King County Housing Authority
SAFETY AND SECURITY DEPARTMENT
600 ANDOVER PARK WEST * TUKWILA, WA 98188

ADDENDUM:	01	TODAY'S DATE:	11/30/2023

PROJECT NAME:	**Security Integration**	
CONTACT / TITLE:	Ponha Lim	VP of Public Safety/Security
PHONE / EMAIL:	206-693-6402	ponhal@kcha.org

This Addendum is used to Identify Items in the Original Documents with Action as Follows:

☐ **BID** ☐ **RFQ** ☑ **RFP**

☑ **CLARIFY** ☐ **CHANGE** ☐ **DELETE** ☑ **ADD** ☐ **SUBSTITUTE**

244 Page(s) Total for this Addenda (Includes (14) Camera Reports from TTA).

****PLEASE NOTE: BID DUE DATE HAS BEEN EXTENDED TO 12/21/2023 AT 4:30 P.M.****

Q: Will there be site walks for each property individually to determine camera types, locations, and cable distances?

A: ***Yes.***

Q: Some camera model numbers were provided for HQ (600 & 700), will you be providing anything, in terms of specification for the other 14 property locations included in this RFP?

A: ***Yes, we will provide camera specifications.***

Q: Is each building supposed to be priced individually?

A: ***Yes.***

Q: Do you have drawings of where the new cameras, card readers, and intercoms will be going in the 14 additional properties?

A: ***Yes, we have camera assessment reports from TTA for the additional 14 properties that outlines where new cameras should be installed. Card readers and intercoms will be identified when a site walk is completed. *We hope to have floor plans with markups for the additional 14 properties.***

Q: If additional circuits are required in the IT / IDF closets, who will provide these circuits?

A: ***Due to power constraints, additional circuits will require a review by site facilities manager to ensure adequate power is available. If additional circuits are needed, KCHA will utilize existing contract with electrician.***

Q: Are any PC workstations required for the CCTV system, if so, how many, and where will they be located?

A: ***TBD.***

Q: Will all repurposed cameras remain in their current locations, or do some of the units need to be relocated and new cabling installed?

A: ***Existing cameras that can be repurposed will remain in their current location if possible. Additional camera locations will be outlined in the provided camera assessment reports and will be discussed during site walks.***

Q: Can you provide the current Key scan reader part number to see if it will be compatible, as it states it is a priority to re-purpose these units?

A: ***Keyscan PX603narrow, Keyscan PX605, and Keyscan PX610***

Q: Can the cabling for the access control system be open wired or does it need to be in conduit from the IDF to the door location?

A: ***Open wired if low volt.***

Q: Are there any other hardware items at the doors that you would like to re-purpose?

A: ***Yes, existing electronic locks.***

Q: How many FOBS or Cards are needed for the access control system?

A: ***Currently we have 954 issued cards; however, KCHA will conduct an audit on outstanding fobs and cards during the transition to a new system.***

Q: Are there any drawings to reflect where the new card readers will be installed, for cable take-offs and door types?

A: ***We have floor plans for the 600 & 700 building and can mark up where new card readers will be installed.***

Q: Are we expected to provide and install electronic locking hardware?

A: ***Yes.***

Q: Are any PC workstations required for the access system, if so, how many, and where will they be located?

A: ***We will be using existing client computers to connect to the access system, no PC workstations required.***

Q: Which sites have intercoms and which sites do not have intercoms? What is the quantity for each site?

A: ***Central Office (600 and 700 Building) will require intercoms for access control security at each lobby. The additional 14 sites will also require intercoms installed at the main entrance as added layer of security for our management staff to screen visitors/guests (utilizing video and audio features).***

****When discussing intercoms, please do not confuse the intercoms system in regards to residents using their existing phone lines to buzz in guests/visitors****

Q: Does KCHA provide a process to hire Section 3 (H3) people?

A: ***No, we do not. However, our Resident Services team is available to provide some assistance if selected vendor is open to further discussions regarding hiring Section 3 individuals.***

Q: Do we have to get them a low voltage license with the department of L&I?

A: ***Yes.***

Q: What is expected for the Section 3 (H3) wage?

A: ***All labor performed on KCHA sites must match wage rates, per job classification, as listed in Exhibit D (page 46 of the RFP).***

Q: How are work disputes handled? I.e., not showing up for work, not taking instruction? etc.

A: ***KCHA has expectations that the selected contractor will have an internal process in place to mediate disputes to avoid project disruptions and/or delays.***

Q: What are the anticipated start and finish dates?

A: ***Once the Contract is executed, we anticipate the project to start immediately. Due to the scope of work, the project may extend to the end of 2024 and possibly into 2025.***

Q: Does a 14% markup on materials apply to this RFP?

A: ***Yes, no more than a 14% mark-up on wholesale materials is allowed per HUD's Safe Harbor regulations.***

Q: Will or can there be a site walk scheduled to verify conduit and pathway needs for this project

A: ***Yes.***

Q: Are there any gates or other portals on the exterior that need Access Control installed? There are none shown in the exhibits attached to this RFP?

A: ***TBD.***

Q: Are you planning to have the VOIP system network on the same network as the Intercom, Surveillance, Traka and Access Control system?

A: ***Yes; however per IT, KCHA will utilize a network consultant (VLAN) for the different services.***

Q: Will KHCA be responsible for configuration of PBX software configuration and integration with vendor providing Intercom install and configuration?

A: ***If integration is required, KCHA will utilize a communication consultant to configure PBX integration.***

Q: You state not all sites have existing intercoms, and those without will require new ones. I only see one callout in the exhibits for video intercoms (600 building), is this the only location requiring an intercom for this project or do we need to provide more at each site?

A: ***Yes, the 600 & 700 buildings and 14 additional sites.***

Q: You request Traka as requirement for key management. You also request scalability. How many positions will be required within the cabinet for this project at each location?

A: ***TBD. Please provide pricing option and each cabinet size will be determined during site walk.***

Q: Are you requesting that the contractor evaluate the IT network at each site to provide a solution to increase bandwidth to allow for cloud-based solution?

A: ***Yes.***

Q: Line 5 says "Pan/Tilt/Zoom capabilities." Are you requesting all cameras be PTZ cameras that are being replaced?

A: ***No, new installs only.***

Q: Do you have CAD and/or PDF files you can share of all 15 locations that have further detail to include head end location, ceiling types, elevation and pathway at each location?

A: ***See attached TTA camera assessment reports that will outline camera location. If additional information is needed, we will attempt to provide floorplans with markups.***

Q: There is a weighted factor that is stated will be applied. However, page 57 section C, contract is awarded to the lowest bidder. Please confirm that low bid is not the winning criteria?

A: ***Correct, this is an RFP based on the criteria listed. Additional forms are often templates.***

Q: It is my understanding KeyScan uses a proprietary technology and are not able to be used by any other system. Please confirm that this understanding from KeyScan is correct for the KCHA system?

A: ***We wish to repurpose Keyscan; however, we understand that the system may be approaching end-of-life status. If that is the case, KCHA will request that the existing system be upgraded and integrated as needed.***

Q: Is there an active directory connection required?

A: ***Please clarify? What active directory are you referring to?***

Q: Please confirm the Costco and Digital Watchdog cameras are using data cable and the cabling will be reused?

A: ***Yes.***

Q: Are mobile credentials required?

A: ***Yes, with the new system going forward.***

Q: Are new credentials required, if so, how many?

A: ***TBD.***

Q: Please confirm the technology on the current issues credentials, are the priority or can they be used on HID Signo readers?

A: ***The desired pathway is for mobile access solutions (i.e. Smartphone) to gain entry through secured doors, gates, etc. If HID Signo readers (or approved equivalent) can support contactless smartcards and is mobile ready, that may be the approved reader.***

Q: If mobile credentials are required, can another reader be proposed specifically Alta readers?

A: ***Yes.***

Q: KeyScan doesn't have an integration with Genetec, Verkada or Alta, please confirm the intent is to fully replace the KeyScan system to obtain a SaaS/integrated solution?

A: ***Yes.***

Q: Until such time the RFIs have been answered and reviewed, we are unable to work on and finalize the proposal. Will 2 weeks to complete after RFI response has been submitted be considered?

A: ***Yes, we have determined a two week extended proposal deadline is appropriate. New Proposal Due Date is Thursday, December 21, 2023.***

Q: Without any site walk, and not knowing the need for electrical connections, pathways and cable lengths, mounting of cameras, will this proposal be used as a "baseline" or intend to award on the proposal costs. If awarded, do the bidders specifically exclude all of these unknowns that represent financial risk?

A: Yes. If awarded, KCHA has a process for change orders when needed.

Tactical Training Academy
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KING COUNTY HOUSING AUTHORITY

CAMERA IMPLIMENTATION PLAN

BIRCH CREEK

Version: 1.0

COMPLETED BY: Tactical Training Academy

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CAMERA IMPLIMENTATION REPORT

INTRODUCTION:

A Camera Implementation Assessment[1] for the King County Housing Authority (KCHA) was conducted for the KCHA Birch Creek property, starting in April, 2023. The scope of this assessment included an evaluation of current camera security systems, and recommendations necessary to implement an RFP to improve camera systems[2]. This proposal is design to assist in the solicitation process to select a camera installation vendor, which should include cameras, installation, cabling, and the IT specification requirements outlined in this report.

This report is specifically designed generically, to encourage bids from several camera installation vendors. Camera specifications could be met by several quality camera systems. The TTA has good experience using the Avigilon system, and considers it the top-tier of current holistic security camera systems. Therefore, specific camera models within the Avigilon system are noted as examples within this report. Again, other camera systems may meet the specifications included in this report and should be evaluated when proposals for installation are received, but each should meet the minimum specifications outlined in this report.

The data presented in this report *assumes that recommend changes to CPTED and hardscapes outlined in prior TTA KCHA Site-Specific Reports have or will be implemented*. This includes installing various fencing and gating systems, trimming trees and shrubbery, and improving vestibule spaces. Thus, the camera systems within these reports will be effective long-term, and not made superfluous by necessary hardscape changes already planned.

STAKEHOLDER INTERVIEWS:

The following feedback was collected from managers, IT staff, maintenance staff, facilities, and other stakeholders, regarding the success of this project.

Detail of Users:

- 20-30 end users
- 15 administrators
- Mostly site management and security staff

Self-hosted or Cloud solution:

- Cloud

Challenges:

- Space for network locations
- Environmental challenges

Measuring Success:

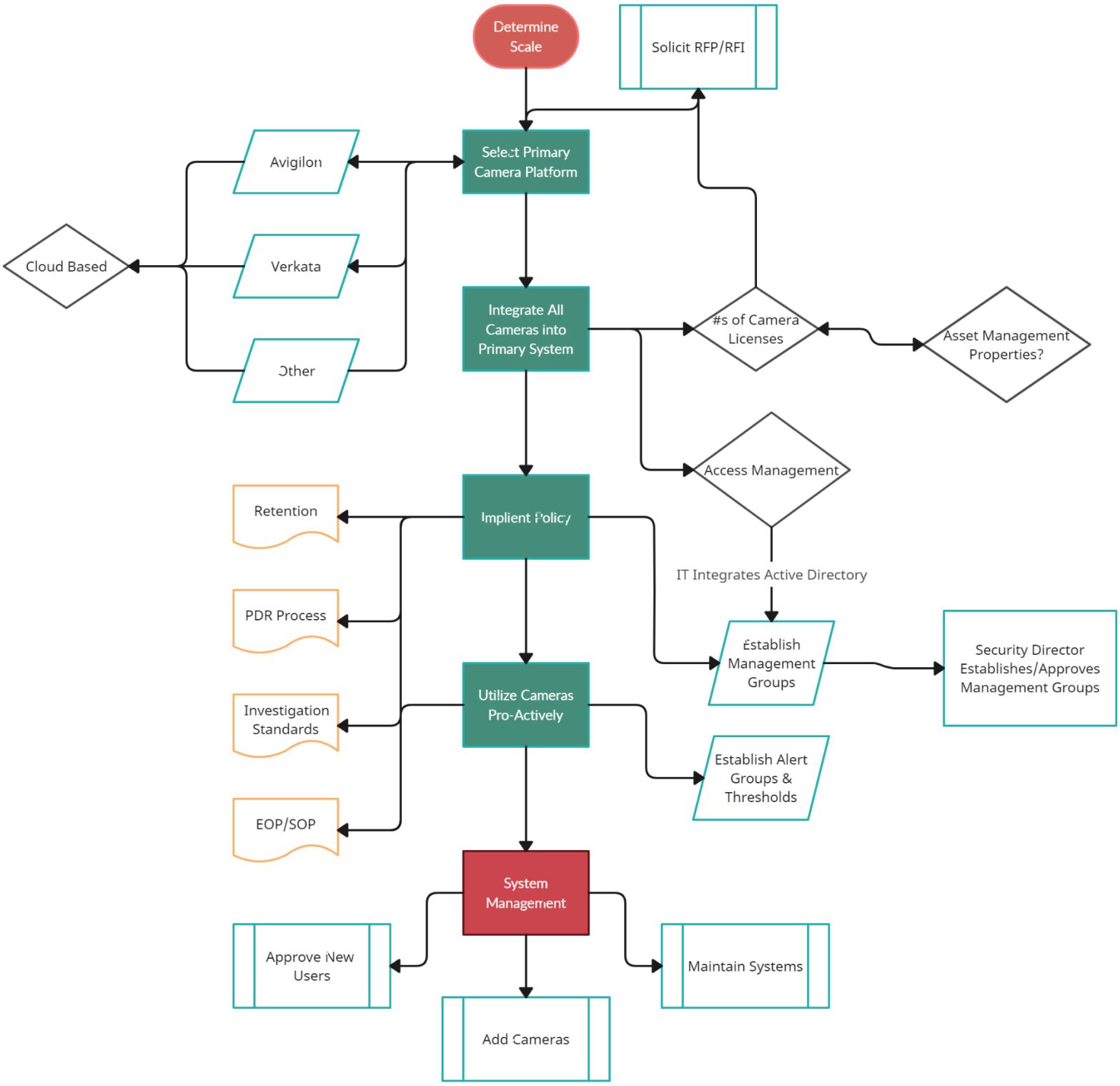
- A unified solution
- Ease of use
- Ease of maintenance
- Reliable system

[1] **Disclaimer:** The intent of this assessment is to improve the overall safety and security for KCHA. The information contained in this report is to be used solely by KCHA, law enforcement, fire service and other emergency response agencies. The disclosures of the information contained in this report to the general public is not recommended.

[2] Additional cameras may be added, at the discretion of KCHA staff. Layouts herein represent the most useful positioning of camera systems based on TTA risk evaluation, taking into account a layered approach to prevention. In some cases, dollars can be spent more usefully on other approaches to prevention and mitigation.

Confusion was evident on what implementing an effective security system entailed. Thus, this report includes a flow-process chart for implementation and use of a comprehensive multi-tiered security system.

IMPLEMENTATION FLOW CHART:



CURRENT SYSTEMS AND CAMERA LAYOUTS:

Current Onsite Cameras[3]

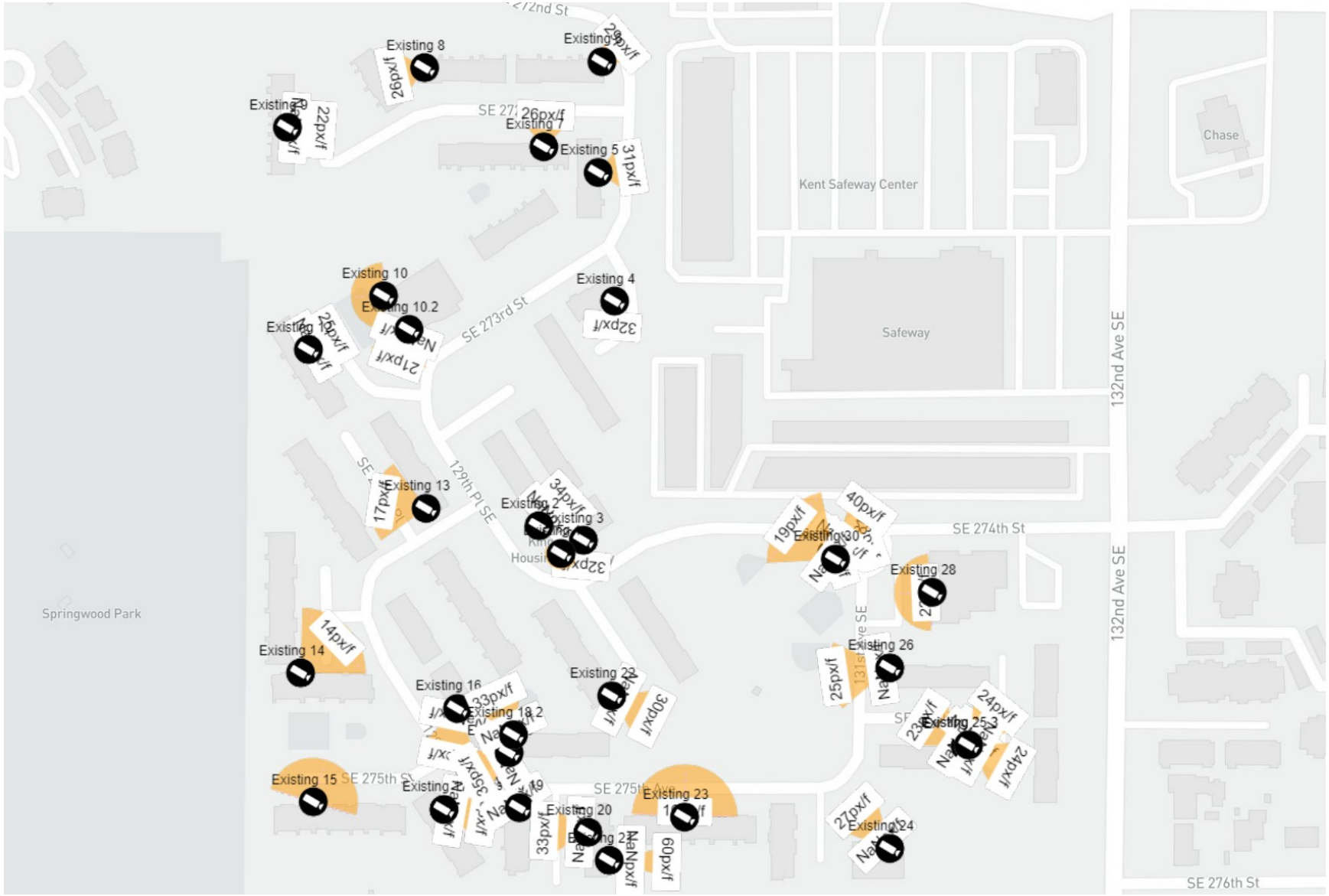
Name[4]	Make	Model	Quality[5]	Analytics
Existing 1	Axis	Axis3717PLE, 4 views	Moderate – camera adjustment angle necessary	No
Existing 2	Digital Watchdog	DWC-MV82wia	Low	No
Existing 3	Digital Watchdog	DWC-MV82wia	Low – Lens cleaning and tree trim necessary	No
Existing 4	Digital Watchdog	DWC-MV85dia	Moderate – Image flip necessary	No
Existing 5	Digital Watchdog	DWC-MV85dia	Moderate- Lens cleaning necessary	No
Existing 6	Digital Watchdog	DWC-MV85dia	Moderate	No
Existing 7	Digital Watchdog	DWC-MV84wia	Moderate – Tree trim necessary	No
Existing 8	Digital Watchdog	DWC-MV84wia	Moderate	No
Existing 9	Digital Watchdog	DWC-MV82wia	Low	No

[3] This list does not include four onsite cameras that were not functional during the assessment. Non-functioning cameras should be removed for liability purposes.
[4] Camera names were determined based on provided camera lists. Not all cameras on provided lists were present and some were non-existent, leading to numbering modifications post-field assessment. Actual camera names varied, and were mostly descriptive titles of general location.
[5] Angle adjustments, tree trims, cleaning, or moving the camera installation location may be necessary to achieve the quality noted - which is based on technical specifications only.

Existing 10	Axis	Axis3707PE, 4 Views	Low	No
Existing 10.2	Axis	Axis3707PE, 4 Views	Low	No
Existing 12	Honeywell	N5F4-ALAHz IP Camera	Low- Tree trim necessary	No
Existing 13	Digital Watchdog	DWC-MV84wia	Moderate – Tree trim necessary	No
Existing 14	Digital Watchdog	DWC-MV84wia	Moderate	No
Existing 15	Axis	Axis3707PE, 4 Views	Low – Tree trim necessary	No
Existing 16	Digital Watchdog	DWC-MV85wiaTW	Moderate – Camera angle adjustment necessary	No
Existing 17	Digital Watchdog	DWC-MV85wiaTW	Moderate	No
Existing 18	Digital Watchdog	DWC-MV85wiaTW	Moderate	No
Existing 18.2	Digital Watchdog	DWC-MV85wiaTW	Moderate	No
Existing 19	Digital Watchdog	DWC-MV85dia	Moderate	No
Existing 20	Digital Watchdog	DWC-MV85wiaTW	Moderate – Tree trim necessary	No
Existing 21	Digital Watchdog	DWC-MV85wiaTW	Moderate	No
Existing 22	Digital Watchdog	DWC-MV85dia	Moderate – Lens cleaning and tree trim necessary	No
Existing 23	Axis	Axis3707PE, 4 Views	Low – camera adjustment angle necessary	No

Existing 24	Digital Watchdog	DWC-MV84wia	Moderate	No
Existing 25	Digital Watchdog	DWC-MV84wia	Moderate	No
Existing 25.2	Digital Watchdog	DWC-MV84wia	Moderate	No
Existing 25.3	Digital Watchdog	DWC-MV84wia	Moderate	No
Existing 26	Digital Watchdog	DWC-MV85dia	Moderate – Lens cleaning necessary	No
Existing 28	Axis	Axis3707PE, 4 Views	Low – Tree trim necessary	No
Existing 29	Digital Watchdog	DWC-MB44iALPR	Low	No
Existing 29.2	Digital Watchdog	DWC-MV85dia	Moderate	No
Existing 30	Digital Watchdog	DWC-MV85dia	Moderate – Tree trim and lens cleaning necessary	No

Current Onsite Cameras: Exterior Layout



RECOMMENDED SYSTEMS AND CAMERA LAYOUTS:

Cameras for Retention[6][7]

Name	Make	Model	Quality	Analytics
Existing 1	Axis	Axis3717PLE, 4 views	Moderate – camera adjustment angle necessary	No
Existing 2	Digital Watchdog	DWC-MV82wia	Low	No
Existing 3	Digital Watchdog	DWC-MV82wia	Low – Lens cleaning and tree trim necessary	No
Existing 4	Digital Watchdog	DWC-MV85dia	Moderate – Image flip necessary	No
Existing 5	Digital Watchdog	DWC-MV85dia	Moderate- Lens cleaning necessary	No
Existing 6	Digital Watchdog	DWC-MV85dia	Moderate	No
Existing 7	Digital Watchdog	DWC-MV84wia	Moderate – Tree trim necessary	No
Existing 8	Digital Watchdog	DWC-MV84wia	Moderate	No
Existing 9	Digital Watchdog	DWC-MV82wia	Low	No
Existing 10	Axis	Axis3707PE, 4 Views	Low	No

[6] New camera systems are numbered in priority order, not based on site orientation. The TTA recommends cameras be logically named based on location, similar to exterior doors into a facility. Reference the TTA Security Summary Report for further information on naming systems.
[7] Existing cameras should be upgraded to systems that support analytics for a pro-active approach.

Existing 10.2	Axis	Axis3707PE, 4 Views	Low	No
Existing 12	Honeywell	N5F4-ALAHz IP Camera	Low- Tree trim necessary	No
Existing 13	Digital Watchdog	DWC-MV84wia	Moderate – Tree trim necessary	No
Existing 14	Digital Watchdog	DWC-MV84wia	Moderate	No
Existing 15	Axis	Axis3707PE, 4 Views	Low – Tree trim necessary	No
Existing 16	Digital Watchdog	DWC-MV85wiaTW	Moderate – Camera angle adjustment necessary	No
Existing 17	Digital Watchdog	DWC-MV85wiaTW	Moderate	No
Existing 18	Digital Watchdog	DWC-MV85wiaTW	Moderate	No
Existing 18.2	Digital Watchdog	DWC-MV85wiaTW	Moderate	No
Existing 19	Digital Watchdog	DWC-MV85dia	Moderate	No
Existing 20	Digital Watchdog	DWC-MV85wiaTW	Moderate – Tree trim necessary	No
Existing 21	Digital Watchdog	DWC-MV85wiaTW	Moderate	No
Existing 22	Digital Watchdog	DWC-MV85dia	Moderate – Lens cleaning and tree trim necessary	No
Existing 23	Axis	Axis3707PE, 4 Views	Low – camera adjustment angle necessary	No
Existing 24	Digital Watchdog	DWC-MV84wia	Moderate	No

Existing 25	Digital Watchdog	DWC-MV84wia	Moderate	No
Existing 25.2	Digital Watchdog	DWC-MV84wia	Moderate	No
Existing 25.3	Digital Watchdog	DWC-MV84wia	Moderate	No
Existing 26	Digital Watchdog	DWC-MV85dia	Moderate – Lens cleaning necessary	No
Existing 28	Axis	Axis3707PE, 4 Views	Low – Tree trim necessary	No
Existing 29	Digital Watchdog	DWC-MB44iALPR	Low	No
Existing 29.2	Digital Watchdog	DWC-MV85dia	Moderate	No
Existing 30	Digital Watchdog	DWC-MV85dia	Moderate – Tree trim and lens cleaning necessary	No

New Exterior Camera Specifications

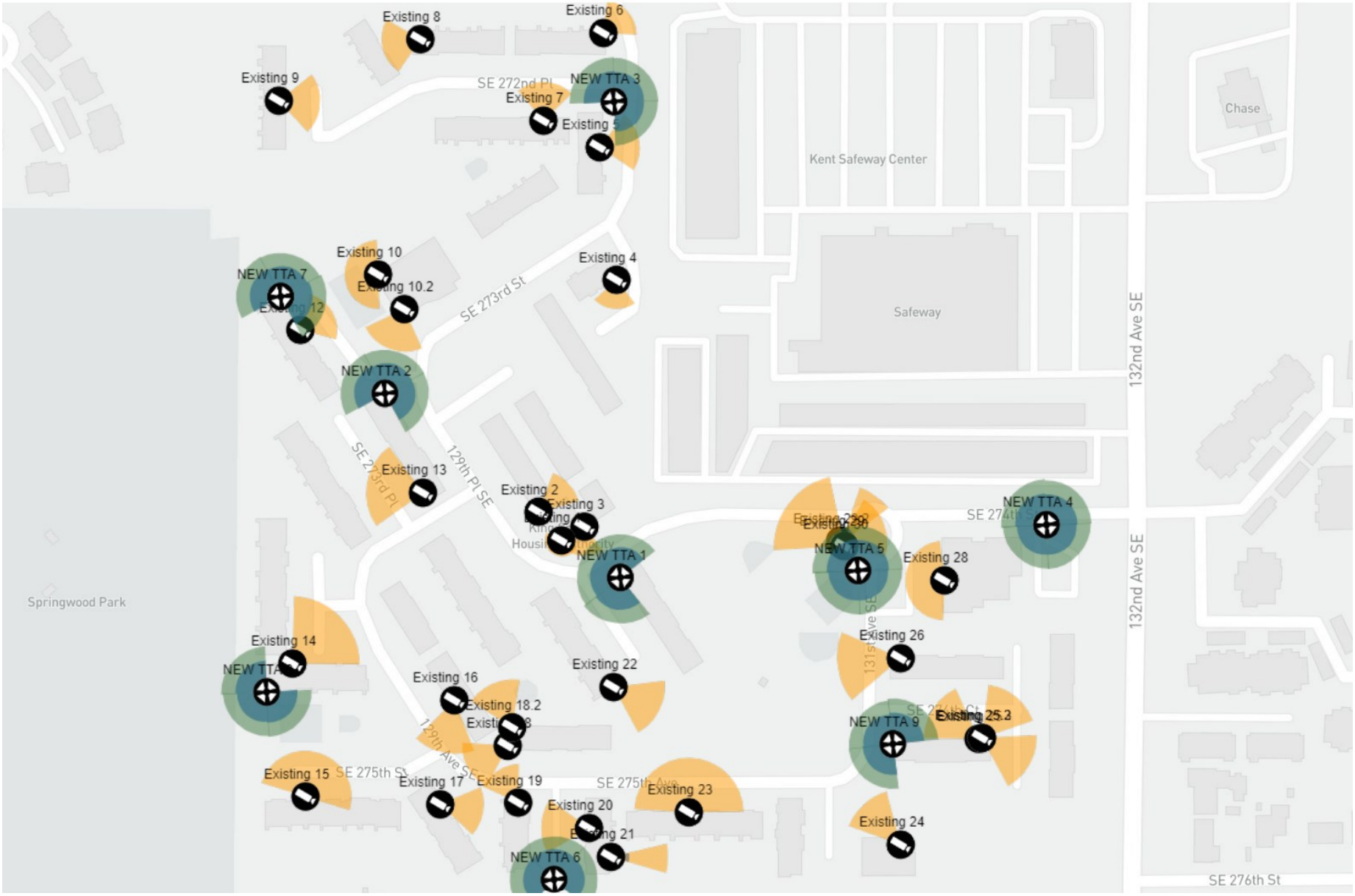
HDSM Smart Cameras

Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
NEW TTA 1	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
NEW TTA 1					4.0	12	6	Quality 6		×		×
NEW TTA 1					4.0	12	6	Quality 6		×		×
NEW TTA 1					4.0	12	6	Quality 6		×		×
NEW TTA 2	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
NEW TTA 1					4.0	12	6	Quality 6		×		×
NEW TTA 1					4.0	12	6	Quality 6		×		×
NEW TTA 1					4.0	12	6	Quality 6		×		×
NEW TTA 3	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
NEW TTA 1					4.0	12	6	Quality 6		×		×

NEW TTA 1					4.0	12	6	Quality 6		×	×
NEW TTA 1					4.0	12	6	Quality 6		×	×
NEW TTA 4	32C-H4A--4MH-360	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	20.23 Mbps	×	×
NEW TTA 1					4.0	8	6	Quality 6		×	×
NEW TTA 1					4.0	8	6	Quality 6		×	×
NEW TTA 1					4.0	8	6	Quality 6		×	×
NEW TTA 1					4.0	8	6	Quality 6		×	×
NEW TTA 5	32C-H4A--4MH-360	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	20.23 Mbps	×	×
NEW TTA 1					4.0	8	6	Quality 6		×	×
NEW TTA 1					4.0	8	6	Quality 6		×	×
NEW TTA 1					4.0	8	6	Quality 6		×	×
NEW TTA 1					4.0	8	6	Quality 6		×	×
NEW TTA 6	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×

