whether it is left in place or replaced, which is why this square footage is the same for each Option. The County could choose to leave the existing barn in place and repair it as is described in Option 4. This Alternate could apply to any of the Options.

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- 2- **Identification of Add Alternates:** The team identified five add alternates that could be pulled out of a base program and then added back now or in the future as budget allows.

The Overall Square Footage Program Reduction Yielded these Results:

**71,605** square feet of interior air-conditioned space including all human, support, and animal spaces  
**+ 10,248** square feet of exterior covered kennel, catio, and warehouse space

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**81,853** square feet of primary building footprint

Following this reduction, several alternates were removed to create a base program. These are summarized in Article 7. These add alternates may be added now or in the future as budget allows.

The final revised base program for Option 4 is:

**66,673** square feet of interior air-conditioned space including all human, support, and animal spaces  
**+ 4,592** square feet of exterior covered kennel, catio, and warehouse space

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**71,265** square feet of primary building footprint

In addition, the program has **5,280** square feet of pasture structures (barn, Quonset huts), as well as additional covered walkways and covered dog play areas, which are also categorized in the program as exterior covered space.

*The reduced square footage in Option 4 is still 1.7 times larger than the square footage of the existing facilities.*

## **7** Summary of Options 1, 2, 3, and 4

### *Option 1: A renovation and addition that allows for key building replacements*

In this Option, the following existing buildings are maintained and renovated:

- Three existing kennels, modified with permanent air conditioning and new finishes
- Multipurpose classroom, modified and enlarged to remove some divider walls, and with new finishes

Demolitions include:

- Field Operations modular structure
  - Most of the existing main building, except multipurpose classroom
  - Covered connector areas between buildings
  - Select site/parking and drives
-

- Mechanical areas and truck wash bays
- Sally port

New additions include:

- New primary main building to contain all functions except dog kennels and classroom, laid out to meet better functionality
- New larger high bay sally port
- Three new indoor/outdoor permanently air-conditioned kennels
- New small indoor dog kennels with permanent air conditioning
- New dog isolation building with indoor dog housing and permanent air conditioning

In the block diagram illustrated in Section E, this Option 1 is reconciled with the following square feet. Small differences between calculated program and program drawn occur because of geometries of the existing site and buildings.

<b>Program s.f.</b>	<b>Option 1 Drawn s.f.</b>	
<b>83,247</b>	<b>83,458</b>	<b>Interior Conditioned</b>
<b>16,040</b>	<b>15,484</b>	<b>Exterior Covered</b>

***Option 2: New Construction***

In this Option, no buildings are maintained for renovation.

Demolitions include:

- Modular field operations building
- All other buildings
- Select site/parking and drives

New additions include all new program spaces listed in base program document.

In the block diagram illustrated in Section E, this Option 2 is reconciled with the following square feet. In this all new construction option, more dog housing units are conceptualized as indoor/outdoor runs, thus slightly reducing the interior conditioned square footage and increasing the exterior covered square footage.

<b>Program s.f.</b>	<b>Option 2 Drawn s.f.</b>	
<b>83,247</b>	<b>81,933</b>	<b>Interior Conditioned</b>
<b>16,040</b>	<b>18,130</b>	<b>Exterior Covered</b>

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**Option 3: Reduced Scope Option**

This Option prioritizes the reuse of existing buildings. However, it also reduces scope, primarily through the cohousing of dogs. In this Option, the following existing buildings are maintained and renovated:

- Three existing kennels, modified with permanent air conditioning and new finishes
- Existing main building (although it is gutted and reconstructed with all new layout, finishes, HVAC, flooring, and lighting)

Demolitions include:

- Field Operations modular structure
- Covered connector areas between buildings
- Select site/parking and drives
- Mechanical areas and truck wash bays
- Sally port

New additions include:

- Two-story addition to accommodate intake, staff, and administrative areas
- New larger high bay sally port
- One new indoor/outdoor permanently air-conditioned kennel
- New dog isolation building with indoor dog housing and permanent air conditioning

In the block diagram illustrated in Section E, this Option 3 is reconciled with the following square feet. Small differences between calculated program and program drawn occur because of the geometries of the existing site and buildings.

<b>Reduced Program s.f.</b>	<b>Option 3 Drawn s.f.</b>	
<b>76,343</b>	<b>76,441</b>	<b>Interior Conditioned</b>
<b>10,796</b>	<b>12,435</b>	<b>Exterior Covered</b>

**Option 4: Additional Scope Reductions with Add Alternates**

The goal of this Option was to reduce the base scope and cost of the project significantly, prioritizing using existing buildings. This option includes several Add Alternates that can be constructed now or in the future as funds allow. The Add Alternates are as follows:

- Alternate 1 – New Barn (base scope is use and lightly renovate/repair the existing barn)
- Alternate 2 – New Warehouse (base scope is no new warehouse)
- Alternate 3 – New Adoption/Flex Kennel 4 (base scope is without this kennel)
- Alternate 4 – New Sally Port (base scope uses existing sally port)

- Alternate 5 – New Parking (base scope uses existing parking as much as possible)

Demolitions include:

- Field Operations modular structure
- Covered connector areas between buildings
- Select site/parking and drives
- Mechanical areas and truck wash bays

New additions include:

- Two-story structure that places all veterinary services on the bottom and field/administrative spaces on the top floor.
- Better connectors between buildings.
- One new indoor/outdoor permanently air-conditioned kennel
- New dog isolation building with indoor dog housing and permanent air conditioning

In the block diagram illustrated in Section E, this Option 4 is reconciled with the following square feet. Very small differences between calculated program and program drawn have to do with geometries of existing site and buildings.

Base Program Without Add Alternates:

**Option 4 Base Drawn s.f.**

<b>66,673</b>	<b>Interior Conditioned</b>
<b>4,592</b>	<b>Exterior Covered</b>

Square Footage With Add Alternates:

<b>Option 4 Program s.f.</b>	<b>Option 4 Drawn s.f.</b>	
<b>71,605</b>	<b>71,726</b>	<b>Interior Conditioned</b>
<b>10,248</b>	<b>10,534</b>	<b>Exterior Covered</b>

*Pros and Cons of Options 1, 2, 3, and 4*

<b>Option 1</b>			
	Pros	Cons	Notes
Meets Industry Standards	*		This Option meets industry standards.
Constructability	*		More constructible due to fewer constraints.
Customer Service	*		Gallery Design is public friendly.
Ease of Air Conditioning	*	*	It is possible to add air conditioning, but not as easy to modify existing kennels because they were not designed for air conditioning.

<b>Construction Cost</b>	*		<b>Best balance of short- and long-term costs.</b>
<b>Option 2</b>			
	Pros	Cons	Notes
Meets Industry Standards	*		This Option meets industry standards.
Constructability	*		More constructible due to fewer constraints.
Customer Service	*		Gallery Design is public friendly.
Ease of Air Conditioning	*		All new kennels can be designed with air conditioning from the start.
<b>Construction Cost</b>		*	<b>Most costly.</b>
<b>Option 3</b>			
	Pros	Cons	Notes
Meets Industry Standards		*	This Option does not meet industry standards due to cohousing of dogs.
Constructability		*	Less constructible due to working around the existing building. Phasing is much more difficult because of reduced scope of animal housing (creates difficulties for staging).
Customer Service	*		Gallery Design is public friendly.
Ease of Air Conditioning	*	*	It is possible to add air conditioning, but not as easy to modify existing kennels because they were not designed for air conditioning.
<b>Construction Cost</b>		*	<b>Less costly in short term but costs more to build additional kennels in the future.</b>
<b>Option 4</b>			
	Pros	Cons	Notes
Meets Industry Standards		*	This Option does not meet industry standards due to cohousing of dogs.
Constructability		*	Less constructible due to working around the existing building. Phasing is much more difficult because of reduced scope of animal housing (creates difficulties for staging).
Customer Service	*		Gallery Design is public friendly.
Ease of Air Conditioning		*	Most kennel spaces are existing. It is possible to add air conditioning, but not as easy to modify existing kennels because they were not designed for air conditioning.
<b>Construction Cost</b>		*	<b>Least costly in short term, but each deleted program element will cost more to add in the future.</b>

## 8 Continuity of Operations

The Continuity of Operations Plan is similar for all Options and is described in Section E of this Report. In summary, the phasing allows for all people and animals to remain on site without using offsite facilities. Demolition and construction are staged, along with the construction of some temporary facilities within existing buildings, all within the project site to allow for functions to remain operational during the construction.

## 9 Cost and Staffing Summary of Options 1, 2, 3, and 4

### Overall Construction Costs

The costs for each Option are as follows. These costs include the buildings and site work, all the phasing to keep Animal Care and Control operational, and they also include all contractor provided built-in equipment. Note that Wharton-Smith has not included potential equipment reuse for contractor provided equipment in their cost models, although we anticipated that costs of equipment will decrease 10-15 percent due to reuse of existing equipment. This will need to be fully reconciled during design of the project, during which time contractor provided equipment estimates will likely decrease slightly as a result.

Costs	Option 1	Option 2	Option 3	Option 4
	Renovation /Addition	New Construction	Reduced Scope Renovation/Addition	Reduced Base Scope w/out Add Alternates
	<b>\$48,921,320</b>	<b>\$57,625,702</b>	<b>\$38,826,718</b>	<b>\$29,533,988</b>
	\$494 per s.f.	\$576 per s.f.	\$437 per s.f.	\$414 per s.f.

Costs of Add Alternates in Option 4:

- Add Alternate 1: Replace Barn: \$693,546<sup>3</sup>
- Add Alternate 2: New Warehouse: \$745,428
- Add Alternate 3: New Kennel #4: \$6,899,251
- Add Alternate 4: New Sally Port: \$621,122
- Add Alternate 5: New Parking: \$293,836

<sup>3</sup> The cost to lightly renovate/repair the barn, as included in the base cost estimate for Option 4, is \$75,308. \$693,546 represents the delta between this cost and replacing the barn in Option 4. If the county were to choose a light renovation of the barn, in lieu of full replacement, Options 1, 2, and 3 could be adjusted to include the \$74,308 in light renovation/repair in lieu of the \$693,546 cost of replacement.

It should be noted that the cost of each add alternate in Option 4 is dependent on the following:

- Whether the alternate is bundled with other alternates. This could lower the general conditions costs within the construction.
- When the alternates are constructed. Constructing them beyond the year 2021 will add escalation factors such as, but not limited to overall construction cost escalations due to inflation, material cost escalations, and tariffs.

***Air-Conditioning Costs***

Air conditioning was discussed at length during the design process and is documented in detail in this report. **Permanent air conditioning is strongly recommended by the design team** for all kennels because it has a direct positive impact on animal health, supports animal welfare, and reduces the operational burden of caring for sick animals. Permanent air conditioning is included in the cost of all Options.

The design team was asked to develop a seasonal air conditioning strategy for the kennels, but we strongly recommend against this solution, and therefore did not develop it for use by the county. Seasonal air conditioning is unhealthy because it does not include adequate ventilation. Ventilation is even more important than air conditioning for maintaining animal health.

The design team thus provided a cost scenario for each Option for ventilation only to the kennels, without permanent air conditioning. This strategy, while possible, does not save the county significant money on the cost of the Options. We do not recommend the “ventilation only” approach because it compromises animal health and does not provide a large capital cost benefit.

Costs	Option 1, Ventilation Only	Option 2, Ventilation Only	Option 3, Ventilation Only	Option 4, Ventilation Only
	<b>\$47,994,316</b>	<b>\$56,846,102</b>	<b>\$38,090,263</b>	<b>\$28,922,428</b>
	Option 1, Deduct for Ventilation Only	Option 2, Deduct for Ventilation Only	Option 3, Deduct for Ventilation Only	Option 4, Deduct for Ventilation Only
	<b>\$927,004 Deduct</b>	<b>\$779,600 Deduct</b>	<b>\$736,455 Deduct</b>	<b>\$611,560 Deduct</b>

***Owner Provided Equipment Costs for All Options***

Owner Provided Furnishings, Fixtures, and Equipment is estimated at **\$1,697,043** for each Option. A full break out of anticipated F, F, and E is included in the Appendices.



**Staffing Increases**

Each Option increases the size of the facilities. Therefore, staff increases are required for operation of these larger facilities. Proposed staffing increases for each Option are as follows:

Staffing Costs	Option 1	Option 2	Option 3	Option 4 Base <sup>4</sup>
	Renovation /Addition	New Construction	Reduced Scope Renovation/Addition	Reduced Scope w/out Add Alternates
	<b>\$1.2M</b>	<b>\$1.2M</b>	<b>\$800,000</b>	<b>\$333,333</b>
	12 Kennel Workers (4 per new kennel)	12 Kennel Workers (4 per new kennel)	6 Kennel Workers (4 per new large kennel, 2 per new small kennel = 6)	2 Kennel Workers (2 per new small kennel)
	6 Veterinary Technicians (2 per new kennel)	6 Veterinary Technicians (2 per new kennel)	6 Veterinary Technicians (2 per new kennel)	3 Veterinary Technicians (2 per new small kennel, 1 additional due to illness caused by co-housing)
	Isolation ward will utilize existing and new staff	Isolation ward will utilize existing and new staff	Due to co-housing, likely increase in illness, requiring same # of veterinary technicians	Due to co-housing, one additional veterinary technician needed to address likely increase in illness.

**Utility Costs**

Utility costs will be higher in the newer facilities than in the existing ones because of the greater square footage.<sup>5</sup> New Options are estimated below. An analysis of utilities is included in the Report.

	Gas \$/year	Elec \$/year	Water \$/year
Existing Facility	\$23,232	\$101,500	\$50,448
Option 1 Total (all)	\$41,146	\$160,198	\$61,120
Option 2 Total (all)	\$40,441	\$158,923	\$60,407
Option 3 Total (all)	\$37,903	\$140,416	\$57,841
Option 4 Total (all)	\$33,388	\$132,248	\$53,276

<sup>4</sup> Option 4 with all add alternates has the same staffing requirements as Option 3.

<sup>5</sup> Square footage is only one of many factors that affect utilities. The report provides a more detailed explanation, including the impact of using ventilation only in the kennels. The planning numbers provided in this summary assume all facilities are air conditioned.

Given the costs of the existing utilities, the Options would increase utility costs yearly as follows:

- Option 1 – Add \$183,111 annually
- Option 2 – Add \$179,066 annually
- Option 3 – Add \$151,013 annually
- Option 4 – Add \$125,108 annually

***Reduction of Costs of Utilities for Ventilation Only in the Kennels***

If Palm Beach County were to utilize a ventilation only design in the kennels, the increases in utilities for each option would be slightly lower, as follows:

- Option 1 – Add \$124,851 annually
- Option 2 – Add \$121,033 annually
- Option 3 – Add \$93,861 annually
- Option 4 – Add \$75,174 annually

The design team does not recommend a ventilation only approach, regardless of reduced utility costs.

***Overall Cost Summary Table for Facility Options***

Option #	Option 1	Option 2	Option 3	Option 4
Description	Renovation /Addition	New Construction	Reduced Scope Renovation/ Addition	Reduced Base Scope w/out Add Alternates
<b>Capital Costs</b>	<b>\$48,921,320</b>	<b>\$57,625,702</b>	<b>\$38,826,718</b>	<b>\$29,533,988</b>
Owner F, F, & E	\$1,697,043	\$1,697,043	\$1,697,043	\$1,697,043
<b>Subtotal (Capital + F, F, &amp; E)</b>	<b>\$50,618,363</b>	<b>\$59,322,745</b>	<b>\$40,523,761</b>	<b>\$31,231,031</b>
<b>Annual Increased Utility Costs (including full air conditioning)</b>	<b>\$181,111</b>	<b>\$179,066</b>	<b>\$151,013</b>	<b>\$125,108</b>
Annual Increased Staffing Costs	\$1,200,000	\$1,200,000	\$800,000	\$333,333

## 10 Summary of Recommendations

Option 1, with air conditioning, is recommended as the best option for Palm Beach County facilities for the short and long term. The primary reasons are:

- Best value. The Option meets the space program needs of Animal Care and Control, including requirements for animal housing, with a lower cost than Option 2. Options 3 and 4 do not have adequate animal housing.
- Best use of existing resources. The Option salvages some existing buildings such as kennels, where possible, while providing viable means to expand and renovate them.

Additional information about this recommendation is included in the Report.

In addition to a full overhaul of the existing facilities on Belvedere Road, the design team recommends planning for significant urbanization of the county and population growth on the western side of the county. Over time, this will create pressures for additional facilities on the west side. The enclosed Comparative Study addresses the potential for long-term expansion and modernization of the Pahokee facility in western Palm Beach County.

## B. Animal Control in the United States

## B. Animal Control in the United States

### 1 History of Animal Care and Control

Animal care and control has changed dramatically over time in the United States. In the earliest decades of the 20<sup>th</sup> century, “pound-masters” primarily impounded stray horses and other livestock. As livestock numbers diminished and human populations grew, greater emphasis was placed on impounding companion animals, and especially dogs, for two primary reasons:

- To prevent the public health risk of rabies, a virally transmitted, deadly disease.
- To prevent the public safety risk posed by dog bites.

The above health and safety goals still form the framework for animal care and control programs around the country, including programs provided by Palm Beach County Animal Care and Control.

### 2 Public Health

In the U.S., rabies prevention is achieved by focusing on domestic animal populations rather than on vaccinating humans. Laws requiring rabies vaccinations for dogs in jurisdictions nationwide are well-defined, and local governments actively enforce vaccination and licensing of dogs and cats. Prior to 1960, most U.S. recorded animal rabies cases were in domesticated animals. Today, 90 percent of cases are in wildlife, due to the massive effort to prevent rabies in domesticated animals.<sup>6</sup> The activities of animal control agencies around the nation help to maintain this success.

### 3 Public Safety

In addition to health risks, animals can also pose safety risks. According to the Centers for Disease Control, 4.7 million dog bites occur every year in the U.S.<sup>7</sup> Animal control programs, including those provided by Palm Beach County, help reduce the risk of dog bites.

While rabies control in the U.S. has been successful, dog bite prevention has been a tougher issue to tackle. During the 1950s, the public health monetary cost of dog bites was reported to be between \$1 and \$5 million. In 2001, the monetary impact of dog bites had been estimated to be nearly \$165 million in direct medical costs. Insurance company claims added another \$1 billion.<sup>8</sup> Today, dog bites and dog-related injuries account for more than one-third of homeowner’s insurance liability claim dollars.<sup>9</sup>

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<sup>6</sup> (Centers for Disease Control and Prevention (CDC), 2017).

<sup>7</sup> (Centers for Disease Control and Prevention (CDC), 2001).

<sup>8</sup> (Overall & Love, 2001).

<sup>9</sup> (Insurance Information Institute, 2017).

Due to robust animal control programs in Palm Beach County, dog bites have not increased significantly in the county in recent years, despite rapid human population growth.

## **4** Protection of Animals

Public health and safety remain critical requirements for animal care and control organizations; however, today's communities also demand a full range of services to protect the welfare of animals. Communities demand humane treatment for animals, but this was not always the case.

According to the Humane Society of the United States, in the 1970s, dogs and cats entered U.S. animal shelters in great numbers, but the majority were unclaimed. During this time, 12 million to 20 million dogs and cats were euthanized every year at a time where there were 67 million pets in the U.S. (approximately 25 percent of all dogs and cats).<sup>10</sup> At the end of the 1970s, attitudes towards animals began changing. The National Animal Care & Control Association (NACA), was formed in 1978 to provide resources and education to animal control agencies around the country. In the 1980s, veterinarians began to address the health of sheltered animals. Today, companion animals have an accepted place in the human family structure.

A focus on humane care and treatment of animals has resulted in the growth of a variety of nationwide efforts that collectively work to reduce the number of homeless animals, reduce the euthanasia of animals, and provide needed community services. As a result, euthanasia has decreased to 3 percent of the dog and cat population<sup>11</sup> even as pet ownership has increased (approximately 3-4 million animals are euthanized with more the 135 million dogs and cats in American homes). Today, it is typical for agencies to include most or all the following proactive programs:

- T.N.V.R.<sup>12</sup>
- Adoption
- Spay and Neuter
- Shelter Medicine
- Animal Transfer
- Adoption Partnership
- Volunteer Programs
- Intake Diversion: providing resources to pet owners so they may keep their pets when possible rather than surrendering them

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<sup>10</sup> ([www.scientificamerican.com/article/pet-overpopulation-progress](http://www.scientificamerican.com/article/pet-overpopulation-progress)).

<sup>11</sup> ([www.scientificamerican.com/article/pet-overpopulation-progress](http://www.scientificamerican.com/article/pet-overpopulation-progress)).

<sup>12</sup> Trap, Neuter, Vaccinate, and Release Programs for Community Cats.

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Palm Beach County, like other leading agencies around the nation, provides a wide variety of proactive programs including the programs listed above.

## 5 Operational Best Practices in Public Animal Shelters

As animal sheltering transitioned from animal holding to animal welfare, animal care professionals struggled with complexity and became increasingly divided on several key issues. In 2004, a group of leaders met in California to develop The Asilomar Accords. This landmark document laid the groundwork for better cooperation between agencies, a standardized terminology to be used in caring for and treating animals, and improvements to data management.

At the same time, shelter medicine was recognized as a specialty within veterinary medicine. This catalyzed unprecedented growth in the understanding of the health issues for shelter animals and the development of recommended operational practices in animal shelters. The Association of Shelter Veterinarians published a document in 2010 known as the “Guidelines for the Standards of Care in Animal Shelters”; this is referenced throughout this report as the ASV Guidelines. These guidelines, while not binding, represent best practices in the animal sheltering industry.

The following concepts described in the ASV Guidelines inform the PBCACC Comparative Study:

<b>RIGHTSIZING FACILITIES</b>	Animal shelter facilities should be sized to provide the best possible care for animals, encouraging the best possible outcomes, in the shortest time.	<ul style="list-style-type: none"> <li>• Animal shelters built with more than the optimum capacity create opportunities for animals to stay longer than necessary, which works against animal health and welfare.</li> <li>• Animal shelters built with too little capacity are often crowded, unsafe, and unhealthy.</li> </ul>
<b>CREATING APPROPRIATE ANIMAL HOUSING</b>	Dogs and cats need safe and healthy enclosures to achieve their best outcomes in animal shelters.	<ul style="list-style-type: none"> <li>• One dog per kennel and one cat per cage.<sup>13</sup></li> <li>• Appropriately sized animal enclosures.</li> <li>• Housing areas that are well drained, well lit, and ventilated properly.</li> </ul>
<b>IN-HOUSE VETERINARY CARE FOR ANIMAL HEALTH</b>	Today’s animal shelters need veterinary medical areas for managing everything from routine health protocols, such as vaccinations to emergency health concerns. A shelter should also have enough capacity and be laid out to isolate infectious disease.	
<b>HVAC DESIGN TO MAINTAIN ANIMAL HEALTH</b>	The facility must be maintained at a temperature range that does not lead to metabolic stress for the animals. The facility must be maintained at a humidity range that does not promote the growth of mold. Ventilation should be developed to reduce the risk of the spread of disease.	
<b>ABILITY TO PROPERLY SANITIZE FACILITIES</b>	Up to half of kennel staff time is spent cleaning. Shelters are now designed to allow these tasks to be done more quickly, using better disinfectants, better protocols, and better systems for cleaning. This leaves more time for caring for animals and serving the public.	

<sup>13</sup> Unless housing litters of kittens or select group housing situations for healthy cats.

<b>MINIMIZING STRESS AND MANAGING BEHAVIOR</b>	Animal shelters are stressful places for animals. Well-designed shelters assist animal care staff by providing:	<ul style="list-style-type: none"><li>• Proper places to evaluate animals for behavior.</li><li>• Enclosures that support animals' behavioral welfare.</li><li>• Opportunities for socializing and enrichment.</li></ul>
<b>INFRASTRUCTURE FOR SPAY AND NEUTER SERVICES</b>	Population control is important to reducing animal intakes over time and is often required by law. Best practice animal shelters include the space and professional staff to provide spay/neuter services for sheltered animals.	

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ASV also stresses the importance of established protocols, procedures, record keeping, and training.

In addition to the practices promoted by shelter health professionals, the following concepts enhance the overall mission and operations of public animal shelters, as demonstrated through other benchmark animal sheltering projects throughout the United States.

- Efficiency of layout to minimize unnecessary steps taken throughout the day.
- Separation of staff areas from public areas of the facilities for the safety of people and animals.
- Durability of materials and low-maintenance systems to reduce long-term costs.
- A comfortable space for people to view and adopt animals.
- Good customer service to encourage citizens to interact positively with animal services.
- A classroom or multipurpose space to provide educational resources to the public.

Animal shelters are now constructed to welcome the public, to encourage adoptions, and to house the animals to improve their health and to support best outcomes. Ultimately, the shelter must care for its animals, staff, volunteers, and the community of people who are responsible for them.

## **6** Current Challenges for Animal Control Agencies

Decades of improvement in knowledge and resources in animal care and control has resulted in dramatic progress. Rabies is a far-reduced risk compared to decades before, and animal intakes into shelters are down nationwide, in Florida, and in the Palm Beach County Animal Shelter. Animals' lives are saved in ever greater numbers. While these trends are compelling, they are achieved only by operating a wide array of programs, such as the ones already in place in Palm Beach County.

The future is both positive and challenging for Palm Beach County. In the long view, the burden of caring for homeless animals is likely to eventually diminish, as it has in many areas around the U.S. Unfortunately, these trends are still regional, and many counties in Florida and throughout the southeastern United States still work very hard to meet their baseline requirements in the context of large animal populations, human population growth, and greater expectations for humane animal care.



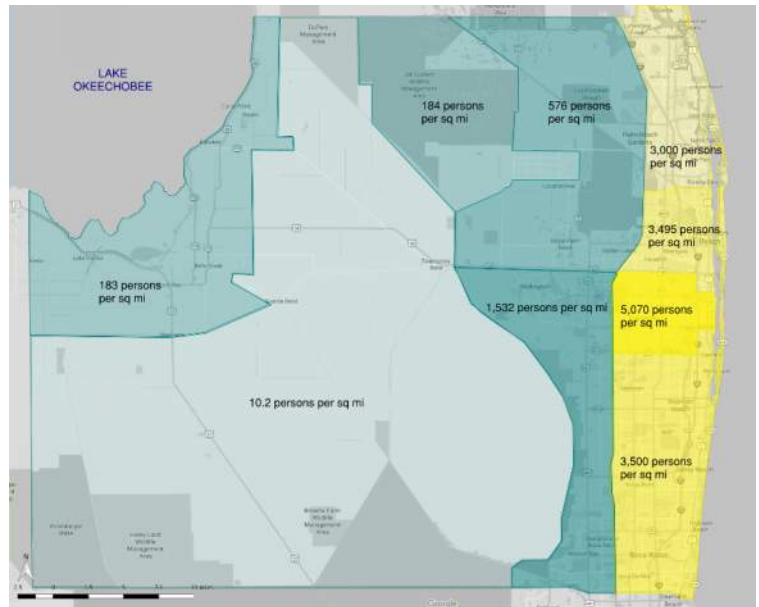
## C. Overview of Palm Beach County Animal Care and Control

## C. Overview of Palm Beach County Animal Care and Control

### 1 Demographic Context of Palm Beach County

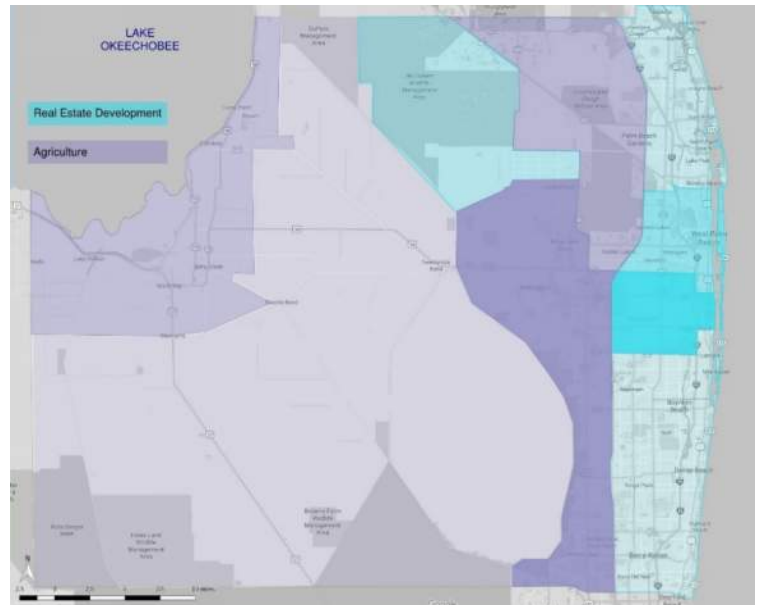
#### Population Density

The current population of Palm Beach County is approximately 1,485,941 people,<sup>14</sup> making it the third most populated county in the state of Florida. The population has increased by 12.6 percent since 2010. The urbanized cities to the east of the county are significantly more populated than the western portion of the county. The eastern edge of the county has an average of 754.38 persons per square mile<sup>15</sup>. This drops to 10 persons per square mile in the lower western portion of the county, where most of the land is purposed for wildlife management and farming crops.



#### Growth and Potential Effects on Animal Services

The population of Palm Beach County is predicted to rise over the next 20 years, with projections predicting 1,532,200 people in 2020, 1,718,600 people in 2030 and 2,022,200 people in 2040.<sup>16</sup> The eastern edge of the county will continue to be most affected by growth, although growth may start to push the agricultural regions further west. With an increase in human population, the animal population within the county will also increase.



<sup>14</sup> [www.census.gov/quickfacts/palmbeachcountyflorida](http://www.census.gov/quickfacts/palmbeachcountyflorida).

<sup>15</sup> [countrydigest.org/palm-beach-county-population/](http://countrydigest.org/palm-beach-county-population/).

<sup>16</sup> [bebr.ufl.edu/sites/default/files/Research%20Reports/projections\\_2017.pdf](http://bebr.ufl.edu/sites/default/files/Research%20Reports/projections_2017.pdf).

Human population is logically expected to relate to shelter intake; however, the change in animal intakes as a result of changes in human population can be unpredictable. Over the longer term, intakes may decrease rather than increase, as Palm Beach County continues to urbanize.<sup>17</sup> Nevertheless, because of the rapid growth of human populations in Palm Beach County, we expect more pressure on animal care and control services in the future.

## 2 Animal Care and Control in Palm Beach County

*The mission of Palm Beach Animal Care and Control is to protect the animals and people through education, enforcement and community collaboration.*

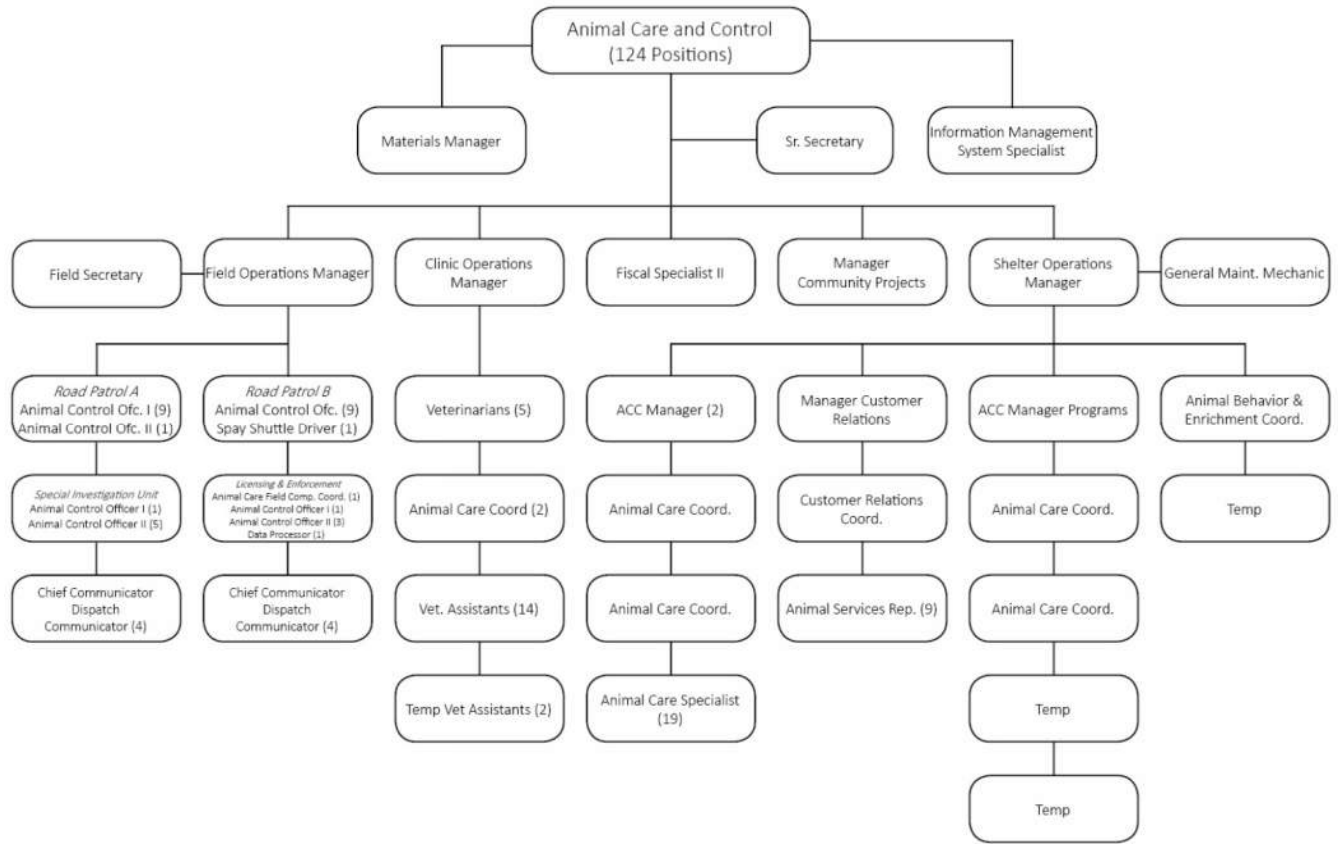


Palm Beach County Animal Care and Control was created in 1969 for the purpose of human safety. Since then, it has evolved to ensure the safety and humane treatment of all animals within the community. In 1974, the shelter became a division of the Public Safety Department, and its programs and services were expanded to keep pace with the growing human and animal populations. In 1980, the division became fully accredited by the Humane Society of the United States. PBCACC was the first agency in the southeast and second in the nation to receive this distinction.

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<sup>17</sup> Shelter intakes per 1,000 capita human population are generally lower in urbanized areas of the United States than in suburban and semi-rural areas.

**Palm Beach County Animal Care and Control Organizational Chart**



Note: In addition to the above positions, Palm Beach County Animal Care and Control also regularly employs contract laborers who work under the Shelter Operations Manager, when circumstances call for more work staff.

**The Shelter**

The shelter facility was not created as a long-term housing solution for animals. The shelter and its programs are a **last resort** for lost, abused, or homeless animals. The shelter focuses on housing stray animals, potentially dangerous or vicious dogs, bite quarantine, seized animals, as well as owner surrendered animals. As an open admission shelter, the county receives animals with unknown health and behavioral needs and must provide for these animals efficiently and with care so they can be placed in permanent, loving homes as quickly as possible.

The shelter operates numerous programs to help reduce the number of animals coming into the shelter or returning to the shelter, and to move animals through quickly. These include intake intervention, a Trap-Neuter-Vaccinate-Return (T.N.V.R.) program, return to field programs, Dogs Playing for Life, foster programs, volunteer programs, Healing Hearts, Health Care Certificate Program, placement partners, targeted sterilization, community education, and adoption events.

### *Disaster Preparedness*

As with many jurisdictions in Florida, Palm Beach County has robust protocols and partnerships for disasters such as hurricanes. The current shelter is not hurricane compliant with current codes, so staff cannot remain in the shelter in the event of a hurricane. Animals must be evacuated to foster homes or placement partners or provided enough food and water to last five days. No animal evacuation shelter for sheltered and impounded animals exists in Palm Beach County.

Palm Beach County also operates a public pet-friendly shelter where people can bring their owned animals when they must evacuate. The shelter is available to all Palm Beach County residents who reside in mandatory evacuation zones or mobile homes. Dogs, cats, birds, and small pocket pets are allowed in this shelter. Rules and restrictions apply.

### *Countdown 2 Zero*



Countdown 2 Zero is a collaborative initiative, partnered with Peggy Adams Rescue League, to involve animal advocates and the general public to end the euthanasia of adoptable animals by 2024. The Countdown 2 Zero initiative focuses on affordable and data-driven spay-neuter programs, proactive lost and found, T.N.V.R., medical and behavioral programs, proactive and barrier free adoptions, promoting rescue networks, foster care, community outreach, and involvement advocacy.

## **3 Overview of Field Services**

PBCACC accepts any complaint involving animal cruelty or neglect, as well as supporting local law enforcement. All employees are dedicated to the overall mission to ensure the safety of the public and protecting animals from cruelty or neglect.

Animal Care and Control officers service 2,300 square miles and 1.4 million residents. Officers respond to any call from routine complaints to animal-related emergencies. Over 84,000 animal-related phone calls are received annually with over 15,000 public complaints requiring officer assistance. Complaints can range from bite investigations, dangerous dog or vicious dog investigations, rabies surveillance,

special investigations (animal cruelty and neglect), regulated commercial animal establishments (pet stores, barns, grooming, other shelters, and private breeders). Once the complaint is received, it is prioritized. Complaints involving animals currently threatening humans or domestic animals, loose livestock on roadways, injured animals in traffic, animals in current distress, and law enforcement requesting immediate response are among those to get the highest priority and will be answered first.

There are several branches of field services including the Special Investigations unit, Communications, Road Patrol, and Licensing and Enforcement:

- The Communications unit is currently comprised of eight Communicators and two Chief Communicators whose focus is handling all radio communication between the public calls and officers in the field. This unit typically receives an average of 7,000 calls each month.
- The Road Patrol unit consists of 18 Animal Control Officers, one Animal Control Officer II/Training Coordinator, one Stray Shuttle and two Field Supervisors. This unit is the first responder to public complaints. The officers typically resolve complaints through a combination of education and enforcement to improve the lives of animals. They also rescue stray, lost, and injured animals.
- The Special Investigations unit consists of three Animal Cruelty Investigators, two Dangerous Dog Investigators, one Animal Control Officer/Animal Bite Coordinator, and one Field Supervisor. This unit investigates cases of animal cruelty and neglect, as well as dangerous dog cases and coordinates animal bite cases to verify the rabies status of any dog that has bitten a human or domestic animal.
- The Licensing and Enforcement unit which consists of three Commercial Establishment Investigators, one Animal Control Officer/Administrative Compliance Officer, one Animal Control Officer/Community Cat Compliance Officer, one Data Processor II and one Field Supervisor. This unit conducts inspections and issues permits to commercial animal businesses, such as pet shops, boarding facilities, etc. Staff also handle community cat issues, nuisance dog barking affidavits, and extensive record management from pet shops, breeders, and animal rescues.

Civil citations are issued for over 3,000 offenses annually within the county as the officers try to resolve community complaints and improve the lives of the animals. The most cited offenses include, leash law violations, minor neglect violations, failure to sterilize violations, and failure to obtain rabies vaccines and/or county license tags. Citations range up to \$500 per offense, with many first offenses dismissed upon proof of compliance within 15 days.

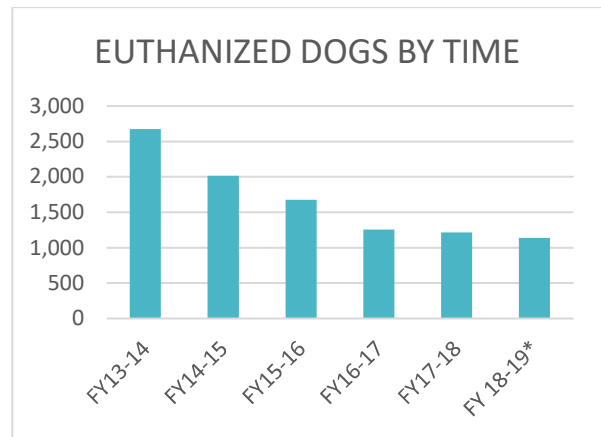
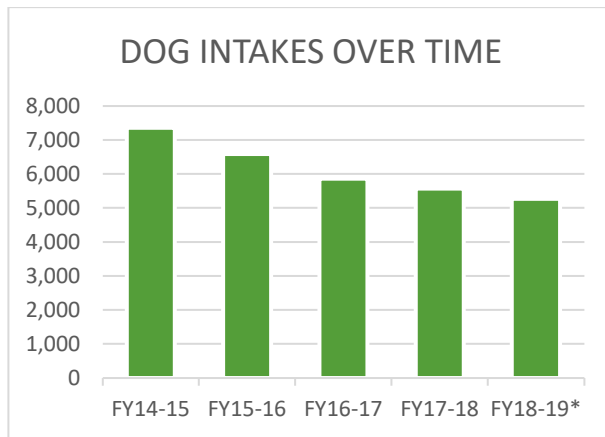
## 4 Overview of Animal Sheltering

The design team analyzed intakes of animals into the shelter, as well as outcomes for these animals. Large trends are summarized here and explained in more detail in the report.<sup>18</sup>

As is true with many open admissions animal shelters in the United States, PBCACC receives a high number of cats and kittens, and a large percentage of pit bull or pit bull mixes. These are the most at-risk animals. Easy to adopt animals such as smaller dogs leave the shelter quickly.

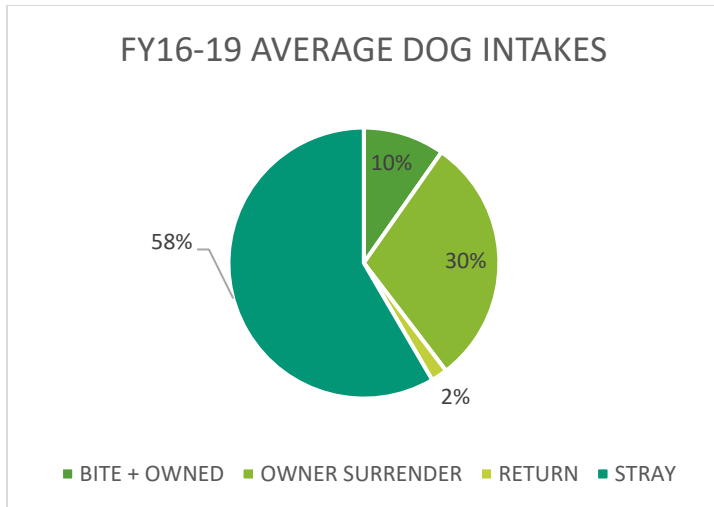
### Dogs

Typically, live release rates for dogs are higher than cats; however, the intake numbers for dogs at PBCACC still put a strain on the shelter's resources. In fiscal year 2013-2014, 8,014 dogs entered the shelter and 2,674 were euthanized. In fiscal year 2017-2018, 5,568 dogs entered the shelter and only 1,215 were euthanized, increasing the live release rate from 70 percent to 79 percent. The shelter tracked above a 90 percent live release rate for dogs in 2019. Euthanasia of dogs within the shelter is typically limited to unsafe behavior and medical issues. Though the shelter takes in a wide range of dogs, square-headed dogs (pit bulls or pit bull mixes) make up most of the canine population and tend to stay in the shelter for longer periods of time.



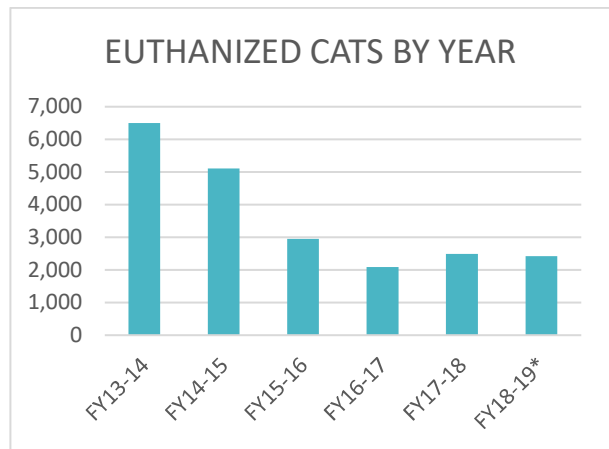
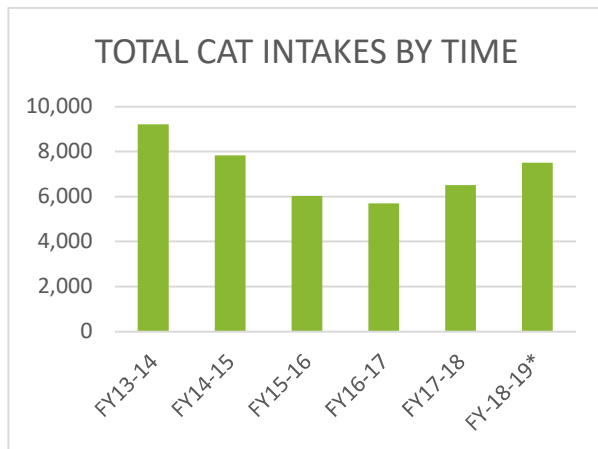
Most dogs entering the shelter are strays, although statistical trends indicate that stray dog intakes are decreasing each year. The rate of decrease has slowed in the past three years.

<sup>18</sup> In charts in this section and throughout the report, an asterisk placed next to FY 18-19 indicates that this data was obtained partially from PBCACC and partially from Shelter Animals Count. All other years of data are obtained solely from PBCACC. Any potential discrepancies in data due to sourcing for FY 18-19 are immaterial to the recommendations of the Comparative Study, and do not affect the content of the report in any way. They are noted here for purposes of accuracy and transparency.



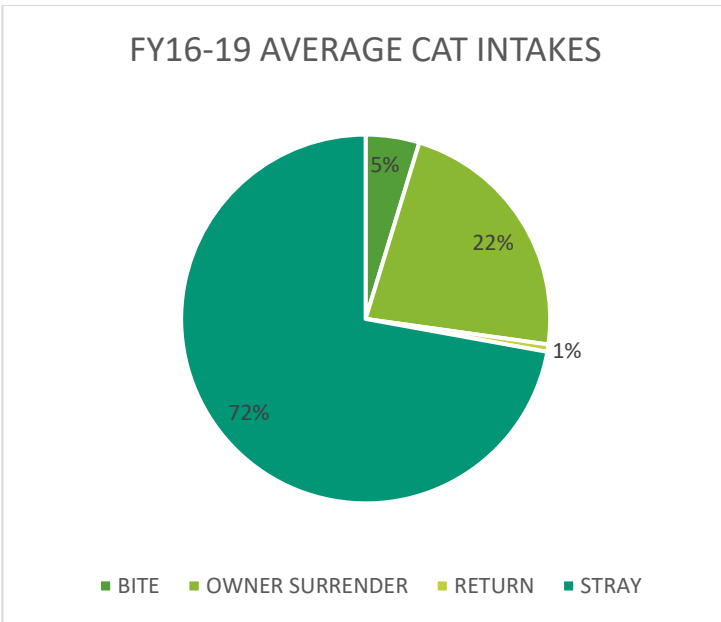
**Cats**

There are over 250,000 estimated community cats living in Palm Beach County. In fiscal year 2013-2014, 9,216 cats came into the shelter and 6,496 were euthanized. With the Countdown 2 Zero initiative, T.N.V.R., and targeted sterilization efforts, the number of cats coming into the shelter in fiscal year 2017-2018 decreased to 6,505 cats of which 2,485 were euthanized. This increased the live release rate from 34 percent in 2013-2014 to 51 percent in 2017-2018.



Despite T.N.V.R. efforts, most intakes of cats into the PBCACC shelter are stray cats.





### ***T.N.V.R. Program***

Community cats are cats that have been spayed or neutered, vaccinated and released back into the community. The PBCACC facilitates a T.N.V.R. program that provides spay/neuter, microchips, vaccinations, and release back into the community to ensure that the cat population does not increase due to unwanted breeding and the cats are not unnecessarily euthanized in shelters due to overcrowding. In Palm Beach County, community cats can be cared for on a private property where the caregiver is required to provide adequate quantities of fresh food and water.

### ***Adoption Programs***

The PBCACC operates many life-saving programs and partners with over 70 shelters and rescues to assist in moving animals into adoptive homes as quickly as possible. PBCACC hosts adoption events and posts available animals on its website. Adoption fees include \$60 for adult dogs, \$75 for puppies, and \$50 for cats and kittens. All animals are spayed/neutered prior to adoption and have received the first round of vaccinations, deworming, flea and heartworm prevention, rabies vaccination, county license and are microchipped.

## **5 Overview of Veterinary Programs**

All life-saving programs operated by the shelter have a direct link to the PBCACC's veterinary clinic. The clinic has five full-time veterinarian positions, 14 full-time veterinary technicians, one clinic manager, two clinic coordinators, as well as two part-time veterinary assistants and two part-time veterinarians

that operate during peak seasons. Vaccinations, boosters, and microchipping procedures are provided to over 12,000 shelter animals and over 5,000 owned pets annually. The clinic examines over 15,000 animals (shelter and owned pets) each year. In addition to these exams, the shelter performs medical processing examinations upon intake of all animals coming into the shelter.

Daily, over 300 medical treatments are performed by clinic staff for animals in the shelter. In 2018, 7,452 spay and neuter surgeries were performed in house. The PBCACC performs spay and neuter for the public's owned animals in a space in the current facility that is not designed for this use.

## **6 Other Programs Offered by Palm Beach County Animal Care and Control**

### *Behavior and Enrichment*

This program provides for the evaluation of animals, enrichment activities for all animals, and behavior modification for those animals deemed as unadoptable, with the goal of improving poor behaviors and thus increasing the animal's chances of placement.

### *Humane Education*

PBCACC offers humane education programs, such as presentations about animal welfare issues and animal laws in the Palm Beach County schools. The presentations highlight responsibility, laws, diseases (such as rabies), sterilization, the social and scientific issues involving pet overpopulation (disease abundance, parasites), and careers working with animals. The shelter also partners with the South Florida Link Coalition<sup>19</sup> to increase education and awareness, address public policy, create programs and lead research between animal cruelty and human violence. The South Florida Link Coalition facilitates community and social change by working to bring members of the community, government, criminal justice system, health care system, animal welfare agencies, and human services together to foster healthy relationships between people and animals and reach goals that will positively affect public health and safety.

### *Foster Care*

The Foster Care Program helps provide temporary homes for animals that either are not ready for adoption or do not thrive in a typical shelter setting. Partnering with community volunteers, PBCACC can care for these animals until they are adopted into their forever homes. Typical animals in need of foster care include animals too young to be spayed or neutered, animals nursing a litter of kittens or puppies, animals needing medical care for non-infectious diseases, or animals that exhibit shy or shutdown

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<sup>19</sup> [www.thesouthfloridalinkcoalition.org/](http://www.thesouthfloridalinkcoalition.org/).

behaviors. The Kitten Foster Program places new moms in a home setting to ensure kittens are socialized and grow up away from shelters to save as many neonates as possible.

### ***Volunteer Programs***

Most animal control agencies around the United States extend their level of service and care with the help of volunteer programs. In addition to providing foster homes for animals, volunteers work within the shelter to walk and socialize dogs, socialize cats, and accomplish a wide variety of tasks. Volunteers advocate for animals in Palm Beach County and assist the county in providing exceptional care to the animals. In 2019, there were 9,771 volunteer hours in the shelter.

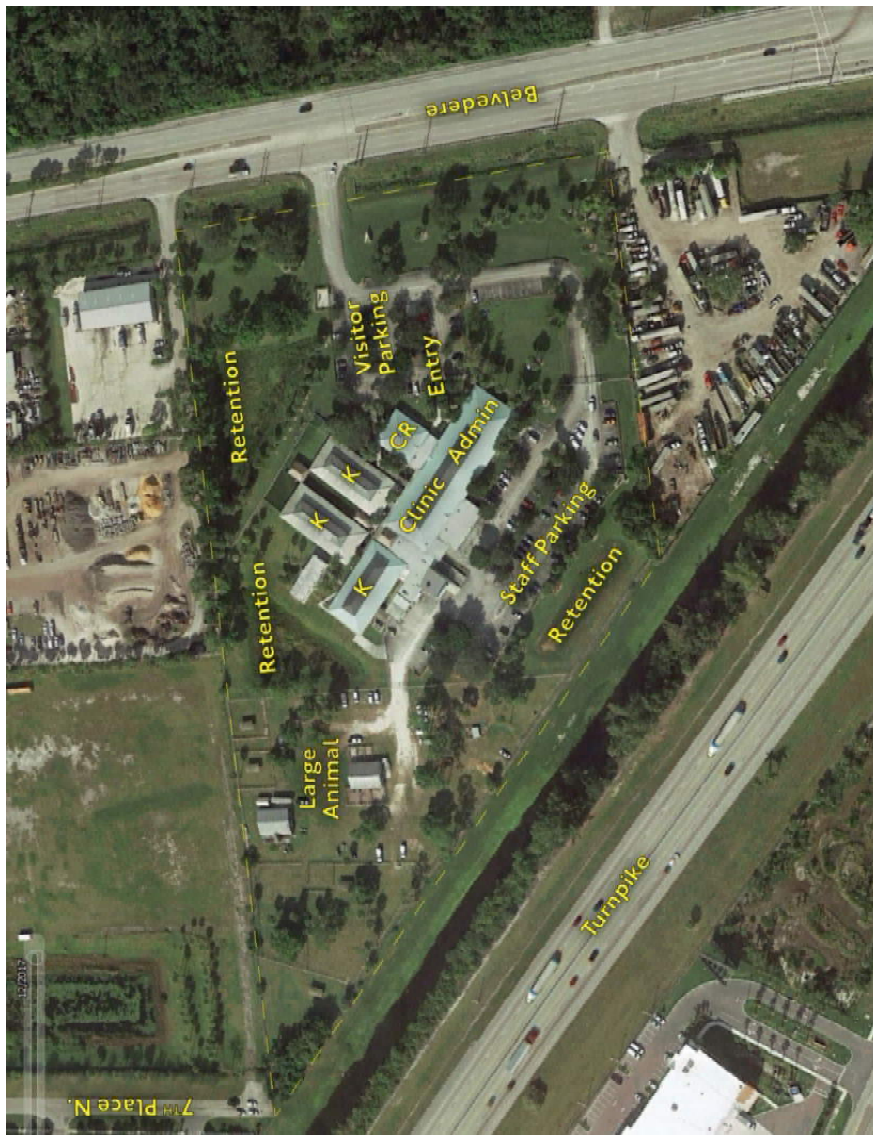
## D. Assessment of Existing Facilities

## D. Assessment of Existing Facility

### 1 Site Considerations

The existing primary PBCACC facility is located on an 14.05-acre parcel of ground in West Palm Beach, on Belvedere Road. The county also has a facility in the western portion of the county, but this facility only serves as a staging area for an animal control officer during the week and is also used to provide low-cost spay/neuter services for the public once every other week. The Comparative Study scope was limited to the primary facilities on Belvedere Road.