NEW TTA 1					4.0	12	6	Quality 6		×	×
NEW TTA 1					4.0	12	6	Quality 6		×	×
NEW TTA 1					4.0	12	6	Quality 6		×	×
NEW TTA 7	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
NEW TTA 1					4.0	12	6	Quality 6		×	×
NEW TTA 1					4.0	12	6	Quality 6		×	×
NEW TTA 1					4.0	12	6	Quality 6		×	×
NEW TTA 8	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
NEW TTA 1					4.0	12	6	Quality 6		×	×
NEW TTA 1					4.0	12	6	Quality 6		×	×
NEW TTA 1					4.0	12	6	Quality 6		×	×
NEW TTA 9	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
NEW TTA 1					4.0	12	6	Quality 6		×	×
NEW TTA 1					4.0	12	6	Quality 6		×	×
NEW TTA 1					4.0	12	6	Quality 6		×	×

Recommended Exterior Camera Layout



HDSM Smart Cameras

New Interior Camera Specifications

Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
New INT TTA 1	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×		×
New INT TTA 2	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×		×
New INT TTA 3	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×		×

Scene Details

Name	Mounting Height (ft)	Target Height (ft)	Target Distance (ft)	Scene Width (ft)	Mounting Angle	Maximum Dis-tance (ft)	px/ft
New INT TTA 1	8.5	6	16.5	33	0	56.1	24.3
New INT TTA 2	8.5	6	16.5	33	0	56.1	24.3
New INT TTA 3	8.5	6	16.5	33	0	56.1	24.3

Recommended Interior Camera Layout, Main Office

Recommended Interior Camera Layout, Rec Center

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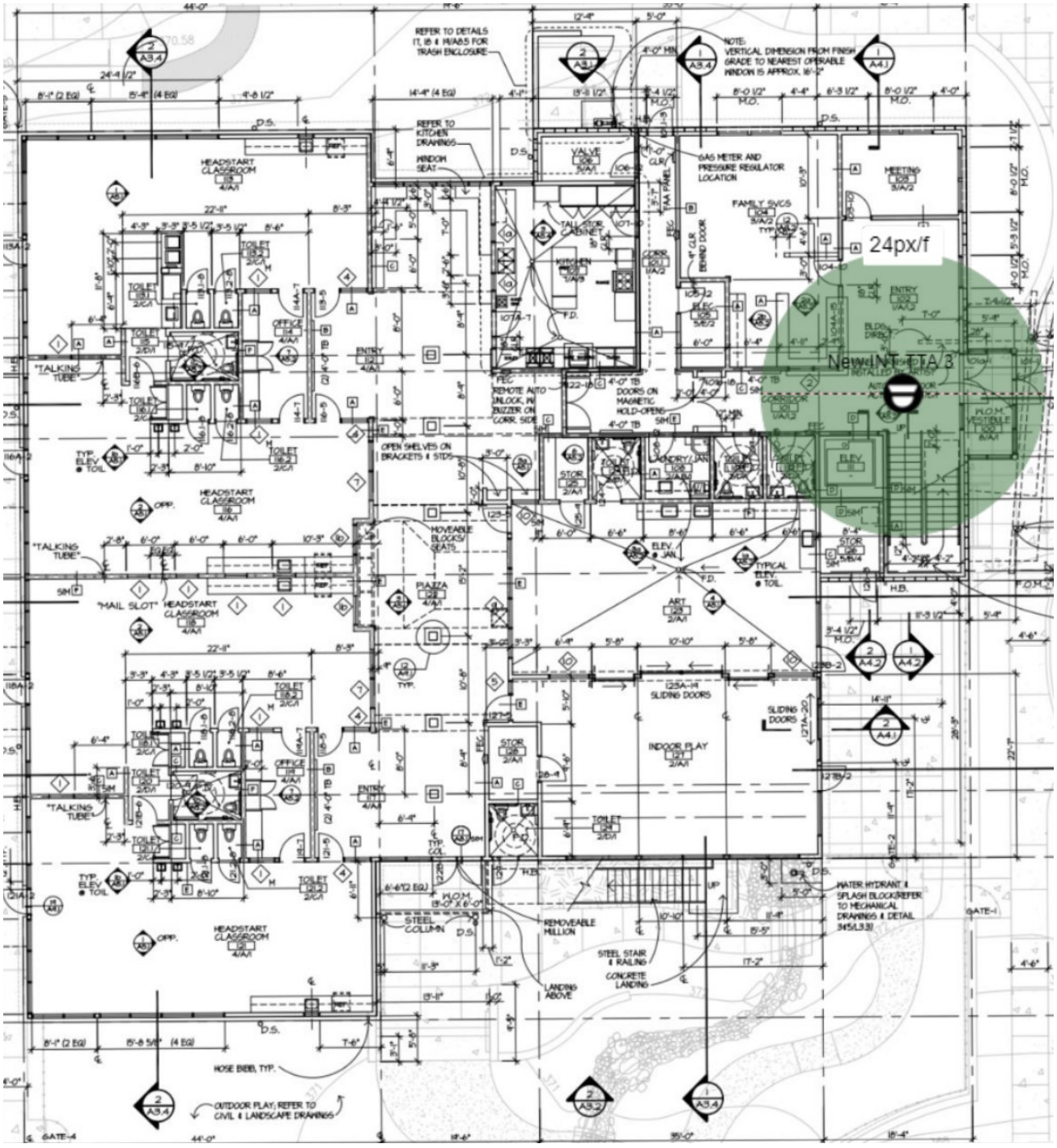
Recommended Interior Camera Layout, Family Center



Network Infrastructure Recommendations:

Based on the TTA's assessment, a cloud-based implementation solution will benefit KCHA in the long-term. Cloud Services enables a modern cloud-connected user experience to view live and recorded video, as well as monitor and manage the health of systems, from anywhere with a connection, at any time – including via a connected mobile application.

Necessary Cloud-Based Features:

- Secure Cloud Based
- Mobile Access
- Analytics, including Emergency Alerts
    - Smart Recognition of Firearms/Weapons
    - Smart Recognition of Persons (Watch List)
    - Smart Recognition of License plates (Watch List)
- One-Stop Video Management Software
- License Integration for Current Cameras
- Integration with Access-Control Systems

Example systems that should be considered within current recommendations:

- Avigilon Control Center
- Verkada Centralized Command
- Cisco Meraki

IT Technical Recommendations[8]:

Type	Description	Recommendation
Internet related	**Cameral Qty**	45 cameras
Internet related	**Cameral Avg Bandwidth**	10 Mbps Upload
Internet related	**Camera Internet bandwidth**	450 Mbps Upload
Internet related	**Staff Qty**	10 staff
Internet related	**Staff Avg bandwidth**	5 Mbps Upload/Download
Internet related	**Staff Internet bandwidth**	50 Mbps Upload/Download
Internet related	**Total minimum internet bandwidth**	500 Mbps Upload/Download
Physical Equipment	**48G POE+ 400W Enterprise Managed Switch**	One Switch
Physical Equipment	**Secure 19" Network Rack/Cabinet**	Use existing
Physical Equipment	**1500VA UPS/Battery Backup System**	One unit
Physical Equipment	**1G Firewall/Gateway**	Use existing

[8] All network cabling to cameras should meet or exceed the CAT5e standard. Camera locations have been selected with proximity to electricity. In addition to cabling, wireless cameras should be compared in relation to cost.

Reference Image[9]

[9] Reference images are captured under ideal conditions. Poor lighting, increased compression, or use of a lower quality lens will affect the quality of the images captured.

End of Report

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KING COUNTY HOUSING AUTHORITY

CAMERA IMPLIMENTATION PLAN

Boulevard Manor

Version: 1.0

COMPLETED BY: Tactical Training Academy

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CAMERA IMPLIMENTATION REPORT

INTRODUCTION:

A Camera Implementation Assessment[1] for the King County Housing Authority (KCHA) was conducted for the Boulevard Manor Property, starting in April, 2023. The scope of this assessment included an evaluation of current camera security systems, and recommendations necessary to implement an RFP to improve camera systems[2]. This proposal is design to assist in the solicitation process to select a camera installation vendor, which should include cameras, installation, cabling, and the IT specification requirements outlined in this report.

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- 20-30 end users
- 15 administrators
- Mostly site management and security staff

Self-hosted or Cloud solution:

- Cloud

Challenges:

- Space for network locations
- Environmental challenges

Measuring Success:

- A unified solution
- Ease of use
- Ease of maintenance
- Reliable system

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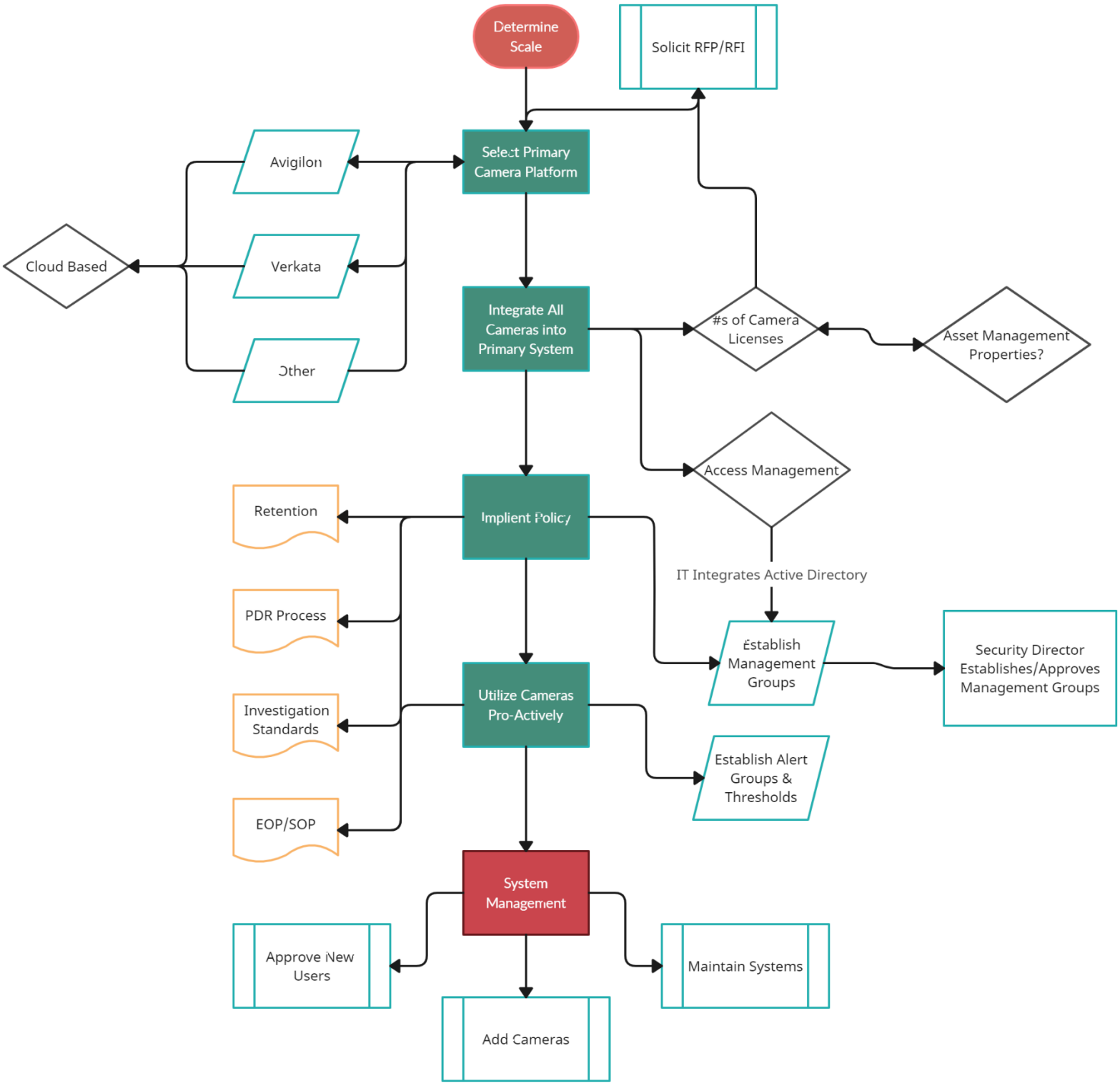
[2] Additional cameras may be added, at the discretion of KCHA staff. Layouts herein represent the most useful positioning of camera systems based on TTA evaluation, taking into account a layered approach to prevention.

Confusion was evident on what implementing an effective security system entailed. Thus, this report includes a flow-process chart for implementation and use of a comprehensive multi-tiered security system.

IMPLEMENTATION FLOW CHART:



CURRENT SYSTEMS AND CAMERA LAYOUTS:

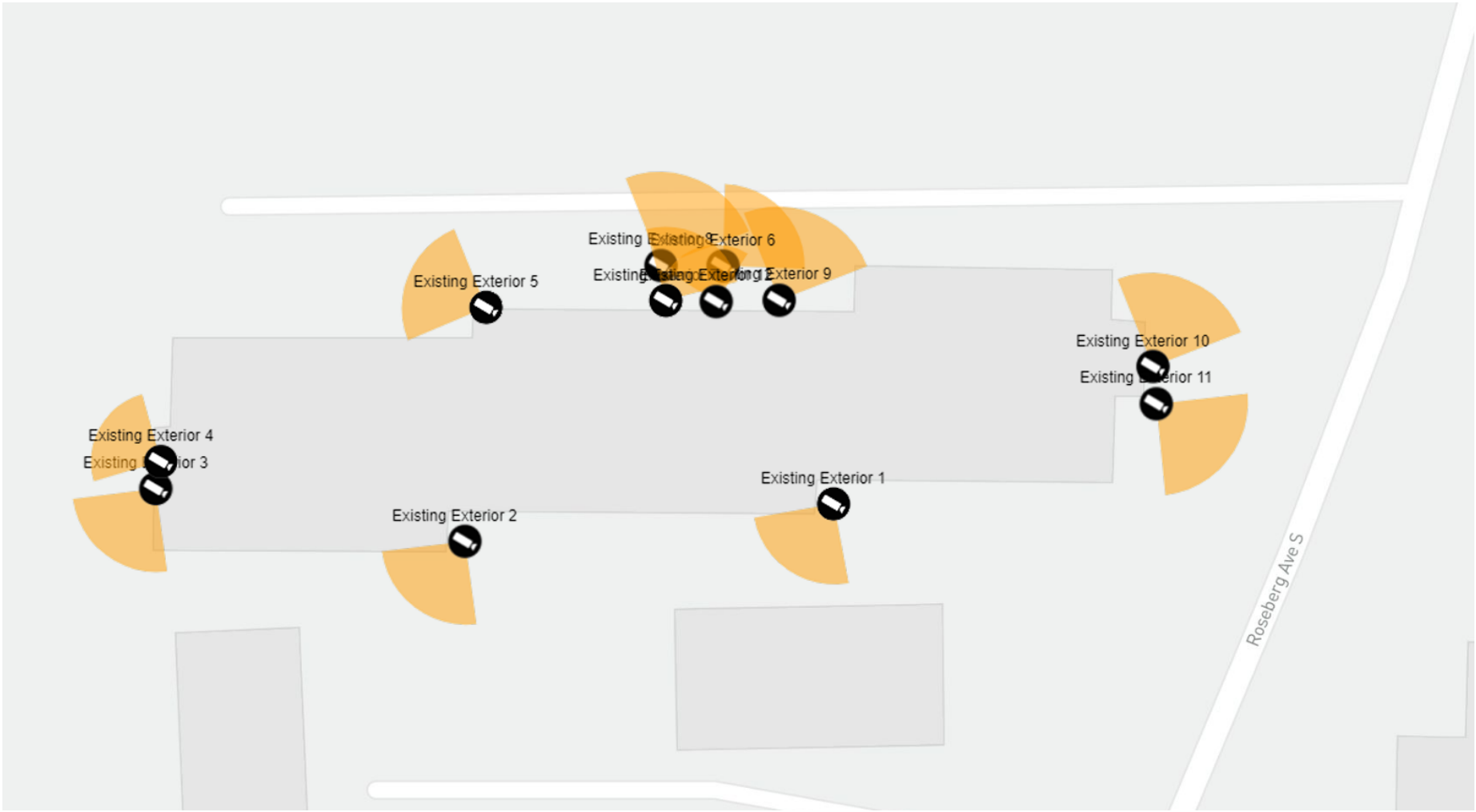
Current Onsite Cameras

Name	Make	Model	Quality	Analytics
Existing Exterior 1	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 2	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 3	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 4	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 5	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 6	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 7	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 8	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 9	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 10	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 11	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 12	Swan	AL	Low	No
Existing Interior 1	Swan	AL	Low	No
Existing Interior 2	Swann	AL	Low	No

Existing Interior 3*[3]	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Interior 4*	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Interior 5*	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Interior 6*	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Interior 7*	Digital Watchdog	DWC-MV82WiA	Low	No

[3] * cameras are also existing on floors 2, 3 and 4

Current Onsite Exterior Camera Layout



Current Onsite Interior Camera Layout

RECOMMENDED SYSTEMS AND CAMERA LAYOUTS:

Cameras for Retention[4]

Name	Make	Model	Quality	Analytics
Existing Exterior 2	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 3	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 4	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 5	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 6	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 7	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 8	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 9	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Exterior 10	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Interior 3*[5]	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Interior 5*	Digital Watchdog	DWC-MV82WiA	Low	No
Existing Interior 6*	Digital Watchdog	DWC-MV82WiA	Low	No

[4] New camera systems are numbered in priority order, not based on site orientation. The TTA recommends cameras be logically named based on location, similar to exterior doors into a facility. Reference the TTA Security Summary Report for further information on naming systems.
[5] * cameras are also existing on floors 2, 3 and 4

HDSM Smart Cameras

New Camera Specifications

Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
NEW TTA EXT 1	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA EXT 2	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA EXT 3	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA EXT 4	24C-H4A--3MH-270	-	1					Quality 6	18.84 Mbps	×		×

				Built-In Lens, 4mm, f/1.8							
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
NEW TTA EXT 6	8.0C-H5A--DO1-IR	-	1	Built-In Lens, 4.9-8mm, f/1.8, P-Iris, Vari Focal	8.0	30	6	Quality 6	11.99 Mbps	×	×
NEW TTA EXT 5	8.0C-H5A--FE-DO1--IR	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×	×
NEW TTA INT 1	8.0C-H5A--FE-DO1--IR	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×	×
NEW TTA INT 2	8.0C-H5A--FE-DO1--IR	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×	×
NEW TTA INT 3	4.0C-H5A--D2	-	1	Built-In Lens, 9-22mm, f/1.6, P-Iris, Vari Focal	9.0	30	6	Quality 6	8.17 Mbps	×	×

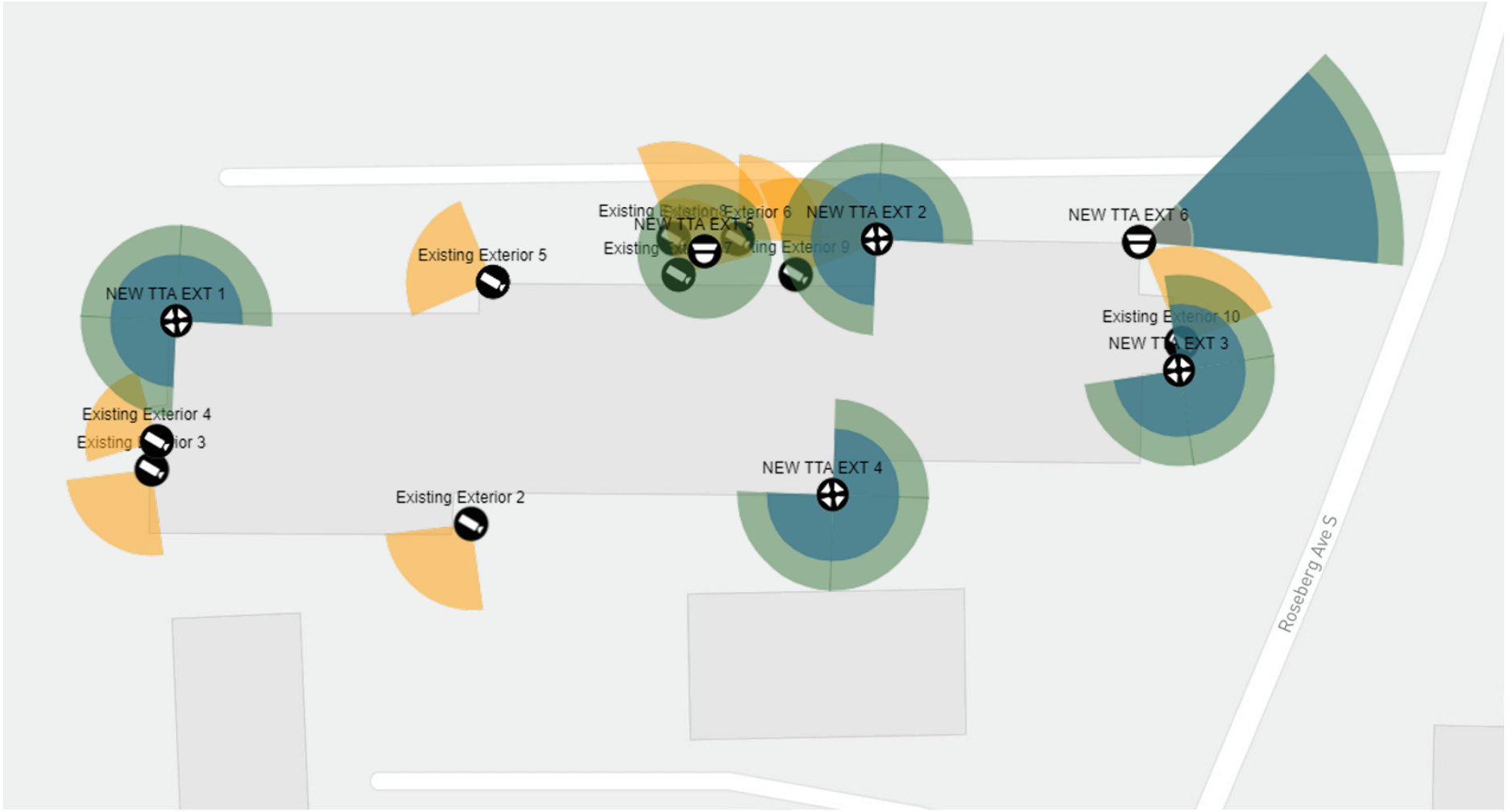
NEW TTA INT 4	4.0C-H5A--D2	-	1	Built-In Lens, 9-22mm, f/1.6, P-Iris, Vari Focal	9.0	30	6	Quality 6	8.17 Mbps	×	×
NEW TTA INT 5	8.0C-H5A--FE-DO1--IR	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×	×
NEW TTA INT 6	4.0C-H5A--D2	-	1	Built-In Lens, 9-22mm, f/1.6, P-Iris, Vari Focal	9.0	30	6	Quality 6	8.17 Mbps	×	×
NEW TTA INT 7	4.0C-H5A--D2	-	1	Built-In Lens, 9-22mm, f/1.6, P-Iris, Vari Focal	9.0	30	6	Quality 6	8.17 Mbps	×	×

Scene Details

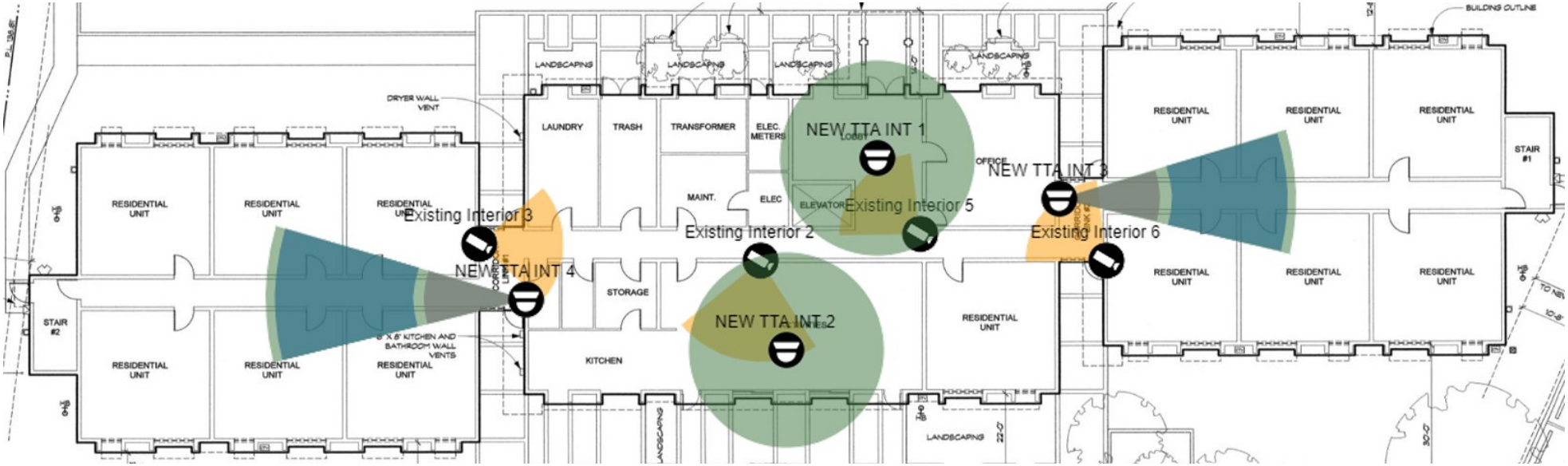
Name	Mounting Height (ft)	Target Height (ft)	Target Distance (ft)	Scene Width (ft)	Mounting Angle	Maximum Distance (ft)	px/ft
Existing Exterior 2	8.5	6	14.9	30.1	46.2	50.5	63.8
Existing Exterior 3	8.5	6	14.9	30.1	46.2	50.5	63.8
Existing Exterior 4	8.5	6	12.4	25.2	44.6	42.3	76.2
Existing Exterior 5	8.5	6	15	30.4	46.3	51.1	63.1
Existing Exterior 6	8.5	6	14.5	29.4	46	49.4	65.2
Existing Exterior 7	8.5	6	13.1	26.6	45.2	44.7	72.1
Existing Exterior 8	8.5	6	16.8	34	47.2	57	56.5
Existing Exterior 9	8.5	6	16.8	34	47.2	57	56.5
Existing Exterior 10	8.5	6	16.8	34	47.2	57	56.5
Existing Interior 2	8.5	6	12.8	23	37.7	43.7	27.8
Existing Interior 3	8.5	6	10.7	19.1	47.4	36.2	100.4
Existing Interior 5	8.5	6	10.2	18.4	46.9	34.8	104.6
Existing Interior 6	8.5	6	10.2	18.4	46.9	34.8	104.6
Existing Interior 8	8.5	6	11.8	21.1	48.4	40.1	90.9
Existing Interior 9	8.5	6	10.3	18.4	47	34.9	104.3
NEW TTA EXT 1		0	0	0	NaN	NaN	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8

Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8
NEW TTA EXT 2		0	0	0	NaN	NaN	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8
NEW TTA EXT 3		0	0	0	NaN	NaN	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8
NEW TTA EXT 4		0	0	0	NaN	NaN	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8
NEW TTA EXT 6	8.5	6	58.7	55.3	72.2	199.4	69.5
NEW TTA EXT 5	8.5	6	16.5	33	0	56.1	24.3
NEW TTA INT 1	8.5	6	16.5	33	0	56.1	24.3
NEW TTA INT 2	8.5	6	16.5	33	0	56.1	24.3
NEW TTA INT 3	9	6	38.7	21	73.8	116	109.6
NEW TTA INT 4	9	6	42.6	23.1	74.2	127.7	99.6
NEW TTA INT 5	8.5	6	16.5	33	0	56.1	24.3
NEW TTA INT 6	9	6	38.7	21	73.8	116	109.6

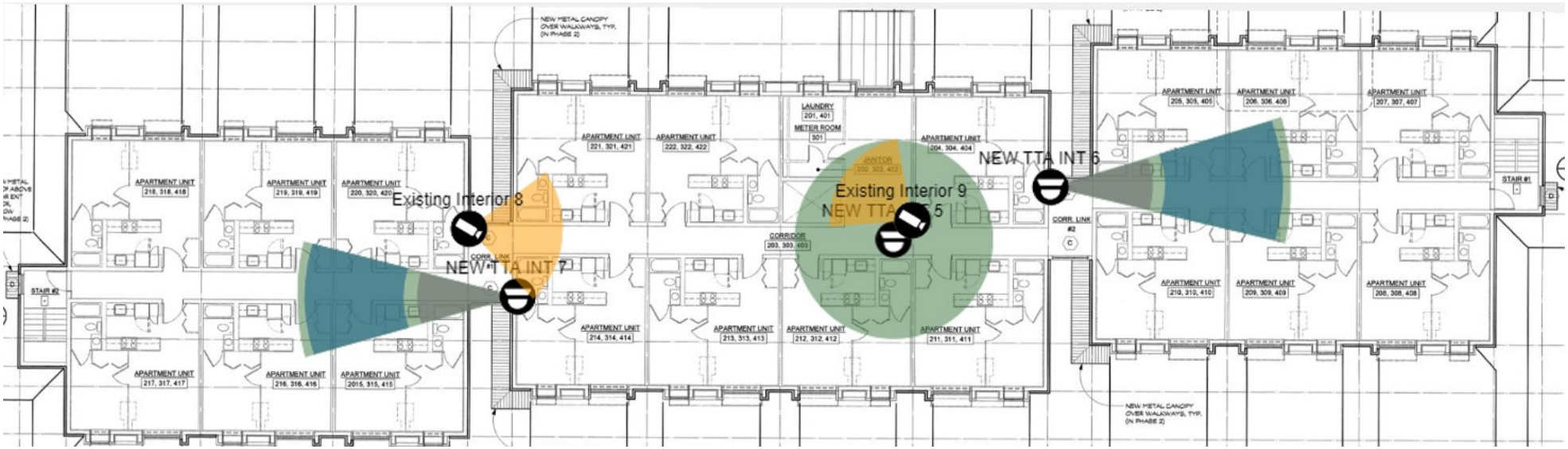
Recommended Exterior Camera Layout



Recommended Interior LVL 1 Camera Layout



Recommended Interior LVL 2, 3, & 4 Camera Layout



Network Infrastructure Recommendations:

Based on the TTA's assessment, a cloud-based implementation solution will benefit KCHA in the long-term. Cloud Services enables a modern cloud-connected user experience to view live and recorded video, as well as monitor and manage the health of systems, from anywhere with a connection, at any time – including via a connected mobile application.