*Aerial View of Existing Facility, NTS*



North

As is evident from the aerial view, the facilities are oriented on the site to be parallel to the Turnpike rather than parallel to Belvedere Road, from which the buildings are accessed. This geometry affects the development of all the facility Options in this Comparative Study, as it is difficult to reorient building components while leaving others as they are, without wasting space on site.

Initially, the site appears to be generous in size, but it has many constraints that affected the Comparative Study, including:

- Large animal facilities on the south end of the site are required for all livestock and fowl holding and for staging large-scale livestock seizure cases. This portion of the site is also used to store large vehicles that do not fit in the parking lots.
- As is typical of other sites in Palm Beach County, large portions of the site are dedicated to stormwater management, and therefore are not useful for buildings.
- The building is looped by a water line, but it is so tight to the building footprint that the facility Options must consider relocating portions of the water line loop.
- Most of the parking is on the front entrance (north) side of the building. Unfortunately, not nearly enough parking is located within a secure perimeter on the east and south side of the building, and all staff vehicles, as well as animal control vehicles need to be within the secure perimeter, for safety. This misallocation of parking is a cost driver, as all the Options propose the construction of more parking on the south and east sides.
- Because it is the only open place on the current site, construction phasing for the facility options will need to occur on the south end of the site in the livestock areas and pastures. This will require some coordination to keep the livestock safe and reduce their stress during construction activities.

### ***Important Site Infrastructure Considerations***

The site has a lot of well-developed, valuable, and critical infrastructure that is already in place. This infrastructure was carefully considered during the Comparative Study, so that it could be reused, salvaged, or carefully reconfigured to maximize value for the Options. Specific considerations included but were not limited to:

- The loop water line around the site. Care was taken to avoid relocating more of the line than necessary and to work around as much of it as possible.
- Existing central chiller plant for air conditioning. The building already has expensive infrastructure, including a central chiller. The Options salvage the existing central plant and reuse it in two of the three Options.
- Existing parking and drives. While the parking needs to be expanded and partially reconfigured, much of it is reused for the Options.

- Existing drainage structures. Drainage structures need partial reconfiguration and enlargement due to the increased square footage. However, the Options seek to reuse this expensive infrastructure to the greatest extent possible.
- The investments into the play yards and the wonderful Chickee huts. These huts are recently added shade structures, which were constructed by the local tribes. These structures are uniquely suited to provide cooler and more pleasant areas outside where staff and volunteers are working with dogs. The yards at the shelter are critical to day-to-day operations in the unforgiving climate of South Florida. It would behoove the county to protect this important investment and to work around the yards and Chickee huts during construction.

*Existing Chickee Huts and Yards*



*Detailed landscape and civil engineering narratives, which guided the cost estimating, are included in appendices to this report.*

## 2 Architectural Considerations

The existing facility for Palm Beach County Animal Care and Control was constructed in 1991. At the time, it was a state-of-the-art facility. The facility remains sturdy and well-constructed, but due to its age and the changes that have occurred over the years in animal sheltering and animal control both around the nation and in Palm Beach County, a substantial renovation is required.

*Critical facility issues identified within this study include, but are not limited to:*

- Lack of isolation areas for sick animals and lack of special care areas for injured animals.
- Vastly inadequate space for veterinary services and primary traffic flow through the clinic.
- No dedicated space for public spay/neuter services.
- Lack of separation between intake and adoptions, and a seriously undersized public lobby.
- Inadequate staff work areas that do not meet county space standards.
- Poor traffic flow for field services.
- Undersized and poorly distributed storage areas.
- Animal areas, particularly cat areas, that are undersized and not conducive to adoptions.
- Inadequate number of kennels to house dogs according to today's animal sheltering standards.
- Inadequate number of cages to house cats according to today's animal sheltering standards.
- Too many dogs housed in a single space.
- Lack of proper HVAC in the dog kennels, including very poor ventilation, and no permanent AC.
- The institutional feel of the facility.



*Inadequate Veterinary Area*



*Too Many Dogs in One Space, Inadequate HVAC*





*Cat Areas Are Not Conducive for Adoption*



*Staff Areas Are Undersized*

Of all shelter programs, veterinary services are most affected by inadequate facilities, for these reasons:

- Building circulation goes right through the clinic. This makes biological risk management much more difficult and hinders the work of clinic staff.
- Every space in the clinic is too small for its function.
- The clinic is seriously short of staff workspace and animal holding.
- The public spay/neuter clinic is currently housed in the classroom because there is nowhere else to place it. Therefore, veterinary functions are disconnected throughout the building, which creates inefficiency for routine tasks such as sterilizing instruments and makes communication more difficult.
- The clinic lacks any dedicated animal isolation areas. Some illnesses are difficult to treat in the current building. However, the shelter shows inadequacies throughout. Inadequate number of kennels to meet today's shelter standards is the biggest issue that drives square footage. This will be described further in the next section of this Report.

### **3** **Structural Considerations**

The Palm Beach County Animal Care and Control facilities are not compliant with current Florida Building Codes, and therefore the shelter is not able to house people during storm events. Animals that cannot be moved or must stay in the shelter, are given enough food and water for approximately five days, but employees are not permitted to stay in the shelter during any severe storm. Greater storm safety is a driver for the Options within the Comparative Study.

When the original building was designed, lateral loads were accommodated via many interior reinforced masonry walls. These act as “shear walls” and distribute lateral load forces. Unfortunately, these interior masonry walls are also architecturally detrimental to the building:

- Remodeling is more difficult and expensive, as the walls are harder to demolish than stud walls.
- A new lateral load system will need to be employed if the walls are removed.
- The walls divide the space into tight rooms with undersized connector hallways. For example, many hallways within the existing building are 3’-4” wide. Not only does this not meet building codes (egress and handicapped accessibility), these hallways are difficult to navigate with animals and equipment.
- The walls restrict views across the spaces. Modern animal care facilities are more open, for staff safety, as is illustrated in the example below:



*Prescott Animal Hospital in Arizona, illustrating transparent environments for communication of staff.*

The difficulty of renovating portions of the existing building that are affected by numerous internal masonry walls influenced the final recommendation of the Comparative Study.

## 4 HVAC Standards for Animal Care Facilities

The existing dog kennels at the Palm Beach County Animal Shelter were not designed with air conditioning when they were constructed in the 1990s. Since that time, the field of shelter medicine has seen rapid advancement. Today, it would not be recommended to build an animal shelter without air conditioning because of what we know about the detrimental effects on animal health, particularly in a climate such as South Florida. Last year, as a result of pressure from concerned citizens, the county added temporary seasonal air conditioning to the kennels. Unfortunately, this solution is even worse than no air conditioning, as the temporary system has severely inadequate ventilation. With inadequate ventilation, viruses, bacteria, and pathogens are constantly recirculated in the airstream, which causes the spread of upper respiratory disease among the dogs. PBCACC staff have reported that nearly all dogs become sick when housed in the seasonally air-conditioned kennels.

In this section, we explore the HVAC requirements for animal health, and provide alternatives to consider, along with a recommended option for HVAC, upon which the Comparative Study is based.

### *Climate Context*

Temperature and humidity play a large role in human and animal comfort. The average warm season in Palm Beach County lasts from June through September with an average daily high of over 86° F with the hottest day on record being 102° F. Palm Beach County experiences large seasonal variation in relative humidity. May through October are the most humid months. Coupled with the high heat of the summer, unconditioned environments can become very uncomfortable. Air temperature has already risen about 1° F since 1900 in Florida and is predicted to continue to rise another 8-15° F by the end of the 2100.<sup>20</sup>

### *Air Conditioning Recommended*

*The design team's recommendation is to air condition all kennels and animal spaces in the program, and to provide a system that maintains animal and human health, as described in this section.*

To lay the groundwork for our recommendation, the design team reviewed the latest animal health science in shelter settings and the relationship between health and animal outcomes. If an animal is physically stressed, it cannot remain healthy, and much more effort from the veterinary care and behavior teams must be made to help achieve a live outcome. The reasons for this are as follows:

- Some animals will become ill, and then will need isolation, and they will not be available for adoption. Sick animals need more care, and the very sickest will require euthanasia.
- Many animals will become behaviorally unsound when experiencing stress. At worst, these animals may begin to show stress-related aggressive behavior and may require euthanasia.

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<sup>20</sup> Source: EPA.gov.

- Many animals “don’t show well” for adoption when stressed. They cringe, hide, and generally do not appear to be healthy and happy.

Alternatively, if the animal shelter is a healthy environment, then the animals remain healthy and behaviorally sound, and the shelter is more efficient in terms of operations and adoptions.

PGAL, Animal Arts, experts from the University of Florida, and other experts who participated in the Charrettes recommend that Palm Beach County follow the latest baseline requirements for safeguarding animal health in shelter settings. Throughout this section, we refer to the ASV *Guidelines for Standards of Care in Animal Shelters*, as this is the most current reference for best practice animal shelters in the United States and Canada.

The animal health requirements we reviewed include minimum air flow and air changes, humidity requirements, and temperature control.

### **Minimum Air Flow and Air Changes**

Animal shelter standards evolved from animal laboratory standards, which are regulated under the Animal Welfare Act and the USDA. Our own animal care industry has less money for research and no overarching governing bodies other than local and state laws, which are not usually specific enough to mandate air changes. Nevertheless, animal laboratory standards are the most typical reference because they are well tested, and they provided the background research for the ASV Guidelines to which we refer. For example, we have known since the 1970s that poorly ventilated animal laboratory environments not only result in short-term illness for animals, the effects can be multigenerational (i.e., the animals’ DNA is altered).<sup>21</sup> While shelter animals do not reproduce and cannot pass on damaged DNA, it is important to recognize that the effects of poorly ventilated environments are both profound and permanent.

The following ventilation standards are referenced most frequently:

- A minimum of 10-15 air changes per hour of fresh outdoor air.<sup>22</sup>
- A minimum of 15-20 air changes per hour of fresh or treated air.<sup>23</sup>

The design team draws on experience with hundreds of animal care facilities to develop some discretion within these standards based on odor control (as odor is one indicator of airborne contaminants). Based on this knowledge, the recommendations for Palm Beach County are:

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<sup>21</sup> Guide for the Care and Use of Laboratory Animals, 8<sup>th</sup> Edition, page 44.

<sup>22</sup> Guide for the Care and Use of Laboratory Animals, 8<sup>th</sup> Edition.

<sup>23</sup> Association of Shelter Veterinarians Guidelines for the Standard of Care in Animal Shelters, 2010.

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- A minimum of 10-15 air changes of fresh air at the level of the animal in a room with healthy animals. For kennel environments, we consider the air exchange at the floor level where the dog resides.
- A minimum of 15-20 air changes of fresh air in cat rooms and in isolation rooms, where airborne illness dictates the more robust standard, and because these rooms are smaller and more densely occupied.
- We utilize cubic feet per minute (CFM) requirements as well, to cross check overall air exchanges and ensure the room is neither over nor under-ventilated. For example, we use a guideline of 25 CFM per cat for a room of cats. In less densely occupied rooms, this may result in lower air exchanges. In more densely occupied rooms, this may result in higher air exchanges.

These recommendations are not unusual nor overly conservative. For example, 15-20 fresh air changes per hour is a human healthcare standard for rooms housing patients, and human patients are generally much less densely housed. Laboratories that house rodents typically target up to 60-80 fresh air changes per hour because the rooms are so densely occupied. In contrast, office spaces typically have three to four fresh air changes per hour.

### **Humidity Requirements**

The presence of too much humidity in an indoor environment drastically increases the spread of disease in the following ways:

- Pathogens survive on surfaces and travel in air streams more effectively.<sup>24</sup>
- Molds flourish, particularly in warm climates such as South Florida. Per the EPA, “indoor relative humidity (RH) should be kept below 60 percent—ideally between 30 percent and 50 percent, if possible. Low humidity may also discourage pests such as cockroaches and dust mites.”<sup>25</sup>
- Cleaning-resistant, multi-pathogenic biofilms grow on surfaces, reducing the efficacy of cleaning and increasing infection rates.<sup>26</sup>

Similar to ventilation requirements, we reference both animal laboratory standards and the ASV Guidelines, as well as the experience of our engineers who are familiar with humidity control in indoor environments in South Florida:

- Relative humidity between 30 and 70 percent (US Laboratory Standards).
- Relative humidity between 40 and 60 percent (Canadian Laboratory Standards).
- Relative humidity between 30 and 70 percent (Association of Shelter Veterinarians Guidelines).

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<sup>24</sup> *Indirect Health Effects of Relative Humidity in Indoor Environments*, Environmental Health Perspectives, AV Arundel, et al., 1986.; *Effects of Relative Humidity on Animal Health and Welfare*, Journal of Integrative Agriculture, 2017, Xan Xiong.

<sup>25</sup> EPA.gov, Mold Course Chapter 2: *Why and Where Mold Grows*.

<sup>26</sup> *Boundaries for Biofilm Formation: Humidity and Temperature*, Journal of Applied and Environmental Microbiology, 2003, Terry Ann Else; *Biofilms and Their Role in Pathogenesis*, British Society of Immunology, 2019, Birte Hollman, et al.

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The standards above clearly define 30 to 70 percent as the broadest possible range. Our consulting engineers recommend a range of 40 to 60 percent relative humidity, but not higher, to prevent the growth of mold, per EPA recommendations and our team's experience with other projects. This is particularly important if we want to allow the temperature to be higher than normal indoor office environments, as most pathogenic organisms grow better in warmer environments.

### **Temperature Requirements**

Animals are not people, and therefore they do not need such carefully regulated temperature requirements as humans might need for daily and nighttime activities. However, they do require a temperature range that will prevent them from experiencing metabolic thermal stress. This range is called a "thermal neutral zone." For example, consider how a dog cools itself. Initially, it uses evaporative cooling from paw pads and the tip of its nose to release heat into the environment. When that is no longer sufficient, the dog will pant, expending energy to cool itself. If the temperature continues to climb closer to the dog's body temperature or above, the animal will no longer be able to cool itself using panting, and it will suffer from life-threatening thermal distress.

The requirement for animal housing environments is to remain within the animals' thermal neutral zone (TNZ) which requires no extra effort of panting (excluding short periods when the dogs have come in from outside exercise). According to a variety of credible references, the dry bulb temperature of the space must be between 64 and 84 deg F for cats, dogs, and nonhuman primates to remain within a TNZ. This reference is utilized by:

- US and Canadian Laboratory Guidelines.
- A variety of University Extension Offices, for example, Purdue University.<sup>27</sup>

It is important to note that some individual dogs do have a lower thermal neutral zone and could not be housed in environments up to 84 degrees. These include dogs with heavy-hair coats, larger dogs, and dogs with shorter muzzles (brachycephalic dogs), plus a variety of other dogs that have existing health conditions.

Our team's recommendation is to select 80 degrees for a design condition temperature, with a temperature-controlled range of 65-80 degrees, understanding that design conditions do not accommodate all possible environmental conditions and circumstances. *Air conditioning is required to reach this temperature range.*

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<sup>27</sup>[www.extension.purdue.edu/extmedia/VA/VA-16-W.pdf](http://www.extension.purdue.edu/extmedia/VA/VA-16-W.pdf).

### **Human Health and Wellbeing**

While the review of HVAC systems in kennels is focused on animal health requirements, maintaining proper ventilation, humidity, and temperature control is also important for the well-being and health of staff, volunteers, and visitors.

### **Implications for HVAC Design**

Our team's commitment is to design the most cost-effective system that achieves air flow, humidity, and temperature requirements for maintaining animal health. Due to the design conditions in South Florida, this means that the facility will be designed to utilize systems capable of conditioning and dehumidifying large quantities of outdoor air, as environmental conditions do not allow us to have a choice in this regard. In this case, to achieve the air change and humidity control requirements discussed above, air conditioning is required. The systems must be capable of conditioning the ventilation air to remove moisture (55 degrees F or lower) and then use non-energy consuming reheat to maintain the space temperature in the acceptable range. This is the only way to achieve both the air change and humidity control requirements.

The current design is for 10-15 fresh outdoor air changes per hour (except where higher levels are needed for isolation, special circumstances, etc.), humidity up to 60 percent and temperature up to 80 degrees F. For most animal sheltering projects, this means spending up to 30 percent of the cost of the building on building mechanical systems.

### **Review of Alternatives for Palm Beach County**

In response to concerns about project costs, and to be responsive to the extreme outdoor climate, our team investigated one other alternative to the typical approach. In this option, fresh air changes can be cut approximately in half. The air exchange continues at the same recommended rate, but approximately one half of the air is treated and recirculated with an appropriate and specialized air treatment system. Systems like this do allow for an override to switch to 100 percent outside air, if a disease outbreak were to occur, or if the air treatment systems are being serviced. During this override time, humidity and temperature may rise out of the design range, but at least the system allows for options to boost ventilation to avoid the spread of disease.

Air treatment systems vary, from questionably effective to well-tested and studied. If we were to utilize one, for reasons of animal health, we would design around a system that is well-tested in both laboratory and field conditions in healthcare environments. Animal Arts has not utilized many air treatment systems in projects because they require some additional maintenance. Palm Beach County must commit to proper maintenance to continue to achieve animal health standards. PBCACC is concerned about the risk of using an air treatment system because they are not as well tested in large animal care facilities.

Nevertheless, utilizing a properly designed air treatment system would significantly reduce air conditioning tonnages.

### **Specific Descriptions of HVAC Options**

Given the information included in this section, below is additional information about the two options for HVAC design for the building. This analysis was based on one of the proposed new kennel sizes with an air exchange rate of 11 air changes/hour, or 7,600 cfm, in this case.

*HVAC Option 1 (Recommended Option)—100 Percent Outside Air, Air-Cooled Direct Expansion Packaged Unit with Energy Recovery Ventilator (ERV):* This option ensures no recirculation of air from inside the kennel. All air will be brought from the outside through an ERV wheel which pre-conditions the air by exchanging energy with the exhaust airstream (the airstreams do not mingle). Then, the air is brought through a DX coil and cooled to ~53 degrees F which is required for humidity control in the space. Finally, a non-energy consuming reheat coil which uses waste heat from the refrigeration cycle to reheat the air to whatever level is required to maintain an adequate temperature in the kennel. In the winter, the unit will have an electric heat strip to maintain a reasonable temperature when the outside conditions are lower than 60 degrees F.

This style of unit is very common in South Florida to handle large ventilation loads and meets all the Florida Energy Code requirements. Outside of regular maintenance to the unit itself, the ERV will need to be regularly cleaned. The unit will have controls to adjust the temperature in the kennel which can be accessed securely through the internet.

*HVAC Option 2 (Rejected Option)— 50 Percent Outside Air, Air-Cooled Direct Expansion Packaged Unit with ERV and Needlepoint Bipolar Ionization Air Purification:* This option maintains the same air exchange rate and supply air CFM, but recirculates 50 percent of the air. The system will operate the same as described above but will reduce tonnage and energy consumption by approximately 30 percent. The difference is the recirculated air will pass through a Needlepoint Bipolar Ionization Air Purification system to remove particulates, odors, and pathogens. Control of the unit will be the same; however, there will be additional maintenance required to inspect and clean the air purification system on a regular basis.

*HVAC Option 3 (Not Recommended)—No Air Conditioning in the Kennels:* The design and cost estimating teams were asked to develop an option that considers ventilation only but no air conditioning (temporary or permanent) to the kennels. *The design team does not recommend this approach*, for the reasons listed in this section. Nevertheless, a ventilation only solution is far better for animal health and welfare than the current temporary seasonal air conditioning that is being employed, for these reasons:



- The current seasonal air conditioning can only be achieved if the outside air vents are closed. This means that the animals are breathing constantly recirculated air and have little access to fresh outside air. This is very unhealthy. *Incidents of disease in the shelter have increased and not decreased as a result of the addition of seasonal air conditioning.*
- The current seasonal air conditioning relies on blowing air vigorously around the space, which further increases the spread of illness.

While we do not recommend any plan options for Palm Beach County animal care facilities that have ventilated but unairconditioned kennels, ventilation only options are nevertheless healthier for the animals than the current seasonal air conditioning.

### **Summary**

*Animal health standards are critically important to achieve, for the welfare of the animals in the shelter, as well as performance of ACC programs.* PBCACC currently struggles with rampant disease in the shelter; most dogs that enter the shelter fall ill with upper respiratory infections that could be avoided by having properly ventilated, dehumidified environments. Creating a healthier environment will reduce the cost of care and will allow the shelter to more easily meet the lifesaving goals of the Countdown 2 Zero Initiative.

Designing for health for the animals means meeting the ventilation, humidity, and temperature requirements outlined in this section. The best way to do this over time and without potential for failure is to provide 100 percent outside air with energy recovery. Thus, this recommended approach forms the basis for costs of the various facility Options.

## E. The Comparative Study

## E. The Comparative Study

### 1 Background

In 2016, Palm Beach County passed the Infrastructure Sales Surtax, which increases the amount of sales tax for every transaction by one penny. This additional sales tax would be used to support schools (50 percent), county (30 percent), and municipalities (20 percent) and it is in effect from January 1, 2017 through December 31, 2026 or until \$2.7 billion is reached to fund new repair/restore/replace projects. As a part of the 30 percent county allocation, Palm Beach County Animal Care and Control will receive a portion of the money to renovate and improve the existing ACC facility. To provide guidance for the county, the design team provided four Options for facility improvements, all of which would include permanent air conditioning for the kennels.<sup>28</sup> Currently, only remedial cooling actions have been implemented such as wall fans, lighting replacements and window tinting, as well as a temporary cooling system. In addition to providing new cooling systems, the facility is looking to add isolation wards, improve current dog and cat wards, separate the public and private entrances, create a new cat adoption center and create new educational surgery suites.

#### *Drivers of Animal Intakes into Palm Beach County Animal Care and Control*

Human population is logically expected to relate to shelter intake; however, the change in animal intakes as a result of changes in human population can be unpredictable. Estimates suggest that intakes have decreased steadily since 1970, even as the human population has increased.<sup>29</sup>

Analysis of shelter intake data indicates that most cats admitted to animal shelters are not surrendered or lost pets but rather are unowned cats, and as such, their contribution to shelter intake is less related to human populations or to programs promoting responsible pet ownership (than is the case for dogs).

- Until recent years, the decrease in animal intakes nationally has been more dramatic for dogs than for cats.
- There is some indication that cat intakes have declined more rapidly in the last five to seven years in the U.S.<sup>30</sup> Proposed reasons for this include an increase in spay/neuter for pet cats, increased programs for sterilizing unowned cats, and broad societal trends.

#### **Human Socioeconomics**

Changes to the composition of the human population also affect animal intakes.<sup>31</sup> Rural and suburban areas have higher rates of pet ownership than densely urban areas and families with children are more

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<sup>28</sup> [www.pbcgov.com/pubInf/Agenda/20190129/930AM.pdf](http://www.pbcgov.com/pubInf/Agenda/20190129/930AM.pdf).

<sup>29</sup> (Rowan A. N., 2009).

<sup>30</sup> For example, noted in observations such as this one: [aspcapro.org/blog/2016/05/25/where-are-cats](http://aspcapro.org/blog/2016/05/25/where-are-cats).

<sup>31</sup> (Rowan A. , 2008).

likely than single people to own pets. Additionally, socioeconomic status may affect both pet ownership and pet retention. Even if pet ownership is lower or equal, lower income communities may contribute to higher shelter intake if animals are more likely to run loose or be surrendered due to human economic concerns. Nationwide, and in Florida, dog intakes relate somewhat to socioeconomic issues. If an owner cannot afford to care for the dog, this may be a reason for the dog to be relinquished to a shelter. Owners in low-income neighborhoods may also have less access to veterinary care and fewer financial abilities to spay/neuter their dogs.

Socioeconomic issues are not a main driver for cat intake because most cats coming to the care centers are unowned feral or semi-social cats. Instead, cat intakes tend to increase in areas becoming more densely populated or suburbanized, where humans are increasingly interfacing with free roaming cats and taking them to shelters.

### **Spay/Neuter Programs**

In general, increased availability and promotion of spay/neuter services has been correlated with decreasing intake at shelters.<sup>32</sup> Because most cats admitted to shelters are not likely to be pets, subsidized spay/neuter programs that target only pets are less likely to affect shelter intake for cats. T.N.V.R. programs are the most effective for decreasing the number of cats that enter shelters.

### **Shelter and Field Services Funding**

Little data is available on the relationship between staffing and funding of field services and animal intakes; however, one survey showed a general trend toward increasing intake corresponding with increased per capita shelter program funding in a survey of Florida shelters.<sup>33</sup> This may be relevant because PBCACC staffing levels for field services are lower than industry recommendations per the National Animal Control Association field officer staffing guidelines. More information is included in Section E, Article 10. If staffing were to increase, an increase in animal intakes may be anticipated.

### **Shelter Policy/Programs and Public Communication**

Programs and communication that either encourage/support shelter admission (e.g. convenient hours, low- or no-cost surrender, drop-in admission) can drive animal intakes up, while programs that encourage/support retention of animals (e.g. pet retention programs) can drive animal intakes down.

### **Shelter Perception**

Negative public perception (e.g. that the shelter is a sad or unkempt place) or difficulty of access may affect shelter intakes (and adoption). Alternatively, positive perception can increase intakes of owner-

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<sup>32</sup> (Weiss, Slater, & Lord, 2012). It has been suggested that five subsidized surgeries per 1,000 human capita constitutes a tipping point. If this point has already been reached in a community, further increases in human population may *not* be offset by increased spay/neuter access.

<sup>33</sup> (Rowan A. , 2008).

surrendered animals. When animal shelters are constructed or improved, intakes and adoptions typically increase due to a “new facility effect.”

### *Drivers of Animal Outcomes at Palm Beach County Animal Care and Control*

#### **Shelter Policy/Programs and Public Communication**

The biggest factors affecting animal outcomes are policies and programs.

- Volume of intakes—with fewer animals and appropriate animal care staffing, staff can spend time on behavior remediation, training, socializing, and other activities that can improve an animal’s ability to be placed in a home.
- Communication—social media and engaging local television outlets can have a positive impact on adoptions.
- Awareness—often people do not know where to search for a lost animal. Increasing awareness and knowledge of PBCACC may help increase return to owner as an outcome.

PBCACC’s increase in live release rates (see figures in F Appendices) is primarily attributed to programs focused on increasing opportunities for live outcomes and partnerships with non-profit organizations. An example of this is the Countdown 2 Zero Initiative.

Mandatory microchipping of owned pets typically increases the number of dogs returned to owners.

#### **Shelter Perception**

Similarly to intake drivers, shelter perception can have a large role in outcomes. If a shelter is an unpleasant place to visit, potential adopters may not return if they do not find an animal the first time. If a shelter is friendly and pleasant, it can help support and increase adoptions.

#### **Role of Partnerships**

Adoption partners play a key role in moving animals out of the PBCACC. Without these relationships, live outcomes would likely decrease. These partnerships are summarized in Appendices to this report.

## 2 Animal Housing Requirements

### Approach

To determine the animal capacity requirements for PBCACC, the team started by reviewing current capacity requirements based on two factors:

- Current average length of stay.
- Peak factors, which illustrate the highest monthly peaks of intakes compared to the average.

Animal shelters should always be built for peak capacity, as it is considered unacceptable based on current knowledge of animal health to crowd animals. The number of animal housing units required can be calculated based on the following equation:

$$\text{Average Daily Intakes} \times \text{Average Length of Stay (LOS)} = \text{Animals in Shelter/Day} \times \text{Peak Factor} = \text{Animal Housing Required}$$

### Palm Beach County Animal Care and Control Capacity Required

Using this information, the team examined the current housing units at PBCACC’s shelter and determined the required number of housing units in the shelter (using FY15-18 average live intake records).

Animal	YEARLY INTAKES	ADJUSTMENT FACTOR	ADJUSTED	DAILY INTAKE	AVG LOS (3 Year)	BASE CAPACITY	PEAK FACTOR	REQUIRED CAPACITY
Adult Dog	5,674	1	5,674	16	12.3	191	1.19	228
Small Dogs	509	1	509	1	4.7	7	1.52	10
Adult Cats	3,384	1	3,384	9	8.7	81	1.53	123
Kittens	3,701	1	3,701	10	5.3	54	2.07	111
Livestock	157	1	157	0	27.2	12	2.27	27
Other	708	1	708	1.9	3	5	1.60	8
Birds	493	1	493	1.4	3	3	5.25	18
<b>TOTAL</b>	<b>14,626</b>							<b>525</b>

Detailed analyses of animal capacity are included in the Appendices of this Report.

### **3 Summary of Operational Assessment**

Within the scope of the Comparative Study, Humane Network, an operational consultant, was retained to review the current shelter operations and to advise on improvements that should be made in conjunction with planning for improved facilities. Enclosed in this section are the concepts that guided the development of Options for the Comparative Study based on the operational assessment:

In general, Humane Network observes that PBCACC is implementing the life-saving programs that are recommended by current best practices. Staff and volunteers are working hard in the shelter, but they generally need more training. Most importantly, the facilities are the current limiter for growth and operational success.

#### ***Key Limitations***

The lobby is very poor in terms of size, layout, and design.  
Staff need more training.  
There is no spay/neuter clinic lobby.  
The building entirely lacks dog isolation spaces.

#### ***Key Recommendations***

Customer service training.  
Fear Free<sup>SM34</sup> training.  
The building should have permanent air conditioning and ventilation.  
The building should have better noise control in animal areas.  
Programs that have been implemented all need physical infrastructure to support them.

#### ***Dog Summary***

Good tracking manually and digitally.  
Poor sound baffling in animal areas.  
Need permanent air conditioning and high air changes.  
Need areas designed for infectious disease isolation.  
The Chickee huts are very effective.  
Behavior and enrichment are well done, as is the implementation of *Dogs Playing for Life*.  
Staff and volunteers need training on dog behavior.

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<sup>34</sup> Fear Free<sup>SM</sup> is an accreditation standard for shelters, released in 2019, that provides a framework for reducing fear, anxiety, and stress for pets in a shelter setting.

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### ***Cats Summary***

The areas are clean.  
Litter trays are too small.  
Cats can hear dogs. (This is a stressor.)  
Community cat areas not big enough.  
Grow foster for neonates, increase advertising for working cats.

### ***Clinic***

Very poor and inadequately laid out facility for what it is trying to do.  
Traffic flow is very poor.  
Separation of public and shelter animals is very poor.  
Should prioritize shelter animals over the public animals.  
Schedule public vaccinations instead of walk-ins.

### ***Field***

Need more space and own entrance.  
Field needs to be consolidated; currently it is all over the building and in the outside modular.

### ***Volunteer/Rescue/Community***

Need dedicated volunteer space, currently very disrupting.  
Need a foster program coordinator to revamp the foster program.  
Need a better plan for community outreach.

*Improving facilities will also assist in solving the operational concerns raised in the Humane Network study. The organization also needs a much better budget for training for staff and volunteers.*

Humane Network's review is enclosed in an appendix to this Report.



## 4 Input from Meetings (Public and Charrettes)

Public input was a critical component of the Comparative Study. Our team had the benefit of input from two sources:

- The two public community meetings on July 24 and October 28, 2019, during which the county and design team provided updates on the Comparative Study process and sought feedback through question/answer sessions with the community members who attended. The first public meeting also allowed for a meet and greet session with members of the shelter team, the clinic team, and the animal control team.
- Two charettes with industry experts, held on September 24 and October 28, 2019. These were very effective workshop-style meetings, in which invited experts commented on the program and operational components of best practice animal shelters and helped provide guidance to the design team.

Below are some important concepts from the four meetings that guided our facility options and the entire approach to the space program and facility layout:

- Animal welfare should be placed as a first priority.
- The design should implement Fear Free<sup>SM</sup>, healthy spaces for the animals:
  - Dogs.
  - Cats.
  - Livestock, including chickens.
  - Small animals.
- The design should prioritize lifesaving programs, but should also balance these with moving the animals through the shelter as quickly as possible (minimizing length of stay).
- Spaces should be air conditioned.
- Transparency to the public is very important:
  - Transparency of information.
  - Transparency of decision making.
  - Transparency of the facility (for wayfinding, good service, and to build trust).
- The veterinary hospital should be centralized and connected to all aspects of the shelter.
- All spaces should be designed for best practices and the ASV Guidelines.
- Single housing for cats may be more effective than group housing for adoptions.
- Play spaces and lower-stress housing are critical for the dogs.
- Volunteers play a vital role and their input is critical.
- The facility should be designed so the staff may do their jobs most efficiently and effectively.

## 5 Program of Spaces

Enclosed on the following pages is the program of spaces for the project, known as the “Base Program,” upon which Options 1 and 2 are based.

The Base Program includes:

- Spaces that were in previous lists and programs developed before the Comparative Study.
- Additional spaces if required to meet the operational program need, as determined by extensive interviews with ACC staff, public community meetings, input from the operational consultant, and input from the charrettes with industry experts.
- Meeting the requirements of Palm Beach County employee workspace sizing standards.
- Grossing factors typical of animal care facilities. Animal care facilities need wider hallways and circulation spaces for safety, and wider wall thicknesses to accommodate construction requirements. Animal housing spaces are sized based on the size of the unit itself (run or cage), and so large grossing factors are needed within housing spaces to account for additional circulation space around that run or cage.

### *The Base Program for Options 1 and 2*

	Room	Notes	#	Size	Gross (sf)	Covered Ext. (sf)	Uncovered Ext. (sf)
<b>PUBLIC ADOPTION SPACES</b>							
	Vestibule		1	10 x 16	224		
	Adoption Lobby	w/ customer service station	1	16 x 40	896		
	Customer Service Manager	cash safe, cash boxes in cabinet	1	10 x 14	196		
	Customer Service Coordinator		2	10 x 12	336		
	Cash Counting Area		1	4 x 6	34		
	Feature Animal		1	8 x 10	112		
	Reception Desks		1	8 x 20	224		
	Adoption Counseling Rooms	no animals in this space dividable; outside entrance,	2	8 x 10	224		
	Multipurpose/Classroom	kitchenette	1	40 x 50	2,800		
	Storage for Classroom		2	6 x 15	252		
	Outdoor patio		1	16 x 30			480
	Public Restrooms		2	9 x 18	454		
	Vending	snacks, water	1	4 x 8	45		
	Janitor's Closet		1	4 x 8	45		
<b>TOTAL</b>					<b>5,841</b>	<b>0</b>	<b>480</b>

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	Room	Notes	#	Size	Gross (sf)	Covered Ext. (sf)	Uncovered Ext. (sf)
KENNEL SPACES							
Public Access/Adoption	Adoption Gallery	allowance for circulation	1	x	3,000		
	MED Runs - Indoor/Outdoor	Indoor; 12/pod	76	4 x 6	5,016		
		/Outdoor	76	4 x 6		3,648	
	LARGE Runs - Indoor/Outdoor	Indoor; 12/pod	48	5 x 6	3,960		
		/Outdoor	48	5 x 6		2,880	
	Outdoor Play Yard		7	20 x 20			2,800
	Large Outdoor Yard		2	30 x 60			3,600
	Get Acquainted Yard		3	10 x 15			450
	Medium Dog Runs (indoors)	indoor/indoor; 12/pod	64	4 x 10	7,040		
	Low Stim Dog Rooms		5	7 x 8	462		
	Small Dog Cages	flex for transfer	18	4 x 5	990		
	Puppy Runs	assume ~3 per run	3	6 x 6	178		
	Court/Stray/Bite	Indoor Get Acquainted		2	10 x 10	270	
Food Prep/Work Room		with dishwasher	5	8 x 12	648		
Janitorial/Laundry			5	8 x 12	648		
Stray/Hold			24	4 x 6	1,584		
		/Outdoor	24	4 x 6		1,152	
Large Dog Court/Bite			30	6 x 6	3,078		
Quarantine Hold Runs			30	6 x 6	3,078		
		/Outdoor	30	6 x 6		2,160	
Long stay Dog Court/Bite			30	6 x 6	3,078		
Court Hold Runs			30	6 x 6	3,078		
	/Outdoor	30	6 x 6		2,160		
	Court Play Yard		1	20 x 20			400
Isolation Housing - by Veterinary Clinic							
Medical	Dog Sick Isolation Runs	5 per room max	26	4 x 10	2,756		
	Dog Sick Isolation Kennels	small dogs, stacked 2 high	4	3 x 5	165		
	Iso Yard		1	15 x 20			300
	Isolation Vestibule/Work Rm		1	8 x 12	130		
	Parvovirus Ward	Includes wet sink; sep. w/d	1	10 x 14	189		
<b>TOTAL</b>					<b>33,192</b>	<b>12,000</b>	<b>7,550</b>

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	Room	Notes	#	Size	Gross (sf)	Covered Ext. (sf)	Uncovered Ext. (sf)	
<b>CAT SPACES</b>								
Public Access/Adoption	Cat Pavilion	public cat display space	1	14 x 26	1,001			
	Cat Condos	double-stack; non-group cats	78	2.5 x 5	2,681			
	Kitten Condos	*assumes three per condo	20	2.5 x 5	688			
	Cat Colonies		5	10 x 15	2,063			
	<i>catios/porches</i>			5	8 x 14		560	
	Cat Runs	assume two per run	11	6 x 6	1,089			
	Get Acquainted		2	8 x 10	216			
	Food Prep/Work Room	dishwasher	2	8 x 12	259			
Back of House	Jan/Laundry	double-stacked	2	8 x 12	259			
	Cat Court/Bite Hold	double-stacked	12	2.5 x 5	413			
	Cat Court/Runs		8	4 x 5	440			
	Kitten Court/Bite Hold	double-stacked	12	2.5 x 5	413			
Vet	Cat Isolation	double-stacked, two rooms	12	2.5 x 4.5	371			
	Kitten Isolation	double-stacked, two rooms	12	2.5 x 4.5	371			
	Catterny Ward		10	2.5 x 4.5	309			
	Small Animals, Birds, Etc.	dividable for predator/prey; near front/good visibility	2	10 x 10	280			
<b>TOTAL</b>				<b>10,853</b>	<b>560</b>	<b>0</b>		
<b>BARN/FARM ANIMALS</b>								
	Chicken Coop		2	10 x 12		240		
	Barn	stalls/feed	8	10 x 12		1,440		
	Quonset Huts		2	30 x 60		3,600		
	Paddock		4	20 x 15			1,200	
	Pasture	two-acre					87,120	
<b>TOTAL</b>					<b>0</b>	<b>5,280</b>	<b>88,320</b>	

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	Room	Notes	#	Size	Gross (sf)	Covered Ext. (sf)	Uncovered Ext. (sf)
<b>INTAKE</b>							
	Intake Lobby	split dog/cat	1	16 x 20	448		
	Reception Desks		1	8 x 14	157		
	Counseling Room	with animals	2	8 x 10	224		
	Public Restrooms		2	8 x 9	202		
<b>Intake Exam and Holding</b>							
	Cat Intake Exam Room	cages/shelf; cat zone; with grooming, alcove for holding	2	10 x 12	324		
	Dog Intake Exam Room	by sally port, with grooming	1	10 x 12	162		
	Dog Temp Intake Hold - Cages		4	4 x 5	200		
	Dog Temp Intake Hold		6	3 x 5	225		
	LG Dog Temp Intake Hold		10	4 x 6	600		
	De Tick Room	durable, hoseable space	2	10 x 12	324		
	Photography	storage; light control, by sally port	1	8 x 10	108		
	Grooming	near sally port, 3 tubs, dryers, 3 runs	1	10 x 20	270		
	Intake Processing	workstation, near intake	1	5 x 12	81		
	Sally Port	4 bays, well vented - incl. dangerous dog	4	16 x 32	2,765		
	Truck Wash/Disinfecting Area	interior or exterior area for truck wash	1	16 x 32			512
	Euthanasia Hold - Dogs		1	10 x 12	162		
	Euthanasia Hold - Cats		1	8 x 10	108		
	Euthanasia		1	10 x 12	162		
	Freezer	near euthanasia	1	10 x 10	135		
<b>TOTAL</b>					<b>6,656</b>	<b>0</b>	<b>512</b>
<b>VETERINARY</b>							
<b>Public Medical and Surgery</b>							
	Foster Lobby		1	16 x 20	448		
	Foster Storage		1	6 x 6	50		
	Foster Coordinator Office		1	10 x 12	168		
	Exam Rooms	foster recheck	3	9 x 10	378		
	Spay/Neuter Lobby	also for vaccination space	1	16 x 20	448		
	Induction		2	12 x 14	454		
	Surgery	3 table room	1	14 x 22	416		
	Beach	floor recovery (Dog & Cat)	1	3 x 20	81		

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	Dog Pre/Post-Op Cages	13 dogs	1	8	x	20	219		
	Dog Pre/Post-Op Runs	10 dogs	2	10	x	24	648		
	Cat Sx Hold	24 cats, double stack	2	9	x	16	389		
	Utility for Public Surgery	laundry and janitor	1	9	x	12	146		
<b>In-House Medical and Surgery</b>									
	Pharmacy/Lab		1	9	x	14	170		
	Medical Storage		1	4	x	8	43		
	Treatment/Triage	has room for banks of cages	3	12	x	14	680		
	ICU/Injured - Cats	6 cats	1	8	x	10	108		
	ICU/Injured - Dogs	8 dogs in cages + 3 runs	1	10	x	20	270		
	Dental/Tx	one table, alcove	1	12	x	14	227		
	Tech Workstations	charting zone	8	3	x	6	194		
	Radiology	need new table	1	10	x	10	135		
	Induction		2	12	x	12	389		
	Pack/Prep		1	10	x	14	189		
	Surgery	3 table room	1	14	x	22	416		
	Beach	floor recovery (Dog & Cat)	1	3	x	20	81		
	Tech Workstations	charting zone	8	3	x	6	194		
	Dog Pre/Post-Op Cages	13 dogs	1	8	x	20	219		
	Dog Pre/Post-Op Runs	10 dogs	2	10	x	24	648		
	Cat Sx Hold	24 cats, double stack	2	8	x	16	346		
	TNR Cat Sx Hold	3 rows for traps, need big doors	1	8	x	16	173		
	Vet Office	six people shared office	6	6	x	7	378		
	Clinic Manager	Cash safe, cash boxes in cabinet	1	10	x	14	189		
	Clinic Coordinators		2	10	x	12	324		
	Medical Gas		1	6	x	8	65		
	Clinic Janitorial		1	4	x	6	32		
	Medical Grooming		1	10	x	16	216		
	Surgery Laundry	2 washers/dryers	1	10	x	16	216		
<b>TOTAL</b>							<b>9,746</b>	<b>0</b>	<b>0</b>

	Room	Notes	#	Size	Gross (sf)	Covered Ext. (sf)	Uncovered Ext. (sf)
<b>STAFF/OFFICE</b>							
	Office						
	Division Director	private offices	1	12 x 15	243		
	Assistant Director	private offices	1	12 x 15	243		
	Operations Manager	private offices	2	10 x 12	324		
	Community Projects Manager	private offices	2	10 x 12	324		
	Fiscal Specialist II		1	10 x 12	162		

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	Information System Specialist	offices	1	10	x	12	162		
	Sr. Secretary	cubicle next to director	1	9	x	9	109		
	Public Information Officer		1	10	x	12	162		
	Public Records Custodian		1	10	x	12	162		
	Conference Room	same or larger than now	1	16	x	19	410		
	Archive Storage		1	14	x	14	265		
	Mail Room Storage	not secure	1	6	x	8	65		
	Office Supply/Copy Area	with mail room?	1	17	x	19	439		
	Upstairs Break		1	10	x	15	203		
	Upper Floor Restrooms		2	10	x	15	405		
<b>Staff</b>									
	Volunteer Coordinator Office	attached to volunteer room	1	10	x	10	135		
	Volunteer Room	lockers, check-in; vol supplies	1	10	x	14	189		
	Volunteer Program Manager	private offices	2	10	x	12	324		
	Animal Care Coordinator	volunteer area, with workstations	1	15	x	32	648		
	Shelter Services Supervisor	2 workstations, one shared office	1	12	x	16	259		
	Animal Enrichment Coord.	workstations	3	10	x	12	486		
	Staff Break Room	fixed tables and benches	1	18	x	22	535		
	Outdoor Patio	fixed tables and benches	1	13	x	18		234	
	Locker Room	kennel staff, 2 high z-locker	1	10	x	14	189		
	Shower Rooms	private rooms	2	6	x	8	130		
	Lower Floor Restrooms		2	10	x	18	486		
	Personal Care	quiet/nursing room sink, small fridge	2	6	x	8	130		
<b>TOTAL</b>							<b>7,187</b>	<b>0</b>	<b>234</b>

	Room	Notes	#	Size	Gross (sf)	Covered Ext. (sf)	Uncovered Ext. (sf)
FIELD/ACC							
	Operations Manager	private offices	1	10 x 12	162		
	Field Supervisor	2 people per office	2	12 x 16	518		
	Secretary	cubicles next to field ops supervisor	3	7 x 9	284		
	Compliance Coordinator		2	8 x 10	216		
	Investigators	9 requested, 10 provided	10	7 x 9	945		
	Specialized ACOs	9 requested, 10 provided	3	7 x 9	284		
	Sheriff's Office Detectives	9 requested, 10 provided	3	7 x 9	284		
	ACOs		14	7 x 9	1,323		
	Chief Communicator		1	12 x 16	259		

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	Communicator	on phone, need good acoustics	10	7	x	9	1,008		
	Data Processor II	cubical	1	7	x	9	85		
	Dispatch/Radio Room		1	10	x	20	270		
	Copy/Work Nook		1	6	x	8	65		
	Janitor		1	7	x	7	66		
	Field Lockers	30 lockers, full height	30	1	x	2	81		
	Field Storage		1	10	x	12	162		
	Evidence Storage		1	10	x	12	162		
	Tranquilizer gun closet		1	3	x	8	32		
	Uniforms/Uniform Closet		1	4	x	6	32		
	Office/Bunk Room	2 bunk beds each room	2	10	x	12	324		
	Storage	additional to above storage	1	10	x	11	144		
<b>TOTAL</b>							<b>6,747</b>	<b>0</b>	<b>0</b>

	Room	Notes	#	Size	Gross (sf)	Covered Ext. (sf)	Uncovered Ext. (sf)
<b>SUPPORT</b>							
	Maintenance Mechanic	Included below in warehouse	0	9 x 9		0	
	Maintenance Workshop	Included below in warehouse	0	10 x 14		0	
	Materials Manager	Included below in warehouse	0	10 x 12		0	
	Central Janitor	cleaning system desired	0	8 x 10		0	
	Central Warehouse	food, general, forklift, double high, loading dock	1	50 x 60		3,000	
	Loading Dock		1	8 x 60		480	
	Elevator First Floor		2	10 x 10	300		
	Elevator Second Floor		2	10 x 10	300		
	Stairs First Floor		2	10 x 24	648		
	Stairs Second Floor		2	10 x 24	648		
	Mechanical		1	16 x 30	648		
	Computer Room		1	12 x 13	211		
	Electrical		1	10 x 12	162		
	Fire Riser Room		1	8 x 10	108		
<b>TOTAL</b>					<b>3,025</b>	<b>3,480</b>	<b>0</b>



**Program Square Footage Summary**

**Below is a summary of the base program for Options 1 and 2:**

ZONE	GROSS INTERIOR CONDITIONED S.F.	GROSS EXTERIOR COVERED S.F.
PUBLIC & ADOPTION	5,841	0
DOG HOUSING	33,192	12,000
CAT HOUSING	10,853	560
INTAKE	6,656	0
VETERINARY	9,746	0
STAFF/ADMINISTRATION	7,187	0
FIELD	6,747	0
SUPPORT	3,025	3,480

**83,247** square feet of interior air-conditioned space including all human, support, and animal spaces  
**+ 16,040** square feet of exterior covered kennel, catio<sup>35</sup>, and warehouse space

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**99,287** square feet of primary building footprint

In addition, the program has **5,280** square feet of pasture structures (barn, Quonset huts, etc.), as well as additional covered walkways and covered dog play areas, which are also categorized in the program as exterior covered space.

**The Reduced Program for Option 3**

Within the Comparative Study we also explored a reduced program option for Option 3 that:

- Combines the square footage for two related spaces into one space, to reduce the size of the project. These may be noted as zeros on the spreadsheet below.
- Cohouses dogs. This is not recommended, but it was explored as an option to review its impact on the project cost.
- Single house cats. Different from dogs, cats take up less room when single housed in individual cages, compared to group housed in social rooms (these are sometimes used in adoption spaces but are not acceptable for back-of-house spaces). To save space, we used a greater percentage of single rather than group housing. All cat housing still meets the ASV Guidelines.

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<sup>35</sup> A catio is an outdoor covered patio for cats. This is a common feature of modern animal shelters.

- Reduces the employee work spaces sizes below the County Space Standards for two types of spaces that are not continually occupied, and therefore the reduction is considered acceptable and an option to be considered to reduce overall costs.

**Below is a summary of the reduced program for Option 3:**

ZONE	GROSS INTERIOR CONDITIONED S.F.	GROSS EXTERIOR COVERED S.F.
PUBLIC & ADOPTION	4,455	0
DOG HOUSING	36,162	6,336
CAT HOUSING	7,967	980
INTAKE	7,046	0
VETERINARY	7,611	0
STAFF/ADMINISTRATION	5,513	0
FIELD	4,894	0
SUPPORT	2,695	3,480

**76,343** square feet of interior air-conditioned space including all human, support, and animal spaces  
**+ 10,796** square feet of exterior covered kennel, catio, and warehouse space

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**87,139** square feet of primary building footprint

In addition, the program has **5,280** square feet of pasture structures (barn, Quonset huts, etc.), as well as additional covered walkways and covered dog play areas, which are also categorized in the program as exterior covered space.

#### *Developing Option 4*

The reduced space program for Option 3 does help reduce project costs, but not significantly enough to provide the County with a wide range of budgets to consider. To provide the County with an Option that is much lower in cost, the design team developed Option 4.

Below is the approach that was taken to develop Option 4:

- Construct a separate administration/clinic two-story building to consolidate the new construction.
  - Fit the remaining program into the existing building, for simplicity.
  - Utilize existing wall layouts in the existing building, wherever possible, to reduce costs. This approach requires some flexibility with Palm Beach County office space standards, because
-

not all offices fit into the existing layout of walls in their recommended sizes. All offices are still conceptualized to be functional and comfortable for staff.

- Reduce the sizes of spaces slightly wherever possible, without sacrificing their functions.
- Reduce the base scope of the project further by creating **add alternates**. These are projects that may be done one at a time or all together as budget allows, now or in the future.
- Permanent air conditioning is still included in this Option.

The Reduced Base Program is as follows:

**66,673** square feet of interior air-conditioned space including all human, support, and animal spaces  
**+ 4,592** square feet of exterior covered kennel, catio, and warehouse space

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**71,265** square feet of primary building footprint

In addition, the program has **5,280** square feet of pasture structures (barn, Quonset huts, etc.), as well as additional covered walkways and covered dog play areas, which are also categorized in the program as exterior covered space.

#### **Add Alternates:**

The Add Alternates can be added to the base program included in Option 4. They are as follows

- **Add Alternate 1: New Barn**
  - Base. Existing Barn to remain, very lightly renovated including safety review, upgrading any damaged wiring/materials, and replacing any worn parts. Add Alternate is to construct new barn if budget allows.
- **Add Alternate 2: New Warehouse**
  - Base. New Warehouse is not constructed. Add Alternate is to construct it if budget allows. It should be noted that in the absence of the warehouse, PBCACC can still use the existing sally port, which is currently doing double duty as storage.
- **Add Alternate 3: New Kennel 4** (refer to block diagram for location of this kennel)
  - Base: Kennel 5 and Isolation Building are Constructed. Add Alternate is to construct Kennel 4 if budget allows.
    - A Note about Kennel Space: While Option 4 base program does provide more kennel space than the facility has, it does not provide enough to alleviate crowding. Option 4 requires cohousing of dogs at peak times in most of the kennels, with exception of new indoor/outdoor kennels. This does not meet the ASV Standards of Care, is not a best practice, and is not safe or efficient.

- **Add Alternate 4: New Sally Port**
  - Base. Existing sally port to remain. Add Alternate is to construct new sally port if budget allows.
- **Add Alternate 5: New Parking**
  - Base: Keep the existing parking lot to the east of the building. Some of the existing parking will be reduced as a result of construction of new facilities, including the new Veterinary/Staff building. It should be noted that PBCACC specifically needs 50 parking spaces in addition to what they have now to secure staff vehicles. Therefore, this base condition makes the parking shortage worse than it is currently.

**Below is a summary of the reduced program for Option 4 including all Add Alternates:**

ZONE	GROSS INTERIOR CONDITIONED S.F.	GROSS EXTERIOR COVERED S.F.
PUBLIC & ADOPTION	4,460	0
DOG HOUSING	33,264	6,376
CAT HOUSING	6,610	672
INTAKE	6,874	0
VETERINARY	7,610	0
STAFF/ADMINISTRATION	5,198	0
FIELD	4,894	0
SUPPORT	2,695	3,200

The Overall Square Footage Program Reduction (including the square footage of all Add Alternates) yielded these results:

**71,605** square feet of interior air-conditioned space including all human, support, and animal spaces  
**+ 10,248** square feet of exterior covered kennel, catio, and warehouse space

**81,853** square feet of primary building footprint

## 6 Reconciliation of Program of Spaces with County Space Standards

Below is a list of spaces in the base program (basis for Options 1, 2, and 3) that have human work components, alongside Palm Beach County’s space standard for offices. The vast majority of spaces comply, with the following two exceptions:

- Veterinary office is a station where the veterinarians may chart occasionally, but where they are not working full time.
- Some ACO workstations for officers who are on the road are slightly smaller than the space standard, as they are not continuously occupied.