Necessary Cloud-Based Features:

- Secure Cloud Based
- Mobile Access
- Analytics, including Emergency Alerts
    - Smart Recognition of Firearms/Weapons
    - Smart Recognition of Persons (Watch List)
    - Smart Recognition of License plates (Watch List)
- One-Stop Video Management Software
- License Integration for Current Cameras
- Integration with Access-Control Systems

Example systems that should be considered within current recommendations:

- Avigilon Control Center
- Verkada Centralized Command
- Cisco Meraki

IT Technical Recommendations[6]:

Type	Description	Recommendation
Internet related	**Cameral Qty**	38 cameras
Internet related	**Cameral Avg Bandwidth**	10 Mbps Upload
Internet related	**Camera Internet bandwidth**	380 Mbps Upload
Internet related	**Staff Qty**	Less than 5 staff
Internet related	**Staff Avg bandwidth**	5 Mbps Upload/Download
Internet related	**Staff Internet bandwidth**	25 Mbps Upload/Download
Internet related	**Total minimum internet bandwidth**	405 Mbps Upload/Download
Physical Equipment	**48G POE+ 400W Enterprise Managed Switch**	One switch
Physical Equipment	**Secure 19" Network Rack/Cabinet**	Use existing
Physical Equipment	**1500VA UPS/Battery Backup System**	One unit
Physical Equipment	**1G Firewall/Gateway**	Use existing

[6] All network cabling to cameras should meet or exceed the CAT5e standard. Camera locations have been selected with proximity to electricity. In addition to cabling, wireless cameras should be compared in relation to cost.

Reference Image[7]

[7] Reference images are captured under ideal conditions. Poor lighting, increased compression, or use of a lower quality lens will affect the quality of the images captured.

End of Report

Tactical Training Academy
info@training-academy.org

KING COUNTY HOUSING AUTHORITY

CAMERA IMPLIMENTATION PLAN

Briarwood

Version: 1.0

COMPLETED BY: Tactical Training Academy

TABLE OF CONTENTS

CAMERA IMPLIMENTATION REPORT

INTRODUCTION:

A Camera Implementation Assessment[1] for the King County Housing Authority (KCHA) was conducted for the Briarwood Property, starting in April, 2023. The scope of this assessment included an evaluation of current camera security systems, and recommendations necessary to implement an RFP to improve camera systems[2]. This proposal is design to assist in the solicitation process to select a camera installation vendor, which should include cameras, installation, cabling, and the IT specification requirements outlined in this report.

This report is specifically designed generically, to encourage bids from several camera installation vendors. Camera specifications could be met by several quality camera systems. The TTA has good experience using the Avigilon system, and considers it the top-tier of current holistic security camera systems. Therefore, specific camera models within the Avigilon system are noted as examples within this report. Again, other camera systems may meet the specifications included in this report and should be evaluated when proposals for installation are received, but each should meet the minimum specifications outlined in this report.

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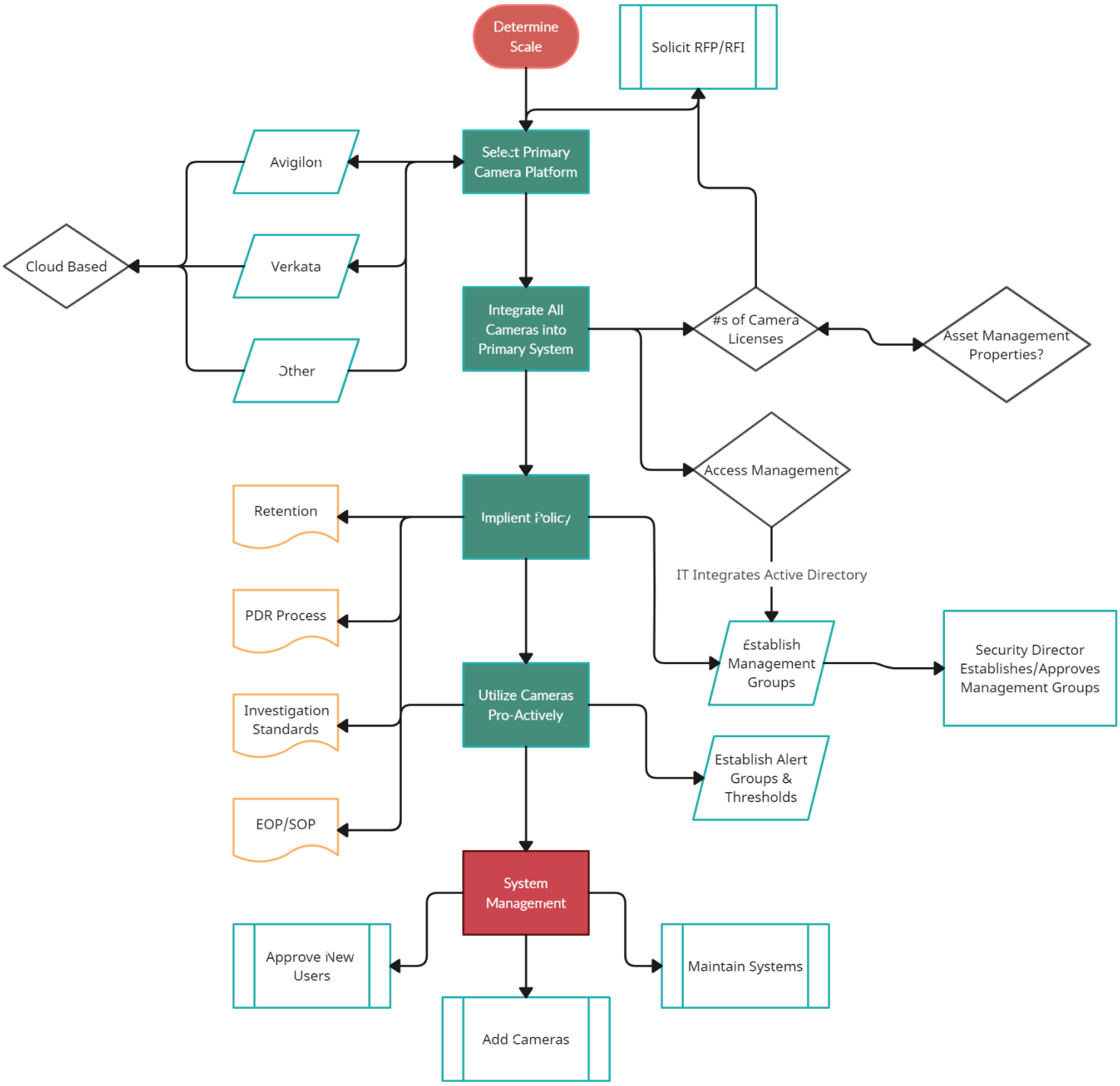

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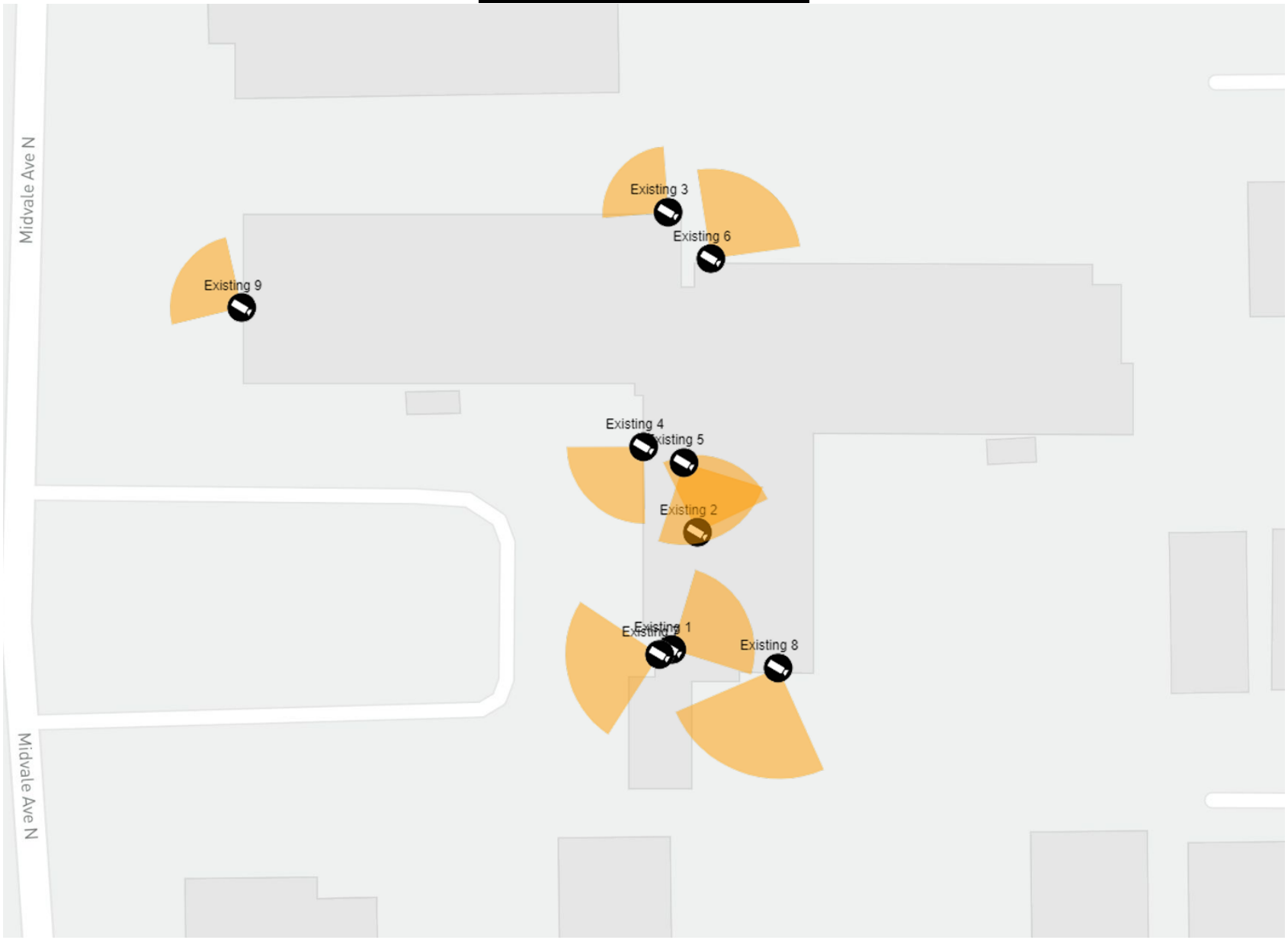
Existing 3	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 4	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 5	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 6	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 7	Digital Watchdog	DWC-MV85WiATW	Moderate - Shrubs	No
Existing 8	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 9	Digital Watchdog	DWC-MV84WiA	Low - Clean	No

Current Onsite Camera Layout



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Cameras for Retention[3]

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Existing 2	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 3*[4]	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 4	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 5	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 6*	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 7	Digital Watchdog	DWC-MV85WiATW	Moderate - Shrubs	No
Existing 8	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 9	Digital Watchdog	DWC-MV84WiA	Low - Clean	No

[3] New camera systems are numbered in priority order, not based on site orientation. The TTA recommends cameras be logically named based on location, similar to exterior doors into a facility. Reference the TTA Security Summary Report for further information on naming systems.
[4] * cameras have been moved to increase overall coverage areas.

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New Camera Specifications

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										Enabled	Strength	Min Image Rate
New Ext TTA 1	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
New Ext TTA 2	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
New Ext TTA 3	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
New Ext TTA 4	24C-H4A--3MH-270	-	1					Quality 6	18.84 Mbps	×		×

				Built-In Lens, 4mm, f/1.8							
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
NEW TTA INT 1	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×	×
NEW TTA INT 2	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×	×
NEW TTA INT 3	2.0C-H5A--D2	-	1	Built-In Lens, 9-22mm, f/1.6, P-Iris, Vari Focal	9.0	30	6	Quality 6	6.23 Mbps	×	×
NEW TTA INT 4	2.0C-H5A--D2	-	1	Built-In Lens, 9-22mm, f/1.6, P-Iris, Vari Focal	9.0	30	6	Quality 6	6.23 Mbps	×	×
NEW TTA INT 5	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×	×

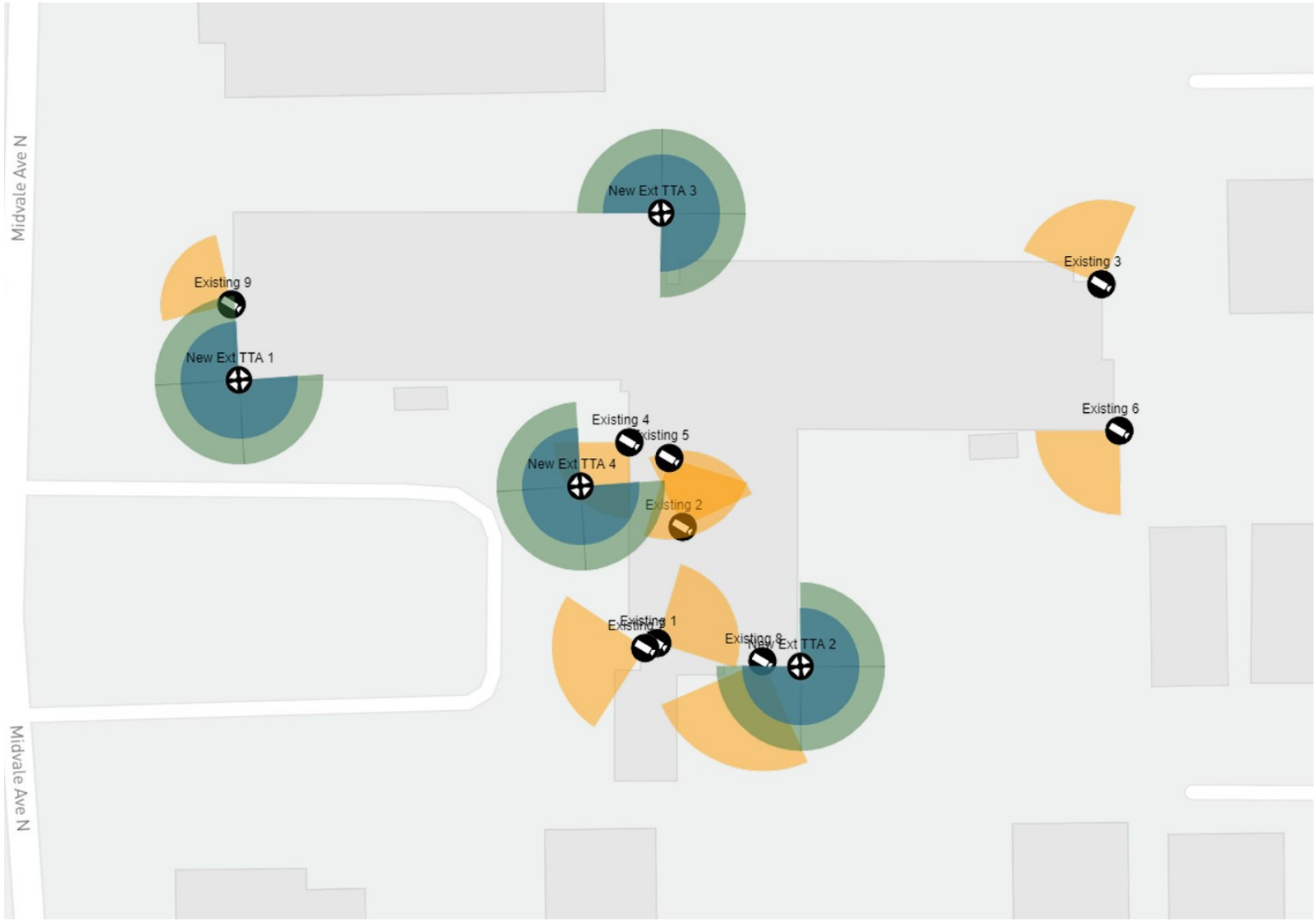
NEW TTA INT 6	2.0C-H5A--D2	-	1	Built-In Lens, 9-22mm, f/1.6, P-Iris, Vari Focal	9.0	30	6	Quality 6	6.23 Mbps	×	×
NEW TTA INT 7	2.0C-H5A--D2	-	1	Built-In Lens, 9-22mm, f/1.6, P-Iris, Vari Focal	9.0	30	6	Quality 6	6.23 Mbps	×	×
NEW TTA INT 8	2.0C-H5A--D2	-	1	Built-In Lens, 9-22mm, f/1.6, P-Iris, Vari Focal	9.0	30	6	Quality 6	6.23 Mbps	×	×

Scene Details

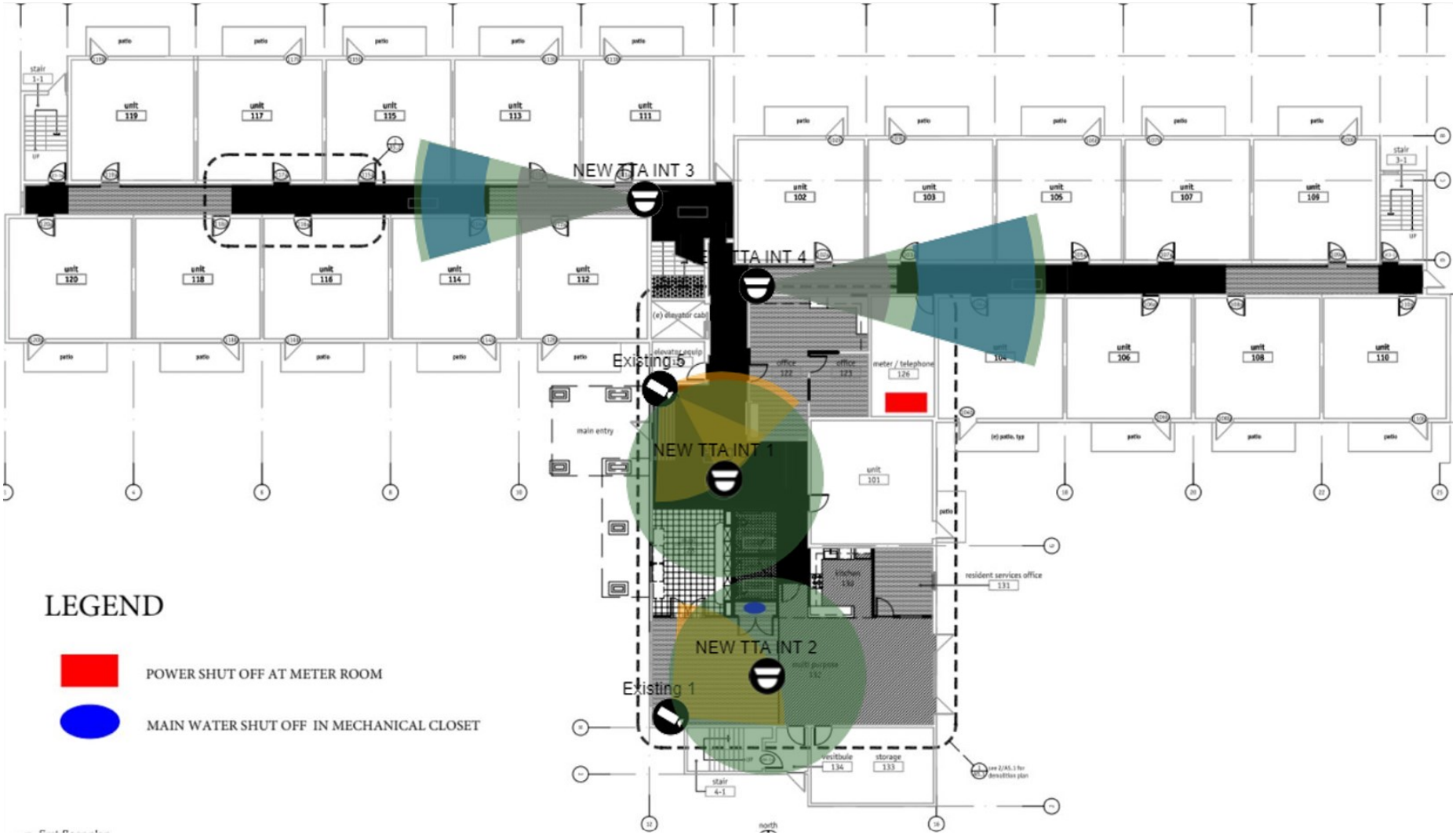
Name	Mounting Height (ft)	Target Height (ft)	Target Distance (ft)	Scene Width (ft)	Mounting Angle	Maximum Distance (ft)	px/ft
Existing 1	8.5	6	13.4	27.1	31.1	45.5	95.5
Existing 2	8.5	6	14.9	21.7	48	50.7	119.5
Existing 3	8.5	6	16.6	33.6	32.7	56.3	77.2
Existing 4	8.5	6	14.9	30.2	31.9	50.7	85.8
Existing 5	8.5	6	15.6	21.4	50.3	53	121.2
Existing 6	8.5	6	16.4	33.3	32.6	55.9	77.8
Existing 7	8.5	6	18.4	37.3	33.4	62.5	69.6
New Ext TTA 1		0	0	0	NaN	NaN	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8
Existing 8	8.5	6	21.6	43.7	34.4	73.4	59.3
Existing 9	8.5	6	13.9	28.2	31.4	47.3	91.8
New Ext TTA 2		0	0	0	NaN	NaN	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8
New Ext TTA 3		0	0	0	NaN	0	0

Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8
New Ext TTA 4		0	0	0	NaN	NaN	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8
NEW TTA INT 1	8.5	6	16.5	33	0	56.1	24.3
NEW TTA INT 2	8.5	6	16.5	33	0	56.1	24.3
NEW TTA INT 3	8.5	6	37.5	20.6	77.3	127.5	93.2
NEW TTA INT 4	8.5	6	46.7	25.6	78.1	158.7	74.9
NEW TTA INT 5	8.5	6	16.5	33	0	56.1	24.3
NEW TTA INT 6	8.5	6	37.5	20.6	77.3	127.5	93.2
NEW TTA INT 7	8.5	6	33.4	18.3	76.9	113.5	104.7
NEW TTA INT 8	8.5	6	34.9	19.2	77	118.7	100.2

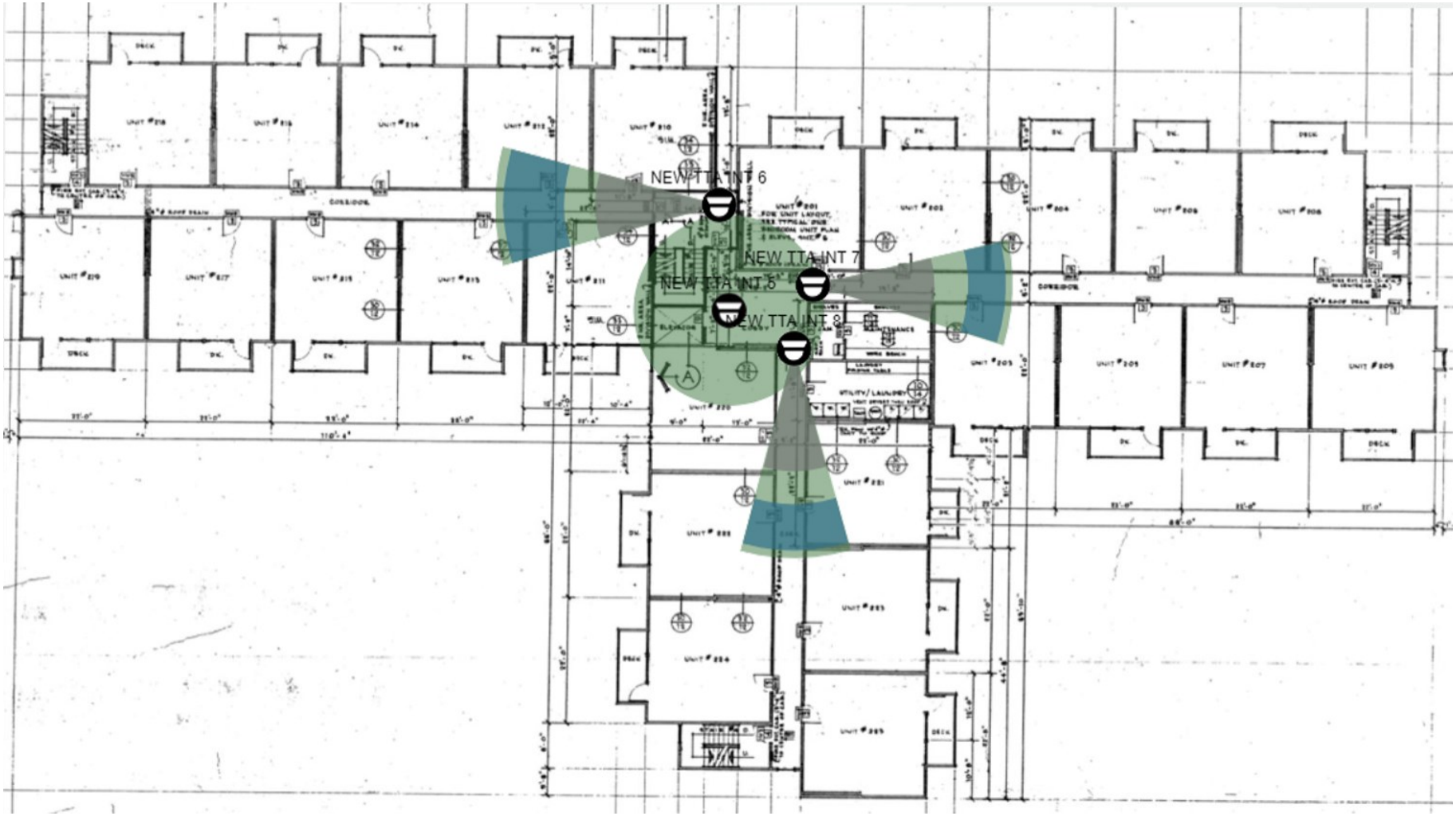
Recommended Exterior Camera Layout



Recommended Interior LVL 1 Camera Layout



Recommended Interior LVL 2 & 3 Camera Layout[5]



[5] Camera positioning and specs should be duplicated on floor 3

Network Infrastructure Recommendations:

Based on the TTA's assessment, a cloud-based implementation solution will benefit KCHA in the long-term. Cloud Services enables a modern cloud-connected user experience to view live and recorded video, as well as monitor and manage the health of systems, from anywhere with a connection, at any time – including via a connected mobile application.

Necessary Cloud-Based Features:

- Secure Cloud Based
- Mobile Access
- Analytics, including Emergency Alerts
    - Smart Recognition of Firearms/Weapons
    - Smart Recognition of Persons (Watch List)
    - Smart Recognition of License plates (Watch List)
- One-Stop Video Management Software
- License Integration for Current Cameras
- Integration with Access-Control Systems

Example systems that should be considered within current recommendations:

- Avigilon Control Center
- Verkada Centralized Command
- Cisco Meraki

IT Technical Recommendations[6]:

Type	Description	Recommendation
Internet related	**Cameral Qty**	23 cameras
Internet related	**Cameral Avg Bandwidth**	10 Mbps Upload
Internet related	**Camera Internet bandwidth**	230 Mbps Upload
Internet related	**Staff Qty**	Less than 5 staff
Internet related	**Staff Avg bandwidth**	5 Mbps Upload/Download
Internet related	**Staff Internet bandwidth**	25 Mbps Upload/Download
Internet related	**Total minimum internet bandwidth**	255 Mbps Upload/Download
Physical Equipment	**24G POE+ 400W Enterprise Managed Switch**	One switch
Physical Equipment	**Secure 19" Network Rack/Cabinet**	Use existing
Physical Equipment	**1500VA UPS/Battery Backup System**	One unit
Physical Equipment	**1G Firewall/Gateway**	Use existing

[6] All network cabling to cameras should meet or exceed the CAT5e standard. Camera locations have been selected with proximity to electricity. In addition to cabling, wireless cameras should be compared in relation to cost.

Reference Image[7]

[7] Reference images are captured under ideal conditions. Poor lighting, increased compression, or use of a lower quality lens will affect the quality of the images captured.

End of Report

Tactical Training Academy
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KING COUNTY HOUSING AUTHORITY

CAMERA IMPLIMENTATION PLAN

Burndale Homes

Version: 1.0

COMPLETED BY: Tactical Training Academy

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CAMERA IMPLIMENTATION REPORT

INTRODUCTION:

A Camera Implementation Assessment[1] for the King County Housing Authority (KCHA) was conducted for the Burndale Homes Property, starting in April, 2023. The scope of this assessment included an evaluation of current camera security systems, and recommendations necessary to implement an RFP to improve camera systems[2]. This proposal is design to assist in the solicitation process to select a camera installation vendor, which should include cameras, installation, cabling, and the IT specification requirements outlined in this report.

This report is specifically designed generically, to encourage bids from several camera installation vendors. Camera specifications could be met by several quality camera systems. The TTA has good experience using the Avigilon system, and considers it the top-tier of current holistic security camera systems. Therefore, specific camera models within the Avigilon system are noted as examples within this report. Again, other camera systems may meet the specifications included in this report and should be evaluated when proposals for installation are received, but each should meet the minimum specifications outlined in this report.

The data presented in this report assumes that recommend changes to CPTED and hardscapes outlined in prior TTA KCHA Site-Specific Reports have or will be implemented. This includes installing various fencing and gating systems, trimming trees and shrubbery, and improving vestibule spaces. Thus, the camera systems within these reports will be effective long-term, and not made superfluous by necessary hardscape changes already planned.

STAKEHOLDER INTERVIEWS:

The following feedback was collected from managers, IT staff, maintenance staff, facilities, and other stakeholders, regarding the success of this project.