Room	#	Size	Net (sf)	County SF Standards	SF Meets County Standards	Const. Type
Customer Service Manager	1	10 x 14	140	120-140	Yes	HW
Customer Service Coordinator	2	10 x 12	240	100-120	Yes	HW
Foster Coordinator Office	1	10 x 12	120	100-120	Yes	HW
Vet Office	6	6 x 7	252	workstation	N/A	MOD
Clinic Manager	1	10 x 14	140	120-140	Yes	HW
Clinic Coordinators	2	10 x 12	240	100-120	Yes	HW
Division Director	1	12 x 15	180	160-180	Yes	HW
Assistant Director	1	12 x 15	180	140-180	Yes	HW
Operations Manager	2	10 x 12	240	120-140	Yes	HW
Community Projects Manager	2	10 x 12	240	120-140	Yes	HW
Fiscal Specialist II	1	10 x 12	120	64-80	Yes	MOD
Information System Specialist	1	10 x 12	120	100-120	Yes	HW
Sr. Secretary	1	9 x 9	81	100-120	Yes	HW
Public Information Officer	1	10 x 12	120	80-120	Yes	HW
Public Records Custodian	1	10 x 12	120	100-120	Yes	HW
Volunteer Coordinator Office	1	10 x 10	100	60-80	Yes	HW
Volunteer Program Manager	2	10 x 12	240	120-140	Yes	MOD
Animal Care Coordinator	1	15 x 32	480	80-120	Yes	HW
Shelter Services Supervisor	1	12 x 16	192	100-120	Yes	MOD
Animal Enrichment Coord.	3	10 x 12	360	120-140	Yes	MOD
Operations Manager	1	10 x 12	120	120-140	Yes	HW
Field Supervisor	2	12 x 16	384	100-120	Yes	HW
Secretary	3	7 x 9	189	60-80	Yes	MOD
Compliance Coordinator	2	8 x 10	160	60-80	Yes	MOD
Investigators	10	7 x 9	630	60-80	Yes	MOD
Specialized ACOs	3	7 x 9	189	60-80	Yes	MOD

Sheriff's Office Detectives	3	7	x	9	189	60-80	Yes	MOD
ACOs	14	7	x	9	882	workstation	N/A	MOD
Chief Communicator	1	12	x	16	192	64	Yes	HW
Communicator	10	7	x	9	630	64	Yes	MOD
Data Processor II	1	7	x	9	63	60	Yes	MOD
Dispatch/Dispatch Radio Room	1	10	x	20	200	64	Yes	HW
Computer Room	1	12	x	13	156	150	Yes	HW

In the further reduced Option 4, because we are utilizing existing wall layouts, space standards may not always perfectly align with county standards. Many of the potential discrepancies could be resolved during a more detailed design process.

## 7 Block Diagrams for Options 1, 2, 3, and 4

The block diagrams included in this section represent the input of all stakeholders on this project. Program elements were modeled to fit within each of the areas shown on the plans, to vet the options. In some cases, the options are slightly different in size from the square footage in the spreadsheets, due to the geometric constraints or opportunities of the existing buildings. The differences are slight and can be reconciled during the schematic design phase of this project.

The following are critical adjacencies that drove the Options. These explain why the Options have similar arrangements; the site and existing buildings, and continuity of operations plans drive the need to place the same components adjacent to one another.

Space	Adjacent To
Adoption Lobby	Adoption Dogs, Adoption Cats, Public Parking, Other Lobbies
Spay/Neuter Lobby	Spay/Neuter Veterinary Area, Other Veterinary Areas, Foster, Other Lobbies
Intake Lobby	Intake Holding, Sally Port, Other Lobbies, Foster, Veterinary
Sally Port	Intake Holding, Back-of-House Dogs, Back-of-House Cats, Euthanasia
Veterinary Clinic	Spay/Neuter Clinic, Intake, Foster, Sally Port, Back-of-House Animals, Euthanasia
Kennels	Other Kennels, Back-of-House Areas, Front-of-House Areas
Administration	Field, Lobbies, First Floor Staff Work Areas
Field	Administration, Sally Port, Intake
Warehouse	Loading, Sally Port

Below is a brief description of each Option.

***Option 1: A renovation and addition that allows for key building replacements***

In this Option, the following existing buildings are maintained and renovated:

- Three existing kennels, modified with permanent air conditioning and new finishes, including:
  - New kenneling
  - New flooring and improved drainage
  - Improved ventilation
  - Improved lighting
  - New ceiling for sound control
- Multipurpose classroom, modified, enlarged to remove divider walls, and with new finishes

Demolitions include:

- Field Operations modular structure
- Most of the existing main building, except multipurpose classroom
- Covered connector areas between buildings
- Select site/parking and drives
- Mechanical areas and truck wash bays
- Sally port

New additions include:

- New primary main building to contain all functions except dog kennels and classroom, laid out to meet better functionality.
  - This building is two stories, with veterinary and animal functions on the first floor and field and administration on the second floor.
- New larger high bay sally port.
- Three new indoor/outdoor permanently air-conditioned kennels.
  - Indoor/outdoor is the preferred configuration now for animals as it allows dogs to have a choice about whether to go outside or stay inside. To keep the air conditioning inside the building, a saloon-style door is used between the inside and outside spaces. Dogs readily use these doors.
- New small indoor dog kennels with permanent air conditioning.
- New dog isolation building with indoor dog housing and permanent air conditioning.

<b>Program s.f.</b>	<b>Option 1 Drawn s.f.</b>	
<b>83,247</b>	<b>83,458</b>	<b>Interior Conditioned</b>
<b>16,040</b>	<b>15,484</b>	<b>Exterior Covered</b>

---

**Option 2: New Construction**

In this Option, no buildings are maintained for renovation.

Demolitions include:

- Modular field operations building
- All other buildings
- Select site/parking and drives

New additions include all new program spaces listed in base program document.

<b>Program s.f.</b>	<b>Option 2 Drawn s.f.</b>	
<b>83,247</b>	<b>81,933</b>	<b>Interior Conditioned</b>
<b>16,040</b>	<b>18,130</b>	<b>Exterior Covered</b>

**Option 3: Reduced Scope Option**

This Option prioritizes the reuse of existing buildings. However, it also reduces scope, primarily through the cohousing of dogs. In this Option, the following existing buildings are maintained and renovated:

- Three existing kennels modified with permanent air conditioning and new finishes.
- Existing main building (although it is gutted and reconstructed with all new layout, finishes, HVAC, flooring, and lighting).

Demolitions include:

- Field Operations modular structure
- Covered connector areas between buildings
- Select site/parking and drives
- Mechanical areas and truck wash bays
- Sally port

New additions include:

- Two-story addition to accommodate intake, staff, and administrative areas
- New larger high bay sally port
- One new indoor/outdoor permanently air-conditioned kennel
- New dog isolation building with indoor dog housing and permanent air conditioning

<b>Reduced Program s.f.</b>	<b>Option 3 Drawn s.f.</b>	
<b>76,343</b>	<b>76,441</b>	<b>Interior Conditioned</b>
<b>10,796</b>	<b>12,435</b>	<b>Exterior Covered</b>

---



**Option 4: Additional Scope Reductions with Add Alternates**

The goal of this Option was to reduce the base scope and cost of the project significantly, prioritizing using existing buildings. This option includes several Add Alternates that can be constructed now or in the future as funds allow. The Add Alternates are as follows:

- Alternate 1 – New Barn (base scope is use and renovate existing barn)
- Alternate 2 – New Warehouse (base scope is no new warehouse)
- Alternate 3 – New Adoption/Flex Kennel 4 (base scope is without this kennel)
- Alternate 4 – New Sally Port (base scope uses existing sally port)
- Alternate 5 – New Parking (base scope uses existing parking as much as possible)

Demolitions include:

- Field Operations modular structure
- Covered connector areas between buildings
- Select site/parking and drives
- Mechanical areas and truck wash bays

New additions include:

- Two-story structure that places all veterinary services on the bottom and field/administrative spaces on the top floor.
- Better connectors between buildings.
- One new indoor/outdoor permanently air-conditioned kennel.
- New dog isolation building with indoor dog housing and permanent air conditioning.

In the block diagram illustrated in Section E, this Option 4 is reconciled with the following square feet. Very small differences between calculated program and program drawn have to do with geometries of existing site and buildings.

Base Program Without any Add Alternates:

**Option 4 Base Drawn s.f.**

<b>66,673</b>	<b>Interior Conditioned</b>
<b>4,592</b>	<b>Exterior Covered</b>

Square Footage With Add Alternates:

<b>Option 4 Program s.f.</b>	<b>Option 4 Drawn s.f.</b>	
<b>71,605</b>	<b>71,726</b>	<b>Interior Conditioned</b>
<b>10,248</b>	<b>10,534</b>	<b>Exterior Covered</b>



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04/03/2020

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**NEW AREAS**

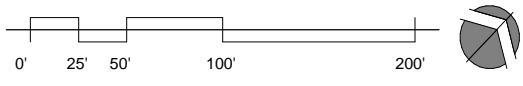
**EXISTING AREAS**

**MODIFIED AREAS**

**BUILDING OPTIONS**

PARKING:	PUBLIC	SECURE
EXISTING	50	92
NEW	85	139

**1 SITE**  
SCALE: 1" = 100'-0"



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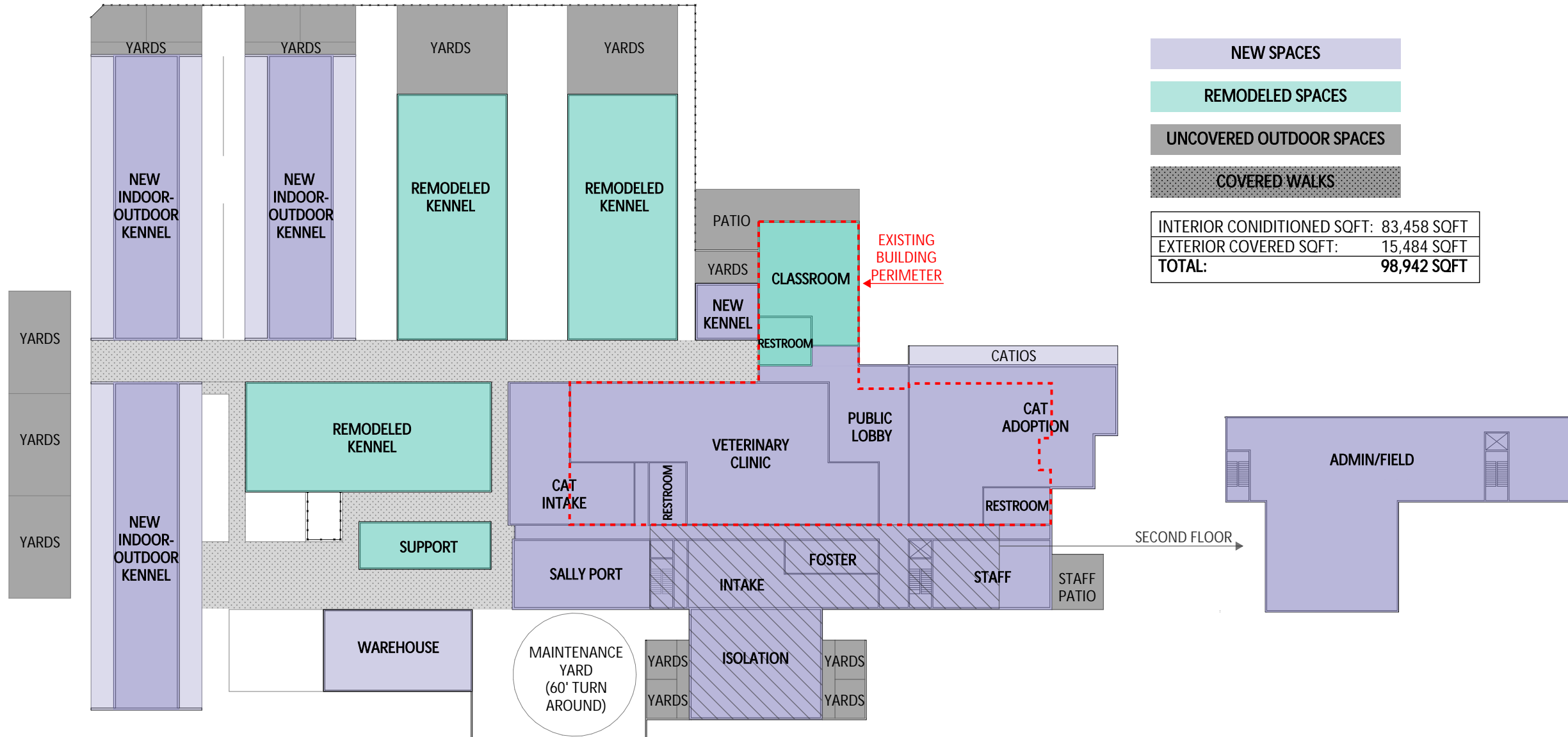




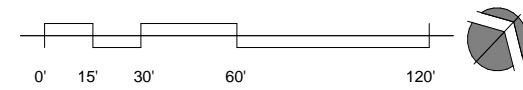
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**1 OPTION 1**  
SCALE: 1" = 60'-0"

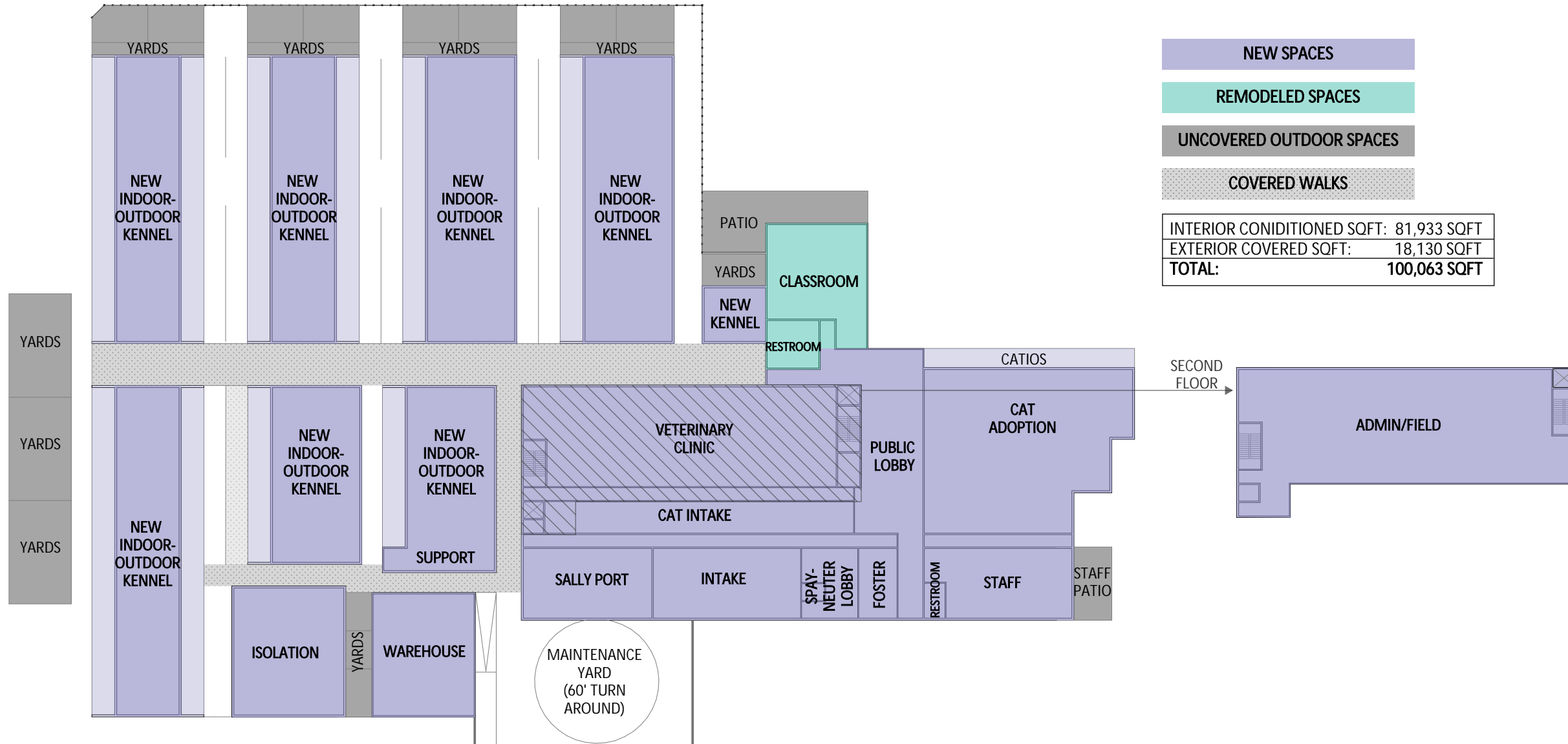




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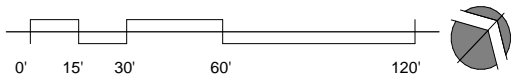
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**1 OPTION 2**

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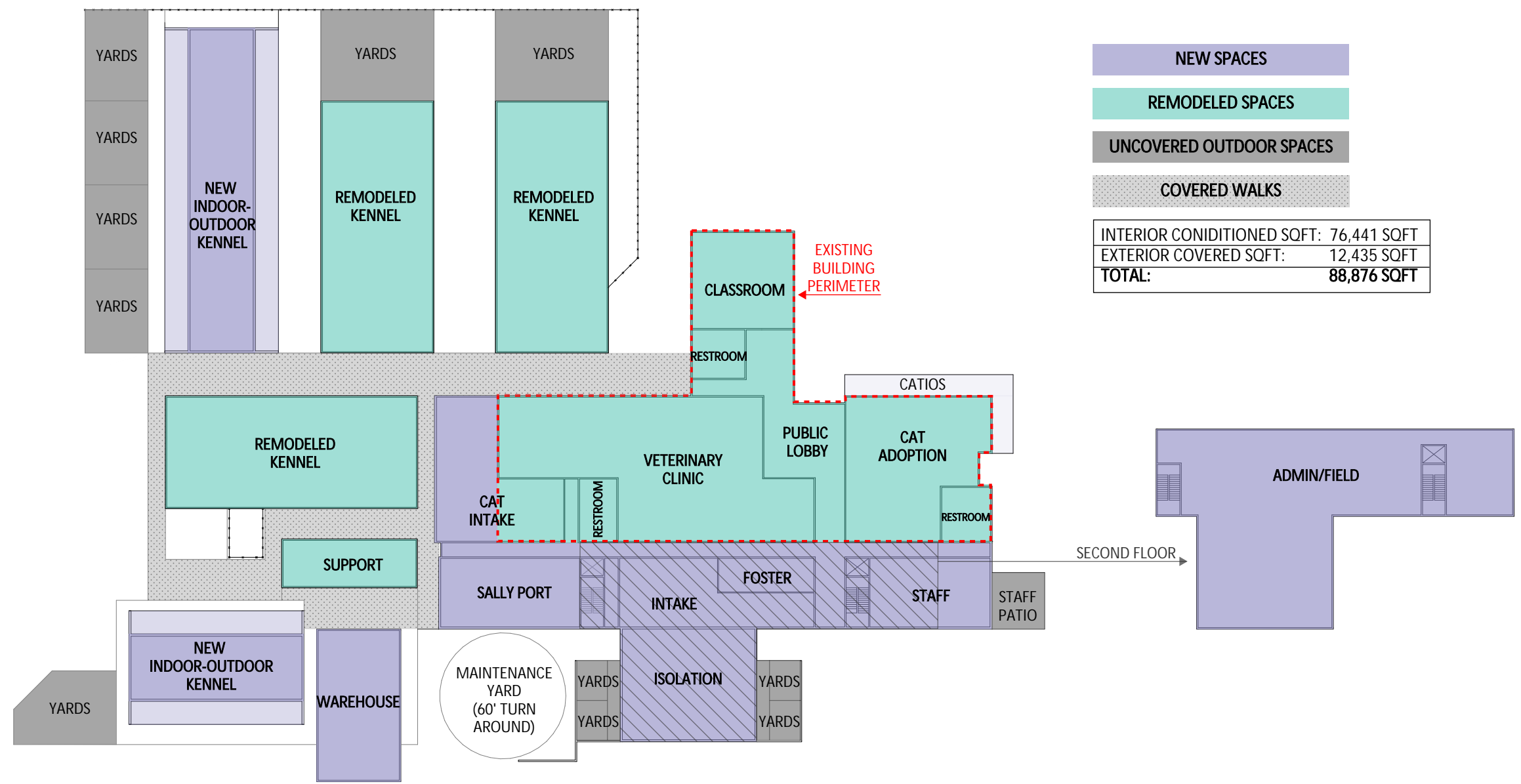




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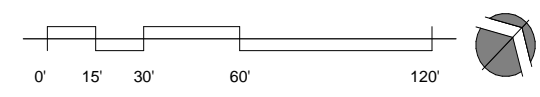
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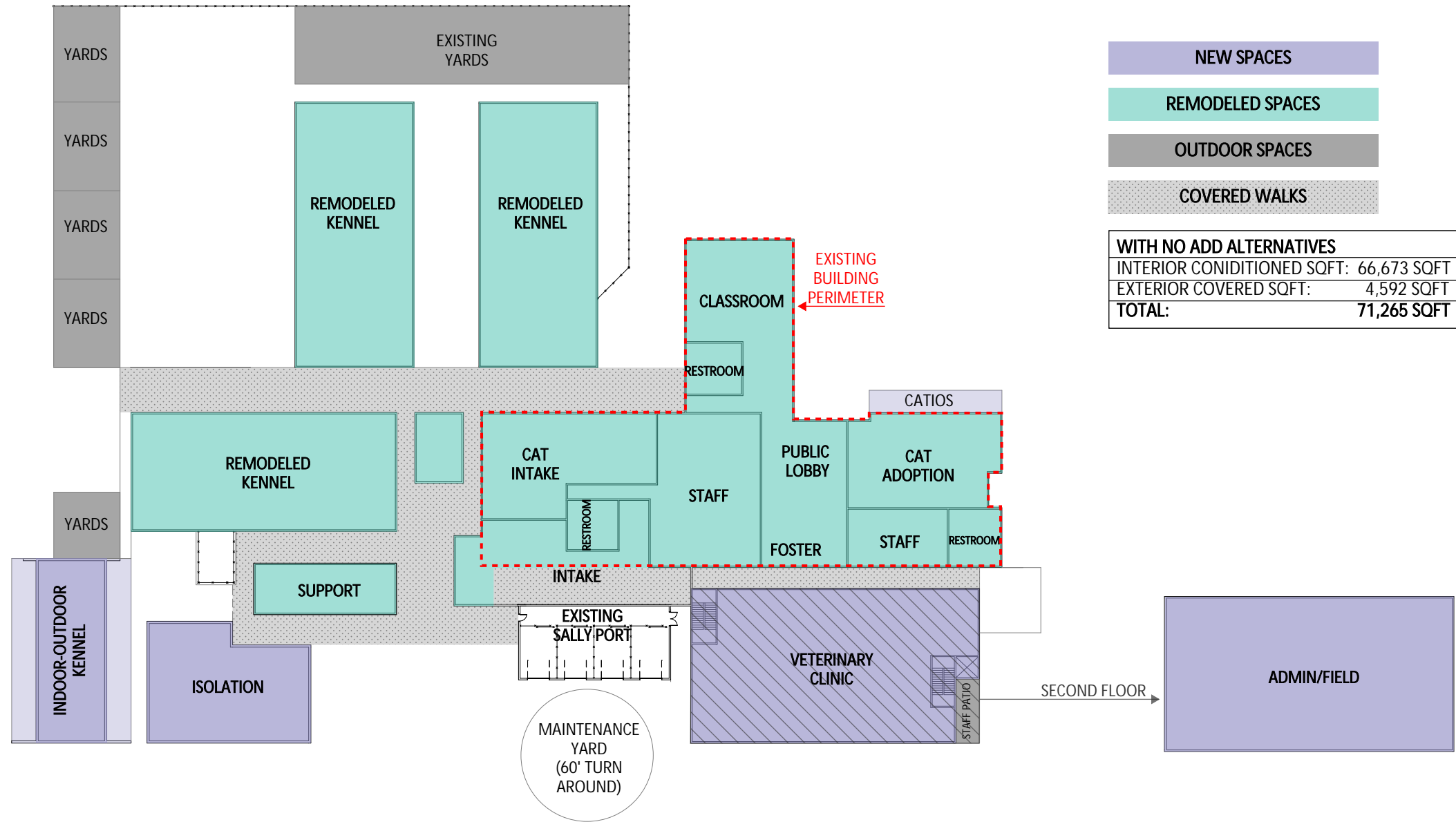


NEW SPACES
REMODELED SPACES
UNCOVERED OUTDOOR SPACES
COVERED WALKS

INTERIOR CONDITIONED SQFT:	76,441 SQFT
EXTERIOR COVERED SQFT:	12,435 SQFT
<b>TOTAL:</b>	<b>88,876 SQFT</b>

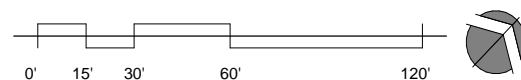
**1 OPTION 3**  
SCALE: 1" = 60'-0"





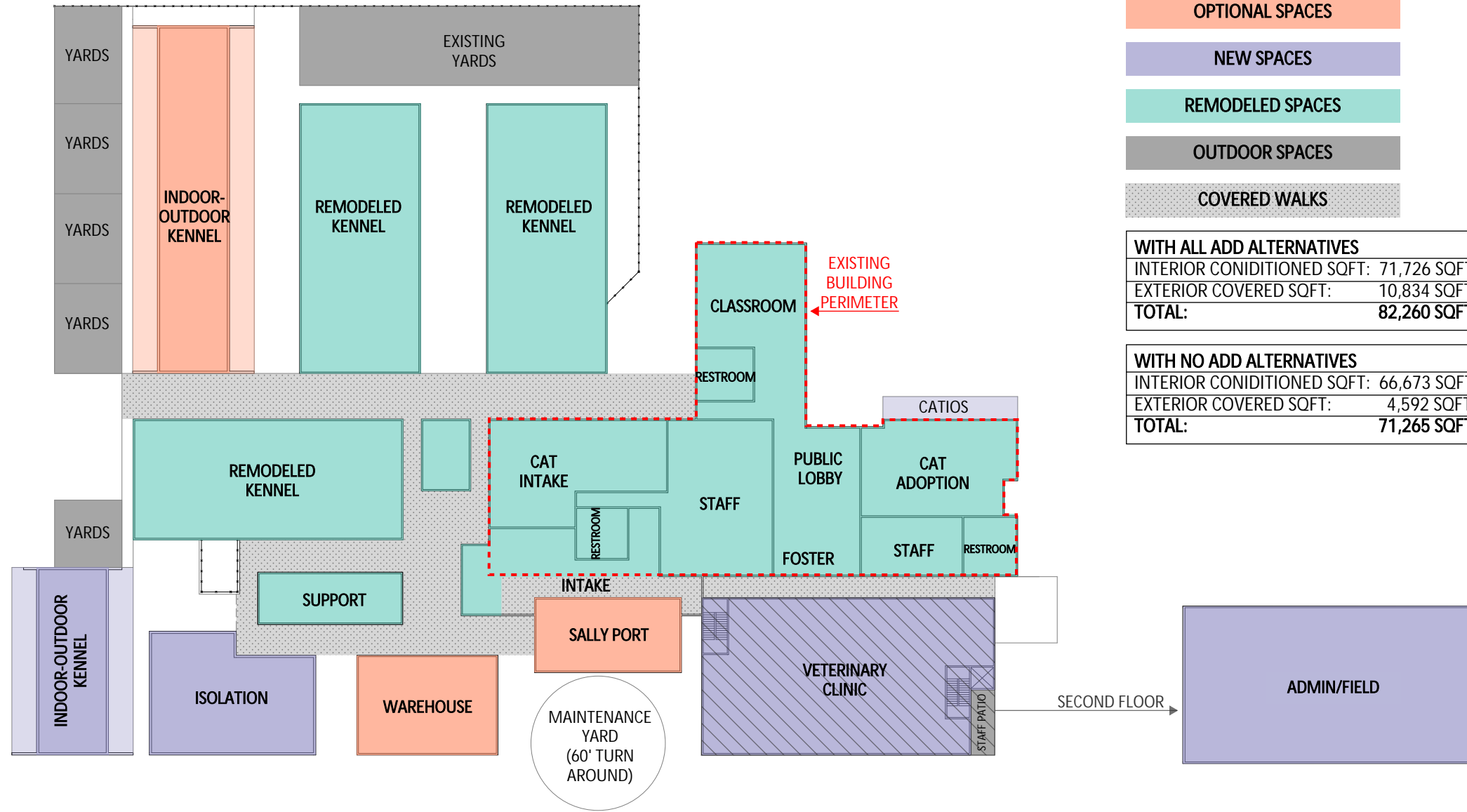
**1** **OPTION 4**

SCALE: 1" = 60'-0"



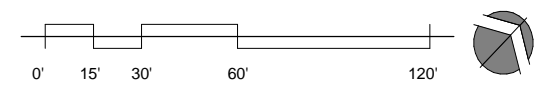
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OPTIONAL SPACES	
NEW SPACES	
REMODELED SPACES	
OUTDOOR SPACES	
COVERED WALKS	
<b>WITH ALL ADD ALTERNATIVES</b>	
INTERIOR CONIDITIONED SQFT:	71,726 SQFT
EXTERIOR COVERED SQFT:	10,834 SQFT
<b>TOTAL:</b>	<b>82,260 SQFT</b>
<b>WITH NO ADD ALTERNATIVES</b>	
INTERIOR CONIDITIONED SQFT:	66,673 SQFT
EXTERIOR COVERED SQFT:	4,592 SQFT
<b>TOTAL:</b>	<b>71,265 SQFT</b>

**1** **OPTION 4**  
SCALE: 1" = 60'-0"



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## **8** Continuity of Operations Plan for Options 1, 2, 3, and 4

The graphic keys below coordinate with the Continuity of Operations Plans for each Option. The continuity of Operations Plans are similar because of the sequence in which things must proceed.

In each Option, all functions may remain onsite during construction. Because the ACC staff are accustomed to working with under-capacity conditions, animals can be shifted to similar crowded conditions in new kennels while existing kennels are renovated and/or used for other functions such as staging. This will not be ideal, but it is doable. This type of phasing has been accomplished in other similarly sized animal shelters.

Note that shifting animals is much more difficult in Option 3 and 4, because of the reduction in scope of animal housing. This is part of the reason that Options 3 and 4 are not recommended.

### Option 1 Easily, 3 and 4 with Difficulty

---

**Phase 0 – Decommission Crematory and Outsource.**

**Phase 1 – Dig New Retention Ponds, Expand Parking, Demolish Existing Truck Bay and Reconstruct as Euthanasia, Construct New Warehouse, Construct All Kennels Except the Kennel Where Field Office/Trailer Currently Resides. Construct New Barn and Move Large Animals, Demolish Old Barn.**

**Phase 2- Demolish Interior of Existing Kennels and Reconstruct (Without Animal Housing), Stage Staff Operations and Clinic in Existing Kennels, Demolish Sally Port, Construct Two-Story Addition, Move Field/Admin to Final Location.**

**Phase 3- Demolish and Reconstruct Main Building (Except Multipurpose Room), Construct Remaining New Kennel. Move Veterinary Functions to Final Locations, Construct Animal Housing in Existing Remodeled Kennels.**

**Phase 4- Reconstruct Multipurpose Room, Complete Remaining Site Work.**



## Option 2

---

**Phase 0 – Decommission Crematory and Outsource.**

**Phase 1 – Dig New Retention Ponds, Expand Parking, Demolish Existing Truck Bay and Reconstruct as Euthanasia, Construct New Warehouse, Construct All Kennels Except the Kennel Where Field Office/Trailer Currently Resides. Construct New Barn and Move Large Animals, Demolish Old Barn.**

**Phase 2- Demolish Existing Kennels and Construct Four New Kennels (Without Animal Housing), Stage Staff Operations and Clinic in New Kennels, Demolish Sally Port, Construct Existing Building Additions Including Cat and Intakes.**

**Phase 3- Demolish and Reconstruct Main Building with Second Story (Except Multipurpose Room), Construct Remaining New Kennel. Move Veterinary Functions to Final Locations, Construct Animal Housing in New Kennels.**

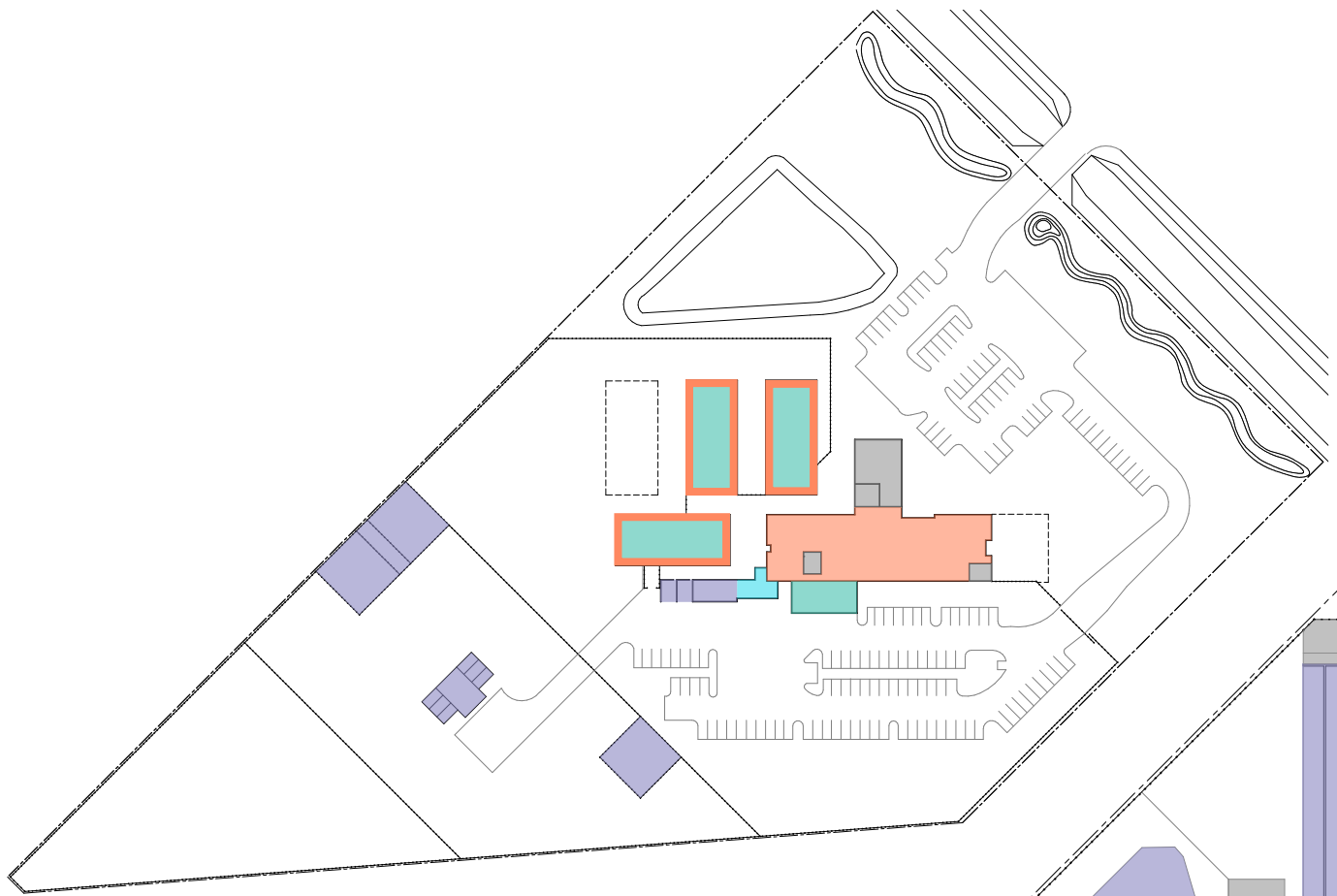
**Phase 4- Reconstruct Multipurpose Room, Complete Remaining Site Work.**



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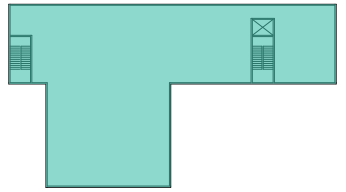
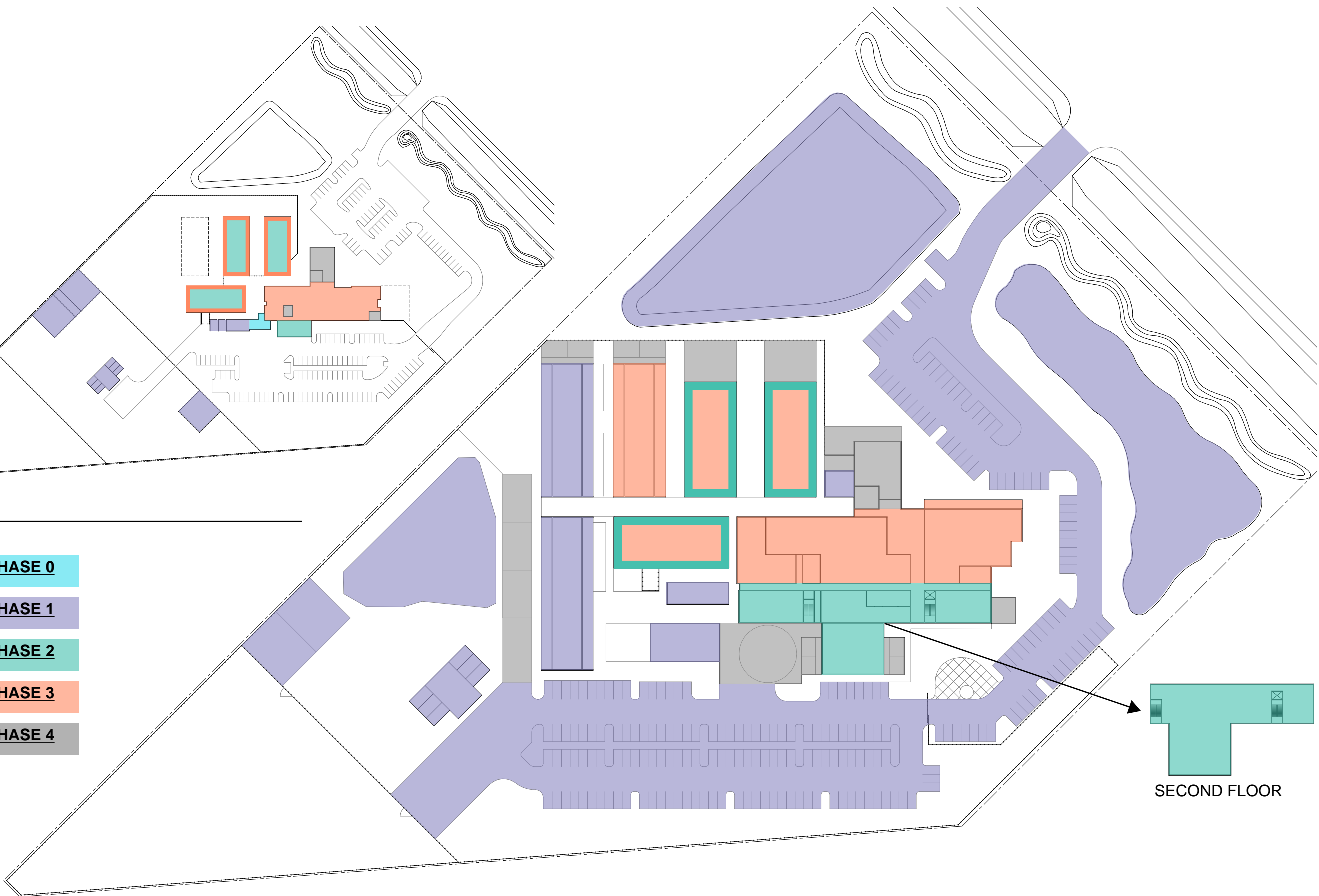
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EXISTING PLAN

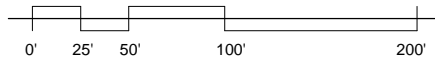
- PHASE 0**
- PHASE 1**
- PHASE 2**
- PHASE 3**
- PHASE 4**



SECOND FLOOR

**1 OPTION 1**

SCALE: 1" = 100'-0"



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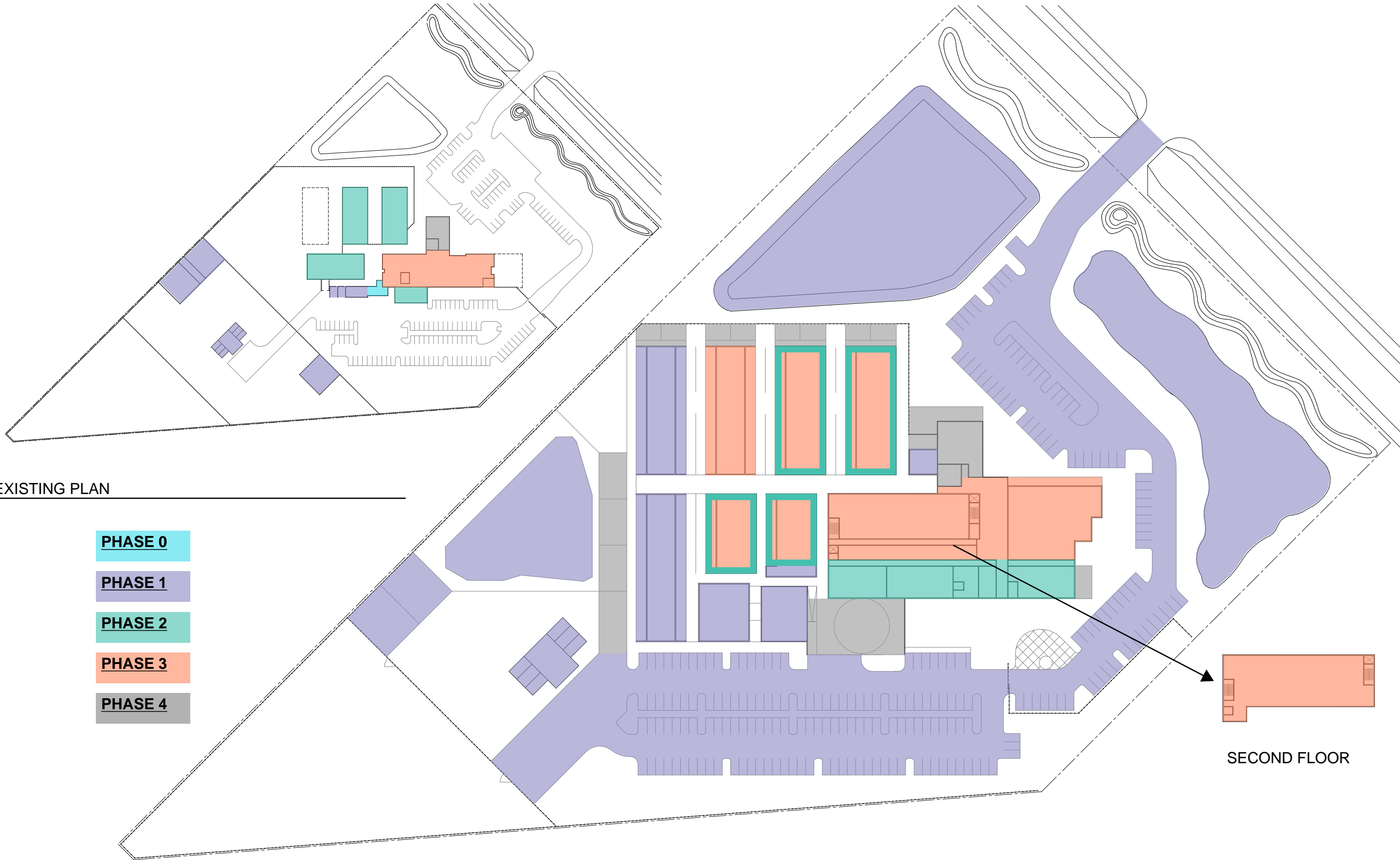




# PALM BEACH COUNTY ANIMAL CARE & CONTROL

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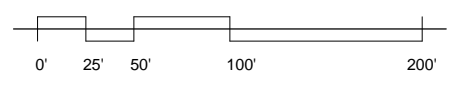


EXISTING PLAN

- PHASE 0**
- PHASE 1**
- PHASE 2**
- PHASE 3**
- PHASE 4**

SECOND FLOOR

**1** **OPTION 2**  
SCALE: 1" = 100'-0"



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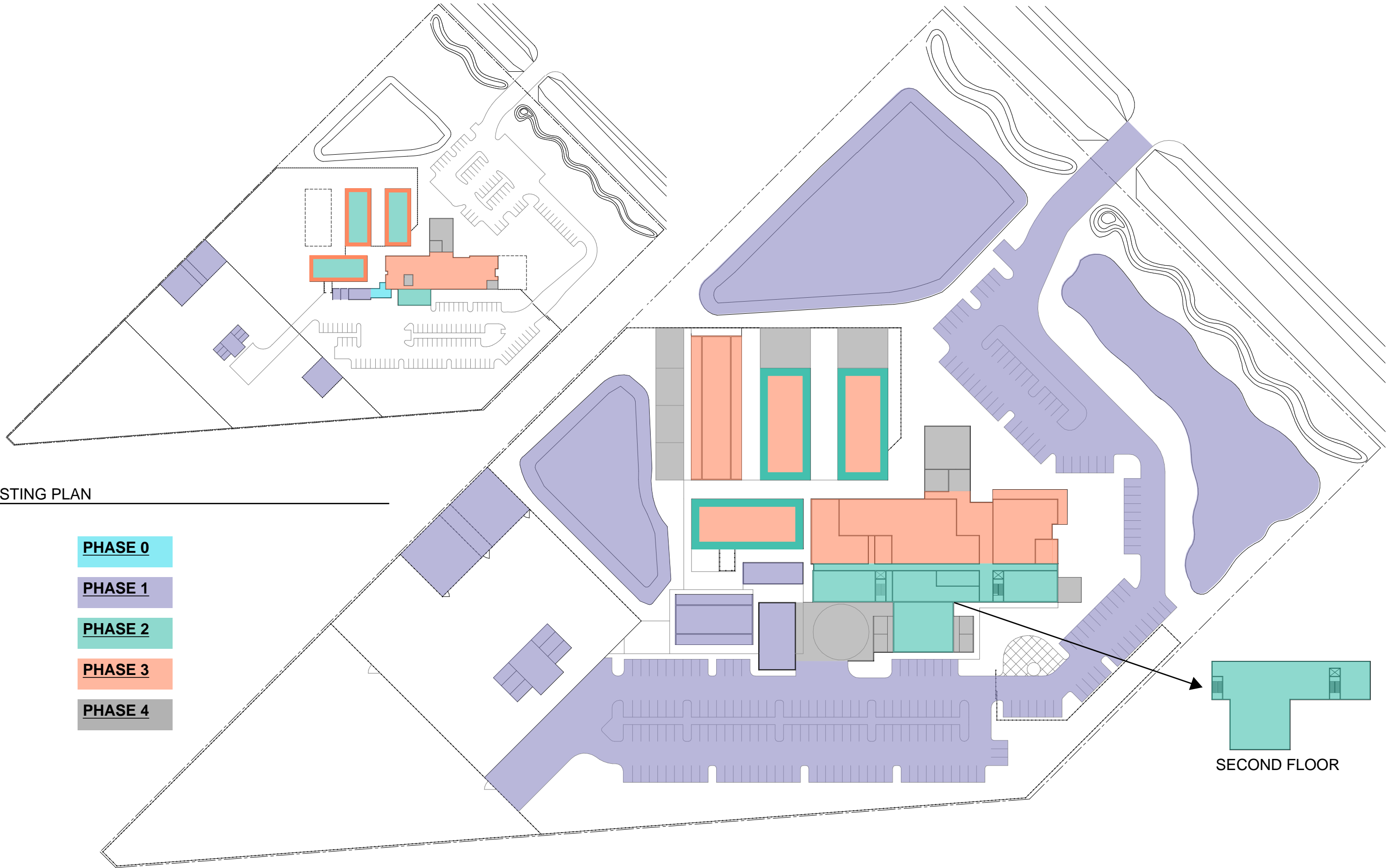




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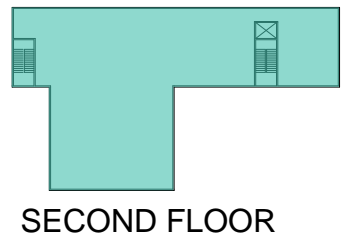
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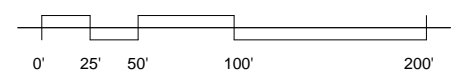
EXISTING PLAN

- PHASE 0**
- PHASE 1**
- PHASE 2**
- PHASE 3**
- PHASE 4**



SECOND FLOOR

**1** **OPTION 3**  
SCALE: 1" = 100'-0"

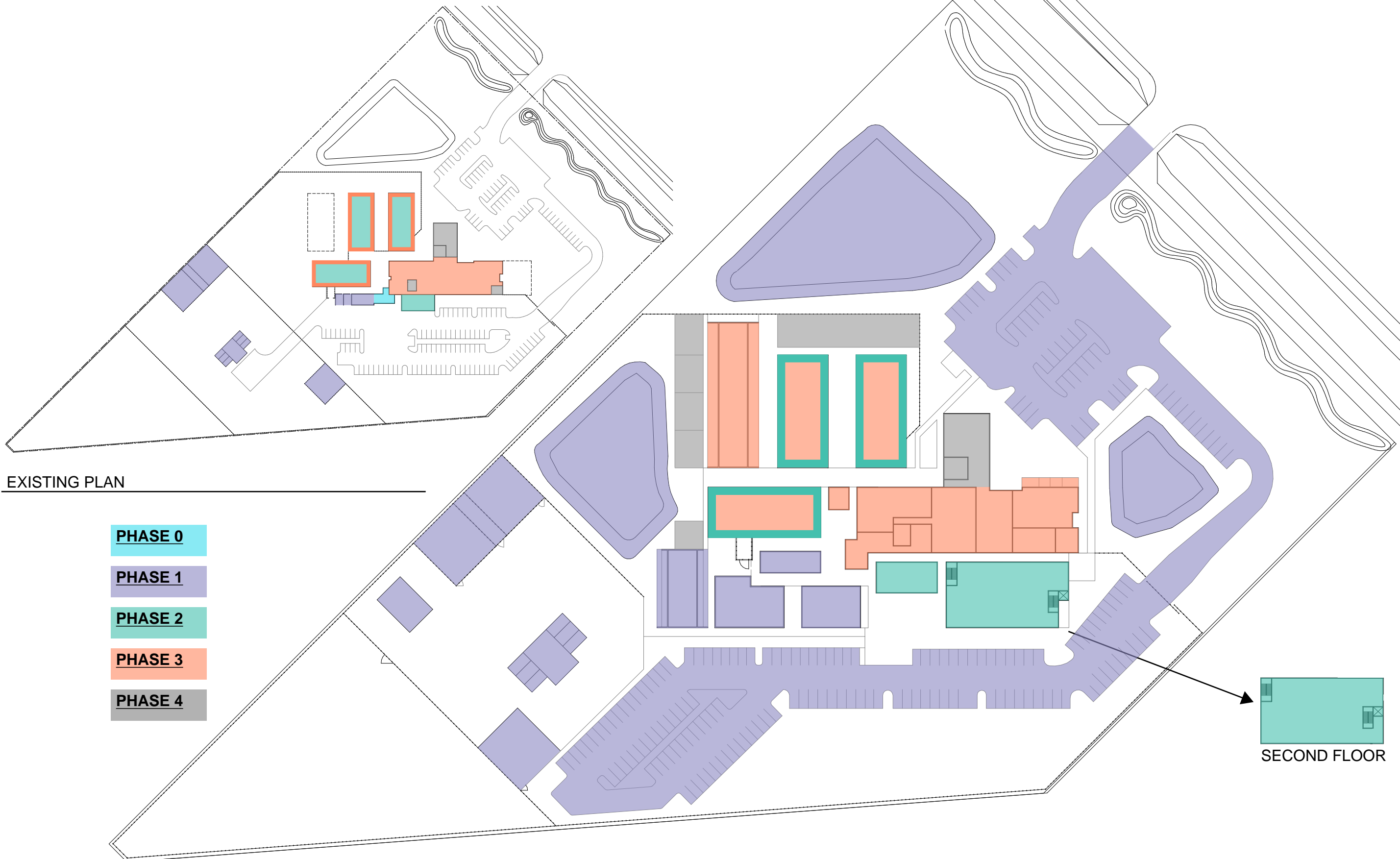




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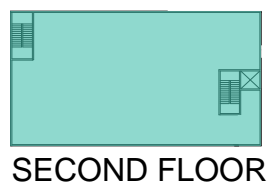
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EXISTING PLAN

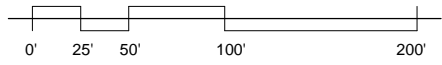
- PHASE 0**
- PHASE 1**
- PHASE 2**
- PHASE 3**
- PHASE 4**



SECOND FLOOR

**1** **OPTION 4**

SCALE: 1" = 100'-0"



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## 9 Costs of Options

### Summary

Option #	Option 1	Option 2	Option 3	Option 4
Description	Renovation /Addition	New Construction	Reduced Scope Renovation/ Addition	Reduced Base Scope w/out Add Alternates
<b>Capital Costs</b>	<b>\$48,921,320</b>	<b>\$57,625,702</b>	<b>\$38,826,718</b>	<b>\$29,533,988</b>
Owner F, F, & E	\$1,697,043	\$1,697,043	\$1,697,043	\$1,697,043
<b>Subtotal (Capital + F, F, &amp; E)</b>	<b>\$50,618,363</b>	<b>\$59,322,745</b>	<b>\$40,523,761</b>	<b>\$31,231,031</b>
<b>Annual Increased Utility Costs (with full air conditioning)</b>	<b>\$181,111</b>	<b>\$179,066</b>	<b>\$151,013</b>	<b>\$125,108</b>
Annual Increased Staffing Costs	\$1,200,000	\$1,200,000	\$800,000	\$333,333

### Methodology

Wharton-Smith provided cost estimating for the Options. Their team was provided with the following information to develop accurate estimates:

- Programs of spaces.
- More detailed block diagrams illustrating the potential layouts of spaces.
- Sets of construction documents for other projects of similar scopes, including one shelter that is a seven-phase, 110,000 square-foot project.
- Detailed cost narratives and engineering narratives.
- Continuity of Operations Plans.