Detail of Users:

- 20-30 end users
- 15 administrators
- Mostly site management and security staff

Self-hosted or Cloud solution:

- Cloud

Challenges:

- Space for network locations
- Environmental challenges

Measuring Success:

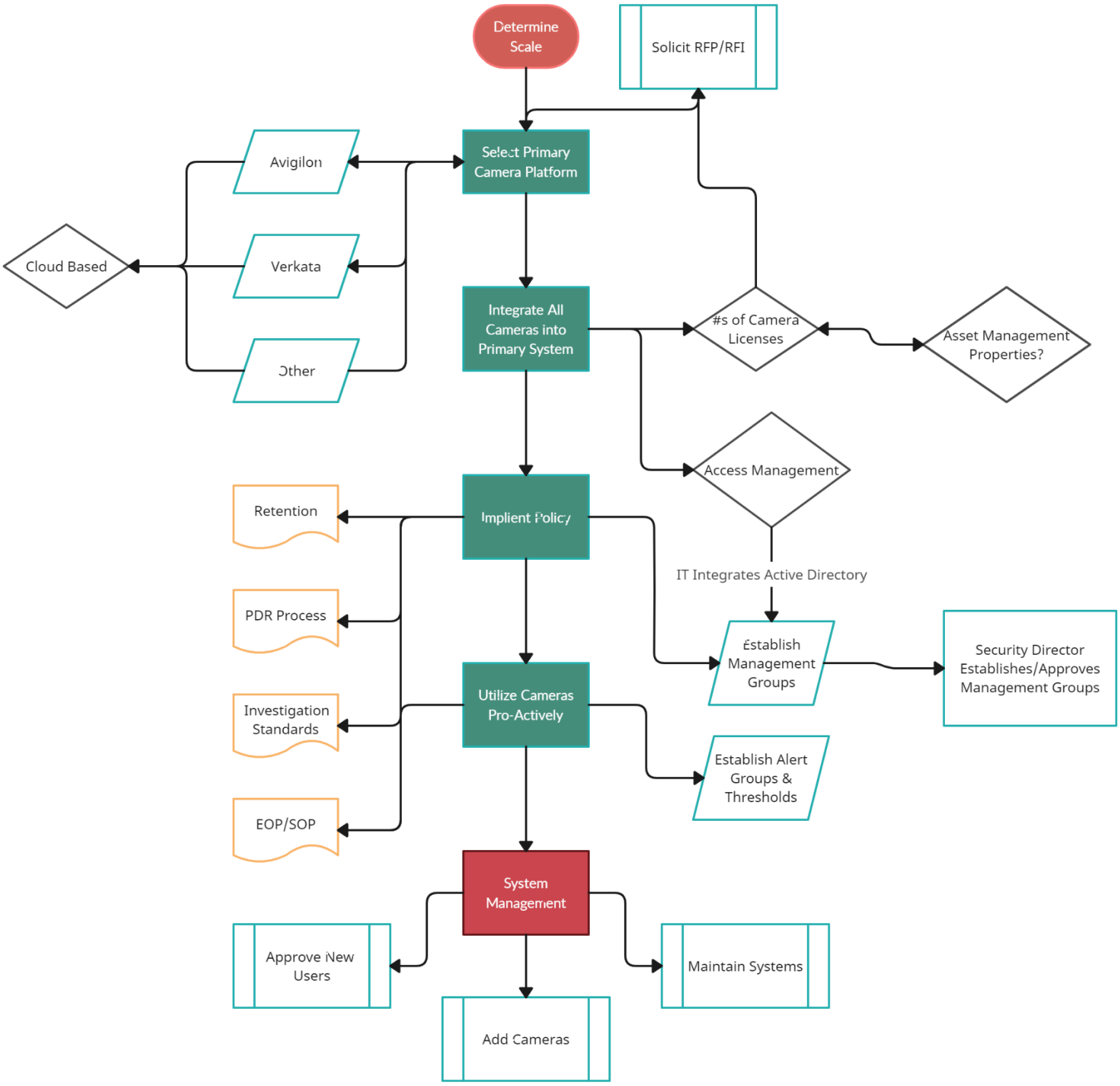
- A unified solution
- Ease of use
- Ease of maintenance
- Reliable system

[1] **Disclaimer:** The intent of this assessment is to improve the overall safety and security for KCHA. The information contained in this report is to be used solely by KCHA, law enforcement, fire service and other emergency response agencies. The disclosures of the information contained in this report to the general public is not recommended.

[2] Additional cameras may be added, at the discretion of KCHA staff. Layouts herein represent the most useful positioning of camera systems based on TTA evaluation, taking into account a layered approach to prevention.

Confusion was evident on what implementing an effective security system entailed. Thus, this report includes a flow-process chart for implementation and use of a comprehensive multi-tiered security system.

IMPLEMENTATION FLOW CHART:



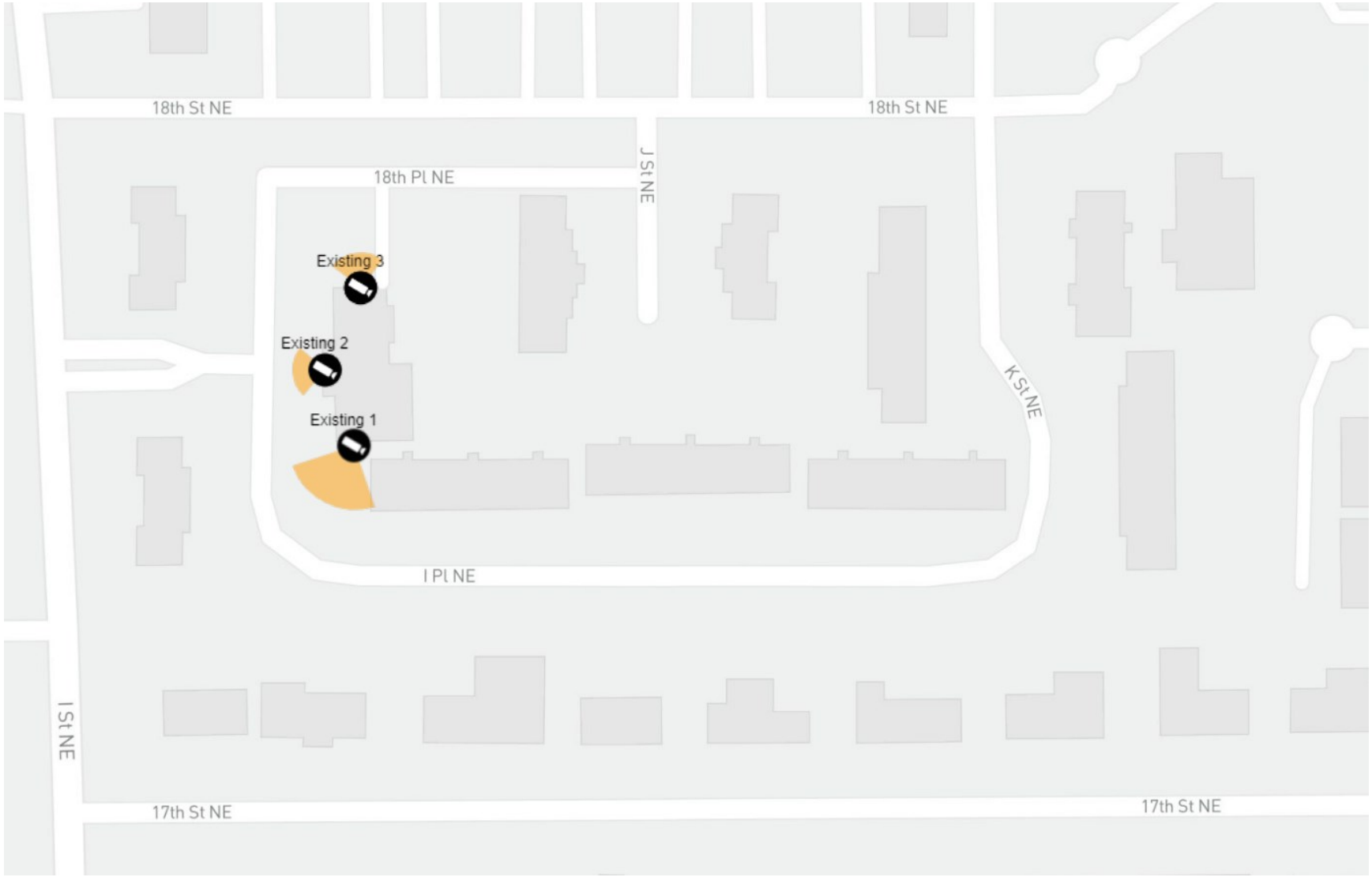
CURRENT SYSTEMS AND CAMERA LAYOUTS:

Current Onsite Cameras

Name	Make	Model	Quality	Analytics
Existing 1	Digital Watchdog	DWC-MV84WiA	Low - Clean[3]	No
Existing 2	Digital Watchdog	DWC-MV85WiaT	Low - Shrubs[4]	No
Existing 3	Digital Watchdog	DWC-MV84WiA	Moderate	No

[3] Cameras need to be cleaned to improve quality
[4] Shrubbery needs to be trimmed accordingly to improve quality

Current Onsite Camera Layout



RECOMMENDED SYSTEMS AND CAMERA LAYOUTS:

Cameras for Retention[5]

Name	Make	Model	Quality	Analytics
Existing 1	Digital Watchdog	DWC-MV84WiA	Low - Clean	No
Existing 2	Digital Watchdog	DWC-MV85WiaT	Low - Shrubs	No
Existing 3	Digital Watchdog	DWC-MV84WiA	Moderate	No

[5] New camera systems are numbered in priority order, not based on site orientation. The TTA recommends cameras be logically named based on location, similar to exterior doors into a facility. Reference the TTA Security Summary Report for further information on naming systems.

HDSM Smart Cameras

New Camera Specifications

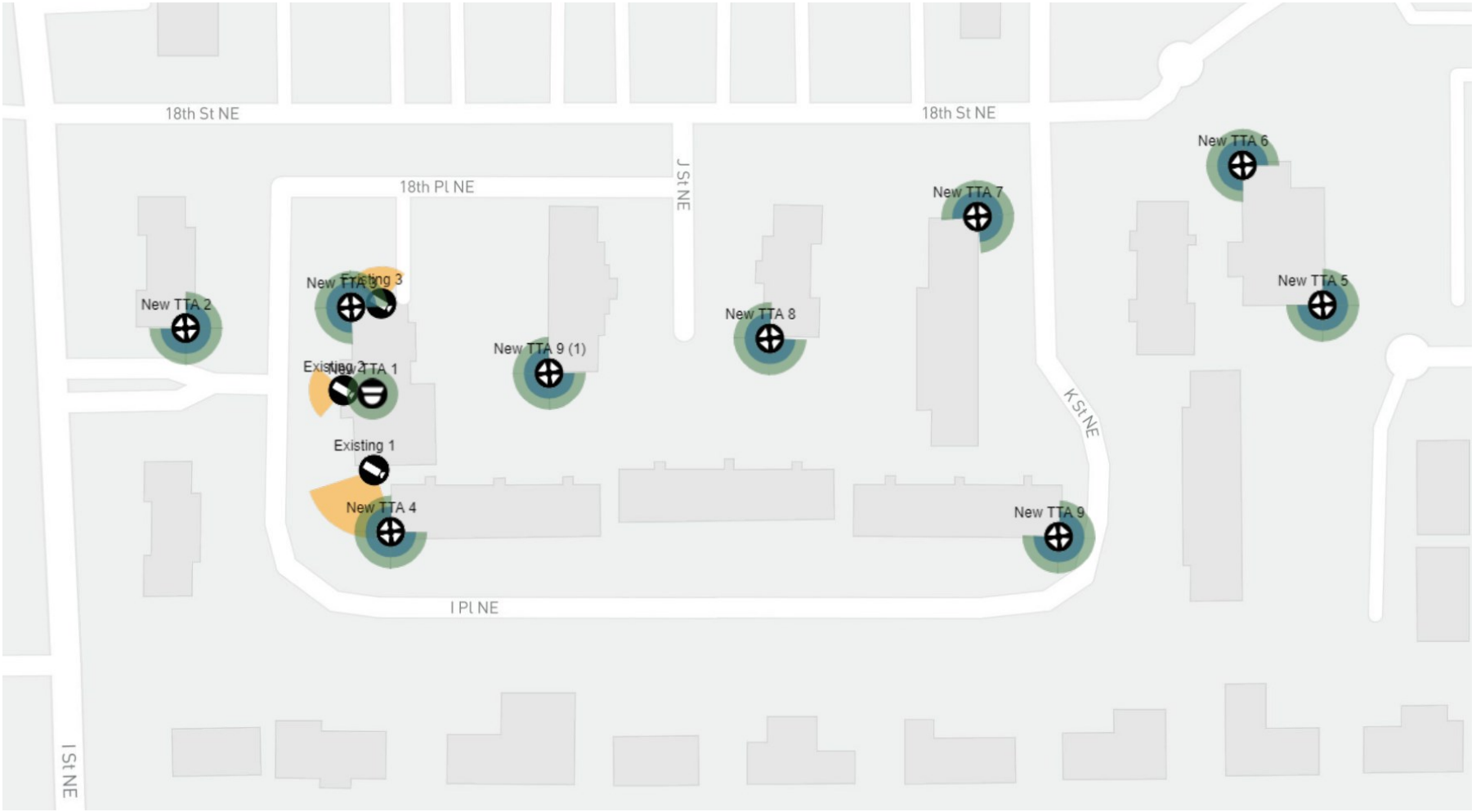
Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
New TTA 1	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×		×
New TTA 2	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
New TTA 3	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
New TTA 4	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6				
Head 3					4.0	12	6	Quality 6		×		×
New TTA 5	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×

New TTA 6	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
New TTA 7	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
New TTA 8	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
New TTA 9	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
New TTA 9 (1)	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×

Scene Details

Name	Mounting Height (ft)	Target Height (ft)	Target Distance (ft)	Scene Width (ft)	Mounting Angle	Maximum Distance (ft)	px/ft
Existing 1	8.5	6	30.8	62.4	36.1	104.7	32.8
Existing 2	8.5	6	15.9	32.3	32.4	54.2	63.4
Existing 3	8.5	6	17.1	34.6	32.9	58.1	59.1
New TTA 1	8.5	6	16.5	33	0	56.1	24.3
New TTA 2		0	0	0	NaN	NaN	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8
New TTA 3		0	0	0	NaN	NaN	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8
New TTA 4		0	0	0	NaN	NaN	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8
New TTA 5		0	0	0	NaN	NaN	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8

Recommended Camera Layout



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Type	Description	Recommendation
Internet related	**Cameral Qty**	13 cameras
Internet related	**Cameral Avg Bandwidth**	10 Mbps Upload
Internet related	**Camera Internet bandwidth**	130 Mbps Upload
Internet related	**Staff Qty**	5 staff
Internet related	**Staff Avg bandwidth**	5 Mbps Upload/Download
Internet related	**Staff Internet bandwidth**	25 Mbps Upload/Download
Internet related	**Total minimum internet bandwidth**	155 Mbps Upload/Download
Physical Equipment	**24G POE+ 400W Enterprise Managed Switch**	One switch
Physical Equipment	**Secure 19" Network Rack/Cabinet**	Use existing
Physical Equipment	**1500VA UPS/Battery Backup System**	One unit
Physical Equipment	**1G Firewall/Gateway**	Use existing

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End of Report

Tactical Training Academy
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KING COUNTY HOUSING AUTHORITY

CAMERA IMPLIMENTATION PLAN

Cascade

Version: 1.0

COMPLETED BY: Tactical Training Academy

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CAMERA IMPLIMENTATION REPORT

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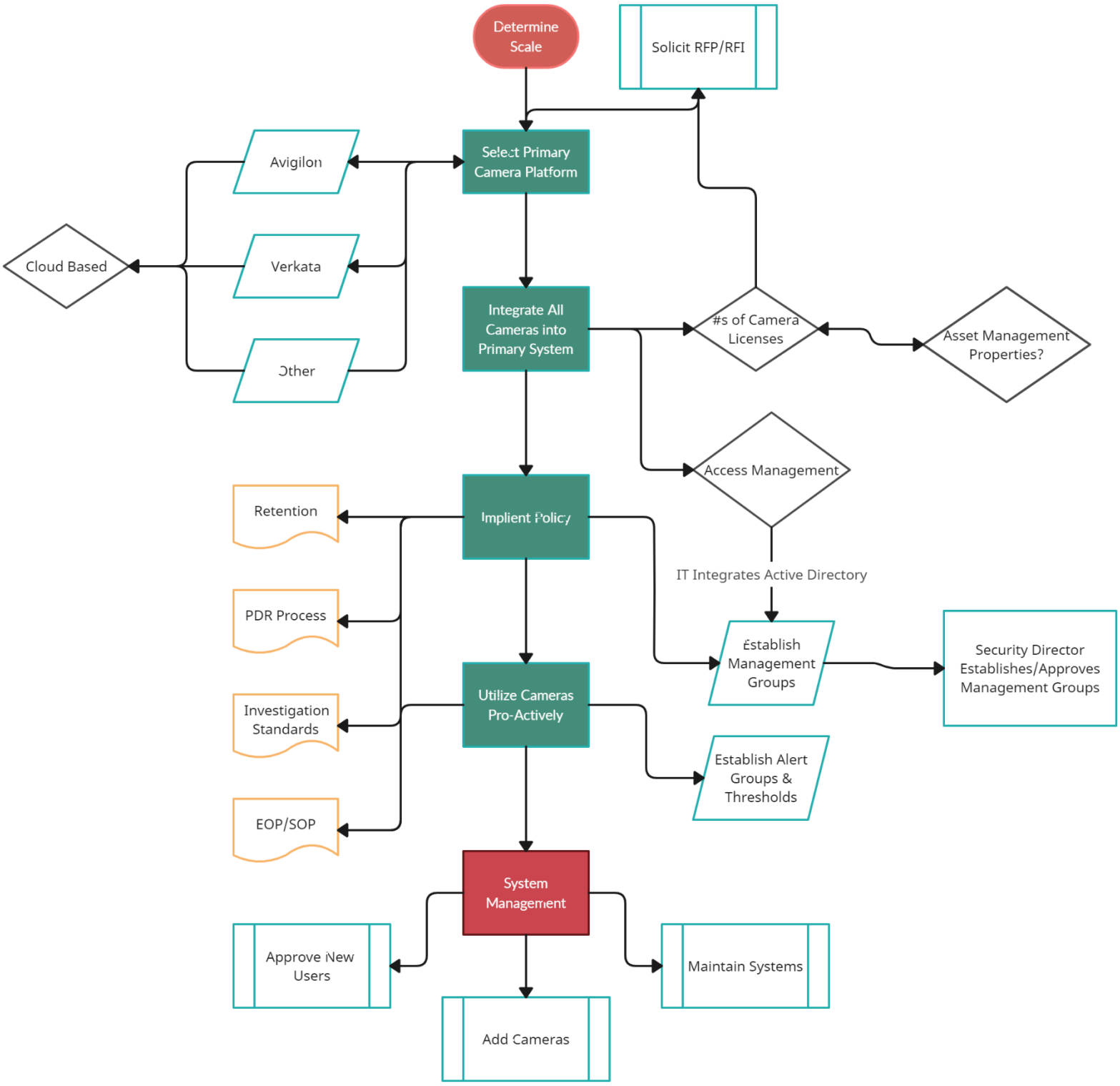

CURRENT SYSTEMS AND CAMERA LAYOUTS:

Current Onsite Cameras

Name	Make	Model	Quality	Analytics
Existing 1	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 2	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 3	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 4	Digital Watchdog	DWC-MV85WiATW	Moderate – Limited View	No
Existing 5	Digital Watchdog	DWC-MV85WiATW	Moderate – Limited View	No
Existing 6	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 7	Digital Watchdog	DWC-MV84WiA	Low - Clean	No
Existing 8	Digital Watchdog	DWC-MV85WiATW	Low - Shrubs	No
Existing 9	Digital Watchdog	DWC-MV84WiA	Low - Shrubs	No
Existing 10	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 11	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 12	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 13	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 14	Digital Watchdog	DWC-MV84WiA	Moderate	No

Current Onsite Camera Layout

RECOMMENDED SYSTEMS AND CAMERA LAYOUTS:

Cameras for Retention[3]

Name	Make	Model	Quality	Analytics
Existing 1	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 2	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 3	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 4	Digital Watchdog	DWC-MV85WiATW	Moderate – Limited View	No
Existing 5*[4]	Digital Watchdog	DWC-MV85WiATW	Moderate – Limited View	No
Existing 6	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 7	Digital Watchdog	DWC-MV84WiA	Low - Clean	No
Existing 8	Digital Watchdog	DWC-MV85WiATW	Low - Shrubs	No
Existing 9	Digital Watchdog	DWC-MV84WiA	Low - Shrubs	No
Existing 10	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 11*	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 12	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 13	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 14	Digital Watchdog	DWC-MV84WiA	Moderate	No

[3] New camera systems are numbered in priority order, not based on site orientation. The TTA recommends cameras be logically named based on location, similar to exterior doors into a facility. Reference the TTA Security Summary Report for further information on naming systems.

[4] * retention cameras have been moved for increased visibility onsite.

HDSM Smart Cameras

New Camera Specifications

Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
NEW TTA 1	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 2	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 3	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 4	24C-H4A--3MH-270	-	1					Quality 6	18.84 Mbps	×		×

				Built-In Lens, 4mm, f/1.8							
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
NEW TTA 5	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
NEW TTA 6	24C-H4A--3MH-180	-	1	Built-In Lens, 5.2mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					5.2	12	6	Quality 6		×	×
Head 2					5.2	12	6	Quality 6		×	×
Head 3					5.2	12	6	Quality 6		×	×
New TTA 7	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×	×

Scene Details

Name	Mounting Height (ft)	Target Height (ft)	Target Distance (ft)	Scene Width (ft)	Mounting Angle	Maximum Distance (ft)	px/ft
Existing 1	8.5	6	34.2	69.2	36.5	116.1	29.6
Existing 2	8.5	6	35.2	54.6	50.6	119.8	37.5
Existing 3	8.5	6	33.8	52.3	50.4	114.9	39.1
Existing 4	8.5	6	32.7	50.6	50.3	111.2	40.5
Existing 5	8.5	6	30.9	59.9	39	105.2	34.2
Existing 6	8.5	6	32.4	62.8	39.2	110.3	32.6
Existing 7	8.5	6	36.3	70.4	39.7	123.5	29.1
Existing 8	8.5	6	36.7	71	39.7	124.8	28.8
Existing 9	8.5	6	36.3	70.2	39.6	123.3	29.2
Existing 10	8.5	6	34.5	66.8	39.5	117.3	30.7
Existing 11	8.5	6	44	85.2	40.3	149.6	24
Existing 12	8.5	6	37	71.7	39.7	125.9	28.6
Existing 13	8.5	6	31.2	60.4	39.1	106	33.9
NEW TTA 1		0	0	0	NaN	NaN	0
Head 1	8.5	6	37.6	75.6	51.9	128	50.8
Head 2	8.5	6	38	76.3	51.9	129.2	50.3
Head 3	8.5	6	35.8	71.9	51.7	121.6	53.4
Existing 14	8.5	6	40.1	77.7	40	136.4	26.4

NEW TTA 2		0	0	0	NaN	NaN	0
Head 1	8.5	6	37.6	75.6	51.9	128	50.8
Head 2	8.5	6	38	76.3	51.9	129.2	50.3
Head 3	8.5	6	35.8	71.9	51.7	121.6	53.4
NEW TTA 3		0	0	0	NaN	NaN	0
Head 1	8.5	6	37.6	75.6	51.9	128	50.8
Head 2	8.5	6	38	76.3	51.9	129.2	50.3
Head 3	8.5	6	35.8	71.9	51.7	121.6	53.4
NEW TTA 4		0	0	0	NaN	NaN	0
Head 1	8.5	6	37.6	75.6	51.9	128	50.8
Head 2	8.5	6	38	76.3	51.9	129.2	50.3
Head 3	8.5	6	35.8	71.9	51.7	121.6	53.4
NEW TTA 5		0	0	0	NaN	NaN	0
Head 1	8.5	6	37.6	75.6	51.9	128	50.8
Head 2	8.5	6	38	76.3	51.9	129.2	50.3
Head 3	8.5	6	35.8	71.9	51.7	121.6	53.4
NEW TTA 6		0	0	0	NaN	NaN	0
Head 1	8.5	6	38.3	50	64.8	130.2	76.8
Head 2	8.5	6	40.3	52.6	65	137	73
Head 3	8.5	6	42.3	55.3	65.1	143.9	69.5
New TTA 7	8.5	6	16.5	33	0	56.1	24.3

Recommended Camera Layout

Network Infrastructure Recommendations:

Based on the TTA's assessment, a cloud-based implementation solution will benefit KCHA in the long-term. Cloud Services enables a modern cloud-connected user experience to view live and recorded video, as well as monitor and manage the health of systems, from anywhere with a connection, at any time – including via a connected mobile application.

Necessary Cloud-Based Features:

- Secure Cloud Based
- Mobile Access
- Analytics, including Emergency Alerts
    - Smart Recognition of Firearms/Weapons
    - Smart Recognition of Persons (Watch List)
    - Smart Recognition of License plates (Watch List)
- One-Stop Video Management Software
- License Integration for Current Cameras
- Integration with Access-Control Systems

Example systems that should be considered within current recommendations:

- Avigilon Control Center
- Verkada Centralized Command
- Cisco Meraki

IT Technical Recommendations[5]:

Type	Description	Recommendation
Internet related	**Cameral Qty**	21 cameras
Internet related	**Cameral Avg Bandwidth**	10 Mbps Upload
Internet related	**Camera Internet bandwidth**	210 Mbps Upload
Internet related	**Staff Qty**	Less than 5 staff
Internet related	**Staff Avg bandwidth**	5 Mbps Upload/Download
Internet related	**Staff Internet bandwidth**	25 Mbps Upload/Download
Internet related	**Total minimum internet bandwidth**	235 Mbps Upload/Download
Physical Equipment	**24G POE+ 400W Enterprise Managed Switch**	One switch
Physical Equipment	**Secure 19" Network Rack/Cabinet**	Use existing
Physical Equipment	**1500VA UPS/Battery Backup System**	One unit
Physical Equipment	**1G Firewall/Gateway**	Use existing

[5] All network cabling to cameras should meet or exceed the CAT5e standard. Camera locations have been selected with proximity to electricity. In addition to cabling, wireless cameras should be compared in relation to cost.

Reference Image[6]

[6] Reference images are captured under ideal conditions. Poor lighting, increased compression, or use of a lower quality lens will affect the quality of the images captured.

End of Report

Tactical Training Academy
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KING COUNTY HOUSING AUTHORITY

CAMERA IMPLIMENTATION PLAN

Firwood Circle

Version: 1.0

COMPLETED BY: Tactical Training Academy

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CAMERA IMPLIMENTATION REPORT

INTRODUCTION:

A Camera Implementation Assessment[1] for the King County Housing Authority (KCHA) was conducted for the Firwood Circle Property, starting in April, 2023. The scope of this assessment included an evaluation of current camera security systems, and recommendations necessary to implement an RFP to improve camera systems[2]. This proposal is design to assist in the solicitation process to select a camera installation vendor, which should include cameras, installation, cabling, and the IT specification requirements outlined in this report.

This report is specifically designed generically, to encourage bids from several camera installation vendors. Camera specifications could be met by several quality camera systems. The TTA has good experience using the Avigilon system, and considers it the top-tier of current holistic security camera systems. Therefore, specific camera models within the Avigilon system are noted as examples within this report. Again, other camera systems may meet the specifications included in this report and should be evaluated when proposals for installation are received, but each should meet the minimum specifications outlined in this report.

The data presented in this report assumes that recommend changes to CPTED and hardscapes outlined in prior TTA KCHA Site-Specific Reports have or will be implemented. This includes installing various fencing and gating systems, trimming trees and shrubbery, and improving vestibule spaces. Thus, the camera systems within these reports will be effective long-term, and not made superfluous by necessary hardscape changes already planned.

STAKEHOLDER INTERVIEWS:

The following feedback was collected from managers, IT staff, maintenance staff, facilities, and other stakeholders, regarding the success of this project.

Detail of Users:

- 20-30 end users
- 15 administrators
- Mostly site management and security staff

Self-hosted or Cloud solution:

- Cloud

Challenges:

- Space for network locations
- Environmental challenges

Measuring Success:

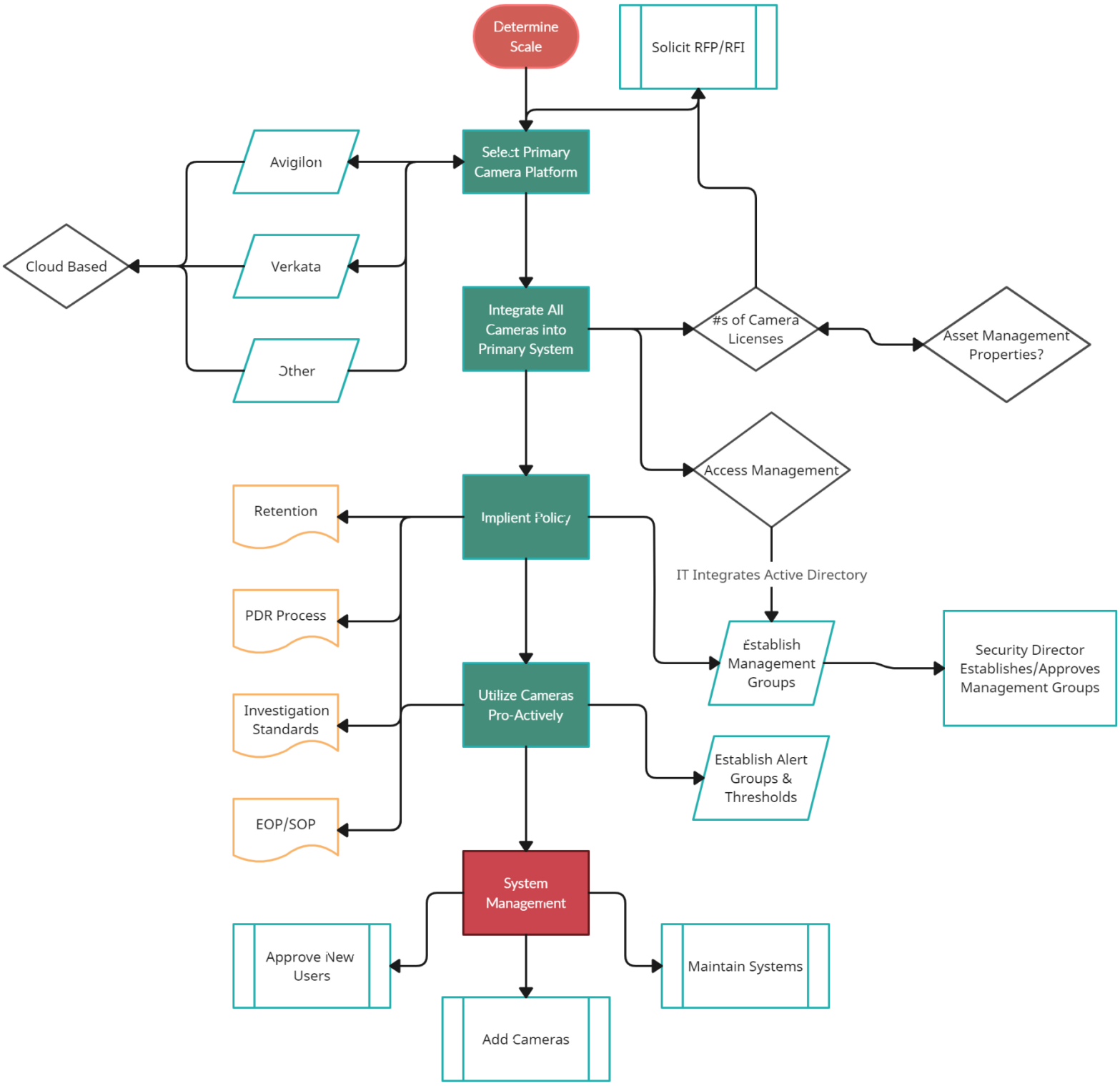
- A unified solution
- Ease of use
- Ease of maintenance
- Reliable system

[1] **Disclaimer:** The intent of this assessment is to improve the overall safety and security for KCHA. The information contained in this report is to be used solely by KCHA, law enforcement, fire service and other emergency response agencies. The disclosures of the information contained in this report to the general public is not recommended.

[2] Additional cameras may be added, at the discretion of KCHA staff. Layouts herein represent the most useful positioning of camera systems based on TTA evaluation, taking into account a layered approach to prevention.

Confusion was evident on what implementing an effective security system entailed. Thus, this report includes a flow-process chart for implementation and use of a comprehensive multi-tiered security system.

IMPLEMENTATION FLOW CHART:

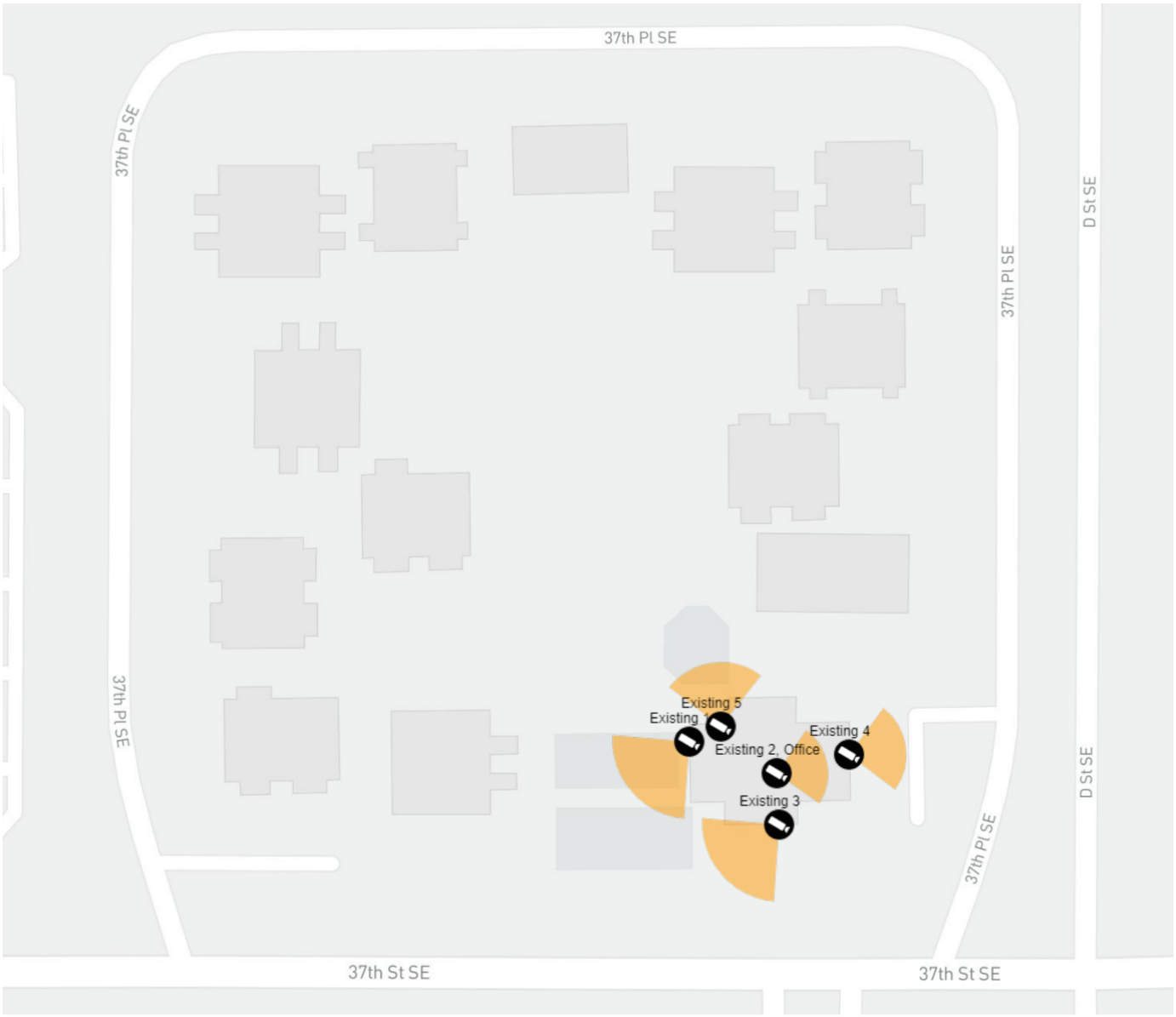


CURRENT SYSTEMS AND CAMERA LAYOUTS:

Current Onsite Cameras

Name	Make	Model	Quality	Analytics
Existing 1	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 2, Office	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 3	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 4	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 5	Digital Watchdog	DWC-MV84WiA	Moderate	No

Current Onsite Camera Layout



RECOMMENDED SYSTEMS AND CAMERA LAYOUTS:

Cameras for Retention[3]

Name	Make	Model	Quality	Analytics
Existing 1	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 2, Office	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 3	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 4	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 5	Digital Watchdog	DWC-MV84WiA	Moderate	No

[3] New camera systems are numbered in priority order, not based on site orientation. The TTA recommends cameras be logically named based on location, similar to exterior doors into a facility. Reference the TTA Security Summary Report for further information on naming systems.

New Camera Specifications

HDSM Smart Cameras

Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
New TTA 1	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×		×
New TTA 2	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
New TTA 3	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
New TTA 4	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6				

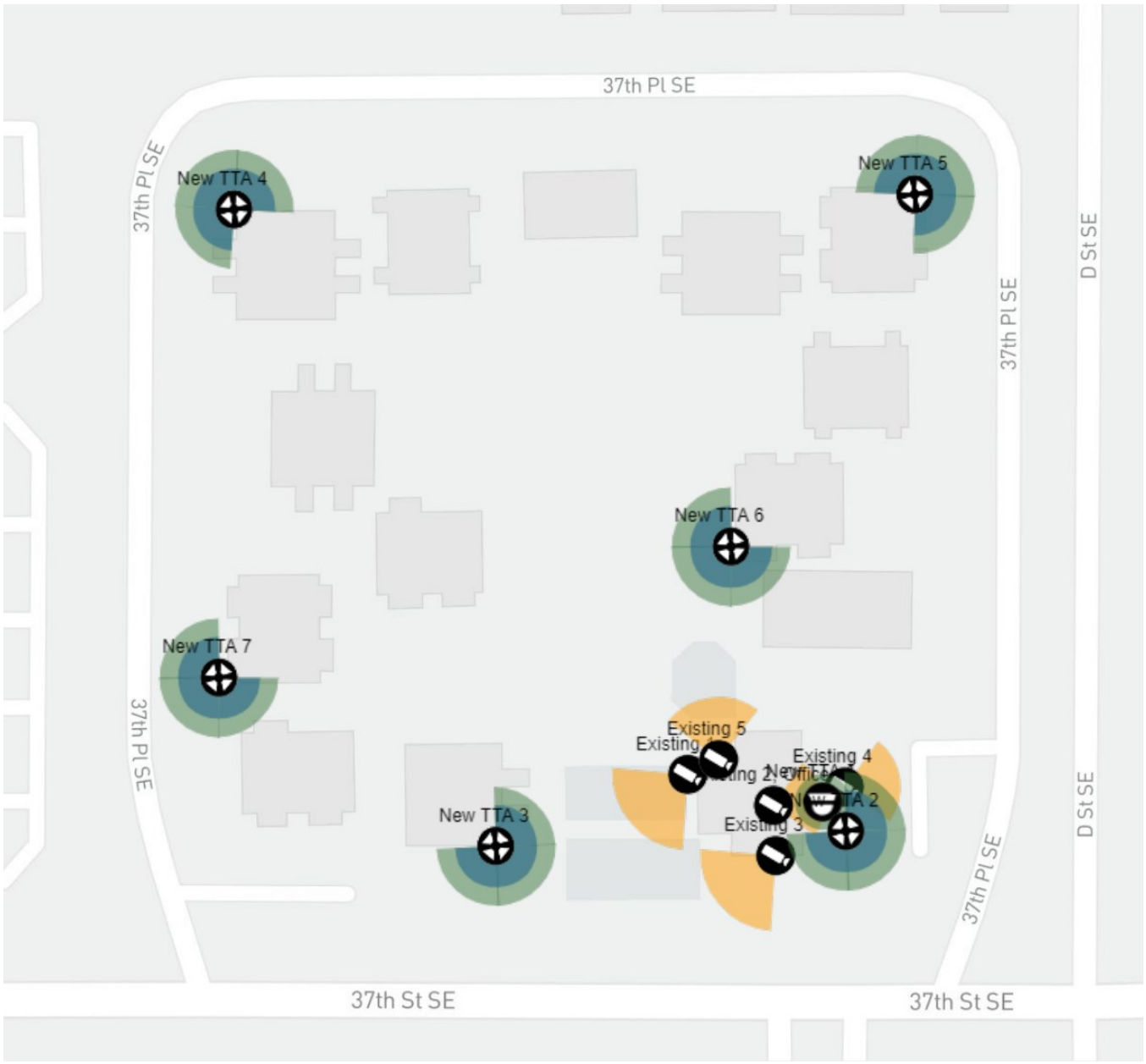
										×	×
Head 3					4.0	12	6	Quality 6		×	×
New TTA 5	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
New TTA 6	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
New TTA 7	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×

Scene Details

Name	Mounting Height (ft)	Target Height (ft)	Target Distance (ft)	Scene Width (ft)	Mounting Angle	Maximum Distance (ft)	px/ft
New TTA 1	8.5	6	16.5	33	0	56.1	24.3
Existing 1	8.5	6	31.5	63.8	36.2	107	32.1
Existing 2, Office	8.5	6	21.3	43.3	34.3	72.6	47.3
Existing 3	8.5	6	31.5	63.8	36.2	107	32.1
Existing 4	8.5	6	23.6	47.9	34.9	80.3	42.8
Existing 5	8.5	6	26.5	53.6	35.4	90	38.2
New TTA 2		0	0	0	NaN	NaN	0
Head 1	8.5	6	25	50.4	50	85.1	76.2
Head 2	8.5	6	24.8	50	49.9	84.5	76.7
Head 3	8.5	6	24.9	50.2	50	84.7	76.6
New TTA 3		0	0	0	NaN	NaN	0
Head 1	8.5	6	25	50.4	50	85.1	76.2
Head 2	8.5	6	24.8	50	49.9	84.5	76.7
Head 3	8.5	6	24.9	50.2	50	84.7	76.6
New TTA 4		0	0	0	NaN	NaN	0
Head 1	8.5	6	25	50.4	50	85.1	76.2
Head 2	8.5	6	24.8	50	49.9	84.5	76.7
Head 3	8.5	6	24.9	50.2	50	84.7	76.6

New TTA 5		0	0	0	NaN	NaN	0
Head 1	8.5	6	25	50.4	50	85.1	76.2
Head 2	8.5	6	24.8	50	49.9	84.5	76.7
Head 3	8.5	6	24.9	50.2	50	84.7	76.6
New TTA 6		0	0	0	NaN	NaN	0
Head 1	8.5	6	25	50.4	50	85.1	76.2
Head 2	8.5	6	24.8	50	49.9	84.5	76.7
Head 3	8.5	6	24.9	50.2	50	84.7	76.6
New TTA 7		0	0	0	NaN	NaN	0
Head 1	8.5	6	25	50.4	50	85.1	76.2
Head 2	8.5	6	24.8	50	49.9	84.5	76.7
Head 3	8.5	6	24.9	50.2	50	84.7	76.6

Recommended Camera Layout



Network Infrastructure Recommendations:

Based on the TTA's assessment, a cloud-based implementation solution will benefit KCHA in the long-term. Cloud Services enables a modern cloud-connected user experience to view live and recorded video, as well as monitor and manage the health of systems, from anywhere with a connection, at any time – including via a connected mobile application.

Necessary Cloud-Based Features:

- Secure Cloud Based
- Mobile Access
- Analytics, including Emergency Alerts
    - Smart Recognition of Firearms/Weapons
    - Smart Recognition of Persons (Watch List)
    - Smart Recognition of License plates (Watch List)
- One-Stop Video Management Software
- License Integration for Current Cameras
- Integration with Access-Control Systems

Example systems that should be considered within current recommendations:

- Avigilon Control Center
- Verkada Centralized Command
- Cisco Meraki

IT Technical Recommendations[4]:

Type	Description	Recommendation
Internet related	**Cameral Qty**	12 cameras
Internet related	**Cameral Avg Bandwidth**	10 Mbps Upload
Internet related	**Camera Internet bandwidth**	120 Mbps Upload
Internet related	**Staff Qty**	Less than 5 staff
Internet related	**Staff Avg bandwidth**	5 Mbps Upload/Download
Internet related	**Staff Internet bandwidth**	25 Mbps Upload/Download
Internet related	**Total minimum internet bandwidth**	145 Mbps Upload/Download
Physical Equipment	**24G POE+ 400W Enterprise Managed Switch**	One switch
Physical Equipment	**Secure 19" Network Rack/Cabinet**	Use existing
Physical Equipment	**1500VA UPS/Battery Backup System**	One unit
Physical Equipment	**1G Firewall/Gateway**	Use existing

[4] All network cabling to cameras should meet or exceed the CAT5e standard. Camera locations have been selected with proximity to electricity. In addition to cabling, wireless cameras should be compared in relation to cost.

Reference Image[5]

[5] Reference images are captured under ideal conditions. Poor lighting, increased compression, or use of a lower quality lens will affect the quality of the images captured.

End of Report

Tactical Training Academy
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KING COUNTY HOUSING AUTHORITY

CAMERA IMPLIMENTATION PLAN

KIRKLAND HEIGHTS

Version: 1.0

COMPLETED BY: Tactical Training Academy

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CAMERA IMPLIMENTATION REPORT

INTRODUCTION:

A Camera Implementation Assessment[1] for the King County Housing Authority (KCHA) was conducted for the KCHA Kirkland Heights property, starting in April, 2023. The scope of this assessment included an evaluation of current camera security systems, and recommendations necessary to implement an RFP to improve camera systems[2]. This proposal is design to assist in the solicitation process to select a camera installation vendor, which should include cameras, installation, cabling, and the IT specification requirements outlined in this report.

This report is specifically designed generically, to encourage bids from several camera installation vendors. Camera specifications could be met by several quality camera systems. The TTA has good experience using the Avigilon system, and considers it the top-tier of current holistic security camera systems. Therefore, specific camera models within the Avigilon system are noted as examples within this report. Again, other camera systems may meet the specifications included in this report and should be evaluated when proposals for installation are received, but each should meet the minimum specifications outlined in this report.

The data presented in this report assumes that recommend changes to CPTED and hardscapes outlined in prior TTA KCHA Site-Specific Reports have or will be implemented. This includes installing various fencing and gating systems, trimming trees and shrubbery, and improving vestibule spaces. Thus, the camera systems within these reports will be effective long-term, and not made superfluous by necessary hardscape changes already planned.

STAKEHOLDER INTERVIEWS:

The following feedback was collected from managers, IT staff, maintenance staff, facilities, and other stakeholders, regarding the success of this project.

Detail of Users:

- Unknown for Asset Management Properties
- Likely 20-30 end users
- 15 administrators
- Mostly site management and security staff

Self-hosted or Cloud solution:

- Cloud

Challenges:

- Space for network locations
- Environmental challenges

Measuring Success:

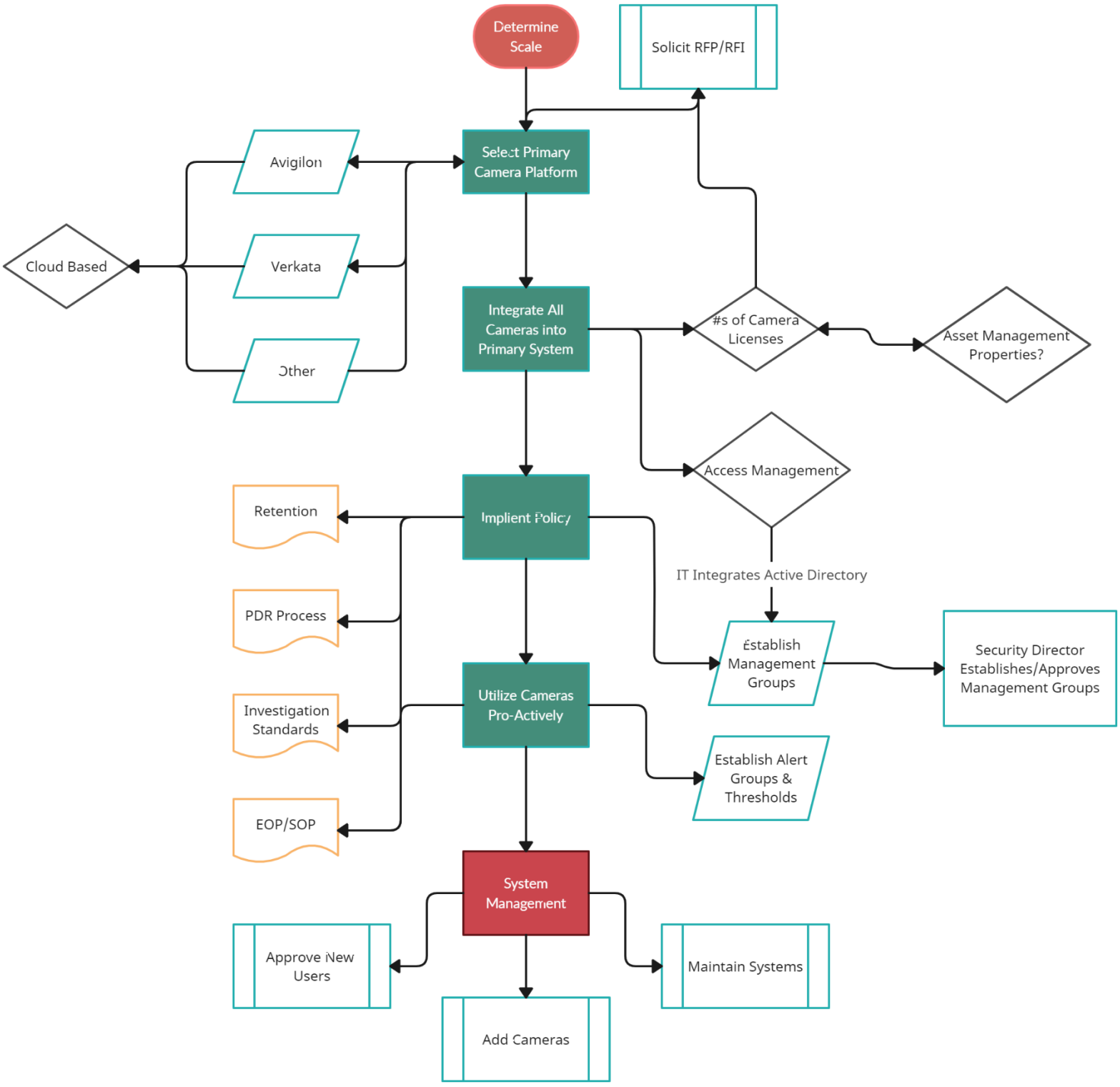
- A unified solution
- Ease of use
- Ease of maintenance
- Reliable system

[1] **Disclaimer:** The intent of this assessment is to improve the overall safety and security for KCHA. The information contained in this report is to be used solely by KCHA, law enforcement, fire service and other emergency response agencies. The disclosures of the information contained in this report to the general public is not recommended.

[2] Additional cameras may be added, at the discretion of KCHA staff. Layouts herein represent the most useful positioning of camera systems based on TTA evaluation, taking into account a layered approach to prevention.

Confusion was evident on what implementing an effective security system entailed. Thus, this report includes a flow-process chart for implementation and use of a comprehensive multi-tiered security system. How KCHA manages camera access for Asset Management Properties is a key decision element, that will effect overall implementation.

IMPLEMENTATION FLOW CHART:



CURRENT SYSTEMS AND CAMERA LAYOUTS:

Current Onsite Cameras

Property management directed TTA facilitators to customize this plan based on new construction. No current cameras were evaluated.

RECOMMENDED SYSTEMS AND CAMERA LAYOUTS:

HDSM Smart Cameras

New Exterior Camera Specifications[3]

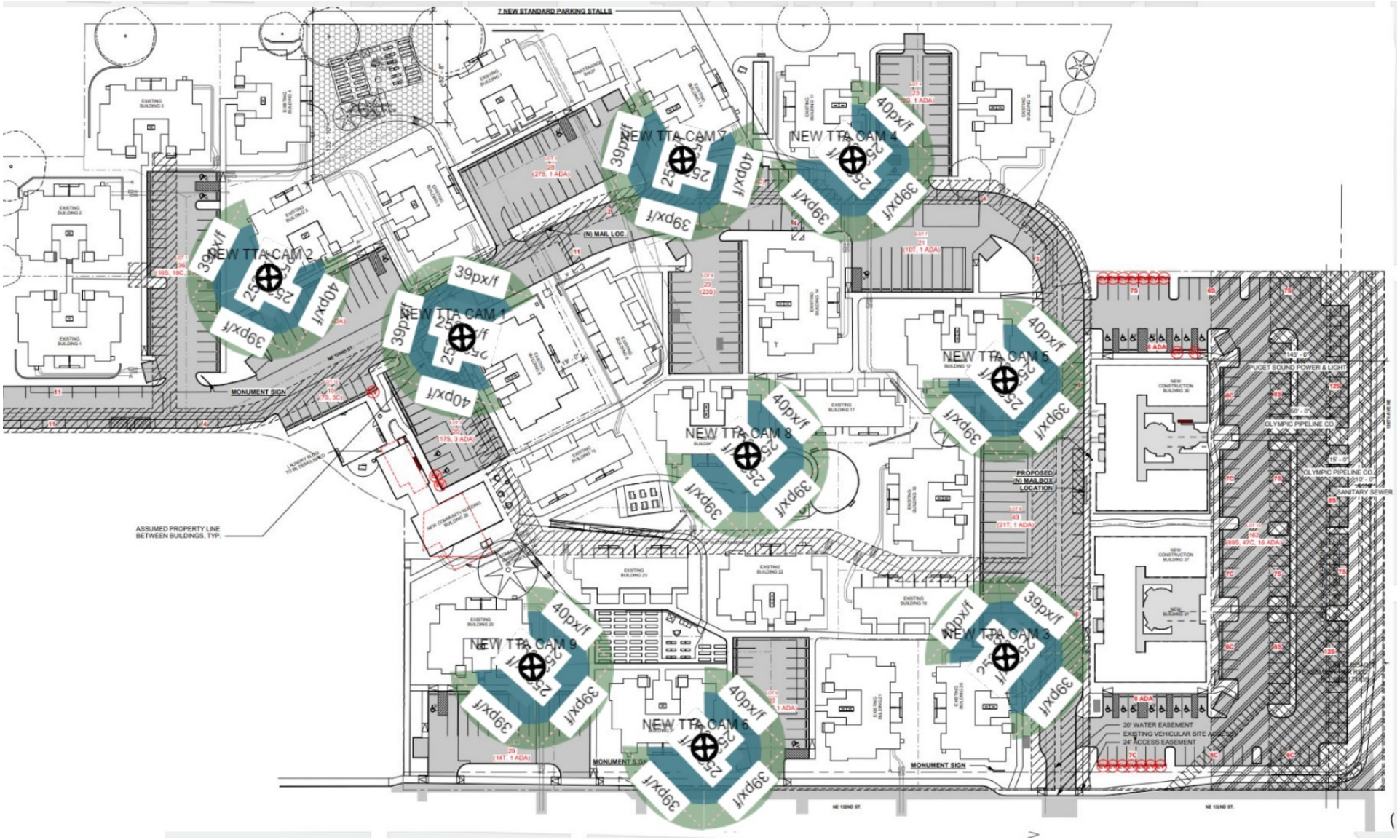
Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
NEW TTA CAM 1	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA CAM 4	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA CAM 7	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA CAM 2	24C-H4A--3MH-270	-	1					Quality 6	18.84 Mbps	×		×

[3] Cameras are named based on TTA's recommended priority installation. Actual camera names should be configured geographically, similar to building and exterior doors. See the TTA Security Summary Report for further information.

				Built-In Lens, 4mm, f/1.8							
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
NEW TTA CAM 5	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
NEW TTA CAM 8	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
NEW TTA CAM 3	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
		-	1					Quality 6		×	×

NEW TTA CAM 9	24C-H4A--3MH-270			Built-In Lens, 4mm, f/1.8					18.84 Mbps		
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
NEW TTA CAM 6	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×

Recommended Exterior Camera Layout



New Community Room, Interior Camera Specifications

HDSM Smart Cameras

Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
TTA INTERIOR 1	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×		×
TTA INTERIOR 2	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×		×

Scene Details

Name	Mounting Height (ft)	Target Height (ft)	Target Distance (ft)	Scene Width (ft)	Mounting Angle	Maximum Dis-tance (ft)	px/ft
TTA INTERIOR 1	8.5	6	16.5	33	0	56.1	24.3
TTA INTERIOR 2	8.5	6	16.5	33	0	56.1	24.3

Recommended Community Room, Interior Camera Layout

Network Infrastructure Recommendations:

Based on the TTA's assessment, a cloud-based implementation solution will benefit KCHA in the long-term. Cloud Services enables a modern cloud-connected user experience to view live and recorded video, as well as monitor and manage the health of systems, from anywhere with a connection, at any time – including via a connected mobile application.

Necessary Cloud-Based Features:

- Secure Cloud Based
- Mobile Access
- Analytics, including Emergency Alerts
    - Smart Recognition of Firearms/Weapons
    - Smart Recognition of Persons (Watch List)
    - Smart Recognition of License plates (Watch List)
- One-Stop Video Management Software
- License Integration for Current Cameras
- Integration with Access-Control Systems

Example systems that should be considered within current recommendations:

- Avigilon Control Center
- Verkada Centralized Command
- Cisco Meraki

IT Technical Recommendations[4]:

Type	Description	Recommendation
Internet related	**Cameral Qty**	11 cameras
Internet related	**Cameral Avg Bandwidth**	10 Mbps Upload
Internet related	**Camera Internet bandwidth**	110 Mbps Upload
Internet related	**Staff Qty**	10 staff
Internet related	**Staff Avg bandwidth**	5 Mbps Upload/Download
Internet related	**Staff Internet bandwidth**	50 Mbps Upload/Download
Internet related	**Total minimum internet bandwidth**	160 Mbps Upload/Download
Physical Equipment	**24G POE+ 400W Enterprise Managed Switch**	One switch
Physical Equipment	**Secure 19" Network Rack/Cabinet**	Use existing/Source New
Physical Equipment	**1500VA UPS/Battery Backup System**	One unit
Physical Equipment	**1G Firewall/Gateway**	Use existing

[4] All network cabling to cameras should meet or exceed the CAT5e standard. Camera locations have been selected with proximity to electricity. In addition to cabling, wireless cameras should be compared in relation to cost.

Reference Image[5]

[5] Reference images are captured under ideal conditions. Poor lighting, increased compression, or use of a lower quality lens will affect the quality of the images captured.

End of Report

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KING COUNTY HOUSING AUTHORITY

CAMERA IMPLIMENTATION PLAN

Mardi Gras

Version: 1.0

COMPLETED BY: Tactical Training Academy

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CAMERA IMPLIMENTATION REPORT

INTRODUCTION:

A Camera Implementation Assessment[1] for the King County Housing Authority (KCHA) was conducted for the Mardi Gras Property, starting in April, 2023. The scope of this assessment included an evaluation of current camera security systems, and recommendations necessary to implement an RFP to improve camera systems[2]. This proposal is design to assist in the solicitation process to select a camera installation vendor, which should include cameras, installation, cabling, and the IT specification requirements outlined in this report.

This report is specifically designed generically, to encourage bids from several camera installation vendors. Camera specifications could be met by several quality camera systems. The TTA has good experience using the Avigilon system, and considers it the top-tier of current holistic security camera systems. Therefore, specific camera models within the Avigilon system are noted as examples within this report. Again, other camera systems may meet the specifications included in this report and should be evaluated when proposals for installation are received, but each should meet the minimum specifications outlined in this report.

The data presented in this report assumes that recommend changes to CPTED and hardscapes outlined in prior TTA KCHA Site-Specific Reports have or will be implemented. This includes installing various fencing and gating systems, trimming trees and shrubbery, and improving vestibule spaces. Thus, the camera systems within these reports will be effective long-term, and not made superfluous by necessary hardscape changes already planned.