The design and construction management teams also had many meetings to discuss assumptions, materials, systems, and infrastructure. While we recognize that design decisions will change as the project progresses, our goal was to be detailed enough to develop an accurate representation of probable scope of the project.

### Overall Construction Costs

The costs for each Option are as follows. These costs include the buildings and site work, all the phasing to keep Animal Care and Control operational, and they also include all contractor provided built-in

equipment. Note that Wharton-Smith has not included potential reuse of contractor provided equipment in their cost models, although we anticipated that costs of equipment will decrease 10-15 percent due to reuse of existing equipment. This will need to be fully reconciled during design of the project, during which time equipment estimates will likely decrease slightly as a result.

For reference, Wharton-Smith’s report is provided in Appendix Section 14. This report provides all the detailed information that was developed, as a background to the final cost recommendations listed below:

Costs	Option 1	Option 2	Option 3	Option 4
	Renovation /Addition	New Construction	Reduced Scope Renovation/Addition	Reduced Base Scope w/out Add Alternates
	<b>\$48,921,320</b>	<b>\$57,625,702</b>	<b>\$38,826,718</b>	<b>\$29,533,988</b>
	\$494 per s.f.	\$576 per s.f.	\$437 per s.f.	\$414 per s.f.

Costs of Add Alternates in Option 4. These are priced as individual options, assuming they are constructed as individual projects, in 2021 dollars.

- Add Alternate 1: Replace Barn: \$693,546
- Add Alternate 2: New Warehouse: \$745,428
- Add Alternate 3: New Kennel #4: \$6,899,251
- Add Alternate 4: New Sally port: \$621,122
- Add Alternate 5: New Parking: \$293,836

The final cost of each add alternate in Option 4 is dependent on the following:

- Whether the alternate is bundled with other alternates. This could lower the general conditions costs within the construction. For example, if the county were to elect to construct one or two alternates together, this may have fewer economies in terms of overall project overhead than if three or more were constructed at the same time.
- When the alternates are constructed. Constructing them beyond the year 2021 will add escalation factors. Construction costs are currently planned for bidding at the end of the year 2021. Construction costs have historically escalated at 5 percent per year on average. If the construction of an alternate were to occur three years after the end of 2021, for example, then the cost of that alternate would be likely to be approximately 15 percent higher than is described in this Report.

***Air Conditioning Costs***

Air conditioning was discussed at length during the design process and is documented in detail in this report. **Permanent air conditioning is strongly recommended by the design team** for all kennels because it has a direct positive impact on animal health, supports animal welfare, and reduces the operational burden of caring for sick animals. Permanent air conditioning is included in the cost of all options.

The design team was asked to develop a seasonal air conditioning strategy for the kennels, but we strongly recommend against this solution, and therefore did not develop it for use by the county. Seasonal air conditioning is unhealthy because it does not include adequate ventilation. Ventilation is even more important than air conditioning for maintaining animal health.

The design team thus provided a cost scenario for each Option for ventilation only to the kennels, without permanent air conditioning. This strategy, while possible, does not save the county significant money on the cost of the Options. We do not recommend the “ventilation only” approach because it compromises animal health and does not provide a large capital cost benefit.

<b>Costs</b>	Option 1, Ventilation Only	Option 2, Ventilation Only	Option 3, Ventilation Only	Option 4, Ventilation Only
	<b>\$47,994,316</b>	<b>\$56,846,102</b>	<b>\$38,090,263</b>	<b>\$28,922,428</b>
	Option 1, Deduct for Ventilation Only	Option 2, Deduct for Ventilation Only	Option 3, Deduct for Ventilation Only	Option 4, Deduct for Ventilation Only
	<b>\$927,004 Deduct</b>	<b>\$779,600 Deduct</b>	<b>\$736,455 Deduct</b>	<b>\$611,560 Deduct</b>

***Owner Provided Equipment Costs for All Options***

Owner Provided Furnishings, Fixtures, and Equipment is estimated at **\$1,697,043** for each Option. A full break out of anticipated F, F, and E is included in the Appendices.

***Costs of Individual Kennel Buildings for Each Option***

One question that Palm Beach County could consider is whether to construct one of the Options without all kennels initially and construct one or more new kennels later. As is typical of construction projects, the dollars saved in removing a major item are not nearly as much as the dollar amount of adding the item later. This is because the infrastructure must be in place to be ready to add the kennel, and because there are no economies of scale in building items separately.



If the county were to remove a kennel from one of the options, approximately \$1.8 million would be saved. However, if this same kennel were to be constructed later, this kennel would cost between \$5 million and \$7 million depending on its size and its placement on the site. These approximate numbers are in 2021 dollars. If the kennel were to be constructed after 2021, five percent per year average inflation applies.

In addition to inflation concerns, it does not benefit the county to delay the construction of kennels, for these reasons:

- Kennel overcrowding would continue.
- Phasing the project would become difficult without the full scope of new kennels for staging, as is clear from the continuity of operations plans for Options 3 and 4.
- Meeting the commitments of Countdown 2 Zero would become much more challenging.

### ***Benchmarking***

Animal shelters are expensive buildings. For this reason, Animal Arts maintains data about the costs of recent projects, not only from our company but from other animal care architecture firms. The average location adjusted construction cost for a new animal shelter (between four animal care architecture firms) is \$480 per square foot. The project for Palm Beach County is very similar in terms of predicted costs per square foot, especially considering that this is a multi-phased project, and phasing adds costs. While the buildings in two out of three options are a combination of new and renovated, multi-phase construction is costly.

### ***Why Animal Shelters Are Expensive Buildings***

For those new to the construction of animal shelters, the costs for the Options for Facility Improvements may seem high. In fact, animal shelters are the most expensive building type just behind human hospital construction, but far above the cost of other community buildings such as recreation centers. Below are some reasons why animal shelters are expensive.

### **Designing for Sanitation**

Shelters must provide clean and sanitary environments for the health of the animals. Unlike human hospitals where patients are protected by footwear, animals are in direct contact with the floors and walls of housing and circulation spaces. Sanitation systems are expensive because they involve skilled trades and significant infrastructure. A well-designed shelter has:

- Floor drains in every animal housing enclosure, as well as in the aisles outside the enclosures.
- Thickened concrete slabs to incorporate drainage systems.
- Hoses and disinfectant mixing stations throughout housing areas.
- Waterproof floor and wall systems. This is extremely important to prevent degradation of finishes and to extend the lifespan of the shelter.

- Commercial-grade dishwashers for sanitizing bowls and equipment.
- Commercial-grade washing machines for sanitizing laundry.
- Sag-resistant ceilings to withstand humid conditions during cleaning.
- Doors and interior window openings that are durable enough to be cleaned with water and disinfected.

### **Designing for Healthy Air**

Just as floors, walls, and equipment must be sanitary, the air that the animals breathe must be clean and free of pathogens. Odors are indicative of unhealthy air quality, and so animal shelters are typically designed to prevent noticeable odor in the air. An odor-free environment also creates a more positive experience for visitors and staff. Animal shelters employ these strategies to maintain healthy air:

- Enhanced air changes.
- Greater dilution with outside air.
- Air pressurization strategies to prevent contaminated air from flowing through the shelter from one space to another.
- Energy recovery strategies to recover the energy lost by moving more air.
- Greater levels of filtration to catch dust and animal hair.

### **Designing for Lighting and Power**

Buildings such as shelters that have larger mechanical systems also need more electrical capacity to run these systems. Shelters contain equipment such as commercial laundry equipment that require dedicated power. Shelters also must be lit brightly and evenly for good cleaning, safety of the animals and staff, and to promote adoptions. Given current energy codes, shelters must be designed with highly efficient lighting systems to afford the illumination levels that are needed. This equates to more expensive lighting selections.

### **Durability and Use**

The only building type that receives more daily, difficult use than an animal shelter is a correctional facility. Unlike schools, shelters are used 24 hours per day by the animals. Unlike hospitals, shelters are cleaned with a hose and water. Shelters are used daily by staff, volunteers, the public, and animals, and therefore they must be durable enough to withstand the unpredictable use patterns of this combined group. To last for years, shelters typically have:

- Specialized doors and hardware.
- Wall protection to prevent damage from carts and leashes.
- Tempered glass in interior openings to prevent breakage.
- Flooring that holds up to cart traffic and dog claws.
- Higher-performance paints and finishes for easy cleaning.

**Why Good Buildings**

Animal control agencies do not have many opportunities to build buildings. Therefore, the buildings should be designed to maintain functional, efficient, and healthy operations for decades to come. Good shelter buildings may cost more money in the short term, but they reduce long-term operational expenses. A great shelter building supports the work that staff and volunteers do to provide humane and compassionate care for the animals and their human caretakers.

**10 Staffing Analysis**

*Staffing Requirements for Options 1, 2, 3, and 4*

Staffing requirements were developed internally to Palm Beach County Animal Care and Control. They are listed here in simple tabular form for each Option.

Staffing Costs	Option 1	Option 2	Option 3	Option 4 Base <sup>36</sup>
	Renovation /Addition	New Construction	Reduced Scope Renovation/Addition	Reduced Scope w/out Add Alternates
	<b>\$1.2M</b>	<b>\$1.2M</b>	<b>\$800,000</b>	<b>\$333,333</b>
	12 Kennel Workers (4 per new kennel)	12 Kennel Workers (4 per new kennel)	6 Kennel Workers (4 per new large kennel, 2 per new small kennel = 6)	2 Kennel Workers (2 per new small kennel)
	6 Veterinary Technicians (2 per new kennel)	6 Veterinary Technicians (2 per new kennel)	6 Veterinary Technicians (2 per new kennel)	3 Veterinary Technicians (2 per new small kennel, 1 additional due to illness caused by co-housing)
	Isolation ward will utilize existing and new staff	Isolation ward will utilize existing and new staff	Due to co-housing, likely increase in illness, requiring same # of veterinary technicians	Due to co-housing, one additional veterinary technician needed to address likely increase in illness

<sup>36</sup> Option 4 with all add alternates has the same staffing requirements as Option 3.

**Animal Control Officers**

While the staffing of animal control officers is somewhat a separate issue, the design team reviewed current animal control field staffing compared to an accepted National Animal Control Association standard, with the goal of anticipating growth in the office areas of the building, if needed. Per the NACA Standard, officer needs are estimated by examining the ratio of officers to population served.

$$1,471,000 \text{ people served}^{37} \times \frac{1 \text{ ACO Officer}}{18,000 \text{ residents}^{38}} = 82 \text{ ACOs}$$

$$82 \text{ ACOs} \times 1.6 \text{ NACA Relief Factor}^{39} = 132 \text{ ACOs Required for PBCACC}$$

This approach yields 132 ACOs required for field services compared to the current staffing of 21 animal control officers. Additional officers are also required depending on the need for dedicated special investigations, etc. Currently there are five officers specifically dedicated to the Special Investigations unit and three officers assigned to the Licensing and Enforcement unit.

	Current Staff	Calculated Staff
ACO	21	
ACO II/Investigator	9	
Stray Shuttle Driver	1	
Field Supervisor	4	
<b>Total</b>	<b>35</b>	

While it is not unusual to see a number of officers that is lower than the NACA recommended number, the great difference would indicate that there is a significant shortage of officers in Palm Beach County to respond to calls.<sup>40</sup> In fact, PBCACC typically responds to Priority One calls promptly to protect public safety, but non-urgent, non-safety related calls may wait for many days for a response.<sup>41</sup>

<sup>37</sup> Population of Palm Beach County: [www.census.gov/quickfacts/palmbeachcountyflorida](http://www.census.gov/quickfacts/palmbeachcountyflorida).

<sup>38</sup> NACA/ICMA field staffing recommendations based on population: one officer per 16,000 – 18,000 residents.

<sup>39</sup> Accounts for leave, hearings, etc.

<sup>40</sup> Palm Beach County has a significant lower animal control officer per human population ratio than Orange, Lee, and Charlotte Counties, for which we could gather data, and lower than the per human population ratio in other leading counties outside of Florida for which we have worked.

<sup>41</sup> Palm Beach County ACC tracks responses to calls. Emergency calls after normal business hours have a target response time of 35 minutes. Officer responses are close to this response time during 2019 and 2020. Emergency calls during business hours have a 25-minute target response time. It is difficult to meet this response time due to drive times in the County; however, ACC averages slightly over 30 minutes for all quarters of 2019 and 2020. PBCACC cannot meet their targets for lower priority calls including aggressive dog investigations and complaints of cruelty and neglect, due to low officer staffing. For example, the target for aggressive dog investigations is five days. PBCACC’s average response time was around 15 days in 2020 datasets.

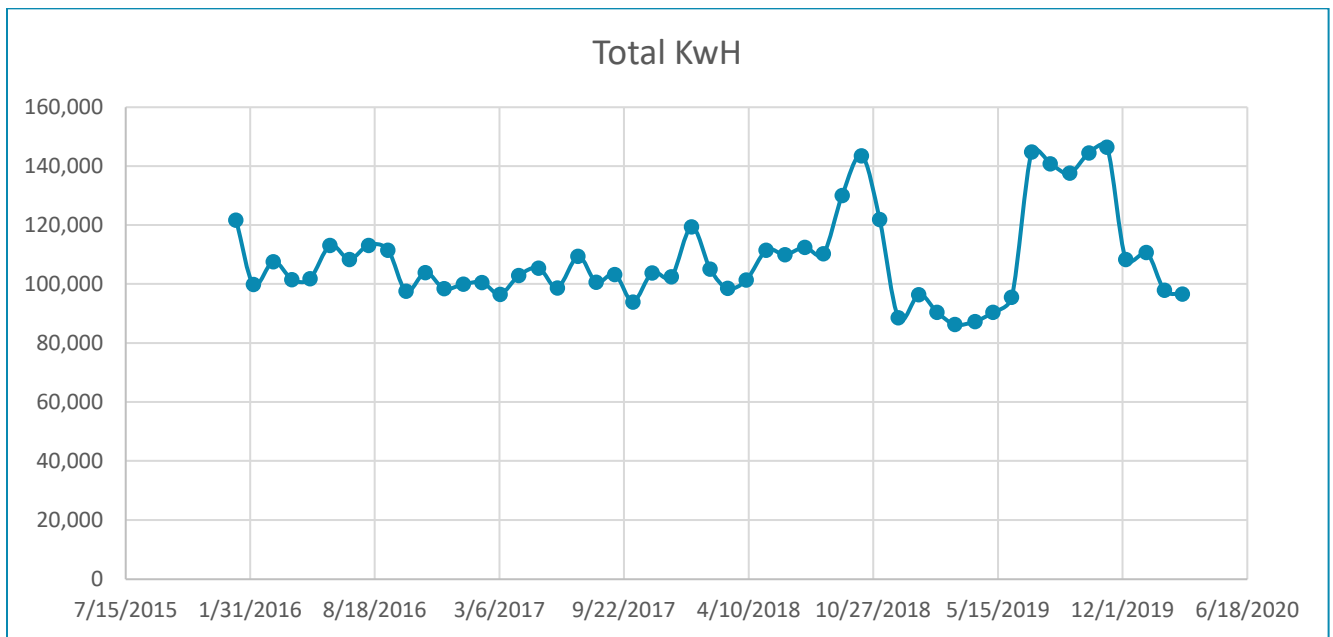
Anticipating potential for increased officer staffing in the future, particularly as Palm Beach County grows, the field officer workspaces should be capable of accommodating expansion.

## 11 Utility Cost Increases

To determine utility costs for the project, the team used this method:

- Gather data from other similar organizations to determine average usage per month.<sup>42</sup>
- Compared this data to data from Palm Beach County ACC to ensure that it is within a typical range. We discovered that the facility uses more than the typical amount of electricity. We believe that there are three primary reasons for this:

1. Based on reviewing the data from recent years, seasonal air conditioning likely adds to the electricity costs. Seasonal air conditioning is inefficient because it does not include any energy recovery, as is typical of permanent systems. In the chart below, note greater deviation from average in the past two years. The past two years were the ones in which the seasonal air conditioning was in use.



2. South Florida is a hot and humid climate; therefore, energy usage will exceed typical animal care projects in other locations.

<sup>42</sup> Other facilities for which we have data also utilize air handling units with energy recovery ventilators, as is the basis of design for this project.

3. The existing building is inefficient due to its age. For example, it is typical for older lighting fixtures to use more energy than their contemporary equivalents.

- We believe that using existing electricity data averages (without the peak caused by seasonal air conditioning), and extrapolating it to the size of new air conditioned facilities is a reasonable approach, given that newer facilities will be more efficient, and that efficiency will approximately balance the increased costs associated with accommodating more rigorous air quality standards.
- Once the data was analyzed and extrapolated, we estimated costs using local demand charges, meter charges, base rates, and utility rates.

When this project has advanced further, we recommend re-testing these assumptions with energy modeling, as required for Florida Building Code compliance.

Gas Usage

	Gas (Therms)/ month	\$/Therm	Meter Charge	Gas \$/month	Gas \$/year
Existing				\$1,936	\$23,232
Option 1 Total	8,559	\$0.35	\$90.00	\$3,429	\$41,146
Option 2 Total	8,408	\$0.35	\$90.00	\$3,370	\$40,441
Option 3 Total	7,865	\$0.35	\$90.00	\$3,159	\$37,903
Option 4 Total	6,898	\$0.35	\$90.00	\$2,782	\$33,388

Electric Usage

	Electric (kWh/month)	Demand kW	Demand Charge	\$/kWh	Elec \$/ month	Elec \$/year
Existing					\$8,459	\$101,508
Option 1 Total	247,693	600	\$6,744	\$13,169	\$19,913	\$ 238,957
Option 2 Total	243,575	600	\$6,744	\$12,950	\$19,694	\$ 236,330
Option 3 Total	228,747	500	\$5,620	\$12,162	\$17,782	\$ 213,382
Option 4 Total	202,373	500	\$5,620	\$10,760	\$16,380	\$ 196,555

Water Usage

	Water (gallons)/ month	Base Charge	Water \$/month	Water \$/ year
Existing			\$4,204	\$50,488
Option 1 Total	422,570	\$1,638	\$5,093	\$61,120
Option 2 Total	414,945	\$1,638	\$5,034	\$60,407
Option 3 Total	387,485	\$1,638	\$4,820	\$57,841
Option 4 Total	338,645	\$1,638	\$4,440	\$53,276

***Total Utility Cost Increases***

The existing utilities for the building cost approximately \$175,228 annually. Based on preliminary assumptions, the Options may see increased costs as follows. Because of the energy intensive nature of animal care facilities, all Options require significant increases in utility costs. This will need to be addressed in future operational funding.

- Option 1 – Add \$183,111 annually
- Option 2 – Add \$179,066 annually
- Option 3 – Add \$151,013 annually
- Option 4 – Add \$125,108 annually

***Reduction of Costs of Utilities for “Ventilation Only” Design in the Kennels***

Given the preliminary nature of the design drawings provided within the Comparative Study, it is difficult to estimate a reduction of energy costs for a ventilation only design in the kennels in lieu of full air conditioning. However, a reasonable estimate is that ventilation uses approximately twenty percent of the electricity of a fully air-conditioned system. Using this estimate, the revised approximate increase in utility costs for the Options, assuming ventilation only in the kennel areas, would be as follows:

- Option 1 – Add \$124,851 annually
- Option 2 – Add \$121,033 annually
- Option 3 – Add \$93,861 annually
- Option 4 – Add \$75,174 annually

The design team does not recommend this approach, regardless of reduced utility costs, as it does not provide a healthy environment for animals.

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## 12 Long-Term Development Plan for West County

The Comparative Study was focused on the needs for the primary shelter facilities on Belvedere Road. However, simple analyses of options for development of the Pahokee facilities are included in this section for Master Planning purposes. Expanding facilities in the west will be necessary at some time in the future because of development, drive times, pressures on ACO staffing, and to reach underserved areas in the western portions of the county.

Historically, the Pahokee facility operated as a stray shelter only and it had no public adoptions or spay/neuter services. The facility was open on weekdays. Staff were assigned overtime to come in over the weekends and provide basic care to any animals remaining at the facility. At that time, the Pahokee Facility was staffed with the following positions:

- One Field Supervisor
- One Animal Care Specialist
- Two Animal Control Officers

If services were to extend beyond that historic level, then staffing would need to increase accordingly. For example, if low-cost spay/neuter services were to be offered and performed on a full-time basis, then the following additional staffing would be required at a minimum, depending on volume:

- One Veterinarian
- One or two Veterinary Assistants
- One or two Customer Service Representatives

If adoption programs were to be added, additional staff beyond those listed above would be needed to operate the adoption program.

The development plans completed in 2007 were for a 17,000 square-foot facility. If the facility were expanded to accommodate more programs, it could be as large as 24,000 square feet. In 2020 dollars, using industry average costs per square foot that are similar to the development costs of the Belvedere Road facilities, a large-scale renovation or replacement project could cost:

17,000 s.f. x \$480 per s.f. = \$8,160,000 on the low end or  
24,000 s.f. x \$520 per s.f. = \$12,480,000 on the upper end

These costs do not include inflation past 2020 dollars, unusual site development costs, or owner provided equipment.



## 13 Recommended Option

After reviewing all three Options carefully with all project stakeholders, the design team's recommendation is Option 1, fully air conditioned. Option 1 achieves the following advantages over other Options:

- Meeting Best Practices: It meets all best practices.
- Meeting Operational Requirements: It accommodates all existing operations.
- Meeting County Space Standards: All county space standards can be accommodated.
- Greater Storm Resilience: Because Option 1 reconstructs the main building, which has the challenging lateral load design, it can be brought up to modern codes easily, thereby making it a more useful and safer building.
- Animal Capacity: It has adequate animal capacity.
- Buildability: It is far more constructible than Options 3 and 4, for example, because it has enough animal capacity to stage operations during construction.
- Value: It is lower cost than Option 2. It carefully reuses useful existing infrastructure.

### *Results*

Better facilities provide many important benefits to the citizens in Palm Beach County, including:

- Greater life saving for animals due to healthier and lower-stress spaces for the animals.
- Better service to the community because the shelter will be properly sized and user-friendly.
- Responsive to community pressure to provide humane animal care.
- Responsive to public safety by providing adequate space to impound animals, respond to safety concerns, and offer important programs such as rabies vaccinations.
- Greater resilience for storms and other community disasters.
- Proactive to the pressure of growth, development, and rapid change in Palm Beach County.

Palm Beach County Animal Care and Control has already realized a dramatic improvement in animal life saving and an equally dramatic decrease in the number of animals entering the shelter. At this crossroad, the greatest hindrance to future success is inadequate facilities. By modernizing and expanding the facilities to match today's programs and to provide for future expansion, Palm Beach County will be ready to meet the challenges of the next decades.

## F. Appendices

## F. Appendices

### 1 Mandated Services and Relevant Laws

#### *Mandatory Impound Times at PBCACC*

Owned Cats: Four Business Days

Unowned Cats: No Mandatory Hold

Owned Dogs: Four Business Days

Unowned Dogs: Four Business Days

Bite Holds: 10 Days

Seized Animals: Dependent on Length of Court Process

#### *Florida Animal Control Laws*

The following are a few of the laws that the state of Florida has in place for the protection of humans:

##### Animal Cruelty Laws<sup>43</sup>

- FSS 828.073: If an animal is suspected of being neglected or mistreated, the animal may be removed from the owner's care or an Animal Control Officer (or animal agent) issue an order to provide care. If the animal is taken into custody, the agent or officer must provide animal care until the owner is adjudged by the court and the animal returns to the owner's custody. If the owner is ruled unfit to care for the animal, the animal is either sold by the sheriff at public auction, taken into the custody of the Society for the Protection of Cruelty to Animals, the Humane Society, the county or the municipality, or the animal may be destroyed. The court may order that other animals in the owner's care also be taken into custody.
- FSS 878.12
  - Any person who unnecessarily overloads, overdrives, torments, deprives or sustenance or shelter, mutilates or kills any animal is guilty of a misdemeanor of animal cruelty of the first degree (punishable by a term of imprisonment not exceeding one year and/or by a fine of not more than \$5,000).
  - Any person who intentionally commits an act to any animal or person who owns an animal and fails to act, resulting in the cruel death or excessive repeated infliction of unnecessary pain or suffering to the animal is guilty of felony animal cruelty in the third degree (punishable by a term of imprisonment of five years and/or by a fine of not more than \$10,000).
  - A person who knowingly and intentionally tortures or torments and animal, including mutilation, injures, or kills the animal is ordered to a minimum, mandatory fine of

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<sup>43</sup> [www.leg.state.fl.us/statutes](http://www.leg.state.fl.us/statutes).

\$2,500 and ordered to undergo psychological counseling or anger management treatment.

- A person who is convicted of any animal cruelty charge for a second time must pay a minimum, mandatory fine of \$5,000 and serve a minimum, mandatory term of imprisonment of 6 months (they are not eligible for parole, control release, or any form of early release and must serve 100% of the court imposed sentence).
- A person who commits multiple acts of animal cruelty or aggravated animal cruelty can be charged with separate offenses.
- A person who commits act of animal cruelty or aggravated animal cruelty on multiple animals can be charged with separate offenses.
- A person who intentionally trips, fells, ropes, or lassos a horse for entertainment or sport is guilty of a felony in the third degree (punishable by a term of imprisonment of 5 years).
- In addition to all these penalties, if a person is convicted, they can no longer own, harbor, possess, or have custody of any animal for a period determined by the court.
- FSS 828.13
  - A person can be found guilty of a misdemeanor of the first degree if:
    - An animal is abandoned without sufficient water and food supply.
    - An animal is abandoned without adequate room for wholesome exercise or change of air.
    - An animal is abandoned to die.
    - An animal is abandoned to suffer injury, malnutrition.
    - An animal is abandoned on the street, road, or public place without adequate sustenance, protection, or shelter.

### **Dangerous Dog Laws**

- FSS 767.11: A dangerous dog is defined as; any dog that has aggressively bitten, attacked, endangered, or inflicted severe injury to any human being; has more than once severely injured or killed a domestic animal while off the owners property or when unprovoked, chased, or approached a person on the street, sidewalk, or public grounds in a menacing fashion or with an apparent attitude of attack.
- FSS 767.12:
  - An animal is subject to a dangerous dog investigation if they have caused severe injury to a human being. This animal may be immediately confiscated by an animal control authority, placed in quarantine and held pending the outcome of the investigation and any hearings or appeals. If the dog is to be destroyed, the dog may not be destroyed while an appeal is pending.

- Any animal that is subject to a dangerous dog investigation that is not impounded with the animal control authority must be humanely and safely confined by the owner until the resolution of the hearings or appeals.
- A dog cannot be classified as a dangerous dog if: the threat , injury or damage was sustained by a person who, at the time, was unlawfully on the property or who was tormenting, abusing, or assaulting the dog or family member; or if the dog was protecting or defending a human being within the immediate vicinity.
- FSS 767.13
  - If a dog has previously been declared a dangerous dog, attacks or bites a person or domestic animal without provocation, the owner is guilty of a misdemeanor of the first degree (punishable by up to 1-year imprisonment term). In addition, the dog will be immediately confiscated by an animal control authority, placed in quarantine, and held for 10 business days (allowing for hearings and appeals to be filed), thereafter destroyed in an expeditious and humane manner.
  - If a dog has not been previously declared a dangerous dog, attacks or causes severe injury or death to any human, the dog will be immediately confiscated by an animal control authority, placed in quarantine, and held for 10 business days (allowing for hearings and appeals to be filed), thereafter destroyed in an expeditious and humane manner.
  - If a dog that has previously been declared a dangerous dog, attacks and causes severe injury or death to any human, the owner is guilty of a felony of the third degree (punishable by a 5-year imprisonment term). In addition, the dog will be immediately confiscated by an animal control authority, placed in quarantine, and held for 10 business days (allowing for hearings and appeals to be filed), thereafter destroyed in an expeditious and humane manner.
  - If a dog attacks or bites a person who is engaged in or attempting to engage in a criminal activity at the time of the attack, the owner is not guilty of any crime specified above.

### ***Palm Beach County Animal Control Laws***

The following are relevant laws in Palm Beach County for the protection of humans and animals:<sup>44</sup>

- All dogs, cats, and small domestic animals maintained outdoors must be provided with shelter that offers sufficient protection from the cold and heat.
- Any dog maintained outdoors for all or part of the day in a fenced yard or other type of enclosure shall be provided a minimum of eighty (80) square feet of open space.

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<sup>44</sup> [library.municode.com/fl/palm\\_beach\\_county/codes](http://library.municode.com/fl/palm_beach_county/codes).

- In cases of evictions, incarcerations, hospitalizations, death, adjudications of hardship or the like from the Florida Department of Children and Families or other such community service agencies, and/or other involuntary occurrences whereby the owner of an animal is unavailable or unable to care for an animal, such animal may be impounded by the Division and held for an extended period of time.

## 2 Palm Beach County Animal Care and Control Partnerships

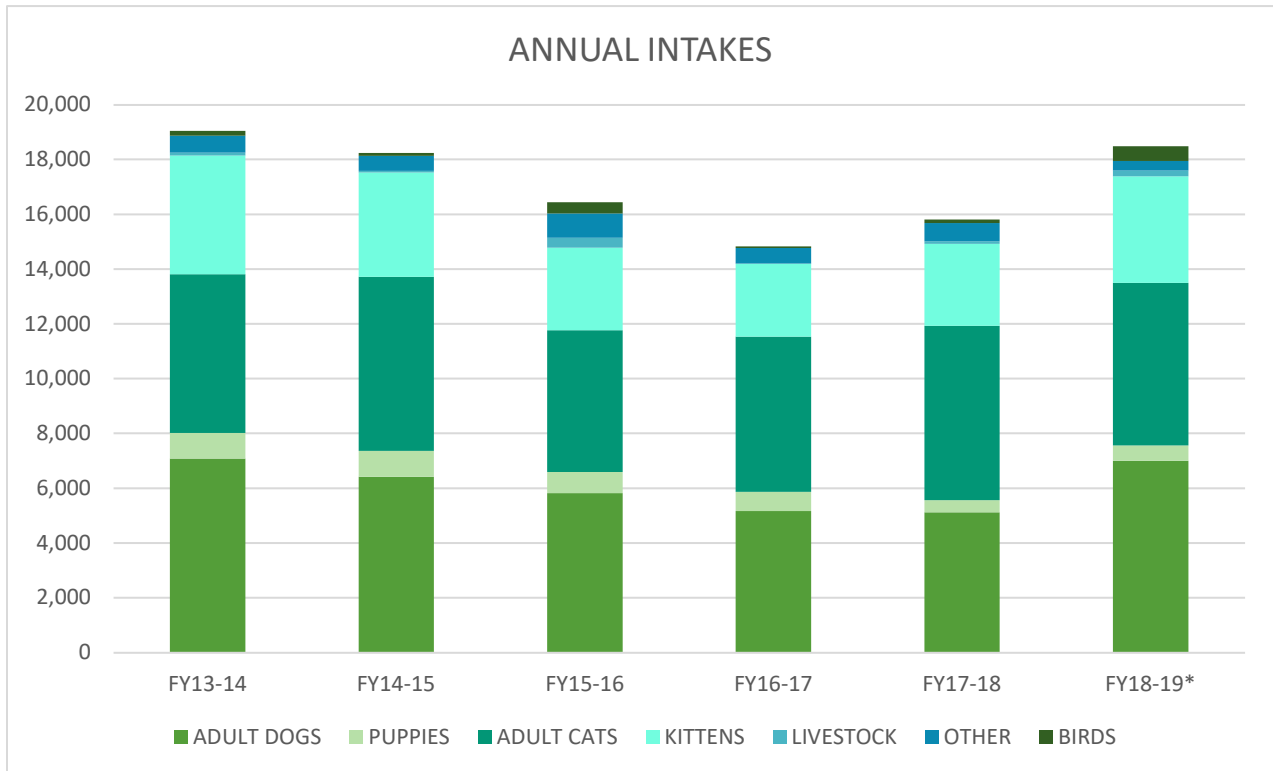
By partnering with private entities, PBCACC can utilize outside organizations to provide services beyond its capacity.

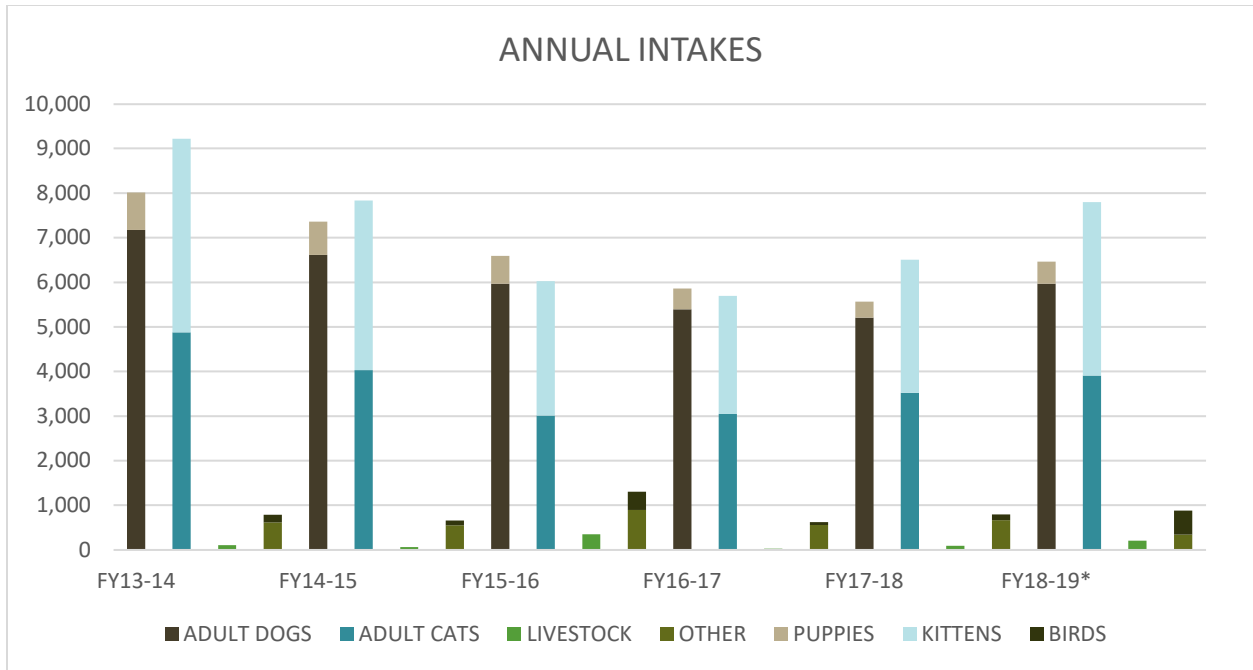
<b>Partnership</b>	<b>Services</b>
PBC Parks and Recreation Department	Pet Friendly Shelter in the event of a hurricane
Equine Rescue and Adoption Foundation	Equine rescue
Peggy Adam’s Animal Rescue League	Shelter transfers and Countdown 2 Zero
South Florida Link Coalition	Educational programs and community outreach
Florida Fish and Wildlife Conservation Commission	Regulates private ownership of exotic species, manages statewide nuisance alligator program
Busch Wildlife Sanctuary	Wildlife rescue and rehabilitation
South Florida Wildlife Center	Wildlife rescue and rehabilitation

### 3 Palm Beach County Animal Care and Control Intake and Outcome Trends

#### Overall Intakes

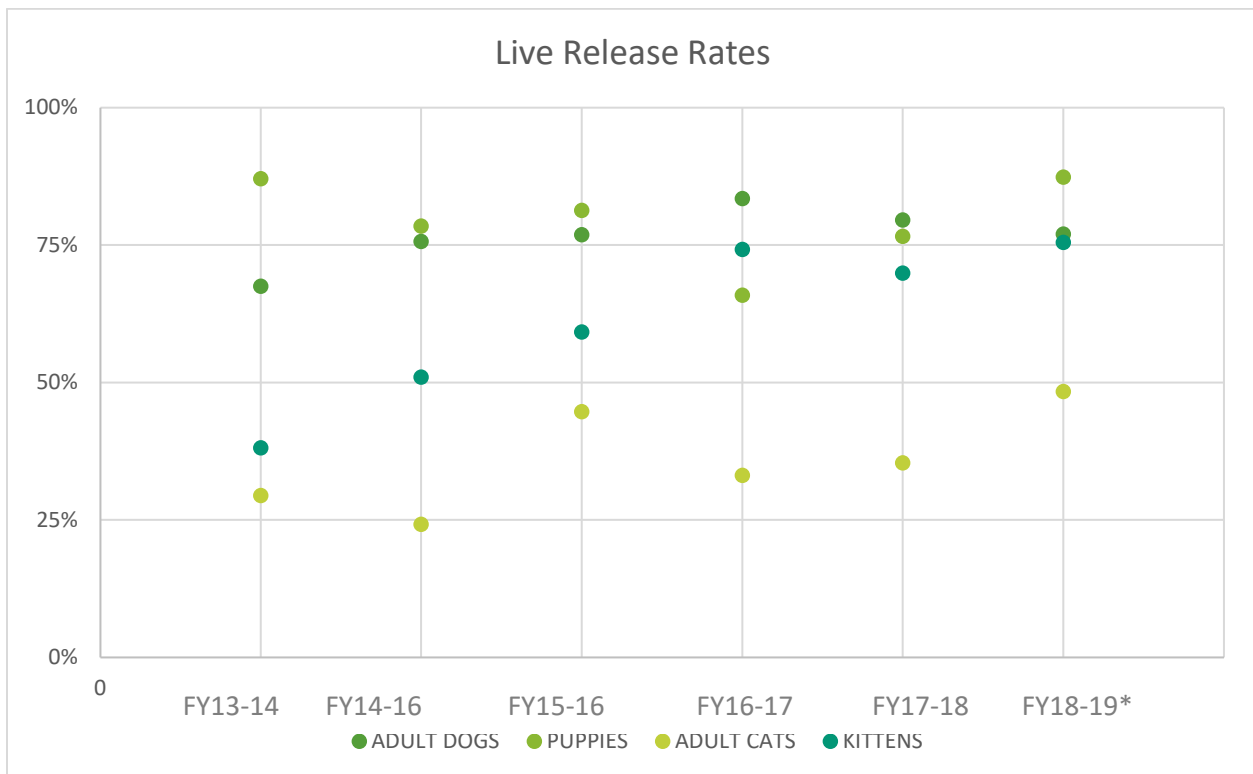
Adult dog and puppy intakes have decreased over the past few years, except during FY 18-19. Adult cats and kittens do not show clear trends. Livestock, birds, and other are much smaller components of the total number of intakes PBCACC receives and therefore, spikes in intakes can skew trends.





**Overall Outcomes**

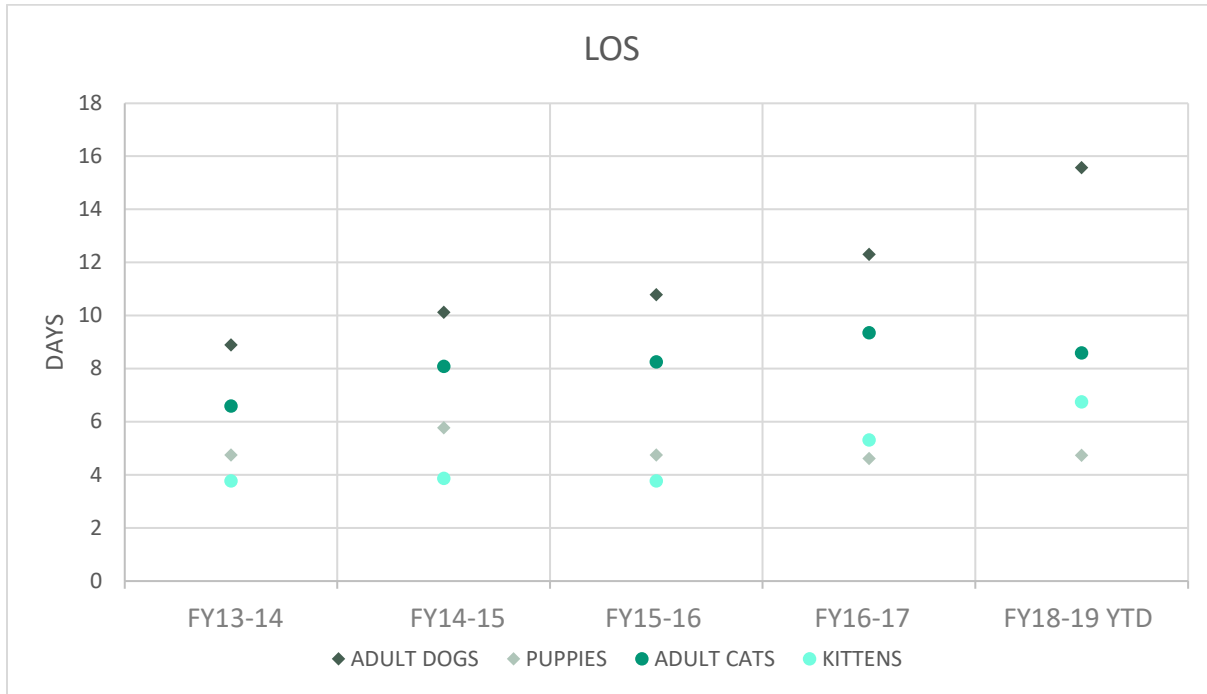
The save rate for cats was up to 62 percent in 2018 and the dog save rate was 87 percent in 2018. This can be attributed to increased spay/neuter surgeries, increased education, and adoption events like Countdown 2 Zero.





**Length of Stay (LOS)**

Adult dogs are on a clear upward trend in terms of length of stay, whereas adult cats and kittens show some signs of increase, but no clear trends. Puppies do not show clear trends either.



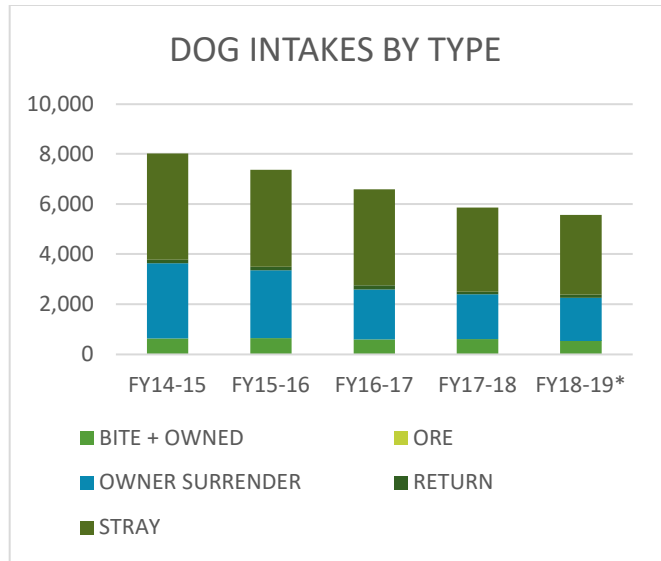
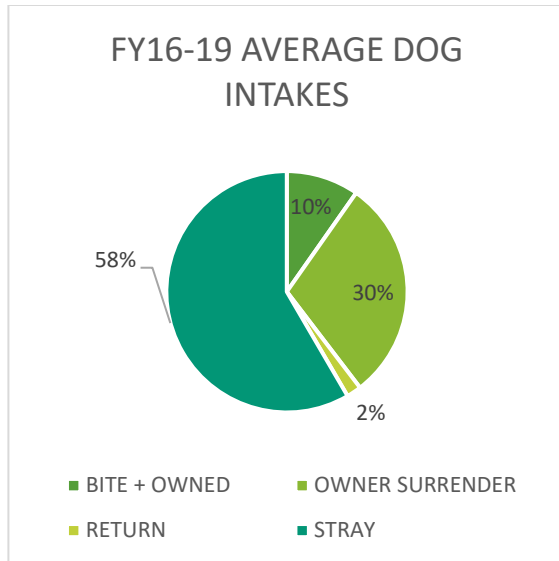
**Dog Trends**

**Intakes**

Overall, all dog intakes are decreasing from around 8,000 live intakes in FY13-14 to approximately 6,500 live intakes in FY17-18. This is probably due to an increased spay/neuter rate, decreasing the overall dog population in Palm Beach County.

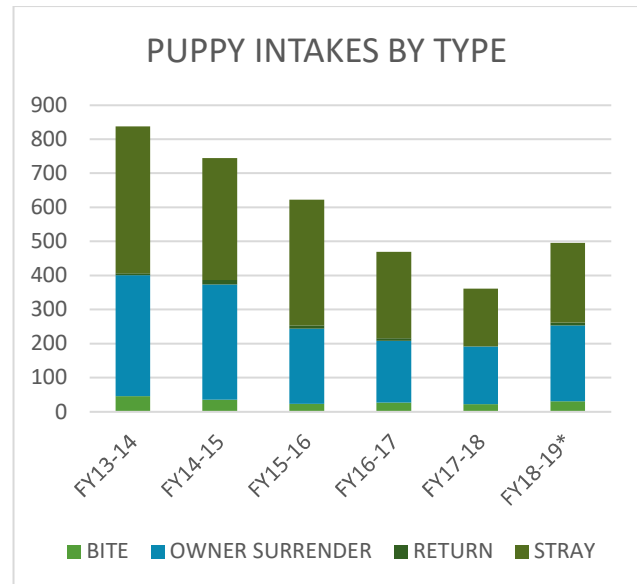
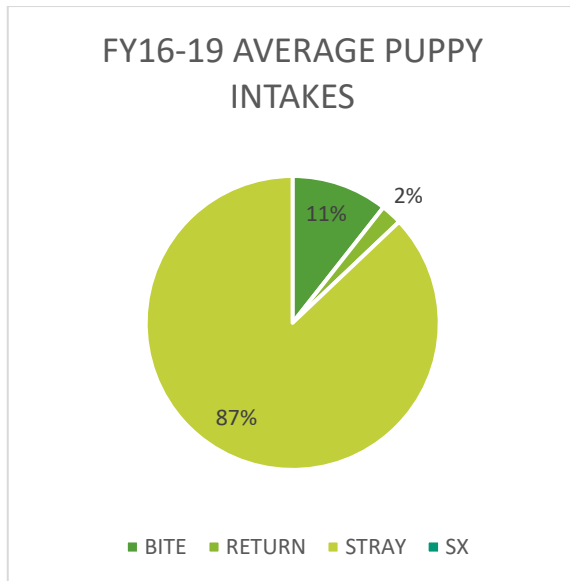
**1. Adult Dog Intakes by Type**

Adult dogs are primarily strays (58 percent) and owner surrender (31 percent). However, both these categories of intakes are decreasing over time, which is why adult dog intakes overall are lower.



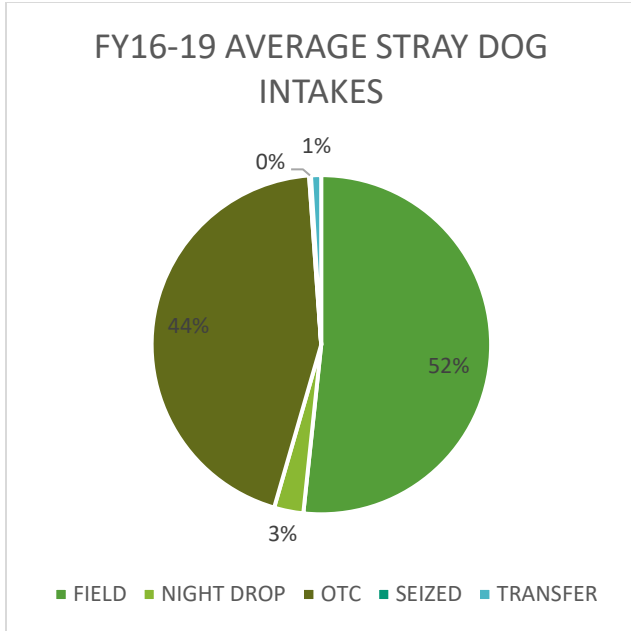
## 2. Puppy Intakes by Type

Puppy intakes are overwhelmingly from strays which are showing slight trends of decreasing over time, except during year FY 18-19.



## 3. Stray Intakes by Type

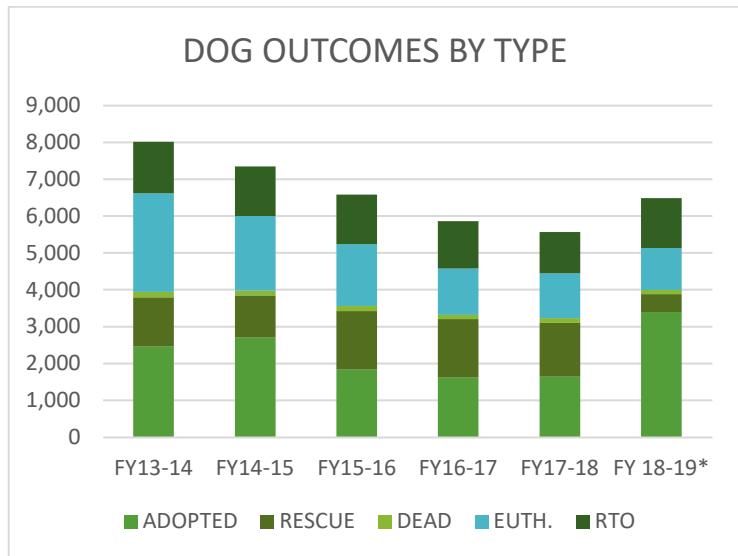
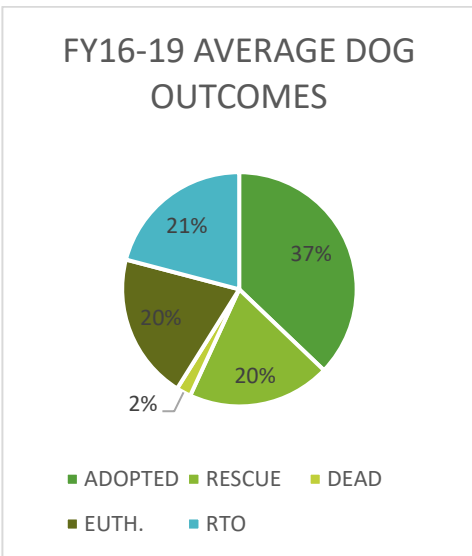
Because stray dogs make up a large portion of overall dog intakes, we examined how they come into the shelter. About half of dog strays are from the field and over-the-counter intakes make up most of the remaining stray intakes.



**Outcomes**

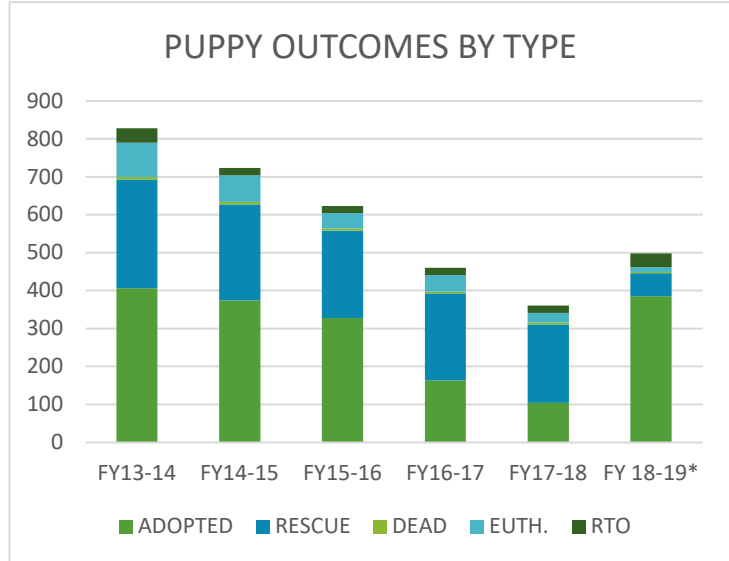
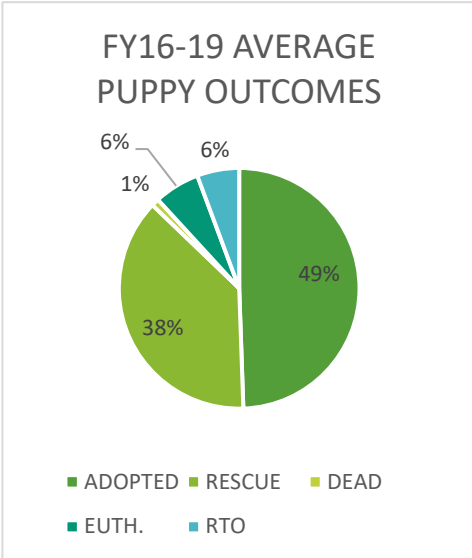
1. Adult Dog Outcomes by Type

Dog outcomes are split about evenly between adoption, rescue, return to owner, and euthanasia. However, the save rate for dogs is increasing, with 87 percent saved in 2018 (recues, adopted, foster or RTO).



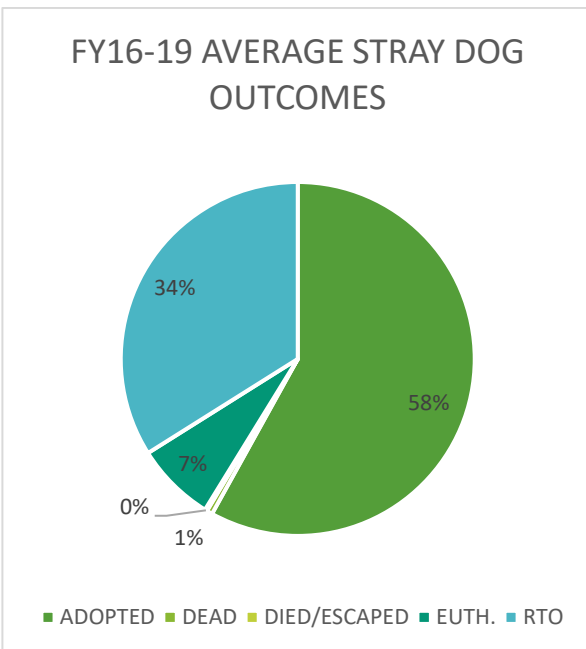
### 2. Puppy Outcomes by Type

Most puppies are either adopted or go out to rescues and the percent of puppies going to rescue is increasing.