STAKEHOLDER INTERVIEWS:

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- 20-30 end users
- 15 administrators
- Mostly site management and security staff

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- Cloud

Challenges:

- Space for network locations
- Environmental challenges

Measuring Success:

- A unified solution
- Ease of use
- Ease of maintenance
- Reliable system

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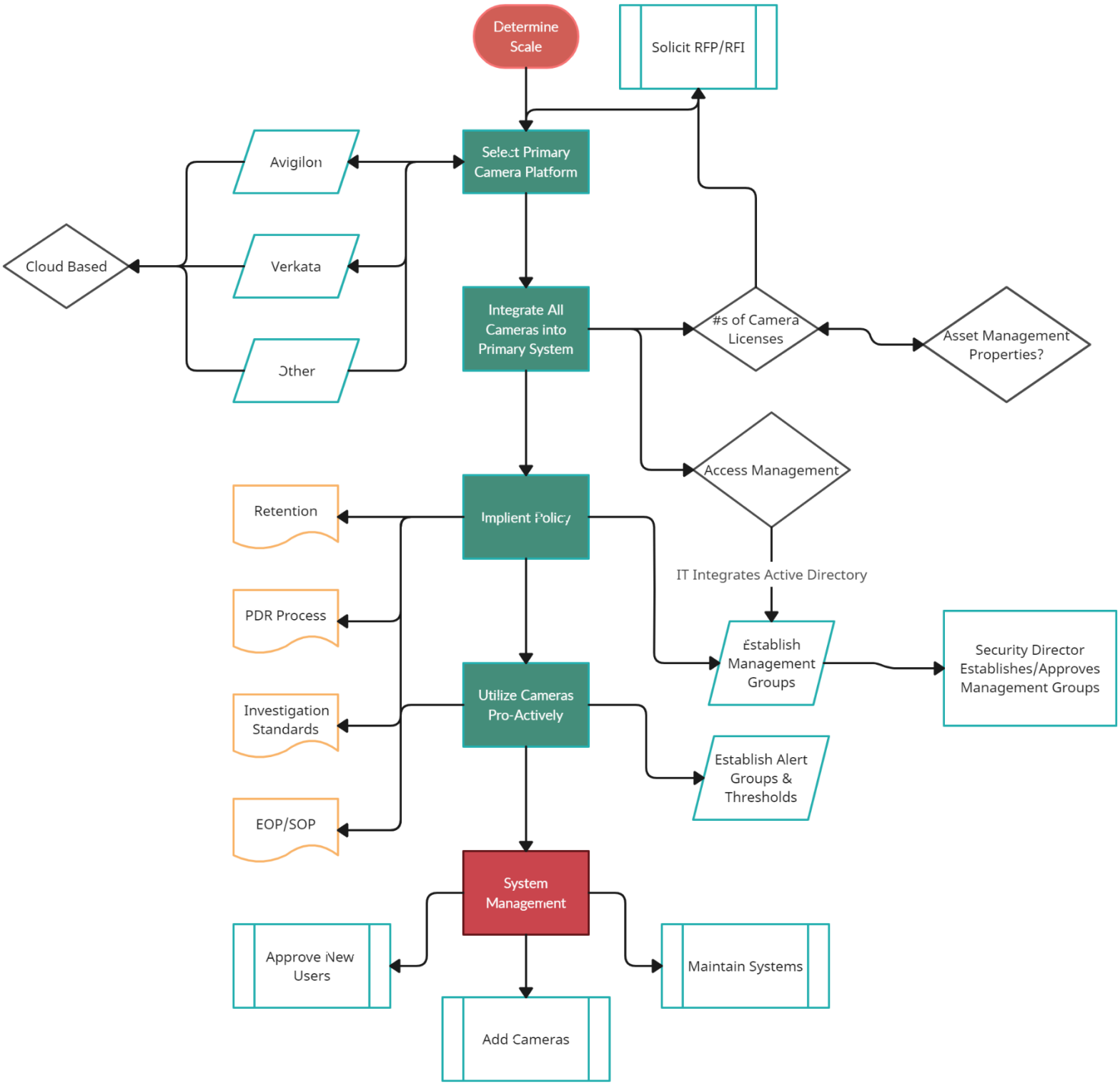
Confusion was evident on what implementing an effective security system entailed. Thus, this report includes a flow-process chart for implementation and use of a comprehensive multi-tiered security system.

IMPLEMENTATION FLOW CHART:



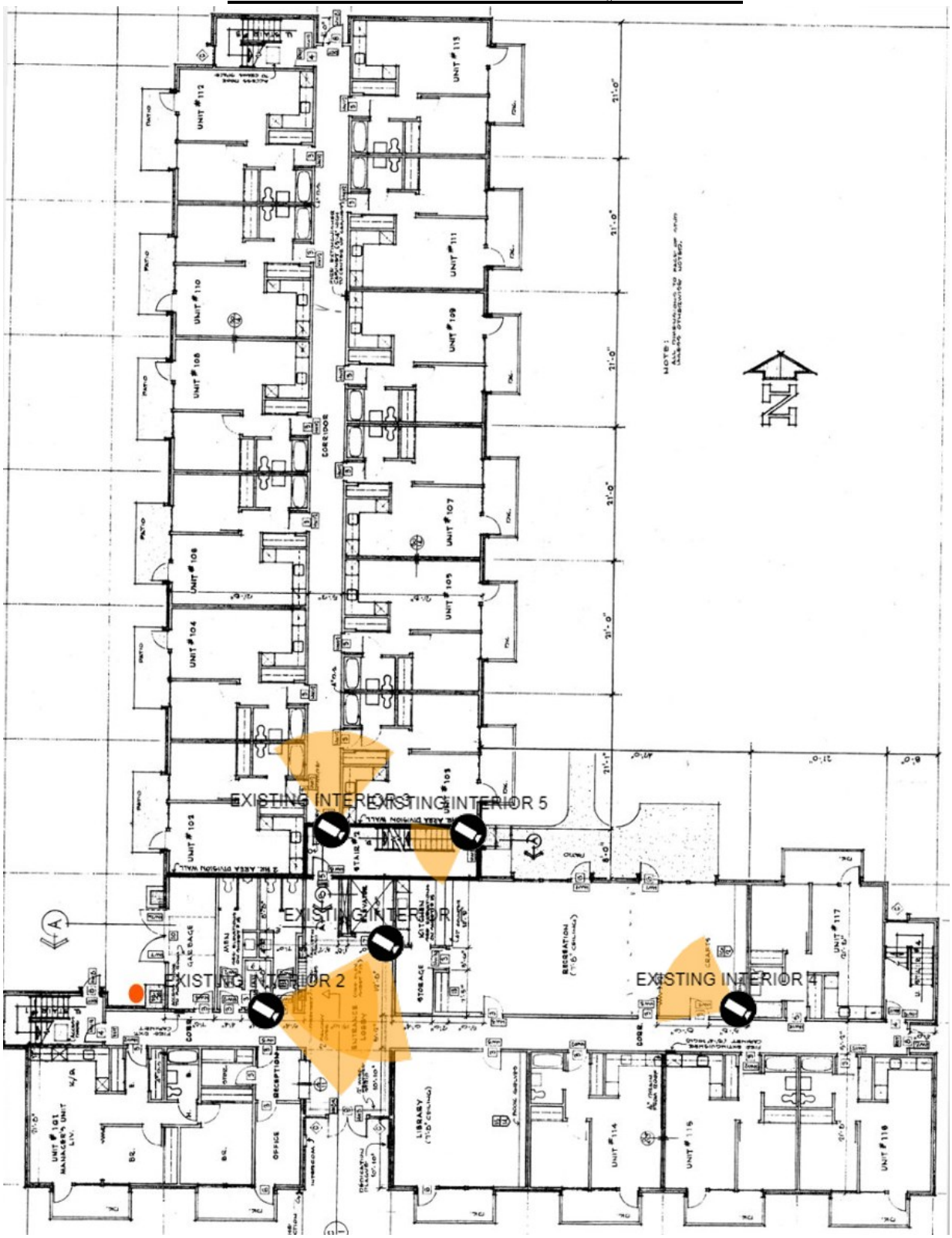
CURRENT SYSTEMS AND CAMERA LAYOUTS:

Current Onsite Cameras

Name	Make	Model	Quality	Analytics
Existing 1	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 2	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 3	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 4	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 5	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 6	Digital Watchdog	DWC-MV85WiATW	Low - Clean	No
Existing 7	Digital Watchdog	DWC-MV85WiATW	Low - Shrubs	No
Existing 8	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 9	Digital Watchdog	DWC-MV85WiATW	Low - Shrubs	No
Existing 10	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 11	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 12	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 13	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 14	Digital Watchdog	DWC-MV85WiATW	Moderate	No

Current Onsite Exterior Camera Layout

Current Onsite Interior Camera Layout Floor 1[3]



[3] The basement level camera is included in this schematic. Levels 2 and 3 have a single lobby camera, reflected on the respective floor plans.

RECOMMENDED SYSTEMS AND CAMERA LAYOUTS:

Cameras for Retention[4]

Name	Make	Model	Quality	Analytics
Existing 1	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 2	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 3	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 4	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 5	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 6	Digital Watchdog	DWC-MV85WiATW	Low - Clean	No
Existing 7	Digital Watchdog	DWC-MV85WiATW	Low - Shrubs	No
Existing 8	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 9	Digital Watchdog	DWC-MV85WiATW	Low - Shrubs	No
Existing 10	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 11	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 12	Digital Watchdog	DWC-MV85WiATW	Moderate	No

[4] New camera systems are numbered in priority order, not based on site orientation. The TTA recommends cameras be logically named based on location, similar to exterior doors into a facility. Reference the TTA Security Summary Report for further information on naming systems.

Existing 13	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 14	Digital Watchdog	DWC-MV85WiATW	Moderate	No

New Exterior Camera Specifications

HDSM Smart Cameras

Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
NEW EXTERIOR TTA 1	8.0C-H5A--DO1	-	1	Built-In Lens, 4.9-8mm, f/1.8, P-Iris, Vari Focal	8.0	30	6	Quality 6	11.99 Mbps	×		×
NEW EXTERIOR TTA 2	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW EXTERIOR TTA 4	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW EXTERIOR TTA 3	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×

Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
NEW EXTERIOR TTA 5	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
NEW EXTERIOR TTA 6	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×

HDSM Smart Cameras

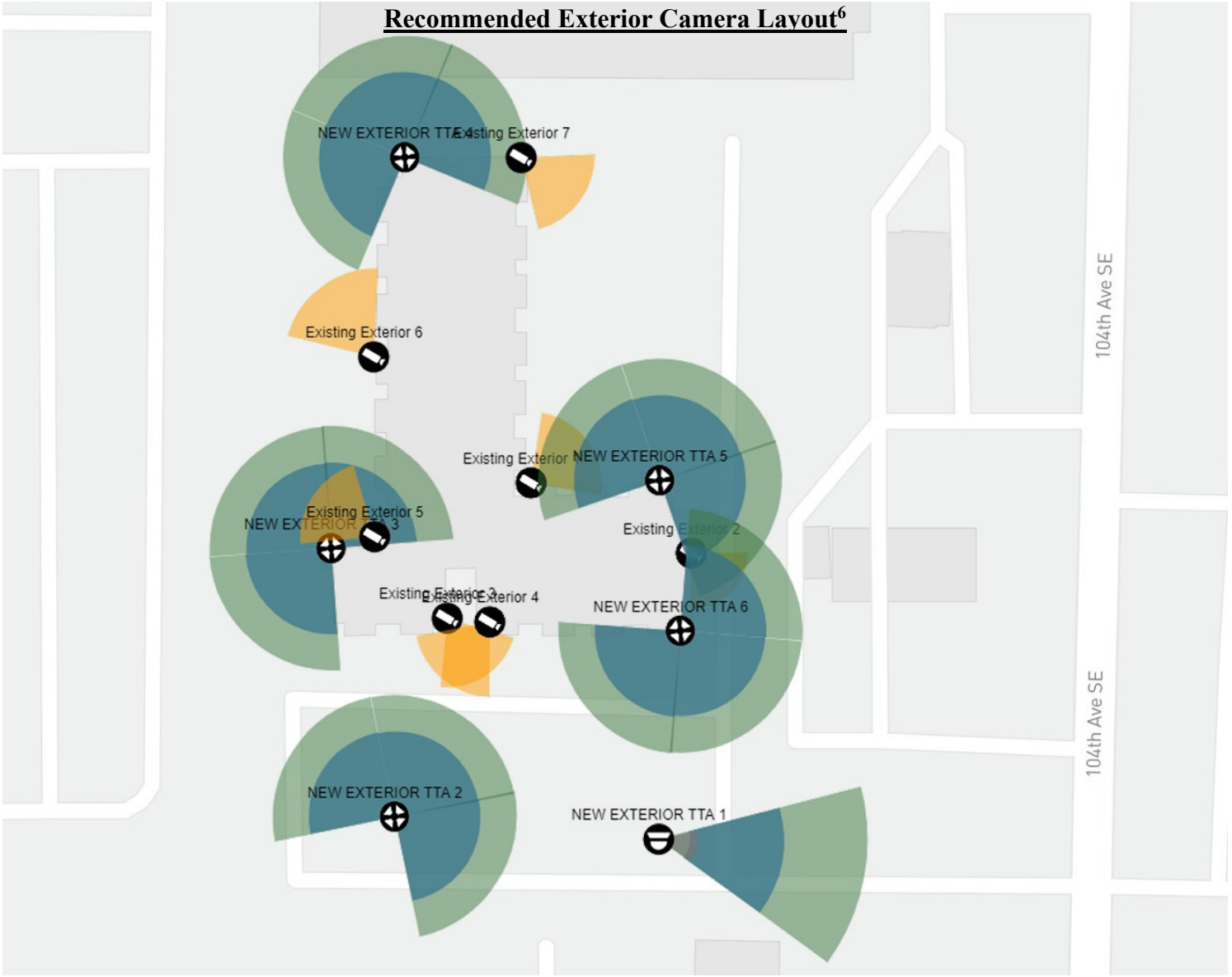
New Interior Camera Specifications[5]

Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
NEW TTA INTERIOR 1	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×		×
NEW TTA INTERIOR 2	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×		×
NEW TTA INTERIOR 3	2.0C-H5A--D1	-	1	Built-In Lens, 3.3-9mm, f/1.3, P-Iris, Vari Focal	8.9	30	6	Quality 6	6.23 Mbps	×		×
NEW TTA INTERIOR 4	2.0C-H5A--D1	-	1	Built-In Lens, 3.3-9mm, f/1.3, P-Iris, Vari Focal	8.9	30	6	Quality 6	6.23 Mbps	×		×
NEW TTA INTERIOR 5	2.0C-H5A--D1	-	1	Built-In Lens, 3.3-9mm, f/1.3, P-Iris, Vari Focal	8.9	30	6	Quality 6	6.23 Mbps	×		×

[5] NEW TTA INTERIOR cameras 6, 7 & 8 are considered repeated in on Floor 3.

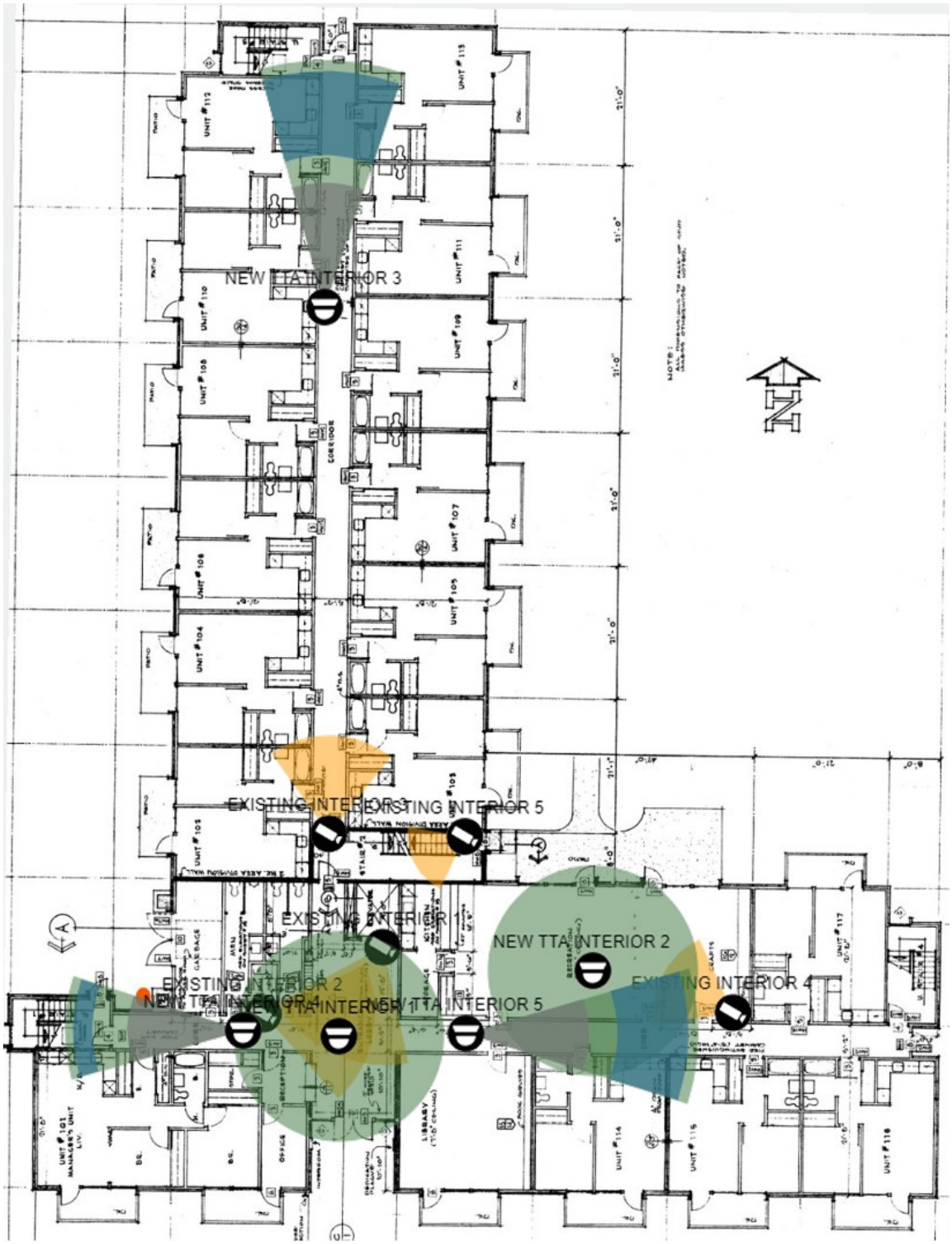
NEW TTA INTERIOR 6	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×	×
NEW TTA INTERIOR 7	2.0C-H5A--D1	-	1	Built-In Lens, 3.3-9mm, f/1.3, P-Iris, Vari Focal	8.9	30	6	Quality 6	6.23 Mbps	×	×
NEW TTA INTERIOR 8	2.0C-H5A--D1	-	1	Built-In Lens, 3.3-9mm, f/1.3, P-Iris, Vari Focal	8.9	30	6	Quality 6	6.23 Mbps	×	×

Recommended Exterior Camera Layout[6]

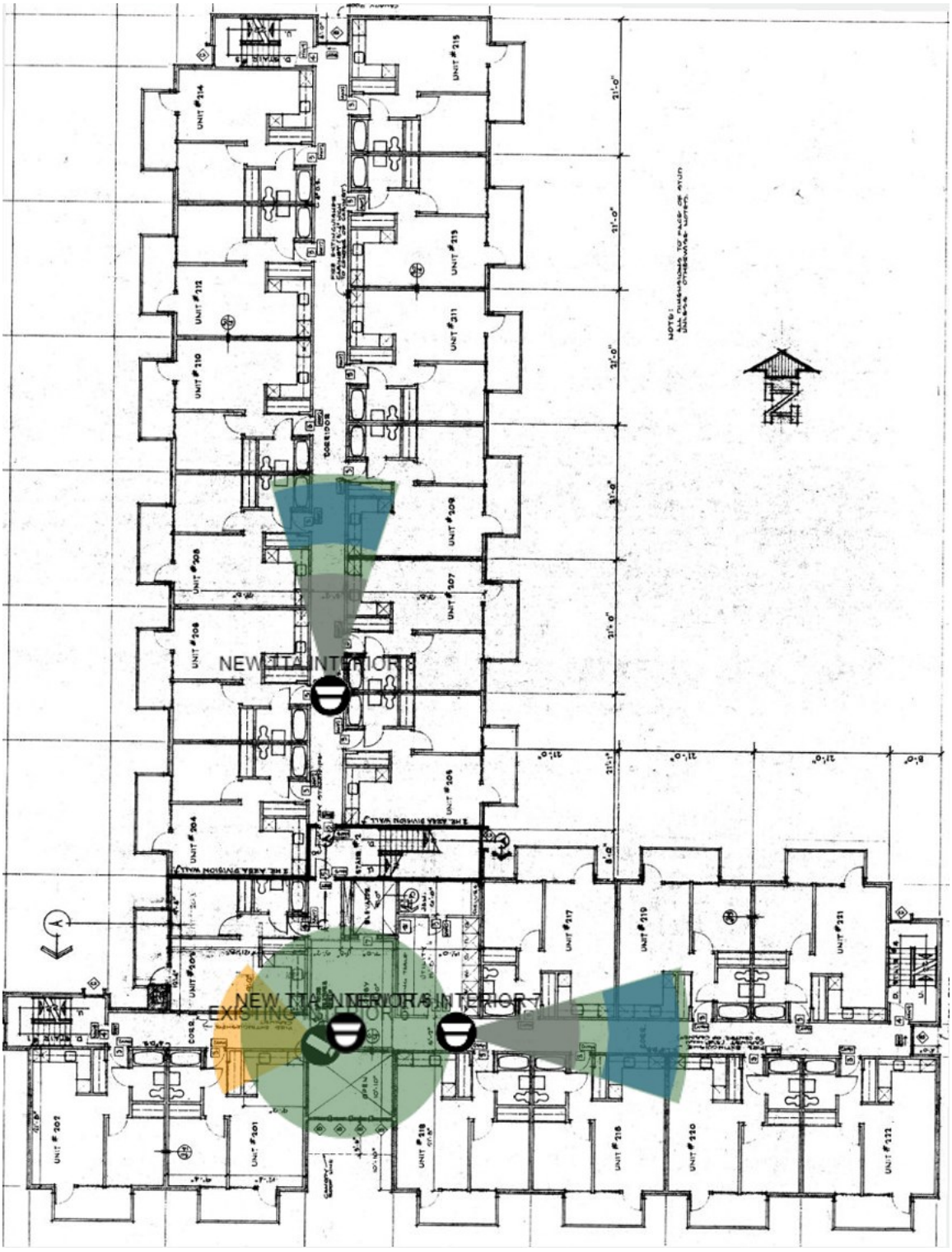


[6] Some existing cameras have been retained but moved for maximum placement. See exterior camera 6.

Recommended Interior Camera Layout, Floor 1



Recommended Interior Camera Layout, Floor 2 & 3



Network Infrastructure Recommendations:

Based on the TTA's assessment, a cloud-based implementation solution will benefit KCHA in the long-term. Cloud Services enables a modern cloud-connected user experience to view live and recorded video, as well as monitor and manage the health of systems, from anywhere with a connection, at any time – including via a connected mobile application.

Necessary Cloud-Based Features:

- Secure Cloud Based
- Mobile Access
- Analytics, including Emergency Alerts
    - Smart Recognition of Firearms/Weapons
    - Smart Recognition of Persons (Watch List)
    - Smart Recognition of License plates (Watch List)
- One-Stop Video Management Software
- License Integration for Current Cameras
- Integration with Access-Control Systems

Example systems that should be considered within current recommendations:

- Avigilon Control Center
- Verkada Centralized Command
- Cisco Meraki

IT Technical Recommendations[7]:

Type	Description	Recommendation
Internet related	**Cameral Qty**	31 cameras
Internet related	**Cameral Avg Bandwidth**	10 Mbps Upload
Internet related	**Camera Internet bandwidth**	310 Mbps Upload
Internet related	**Staff Qty**	Less than 5 staff
Internet related	**Staff Avg bandwidth**	5 Mbps Upload/Download
Internet related	**Staff Internet bandwidth**	25 Mbps Upload/Download
Internet related	**Total minimum internet bandwidth**	335 Mbps Upload/Download
Physical Equipment	**48G POE+ 400W Enterprise Managed Switch**	One switch
Physical Equipment	**Secure 19" Network Rack/Cabinet**	Use existing
Physical Equipment	**1500VA UPS/Battery Backup System**	One unit
Physical Equipment	**1G Firewall/Gateway**	Use existing

[7] All network cabling to cameras should meet or exceed the CAT5e standard. Camera locations have been selected with proximity to electricity. In addition to cabling, wireless cameras should be compared in relation to cost.

Reference Image[8]

[8] Reference images are captured under ideal conditions. Poor lighting, increased compression, or use of a lower quality lens will affect the quality of the images captured.

End of Report

Tactical Training Academy
info@training-academy.org

KING COUNTY HOUSING AUTHORITY

CAMERA IMPLIMENTATION PLAN

Munro Manor

Version: 1.0

COMPLETED BY: Tactical Training Academy

TABLE OF CONTENTS

CAMERA IMPLIMENTATION REPORT

INTRODUCTION:

A Camera Implementation Assessment[1] for the King County Housing Authority (KCHA) was conducted for the Munro Manor Property, starting in April, 2023. The scope of this assessment included an evaluation of current camera security systems, and recommendations necessary to implement an RFP to improve camera systems[2]. This proposal is design to assist in the solicitation process to select a camera installation vendor, which should include cameras, installation, cabling, and the IT specification requirements outlined in this report.

This report is specifically designed generically, to encourage bids from several camera installation vendors. Camera specifications could be met by several quality camera systems. The TTA has good experience using the Avigilon system, and considers it the top-tier of current holistic security camera systems. Therefore, specific camera models within the Avigilon system are noted as examples within this report. Again, other camera systems may meet the specifications included in this report and should be evaluated when proposals for installation are received, but each should meet the minimum specifications outlined in this report.

The data presented in this report assumes that recommend changes to CPTED and hardscapes outlined in prior TTA KCHA Site-Specific Reports have or will be implemented. This includes installing various fencing and gating systems, trimming trees and shrubbery, and improving vestibule spaces. Thus, the camera systems within these reports will be effective long-term, and not made superfluous by necessary hardscape changes already planned.

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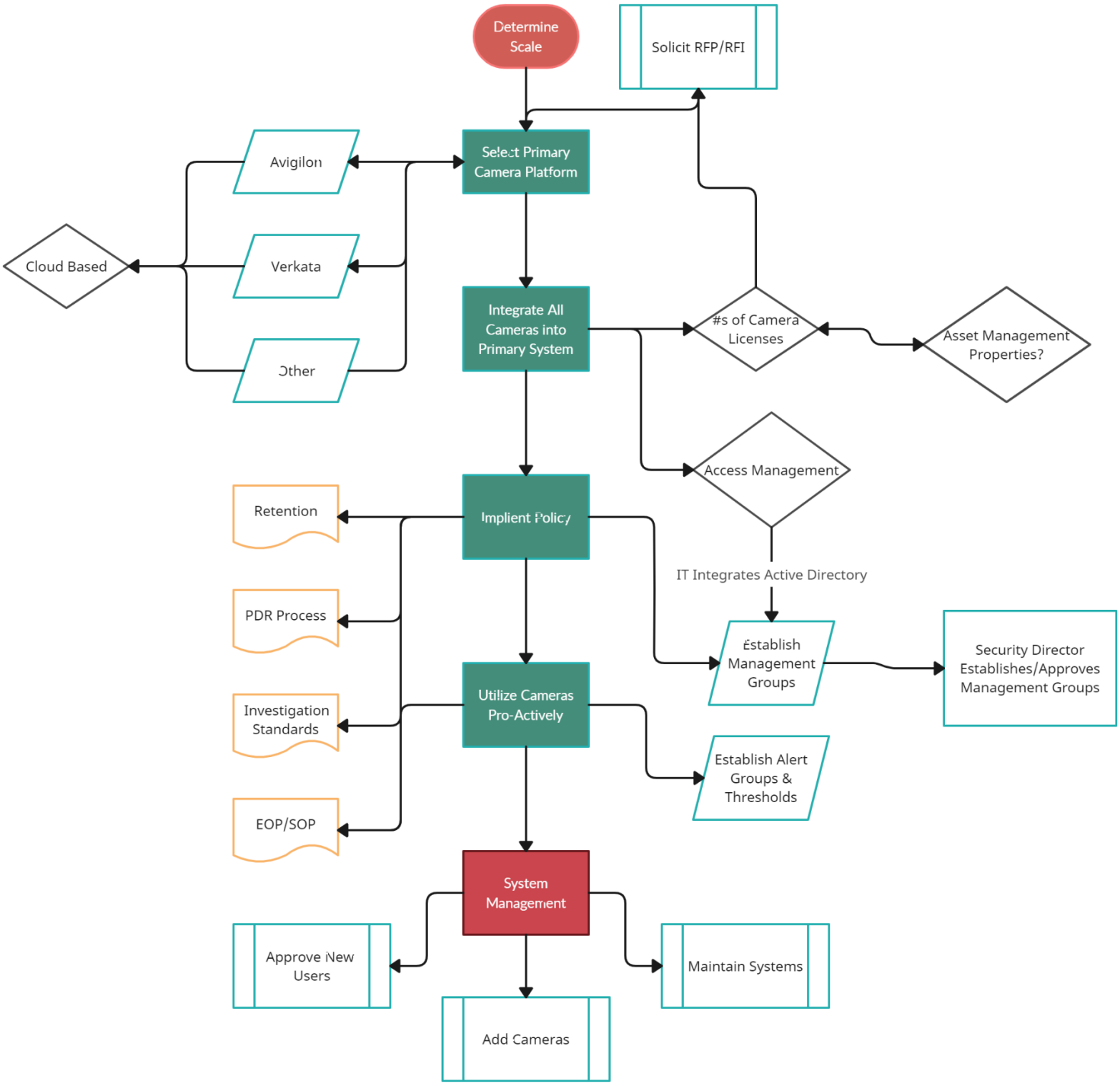