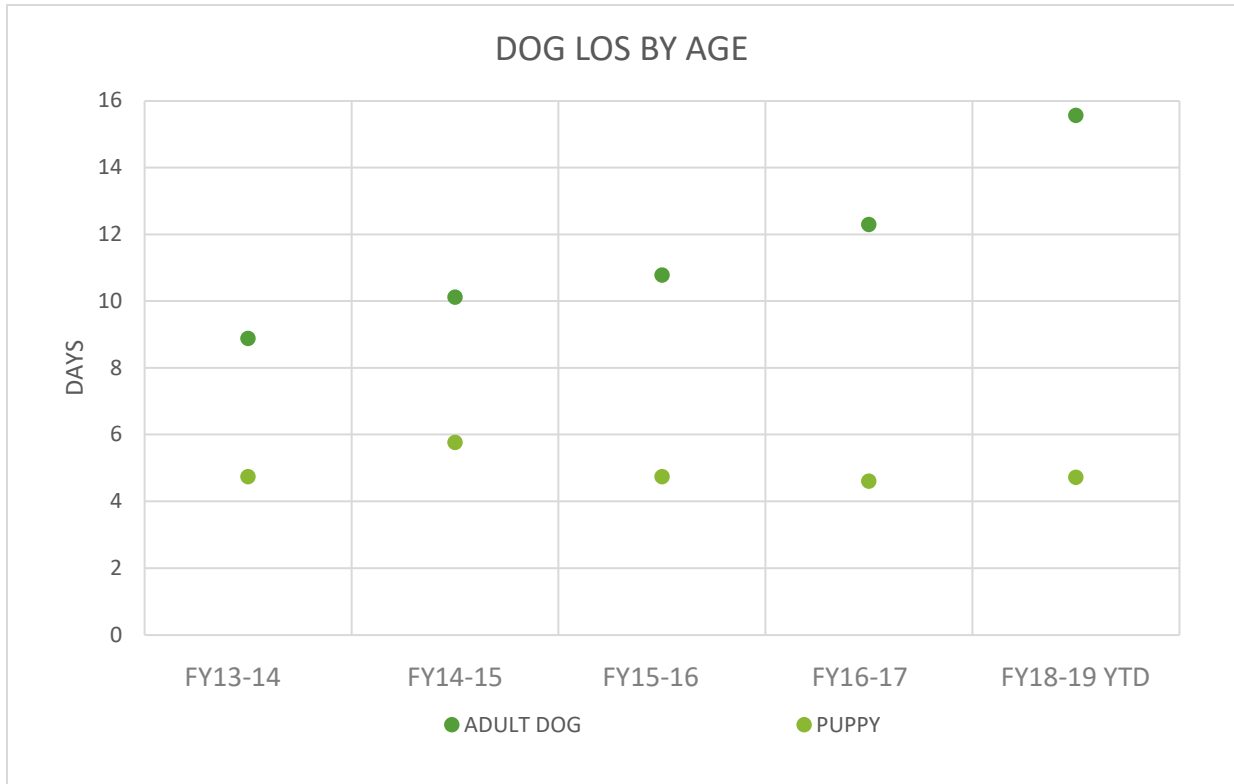
### 3. Stray Outcomes by Type

Most stray dog intakes are being saved, whether through return to owner or through adoption out. Adoption rates are steadily increasing for stray dogs, most likely as a result of more awareness (Facebook and Instagram), as well as adoption events like Countdown 2 Zero.



### Length of Stay

Adult dogs are on an upward trend for length of stay while puppies tend to spend less time in the shelter. This is most likely because puppies are much easier to adopt compared to adult or senior dogs.

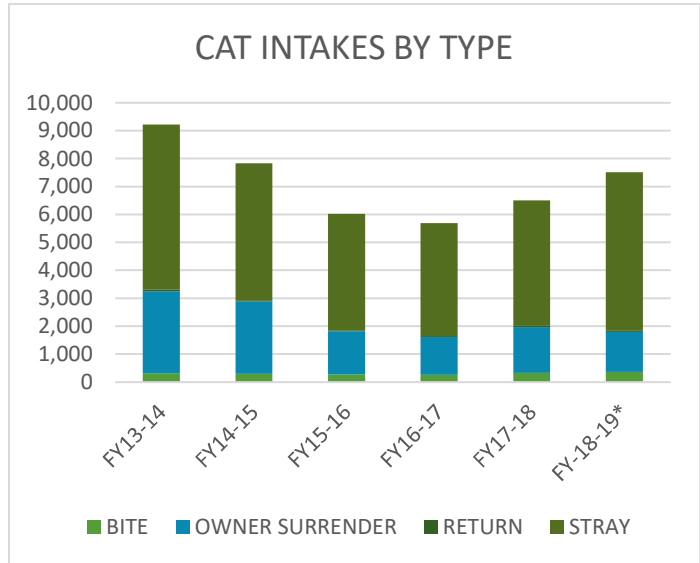
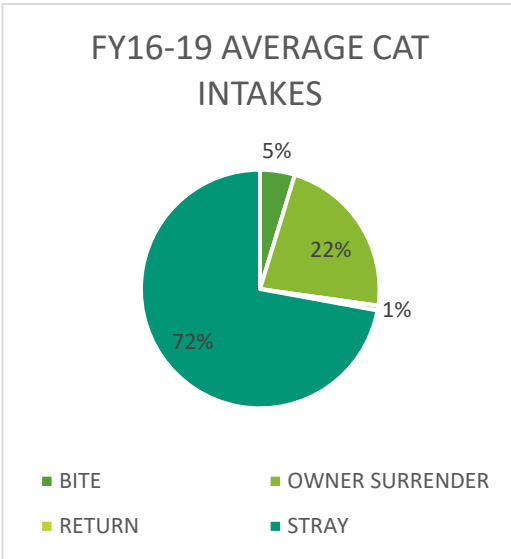


Cat Trends

Intakes

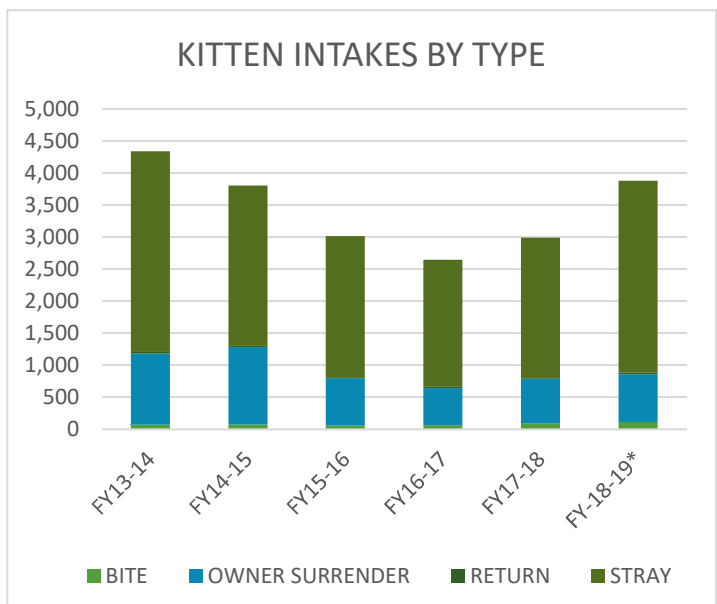
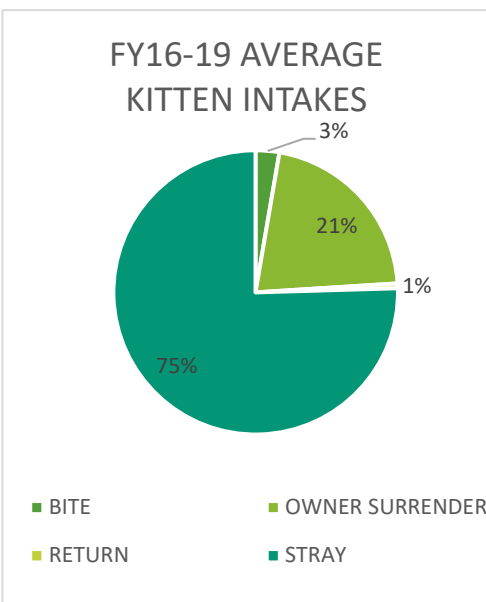
4. Adult Cat Intakes by Type

Stray cats tend to be most of the intake type for cats. These are most likely community cats that are brought into the shelter and then released after spay/neuter surgery and vaccinations.



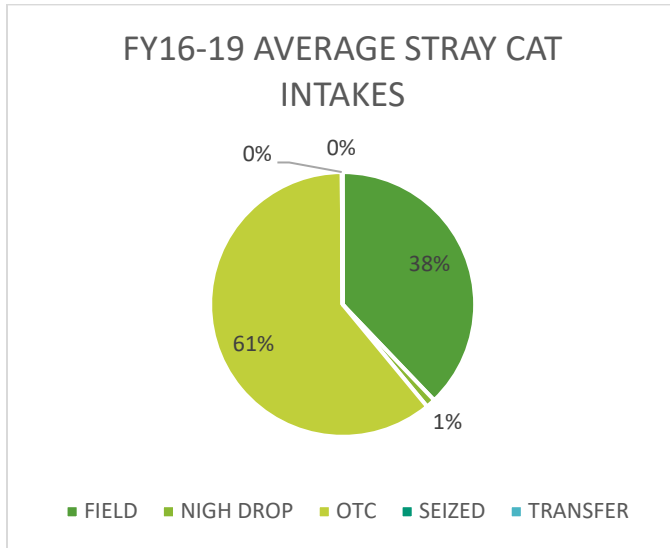
5. Kitten Intakes by Type

Most kitten intakes are strays. However, these numbers are declining due to programs like T.N.V.R., which decreases the number of stray kitten births.



### 6. Stray Intakes by Type

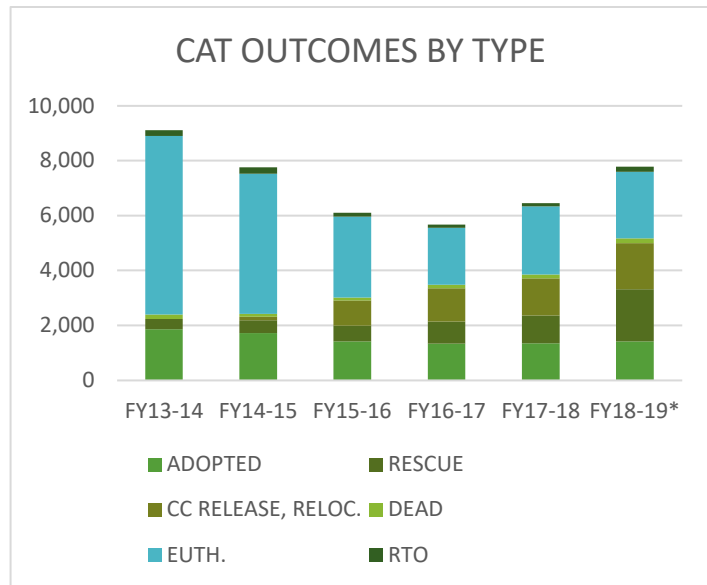
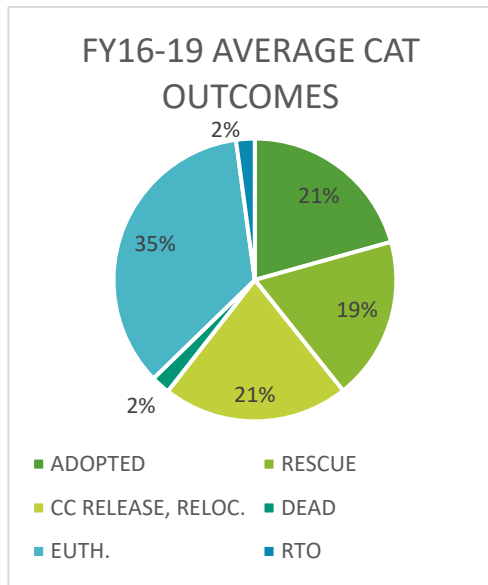
Since most cat intakes are stray, the team examined the specific intake type for stray cats.



### Outcomes

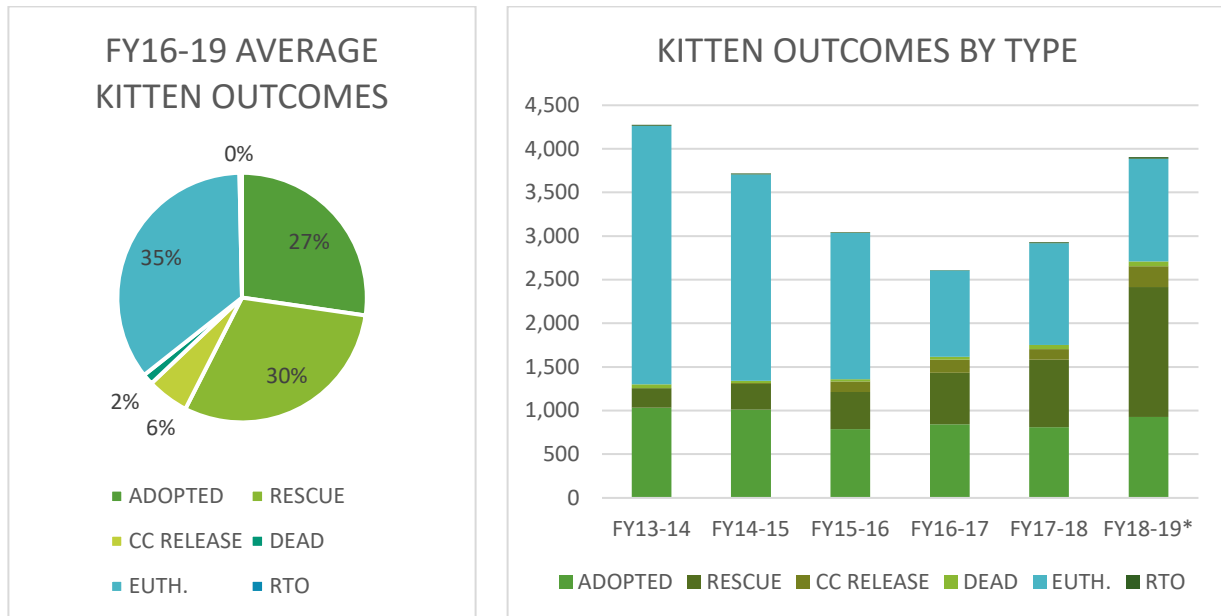
#### 7. Adult Cat Outcomes by Type

Cat euthanasia is decreasing. This can be attributed to the decrease in intake numbers, as well as more adoption opportunities (Countdown 2 Zero) and an increase in the percent of cats going to rescue.



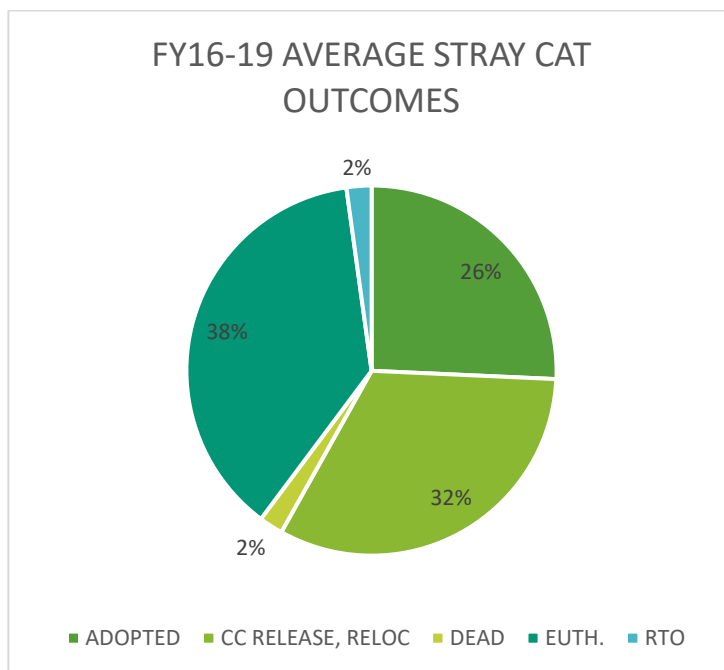
### 8. Kitten Outcomes by Type

Kittens are also exhibiting a decrease in euthanasia as more are transferred to rescue.



### 9. Stray Outcomes by Type

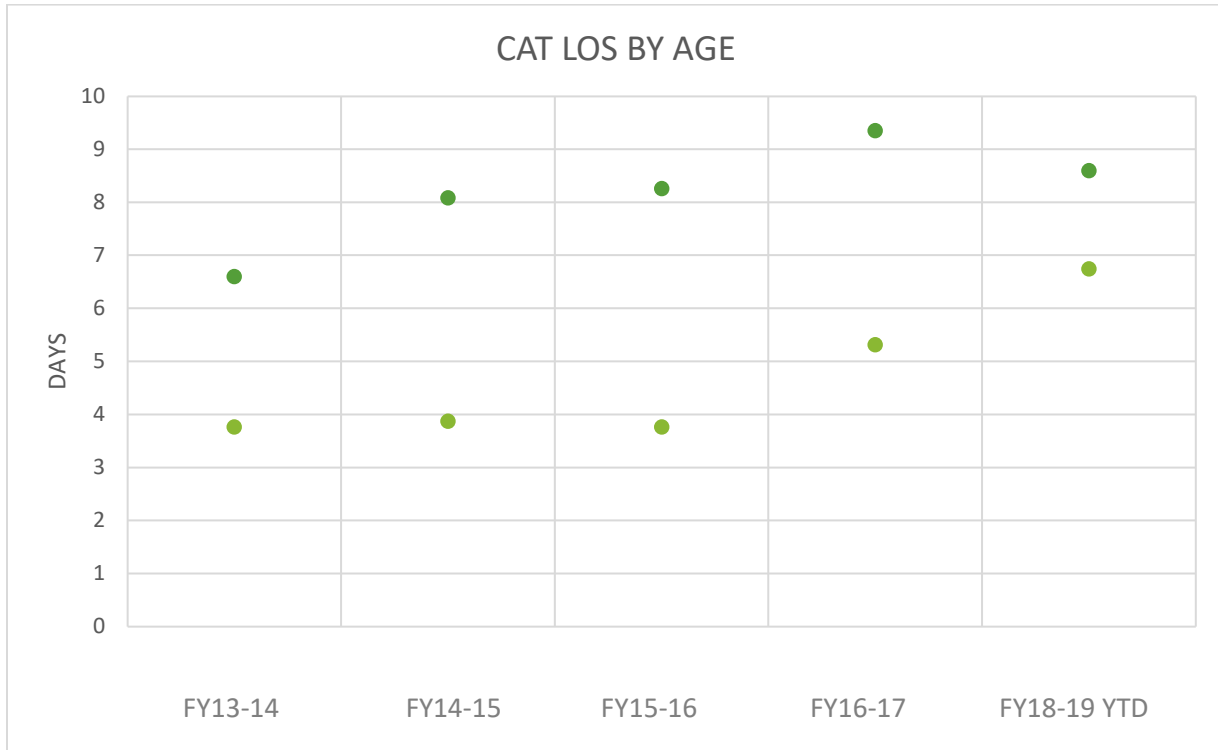
Most stray cats are being saved through adoption, community cat release, return to owner (discharge) and foster care.





### Length of Stay

Adult cat and kitten length of stay may be increasing, but without any clear statistical trends. For adult cats LOS has gone from 6.6 days to 8.6 days from FY13-14 to FY16-17 and from 3.8 days to 6.7 days over the same period for kittens.

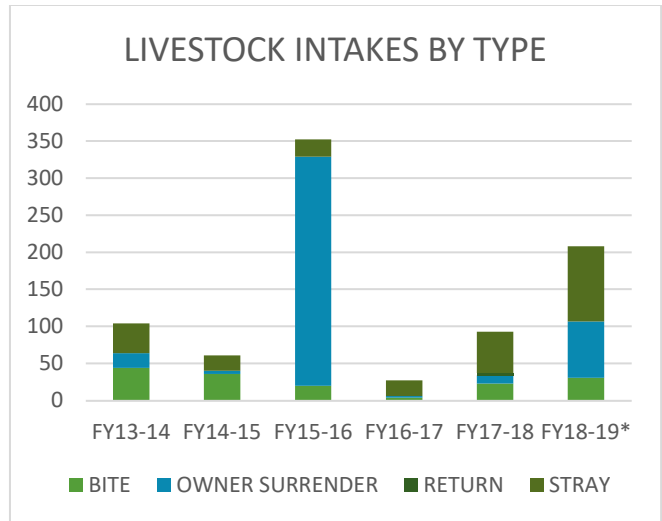
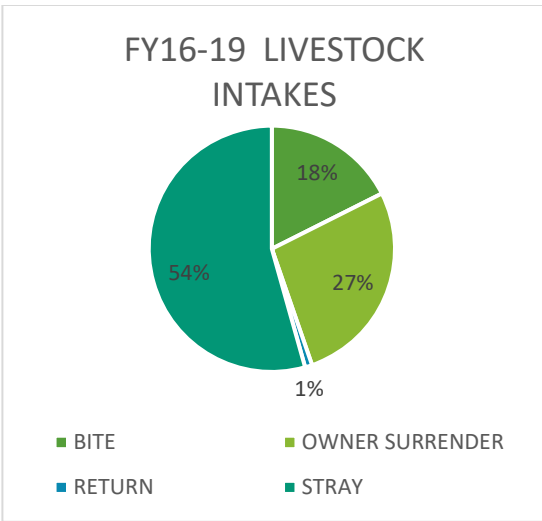


### Other Animal Type Trends

#### Intakes

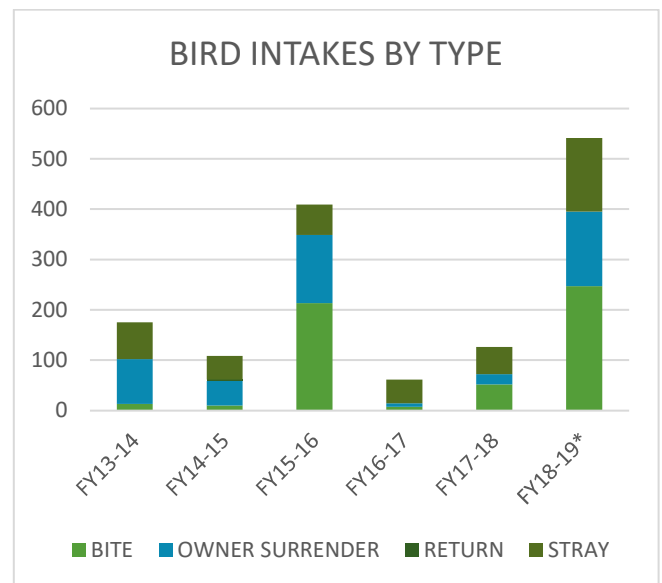
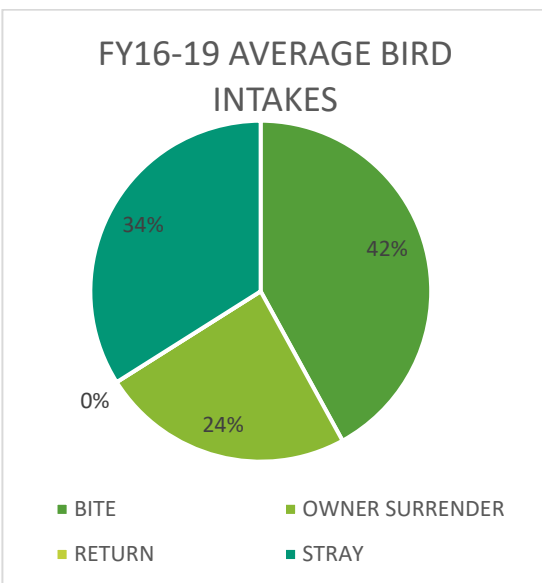
##### 10. Livestock Intake

Livestock intake is important to note in this report because of the high volume of agricultural land and businesses within Palm Beach County. Intake records show a varied intake throughout the past five years, typically remaining below 100 per year with one notable exception (FY15-16). Livestock numbers drastically increased to over 350 intakes during this year due to animals being taken into custody at three illegal slaughter farms (accounting for 300 of the 350 livestock seized during that year).



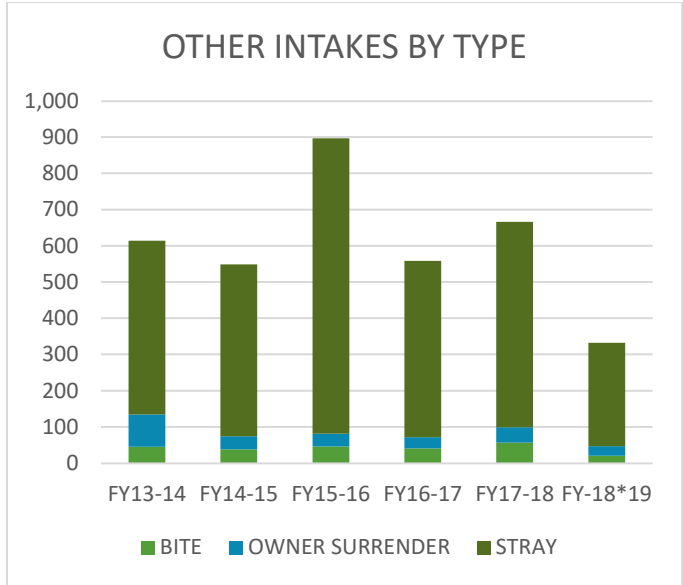
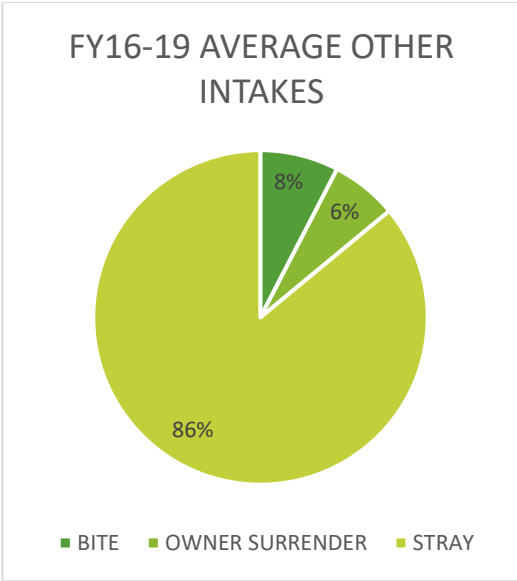
### 11. Bird Intake

Bird intake also varies from year to year without significant trends. Birds seized by the county increased in FY15-16 due to the same illegal slaughterhouse mentioned previously, as well as in FY17-18 due to the closure of another illegal slaughterhouse.



### 12. Other Intake

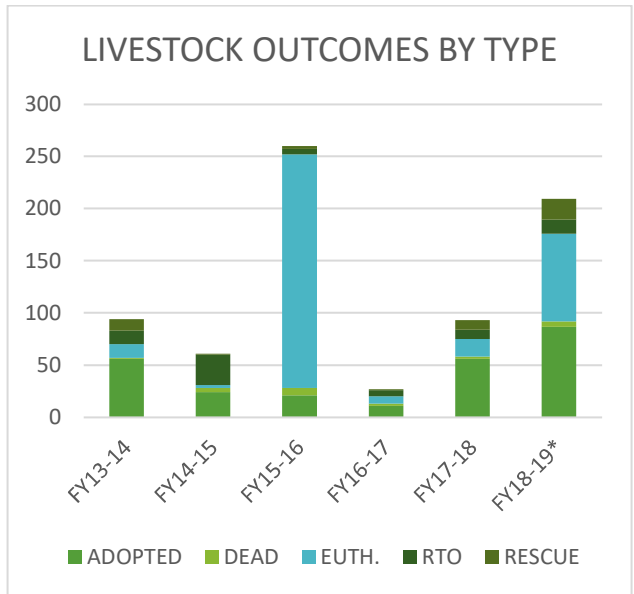
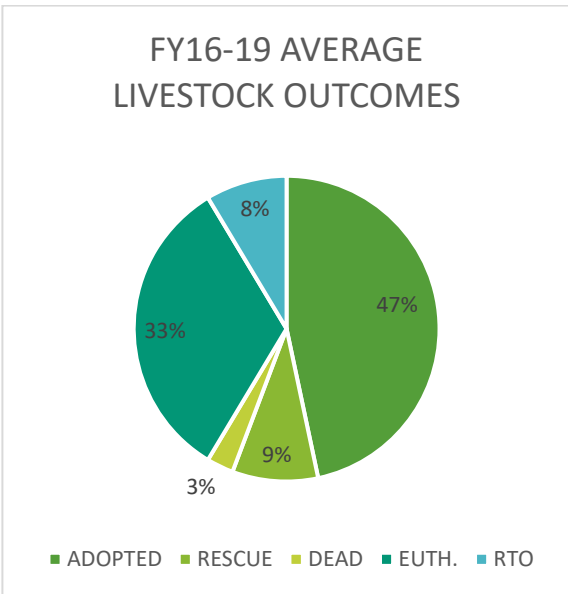
All other animal intake varies with no significant trends of decreasing or increasing. Animals such as rabbits, ferrets, racoons, hamsters, turtles, and a variety of other wildlife are in this category. Most animals collected are categorized as strays.



**Outcomes**

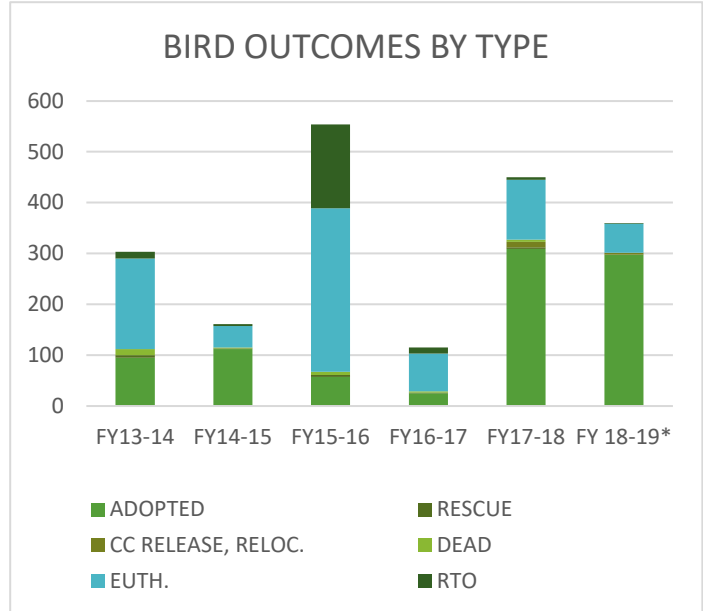
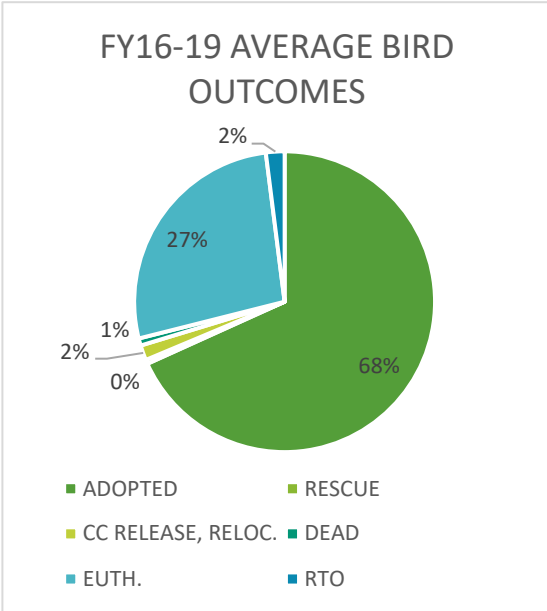
**13. Livestock Outcomes**

Livestock outcomes tend to be majority euthanized due to the intakes from illegal slaughter farms. Adoption and RTO make up a much larger portion of the overall livestock outcomes when excluding the large-scale intake events.



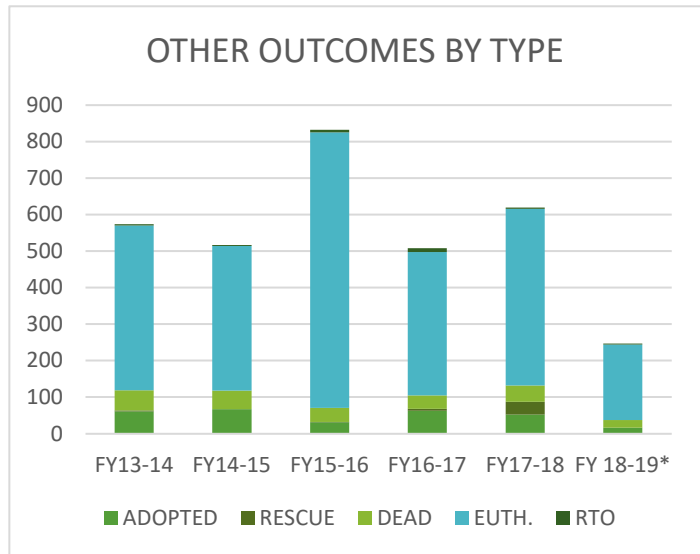
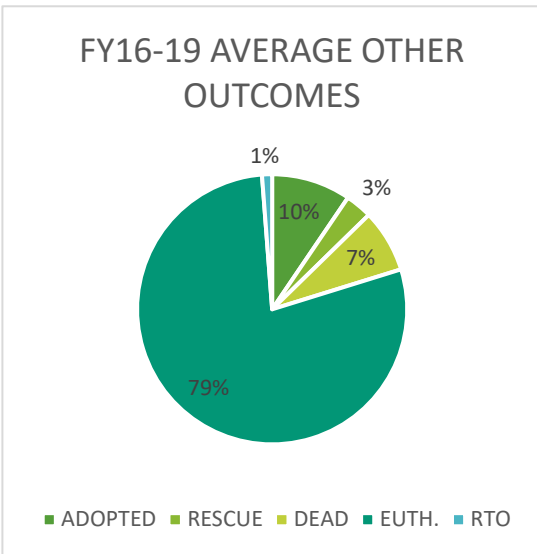
### 14. Bird Outcomes

Birds tend to be adopted out or euthanized and do not show a major trend from year to year. (Average numbers for FY15-18 may be skewed due to the large number of intakes during FY15-18.)



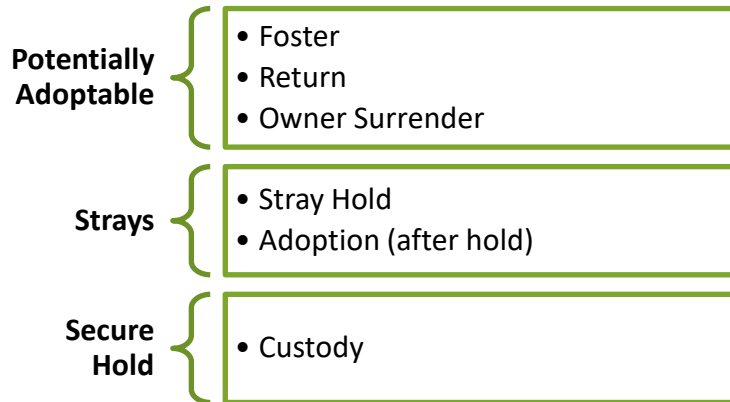
### 15. Other Outcomes

Other animals tend to have the highest rate of euthanasia comparatively, and euthanasia is for both behavior and medical reasons.



## 4 Detailed Animal Housing Studies

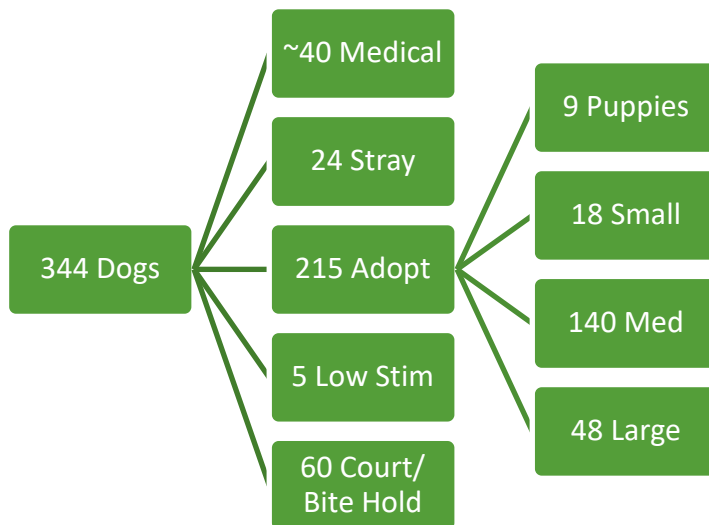
The first step in calculating animal housing capacity was to develop a program based on current animal trends. The team examined animals by different categories of intakes and outcomes to gain a more accurate picture of animal flow and housing required in different zones of the facility. Animal intakes were split by type, since LOS varies by intake type and affects the number of housing units for each category of animals.



### Dogs

Overall dog housing numbers assume a 10 percent growth in intakes due to the new facility effect, which is typical for new animal care centers across the country. Isolation housing is about 15 percent of the baseline housing needs for dogs.

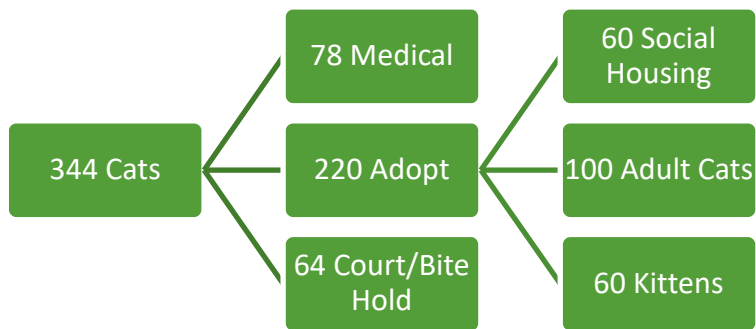
For dogs, the detailed capacity analysis results in the following animal housing breakouts:



This breakout accounts for the longer length of stay for confiscated dogs in court/bite hold, as well as the shorter length of stay for adoptable puppies. Examining categories of canines in detail allows us to more accurately match the animal housing to need.

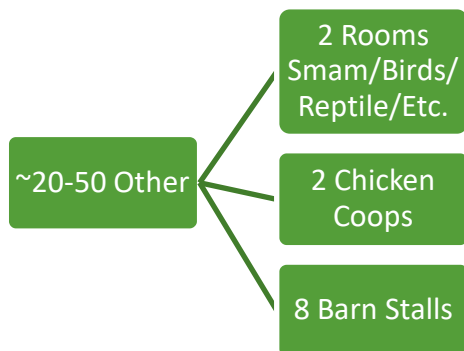
**Cats**

The feline population in Palm Beach County is unknown due to the large population of free-roaming cats. Thus, modeling current intakes and outcomes does not accurately reflect the needed capacity. Using the Countdown 2 Zero goal of 90 percent LRR for cats, we calculated the following cat housing requirements:



**Other**

Considering other animals, which range from small mammals to livestock, the animal housing needs vary considerably.



## **5 Operational Analysis (Report from Humane Network)**

The narrative inserted on the following pages was provided by Humane Network, the operational consultant.

# Palm Beach County Animal Care & Control Recommendations



**PALM BEACH COUNTY**  
*Discover the Palm Beaches...  
the Best of Everything*



Prepared by:

**Humane**  
  
**Network**  
*Expanding the Lifesaving Community for Animals*



**September 2019**

**Humane Network**

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## Introduction

This is an organization that has embraced lifesaving. Perhaps more impressive is the county's commitment to improving the lives of pets in the community. There are a variety of programs in place to aid in increasing live release. These include:

- Adoptions
- Miracle Program: Budget for care beyond spay/neuter or heartworm.
- Heart Worm Program: Treat heartworm in the shelter.
- Public Spay/Neuter: Free to anyone on public assistance. Square-headed dogs are sterilized free to anyone, regardless of income.
- Community Cats Spay/Neuter: Free for public
- Trap-Neuter-Vaccinate-Return for stray community cats
- Public Pet Vaccination and Microchips
- Peggy Adams Animal Rescue League Partnership: Results in the transfer of 1,000 animals annually
- Over 70 smaller rescue group partnerships
- Local veterinarian partnerships: Establishes a private vet/owner partnership within one week of the pet adoption with free exam. \$500 certificate is provided for use with medical care and medications if pet develops shelter-inherent illness
- Palm Beach County Animal Care and Control Website: Easy way for residents to look for the right pet to adopt or to find lost pets 'Surf the Net—About a Pet' (SNAP)
- Spay/Neuter Ordinances and Policies: Ordinances dictate that cats must be sterilized by 4 mos. unless registered purebred and dogs by 6 mos. or with owner-purchased license. Redeemed, unsterilized impounded dogs require multiple fees/fines that are usually waived if dog is sterilized. All shelters/rescues required to s/n, microchip before adopted.

This 14-acre campus is clean and well maintained. Street signage for shelter was well placed and easily viewed from the road.



1 Front of shelter



2 Signage on street

## Lobby & Customer Service



3 Lobby at opening

The lobby is an area that needs much improvement. Prior to opening one morning, there were more than a dozen people lined up outside with dogs and cats. The reasons varied from reclaiming a lost pet, adopting, returning fostered animal, bringing in a stray, relinquishing pets, attending the vaccination clinic, requesting euthanasia requests, and licensing pets. All these people flooded the lobby immediately upon opening. Adding to the confusion was an overhead paging system that was much too loud.

**Recommendation:** Create better flow of animals so that dogs and cats are separated as well as types of customers have clear pathways.

A security officer guided people to the area they needed to be. A sign-in sheet for assistance is at the entrance but it was not obvious to everyone what to do. The front desk staff would call people up to the counter when it was their turn but they were not very welcoming or friendly.

LINE IN	NAME	REASON FOR VISIT	EMAIL ADDRESS	SERVICE TYPE
	L. J. McHenry	Public shot		SP
	Mariana Vellazco	Public shot		SP
	David Cross	Public shot		SP
	Maria Mercedes	Rabies shot		SP
	Wanda Kubiak	Shot		SP
	Arlene Simeon			SP
	Erin R. R. R.	Rabies shot		SP
	Lois M. M.	Rabies shot		SP
	Theresa H.	Tag		SP
	Emilsey W.	Rabies shot		SP
	Tony B.	Rabies shot		SP
	Jessica S.	Rabies shot		SP
	Pamela M.	Rabies shot		SP
	David E.	Rabies shot		SP
	Shirley C.	Rabies shot		SP
	Wanda K.	Rabies shot		SP
	Scott H.	Rabies shot		SP

4 Customer sign-in sheet

**Recommendation:** Make the lobby more visually welcoming with better signage. Have all front desk staff participate in customer service training.

Dogs were too close to other dogs and cats. Owners were seemingly unaware of what their pet was doing and of body posture that indicated arousal. This could result in dog fights or cats being attacked by dogs.

One woman had a mom cat with babes that she had found. After waiting some time next to dogs, a worker retrieved the carrier and walked to the intake area. The worker showed little regard for the pets in the carrier as the carrier was angled forward then back with the animals sliding inside. This only adds to the stress a pet encounters in a shelter environment.



5 Animal interaction in lobby



6 Improper handling of animal

**Recommendation:** All departments participate in Fear Free training. There is a free online certificate program for Fear Free training. The online learning resource is for shelter staff and volunteers committed to reducing fear, anxiety, and stress in pets >> <https://fearfreeselters.com/program/>.

A gentleman with two scared cats came in to relinquish his pets. He was told that the cats would receive vaccinations that day and he could return in two weeks to surrender. He was also informed that because one of the cats did not like to be handled, it would most likely be euthanized. The man was obviously distressed by this encounter. There is a ReHome.adoptapet.com link for rehoming on the shelter's website yet no one provided this information.

**Recommendation:** It is recommended that a list of rescue groups and a rehoming guide be offered when people inquire about surrender. Not only would this be more customer service oriented, but offering alternatives will help to reduce shelter intake. This would be particularly effective as people currently have two weeks to find an option other than the shelter.

Foster returns are currently scheduled which creates good customer service for the foster caregiver as they do not have to wait for the clinic surgery schedule as well as for space.

Most shelter software systems have a report for time of day activity. Looking for a time of day other than opening for the vaccination clinic would help to avoid some of the congestion in the lobby.

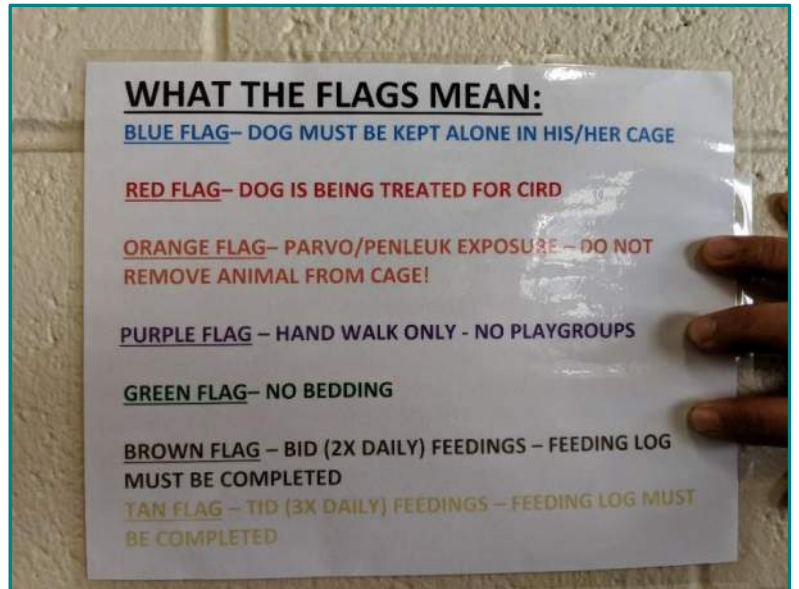
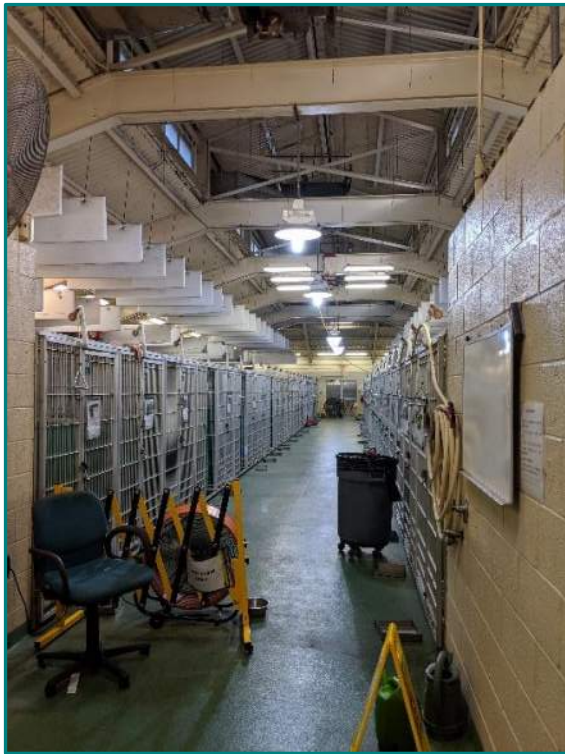
**Recommendation:** Moving to vaccinations by appointment until such time that another space can be created could help to reduce this problem. Surrender by appointment is a nationally recognized best practice and should be considered. Much of the staff support managed intake as a way to improve overall service.

Most staff reported feeling at risk due to the horseshoe design of the front counter and wanted to see a design that considers safety. Additionally, most staff would like for enforcement to have its own area or even entrance in order to keep people who have highly charged emotions from those who are adopting or surrendering.

## Animal Care—Dogs

There are three buildings housing dogs, each with 48 Indoor only kennels with 16' runs that can be divided with a guillotine door. Two of the buildings are available to the public, the last housing dogs for bite quarantine, aggression, and court holds. All are clean and odor free with well-marked cage cards. There is a flag system in place and signage indicating what the flags mean. This system is helpful in disseminating information but might consider simplifying.

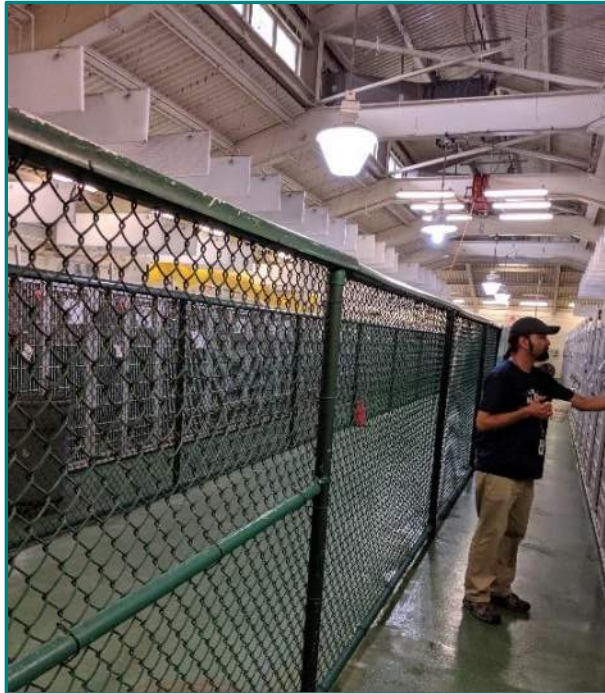
Older sound baffling structures are hanging in some areas though many have come down due to age. Ideally, the dog kennels would have outdoor access.



7 Dog flag definitions

**Recommendation:** Any remodel or new construction should include updated sound baffling and outdoor access in dog kennels as budget allows, with priority given to dogs with longer length of stay.





8 Dog quarantine area

Portable commercial air conditioners have been put in place to address summertime temperatures. This results in the loss of a nice dog meet and greet area.

**Recommendation:** Future HVAC should be integrated into the plan and include air exchange recommended by industry best practices with 6 to 20 air exchanges per hour.



9 Play yard with air conditioning duct work

As the existing shelter was built without isolation areas for dogs, a storage area has been set up as makeshift isolation. The area is clean and surrounded with tarp walls to contain disease. While this is not ideal, it does indicate that this organization is solution minded.

There are no areas designed as isolation for dogs or cats. Animals with ringworm or parvo virus are euthanized unless rescue can be found.



10 Outside dog isolation



**Recommendation:** Isolation areas with dedicated air exchange for both dogs and cats should be a priority consideration of any new construction or renovation.

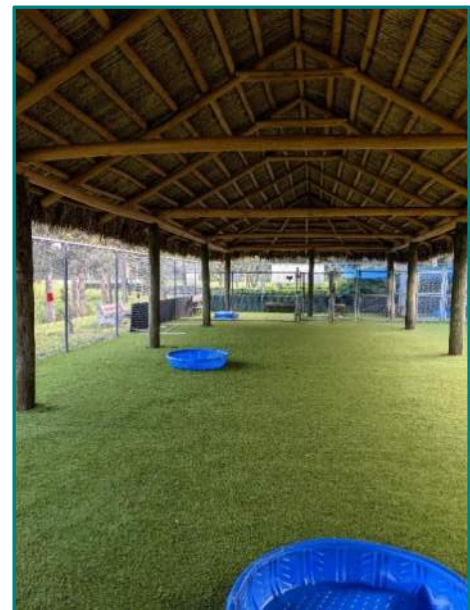
The dog isolation area does have access to a small outside area used specifically for isolation dogs with non-life-threatening illness.



In addition to nice play yards and walking areas, there are Seminole Chickee Huts that provide a great shaded place for volunteers and dogs to play.



11 Outside view of Chickee huts



12 Inside view of Chickee huts

The Behavior and Enrichment Coordinator runs play groups daily using a variation of the Pets for Life model. This position is relatively new and would benefit from a budget for enrichment items. Both the Enrichment Coordinator and the Kennel Coordinator seem to be knowledgeable about animals and are dedicated to the pets in their care. The animal care staff make good use of reports generated by Chameleon to track the progress of animals through the shelter.

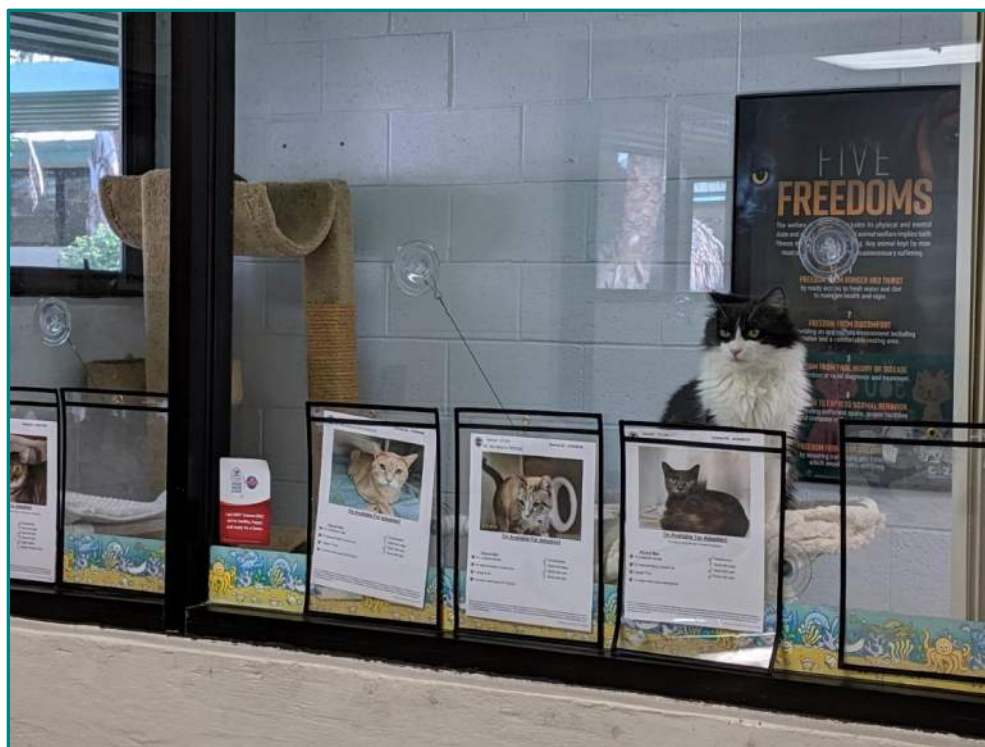
Currently, dogs receive a behavior evaluation on request. Staff members can record behavior concerns in Chameleon which can trigger an evaluation. When asked about some of the concerns, it became evident that staff could benefit from behavior training as some of the concerns were normal dog behavior and not aggression. There had been some recent serious injuries and handling training would also help minimize the risk of future incidents.

**Recommendation:** Staff and volunteer training in animal behavior and handling. We recommend Kelley Bollen, certified Animal Behaviorist >> <https://www.kelleybollen.com/>.

## Animal Care—Cats

There are several housing options for cats including an intake room in the clinic that houses cats waiting for veterinary care and kittens waiting for foster care, adult intake and overflow, two free roaming rooms housing eight cats each, a feral room, a kitten room, an adoption room, and an isolation room that is flexible space, and a bank of cages in a hall housing foster returns. Cats are rotated into the free roaming room based on time and stress.

The cat areas were generally clean and without odor. Spot cleaning of resident cats was observed in some but not all the areas and is dependent on who is cleaning. As spot cleaning reduces stress, this too may be an area where behavior training would benefit staff.



13 Free roaming room

**Recommendation:** Make spot cleaning a standard practice and add portals in the stainless-steel cages in the kitten room—both to reduce stress.



Cardboard sausage boxes are being used for litter trays. While they fit nicely in the cage, these boxes are too small for an adult cat. Many of the cages had two of the small boxes to provide adequate space for



adult cats. While using two boxes is certainly thoughtful on the part of staff, it may be worth finding a bigger cardboard litter tray for cost and functionality.

**Recommendation:** Identify a supplier for larger cardboard litter trays. Packaging companies such as All-Pak in Colorado have several box sizes available at a reasonable price. It is likely that there is a local vendor as well.

14 Double litter tray for adult cats

The Community Cat model is being practiced and there is a staff position dedicated to return to field. The current area is not adequate, and at times, dogs can be heard which is stressful to confined cats.

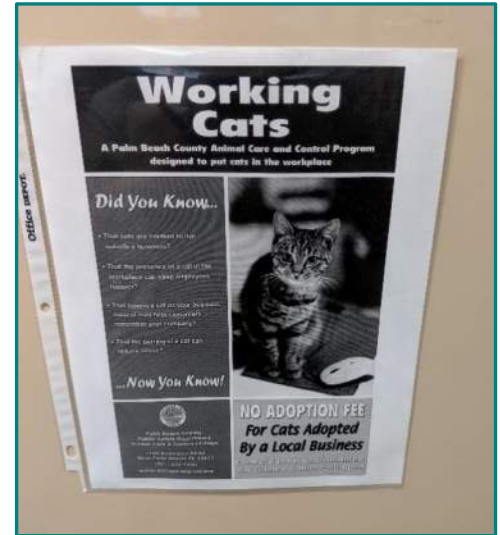
**Recommendation:** An area specifically for cats that will be returned to field might be considered in future design.

The feral cat room houses cats in traps, tame cats under bite quarantine, and cats being observed for behavioral reasons. Feral cats are brought in traps and put on a rolling rack. These cats are prioritized for surgery and after surgery, housed overnight then returned to the field. This program is truly lifesaving and has been found to be successful around the country.



15 Feral cat room

**Recommendation:** Increased marketing of the working cats program for those cats that cannot be returned which will increase the live release rate.



16 Working cats program poster



17 Hallway area for foster returns

There is a bank of cages in a hallway designated as D-2 and used for foster returns. These cats are moved to surgery within 24 hours. This is a creative use of space but alternatives should be considered in any renovation or new construction.

**Recommendation:** Consider specific areas for foster returns when designing renovations or new facility.

Currently, neonates are euthanized if foster care cannot be found. The foster program and outreach to rescue groups must be grown in order to save these lives.

## Clinic

This clinic has 27 positions including 5 veterinary positions.

On intake, dogs are heartworm tested and cats are FELV tested. Core vaccinations are administered at this time.

The veterinarian onsite the day of this visit altered 32 animals which is on the upper end of the standard for a high volume, high quality spay/neuter veterinarian.



18 Main clinic

The current clinic location is such that there is a constant flow of animals from admissions and elsewhere through the clinic. Veterinary and manager offices are currently segregated from the clinic.

**Recommendation:** The new clinic should be designed to minimize traffic through the area as well as provide for adequate office space.

A classroom has been repurposed as a surgery for public animals. Again, this is an area where it is evident that this organization looks for solutions.

The veterinarians are concerned about using the same clinic for shelter and owned animals. This could be addressed with a design that includes a dedicated exterior clinic entrance for public animals with surgical suites and recovery areas back to back. One pack/pharmacy room could be shared. Proximity of the two surgical suites would allow for staffing efficiencies. Currently, the number of animals, both public and shelter, is such that two surgical teams/areas would increase efficiencies.

There is a robust TNVR (Trap-Neuter-Vaccinate-Return) program. In addition, public cat surgeries are scheduled three days a week and public dog surgeries are performed two days a week. Thirty public cats and fifteen public dogs are scheduled for sterilization on the allocated days. The shelter clinic performs surgeries seven days a week.

Given the veterinary shortage, this agency is good at maximizing capacity in the clinic though it may be worth re-examining priorities. Currently, animals available for adoption are altered only after adoption or can fit into the surgical schedule secondary to prioritized public animals. This makes it difficult to have the time for other surgical intervention needed by shelter animals. We were told that a rescue group would have taken an injured cat if the damaged tail could be amputated but time did not allow for this surgery.

Changing this practice will result in a lower length of stay. As this may be a function of a veterinary shortage, it may be worth considering putting more emphasis on getting animals ready for adoption or for rescue over some public animals. This could be achieved by limiting spay/neuter services for dogs



19 Classroom repurposed as public clinic



owned by people not on public assistance or within a specific economic demographic until such time that the veterinary capacity can be increased.

**Recommendation:** Make shelter animals a priority over public pets which will increase lifesaving.

There is a small campus in west county referred to as the Pahokee Facility and is used for spay/neuter once a week when veterinary capacity allows. There were some discussions on whether this facility is used to its potential.

Clinic staff indicates that the clinic operates under high standards, yet time is always an issue. Staff also felt that teamwork plays an important role in the culture of the clinic. Some of the clinic staff expressed resentment toward the demands of rescue groups. Some tension between rescue groups and staff is common in shelters but must be mitigated for the betterment of animals in shelter care. It is important that staff understands the role rescue groups play in lifesaving and that the clinic is a significant player in the transfer of animals.

Another staff member complained that rescue groups want to take the most adoptable animals or want too much medical intervention prior to transfer. We recognize the frustration experienced when rescue groups take the most highly adoptable animals or want services, yet this is a reality in lifesaving. It is easy enough to make a deal for a pet that may not be as desirable as a package with highly desired pets.

As it appears that the clinic and the rescue groups do not work well together, it may be best, in the interest of lifesaving, to have the rescue coordinator act as a liaison between the clinic and the rescue groups. For this to be successful, the rescue coordinator will need to be empowered to ask for and get medical intervention for a pet that is being transferred.

**Recommendation:** Work more cooperatively with rescue groups so that the shelter can maximize lifesaving.

In most shelters, the culture tends toward the clinic being its own entity and this one is no different. When asked if it might be more efficient to have intake cage cards that indicate what an animal needs rather than creating “plates” for each pet as they come to the clinic. This suggestion was met with a response of this is the way we have always done it. It is evident that change is hard for this area of the shelter but this will increase efficiencies and effectiveness.

Having a checklist on each intake card allows for everyone to see what is needed and what has been done. This aids in flow as animals are much less likely to be overlooked. A checklist also creates an avenue for accountability. If a person has to initial that a vaccine has been given or an animal dewormed, it is much less likely to be overlooked. Humane Network can provide assistance in creating one to fit the organization’s needs.

**Recommendation:** Create initial intake cage cards that indicate what an animal needs rather than creating “plates” for each pet as they come to the clinic. This kennel card should move with the animal until the adoption card is printed.

There are some obvious barriers to efficiency including the walk-in vaccination clinic and walk-in owner requested euthanasia. Currently, the walk-in vaccination clinic operates seven days a week. Ideally, the vaccination clinic patrons would not wait in the main lobby. This too is an area that should be factored into design. Utilizing exam rooms or having staff run back and forth from the lobby to the clinic with

animals is not efficient. The most efficient vaccination clinics seem to be those taking place in large rooms with stations for paperwork, payment, exam, and injection. It may be worth taking this into consideration if a multipurpose room is planned.

**Recommendation:** Create efficient vaccination clinic space in the new design.

Avoid operating vaccination clinics when shelter is first opened due to the demands on veterinary staff during the morning hours as well as the many different requests for service when the doors first open.

**Recommendation:** Consider changing the walk-in times and/or go to an online appointment system (with built-in spaces for those who do not have computer access) for public vaccination clinics.

The ability to order clinic supplies is hampered by regulation. When a new or better drug comes on the market, it can be difficult to obtain due to the cumbersome government procurement process. There may be very little that can be done about this issue as this is a municipal rule.

## Field Services

Field services covers 2,383 square miles. There is one officer assigned to the agricultural areas. They have 45 positions in total with 15 in the investigative unit. This unit is housed in a modular building on the campus. Supervisors and Animal Control Officers are housed in the main building. The current physical separation is problematic for a variety of reasons.



20 Investigative unit building

Several people from the field department recommended a physical separation of field services from the shelter. This could be positive or negative and would require further investigation.

**Recommendation:** Create adequate space for all of field services in one space with a separate public entrance.

This agency returns pets in the field whenever possible which is an industry best practice.

This agency returns pets in the field whenever

Field supervisors indicated that a wash area is needed in intake or the sally port. Animals brought in are covered in filth or from a drug house may need decontaminated immediately on intake.

**Recommendation:** Create a wash area in intake or sally port as part of new design.

One issue that should be readily rectified is the ability to find space for animals coming in from the field after closing. Appointing someone to designate spaces is one method and Chameleon has a virtual kennel that can be used efficiently as long as daily animal inventories are being completed. One officer communicated that many times kennels that are supposed to be empty have animals in them because no one made movement changes in the Chameleon. If this is a common occurrence, it may be necessary to implement movement sheets and designate someone to be responsible for ensuring the data entry is being done in a timely manner.

**Recommendation:** Be sure that Chameleon is regularly updated regarding the location of animals.

## Adoptions

At one time, this organization conducted home checks for most dogs. They currently practice open adoptions potentially making it easier for people who want a pet and increasing the live release rate.

At shelter opening one morning, one couple came in to adopt a senior cat. As they patiently waited for paperwork to be completed, a woman with three small barking dogs sat beside them. This took away from what should have been a joyous moment for these people. After selecting a pet, it took 45 minutes for the paperwork to be completed and the pet to be placed in a carrier to go home.



21 Happy couple adopts senior cat

One employee mentioned background checks being done routinely while another said this is done only in the case of a pet that was from an abusive environment. Another said background checks and or home visits are done when things feel “hinky.” Asked staff of the adoption home checks performed, how many go on to be declined and was told less than 5%.

**Recommendation:** Define when background checks and home visits are to be done through a written SOP and make sure all staff are on the same page.

This agency does have a “pre adopt” process that allows for citizens to pre-select a pet prior to its stray hold release. If the pet does not become available, the adopter receives credit for another pet.

## Volunteer/Foster Program

At the time of our site visit, a new volunteer coordinator had just been hired but was off on medical leave. Volunteer staff, including foster coordinator, sat in an office space that was right off of the main lobby. Noise and interruptions were constant.

**Recommendation:** Create a dedicated space in the new design where volunteers, including foster caregivers, can check-in and where staff can store supplies/equipment for easy access.

The organization has some very strong, dedicated volunteers that have the potential to more directly contribute to the shelter’s lifesaving with the right partnership. Expectations need to be clearly defined (and managed) in both directions so that their value is maximized while still reaching the overall goals of the organization.

**Recommendations:** Create and communicate clearly defined expectations of all volunteers.

There is a huge missed opportunity to increase lifesaving by substantially expanding the foster program, especially when it comes to neonatal kittens. Staff is in agreement with this and needs to make it a priority. The potential impact on lifesaving warrants, a full-time dedicated person whose sole is to revamp and maintain the program from recruitment to training to retention.

**Recommendation:** Assign one full-time, dedicated Foster Program Coordinator to revamp and manage the foster program. Humane Network has a Foster Program toolkit and would be happy to work with staff on this.

## Rescue Partnerships

As noted earlier in this report, the organization has done a great job of partnering with Peggy Adams Animal Rescue League and other local rescues. In addition, they transport animals to a New Hampshire group. This may not be the most effective for long-term sustainability of the shelter's lifesaving ability but efforts better used by focusing on increasing adoptions through local promotions.

**Recommendation:** Phase out transporting of animals out of the area while increasing marketing for local adoptions. See Community Outreach/Marketing section below.

## Community Outreach/Marketing

This organization has a very supportive county government that allows it to create its own marketing and outreach efforts. The current outreach needs to be more focused with specific efforts prioritized to maximize the return on lifesaving. While education is always important, focusing efforts that directly increase adoptions in the short-term is much more effective. A year-long marketing plan needs to be created so that efforts can be done in an efficient and timely manner.

**Recommendations:** Develop criteria for accepting outreach opportunities so that there is sufficient return on investment of resources. Develop a year-long robust adoption promotion campaign that can quickly and easily put into motion and maintained throughout the year. Humane Network has extensive experience in this area and would be glad to work with the Community Outreach staff to develop processes and plans.

A robust and relentless marketing plan that tout the good works of the organization will also help offset the few that create negative chatter on social media. The best marketing plan is very simple: do good things, tell people about it, and ask for help.

## Conclusion

There were some commonalities with all the discussions. In most areas, the people or team were viewed as a strength. The passion the organization has for lifesaving was also mentioned by several employees. In addition, most recognized that the support given by the county government, spay/neuter ordinances, responsiveness to the community, and the ability to implement programs as strengths.

Some of the challenges mentioned were programs growing without the infrastructure in place, social media bashing, purchasing requirements, and unfilled veterinary positions. The union was mentioned by more than one department as a frustration as some staff see jobs being protected for people who are not performing their jobs. One employee said, "It is demoralizing to know that I work hard but there is no consequence for someone who is lazy." When this employee was asked if their own position is covered by the union, the surprising answer was yes.

Here is a list of some of the common strengths and challenges captured during onsite interviews.

### Strengths:

- The people
- The vision
- County leadership and support
- Responsive to community
- Training and learning new ways is encouraged

### Challenges:

- Programs grew without adequate infrastructure in place
- Saving the neonatal kittens
- County purchasing rules (layers of approval) limit what can be purchased and is especially challenging in the clinic where needs for different medications may change
- Getting cooperation from the clinic
- Vacant veterinarian positions
- Feeling that the union protects those who are not doing their jobs which creates an environment of frustration for staff who work hard
- Social media where a few people routinely criticize the shelter staff which can be demoralizing
- Getting people to change from “old ways”

When staff was asked if they could change one thing, what would it be—almost everyone mentioned a new, efficiently designed building. This will certainly go along ways to making it easier but the building alone won't do it.

Overall, this is a progressive organization. There are some barriers to improvement with the physical structure and in a few areas, some resistance to change. The organization is well positioned to take advantage of its many successes to date and become a shelter that maximizes lifesaving by saving all the healthy and treatable animals. It is well on its way and by focusing on a few high-return areas—quality customer services, relentless marketing, a robust foster program, and clinic efficiencies and prioritization—can reach this goal in the near future.



## 6 Mechanical, Electrical, and Plumbing Narratives

The enclosed narrative was developed by RGD Consulting Engineers, a consultant of PGAL. The purpose of this narrative is to memorialize the design standards and criteria to be followed through future design as agreed with the client and other stakeholders. There are three design options that were provided in advance of this report by the architects, which shall be referred to as Option 1, Option 2, and Option 3. In addition, the county has provided existing building documentation and field discovery has been done by RGD. Observations were made on site related to control and performance of the overall system. Note that no equipment was disassembled or tested beyond what is possible with simple, non-invasive instruments and observation. Invasive testing of equipment should be performed by a licensed contractor.

### *Guiding Standards*

The ventilation standard below is Animal Arts' standard. This standard formed the basis for the project specific narrative.

Space	Min. Air Changes	Outside Air Requirements	Pressurization	Notes
Reception/Lobby	N/A	5 cfm/person + 0.06 cfm/SF	Positive to All Areas	1
Admin. Offices	N/A	5 cfm/person + 0.06 cfm/SF	Positive to Animal Areas	1
Workrooms, etc.	N/A	5 cfm/person + 0.06 cfm/SF	Positive to Animal Areas	1
Intake/Processing	12-15 of Exhaust. Make-up air should be a combination of supply and transfer air	MIN. - 7.5 cfm/person + 0.18 cfm/SF	Negative	2
Stray Dog Kennels	12-15 of Exhaust. Make-up air should be a combination of supply and transfer air	MIN. - 7.5 cfm/person + 0.18 cfm/SF	Negative	2
Stray Cat Kennels	20-25 of Exhaust. Make-up air should be a combination of supply and transfer air	MIN. - 7.5 cfm/person + 0.18 cfm/SF	Negative	2,3
Dog Isolation	25-30 of Exhaust. Make-up air should be a combination of supply and transfer air	MIN. - 7.5 cfm/person + 0.18 cfm/SF	Negative to ALL Areas	2,3,6
Cat Isolation	25-30 of Exhaust. Make-up air should be a combination of supply and transfer air	MIN. - 7.5 cfm/person + 0.18 cfm/SF	Negative to All Areas	2,3,6

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Dog Protective Cust. /Quarantine	15-20 of Exhaust. Make-up air should be a combination of supply and transfer air	MIN. - 7.5 cfm/person + 0.18 cfm/SF	Negative	2,6
Cat Protective Cust. /Quarantine	20-25 of Exhaust. Make-up air should be a combination of supply and transfer air	MIN. - 7.5 cfm/person + 0.18 cfm/SF	Negative	2,3,6
Garage/Sally Port	N/A	MIN. – 0.05 cfm/SF continuous 0.75 cfm/SF due to elevated carbon monoxide levels	Negative	2
Euthanasia	N/A		Negative	
Crematorium	N/A	MIN. - 2.0 cfm/SF	Negative	5
Laundry	Verify with appliances and manufacturer requirements	Combustion air per appliance manufacturer requirements	Neutral	
Food Prep.	N/A	5 cfm/person + 0.06 cfm/SF	Neutral	
Dog Adoption Kennels – Large	12-15 of Exhaust. Make-up air should be a combination of supply and transfer air	MIN. - 7.5 cfm/person + 0.18 cfm/SF	Negative	2
Dog Adoption Kennels – Small	12-15 of Exhaust. Make-up air should be a combination of supply and transfer air	MIN. - 7.5 cfm/person + 0.18 cfm/SF	Negative	2
Get-Acquainted Rooms	12-15 of Exhaust. Make-up air should be a combination of supply and transfer air	MIN. - 7.5 cfm/person + 0.18 cfm/SF	Negative	3
Cat Adoption	20-25 of Exhaust. Make-up air should be a combination of supply and transfer air	MIN. - 7.5 cfm/person + 0.18 cfm/SF	Negative	2,3
Cat Play/Colony Room	20-25 of Exhaust. Make-up air should be a combination of supply and transfer air	MIN. - 7.5 cfm/person + 0.18 cfm/SF	Negative	2,3
Small Mammal/ Exotics	20-25 of Exhaust. Make-up air should be a combination of supply and transfer air	MIN. - 7.5 cfm/person + 0.18 cfm/SF	Negative	2
Community Rooms	N/A	5 cfm/person + 0.06 cfm/SF	Positive	1,4
Classrooms	N/A	7.5 cfm/person + 0.06 cfm/SF	Positive	1,4

### **General Comments**

- These ventilation guidelines are general minimum design criteria primarily intended to control odors in animal areas. The minimum air changes per hour is a starting point (not a hard and fast rule) and must be applied appropriately relating to the type of space, the occupancy of the space, and the total size and volume of the space. Additionally, the cooling load, heating load, and variances in solar loads should be evaluated with standard engineering practices related to zoning and control.
- Avoid increasing supply airflow rates to serve rooms without zone re-heat and with a large percentage of exhaust as this will over-condition the room and create concerns with hot and cold temperature variations. Exhaust make-up air can be accommodated by utilizing transfer air paths from positive pressure areas/rooms, the use of high percentage outside air equipment, or Energy Recovery Make-Up Air units.
- Local ventilation codes may require more ventilation/exhaust. Utilize the most stringent requirement.
- The mechanical system design, equipment selections, accessories and controls shall be able to maintain proper humidity levels.
- Verify the facilities requirement to have humidification.
- Verify the facilities requirement to have dehumidification.
- Mechanical systems are provided with air filtration having a MERV (Minimum Efficiency Reporting Value) rating. The minimum filtration should be MERV 8 (30 percent efficient) for most areas. Sterile areas or areas requiring additional filtration should be MERV 13 (90 percent efficient).
- Prior to construction, a value engineering process may be discussed to reduce the project cost. Extreme care should be given and discussed with the client pertaining to “value engineering” to ensure that all aspects of the design are maintained. This includes, but is not limited to the equipment elections, air flows, ventilation, heating and cooling capacities and controls.

### **Mechanical Notes**

1. Ideally, air should be supplied into people areas and transferred into the animal areas to provide additional make up air for exhaust air. The animal areas require more air changes per hour, not the people areas. Over-ventilate people areas where applicable.
2. Based on the combined exhaust rates, an energy recovery unit may be required by local energy codes.
3. CAT AREAS – the feline thermoneutral temperature zone is 80-85 degrees F. Thermal zoning and thermostat control should be separate from other animal areas for cat areas.
4. Demand Control Ventilation may be required by local code (only when the room is occupied).
5. Exhaust air is considered contaminated and shall not be combined with other exhaust systems or utilize energy recovery technologies with cross leakage protection across air streams.

### **Specialty Mechanical Considerations**

- A. Food prep rooms may have commercial dishwashers as commonly used in commercial kitchen applications. This will require a Type II condensate hood and roof-mounted exhaust fan.
- B. Commercial Clothes Dryer venting and combustion air shall follow manufacturer’s recommendations.
- C. Medical gas storage rooms for compressed gas bottles and liquid Doer cylinders shall be ventilated per NFPA 99 and NFPA 55, natural ventilation or mechanical ventilation can be determined based on project specifics and location of the room.

- D. The mechanical design intent shall be coordinated with the facilities need or use of an emergency generator. Specific areas, equipment, and functions may need to be maintained at all times. Verification with the design team and client will be required.

### ***Mechanical Project Specific Narrative***

The enclosed narratives were prepared by RGD Consulting Engineers.

#### **A. Codes and Standards**

The design shall comply with the latest adopted edition of all applicable codes and standards including, but not limited to:

1. Florida Building Code, Mechanical (2017)
2. Florida Fire Prevention Code
3. NFPA 90A
4. NFPA 91
5. NFPA 96
6. NFPA 99
7. ASHRAE 62.1

#### **B. Design Criteria**

1. Design Conditions:
  - a. Outdoor (DB/WB): 93F/80F
  - b. Indoor (DB/WB) General Spaces: 73F/62F
  - c. Indoor (DB/WB) Kennels/Isolation: 78F/63F
2. Construction Assumptions (New Construction):
  - a. Roof: R-30 insulation
  - b. Walls: R-6 insulation (1" of rigid)
  - c. Windows: Insulated, Impact, Low-E: U-Factor 0.4, SHGC 0.25 C. Products and Materials

#### **C. Products and Materials**

1. Dedicated Outside Air System (DOAS) with Energy Recovery:
  - a. Provide air cooled, DX type with modulating hot gas reheat. Provide direct drive fans and variable speed or digital scroll compressors. All coils will be coated (evaporative, reheat, condenser). Energy Recovery Ventilators shall be total enthalpy type. Roof curbs shall be wind-rated with vibration isolation rails (over public areas).
  - b. Acceptable manufacturers shall be:
    - i. Trane Horizon
    - ii. JCI/York

- iii. Daikin
  - iv. Captive Aire
  - v. Greenheck
  - vi. (Chilled Water Alternative) - Munters
2. Chilled Water Fancoils
- a. Fancoils shall be either horizontal ducted, vertical cabinet ducted, ductless wall-mount, or ceiling cassette style with minimum three coil coils, electric heat strips (ducted units only), and two-way modulating control valves.
  - b. Acceptable manufacturers shall be:
    - i. Trane Horizon
    - ii. JCI/York
    - iii. Daikin
    - v. EMI
3. Air-Cooled Chillers:
- a. Air-cooled chillers shall be screw-compressor type with coated condenser coils and high efficiency condenser fans. Sound blankets shall be provided for screw or scroll compressors.
  - b. Acceptable manufacturers shall be:
    - i. Trane Horizon
    - ii. JCI/York
    - iii. Daikin
4. Pumps:
- a. Provide base-mounted or inline centrifugal pumps with variable frequency drives.
  - b. Acceptable manufacturers shall be:
    - i. Taco
    - ii. B&G
    - iii. Armstrong
5. Piping:
- a. Provide Aquatherm Blue Pipe with 1" AP Armaflex insulation.
6. Mini-Splits:
- a. Provide wall-mounted AHU/CU combination DX-type mini-splits.
  - b. Acceptable manufacturers shall be:
    - i. Mitsubishi
    - ii. LG
    - iii. Daikin
7. Exhaust Fans:
- a. Provide inline fans with louvers or roof-mounted fans with roof curbs as required.
  - b. Acceptable manufacturers shall be:
    - i. Greenheck
-

- ii. Penn Barry
- iii. Loren Cook

8. Ductwork:

- a. All concealed supply and return ductwork will be externally insulated sheet metal.
- b. All exposed supply and return ductwork will be double-wall spiral duct with a solid metal liner.
- c. All exterior supply and return ductwork will be double wall galvanized.
- d. All interior exhaust ductwork will be non-insulated sheet metal. Exterior exhaust ductwork shall be double wall galvanized.
- e. Flex duct can be used to tie trunks to individual diffusers in lengths not exceeding ten feet.
- g. All outside air ductwork will be sheet metal with external insulation.

9. Diffusers/Grilles:

- a. Diffusers and grilles will be 24"x24" lay-in type for all grid ceiling areas, restrooms, and common areas. Public lobby areas will have 4' linear slot diffusers.
- b. Acceptable manufacturers shall be:
  - i. Titus
  - ii. Price Industries
  - iii. Nailor Industries

10. Controls:

- a. A Building Management System shall control all aspects of the HVAC Systems. Where required, BACNET interfaces shall be provided on all equipment to tie into the main system.
- b. Acceptable manufacturers shall be:
  - i. Trane
  - ii. JCI
  - iii. Automated Logic

**D. Design Strategy**

**Site Option 1**

This option consists of a renovation of approximately 30,000 sf of existing building area and adds approximately 50,000 sf of new building area under air conditioning.

The design approach would be to utilize the existing 80-ton Trane air-cooled chiller to support the renovated areas and non-kennel or isolation area of new construction. This is estimated to be approximately 78 tons of connected load. The existing air handlers and ductwork would be removed and replaced with new. A new air-cooled DX DOAS with energy recovery would be added to pre-condition outside air for the non-kennel areas. This would be ducted to the individual air handlers in the building.

For the kennel and isolation areas, air-cooled DX DOAS with energy recovery would be used to provide ventilation, exhaust, and space conditioning. Per the Animal Shelter Ventilation and Mechanical System Guidelines from Animal Arts, the systems would be capable of providing 10-12 air changes per hour in dog kennels, 20 air changes per hour in cat kennels, and 25 air changes per hour in isolation areas. In order to provide the required ventilation rate, protect against the spread of disease, and maintain comfort conditions in the space (temperature and relative humidity), the systems would be designed single path with no recirculation of air. Outside air will pass through an energy recovery membrane that will pre-condition the air with energy from the exhaust air (no cross-contamination of air). Then, the air will pass through a DX coil to bring it to dewpoint conditions. Finally, the air will be reheated with non-energy-consuming reheat from the refrigeration cycle to maintain the desired space temperature. The intent is for air to be exhausted from over top of the kennels and then supplied at the aisles. Each kennel will be kept at a slightly negative air balance condition relative to adjacent spaces.

It is critical that design considerations be made for the physical size of the equipment necessary to condition the kennel and isolation areas. The most cost effective and energy efficient approach is to use packaged units in this application rather than split systems. The packaged units could be roof mounted or ground mounted depending on the configuration of the roof. In addition, it will be necessary to significantly upgrade the electrical service to the site to accommodate these new systems. Please reference the electrical portion of this report for more information.

Below is a summary of the estimated equipment size, type, and area served for this option:

<b>Option 1</b>				
<u>Zone</u>	<u>Room Name</u>	<u>Tons</u>	<u>CFM</u>	<u>System Description</u>
1	Existing Kennel	55.0	11750	DOAS with Energy Recovery
2	Existing Kennel	55.0	11750	DOAS with Energy Recovery
3	Existing Kennel	55.0	11750	DOAS with Energy Recovery
4	New Kennel	35.0	7600	DOAS with Energy Recovery
5	New Kennel	35.0	7600	DOAS with Energy Recovery
6	New Kennel	40.0	8700	DOAS with Energy Recovery
7	Isolation	65.0	13600	DOAS with Energy Recovery
8	Warehouse	5.0	2000	Chilled Water AHU Single Zone
9	Small Dog	9.0	3600	Chilled Water AHU Single Zone
10	Conference	10.0	4000	Chilled Water AHU Single Zone
11	Lobby	14.5	5800	Chilled Water AHU Multi-Zone VAV
12	Cat Area	65.0	13300	DOAS with Energy Recovery
13	1st Floor Offices	12.5	5000	Air-Cooled DX RTU
14	Entry / Exam	6.0	2400	Chilled Water AHU Single Zone
15	Isolation	30.0	5800	DOAS with Energy Recovery
16	Clinic Isolation	50.0	10900	DOAS with Energy Recovery
17	Clinic	12.0	4800	Chilled Water AHU Multi-Zone VAV
18	Surgery Suites	3.0	1200	Air-Cooled DX Mini Splits
19	2nd Floor Offices	25.0	10000	Chilled Water AHU Multi-Zone VAV
		<u>Totals</u>		
		485.0		DOAS with Energy Recovery
		81.5		Chilled Water
		15.5		Air-Cooled DX
		582.0		Total

**Chilled Water Alternative** - An alternative to installing air-cooled DX DOAS for the kennels and isolation areas would be to use chilled water DOAS. This would involve installing new air-cooled chillers to support the additional load and routing chilled water piping to the DOAS. The alternate DOAS would have a higher first cost, but would reduce overall tonnage and energy consumption by approximately 30 percent compared to the air-cooled DX DOAS. For example, for this option, the tonnage associated with the DOAS systems would be reduced from 450 tons to 315 tons, reducing the total tonnage to 396 tons. The design approach would be to utilize the existing 80-ton air-cooled chiller for low-load conditions and then install two additional 200-ton air-cooled screw chillers to support the rest of the site.

**Site Option 2**

This option consists of approximately 80,000 sf of new building area under air conditioning.



The design approach would be like the other options and it would be possible to reuse the existing chiller on site to serve the non-kennel portions of the building.

Below is a summary of the estimated equipment size, type, and area served for this option:

<b>Option 2</b>				
<u>Zone</u>	<u>Room Name</u>	<u>Tons</u>	<u>CFM</u>	<u>System Description</u>
1	New Kennel	50.0	10600	DOAS with Energy Recovery
2	New Kennel	50.0	10600	DOAS with Energy Recovery
3	New Kennel	35.0	7600	DOAS with Energy Recovery
4	New Kennel	35.0	7600	DOAS with Energy Recovery
5	New Kennel	40.0	8700	DOAS with Energy Recovery
6	New Kennel	30.0	6500	DOAS with Energy Recovery
7	Isolation	65.0	13600	DOAS with Energy Recovery
8	Warehouse	5.0	2000	Air-Cooled DX RTU
9	Small Dog	9.0	3600	Chilled Water AHU Single Zone
10	Conference	10.0	4000	Chilled Water AHU Single Zone
11	Lobby	14.5	5800	Chilled Water AHU Multi-Zone VAV
12	Cat Area	50.0	13300	DOAS with Energy Recovery
13	1st Floor Offices	12.5	5000	Air-Cooled DX RTU
14	Entry / Exam	6.0	2400	Chilled Water AHU Single Zone
15	Isolation	30.0	5800	DOAS with Energy Recovery
16	Clinic Isolation	50.0	10900	DOAS with Energy Recovery
17	Clinic	15.0	6000	Chilled Water AHU Multi-Zone VAV
18	2nd Floor Offices	25.0	10000	Chilled Water AHU Multi-Zone VAV
19	New Kennel	30.0	6800	DOAS with Energy Recovery
		<u>Totals</u>		
		465.0		DOAS with Energy Recovery
		79.5		Chilled Water
		17.5		Air-Cooled DX
		562.0		Total

### Site Option 3

This option consists of a renovation of approximately 35,000 sf of existing building area and adds approximately 40,000 sf of new building area under air conditioning.

The design approach for this option would be the same as Site Option 1.

Below is a summary of the estimated equipment size, type, and area served for this option:

<b>Option 3</b>				
<b>Zone</b>	<b>Room Name</b>	<b>Tons</b>	<b>CFM</b>	<b>System Description</b>
1	Existing Kennel	55.0	11750	DOAS with Energy Recovery
2	Existing Kennel	55.0	11750	DOAS with Energy Recovery
3	Existing Kennel	55.0	11750	DOAS with Energy Recovery
4	New Kennel	40.0	8400	DOAS with Energy Recovery
5	New Kennel	20.0	4400	DOAS with Energy Recovery
6	Support	20.0	2600	DOAS with Energy Recovery
7	Isolation	70.0	17500	DOAS with Energy Recovery
8	Conference	10.0	4000	Chilled Water AHU Single Zone
9	Lobby	10.0	4000	Chilled Water AHU Multi-Zone VAV
10	Cat Area	50.0	9900	DOAS with Energy Recovery
11	1st Floor Offices	10.0	4000	Chilled Water AHU Multi-Zone VAV
12	Intake	8.5	3400	Chilled Water AHU Single Zone
13	Clinic Isolation	70.0	14400	DOAS with Energy Recovery
14	Clinic	12.5	5000	Chilled Water AHU Multi-Zone VAV
15	Surgery Suites	3.0	1200	Air-Cooled DX Mini Splits
16	2nd Floor Offices	25.0	10000	Chilled Water AHU Multi-Zone VAV
17	Warehouse	5.0	2000	Air-Cooled DX Rooftop Unit
		<b>Totals</b>		
		435.0		DOAS with Energy Recovery
		76.0		Chilled Water
		8		Air-Cooled DX
		519.0		Total

**Site Option 4**

Site Option 4 was added later in the Comparative Study. By this time Wharton-Smith had a good basis of pricing for the Options, and an extrapolation method was used to develop the estimate for Option 4.

Thus, there is no detailed CFM study for this Option.

## **Plumbing Narrative**

### **A. Codes and Standards**

The design shall comply with the latest adopted edition of all applicable codes and standards including, but not limited to:

1. Florida Building Code Plumbing (2017)
2. Florida Building Code Fuel Gas (2017)
3. NFPA 54

### **B. Storm Drainage System**

1. New construction will utilize gutters and downspouts for low sloped roofs and primary and overflow drains for any flat roofs.
2. All storm piping above and below grade shall be PVC.

### **C. Sanitary Drainage System**

1. Sanitary waste and vent piping will connect to all fixtures and equipment and discharge to the site sewer system.
2. Cleanouts will be located to aid in the cleaning of stoppages.
3. Each dog kennel will receive an area drain tied to sanitary.
4. All sanitary piping above and below grade shall be solid wall PVC (Type DWV) No Hub piping (ASTM 2665).

### **D. Domestic Water Distribution**

1. The domestic water distribution piping will serve all equipment and fixtures in the building as required.
2. Isolation valves will be provided at individual fixtures and equipment and at fixture groups to facilitate maintenance and/or alterations.
3. There will be a reduced pressure backflow preventer on the incoming service main located outside the building.
4. Underground water supply piping will be type 'K' copper and a main shut-off valve will be located in the building for maintenance purposes.
5. Aboveground water supply piping will be type 'L' copper.
6. Water hammer arrestors will be provided at all flush valves and all equipment with quick closing valve operation.
7. Domestic hot water shall be electric tank-type water heaters and a hot water recirculation system shall be provided, with controls to coordinate with temperature setpoints.
8. A chemical cleaning system equal to Lafferty shall be provided for all kennel and isolation areas with air compressor, foam hose drop stations, and central pump station.

### **E. Medical Gas**

1. Oxygen storage shall be in secured location with required ventilation.
2. Oxygen piping shall be provided with ceiling and wall outlets as required.
3. A medical scavenger system shall be provided with an evacuation fan and piping as required.

### **F. Products and Equipment**

1. All water closets will be floor mounted and have low-flow flush valves (1.28 GPF) that will be sensor operated with battery power.
2. All urinals will be wall hung and sensor operated flush valve type (0.5 GPH).
3. All floor drains will have trap primers except for floor drains in kennel areas, which are not required to have trap primers.
4. All sinks and lavatories will be provided with low-flow restrictors (0.5 GPM).
5. Handicap fixtures: Accessible fixtures (ADA) will be provided where required by code.
6. Accessible bi-level electric water coolers will be provided.

## ***Fire Protection***

### **A. Codes and Standards**

The design shall comply with the latest adopted edition of all applicable codes and standards including, but not limited to:

1. Florida Building Code with Applicable Supplements
2. Florida Fire Prevention Code
3. NFPA 13 – Installation of Sprinkler Systems
4. NFPA 20 – Standard for the Installation of Stationary Pumps for Fire Protection
5. NFPA 25 – Inspection, Testing and Maintenance of Water Based Fire Protection Systems

### **B. Sprinkler System Description**

1. The Fire Protection drawings will meet requirements of Florida Statute 61G15, and the head layout and hydraulic calculations will be considered a delegated design. Hydraulically designed wet-pipe sprinkler will be in accordance with codes and standards described above and will be provided. The system will use site water distribution system and a riser. A fire pump shall be provided. Hydrant flow tests will be performed as part of the design, as witnessed by the Authority Having Jurisdiction.

### **C. Design Criteria**

1. Light Hazard occupancy, maximum sprinkler spacing is 225 square feet. Provide 0.10 GPM per square foot over most demanding 1500 square feet. Include a hose allowance of 250 GPM at the base of the sprinkler riser.
-

2. Ordinary Hazard Group I occupancy, maximum sprinkler spacing is 130 square feet. Provide 0.15 GPM per square foot over most demanding 1500 square feet.
3. Ordinary hazard areas would include the storage rooms.
4. The sprinkler system will be hydraulically designed using a software program equal to “Sprink-CAD”.
5. The sprinkler system shall be interfaced to the fire alarm system.

#### **D. Products and Equipment**

1. Material and equipment will be Underwriters Laboratory listed or factory mutual approved.
2. Material shall conform to NFPA 13 and requirements of the authority having jurisdiction. Sprinkler heads will be regular coverage, recessed.
3. Piping throughout the facility shall be steel pipe: ASTM A 120, Schedule 40, seamless, black steel pipe, plate ends. Fittings shall conform to ASTM A 243 seamless or welded, for welded joints.
16. Systems shall be installed as per accordance with codes and standards described above.

#### **E. Sprinkler Shop Drawings**

1. This project will require the contractor to provide shop drawings prepared in accordance with the codes and standards described above identified as “working plans”, including hydraulic calculations signed and sealed by a professional engineer and which have been approved by the Authority Having Jurisdiction.

### *Electrical Narrative*

#### **A. Codes and Standards**

The design shall comply with the latest adopted edition of all applicable codes and standards including, but not limited to:

1. Florida Building Code, 6th Edition 2017
2. Florida Energy Conservation Code, 6th Edition 2017
3. Florida Fire Prevention Code, 6th Edition.
4. IESNA RP-28-07
5. Underwriters Laboratories (UL)
6. American National Standards Institute (ANSI)
7. NFPA 20, 2013, Standard for the Installation of Stationary Pumps for Fire Protection
8. NFPA 70, 2014, National Electrical Code (NEC)
9. NFPA 72, 2013, National Fire Alarm and Signaling Code
10. NFPA 55, 2013, Health Care Facilities Code
11. NFPA 101, 2015, Life Safety Code
12. NFPA 110, 2013, Standard for Emergency and Standby Power Systems

13. NFPA 150, 2013, Fire and Life Safety in Animal Housing Facilities Code

**B. Design Criteria and Materials**

New electrical distribution system equipment shall be designed as follows:

1. Electrical load calculation shall follow Florida Building Code baseline and NEC requirements.
2. A minimum spare capacity of 10 percent will be provided.
3. Distribution equipment shall be Eaton, Square D, Siemens, or GE.
4. Indoor equipment shall be NEMA 1. Outdoor equipment shall be NEMA 4X.
5. Minimum conduit size shall be ½". Acceptable wiring types and conduits shall be MC cable, aluminum EMT, galvanized steel, and LFMC for exterior motor applications.
6. Empty conduits shall be provided with pull strings.
7. Acceptable wiring types are THW, THHN, THWN, or XHHW where allowed by code.
8. Minimum wiring sizes shall be #12. Lengths exceeding 57' for 120V circuits or 131' for 277V circuits shall be #10 minimum. Voltage drop requirements of the Florida Building Code shall be met.

**C. Existing Electrical Service**

The existing electrical service is provided by FPL as a 277/480V, 3 phase, 4 wire, WYE service. The main switchboard is rated 277/480V at 800A and is in the main electrical/generator room. The existing square footage under AC is approximately 25,000 and the typical load based on industry data for a care facility is 14.5 Watts per square foot. Based on this information, the estimated current load for the total area under AC would be 362.5 KW. At 277/480V, 3 phase, that equates to 437A of load.

**D. Electrical System – Option 1**

This option consists of a renovation of approximately 30,000 sf of existing building area and adds approximately 50,000 sf of new building area under air conditioning. Assuming the first 25,000 sq. ft of Option 1 would be fed by the existing electrical service and main switchboard, the remaining 55,000 sq. ft. would require approximately 800 KW of additional service capacity at 277/480V, 3 phases, which equates to approximately 1,000A. This could be accomplished by the installation of one new utility transformer (if approved by FPL) and one new 1,200A switchboard to feed new MEP equipment and electrical distribution panels in the renovated and new spaces.

**E. Electrical System – Option 2**

This option consists of approximately 80,000 sf of new building area under air conditioning. The electrical system for Option 2 would require approximately 1200 KW of new service capacity at 277/480V, 3 phase, which equates to approximately 1,400A. This could be accomplished by the

installation of one new utility transformer to feed the entire site and one new 1,800A switchboard to feed MEP equipment and electrical distribution panels in the new spaces.

### **F. Electrical System – Option 3**

This option consists of a renovation of approximately 35,000 sf of existing building area and adds approximately 40,000 sf of new building area under air conditioning. The electrical system for Option 3 would be the same approach as the electrical system for Option 1. Assuming the first 25,000 sq. ft. of Option 3 would be fed by the existing electrical service and main switchboard, the remaining 50,000 sq. ft. would require approximately 800 KW of additional service capacity at 277/480V, 3 phase, which equates to approximately 1,000A. This could be accomplished by the installation of one new utility transformer (if approved by FPL) and one new 1,200A switchboard to feed new MEP equipment and electrical distribution panels in the renovated and new spaces.

### **G. Electrical System – Option 4**

Site Option 4 was added later in the comparative study. By this time Wharton-Smith had a good basis of pricing for the Options, and an extrapolation method was used to develop the estimate for Option 4. Thus, there is no detailed electrical service study for Option 4.

### **H. New Electrical Service and Distribution**

1. Existing electrical service and equipment will be reused where capacity exists for the renovations as presented above.
2. Additional electrical service will be obtained from the local utility company as needed for the new buildings. The new service is anticipated to be a 277/480V, 3 phase, 4 wire, WYE connection.
3. Receptacles shall be provided within 25' of all new HVAC equipment. Exterior receptacles shall be GFI and weatherproof while-in-use.
4. Dedicated receptacles shall be provided for all special equipment and appliance locations.
5. A duplex receptacle will be provided in each segment of each hallway for convenience/maintenance in new spaces.

### **I. Lighting**

1. All lighting will be LED type where feasible.
2. Occupant sensor controls shall be installed to control lights in the following space types (per Florida Building Code) as applicable:
  - a. Classrooms/lecture/training rooms
  - b. Conference/meeting/multipurpose rooms
  - c. Copy/print/work rooms
  - d. Lounges
  - e. Employee lunch and break rooms

- f. Private offices
  - g. Restrooms
  - h. Storage rooms
  - i. Janitorial closets
  - j. Locker rooms
  - k. Other spaces 300 square feet or less that are enclosed by floor-to-ceiling height partitions
3. Manual controls will be provided in the following spaces (per Florida Building Code) as applicable:
    - a. Spaces where patient care is directly provided.
    - b. Spaces where an automatic shutoff would endanger occupant safety or security.
    - c. Lighting intended for continuous operation.
  4. Common areas such as corridors, lobbies, reception areas, and areas of congregation will be controlled by time switch controls or occupancy sensors.
  5. Exterior lighting will be controlled by time switch controls or photocells.
  6. Emergency egress lighting and exit signs will be fed from the generator upon loss of normal power.
  7. Exit signs will be located per the Architect's life safety plan.
  8. Exterior doors will be illuminated with an exterior light at each discharge landing.
  9. Exterior pathways and areas of congregation will be illuminated.
  10. Lighting fixtures will be specified by the architect's or MEP engineer's third-party lighting consultant.
  11. All code required photometric calculations shall be provided by the architect's or MEP engineer's third-party lighting consultant for review by the engineer of record.

#### **J. Receptacles and Receptacle Control**

New receptacles are required to be 50 percent controlled in the following areas (per Florida Building Code) as applicable:

1. Classrooms/lecture/training rooms
2. Conference/meeting/multipurpose rooms
3. Copy/print/work rooms
4. Employee lunch and break rooms
5. Private offices



### **K. Lightning Protection System**

A lightning protection system is required per NFPA 150. It will be designed and installed per NFPA 780 by UL listed and Lightning Protection Institute certified lightning protection specialists. This system can be an air terminal type system or a mast type system.

### **L. Fire Alarm**

The fire alarm system design for renovated and new spaces will meet the requirements of Florida Building Codes and NFPA 72, National Fire Alarm and Signaling Code. The fire alarm system will be addressable and consist of components as follows:

1. Duct detectors
2. Smoke detectors
3. Smoke alarms
4. Combination horn/strobes
5. Individual strobes
6. Pull stations
7. Fire alarm control panel
8. Fire alarm annunciator panel
9. Voice control panel (if required)
10. Water flow detector
11. Valve tamper switch

New fire alarm control panels will be in main electrical rooms. Fire alarm annunciator panels will be located near main entry areas to allow access by fire department personnel. Voice control panels (if required) will be in main entry areas or reception areas.

### **M. Emergency and Standby Power System**

1. The emergency and standby power system shall meet the requirements of NFPA 70 (NEC), NFPA 110, and the Florida Building Code.
2. A diesel fuel standby generator will be basis of design and sized for the emergency (life safety), legally required and optional standby loads.
3. The generator will be an outdoor enclosed type and located at grade exterior to the buildings.
4. At least two automatic transfer switches will be required for each new building. One for emergency loads and one for legally required and optional standby loads.
5. In addition to providing backup power to life safety loads, the standby power system is also recommended to feed the following:
  - a. Outside air units
  - b. All lighting and HVAC in surgical and medical spaces
  - c. Fans in kennels and exterior circulation

- d. Ventilation for animal housing and grooming
- e. Freezers and coolers for medical storage
- f. Domestic water pumps
- g. Fire pumps
- h. Elevators
- i. Other loads to allow operation of the facility as capacity exists

## 7 Landscape Narrative

Gentile Glas Holloway O’Mahoney & Associates, Inc. (2GHO), as agent for PGAL, assessed the current state of buffer and interior trees and plantings, as well as the landscape impacts of three proposed design concepts. The subject site is a 14.1-acre parcel of land consisting of an animal clinic, kennels, office space, classroom space, large animal stables, and paddocks, located at 7100 Belvedere Road, West Palm Beach in Palm Beach County, Florida. The site was approved in 1989, in Palm Beach County.

### *Study Scope*

To assess the landscape impacts of the of the proposed expansion concepts, 2GHO conducted an on-site review and inventory of existing conditions. The enclosed site plan graphic highlights the six main areas (shown in orange) which are affected by the concepts for the expansion of the Palm Beach County Animal Care and Control facility. The specific impacts to these areas and the number and species of trees impacted are outlined in this report. In addition to these areas, code requirements and existing conditions of landscape buffers, parking area plantings, and foundation plantings are considered in the scope of this report.



*Location ‘A’ – Existing retention area and trees to be impacted*



*Location 'B' – Existing front entrance parking conditions*



*Location 'C' – Existing sabal palms and cypress trees*



*Location 'C' – Live oaks and parking spaces to be impacted*



*Location 'D' – Existing parking and retention conditions*

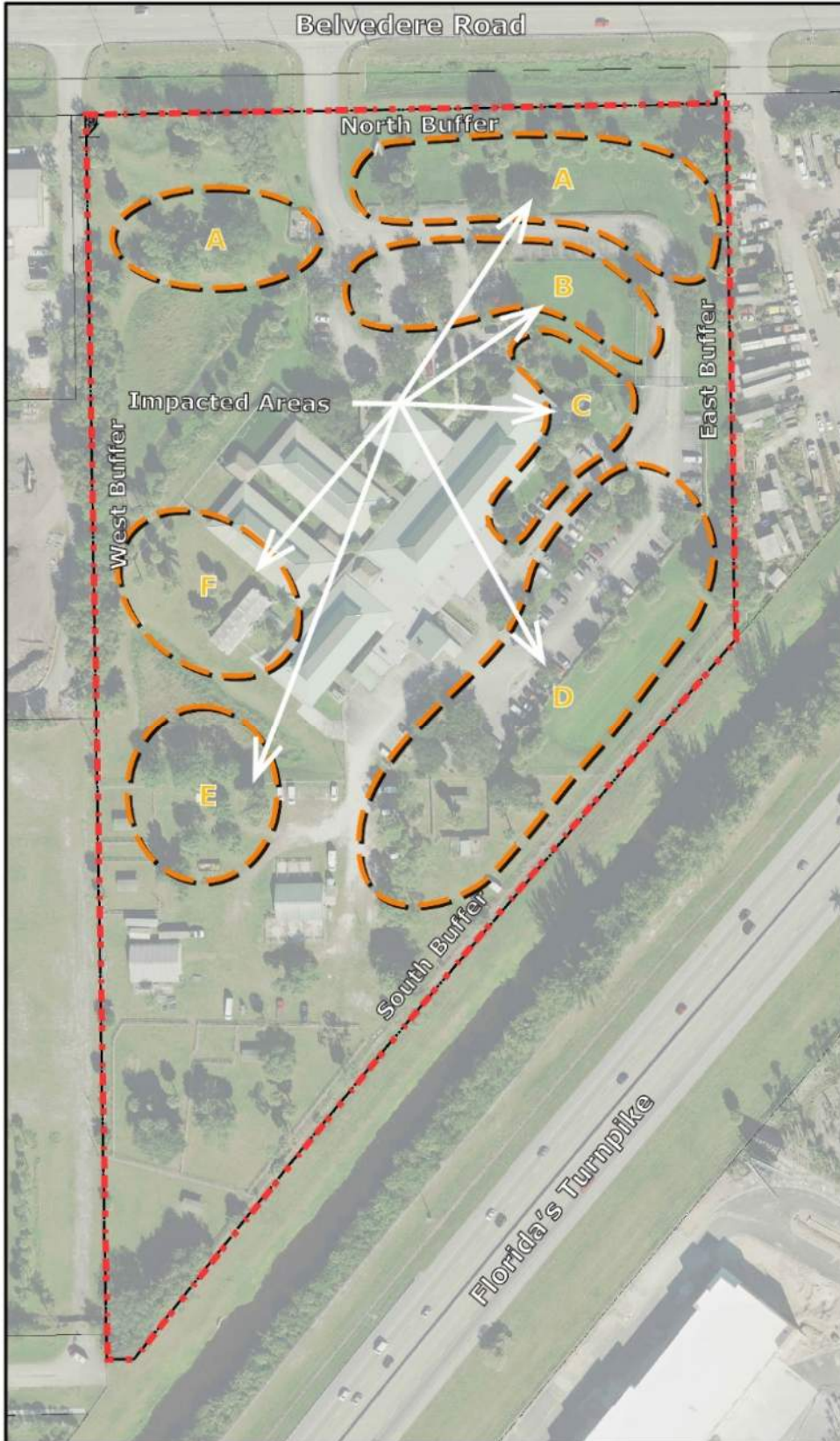


*Location 'E' – Existing mango trees and sabal palms*



*Location 'F' – Existing modular building and palm trees*

Site Map



**Current Code**

The site is located within Palm Beach County and is therefore subject to the development code requirements of the county. Typically, when a site is modified, it is brought up to the standards to the current approved code. From preliminary analysis, it appears that the parking areas will be deficient of shade trees which requires one tree per landscape island and one tree per 30 linear feet of aisle divider. Buffers are deficient in number of required trees, palms, and shrubs/groundcover due to an updated code from the originally approved plan in 1989. In addition, 'Public Ownership' zoning allows for no building setback requirement. This means only the 8' side buffers and 20' front and rear right of way buffers restrict the building footprint.