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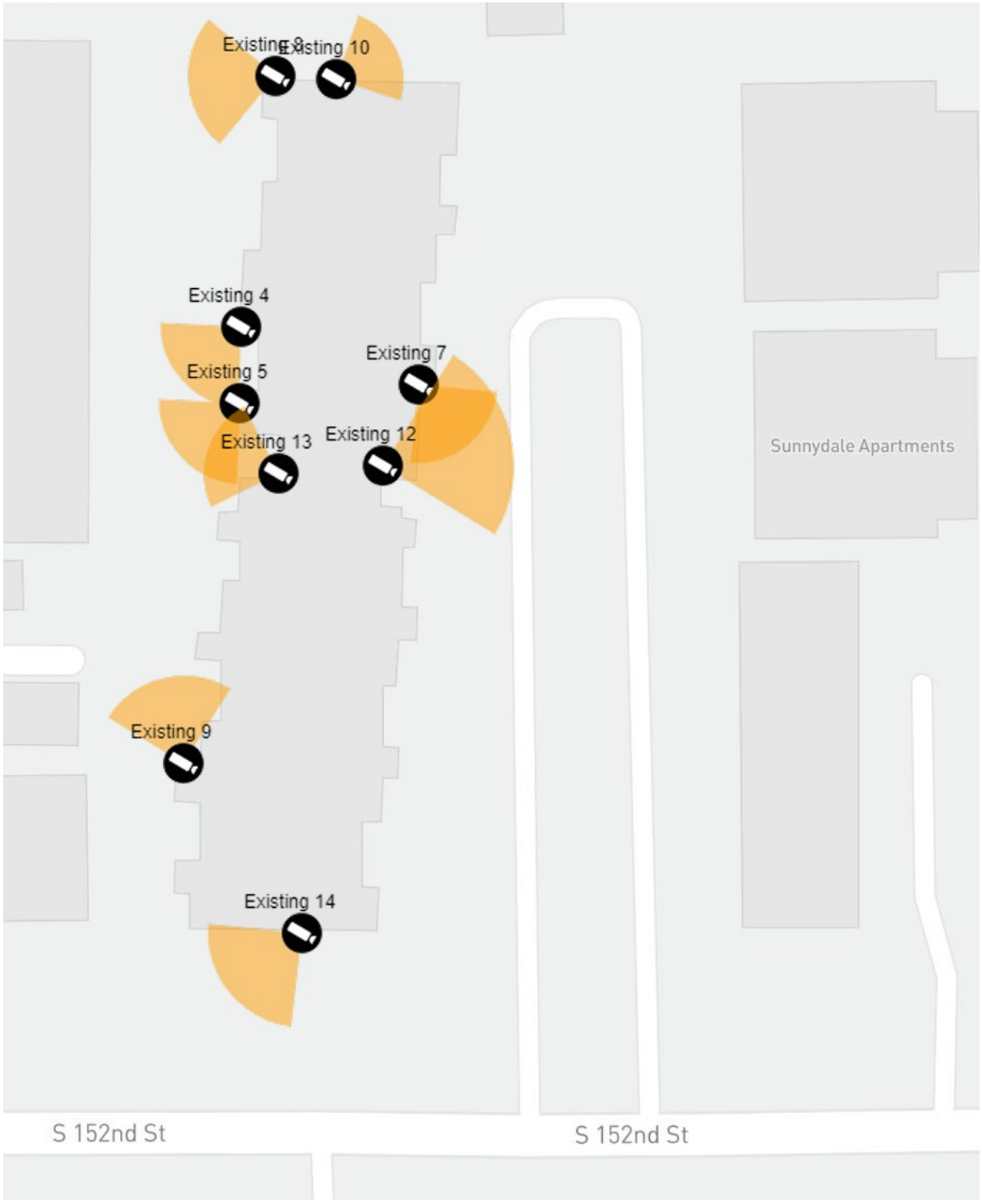
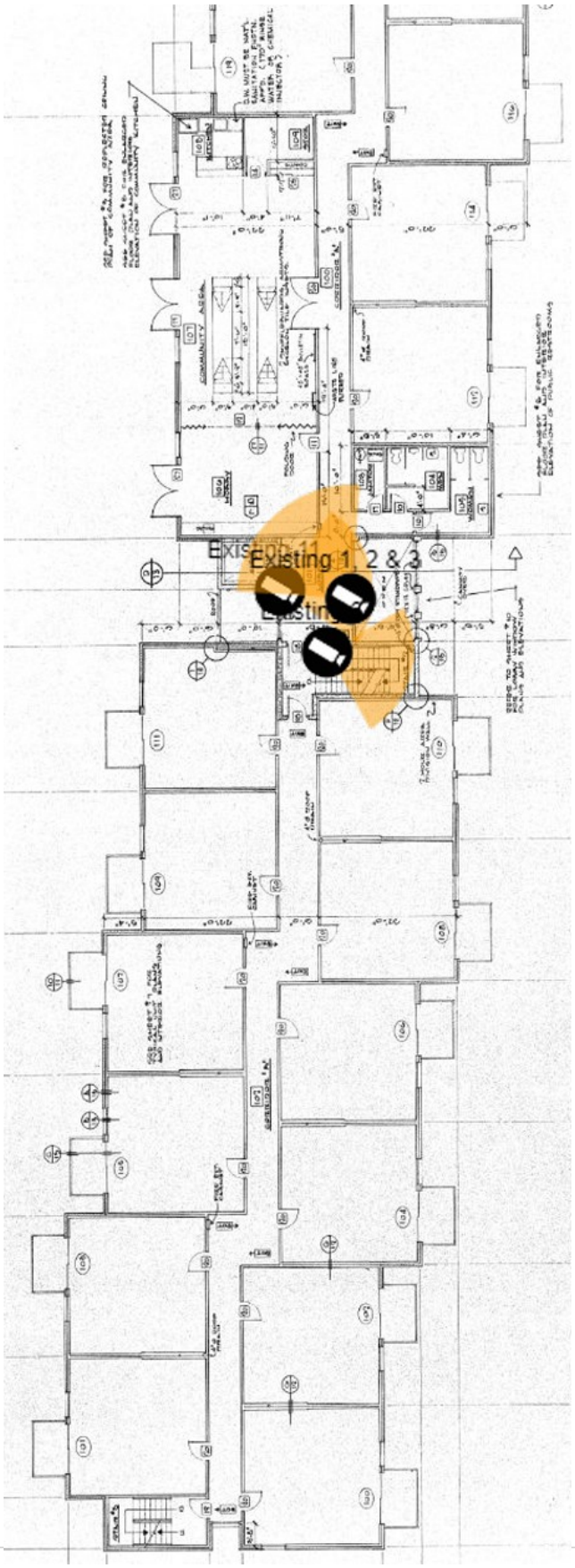
Existing 4	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 5	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 6	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 7	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 8	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 9	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 10	Digital Watchdog	DWC-MV82WiA	Low - Clean	No
Existing 11	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 12	Digital Watchdog	DWC-MV82WiA	Low - Shrubs	No
Existing 13	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 14	Digital Watchdog	DWC-MV82WiA	Low	No

Current Onsite Camera Layout




Existing 1, 2 & 3

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Existing 3	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 4	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 6	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 7	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 9	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 10	Digital Watchdog	DWC-MV82WiA	Low - Clean	No
Existing 11	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 12	Digital Watchdog	DWC-MV82WiA	Low - Shrubs	No
Existing 13	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 14	Digital Watchdog	DWC-MV82WiA	Low	No

[3] New camera systems are numbered in priority order, not based on site orientation. The TTA recommends cameras be logically named based on location, similar to exterior doors into a facility. Reference the TTA Security Summary Report for further information on naming systems.

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										Enabled	Strength	Min Image Rate
NEW TTA 1	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 2	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 3	20C-H4A--4MH-360	-	1	Built-In Lens, 2.8mm, f/1.2				Quality 6	23.34 Mbps	×		×
Head 1					2.8	13	6	Quality 6		×		×
Head 2					2.8	13	6	Quality 6		×		×
Head 3					2.8	13	6	Quality 6		×		×
Head 4					2.8	13	6	Quality 6		×		×

NEW TTA 4	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 6	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 5	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
New TTA Interior 1	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×		×
New TTA Interior 2	2.0C-H5A--DO1	-	1	Built-In Lens, 3.3-9mm, f/1.3,	9.0	30	6	Quality 6	6.23 Mbps	×		×

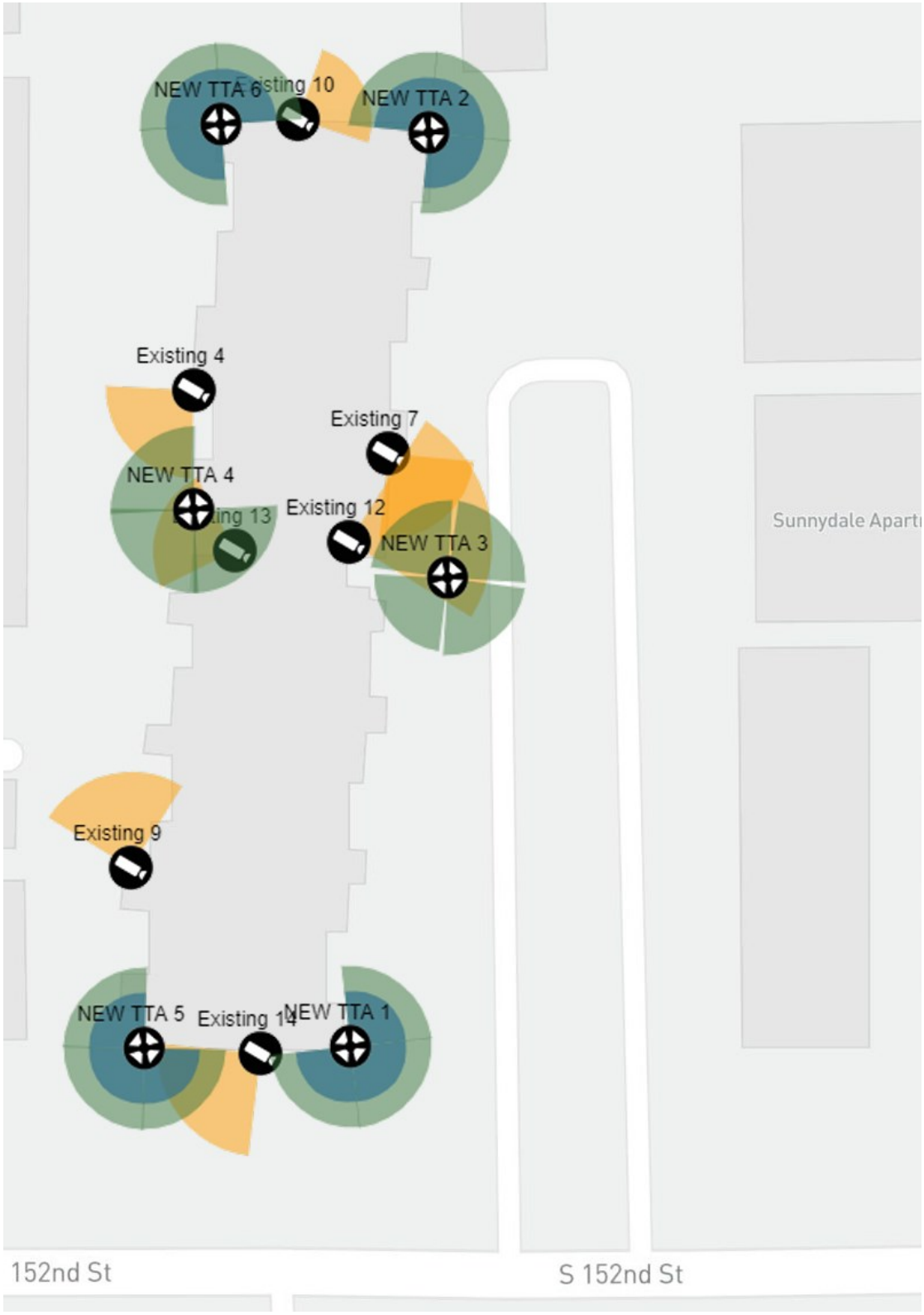
				P-Iris, Vari Focal							
New TTA Interior 3	2.0C-H5A--DO1	-	1	Built-In Lens, 3.3-9mm, f/1.3, P-Iris, Vari Focal	9.0	30	6	Quality 6	6.23 Mbps	×	×
New TTA Interior 4	2.0C-H5A--DO1	-	1	Built-In Lens, 3.3-9mm, f/1.3, P-Iris, Vari Focal	9.0	30	6	Quality 6	6.23 Mbps	×	×
New TTA Interior 5	2.0C-H5A--DO1	-	1	Built-In Lens, 3.3-9mm, f/1.3, P-Iris, Vari Focal	9.0	30	6	Quality 6	6.23 Mbps	×	×

Scene Details

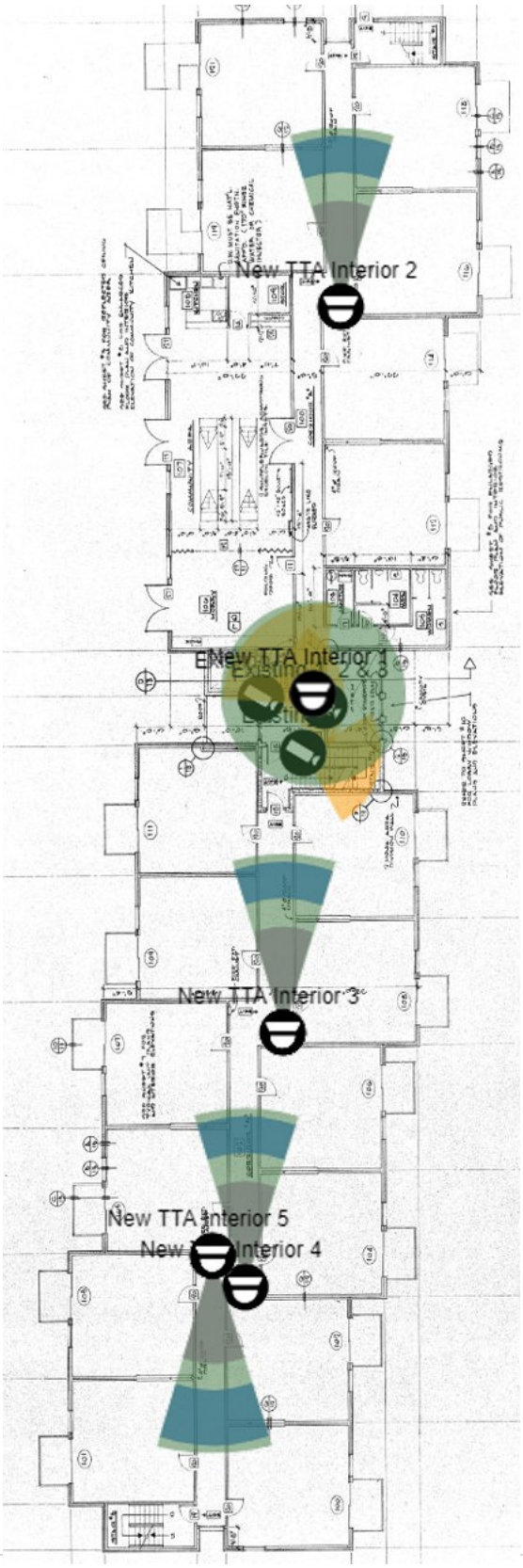
Name	Mounting Height (ft)	Target Height (ft)	Target Distance (ft)	Scene Width (ft)	Mounting Angle	Maximum Distance (ft)	px/ft
Existing 1, 2 & 3	8.5	6	12.8	26	45	43.6	73.8
Existing 4	8.5	6	17.9	36.3	47.7	60.8	52.9
Existing 6	8.5	6	9.9	20	42.2	33.6	95.9
Existing 7	8.5	6	17.5	35.4	47.5	59.4	54.2
Existing 9	8.5	6	19.6	39.7	48.3	66.6	48.4
Existing 10	8.5	6	15.3	30	47.7	51.9	64.1
Existing 11	8.5	6	10.6	21.4	43	35.9	89.8
Existing 12	8.5	6	29.6	58.2	51.8	100.7	33
Existing 13	8.5	6	17	33.4	48.5	57.9	57.4
Existing 14	8.5	6	21.3	41.8	50	72.3	46
NEW TTA 1		0	0	0	NaN	NaN	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8
NEW TTA 2		0	0	0	NaN	NaN	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8

NEW TTA 3		0	0	0	NaN	NaN	0
Head 1	8.5	6	16.5	30.5	38.1	56.1	84.9
Head 2	8.5	6	16.5	30.5	38.1	56.1	84.9
Head 3	8.5	6	16.5	30.5	38.1	56.1	84.9
Head 4	8.5	6	15.7	29	37.6	53.3	89.3
NEW TTA 4		0	0	0	NaN	NaN	0
Head 1	12	6	16.5	35.2	35.7	56.1	109.1
Head 2	12	6	16.5	35.2	35.7	33	109.1
Head 3	12	6	16.5	35.2	35.7	56.1	109.1
NEW TTA 6		0	0	0	NaN	0	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8
NEW TTA 5		0	0	0	NaN	0	0
Head 1	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 2	8.5	6	16.5	33.4	47.1	56.1	114.8
Head 3	8.5	6	16.5	33.4	47.1	56.1	114.8
New TTA Interior 1	8.5	6	16.5	33	0	56.1	24.3
New TTA Interior 2	8.5	6	30.6	18.5	75.6	103.9	103.9
New TTA Interior 3	8.5	6	30.6	18.5	75.6	103.9	103.9
New TTA Interior 4	8.5	6	30.6	18.5	75.6	103.9	103.9

Recommended Exterior Camera Layout



Recommended Interior LVL 1, 2 & 3 Camera Layout



Network Infrastructure Recommendations:

Based on the TTA's assessment, a cloud-based implementation solution will benefit KCHA in the long-term. Cloud Services enables a modern cloud-connected user experience to view live and recorded video, as well as monitor and manage the health of systems, from anywhere with a connection, at any time – including via a connected mobile application.

Necessary Cloud-Based Features:

- Secure Cloud Based
- Mobile Access
- Analytics, including Emergency Alerts
    - Smart Recognition of Firearms/Weapons
    - Smart Recognition of Persons (Watch List)
    - Smart Recognition of License plates (Watch List)
- One-Stop Video Management Software
- License Integration for Current Cameras
- Integration with Access-Control Systems

Example systems that should be considered within current recommendations:

- Avigilon Control Center
- Verkada Centralized Command
- Cisco Meraki

IT Technical Recommendations[4]:

Type	Description	Recommendation
Internet related	**Cameral Qty**	32 cameras
Internet related	**Cameral Avg Bandwidth**	10 Mbps Upload
Internet related	**Camera Internet bandwidth**	320 Mbps Upload
Internet related	**Staff Qty**	Less than 5 staff
Internet related	**Staff Avg bandwidth**	5 Mbps Upload/Download
Internet related	**Staff Internet bandwidth**	25 Mbps Upload/Download
Internet related	**Total minimum internet bandwidth**	345 Mbps Upload/Download
Physical Equipment	**48G POE+ 400W Enterprise Managed Switch**	One switch
Physical Equipment	**Secure 19" Network Rack/Cabinet**	Use existing
Physical Equipment	**1500VA UPS/Battery Backup System**	One unit
Physical Equipment	**1G Firewall/Gateway**	Use existing

[4] All network cabling to cameras should meet or exceed the CAT5e standard. Camera locations have been selected with proximity to electricity. In addition to cabling, wireless cameras should be compared in relation to cost.

Reference Image[5]

[5] Reference images are captured under ideal conditions. Poor lighting, increased compression, or use of a lower quality lens will affect the quality of the images captured.

End of Report

Tactical Training Academy
info@training-academy.org

KING COUNTY HOUSING AUTHORITY

CAMERA IMPLIMENTATION PLAN

Nike Manor

Version: 1.0

COMPLETED BY: Tactical Training Academy

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CAMERA IMPLIMENTATION REPORT

INTRODUCTION:

A Camera Implementation Assessment[1] for the King County Housing Authority (KCHA) was conducted for the Nike Manor Property, starting in April, 2023. The scope of this assessment included an evaluation of current camera security systems, and recommendations necessary to implement an RFP to improve camera systems[2]. This proposal is design to assist in the solicitation process to select a camera installation vendor, which should include cameras, installation, cabling, and the IT specification requirements outlined in this report.

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STAKEHOLDER INTERVIEWS:

The following feedback was collected from managers, IT staff, maintenance staff, facilities, and other stakeholders, regarding the success of this project.

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- 20-30 end users
- 15 administrators
- Mostly site management and security staff

Self-hosted or Cloud solution:

- Cloud

Challenges:

- Space for network locations
- Environmental challenges

Measuring Success:

- A unified solution
- Ease of use
- Ease of maintenance
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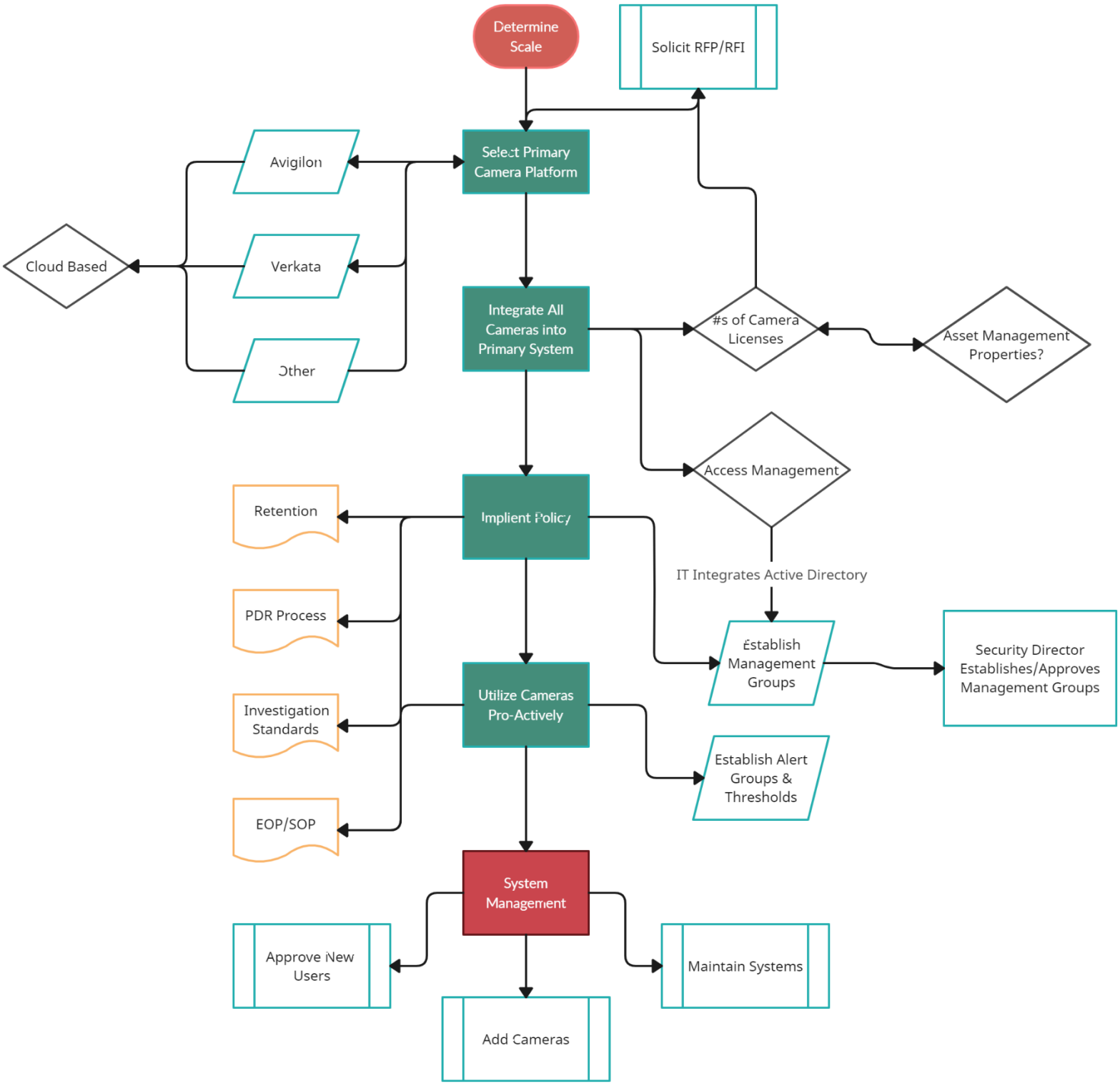
[2] Additional cameras may be added, at the discretion of KCHA staff. Layouts herein represent the most useful positioning of camera systems based on TTA evaluation, taking into account a layered approach to prevention.

Confusion was evident on what implementing an effective security system entailed. Thus, this report includes a flow-process chart for implementation and use of a comprehensive multi-tiered security system.

IMPLEMENTATION FLOW CHART:



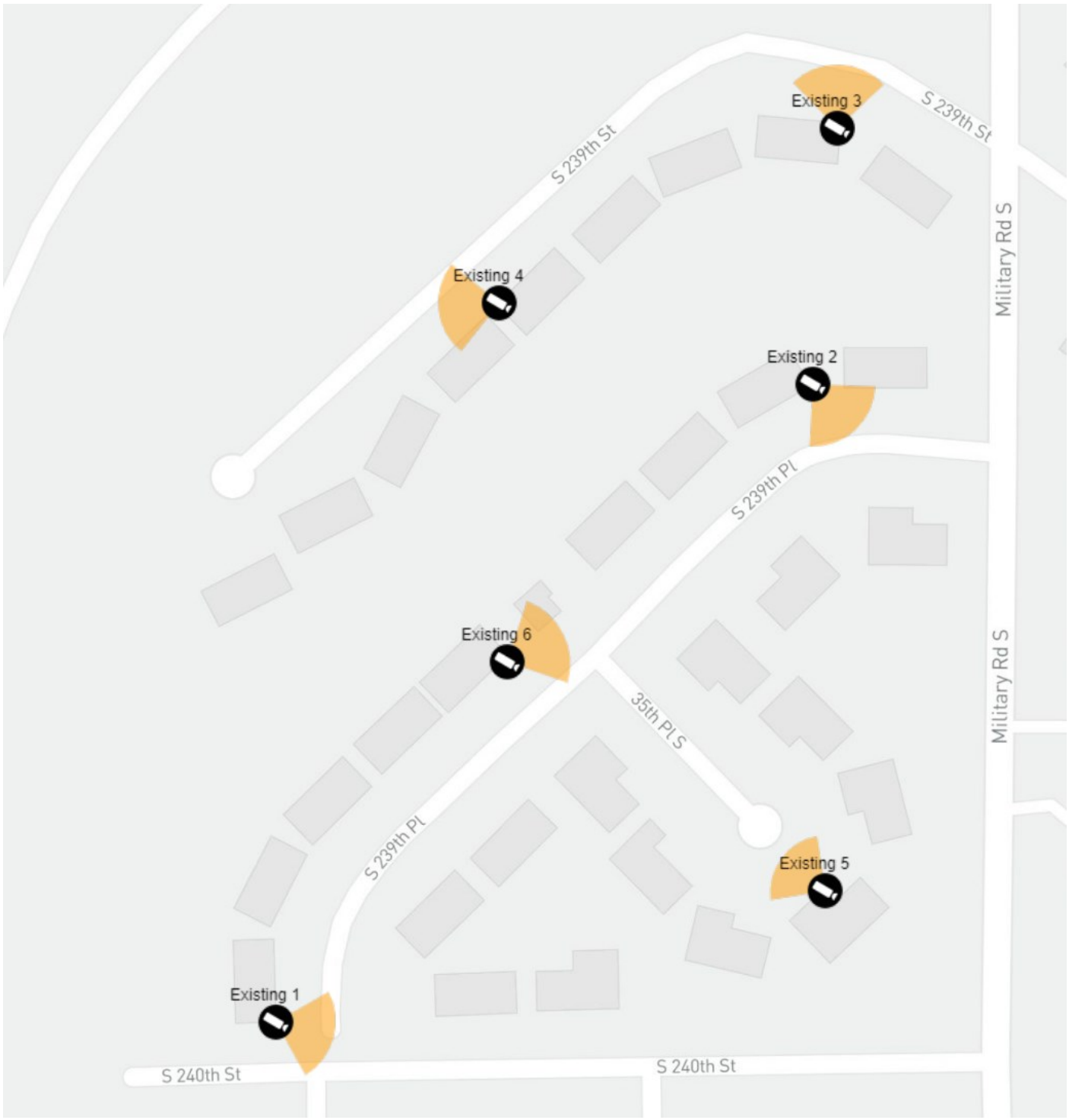
CURRENT SYSTEMS AND CAMERA LAYOUTS:

Current Onsite Cameras

Name	Make	Model	Quality	Analytics
Existing 1	Digital Watchdog	DWC-MV85WiAT	Moderate	No
Existing 2	Digital Watchdog	DWC-MV85WiAT	Moderate	No
Existing 3	Digital Watchdog	DWC-MV85WiAT	Moderate	No
Existing 4	Digital Watchdog	DWC-MV85WiAT	Moderate	No
Existing 5	Digital Watchdog	DWC-MV85WiAT	Low - Shrubs[3]	No

[3] Shrubs need to be trimmed to maximize camera effectiveness

Current Onsite Camera Layout



RECOMMENDED SYSTEMS AND CAMERA LAYOUTS:

Cameras for Retention[4]

Name	Make	Model	Quality	Analytics
Existing 1	Digital Watchdog	DWC-MV85WiAT	Moderate	No
Existing 2	Digital Watchdog	DWC-MV85WiAT	Moderate	No
Existing 3	Digital Watchdog	DWC-MV85WiAT	Moderate	No
Existing 4	Digital Watchdog	DWC-MV85WiAT	Moderate	No
Existing 5	Digital Watchdog	DWC-MV85WiAT	Low - Shrubs	No

[4] New camera systems are numbered in priority order, not based on site orientation. The TTA recommends cameras be logically named based on location, similar to exterior doors into a facility. Reference the TTA Security Summary Report for further information on naming systems.