**North and South buffers are classified as 20' ROW buffers:**

- One tree per 25 linear feet
- One palm/pine per 30 linear feet
- One groundcover per 1 linear foot
- One small shrub per 2 linear feet
- One medium shrub per 4 linear feet
- One large shrub per 4 linear feet

<b>North 20' R.O.W. Buffer (670 l.f.)</b>	<b>Required</b>	<b>Existing</b>	<b>Needed</b>
1 tree/25 l.f.	27	24	3
1 Palm/Pine/30 l.f.	22	7	15
1 large shrub/4 l.f.	168	-	-
1 medium shrub/4 l.f.	168	-	-
1 small shrub/2 l.f.	335	-	-
1 groundcover/1 l.f.	670	-	-

<b>South 20' R.O.W. Buffer (397 l.f.)</b>	<b>Required</b>	<b>Existing</b>	<b>Needed</b>
1 tree/25 l.f.	16	3	13
1 palm/pine/30 l.f.	13	3	10
1 large shrub/4 l.f.	99	-	-
1 medium shrub/4 l.f.	99	-	-
1 small shrub/2 l.f.	199	-	-
1 groundcover/1 l.f.	397	-	-

East and West buffers are classified as 8' compatibility buffers:

- One tree per 25 linear feet
- One row medium shrub at 1 per 4 linear feet

West 8' Compatibility Buffer (1282 l.f.)	Required	Existing	Needed
1 tree/25 l.f.	51	3	48
11 Palms = 3 Trees			
1 medium shrub/4 l.f.	320	-	-

East 8' Compatibility Buffer (1282 l.f.)	Required	Existing	Needed
1 tree/25 l.f.	23	3	20
11 Palms = 3 Trees			
1 medium shrub/4 l.f.	141	-	-

**Interior Planting and Parking:**

- One tree per 2,000 s.f.
- Three shrubs per 2,000 s.f.
- One tree per end island
- One tree per 30 linear feet in the divider medians

Interior Planting (237,032 s.f.)	Required	Existing	Needed
Required trees 1/2,000 s.f.	119	69	50
(Credits not impacted by construction)			
Required shrubs 3/2000 s.f.	357	-	-
Parking Trees	Required	Existing	Needed
Required trees landscape islands (1/end island)	37	3	34
(Not impacted by construction)			
Required trees divider medians (1/30 l.f.)	18	0	18

**Foundation Planting:**

- Planting area = 40% front and side façade length
- 8' width
- One tree per 20 linear feet of planting area
- One shrub or groundcover per 10 square feet of planting area



<b>Foundation Planting</b>	<b>Façade Length</b>	<b>Required</b>
<i>Concept 1</i>	1148.4 l.f.	
Trees 1/20 l.f.		23
Shrubs 1/10 s.f.		368
<i>Concept 2</i>	1167.7 l.f.	
Trees 1/20 l.f.		23
Shrubs 1/10 s.f.		374
<i>Concept 3</i>	1165.0 l.f.	
Trees 1/20 l.f.		23
Shrubs 1/10 s.f.		373
<i>Concept 4 (similar to Concept 3)</i>	1165.0 l.f.	
Trees 1/20 l.f.		23
Shrubs 1/10 s.f.		373

***Proposed Concepts***

The proposed building concepts have largely similar footprints and therefore similar impacts to the existing landscape conditions.

**Location ‘A’** represents two areas of proposed stormwater retention at the front (north) end of the site. These areas currently have numerous live oak trees, sabal palms, and mango trees which will have to be removed or relocated to allow for the regrading of these areas into retention areas.

**Location ‘B’** will be impacted by the updated parking layout concept. This area will require reconfiguration of parking islands and therefore require removal of existing parking trees. Additionally, the new layout impacts existing pervious area at the front of the existing building.

**Location ‘C’** is currently fenced open space near the front entrance of the building, as well as a portion of rear parking and will be impacted by building expansion. This area has several native bald cypress trees and sabal palms which will require relocation or removal. Additionally, impact to this area will include parking spaces, as well as several live oak trees and sabal palms.

**Location ‘D’** currently consists of parking area and storm water retention area. The parking layout in option 2 shows expansion into this area, as well as reconfiguration of parking aisles and islands. This will impact existing live oak trees in landscape islands, as well as sabal palms and mango trees.

**Location 'E'** is currently comprised of open space between the main building and the large animal stable with several large mango trees and sabal palms. The concepts propose "reconfigured retention" in this area and may require the removal or relocation of trees. *Concept 3 impacts fewer trees in this location than concepts 1 and 2.*

**Location 'F'** currently consists of a modular building and fenced open space with several palm trees. The three concepts propose two new animal kennel buildings in this area which will require the relocation of the existing palms.

Impacts:	Credits:	Relocatable:
<b>Location 'A':</b>		
(26) x 14" Sabal Palms	26	Yes, but not recommended
(8) x 12" Live Oaks	16	Yes
(2) x 24" Mango	0	No
<b>Location 'B':</b>		
(15) x 12" Live Oaks	30	Yes
(5) x 12" Sabal Palms	5	Yes, but not recommended
(4) x 16" Bald Cypress	12	No
<b>Location 'C':</b>		
(14) x 14" Sabal Palms	14	Yes, but not recommended
(3) x 18" Bald Cypress	12	No
(3) x 12" Live Oaks	6	Yes
<b>Location 'D':</b>		
(13) x 16" Live Oaks	26	Yes
(30) x 14" Sabal Palms	30	Yes, but not recommended
(2) x 20" Mango	0	No
<b>Location 'E':</b>		
(6) x 24-30" Mango	0	No
(6) x 14" Sabal Palms	6	Yes, but not recommended
<b>Location 'F':</b>		
(7) x 14" Sabal Palms	7	Yes, but not recommended
(3) x 12" Coconut Palms	0	Yes
(1) x 12" Queen Palm	0	No

**Total Tree Credits Needed (with no relocation), for each Design Option**

	Concept 1	Concept 2	Concept 3	Concept 4 <sup>45</sup>
<b>Buffers</b>	65	65	65	65
<b>Interior</b>	50	50	45	45
<b>Parking</b>	52	52	52	52
<b>Foundation</b>	23	23	23	23
<b>Total</b>	190	190	185	185

Possible Relocatable Trees (Credits) 78 Credits

Possible Relocatable Palms (3 palms equal 1 credit) 29 Credits (88 Palms) \* | 27 **Credits (82 Palms) \*\***

\* = Concept 1, 2 \*\* = Concept 3, 4

**Conclusion**

Based on review of the current Palm Beach County Land Development Code and site inventory and analysis, a report of the landscape requirements based on three proposed design concepts was developed. The major takeaways to consider are as follows:

1. All property line buffers are deficient in tree and shrub numbers.
2. Existing interior tree numbers are close to the required value based on pervious area, but this number will be impacted by all building expansion concepts.
3. Parking area tree numbers are deficient, and reconfiguration of landscape islands needs to be considered in proposed parking to meet code requirement of one per 10 parking spaces. Additionally, parking lot construction will impact almost all existing parking trees.
4. All concepts require similar foundation planting quantities based on front and side façades.
5. Concepts 1 and 2 impact the existing landscape in six distinct locations and 148 trees. Adjustments to stormwater retention at location ‘E’ in concept 3 and 4 reduces the total tree impact to 139.

In addition to the information summarized above, several other significant observations were made during the assembly of this report.

1. A large portion of sabal palm trees on the site exhibit signs of Lethal Bronzing Disease which is caused by a pathogen that can spread rapidly to other palms in close proximity. Maintenance staff on site has already expressed concern based on observations of the spreading of the disease to healthy palms. We suggest administering a systemic health aide proactively to remaining trees.

<sup>45</sup> Option 4 was added late in the comparative study, but it is assumed to be similar to Option 3 in terms of landscape requirements.

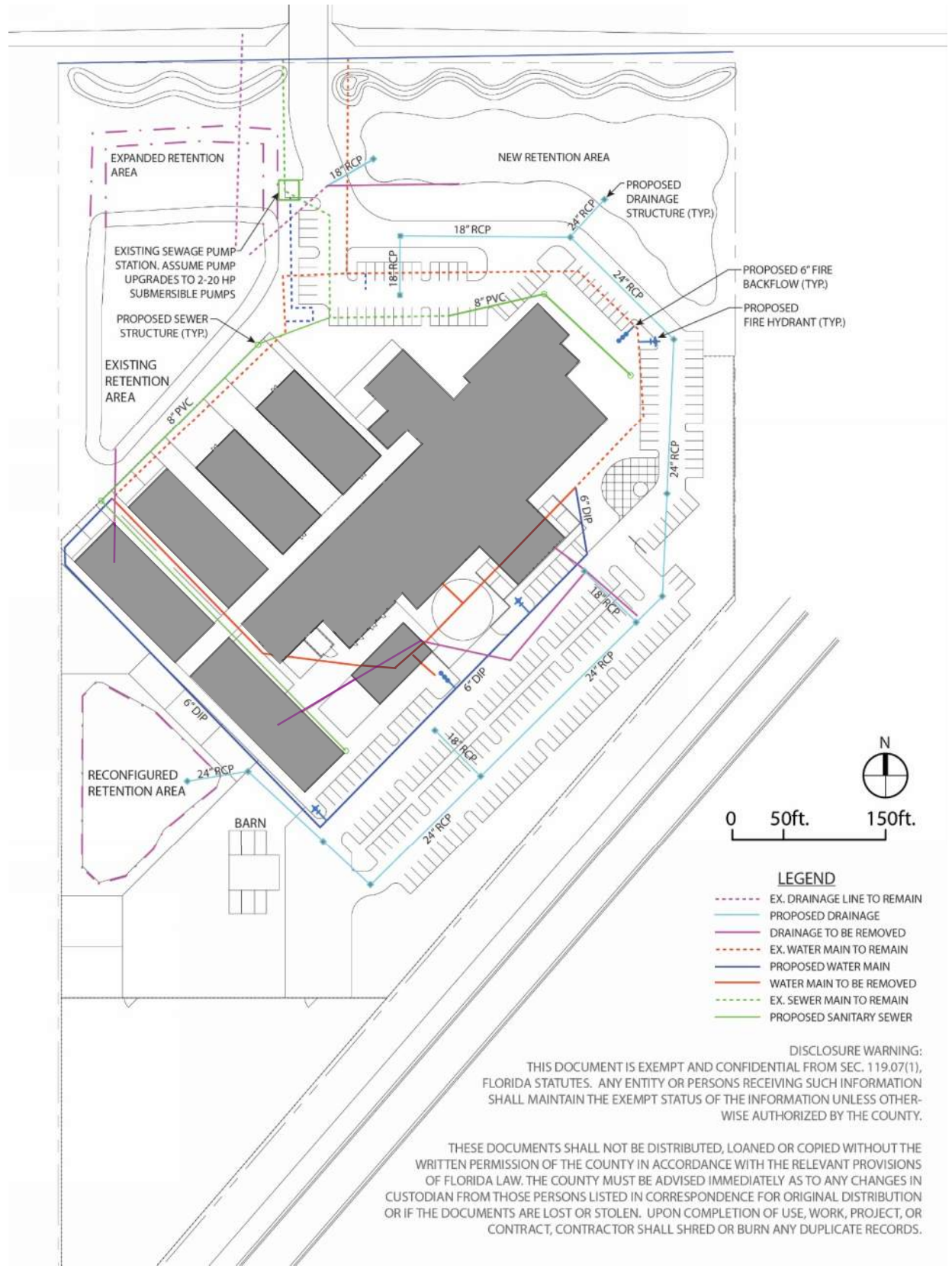
2. Property line buffers, especially the west buffer, currently have an abundance of invasive exotic plant species which will need to be removed now, or at the latest, prior to installing new buffer plants.

## **8** Civil Engineering Narrative

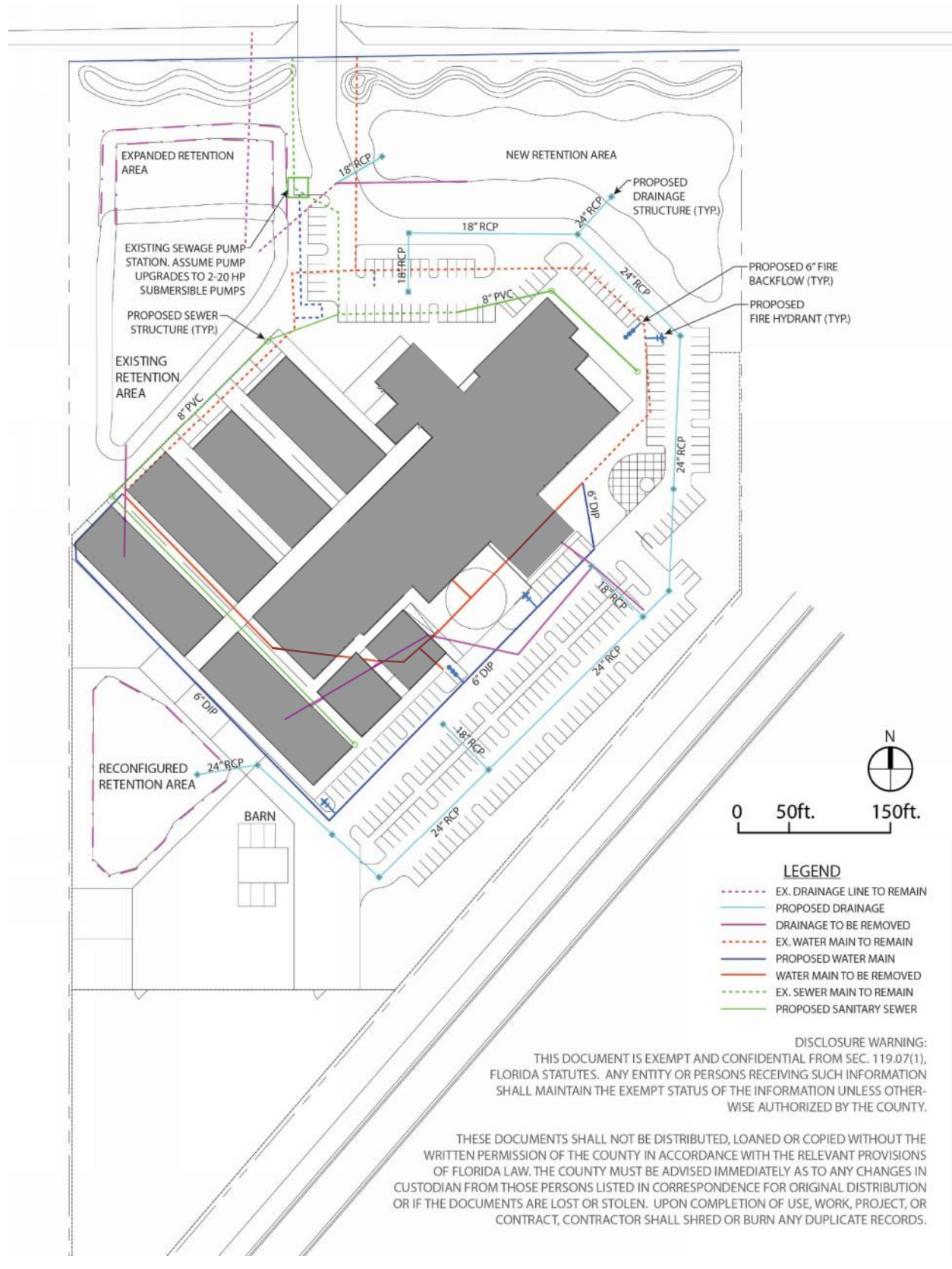
The civil engineering narratives in the following pages are in graphic form. The information contained herein was incorporated into the site cost estimates for the Options. Analyses were provided by K&A Engineers, a consultant to PGAL.

Note that Option 4 does not have a diagram because it was added later in the Comparative Study. However, it will be similar to Option 3 in terms of site impact, with the exception of maintaining existing parking areas.

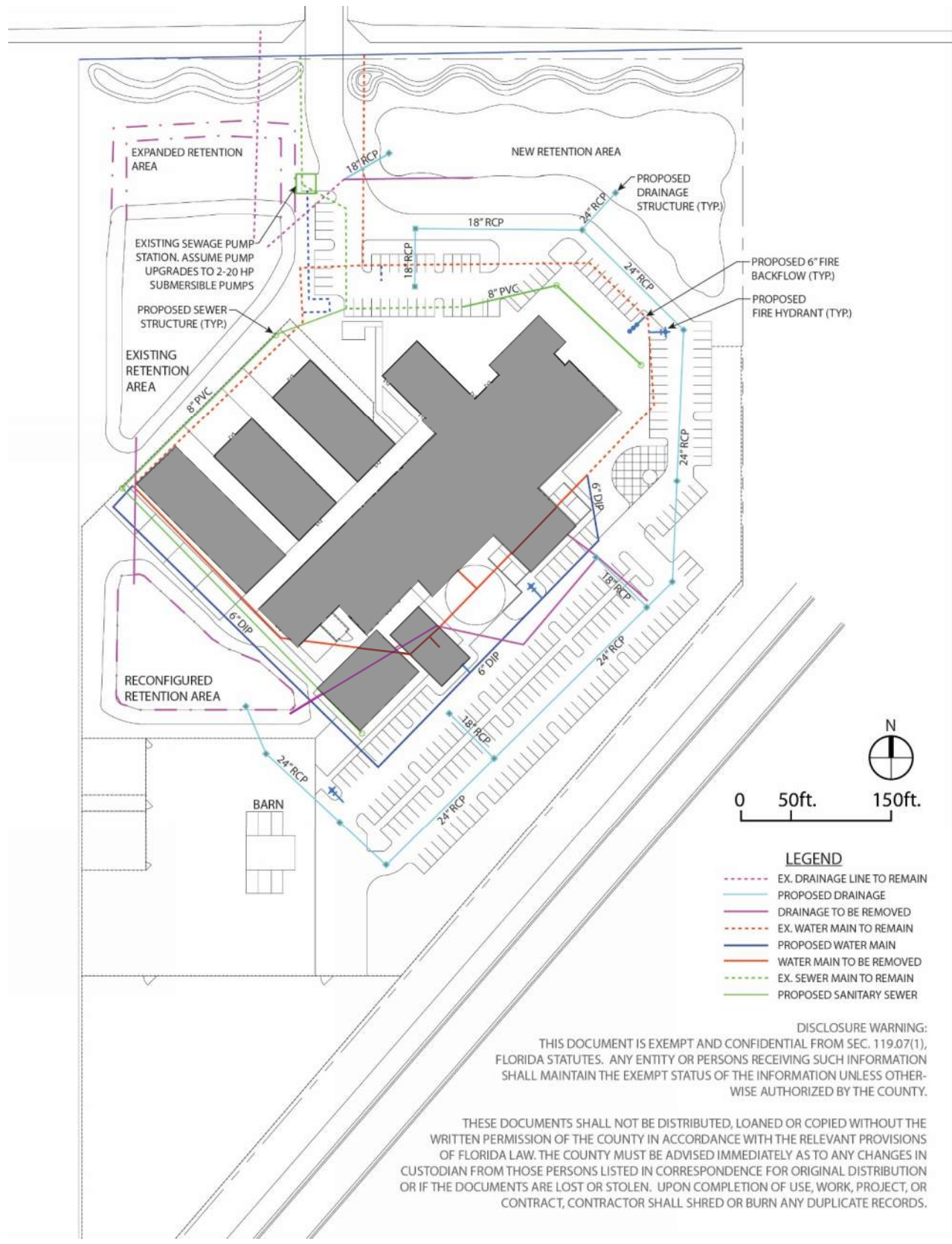
Option 1



Option 2



Option 3





## 9 Cost Narrative

The purpose of the information enclosed in the following narrative was to assist the Construction Management team in developing the costs for the Options for Palm Beach County Animal Care and Control. The materials contained in this narrative will need to be discussed and confirmed as normal during future phases of design. They simply establish the basis for quality typical of best-practice animal shelters. The Design Team also provided reference sets of construction documents for review.

### Supporting Documents

- Existing Floor Plan
- New Options Diagrams 1, 2, 3, and 4, including overall and enlarged plans
- Continuity of Operations Plans (alternate suggestions are acceptable)
- Program Document
- Mechanical Diagrams
- Parking/Site Diagrams
- Mechanical Narrative by PGAL Engineers (standard information enclosed within this document)
- NFPA 150 Document to be sent for reference

### General Notes

- Codes and Regulations:
  - Meet 2015 Florida Building Codes including Energy Code
  - Meet NFPA 150 – for Animal Care Facilities
- General Assumptions:
  - Fully Sprinklered Buildings, Quick Response Sprinklers per NFPA 150
  - More Conservative Fire Extinguisher Distribution (1.5 times normal allowance) for compliance with NFPA 150.
  - Non-Combustible Construction for all options.
  - Lightning Protected per NFPA 150.
  - One Hour Fire Separation at Sally Port, Mechanical Rooms, and Medical Gas Room
  - Corridors Non-Rated
  - Florida Product Approval Number for exterior building materials including siding/skin, roofing, skylights, patio screening, fenestration.
- Lateral Systems:
  - Option 1 Affects existing lateral system for building. Assume lateral redesign, to include new interior shear walls to be consistent with previous construction.
  - Options 2 and 3: Lateral System Primarily at Building Exterior; interior walls shall be designed to be stud walls for future flexibility.

- Option 4: Existing Building left mostly intact including building structural system. New buildings to be designed with lateral system at building exterior.

### ***Construction Requirements for Occupied Animal Care Facilities***

Like patients in a human hospital, animal occupants are sensitive to noise, odors, and dust. As with any occupied building, egress plans shall be developed for use during construction. In addition, sound walls shall be erected between occupied and non-occupied spaces. Percussive noises are to be limited when possible (another agency used a concrete pulverizer during construction in lieu of noisier methods for demolition). Construction areas must maintain exhaust to prohibit dust and fumes in occupied areas of the building. Utility shutoffs are to be coordinated with ACC and may occur after building hours to reduce interference with operations. Note that animal areas are continuously occupied and must have uninterrupted power for ventilation/critical functionality.

Include a thirty-foot buffer around the existing barn and its paddocks during construction staging to protect large animals from noise and disruption during the construction of the project.

### ***General Description of Construction by Area***

- Long-Term Barn Building:
  - Assume cmu perimeter walls, furred out and faced with Trex on inside up to 7'-4" a.f.f., insulated and skinned with metal panel on exterior side to match primary building/s. Assume insulated pitched roof with metal roofing to match primary building/s. Assume high air movement, low velocity fans (Big Ass, etc.), as well as exhaust ventilation. Assume a 5" slab floor throughout, water, and power. More information about barn doors, openings, fencing, included in Division 11, 12.
  - Option 4: Existing barn to remain in the base scope. Repair any damaged materials inside the building including faulty wiring and damaged wood in animal enclosures.
- Warehouse Building:
  - Expected to be a utility building. This could be a prefabricated building, but must be insulated, conditioned, meet Florida codes, and should be assumed to be sided with metal panels to match building, set on curb for longevity.
  - Interior finishes: Assume liner panel, high bay lighting, air conditioned, with a small amount of drywall office for the maintenance personnel and pharmacy storage.
- Primary Buildings
  - Exterior Joist Bearing Heights: 114'-8" typical for first floor with finished floor at 100'-0". 116' for high bay garage. 2<sup>nd</sup> floor joist bearing 129'-4".
  - Exterior wall: Load bearing cmu or glazed cmu perimeter with concrete wind

frames, with exterior rigid insulation and waterproofing. Cladding shall be assumed to be either:

- Metal cladding rain screen – concealed fastener, Kynar/Hylar finish.
- Additional wythe of masonry at dog runs. More description to follow.
- Construction of New Kennel Building Roof Systems: Pitched roof with light gage trusses for structure. Flat areas are to be constructed on either end for RTU placement.
- Roofing Materials: Protection board, rigid insulation, cover board, fully adhered TPO, or for pitched roofs, metal concealed fastener roof with Kynar/Hylar finish.
- Roof and second floor construction:
  - Joist/deck for some portions of roof and second floor. Pitched metal truss for other architectural roof areas.
- Exterior Window Assumptions:
  - New Buildings: Glazing on 30 percent of exterior wall.
  - Existing Buildings: All exterior glazing to be replaced.
- Exterior canopies. Assume an allowance for exterior canopies for shading and covering of entrances. Canopies also connect exterior walkways as illustrated on diagrams. These need low-velocity, high air flow fans for comfort.
- Slab on grade: 6” to be assumed for any animal area (dog, cat, sally port) to allow for floor slopes. 4” elsewhere. More information in the concrete section.
- Interior Wall Types are as follows for Options 1, 2, and 3. In Option 4, some glazed masonry was reduced for cost savings:
  - At kennel buildings and isolation kennel:
    - Exterior perimeter walls to be one sided glazed block (see masonry portion of narrative) up to 6’-8” a.f.f. with cmu grey block (coated per Div 9) above to structure. Rigid Insulation, water proofing, air gap, then another 4” wythe of one-sided glazed block to 6’-8” a.f.f. with metal cladding above to structure.
    - Interior kennel partitions to be 6” nominal double-sided glazed block with bullnosed corners and edges (special shape allowance) to 4’-8” a.f.f.
    - Glazed CMU Interior Partitions
      - If both sides face a dog kennel: 8” double glaze to 6’-8” a with grey block above to above ceiling.
      - If one side faces a kennel and the other a hallway: 8” single glaze to 6’-8” a.f.f. with grey block to above ceiling. All exposed non-glazed coated per division 9.

- All walls in kennel buildings are sound walls and must achieve STC 50. We recommend masonry to stop at just above ceiling (unless needed by structural system) and then proceeding to structure with a framed STC 50 sound wall.
- Other CMU partitions:
  - Sally port walls, mechanical rooms, around dog intake rooms adjacent to sally port.
- Major Interior Sound Walls
  - Framed STC 48 walls to occur around all major functions (lobbies, around vet clinic, at circulation hallways, and around remaining animal care rooms and wards, around conference rooms.
- Other Interior Walls (all have some sound protection)
  - Remaining interior partitions shall have sound batts and shall extend 6" above ceiling.

### ***Allowances***

Allowance No. 1: Monument and Major Contractor Provided Directional and Code Required Signage. Include an allowance of \$80,000. Additional internal signage in Owner Budget.

Allowance No. 2: Sound Control Baffles. Include an allowance of \$50,000 to supplement ceilings in indoor and outdoor kennels with wall mounted baffles (ceilings are not enough).

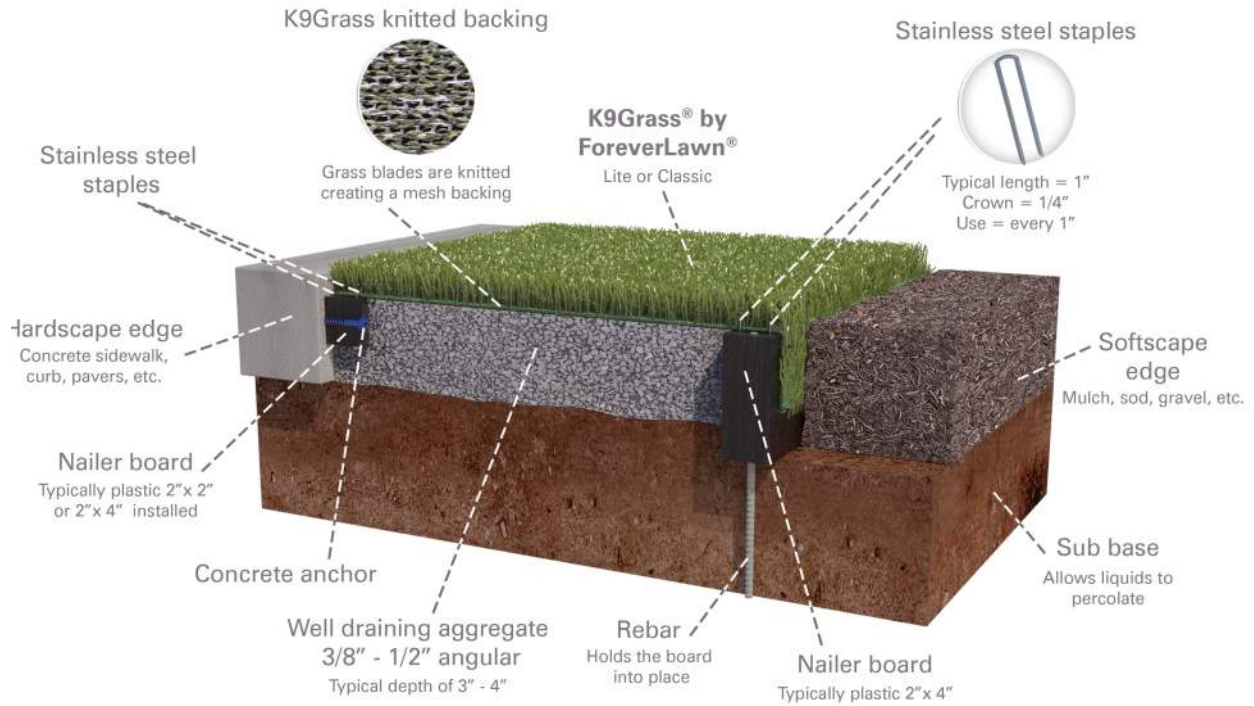
Allowance No 3: Chickee Huts and Shade Structures: Include allowance of \$80,000 per Chickee Hut.

### ***Division 2***

#### **Site**

- Follow Parking Diagram developed by PGAL, for all Options except Option 4, which utilizes existing Parking Areas as a base scope.
- Water loop line needs to be partially relocated due to running under new kennel buildings.
- New central chiller plant new location on site for all three options (not yet shown on site plans).
- New drainage and retention areas.

*Include 14,000 square feet of animal yards for Options 1, 2, and 3, and 7,000 square feet of animal yards for Option 4, with K9Grass Classic by Foreverlawn, or equivalent product. The product needs careful prep in hot climates. Below is the manufacturer's detail. However, we have discovered that additional aggregate- 7" +/- and possibly an underdrain system is required in hot, moist climates to prevent odors.*



- Fencing:
  - Site shall be ringed by 6' security chain link fence to match existing, where it is damaged or destroyed by construction activities. An automatic gate is required between public and secure staff parking areas. This will be a new gate; it is in a new location.
  - Fencing around dog yards shall be aluminum, pre-finished monumental fencing with flat top, and alligator pickets at bottom up to 2'. See photo below. In addition, this fencing needs coyote rollers on top. These are located at [coyoteroller.com](http://coyoteroller.com).



### ***Division 3***

#### **Cast-in-Place Concrete Slab Design**

*The following are standards for animal care slabs on grade.*

- 0.45 max. water/cement ratio.
- 4,000 psi concrete.
- Rebar reinforcement: #4 bars at 18" o.c. both directions.
- Class A 15 mil polyolefin vapor barrier, WVTR < 0.009 perm, lapped 6" at seams and turned up 6" at edges. Basis of design: Stego Wrap 15 mil with Stego Claw Crete tape.
- 6" slabs in all animal areas and sally port.
- 4" slabs elsewhere in main building.
- 5" slab in barn.

*The most important feature of the slabs are the numerous slopes and other slab detailing. Review slope/slab plans for the two shelter projects provided for reference. Cold joints are unacceptable (for sanitation reasons) within animal housing rooms and pours must be coordinated ahead of time. Control joints are double what is typical. See example project control joint layout.*

### **Miscellaneous Concrete**

- Housekeeping Pads for mechanical equipment
- Mass Isolation Pads for RTUs (to reduce internal vibration)

### *Division 4*

#### **Glazed Masonry**

Astra Glaze by Trenwyth as BOD, medium weight. Nominal 8x16 units, running bond, single sided glazed or double sided glazed per wall type narrative. Enclosed are some special detail requirements that generally affect costs:

- First course is grey cmu. Top of that course is raked to receive coved resinous flooring.
- Glazed cmu has more dimension variability because the glaze is applied after manufacturing the base block. This tends to increase labor costs as more finesse is required to lay the walls.
- Bullnose ends, jambs, etc. Use a special shape allowance.
- Entire wall needs modeling by glazed block manufacturer to show all special shapes. This is typical of their process but lengthens procurement time.
- Joints are raked when wall is laid. They are then subsequently pointed with an industrial epoxy pointing mortar: Laticrete 2000 IG Industrial Epoxy is typical. This meets ANSI 118.5. Products meeting ANSI 118.3 are not acceptable as they yellow in the presence of urine. This detail is important as most people do not include adequate pricing initially for this industrial epoxy grout. Industrial epoxy grouts must be pointed carefully as they can adhere to glaze if not cleaned properly. Learning curves exist on most projects. It is typical to do an on-site mockup to establish quality expectations.

#### **CMU**

Grey block, medium weight, with bullnose jambs and sills. No steel lintels are permitted in animal care facilities as they corrode. Utilize concrete precast or masonry bond beam.

### *Division 5*

#### **Structural Steel**

Unknown currently, but assume columns and beam systems interior to the building to support roof joists, etc.

### *Division 6*

#### **Rough Wood Carpentry**

- Wood blocking and nailers

### **Interior Architectural Woodwork**

The following are typical quality standards for Plam Casework:

- Plastic-laminate cabinets
  - Quality Standard: AWI
  - Grade: Custom
  - Knuckle Hinges
  - Edge treatment: 1 mm
- Plastic-laminate countertops and sills
  - Quality Standard: AWI
  - Horizontal grade
  - Edge treatment: 3 mm PVC edge
  - Plam windowsills used in office areas
- Quartz-surfacing countertops
  - Used on all reception desk counters, restroom counters
  - BOD: Silestone by Cosentino
- Quartz sills used in animal rooms at exterior window openings

### **Stainless Steel Counters with Integral Sinks for animal areas and Stainless Shelving.**

See Division 11,12. For pricing purposes, refer to reference plan sets for locations of laminate casework, some of which can be surprising. For example, all cages in clinic and in all cat rooms typically have built in cabinets above them to maximize storage.

## ***Division 7***

### **Air/Water Barrier**

Unknown currently. Refer to reference project for typical.

### **Wall Insulation**

As described in opening pages general construction narratives.

### **Sound Batts**

Type I unfaced glass-fiber blanket to be used for sound attenuation.

### **Roofing**

As described in opening pages general construction narratives.

### **Light Monitors /Solatubes**

Provide allowance for 10 large roof monitors (Kalwall surfaces), and 20 solatubes. Animal areas need natural light.



## Other

- Provide high-performance joint sealants for animal areas as follows:
  - Saw cut control joints in concrete floors: BASF Masterseal CR 100
  - Vertical surfaces on walls: Masterseal CR 195
  - Expansion joints at wall/floor transitions: BASF Masterseal CR 195

## Division 8

### Doors

- Many doors in the building will be fiberglass doors and frames. This includes: Exterior doors from staff areas. All kennel doors. All doors into lower floor wet areas or rooms with floor drains. Approximately 50 percent of doors lower floor doors. Sample spec: Chem-pruf door and frame. Assume all doors to have half lite. Some may also be full lite and some ¼ lite, but this will be a good starting assumption. *Note: hardware comes with these FRP doors and frames (by manufacturer similar to how Alum s.f. is handled).*
- Hollow Metal Doors and frames to be used elsewhere in lower floor non-wet locations.
  - Assume all doors to have a half lite. Some may also be full lite and some ¼ lite, but this will be a good starting assumption.
- Aluminum storefront doors and interior windows to be utilized in all cat areas and public zone. Also assume aluminum storefront for exterior openings in public areas.
  - Used in the following areas:
    - Example spec: Class A colored anodized storefront, with Florida approval number. Exterior storefront to be utilized interior to the building but will not need impact resistance for interior locations.
    - With continuous hinges rather than pivots - all hardware for doors is to be mounted above floor level (e.g., no recessed pivot hinges).
- Second Floor Staff Area Doors: SC Wood Doors with HM frames. Birch finish on doors. All office doors shall be dutch doors, with stainless steel plate on interior face (offices often have animals in them, even if not current policy).
  - Assume all doors to have a half lite. Some may also be full lite and some ¼ lite, but this will be a good starting assumption.

### Glazing

- Interior glazing:
  - Clear float glass.
  - Temper all glazing, interior and exterior, throughout the facility. This is required because animal facilities are prone to issues with broken glass from damage by animals, impacts by carts, hose sprayers and the like. Laminated glass is unacceptable because it breaks too easily.

- Interior insulated sound control glazing to be used in dog run room doors/lites and wherever sound control walls are indicated. Two lites of tempered glass.
- Exterior glazing to be low E, impact resistant, double glazed, with Florida Approval Number.

*New animal care facilities have MANY internal windows, relites, borrowed lites, etc. May be even greater than two reference projects, as given the size of this facility, internal transparency is VERY important for communication between staff, safety, etc.*

### **Division 9**

#### **Gypsum Board**

- Type “X” 5/8” used throughout except as noted.
- Moisture resistant “green board” in restrooms.
- 5/8” cementitious backer board at interior tiled applications, finished to Level 2 finish prior to water proofing.

#### **Ceilings**

- Acoustical Panel Ceiling APC-1 used in people only areas except as noted.
  - High-Density, Mineral-Based Acoustical Panels with a High NRC
  - .75” Armstrong Ultima, square edge
- Acoustical Panel Ceiling APC-2 in all dog areas and in clinic areas, including kennels (no more exposed ceilings).
  - High-Density, Mineral-Based Acoustical Panels with Washable Finish and a High NRC:
  - Rockfon Medical Plus Ceiling Panel with 0.90 NRC.
- Gypsum Ceilings: Restroom, surgery rooms, over treatment tables (for light supports), soffits over all cages, in cat free roaming rooms, and at hallway intersections for wayfinding.
- Underside of Exterior Canopies, Catios, and Dog Kennels: Aluminum prefinished soffit.
- Ceiling Clips: Used in all exam areas (to avoid ceiling cats).
- Open/Decorative Ceilings: In public Lobbies.
- Aluminum capped suspension systems to be used throughout (Florida + internal moisture).
- Note that some areas will have gypsum board ceilings, including:
  - Surgery room, restrooms, janitor closets, utility rooms.

#### **Tiling**

- Porcelain wall and floor tiles, used throughout public lobbies, restrooms, all cat areas. Wall tile only in all medical wards for animals (since these are not cmu).

- Daltile mid-price range through-body porcelain tile. Example spec: Daltile City View, 18x18 field tile.
- Epoxy setting material: Latapoxy 300 Epoxy Setting Material.
- 100% solids epoxy grout: Laticrete 2000 IG for floor tile, Laticrete Spectralock 100% Epoxy Grout for wall tiles.
- Waterproofing and crack isolation membrane to be used at all applications: Laticrete Hydroban.
- Wall tiles: 6'-8" a.f.f. high, all cat areas, 4'-8" a.f.f. in public areas and restrooms. Full height in all animal medical wards.

**Resinous Flooring (Cementitious Urethane) to be throughout entire lower floor of building, except as noted above where floor tile is used.**

- Basis of design: Dur-a-Flex Urethane Floor. See specification for reference project Dumb Friends League. This is an important consideration, as this specification costs more than typical epoxy, and is required as basis of quality to withstand cleaning chemicals used.
- 8" coved resinous base, keyed into cmu walls wherever these occur.
- Resinous flooring keyed into floor drains.
- Requires an in-place mockup.

**Luxury Vinyl Tile**

- Armstrong Commercial Flooring, Natural Creations line luxury flooring with Diamond 10 coating, or comparable product, to be used in office areas on upper floor.

**Painting and High-Performance Coatings**

- HPC 1 – used everywhere except CMU walls.
  - Intermediate-duty application on gypsum substrate:
    - Sherwin-Williams Builders Solution Primer/Surfacer, A63W100, <100g/l.Intermediate Coat:
  - Sherwin-Williams: Pro Industrial Water Based Pre-Catalyzed Epoxy Egg-shel, K45W1150 Series, <50 g/l.Topcoat:
  - Sherwin-Williams: Pro Industrial Water Based Pre-Catalyzed Epoxy Egg-shel, K45W1150 Series, <50 g/l
- HPC-3
  - CMU substrates
  - Two-part water-based epoxy coating for intermediate-duty applications HPC-3:
    - Sherwin-Williams: Kem Cati-Coat HS Epoxy Filler/Sealer, B42 Series <250 g/l.

- Sherwin-Williams: Pro Industrial Water Based Catalyzed Epoxy Gloss, B73-300 Series, <50 g/l.
- Sherwin-Williams: Pro Industrial Water Based Catalyzed Epoxy Gloss, B73-300 Series, <50 g/l.
- High-build polysiloxane coating for heavy-duty applications HPC-3:
  - Sherwin-Williams: Kem Cati-Coat HS Epoxy Filler/Sealer, B42 Series <250 g/l.
  - Sherwin-Williams: Sher-Loxane 800 Polysiloxane, B80 Series <100 g/l.
  - Sherwin-Williams: Sher-Loxane 800 Polysiloxane, B80 Series <100 g/l.
- HPC 4 (used on all exposed ferrous and galvanized metal)
  - Sherwin-Williams: Pro-Cryl Universal Acrylic Primer.
  - Two coats Sherwin-Williams Acrolon 100 Polyurethane.

### *Division 10*

#### **Wall Protection**

- Acrovyn wall protection panel butt jointed (no seam strips) to be provided where reasonably attractive and highly cleanable wall protection is required, such as ½ height in exam rooms, ½ in surgery, in multipurpose room, and throughout medical space. Also, to be used in all employee corridors.
- Food Prep rooms, janitor closets, etc. and other staff only “utility” type rooms will be finished with FRP up to ceiling.
- All outside gyp board corners not receiving tile to receive a corner guard or end wall guard- stainless steel is typical.

### *Division 11*

#### **See F, F, and E Estimates**

### *Division 12*

#### **Food Service Equipment**

- All animal areas with food prep rooms, all laundry rooms, and all kennel and back of house cat rooms will have stainless steel counters, NSF quality, with integral sinks. Stainless steel cabinetry in cat rooms. See reference plans for similar. Stainless steel shelving above - Metro Shelving.

## 10 Furniture, Fixtures and Equipment Lists and Costs

One of the requirements of the Comparative Study was to validate the equipment costs of each Option. To this end, Animal Arts developed a preliminary line-by-line equipment estimate for the project, utilizing cost data for the equipment needed for each space within the program.

Below is the estimate for Option 1. Note that the items are divided into two categories: GC Contract and PBC F, F, and E. GC Contract items are built-in items, and PBC F, F, and E items are loose items. GC contract items are INCLUDED in the Wharton Smith estimate for each Option. Other items should be included in Palm Beach County separate owner equipment budgets. The red items (animal housing) vary from Option to Option. The other items generally do not.

### F, F, E Preliminary Schedule

#### Option 1

AA Equip. #	Type Comments	Quantity	Unit Cost	GC Contract	PBC F, F, E	Notes
01-103	FIRST-AID KIT	1	\$225.00		\$225.00	
01-104	EMERGENCY DEFIBRILLATOR	1	\$1,300.00		\$1,300.00	
01-109	DOG LEASH CLEAT	40	\$34.00	\$1,360.00		
01-110	METAL CASH DRAWER	1	\$30.00		\$30.00	
01-114	FOOD PREP CART	26	\$315.00		\$8,190.00	
01-117	LAUNDRY CART	36	\$350.00		\$12,600.00	
01-130	WHITE/BULLETIN BOARDS	60	\$75.00		\$4,500.00	
01-142	SAFE - BOLT TO FLOOR	2	\$1,500.00		\$3,000.00	Install by GC
01-202	POOP BAG DISPENSER	8	\$310.00	\$2,480.00		
01-204	BENCH	10	\$1,500.00		\$15,000.00	
01-205	TABLE (OUTDOOR, PICNIC, ETC)	10	\$2,500.00		\$25,000.00	
01-206	PALLET JACK	1	\$1,000.00		\$1,000.00	
02-101	TABLE - END	40	\$300.00		\$12,000.00	
02-108	DESK	15	\$3,000.00		\$45,000.00	
02-109	TABLES - CONFERENCE	30	\$1,500.00		\$45,000.00	
02-115	SYSTEMS FURNITURE	60	\$1,100.00		\$66,000.00	Install by GC
02-122	SIDE CHAIR/STACKABLE CHAIR	375	\$350.00		\$131,250.00	
02-125	STOOLS	20	\$1,500.00		\$30,000.00	
02-165	FILE CABINET - 2 DRAWER	40	\$250.00		\$10,000.00	Loose ones
02-302	DBL BUNKS FOR BUNK ROOMS	2	\$1,500.00		\$3,000.00	
03-101	COMPUTER	300	\$1,500.00		\$450,000.00	
03-201	TELEPHONE	300	\$600.00		\$180,000.00	
03-301	CREDIT CARD MACHINE	4	\$200.00		\$800.00	
03-401	LCD WALL MTD. MONITOR	30	\$800.00		\$24,000.00	Install by GC
03-403	DVD PLAYER	1	\$1,000.00		\$1,000.00	
03-502	LABEL PRINTER	1	\$400.00		\$400.00	
03-503	COPIER/PRINTER ON FLOOR	2	(service)		\$0.00	
03-504	PRINTER ON COUNTER	10	\$750.00		\$7,500.00	
04-101	REFRIGERATOR/FREEZER	20	\$1,200.00		\$24,000.00	
04-103	REFRIGERATOR - UNDER CTR.	3	\$250.00		\$750.00	
04-107	FREEZER - RESIDENTIAL CHEST	2	\$500.00		\$1,000.00	
04-150	FREEZER - WALK-IN	1	\$11,000.00	\$11,000.00		
04-203	STACKABLE W/D RESIDENTIAL	2	\$1,400.00		\$2,800.00	

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04-206	STACKABLE W/D COMMERCIAL	10	\$10,000.00	\$100,000.00		
04-301	MICROWAVE - ON COUNTER	10	\$300.00		\$3,000.00	
04-401	DISHWASHER - UNDER CTR.	4	\$800.00	\$3,200.00		
04-404	DISHWASHER - COMMERCIAL	9	\$15,000.00	\$135,000.00		Hoods reqd.
04-501	TOASTER OVEN	3	\$250.00		\$750.00	
04-502	STOVE/OVEN - ELECTRIC	1	\$1,100.00	\$1,100.00		
04-702	COFFEE MAKER	4	\$250.00		\$1,000.00	
04-801	VENDING MACHINE	4	N/A (service)		\$0.00	
04-810	ICE MACHINE	1	\$3,500.00		\$3,500.00	
05-101A	FLOOR SCALE - WALK-ON	8	\$1,256.00		\$10,048.00	
05-103	COUNTER SCALE	12	\$294.00		\$3,528.00	
05-110	CONTROLLED SUBST. CABINET	4	\$400.00		\$1,600.00	Install by GC
05-121	INFUSION PUMP	12	\$1,000.00		\$12,000.00	
05-123	NEBULIZER	2	\$250.00		\$500.00	
05-130	DENTAL DELIVERY CART	1	\$6,000.00		\$6,000.00	
05-141	MAYO STAND	8	\$145.00		\$1,160.00	
05-143	CRASH CART	6	\$567.00		\$3,402.00	
05-154	MUTI PARAMETER MONITOR	15	\$4,000.00		\$60,000.00	
05-156	PATIENT WARMING THERAPY	15	\$100.00		\$1,500.00	
05-170	FLUID WARMING CABINET	1	\$800.00		\$800.00	
05-165	ENDOTRACHEAL CABINET	3	\$105.00		\$315.00	
05-191	PORTABLE CAGE DRYER	6	\$380.00		\$2,280.00	
05-194	CLIPPER	8	\$250.00		\$2,000.00	
05-195	GROOMING TABLE - ELECTRIC	1	\$953.95		\$953.95	
05-201	SS WALL-MTD. EXAM TABLE	6	\$1,200.00	\$7,200.00		
05-205	MOBILE ANIMAL LIFT TABLE	4	\$2,800.00		\$11,200.00	
05-206	SURGERY TABLE - FLAT	6	\$3,200.00		\$19,200.00	
05-220L	STAINLESS STEEL TX TABLE - 60"	4	\$3,400.00	\$13,600.00		
05-301	SURGERY LIGHT - DOUBLE	6	\$7,500.00	\$45,000.00		
05-302	TREATMENT LIGHT	12	\$2,000.00	\$24,000.00		
05-310	LIGHT MOUNT	18	\$3,000.00	\$54,000.00		
05-402	CENTRIFUGE - LARGE	1	\$1,100.00		\$1,100.00	
05-403	MICROHEMATOCRIT CENTRIFUGE	1	\$400.00		\$400.00	
05-410	MICROSCOPE - SINGLE	4	\$1,000.00		\$4,000.00	
05-421	BLOOD CHEMISTRY MACHINE	1	\$7,500.00		\$7,500.00	
05-515	ANESTHESIA MACHINE CART	14	\$4,800.00		\$67,200.00	
05-610	AUTOClave - COUNTER	1	\$5,000.00		\$5,000.00	
05-611	AUTOClave - FLOOR MODEL	1	\$16,800.00		\$16,800.00	
05-615	ULTRASONIC CLEANER	1	\$150.00		\$150.00	
05-704	SS GROOMING TUB 3 SIDED	5	\$4,452.25	\$22,261.25		
05-708	SS TUB TABLE - 60"	4	\$4,096.40	\$16,385.60		
05-801	ANTI-FATIGUE MAT	40	\$62.00		\$2,480.00	
05-802	HEATING PAD	30	\$150.00		\$4,500.00	
05-806	SHARPS CONTAINER	6	\$40.00		\$240.00	
05-810	OPHTHALMOSCOPE/OTOSCOPE	3	\$1,200.00		\$3,600.00	
05-812	GLUCOMETER	1	\$50.00		\$50.00	
05-815	KICK BUCKET	6	\$75.00		\$450.00	
05-902	MONITOR - PATIENT INFO.	4	\$1,200.00		\$4,800.00	Install by GC
06-109	DENTAL X-RAY - WALL MTD.	1	\$14,000.00		\$14,000.00	Install by GC
06-111	X-RAY MACHINE	1	\$75,000.00		\$75,000.00	Electrical hook up by GC
06-118	LEAD APRON/GLOVE RACK	1	\$300.00	\$300.00		
<b>07-000</b>	<b>SALOON DOORS</b>	<b>160</b>	<b>\$1,100.00</b>	<b>\$176,000.00</b>		
07-010	INCUBATOR	1	\$1,975.00		\$1,975.00	
07-012	PARVO CAGE	6	\$1,000.00	\$6,000.00		
07-013	OXYGEN CAGE - ON WHEELS	1	\$17,000.00	\$17,000.00		
07-120	STAINLESS STEEL CAGING - 48"	75	\$2,596.00	\$194,700.00		
07-121	SS CONDO - VENTED	68	\$5,000.00	\$340,000.00		
07-141	LAMINATE CONDO - VENTED	104	\$4,307.00	\$447,928.00		

*Palm Beach County Animal Care and Control*

COMPARATIVE STUDY REPORT

07-203	RUN GATE - TWO PANELS	690	\$1,600.00	\$1,104,000.00		
07-204	RUN SIDE PANEL (Some partial)	2082	\$700.00	\$1,457,400.00		
07-206	RUN BACK PANEL	165	\$850.00	\$140,250.00		
07-208	RUN TOP PANEL	288	\$932.00	\$268,416.00		
07-210	GUILLOTINE DOOR	325	\$387.00	\$125,775.00		
07-211	FEEDER TRAYS	96	\$150.00	\$14,400.00		
07-214	CAT DOOR	5	\$300.00	\$1,500.00		
07-221	CAT RUN GATE	18	\$912.00	\$16,416.00		
07-223	CAT RUN SIDE PANELS + SHELF	36	\$1,367.00	\$49,212.00		
07-225	CAT RUN TOP PANEL	28	\$210.00	\$5,880.00		
07-231	CAT CLIMBING STRUCTURE	12	\$2,595.00		\$31,140.00	
07-232	CAT PERCH	32	\$150.00	\$4,800.00		
07-241	KURANDA BED - DOG	608	\$108.00		\$65,664.00	
07-242	CRATE	50	\$150.00		\$7,500.00	
07-301	DOG BOWL	600	\$100.00		\$60,000.00	
07-303	DOG POOL	20	\$30.00		\$600.00	
07-401	CAT BOWL	200	\$100.00		\$20,000.00	
07-402	CAT LITTER PAN	300	\$45.00		\$13,500.00	
07-501	DOG SQUEEZE GATE	1	\$800.00	\$800.00		
07-601	STALL DIVIDER	6	\$600.00	\$3,600.00		
07-602	STALL GATE	8	\$1,200.00	\$9,600.00		
07-603	BARN END DBL DOORS	2	\$15,000.00	\$30,000.00		
07-652	AUTOMATIC WATERER (Barn)	8	\$450.00	\$3,600.00		
07-653	FEEDER	8	\$299.00	\$2,392.00		
<b>ALLOWANCES</b>						
	Janitorial				\$2,500.00	
	Cage Cards	1			\$2,400.00	
	Trash/Recycle Bins	1			\$10,000.00	
	Magazine Racks, Sim. Etc.	1			\$1,800.00	
	Cat Climbing for Pavilions	1		\$60,000.00		
	Feliway/Adaptil Dispensers	1			\$2,000.00	
	IV Track and Hangers	1		\$12,000.00		
	Small Mammal/Reptile Caging	1			\$9,000.00	
	Chicken/Fowl Equipment	1			\$1,500.00	
	Owner Provided Signage	1			\$150,000.00	
	Clinic Miscellaneous	1			\$10,000.00	
	PPE	1			\$1,200.00	
	Animal Traps, TNR Traps	1			\$500.00	
	Warehouse Shelving/Dividers	1		\$30,000.00		
				<b>\$4,958,555.85</b>	<b>\$1,848,630.95</b>	Subtotal Direct Costs

**Total Equipment Costs for Each Option**

From the total of each equipment item, other costs must be factored for each Option. Below are the total costs that are included in the Comparative Study. Note that Wharton-Smith has not included potential equipment reuse in their cost models, although we anticipated that costs of equipment will decrease 10-15 percent due to reuse of existing equipment. This will need to be fully reconciled during design of the project, during which time equipment estimates will likely decrease slightly as a result.

**Option 1**

GC Equipment	PBC F, F, and E	Notes
<b>\$5,035,471.85</b>	<b>\$1,848,630.95</b>	
\$352,483.03	\$129,404.17	Sales Tax (7%)
\$50,354.72	\$18,486.30	Shipping (1%)
\$1,176,391.15		Indirect Costs (Insurance, CM bond, Fee, Contingencies)
<b>\$6,614,700.75</b>	<b>\$1,996,521.42</b>	<b>Subtotal</b>
\$597,748.00		Installation
\$129,302.00		Indirect Costs (Insurance, CM bond, Fee, Contingencies)
<b>\$727,050.00</b>		<b>Subtotal</b>
<b>\$7,341,750.75</b>	<b>\$1,996,521.42</b>	<b>Grand Totals</b>
<b>\$6,607,575.67</b>	<b>\$1,697,043.21</b>	<b>Totals Assuming 10% reuse GC equipment, 15% F, F, and E</b>

**Option 2**

GC Equipment	PBC F, F, and E	Notes
<b>\$4,992,110.85</b>	<b>\$1,848,630.95</b>	
\$349,447.76	\$129,404.17	Sales Tax (7%)
\$49,921.11	\$18,486.30	Shipping (1%)
\$1,164,782.15		Indirect Costs (Insurance, CM bond, Fee, Contingencies)
<b>\$6,556,261.87</b>	<b>\$1,996,521.42</b>	<b>Subtotal</b>
\$588,242.00		Installation
\$127,084.00		Indirect Costs (Insurance, CM bond, Fee, Contingencies)
<b>\$715,326.00</b>		<b>Subtotal</b>
<b>\$7,271,587.87</b>	<b>\$1,996,521.42</b>	<b>Grand Totals</b>
<b>\$7,126,156.11</b>	<b>\$1,697,043.21</b>	<b>Totals Assuming 2% reuse GC equipment, 15% F, F, and E</b>



**Option 3**

GC Equipment	PBC F, F, and E	Notes
<b>\$4,536,612.85</b>	<b>\$1,848,630.95</b>	
\$317,562.90	\$129,404.17	Sales Tax (7%)
\$45,366.13	\$18,486.30	Shipping (1%)
\$1,152,859.15		Indirect Costs (Insurance, CM bond, Fee, Contingencies)
<b>\$6,052,401.03</b>	<b>\$1,996,521.42</b>	<b>Subtotal</b>
\$537,038.00		Installation
\$113,357.00		Indirect Costs (Insurance, CM bond, Fee, Contingencies)
<b>\$650,395.00</b>		<b>Subtotal</b>
<b>\$6,702,796.03</b>	<b>\$1,996,521.42</b>	<b>Grand Totals</b>
<b>\$6,032,516.43</b>	<b>\$1,697,043.21</b>	<b>Totals Assuming 10% reuse GC equipment, 15% F, F, and E</b>

**Option 4**

GC Equipment	PBC F, F, and E	Notes
<b>\$4,414,512.85</b>	<b>\$1,848,630.95</b>	
\$309,015.90	\$129,404.17	Sales Tax (7%)
\$44,145.13	\$18,486.30	Shipping (1%)
\$1,103,628.21		Indirect Costs (Insurance, CM bond, Fee, Contingencies)
<b>\$5,871,302.09</b>	<b>\$1,996,521.42</b>	<b>Subtotal</b>
\$528,417.19		Installation
\$117,426.04		Indirect Costs (Insurance, CM bond, Fee, Contingencies)
<b>\$645,843.23</b>		<b>Subtotal</b>
<b>\$6,517,145.32</b>	<b>\$1,996,521.42</b>	<b>Grand Totals</b>
<b>\$5,865,430.79</b>	<b>\$1,697,043.21</b>	<b>Totals Assuming 10% reuse GC equipment, 15% F, F, and E</b>

## **11 Detailed Facility Assessment Notes: July 25, 2019**

Heather Lewis and Jesse Keith from Animal Arts performed a space-by-space tour of the facility, including the site for six hours with Dianne Sauve. Key staff joined in the tour and offered input in each area of the facility. Rich Avery joined for part of the tour and representatives from Keshavarz Civil Engineering were also on site. The tour included detailed information on operations, functionality, and the existing building and infrastructure. The weather was 95 degrees and sunny. Heavy rainfall had occurred in the past 24-hour period.

### *Below are space-by-space notes taken on the tour:*

- Night Drop
  - The facility has an existing night drop in the parking lot. This is no longer open to the public unless they call ahead. It is used by local law enforcement for after hours.
  - This was a recent operational change and the shelter has found it working well. They have not had significant issues with animals being abandoned after hours.
- Public Lobby
  - The staff are in an isolated island that allows no escape in case of an emergency or confrontation.
  - This space serves as the only public entrance and service point, as a result it has a mixture of people who may be happy, sad, mad.
  - The area is not designed to allow for the movement of animals both for adoptions leaving or public intakes coming in. This is also a safety concern as unknown animals coming in can pose a risk to the other people and animals in the lobby.
  - The desk for lost and found pets in this space was not designed to be here, just made of desks, and cuts into the already limited lobby space.
  - Front lobby doesn't have proper storage, so items are stored in the mail room.
- Admin Area
  - There is a single conference room used by all staff. It serves for staff meetings, training, and meetings both small and large. This room is too small for many events and too large for other more personal meetings. The room does have a sink, counter, and cabinets which are used.
  - There is an existing high-density rolling storage system in place. This is used by multiple different departments but is less and less full as the organization moves toward being paperless. This is not needed in a new space.
  - As with most of the facility, the area lacks in storage or has improperly designed storage. Community outreach needs more storage.

- Office sizes are dictated by Palm Beach County space standards for each job title. Not all the standards align well with the actual position at the shelter, however. The existing offices are generally not sized appropriately.
- The open office space has five cubicle/workstations, coffee machine, horizontal file cabinets, printers, and copiers.
- The captains' offices are in this area; this is not close to field officers, and therefore the setup is inefficient for communication.
- Veterinary Office
  - Six veterinary workstations are in the old data office space.
  - This room has no windows, daylight, or connection to other spaces.
  - The workstations are about five feet in length.
  - This space is not located near the clinic or the Clinic Manager office. Ideally, they would all be more adjacent.
- Data Room
  - This space is outdated and not designed for the current equipment.
  - Old equipment has been abandoned in place.
  - The room does have a raised floor for cabling and power access.
- Lockers and Bathrooms
  - Staff bathrooms and lockers are insufficient for the number of employees.
  - There are three sets of bathrooms and one handicapped accessible bathroom in the public lobby.
  - The bathrooms near intake are used by field officers to hose down equipment and boots but do not have proper space for drying and this means the shower can't be used by other staff. An equipment hose down area separate from the staff shower would help solve this problem.
  - There is an existing combination of half-height and full-height lockers. Field staff really need at least a full-height locker each to store equipment. Half-height lockers for other staff would be adequate.
  - The facility has no room for personal care (new mother room). This is needed for multiple staff members.
- Sleeping Room
  - The facility has no sleeping room, although two are needed. They don't need to be large.
- Storage Rooms
  - The facility has several storage rooms, as well as rooms that have been repurposed to serve for storage. In addition, there are things stored all over the facility wherever possible. These spaces are still overfilled and insufficient.

- The facility has had loss problems and keeps over \$2 million in inventory. As a result, they would like to move to a centralized storage area that can have a full-time staff, be secured, and easily accessible.
- The field officers have separate storage needs such as a gun safe, laptop computers, hazmat equipment, and other field equipment.
- Additionally, smaller storage spaces are still needed closer to areas where things are used in order to keep spaces clean and well organized.
- The mail room is used for storage of customer service paperwork.
- The cat storage room violates fire code by not having open shelving.
- Ready Room/Break Room
  - The ready room has been converted into a staff break room. This means there is no ready room for the field officers. Field officers still must come here to pick up mail and the locked evidence room is off this space which is not ideal.
  - This space is small for the number of staff, the furniture is hard to keep straight and organized resulting in the room feeling even more full.
  - The kitchen is very small and hard to access for multiple staff at a time due to the L-shape layout.
  - A second refrigerator is needed.
- Dispatch/Phones/Office Area
  - Currently five phone stations, three field officer stations, two laptop storage safes, private offices, and two dispatch stations.
  - This space has been adapted to fit many needs and people. As a result, it does not have good acoustics, storage, or organization.
  - The number of people and lack of auditory privacy makes this a very stressful workspace.
  - Phone staff work very long hours and would like a better place to store personal things and better adjustable desks.
  - Each dispatch station needs two monitors and two screens for CCTV.
- Clinic/Treatment Area
  - This space is designed in such a way that all staff, field officers, and volunteers pass through it in order to access any other part of the building. A clinic should not be on a main path of travel. This is disturbing to operations, animals, and staff, and highly increases the risk for contamination and unintended mixing of species.
  - There are four charting stations in this area all of which do not have adequate clearances leaving the staff in circulation paths. One of the stations is also very close to a wet table with nothing to keep the computer from getting wet or contaminated.
  - The area needs more storage. Currently staff end up using caging which then leaves them short on cages.

- There are two tub tables for treatment.
  - There is currently only a cage bank and no runs in the treatment area. Runs are desired.
  - This space performs treatment and triage, so it is very busy.
- Surgery/Induction/Pack Prep
  - There is one induction wet table and two surgery tables.
  - The induction table is positioned so that all staff must move around the table to get to pack prep and other prep areas. There is not enough circulation space.
  - Pack Prep is very small and doesn't have enough counter area for wrapping packs.
  - All instruments must be brought back and forth to the lab area for cleaning and this is not a good sterile flow.
  - The existing scrub sink is located on the opposite side of induction from surgery. It is no longer working. All scrubbing is done with chemical/alcohol scrubs.
  - The beach is in the surgery doorway, so staff must step over animals to enter and exit surgery.
  - A gurney station would be nice for induction of larger animals.
  - Ideally, surgery would have four tables.
  - The surgery suite has all open storage. It is recommended that any storage in surgery be in closed cabinets.
  - The facility doesn't do large, complicated surgeries currently.
- X-Ray
  - The X-ray room is very small and cramped. This doesn't allow for the proper circulation and clearances around the table.
  - This is an old-style X-ray room with a development space that is no longer needed.
- Isolation Rooms
  - Both dog and cat isolation rooms are insufficient. There is currently a single isolation space for dogs and another for cats. These spaces don't have vestibules, proper areas for donning personal protective equipment, sterilization and cleaning areas.
  - The rooms currently do not allow for different types of isolation by disease. Ideally, there would be multiple isolation rooms for different species and types of outbreak.
  - The rooms currently do not have proper HVAC design for isolation. This is a critical requirement for isolation.
  - The layout of the rooms currently does not allow staff to monitor the patients without entering the room. The critical patients in isolation need constant monitoring so this is a drain on staff and increases the chances of contamination.
- Neonatal Cat Intake
  - Both stray and surrender cats who enter the facility are housed here.
  - The room does not appear to have proper ventilation and was cold but stuffy on the day of the tour.

- Two cage banks both on wheels and three-feet high. This makes for a lot of cats in a single room.
- Kitten intake exams are performed in the room.
- There is no hand sink.
- Room needs space for food prep separate from exams.
- Space often has outbreaks when it gets full.
- The room needs a small fridge.
- There is no built-in storage in the room.
- Kittens typically go to foster from this space.
- Overflow cats and kittens end up in caging in hallways.
- Dog Intake
  - Dogs come from the lobby or field to this room. Dogs are then examined and processed before moving to kennels. The goal is for this to be within 24 hours.
  - The space has no runs, only caging.
  - Space is too small for processing. Staff can end up cornered by dogs.
  - A lift table would be ideal for larger dogs.
  - Often end up doing at least some dog grooming in this space.
  - The room gets extremely noisy and is very stressful to work in.
- T.N.V.R. Room
  - Cats are kept in traps on baker's racks, or if they come in loose are put in caging with trap boxes.
  - The door is too small to easily wheel traps through.
  - The room needs to be larger with greater capacity.
  - Cats often must be transferred from one trap to another. If the cat escapes this room is very hard to catch a cat in.
- Bird/Reptile/Pocket Pet Spaces
  - The facility currently doesn't have any dedicated spaces for the intake, treatment, or adoption of birds, reptiles, or pocket pets. This means these animals are housed in improper caging and often not separated by species.
  - These animals all have different housing needs. Like all animals improper housing highly increases stress which results in increased medical and behavior problems.
- Sally Port
  - The existing sally port also serves as overflow storage meaning that two of the four bays can't be used by field officers.
  - Truck wash is separate from the sally port so field officers must move trucks multiple times after returning with animals.
  - The sally port is not located near the animal control officers' desks or lockers.

- The sally port is located near dog intake, but not near the kennels used for dangerous dogs, court holds, or quarantine. This means dogs must be moved through the facility after being unloaded.
- Dog Grooming Room
  - Old-style, very large tub that is difficult to use.
  - This room doesn't have any dryers, caging, or runs.
- Classroom
  - The classroom is currently being used as a low-cost spay and neuter clinic. It has three procedure tables, caging, and supplies.
  - This was set up after the mobile spay and neuter van had to be retired due to age.
  - The space is very oversized and not an efficient design as a clinic.
  - The space would work better as a classroom only, which was its original intention.
- Cat Adoption
  - Cat adoption is made up of several rooms with cage banks and a few rooms that have been converted into group cat rooms. There is a room that flexes between being open to the public, cat holding, and serves as cat intake. Ideally, a small cat intake would be separate. The one additional room is cat quarantine which is used for bite or court cats. This space is locked and never open to the public.
  - A staff adoption desk has been set up in a hallway. It doesn't have much space and may violate fire code.
  - There is limited daylight in the cat area and no outside views for the cats. This also means the public cannot see the cats without coming in.
  - The entrance door to cat adoption is not inviting and is only made clear that it is for the public with a small paper sign.
  - Caging in this area is all stainless steel which is cold and doesn't give the home-like feeling that is preferred for adoption settings.
  - The cages have had portals added to allow for cats to move between cages when capacity allows. However, cages are still single compartments with no permanent space for a cat to hide and they offer limited separation between food and litter boxes. The cages are not ventilated.
  - The cat group rooms have windows to the hall with high sills which doesn't allow for children or even shorter adults to see the cats. The rooms are also not designed for this use so are not an ideal size. The doors into the room also don't allow for good visuals of where the cats are before opening the door.
  - There are two doors between all cats and the outside. However, a vestibule configuration or an additional door would be recommended.
  - Overall, the space doesn't have a very retail-type setting.

- Meet and greet with the cats is currently done cage side because there is no meet and greet room. This makes it hard for a family to meet a cat and really get to know them.
- There is no connection to the outside. In this climate cat patios (catios) or outdoor cat runs would be great.
- Featured Adoption
  - This is a room located off the lobby with windows that are visible as you enter the building.
  - This space has been used for many different things over the years but is currently used to feature kittens.
  - The raised cat housing is great for visibility but is very hard to clean.
- Dog Adoption
  - There are three identical dog kennels. Each has 48 double-sided, inside-to-inside runs, one food prep room, one janitor closet and storage area. Two of these are used as holding and public adoption. One is used for quarantine and dangerous dogs.
  - The runs are divided into two long rows. This results in dogs facing each other across the central isle. In order to lower stimulation, the public is directed around the outside of the runs.
  - The runs have bars on the fronts, solid panels between each run, and bars for lids. There is a single trench drain with a raised cover that runs between the runs.
  - These spaces were designed to be naturally ventilated with operable windows down low and large exhaust fans up high. They now have seasonal air conditioning added with the use of large temporary units. There are also oscillating fans around the perimeter of the space.
  - The existing acoustic treatments are largely ineffective and have become very dirty.
  - Two dogs are often housed in a single run due to overcrowding.
  - The room was warm, but not hot when we visited but this is because of the addition of temporary seasonal air conditioning. The rooms would be hot without the temporary seasonal air conditioning.
  - The dogs appeared well exercised and showed relaxed and natural behavior.
  - The food prep space is minimal but said to be adequate. Food is prepared into bowls that are delivered via carts to the dogs.
  - Permanent air conditioning, as well as indoor outdoor runs are desired.
- Play Yards
  - There are play yards that are accessed directly from each dog kennel area. These yards have artificial K9 grass that is in good repair, drains well, and is not smelly.
  - The yards are broken up into different sizes to allow for control of different play groups, slow integration of new dogs, and time out spaces.



- Each yard has shade provided by either Chickee huts or shade umbrellas. The Chickee huts help keep temperatures lower.
- The yards are all fenced with chain-link fence that appears to be in good condition.
- A few yards don't have hose bibs, so hoses must be dragged between yards. However, generally the yards are easy to clean, hoses are available to fill baby pools, and the hoses function well.
- Meet and Greets
  - There are three areas originally designed for families to meet and greet with dogs.
  - These are now covered with Chickee huts to help keep them cool.
- Livestock Area
  - The south side of the property houses an area for livestock. This includes a barn with multiple stalls, chicken coop, paddocks with covered areas, and a pig pen.
  - PBCACC receives a wide variety of livestock. Often these are hording cases that bring in many animals all at once.
  - There is a damaged but still usable Quonset hut that is used for the storage of livestock trailers. A second Quonset hut is desired to store supplies that currently must sit outside in the weather.
  - The barn is in good working condition. In addition to stalls it also has a tack and feed room. The barn has no cooling but does have ceiling and wall fans to provide air movement and insect control.

## 12 Notes from Public Meetings One and Two

### *Notes from Public Meeting One, 9-24-2019*

#### **Meeting Notes provided by Bruce Lewis of LB Limited & Associates**

The meeting started on time and was well attended. The PGAL Design team was seated at a front table. A comprehensive PowerPoint presentation was given by Gloria Stern, Chief Communicator and Stephanie Sejnoha, Director of Public Safety.

Towards the end of the PowerPoint presentation, The PGAL Team was introduced. This was a meeting entirely conducted by County Staff.

Following the presentation, Q & A was held. The following are the questions asked and answers given:

#### *Where will animals be kept during construction?*

The determination of where animals will be kept during construction is not fully understood depending on several factors but, all considerations will be a part of our "Continuity Plan."

*Is there currently AC for the animals and if so, what are the typical temperatures?*

Yes, the animals currently have AC and temperatures are at 84 degrees or below.

*What will be the staff recommendation to the Board of County Commissioners, and will there be an opportunity for public input prior?*

The staff's recommendation will be based on the results of the Comparative Study and the design options that results from public input from future outreach meetings.

*Where will sick dogs be housed?*

Currently there is no isolation for sick dogs however, ACC has adjusted to treat these animals.

*Where will livestock be housed (horses, pigs, etc.)?*

Currently, this yet to be determined. A determination will be made that is most feasible.

*How did ACC reduce intake over the years?*

Sterilization, targeted areas with intake intervention solutions, temporary housing and other remedies.

*Why and how did PGAL get selected?*

Explained the RFQ process and the PGAL team of experts with much needed specializations in animal care facilities design and programming.

*Will there be an opportunity for additional public input?*

Yes, we are planning future meetings to get your feedback. In addition, you will have an opportunity to provide your comments at the BCC Meeting currently scheduled for December.

*Will targeting high intake communities continue?*

This will be determined – we will evaluate.

*Will the Pahokee Facility be replaced?*

We have yet to determine replacing this facility.

*Will the low-cost spaying/neutering and sterilization continue?*

We are hoping that through increased partnerships this service will continue. An assessment will be made to help us determine continuation of these services.

*In the case of lost pets, how is ACC working to eliminate?*

Microchips are the state of the cutting-edge technology and are preferred. We will work to increase this service.

**Comment Cards:**

*When will AC be provided for animals?*

Currently, we are providing AC and have been for some time now. This is a subject that was blown out of proportion through social media and we need your help in educating the community with accurate information.

*The Heal Hearts Program – does it include rescues? Why not?*

Rescues are not included, is not covered completely and is done case by case.

*How do you handle abandoned cats?*

Citizens report and in most cases bring kittens to shelters and ACC. It was suggested to leave the kittens alone until they are weaned. Greater public education is needed to assist with this solution.

Two other comment cards expressed support of ACC programs and efforts and were excited that this much needed project is moving forward.

Following the Q & A Session, the attendees were encouraged to visit the three Breakout ACC

Informational Stations:

- Shelter Operations
- Clinic Operations
- Field Operations

***Notes from Public Meeting Two, 10-28-2019***

***Attendees***

- Dianne Sauve, PBC
- Daisy Blakeman, PBC
- Elizabeth Hartman, PBC
- Fernando DelDago, PBC
- Rich Avery, PBC
- Audrey Wolf, PBC
- Wesley White, PBC
- Yleana Arias, PBC
- Stephanie Sejnoha, PBC
- Gerry Kelly, Construction Manager Team
- Steve Messam, Construction Manager Team

- Ronnie Kirchman, Construction Manager Team
- Heather Lewis, Design Team

### **Public question/answer session**

- *Is there going to be an increase of sick rooms for cats to isolate upper respiratory illnesses?*
  - Heather – yes, there are. But destress environments help too.
    - These rooms shouldn't exceed 10% +/- of the facility
    - Sometimes separating different sicknesses
- *Facility for other animals in T.N.V.R. program but have infectious diseases?*
  - Heather – Yes, we are looking at this
    - Also, important to destress
- *What will become of the community room? How will it be utilized? Right now, there are a lot of functions in this room (public spay/neuter is housed here – not appropriate) There needs to be more outreach and training?*
  - Dianne – the Spay shuttle has stopped so spay/neuter had to be put in the education room. We want the community room to be used for foster training, education, outreach and staff training (make it an education room)
- *All programs – more community services. Most of the western county is underserved*
  - Dianne – we are aware of the issues on the western side. Most western areas are underserved as a community. There are few assigned officers and we did have to cut services out there, but we are thinking about you. This area is not part of this program specifically through an increase of efficiency at the center will help the western county.
- *If you keep the existing building, what does this mean for hurricanes? Do you need to leave for storms?*
  - Heather – the facility will need to upgrade to follow codes, so the building would be safer for hurricanes
- *Are you seriously considering the keep/renovate & addition option?*
  - Heather – Yes, we need to evaluate all resources
- *How long will it take to come up with a feasibility study?*
  - Heather – we should have cost info towards the end of November, vetted, then board meeting early next year
- *Are you planning on making recommendations?*
  - Heather – We plan on presenting facts, pros and cons, but the Board of Commissioners will provide the approval, based on input and feedback from the community
    - Staffing and planning to be decided by the county
    - We are providing three options that weigh the benefits versus the costs

- *Having worked in vet offices and other animal shelters – it sounds like animal intake staffing was inefficient which led to other problems*
  - Animal health and movement upon intake is very important, flow of processes is important, and we will consider how to do this more effectively with improved facilities
- *Is there any money set aside for temporary fixes or facilities until the project is done?*
  - Dianne - No – but as things need to be repaired, we'll address these. The county has back-up plans for hurricanes and other emergencies
- *Will the existing facility function during the renovations?*
  - Heather – Yes, continuity of operation is part of the study
- *After the design is finalized, how long will it take to complete the project?*
  - Heather/Dianne - This will be more complex due to phasing – the project could take years to implement
- *So TVNR is limited on surgeries?*
  - Dianne - Yes – we are short on veterinarians right now
- *Will the Project be in the same location?*
  - Yes
- *If you go with an all new facility, where will the animals go?*
  - Heather - We must phase and provide continuity of operations. Hospitals must do this a lot when they renovate their buildings, and this is similar.
- *Renovate versus renovate/expand, what would be lost?*
  - Heather - Renovate: using as much of existing facility as possible, but still likely to include some expansion. Renovate/expand allows a little more choice regarding configuration of space. Current building is from 1990. The new project will focus on the future, how the facility might expand in the future with services
- *Will the public get to see the options before the Board of Commissioner Meeting?*
  - Audrey – yes, weeks before the board meeting (on web)
- *PBCACC has a board of directors?*
  - Dave – no, we answer to the Board of Commissioners because we are a county entity

## 13 Notes from Charettes One and Two

During the Comparative Study, the design team hosted two charrettes with experts in the field of animal care and control. Enclosed are the notes from these meetings. The input from these meetings guided the design options included in this study.

### *Charrette 1, September 24, 2019*

#### **Attendees:**

- Rich Anderson – Executive Director & CEO at Peggy Adams Animal Rescue League
- Joan Carlson-Radabaugh – Administrative Director at Florida Association of Animal Welfare Organizations
- Rick DuCharme – President at RLD Consulting
- Dr. Julie Levy – Professor of Shelter Medicine, Shelter Medicine Program at University of Florida
- Nick Lippincott – Director of the National Animal Care & Control Association, Special Programs Administrator at Orange County Animal Control Services
- Kate Meghji – Executive Director at Humane Society of Vero Beach and Indian River County
- Shayne Gardner, CVT – Hospital Manager at Coral Springs Animal Hospital
- Alex Munoz – Director of Pet Adoption and Protection Center in Miami Dade, Florida
- Mike Leiva – Program Manager at Pet Adoption and Protection Center in Miami Dade, Florida
- Suzi Goldsmith – Founder & CEO of the Tri County Animal Shelter
- Frank Valente – Executive Director & CEO at the Humane Society of the Treasure Coast
- Rich Avery – Project Manager at Palm Beach County Capital Improvements
- Dianne Sauve – Director at Palm Beach County Animal Care & Control
- Capt. David Walesky – Palm Beach County Animal Care & Control Field Operations
- Capt. Daisy Blakeman – Palm Beach County Animal Care & Control Shelter Operations Manager
- Cathy Brandow – Palm Beach County Animal Care & Control Clinic Operations Manager
- Dr. Virginia Sayre – Palm Beach County Animal Care & Control Veterinarian
- Lieutenant Wesley White – Palm Beach County Animal Care & Control Field Supervisor
- Gloria Stern – Palm Beach County Animal Care & Control Chief Communicator
- Oscar Lara-Torres – Palm Beach County Animal Care & Control Kennel Coordinator
- Kelly Diegert – Palm Beach County Animal Care & Control Customer Service Manager
- Yleana Arias – Palm Beach County Animal Care & Control Senior Secretary
- Stephanie Sejnoha – Palm Beach County Director Public Safety Department
- Elizabeth Harfmann – Palm Beach County Community Projects Manager
- Shari Kalina – Palm Beach County Animal Care & Control Volunteer Coordinator
- Stephanie Morre – Palm Beach County Animal Care & Control Enrichment

- Rob Frederick – Palm Beach County Animal Care & Control Maintenance
- Heather Lewis – Principal at Animal Arts
- Jessie Keith – Associate at Animal Arts
- John Lunsford – Sr. Preconstruction Services Manager at Wharton-Smith, Inc. Construction Group
- Gerry Kelly – Director of Operations at Wharton-Smith, Inc. Construction Group
- Steve Messam – Project Executive at Messam Construction
- Ronnie Kirchman – President at Kirchman Construction Company
- Ian Nester – Principal at PGAL
- Bruce Lewis – Owner, LB limited & Associates, Inc.

## **Staff Discussion**

### *Methods for Efficiency in the Shelter*

- Data and Information
- Understanding the big picture
- Flow through the building
  - Pay attention to decision points
- Storage in the right place
- Workstations
- Don't move supplies – storage in each area
- Materials manager – keep things organized
- IT/Software Ready – touch something once and be able to schedule at intake
- Reduce distance to support
- Cleaning area in each pod
  - Easy disposal of poop
  - Ability to spot clean
- Training for jobs (cross-training)
  - Need a space to train employees
- Investment in people
  - Shadowing/SOP binder
- Bottom-up approach on operations
- Daily reports
- Remove barriers to adoption
- Use volunteers effectively

### *Behavior issues with dogs*

---

- Mitigating behavior versus clinic staff
- More open facility
- More training
- Cross training
- Building the quals, of people
  - Support

### **Field/Animal Control Breakout Session**

#### *Concerns about growth of human population*

- Large animals will continue to need diverse geography
- PBC is very large – leads to more challenges
  - Drive times
  - Response times
- Miami-Dade has peeled off some services to other staff
  - Animal Control Officers can stay on the road more
- Look at when calls are coming in and adjust shifts to match
- Dog bite incidents appear to be stable or decreasing, and this is good
  - Surge in bites after disasters
- Seasonal changes based on school/snowbirds
- Need special hold areas that are convenient, with safety and security

#### *How can field engage community and be productive?*

- Field services drop, citations go up
  - Working proactively in the field
- Community cat program liaison
  - Are there concerns with complying (compliance officers) with ordinances?
    - No but there can be disagreements with cat issues in the community
- Spay shuttle doesn't exist anymore but this was a good program for S/N of community cats
- Hot spots for incidents/calls
  - All demographics (@MDC, PBC, elsewhere...)
- Pet-friendly shelter \*need more of\*
  - Most ACOs would love to do proactive work but call volume is a challenge
  - RTF programs are currently in place
  - T.N.V.R. days for public
    - Limited by veterinarian shortage
  - Communication door hangers



- Countdown 2 Zero
  - Engages community
  - 10-year goal
  - Engage businesspeople, other non-animal people, and fire/rescue
  - Kitten fosters
    - Using fosters as coaches for new fosters
  - Asking people to help with community cats
- Opportunities for partnering with fire/rescue
- Miami-Dade County has communication with city law enforcement (training, cruelty resources, etc....)
- Local law/fire rescue serve as advocates
- Field officers need
  - Space
  - Sally port
  - Safety

*Safety for officers*

- Phone app provides updates on potential safety threats
- Spaces needed for training space and briefing space
- Sharing info across departments
- Call center not just for ACO/Field communications but for other issues (community calls)
- Sally port
- Separate ACO entrance and holding
- Receiving area for ACOs
- Designating ACO parking and entry point (separate with check-in)
- Contained area for field
- Wash traps area
- Build for the ideal flow – sometimes that must be evaluated with staffing
  - Separate adoption/intake/vet lobbies
  - Flex use of this space depending on traffic
- Staff areas need to be efficient and shared even if species functions are separated
- Be able to walk through building to get back to intake
- Sizing lobbies is important
- Keeping people happy
  - Ownership
  - Engaging people immediately
  - Lockers

- Assistance with life issues
  - Child-care and other benefits

### **Shelter Breakout**

Dogs need:

- Quiet
  - Mitigate noise
  - Material selections
- Real life opportunities (shelter appropriate)
- Sanitation
- Low stimulation
- Odor control
- Reduce fear
- Need to consider function especially at intake (very stressful)
- Can consider different housing depending on the place in journey
  - Short-term versus long-term housing – different situations?
    - Smaller space for short term?
- Separate housing for intake from field and public intake
  - Don't see other dogs?
- Music
- M and G in every pod of space
- Lots of square-headed dogs stay longer
- Opportunities to highlight a dog's personality
- Smaller groups of dogs in one room – use flexibly
- Separation of size and behavior issues
  - Works for play groups
  - Small dogs go back
- Choice
- Standardize dog cage type (for small dogs)
  - Miami-Dade has raised runs for small dogs
- Make rooms flexible
- Combination of housing unit materials
  - Glass, bars, privacy – can customize
- Jumpers
  - Re-evaluate environment for long length of stay
    - Benefit people too
- Indoor/outdoor can be health inducing

- Certainly true with both cats and dogs (low stress)

People

- Access
  - Lighting
  - Dogs not seeing each other
  - Social opportunities
  - Feature adoption spaces
  - Enrichments for dogs are good for people to see
  - Visually appealing
  - Encouraging adoption
    - Reducing barrier
    - Preventing move to rescue
  - Adequate outside space at least as important as interacting with adopter
  - Play groups/yards
  - Comfortable functional space first
  - Aesthetics second
  - What are we to the community?
    - Branding
  - Quality of life can be maximized in different ways
  - Quality of life for staff
  - Feels safe – has ways to be safe
  - Transparency
    - Glass/windows on doors
  - Natural light
  - Bringing people together
  - Collaboration – encouraged
  - Open work environments
    - Less compartmentalized but can lead to other challenges (privacy)
  - Cats need:
    - Places to hide
    - Familiar smells
    - No dogs
    - Quite
    - Soft things
    - Elevated areas
    - Mitigate stress
  - Large housing – runs (more space to exercise and explore)
-

- Engaging housing
- Group rooms used similarly
  - If stay is longer
  - Feature cats
  - All in, all out
- Don't mix kittens
- Choices
- No unnecessary moving
- Fear Free/cat friendly
- DBL compliant
- Interactive housing
- Enrichment
  - Scratching, etc...
- Operations
  - Eliminate holding (already done)
  - Ready for adoption immediately
  - Spot cleaning
  - Reducing moving
- Better environment (doubled adoptions at Miami-Dade)
- For people
  - Cats up front
  - Encouraging interactions
  - Play
- Intake diversion
- Safety net
  - Options for people who are having difficulties
    - Medical/financial – sometimes do more than we should when it is the right thing to do
    - Without taking from private
  - This can help costs/time in shelter
- Helping people on public assistance
- T.N.V.R. – making great flow in the shelter
  - Moving racks, doors, etc....
- Outside catios for semi-social cats
- Outside catios for T.N.V.R. cats

## **Veterinary Breakout**

### *Challenges*

- No place for public spay/neuter or real isolation space
- Difficult to separate species
- Not efficient
- Need space for harder cases
- T.N.V.R. areas need efficiency
- Separate shelter staff for efficiency
- Hoarding cases – always sick – segregated due to illness
  - Consider large intake times
- Need better environmental conditions
  - Germs live on all surfaces
  - Air treatment?
- Cats
  - Stress/Fomites
- Dogs
  - Airborne
  - Surfaces

### Finding good staff (vet and tech)

- Math doesn't work – not enough output
- Quality of work, work/life balance
  - Benefits
- Passionate people are who are needed – but work is too hard
- Loan payouts
- Shelter vets leave
  - Pressure
  - Social media
  - Friction with leadership team
    - Vets often need to have a say in OPS
- Need better recruitment tools
- Facilities are important to people
- Renovations will help
- Quality of environment – could be more important
- Better salaries

### *What spaces can be shared between shelter and public?*

- Infrastructure
- Break

- People spaces
- Pharmacy
- Air exchanges help
- Fear is illness spreading between
- Vero Beach –
  - Can share all spaces if
    - Separate in time
    - Cleaned between
  - Facility has illness on shelter side
- Miami-Dade
  - Separation of diagnostics
  - Separation of space but co-located
  - Very low illness in shelter
  - Would continue to separate due to public reception

#### De-stressing

- Fear Free training
  - Supported by staff
  - Big benefits
- Spaces where animals brought in very important
  - Higher quality from intake through the shelter
- Repeat de-stress on cat side/dog side from shelter topics
- Give cats as much separation as possible except critical animals
- Use animal perspective – GoPro on a dog
- Risk management policy guides handling
  - Improved with Fear Free training

#### Shelter Vet Spaces

- Separation of species
  - Flexible space – convertible
  - T.N.V.R. space
  - Flexible housing
  - Quiet spaces – latches on cages
  - Some separation of PBC
    - Public animals
    - Private animals
  - Think about future openness
  - Definition of medical quarantine
    - Exposed but not sick
    - Separate from ISO
-

- Flexibility in other design
- Expand animal care
  - Parvo ward
  - Dentistry
- Fear Free is transformative
  - Enrichment
  - Vet staff
    - Work together

### **Expert Take-Aways**

#### **Frank Valente**

Diversity in cat housing in shelter environments

- Most shelters still take in more cats than dogs, and even with the emergence of T.N.V.R. there are some unique challenges to housing cats in shelter environments. The use of portals, free roaming cat rooms, catios, and even kennels for cats.

#### **Joan Carlson-Radabaugh**

- Creating a facility that is a primary trusted resource (the go to place) for the community on animal issues and services, enhanced by synergy between visitors and staff.
- Include the evolved technologies designed to meet the behavioral and physical needs of animals in care.

#### **Rich Ducharme**

- Safety Net Programs that work to keep pets in homes and out of shelters.
  - Including a wide variety of programs that turn shelters into resource centers for the community:
    - Low-cost veterinary care
    - Spay/neuter programs
    - Pet food banks
    - Pet training
    - Behaviorists
    - Veterinary social workers

#### **Nick Lippincott**

- Software/products/ideas that can be malleable and evolve as agencies and goals evolve.
  - Data collection tools that not only work great to poll citizens but can be utilized for training and testing.
- Design runs and pods that can be modified to extended cat housing and interaction areas.
- Kennels that are fully interior to maintain sanitation and facility costs but could open to semi-covered interaction areas.

- Allows the ability to provide outside enrichment to the animals that may be isolated or quarantined without exposing the larger population.
- Potentially easier to manage with limited staffing.
- Beginning to fully utilize the tools and technology that is available to those in the private sector and aim to hold the county to the same standards. Technology and data can work just as hard and save just as much time as a team of volunteers if employed correctly.
  - Streamlined online training courses both for the public and staff help maintain agency vision and goals while saving hours that otherwise would be used in repetitive orientations and death by power point classes.
    - Technology like this seems obvious to so many in the private sector but has yet to surprise someone in the government industry by how easily and inexpensive these systems are to utilize and be incorporated into daily tasks.

**Dr. Julie Levy**

- Emphasize high-quality housing throughout the shelter, especially for cats, who usually get confined to small spaces.
- Utilize flexible space as much as possible.
  - Housing rooms that can be repurposed based on current needs.
  - Movable furnishings, etc.
  - Creating two clinic spaces/surgical areas (public and shelter) to maintain separate functions and biosecurity without contributing to fragmenting utilities and workflow.
    - Two mirror-image surgical facilities side by side with sliding glass partitions between. This would allow the space to be opened into one large surgical facility as needed seasonally or for special mass spay/neuter events.

**Shayne Gardner**

- Fear Free
  - Not only will it be tremendously beneficial for the animals, it will also change the generally negative public perception of “Animal Control Shelters.”

**Animal Arts**

- The future of sheltering is constantly changing so it is necessary to create a building that can adapt and be flexible.
- Instead of relying on signage to direct people entering a facility if lobbies and functions are connected a person can flow to the correct space from any entry. This is an opportunity to feature programs and happy animals to visitors. This may create an opportunity for adoption that didn't exist, spread knowledge to the users about services, and temper emotions often being felt by different user groups.



- There is a trend away from group housing cats who can move through the shelter quickly. It can add a lot of stress for a cat to be introduced to a colony. This group housing is still appropriate for cats who have a longer length of stay, such as senior cats or FIV+.
- Co-housing of dogs can decrease stress if they have appropriately sized housing and separation for two dogs.
- There should be a focus on the flow and type of intake spaces. This is a very stressful time and can change an animal's entire shelter experience and outcome.
  - Lower stress so animals can show best behavior.
  - Less time spent in intake.
  - All the same ideas used in the best housing should be at intake holding.
- Length of stay is not equal for all animals. A diversity of housing is needed for different lengths of stay in addition to breed/size and behavior.
- A diversity of housing types is better than trying to find the "right" housing. A struggle with this is that in order to do this you should have some empty housing of each type; this creates a public perception problem.
- We need to create great people spaces as well. Keeping staff, having people want to come to work, and recruiting staff and doctors is a major concern.
- It is important to not build a facility that is too big to staff and operate with the available budgets.
- Creating a good working culture in the shelter is hard with all the different groups. Some suggestions where:
  - Cross training.
  - Shadowing.
  - Shared support space.
  - Better and more training (invest in people)
  - Having a building that supports the different staff and team members without creating separation between them.
- Fear Free for shelters, as well as for veterinary clinics was mentioned as being revolutionary by many attendees.

### *Charrette 2, October 28, 2019*

#### **Attendees**

- Joan Carlson-Radabaugh – Administrative Director at Florida Association of Animal Welfare Organizations
- Frank Valente – Executive Director & CEO, Humane Society of the Treasure Coast
- Heidi Nielsen – Director of Information, Communication & Outreach at Peggy Adams Rescue League

- Lawrence Nicholas – Chief Operating Officer at Peggy Adams Rescue League
- Cynda Crawford, DVM, PhD – Director at Maddie’s Clinical Assistant Professor of Shelter Medicine, College of Veterinary Medicine, University of Florida
- Rich Avery – Project Manager Palm Beach County Capital Improvements
- Fernando DelDago – Director Palm Beach County Capital Improvements
- Audrey Wolf – Director Palm Beach County Facilities Development & Operations
- Isami Ayala-Collazo – Deputy Director Palm Beach County Facilities Development & Operations
- Dianne Sauve – Palm Beach County Animal Care & Control Director
- Capt. Daisy Blakeman – Palm Beach County Animal Care & Control Shelter Operations Manager
- Cathy Brandow – Palm Beach County Animal Care & Control Clinic Operations Manager
- Yleana Arias – Palm Beach County Animal Care & Control Senior Secretary
- Stephanie Sejnoha – Palm Beach County Director Public Safety Department
- Heather Lewis – Principal at Animal Arts
- John Lyons – Vice President, Preconstruction Services at Wharton-Smith, Inc. Construction Group
- Gerry Kelly – Director of Operations at Wharton-Smith, Inc. Construction Group
- Steve Messam – Project Executive at Messam Construction
- Ian Nester –Principal at PGAL
- Kari Botek – Associate Principal at PGAL

### **What is working for today’s animal shelters and what is not?**

#### **Topics to discuss**

- Felines
- Low stress in dog housing
- Fear Free concepts
- Vet hospital at the heart of facilities
- Caring for staff
- Better service to the public
- The future of shelters

#### **Cats**

- Tend to be very stressed in shelter (inwardly)
- Harder to adopt
- Getting foster parents for cats
- Total = 5,000 cats
  - 2,500 come in from the lobby
  - It is not ideal to talk to these in the lobby
    - There needs to be a private room to talk

- Cat housing
  - Want front and center
  - Needs to be engaging upon entry
  - Needs to be easily cleaned
  - Covers on beds
  - Velcro wrapped columns for clawing
  - Vertical spaces for climbing
  - Hiding areas
  - Industry guidelines – on number of cats per room
    - 18 square feet per cat
  - Adopters – access to cats needed
  - Cat runs
  - Cat pavilions
  - Cat café?
  - Back-of-house housing needed for long-term care
    - Needs to be stainless steel
  - Use for portable housing – rehab? 24 x 48 cages
  - Plan on using stainless steel for at least some areas
  - *Dianne – holding time on cats = 0 (unless it has collar or tag to ID owner)*
    - *Need separate ISO area for cats (ringworm, etc.) = holds 6*
  - Dumb Friends League, Denver
    - Snyder cages
      - Glass backs to be able to look out windows
      - Cats to face each other?
  - Prep in room = visual enrichment or is that stressful?
  - Porcelain tile up to ceiling, with some solid panels for hiding
  - Litter area in cages
  - Slope floor to center drain – could wash cages in room?
  - Need to consider if cats are being examined on the counter – might be scary to other cats
  - Stainless steel cages – Dianne - stuff gets under cages and wheels become “sticky” for stuff, the gap between cages tends to get missed while cleaning too
  - Cat holding rooms with glass (ventilated)
    - Laminated double-stacked cages – Dianne does not want this (edges are unsealed, prefers stainless steel for individual housing)
      - Heather – laminate is more often used at nonprofit shelters (more staff)
    - Shelter health, vet experts
    - Need hiding spaces

- A mix of housing is good for cats
- Does providing individual housing for cats lead to better adoption rates?
- Group housing cats
  - 18 square feet per group house cat
- Waterproof membrane on wall with bead board cover between cages and walls
- Individual ventilated cages
- Quiet latches
- Natural light
- Sound panels for noise reduction
- Catios
  - Gives cats access to exterior
  - Mosquitoes are a big concern here
- Cat runs
  - For 1-2 cats
  - Indoor/outdoor
  - More options for hiding, being outside, etc.
  - Use of cat flap
  - Bars on doors/front allows for public interaction
  - Outside has screens
    - Racoons?
  - Upper respiratory illnesses
    - Can be reduced with access to exterior cat run
  - Everyone likes the idea of cat runs
    - *Dianne - Do the cats have access at night (stress?)*
  - Doors into cat run should open in
- Cat pavilion
  - Good for adoptions
  - Dumb Friends League, Denver
    - Interior screen between inside/outside
  - Benches – inviting environment for the public
    - Litter boxes under benches
  - Gets cats adopted quickly
  - Peggy Adams has similar rooms and a cat café
    - Their average length of stay is 30 days for cats
- Cats = 80°F
  - don't want to put them in cold spaces or over ventilate
  - treatment curtain – can help reduce stress

### **Low-Stress Dog Housing**

- Need size-appropriate housing for dogs
  - Access to outdoor areas
  - Dogs tend to get stressed, overtly
  - Enrichment in housing
  - Durable
  - Encourages adoption
  - Indoor/outdoor
    - double compartment
    - 1 side for rest/eat/sleat
    - 1 side for bathroom/play
    - Need to deal with plan and square feet
    - Prefer indoor/outdoor
      - Indoor/indoor = 20 air changes per hour (not ideal)
    - Outside area needs mesh barriers and hurricane proof
    - Glass fronts
      - Meet and greet dog rooms/counseling rooms
      - Easier to clean glass than bars
      - Helps keep people from putting fingers in-between bars and spreading germs from dog to dog
    - Outdoor spaces can be used for training
  - Most small dogs are sent to Peggy Adams so PBC ACC dog population is mostly larger, square-headed dogs
    - Cages = Shor-Line double compartment with guillotine opening
      - Using double cages – harder to clean
    - Use indoor/indoor runs?
    - Modular runs? – look at Larimer Humane
    - Built-in housing? – look at ASPCA NYC
  - Gallery Set up
    - Small number of dogs at a time
    - Adopters can walk down and see dogs, select and meet or go into introduction room
  - Dr. Crawford – more co-housing pods for iso
    - For future, where the shelter might be housing less animals
    - Or sick animals that must stay longer
  - Multiple rows – not good for transmission of diseases
    - Small density pods help, can be separated too
    - Pods can also serve as quarantine
-

- More flexibility for future housing
- This is the one big shot at opportunity
- Future of shelter
  - May also be more intake of animals elsewhere
- Create a fund space for engagement on campus that could be dual purpose with dog training
- Fear aversion
  - Separation of spaces

### **Hospital at the heart of the facility**

- Allows for better workflow and public transparency
- Keep animals that need more attention in areas that are more visible
- County is on board with efficiency concepts
  - Dual-purpose rooms (staff, laundry, dog recovery, etc.)
- Glazed walls
  - Helps to have translucent panels at ground level
- Caring for staff – training spaces
  - Indoor/outdoor
  - Multi-use
  - Near front
- Cage wash/bucket water
  - 180° for 30 minutes to kill parvo virus
  - What if it breaks?
- Separate dogs and cats in clinic
- 80,000 square feet at ACC
- Spay/neuter clinic needed
- Surgery room – spay/neuter
  - Also used for education
  - Separate with curtains if necessary
  - Access to natural light for surgeon
  - Look at Humane Alliance NC – only open to staff

### **Serving the Public**

- Intake diversion programs
- Programs that help people get medical aid for their pets early
  - Can help people keep their cats/relocate pets?
  - Before (200) > now (500) in foster care (at Peggy Adams facility)
- Clean and inviting facilities are important – people feel good about coming in

- First – seeking information, appropriate direction for help to the public
- How to address walk-ins
  - How many people tend to walk-in?
- Staff needs to be in place to facilitate foster parents
  - Proper infrastructure needed
  - Need a place where fosters get picked up (foster lobby)
    - Designated room? Can this have dual purpose?
  - Fosters also need to be brought in for check-ups (every two weeks)
    - Foster lobby or exam rooms for this purpose
  - Foster lobby also needs to have an office nearby for a support person
  - Could you deliver fosters to people?
  - Need training space – classroom-type area to teach potential foster parents how to feed neonatal
    - Videos and information available
    - Classes
- Pre-admission process?
  - Expand hours to accommodate the hours of working people (9-5)
- Non-profit access to pet care will help to decrease animals going to shelters
- Sally port – have glass doors so staff can see if someone is in there – animal control access
- Better workspaces
- Better customer service
- Adoption spaces
  - Public art
  - how do you draw in public?
- Public needs to know what it takes to put a shelter together
- How are shelters adapting to the public?
- Openness of process
- *Dr. Crawford – there needs to be more space per animal and fewer animals in each space*
  - *No walking of one species (dog/cat) through the other's housing*
  - *Natural light – important/bring to the forefront*
  - *Make facility renovate-able for the future*
    - *Animal control to repurpose to focus on clinic activities*
    - *Repurpose-able areas*

## **14** Final Cost Estimate Summary from Wharton-Smith

Enclosed for reference is the final cost estimate summary provided by Wharton-Smith, Inc. This estimate was prepared in collaboration with all parties. The design team provided detailed information to Wharton-Smith, and estimates were reviewed as a team. Thus, these estimates represent the best understanding of project costs at this preliminary stage of design and can be used for the purposes of understanding the scope of each Option in the Comparative Study.





**PBC ACC Concepts  
ESTIMATING WORKSHEET SUMMARY**

LINE	DESCRIPTION	Option 1		Option 2		Option 3		Option 4	
2	Direct Costs								
3	General Requirements	572,658	5.79	630,982	6.31	523,584	5.89	504,217	7.08
4	Demolition	328,394	3.32	373,210	3.73	342,868	3.86	241,790	3.39
5	Temporary construction	-	-	-	-	-	-	-	-
6	Concrete	1,537,652	15.54	2,137,729	21.36	1,050,788	11.82	634,712	8.91
7	Masonry	2,910,046	29.41	4,603,386	46.00	1,727,256	19.43	897,012	12.59
8	Structural & Miscellaneous Steel	1,114,954	11.27	1,406,476	14.06	772,098	8.69	507,302	7.12
9	Wood & Plastics	122,832	1.24	126,447	1.26	193,368	2.18	161,377	2.26
10	Caulking & Waterproofing	188,500	1.91	241,619	2.41	123,313	1.39	121,981	1.71
11	Roofing	2,021,057	20.43	2,722,563	27.21	1,108,812	12.48	601,249	8.44
12	Fireproofing	54,027	0.55	54,027	0.54	45,868	0.52	18,726	0.26
13	Metal Panels	2,483,233	25.10	3,158,017	31.56	1,930,383	21.72	1,695,492	23.79
14	Frames, Doors & Hardware Supply	658,385	6.65	921,953	9.21	593,806	6.68	422,790	5.93
15	Windows & Glazing	1,760,155	17.79	2,195,926	21.95	1,326,240	14.92	934,563	13.11
16	Window Testing	8,400	0.08	10,800	0.11	13,287	0.15	14,400	0.20
17	Framing, Drywall & Stucco	879,207	8.89	775,690	7.75	780,628	8.78	820,724	11.52
18	Acoustical Ceilings & Wall Panels	822,753	8.32	804,030	8.04	722,573	8.13	253,332	3.55
19	Resilient Flooring	655,202	6.62	769,354	7.69	501,109	5.64	580,923	8.15
20	Tile	302,712	3.06	302,712	3.03	246,320	2.77	597,432	8.38
21	Painting	301,807	3.05	313,688	3.13	246,116	2.77	188,560	2.65
22	Specialties	37,150	0.38	38,150	0.38	26,740	0.30	61,675	0.87
23	Signage - ALLOWANCE	90,425	0.91	105,950	1.06	76,726	0.86	71,525	1.00
24	Visual Display Boards	10,384	0.10	10,384	0.10	9,834	0.11	13,750	0.19
25	Fire Extinguishers & Cabinets	14,795	0.15	18,005	0.18	12,374	0.14	10,495	0.15
26	Light monitors	163,200	1.65	241,230	2.41	101,388	1.14	58,140	0.82
27	Flagpoles	7,000	0.07	7,000	0.07	7,000	0.08	-	-
28	Corner Guards	2,499	0.03	2,499	0.02	2,642	0.03	5,916	0.08
29	Artificial turf	207,905	2.10	207,905	2.08	138,019	1.55	29,851	0.42
30	Stainless Steel casework	778,960	7.87	870,000	8.69	625,150	7.03	324,014	4.55
31	Walkway covers and Chickee Huts	1,239,465	12.53	1,239,465	12.39	979,365	11.02	431,189	6.05
32	Casework	125,554	1.27	148,682	1.49	100,288	1.13	423,200	5.94
33	Animal Care Equipment	5,438,310	54.96	5,391,480	53.88	4,997,533	56.23	3,965,056	55.64
34	Install Animal Care Equipment	597,748	6.04	588,242	5.88	541,607	6.09	420,097	5.89
35	Elevator	167,280	1.69	167,280	1.67	89,725	1.01	83,640	1.17
36	Fire Supression System	319,823	3.23	354,684	3.54	197,662	2.22	141,396	1.98
37	Plumbing	2,076,873	20.99	3,154,350	31.52	1,128,120	12.69	993,480	13.94
38	HVAC	3,773,319	38.14	4,188,822	41.86	3,396,986	38.22	2,729,701	38.30
39	HVAC Test & Balance	76,348	0.77	72,102	0.72	68,522	0.77	57,346	0.80
40	Electrical	3,090,024	31.23	3,166,628	31.65	2,517,211	28.32	2,086,566	29.28
41	Earthwork, Paving & Site Utilities	1,132,266	11.44	1,134,075	11.33	1,133,170	12.75	328,977	4.62
42	Fencing & Gates	190,090	1.92	190,090	1.90	144,400	1.62	30,205	0.42
43	Landscaping & Irrigation	418,948	4.23	418,948	4.19	414,949	4.67	81,733	1.15
44	<b>TOTAL DIRECT COSTS</b>	<b>36,680,338</b>	<b>370.73</b>	<b>43,264,580</b>	<b>432.37</b>	<b>28,957,829</b>	<b>325.82</b>	<b>21,544,534</b>	<b>302.31</b>
45	Indirect Costs		-		-		-		-
46	General Conditions	3,137,231	31.71	3,586,634	35.84	2,689,184	30.26	2,598,956	36.47
47	Bond	224,430	2.27	276,686	2.77	171,116	1.93	132,213	1.86
48	General Liability Insur: 0.42%	205,470	2.08	242,028	2.42	163,072	1.83	124,043	1.74
49	Builder's Risk Insurance	169,512	1.71	229,927	2.30	118,227	1.33	86,830	1.22
50	Design Contingency 8.00%	2,934,427	29.66	3,461,166	34.59	2,316,626	26.07	1,723,563	24.18
51	Escalation Contingenc 6.46%	2,369,451	23.95	2,794,776	27.93	1,870,598	21.05	1,391,719	19.53
52	<b>SUBOTAL</b>	<b>45,720,860</b>	<b>462.10</b>	<b>53,855,797</b>	<b>538.22</b>	<b>36,286,653</b>	<b>408.28</b>	<b>27,601,858</b>	<b>387.31</b>
53	CM Fee 5.00%	2,286,043	23.10	2,692,790	26.91	1,814,333	20.41	1,380,093	19.37
54	CM Contingency 2.00%	914,417	9.24	1,077,116	10.76	725,733	8.17	552,037	7.75
55	Owner's Contingency	-	-	-	-	-	-	-	-
56	<b>TOTAL</b>	<b>48,921,320</b>	<b>494.44</b>	<b>57,625,702</b>	<b>575.89</b>	<b>38,826,718</b>	<b>436.86</b>	<b>29,533,988</b>	<b>414.42</b>
	Delete AC @ Kennels	(927,004)		(779,600)		(736,455)		(611,560.11)	

Base Option 4  
A1 - Barn Replacement 693,546  
A2 - New Warehouse 745,428  
A3 - New Kennel #4 6,899,251  
A4 - New Sally Port 621,122  
Alt 5 - New Parking 293,836