New Camera Specifications

HDSM Smart Cameras

Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
New TTA 1	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
New TTA 2	24C-H4A--3MH-180	-	1	Built-In Lens, 5.2mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					5.2	12	6	Quality 6		×		×
Head 2					5.2	12	6	Quality 6		×		×
Head 3					5.2	12	6	Quality 6		×		×
New TTA 3	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
New TTA 4		-	1					Quality 6		×		×

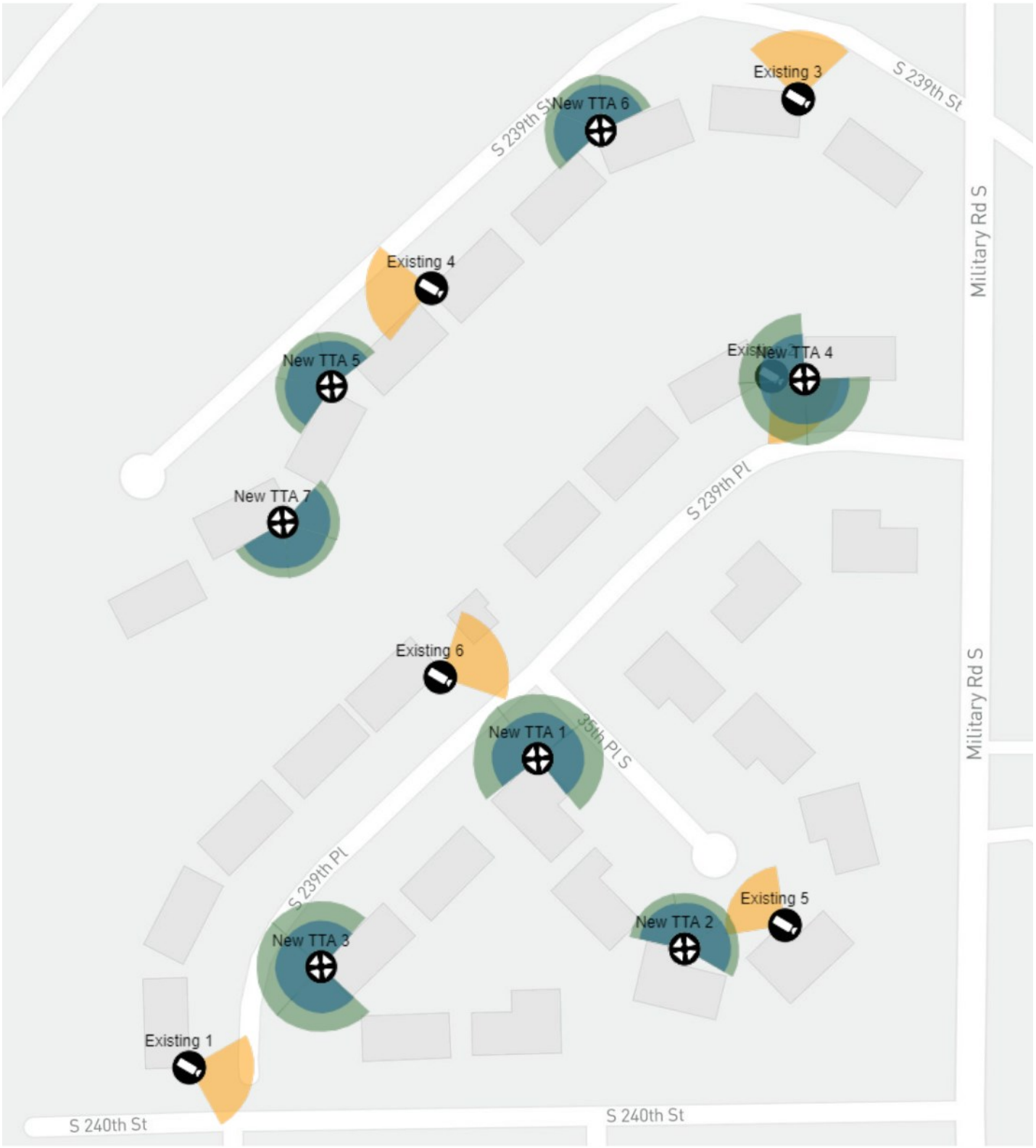
	24C-H4A--3MH-270			Built-In Lens, 4mm, f/1.8					18.84 Mbps		
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
New TTA 5	24C-H4A--3MH-180	-	1	Built-In Lens, 5.2mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					5.2	12	6	Quality 6		×	×
Head 2					5.2	12	6	Quality 6		×	×
Head 3					5.2	12	6	Quality 6		×	×
New TTA 6	24C-H4A--3MH-180	-	1	Built-In Lens, 5.2mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					5.2	12	6	Quality 6		×	×
Head 2					5.2	12	6	Quality 6		×	×
Head 3					5.2	12	6	Quality 6		×	×
New TTA 7	24C-H4A--3MH-180	-	1	Built-In Lens, 5.2mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					5.2	12	6	Quality 6		×	×
Head 2					5.2	12	6	Quality 6		×	×

Scene Details

Name	Mounting Height (ft)	Target Height (ft)	Target Distance (ft)	Scene Width (ft)	Mounting Angle	Maximum Distance (ft)	px/ft
Existing 1	8.5	6	33	66.8	36.4	112	38.8
Existing 2	8.5	6	34	68.8	36.5	115.5	37.7
Existing 3	8.5	6	34.7	70.3	36.6	118	36.9
Existing 4	8.5	6	33.4	67.7	36.4	113.6	38.3
Existing 5	8.5	6	30.1	61	36	102.4	42.5
Existing 6	8.5	6	34.7	70.3	36.6	117.8	36.9
New TTA 1		0	0	0	NaN	NaN	0
Head 1	8.5	6	33.2	66.8	51.4	113	57.5
Head 2	8.5	6	33.2	66.8	51.4	113	57.5
Head 3	8.5	6	33.4	67.2	51.4	113.6	57.2
New TTA 2		0	0	0	NaN	NaN	0
Head 1	8.5	6	34	44.4	64.3	115.6	86.4
Head 2	8.5	6	33.6	43.9	64.2	114.3	87.4
Head 3	8.5	6	33.2	43.4	64.2	112.8	88.6
New TTA 3		0	0	0	NaN	NaN	0
Head 1	8.5	6	33.2	66.8	51.4	113	57.5
Head 2	8.5	6	33.2	66.8	51.4	113	57.5
Head 3	8.5	6	33.4	67.2	51.4	113.6	57.2

New TTA 4		0	0	0	NaN	NaN	0
Head 1	8.5	6	33.2	66.8	51.4	113	57.5
Head 2	8.5	6	33.2	66.8	51.4	113	57.5
Head 3	8.5	6	33.4	67.2	51.4	113.6	57.2
New TTA 5		0	0	0	NaN	NaN	0
Head 1	8.5	6	34	44.4	64.3	115.6	86.4
Head 2	8.5	6	33.6	43.9	64.2	114.3	87.4
Head 3	8.5	6	33.2	43.4	64.2	112.8	88.6
New TTA 6		0	0	0	NaN	NaN	0
Head 1	8.5	6	34	44.4	64.3	115.6	86.4
Head 2	8.5	6	33.6	43.9	64.2	114.3	87.4
Head 3	8.5	6	33.2	43.4	64.2	112.8	88.6
New TTA 7		0	0	0	NaN	NaN	0
Head 1	8.5	6	34	44.4	64.3	115.6	86.4
Head 2	8.5	6	33.6	43.9	64.2	114.3	87.4
Head 3	8.5	6	33.2	43.4	64.2	112.8	88.6

Recommended Camera Layout



Network Infrastructure Recommendations:

Based on the TTA's assessment, a cloud-based implementation solution will benefit KCHA in the long-term. Cloud Services enables a modern cloud-connected user experience to view live and recorded video, as well as monitor and manage the health of systems, from anywhere with a connection, at any time – including via a connected mobile application.

Necessary Cloud-Based Features:

- Secure Cloud Based
- Mobile Access
- Analytics, including Emergency Alerts
    - Smart Recognition of Firearms/Weapons
    - Smart Recognition of Persons (Watch List)
    - Smart Recognition of License plates (Watch List)
- One-Stop Video Management Software
- License Integration for Current Cameras
- Integration with Access-Control Systems

Example systems that should be considered within current recommendations:

- Avigilon Control Center
- Verkada Centralized Command
- Cisco Meraki

IT Technical Recommendations[5]:

Type	Description	Recommendation
Internet related	**Cameral Qty**	12 cameras
Internet related	**Cameral Avg Bandwidth**	10 Mbps Upload
Internet related	**Camera Internet bandwidth**	120 Mbps Upload
Internet related	**Staff Qty**	Less than 5 staff
Internet related	**Staff Avg bandwidth**	5 Mbps Upload/Download
Internet related	**Staff Internet bandwidth**	25 Mbps Upload/Download
Internet related	**Total minimum internet bandwidth**	145 Mbps Upload/Download
Physical Equipment	**24G POE+ 400W Enterprise Managed Switch**	One switch
Physical Equipment	**Secure 19" Network Rack/Cabinet**	Use existing
Physical Equipment	**1500VA UPS/Battery Backup System**	One unit
Physical Equipment	**1G Firewall/Gateway**	Use existing

[5] All network cabling to cameras should meet or exceed the CAT5e standard. Camera locations have been selected with proximity to electricity. In addition to cabling, wireless cameras should be compared in relation to cost.

Reference Image[6]

[6] Reference images are captured under ideal conditions. Poor lighting, increased compression, or use of a lower quality lens will affect the quality of the images captured.

End of Report

Tactical Training Academy
info@training-academy.org

KING COUNTY HOUSING AUTHORITY

CAMERA IMPLIMENTATION PLAN

Northwood Square

Version: 1.0

COMPLETED BY: Tactical Training Academy

TABLE OF CONTENTS

CAMERA IMPLIMENTATION REPORT

INTRODUCTION:

A Camera Implementation Assessment[1] for the King County Housing Authority (KCHA) was conducted for the KCHA Aspen Ridge Asset Management Property, starting in April, 2023. The scope of this assessment included an evaluation of current camera security systems, and recommendations necessary to implement an RFP to improve camera systems[2]. This proposal is design to assist in the solicitation process to select a camera installation vendor, which should include cameras, installation, cabling, and the IT specification requirements outlined in this report.

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STAKEHOLDER INTERVIEWS:

The following feedback was collected from managers, IT staff, maintenance staff, facilities, and other stakeholders, regarding the success of this project.

Detail of Users:

- 20-30 end users
- 15 administrators
- Mostly site management and security staff

Self-hosted or Cloud solution:

- Cloud

Challenges:

- Space for network locations
- Environmental challenges

Measuring Success:

- A unified solution
- Ease of use
- Ease of maintenance
- Reliable system

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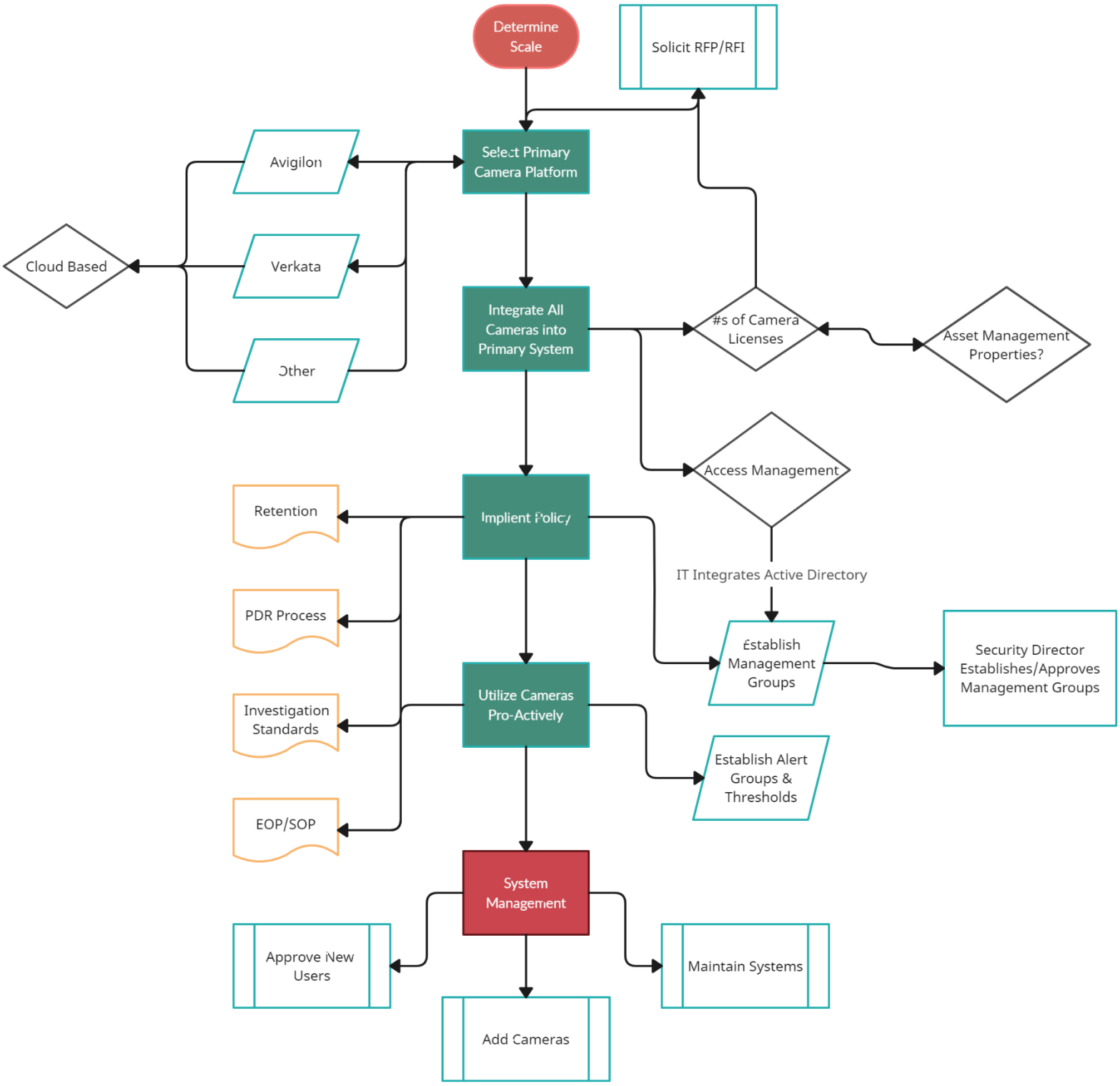
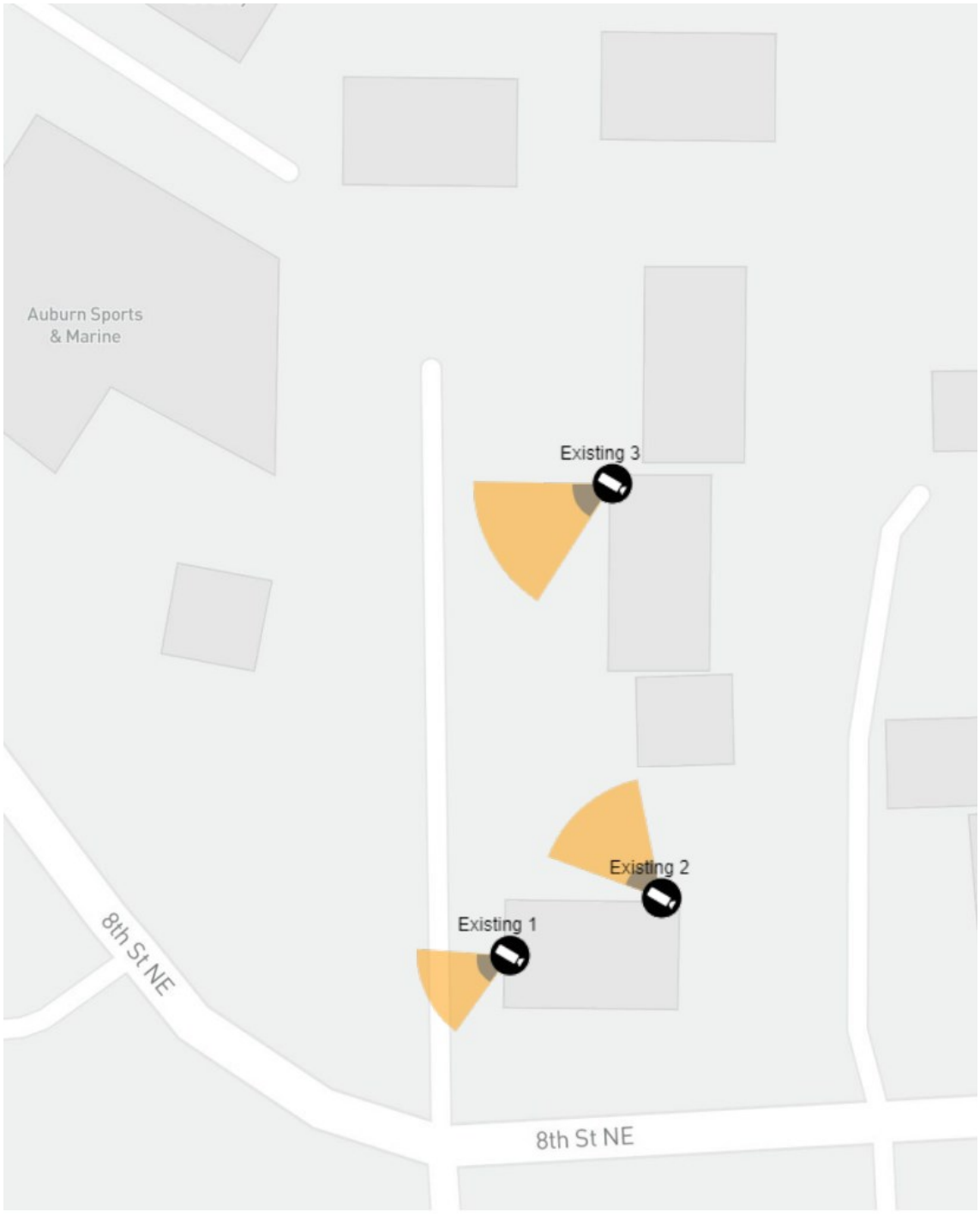
Confusion was evident on what implementing an effective security system entailed. Thus, this report includes a flow-process chart for implementation and use of a comprehensive multi-tiered security system.

IMPLEMENTATION FLOW CHART:



CURRENT SYSTEMS AND CAMERA LAYOUTS:

Current Onsite Camera Layout[3]



[3] Management staff could not demonstrate access to onsite cameras. Upon attempt, the server errored as "not operational". Thus, current onsite cameras are considered non-working.

RECOMMENDED SYSTEMS AND CAMERA LAYOUTS:

HDSM Smart Cameras

New Exterior Camera Specifications

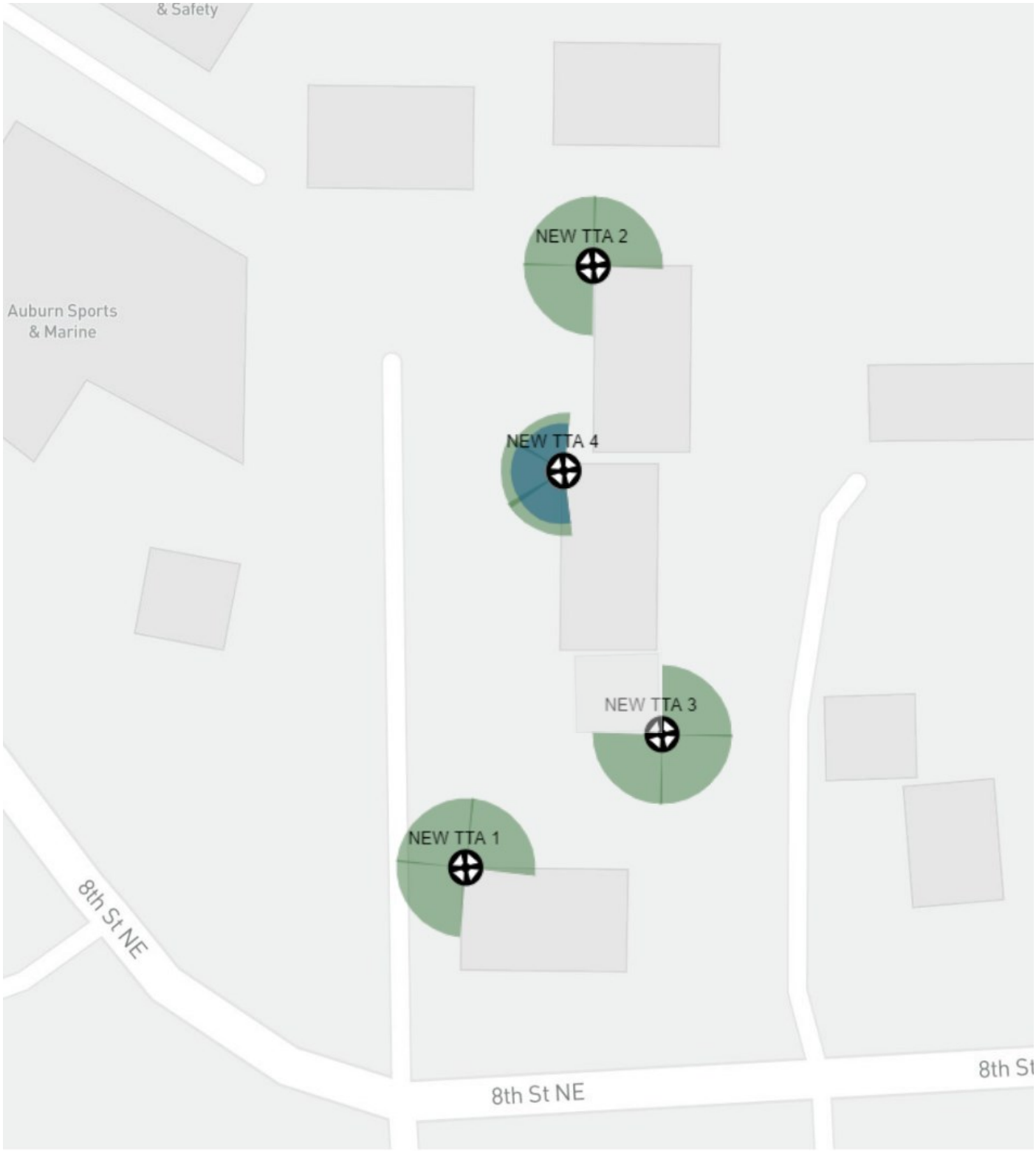
Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
NEW TTA 1	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 2	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 3	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 4	24C-H4A--3MH-180	-	1	Built-In Lens,				Quality 6	18.84 Mbps	×		×

	5.2mm, f/1.8						
Head 1		5.2	12	6	Quality 6	×	×
Head 2		5.2	12	6	Quality 6	×	×
Head 3		5.2	12	6	Quality 6	×	×

Scene Details

Name	Mounting Height (ft)	Target Height (ft)	Target Distance (ft)	Scene Width (ft)	Mounting Angle	Maximum Distance (ft)	px/ft
NEW TTA 1		6	16.5	0	NaN	NaN	0
Head 1	10	6	16.5	34	42.1	56.1	112.9
Head 2	10	6	16.5	34	42.1	56.1	112.9
Head 3	10	6	16.5	34	42.1	56.1	112.9
NEW TTA 2		6	16.5	0	NaN	NaN	0
Head 1	10	6	16.5	34	42.1	56.1	112.9
Head 2	10	6	16.5	34	42.1	56.1	112.9
Head 3	10	6	16.5	34	42.1	56.1	112.9
NEW TTA 3		6	16.5	0	NaN	NaN	0
Head 1	10	6	16.5	34	42.1	56.1	112.9
Head 2	10	6	16.5	34	42.1	56.1	112.9
Head 3	10	6	16.5	34	42.1	56.1	112.9
NEW TTA 4		6	16.5	0	NaN	NaN	0
Head 1	10	6	18.5	24.6	56.3	46.2	155.8
Head 2	10	6	18.2	24.3	56.1	45.5	158.2
Head 3	10	6	16.5	22.1	54.9	56.1	173.6

Recommended Camera Layout



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Type	Description	Recommendation
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End of Report

Tactical Training Academy
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KING COUNTY HOUSING AUTHORITY

CAMERA IMPLIMENTATION PLAN

Riverton Terrace

Version: 1.0

COMPLETED BY: Tactical Training Academy

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CAMERA IMPLIMENTATION REPORT

INTRODUCTION:

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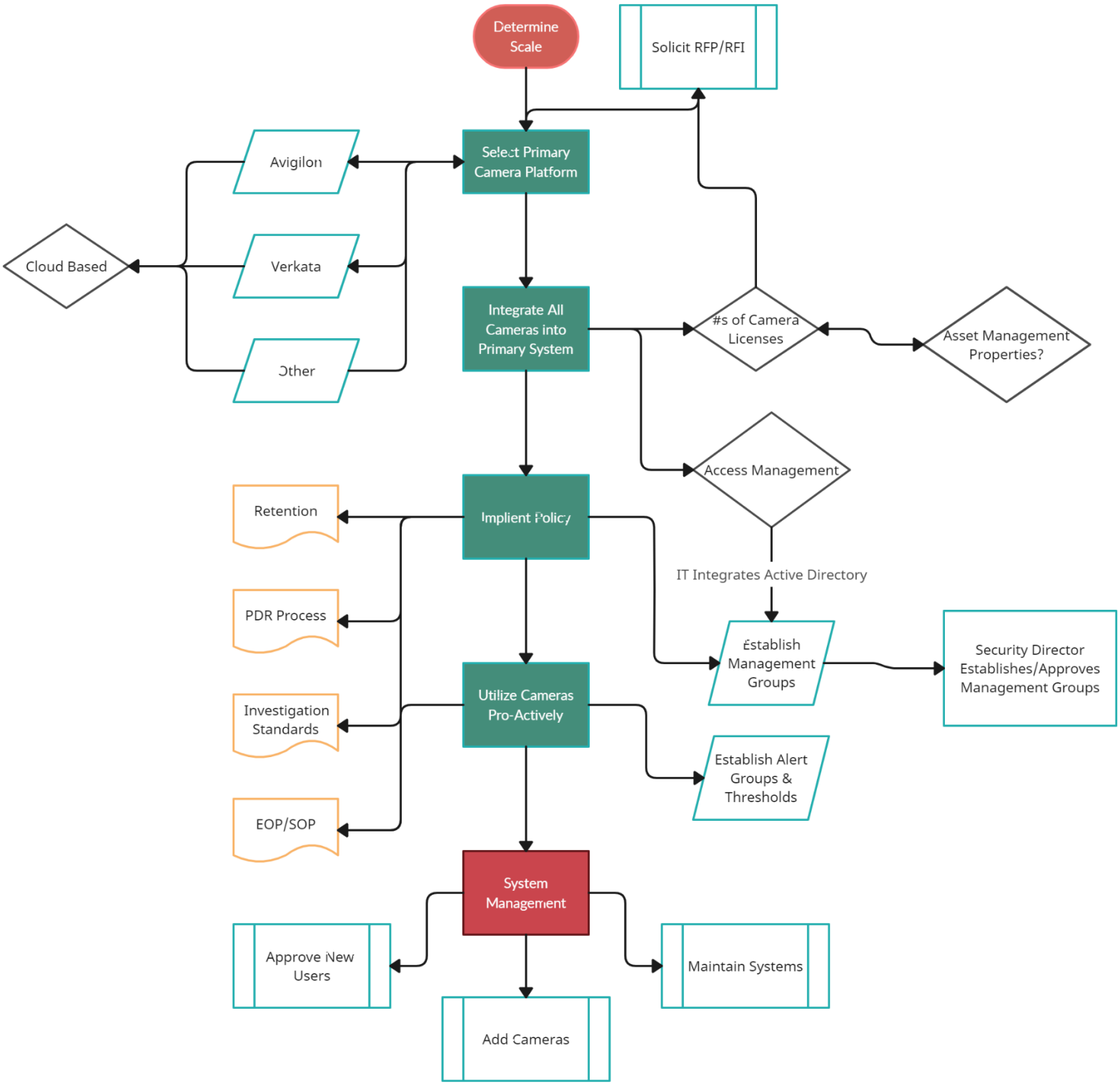

CURRENT SYSTEMS AND CAMERA LAYOUTS:

Current Onsite Cameras

Name	Make	Model	Quality	Analytics
Existing 1	Axis	AXISP3717PLE	Moderate	No
Existing 2	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 3	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 4	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 5	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 6	Digital Watchdog	DWC-MV85WiAT	Moderate	No
Existing 7	Digital Watchdog	DWC-MV85WiAT	Moderate	No
Existing 8	Digital Watchdog	DWC-MV84WiATW	Moderate	No
Existing 9	Digital Watchdog	DWC-MV84WiATW	Moderate	No
Existing 10	Digital Watchdog	DWC-MV84WiATW	Moderate	No

Current Onsite Camera Layout

RECOMMENDED SYSTEMS AND CAMERA LAYOUTS:

Cameras for Retention[3]

Name	Make	Model	Quality	Analytics
Existing 1	Axis	AXISP3717PLE	Moderate	No
Existing 2	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 3	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 4	Digital Watchdog	DWC-MV84WiA	Moderate	No
Existing 5	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 6	Digital Watchdog	DWC-MV85WiAT	Moderate	No
Existing 7	Digital Watchdog	DWC-MV85WiAT	Moderate	No
Existing 8	Digital Watchdog	DWC-MV84WiATW	Moderate	No
Existing 9	Digital Watchdog	DWC-MV84WiATW	Moderate	No
Existing 10	Digital Watchdog	DWC-MV84WiATW	Moderate	No

[3] New camera systems are numbered in priority order, not based on site orientation. The TTA recommends cameras be logically named based on location, similar to exterior doors into a facility. Reference the TTA Security Summary Report for further information on naming systems.

HDSM Smart Cameras

New Camera Specifications

Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
NEW TTA 1	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 2	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 3	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 4	24C-H4A--3MH-270	-	1					Quality 6	18.84 Mbps	×		×

			Built-In Lens, 4mm, f/1.8							
Head 1				4.0	12	6	Quality 6		×	×
Head 2				4.0	12	6	Quality 6		×	×
Head 3				4.0	12	6	Quality 6		×	×
NEW TTA 5	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×	×

Scene Details

Name	Mounting Height (ft)	Target Height (ft)	Target Distance (ft)	Scene Width (ft)	Mounting Angle	Maximum Distance (ft)	px/ft
Existing 1	8.5	6	4.1	85.9	0	14.1	23.8
Existing 2	8.5	6	27.7	65.3	23.3	94.3	31.4
Existing 3	8.5	6	20.6	48.6	21.9	70.2	42.2
Existing 4	8.5	6	23.5	55.4	22.6	80	37
Existing 5	8.5	6	21.4	50.3	22.1	72.8	40.7
Existing 6	8.5	6	22.7	53.3	22.4	77.1	38.4
Existing 7	8.5	6	29.1	55.2	39.9	98.8	37.1
Existing 8	8.5	6	25.2	47.9	39.2	85.8	42.8
Existing 9	8.5	6	13.6	25.8	35.1	46.3	79.3
Existing 10	8.5	6	31.3	59.5	40.2	106.5	34.4
NEW TTA 1		0	0	0	NaN	NaN	0
Head 1	8.5	6	29.7	59.7	50.9	101	64.3
Head 2	8.5	6	30.1	60.6	50.9	102.4	63.4
Head 3	8.5	6	29.9	60.2	50.9	101.7	63.8
NEW TTA 2		0	0	0	NaN	NaN	0
Head 1	8.5	6	29.7	59.7	50.9	101	64.3
Head 2	8.5	6	30.1	60.6	50.9	102.4	63.4
Head 3	8.5	6	29.9	60.2	50.9	101.7	63.8

NEW TTA 3		0	0	0	NaN	NaN	0
Head 1	8.5	6	29.7	59.7	50.9	101	64.3
Head 2	8.5	6	30.1	60.6	50.9	102.4	63.4
Head 3	8.5	6	29.9	60.2	50.9	101.7	63.8
NEW TTA 4		0	0	0	NaN	NaN	0
Head 1	8.5	6	29.7	59.7	50.9	101	64.3
Head 2	8.5	6	30.1	60.6	50.9	102.4	63.4
Head 3	8.5	6	29.9	60.2	50.9	101.7	63.8
NEW TTA 5	8.5	6	16.5	33	0	56.1	24.3

Recommended Camera Layout

Network Infrastructure Recommendations:

Based on the TTA's assessment, a cloud-based implementation solution will benefit KCHA in the long-term. Cloud Services enables a modern cloud-connected user experience to view live and recorded video, as well as monitor and manage the health of systems, from anywhere with a connection, at any time – including via a connected mobile application.

Necessary Cloud-Based Features:

- Secure Cloud Based
- Mobile Access
- Analytics, including Emergency Alerts
    - Smart Recognition of Firearms/Weapons
    - Smart Recognition of Persons (Watch List)
    - Smart Recognition of License plates (Watch List)
- One-Stop Video Management Software
- License Integration for Current Cameras
- Integration with Access-Control Systems

Example systems that should be considered within current recommendations:

- Avigilon Control Center
- Verkada Centralized Command
- Cisco Meraki

IT Technical Recommendations[4]:

Type	Description	Recommendation
Internet related	**Cameral Qty**	15 cameras
Internet related	**Cameral Avg Bandwidth**	10 Mbps Upload
Internet related	**Camera Internet bandwidth**	150 Mbps Upload
Internet related	**Staff Qty**	Less than 5 staff
Internet related	**Staff Avg bandwidth**	5 Mbps Upload/Download
Internet related	**Staff Internet bandwidth**	25 Mbps Upload/Download
Internet related	**Total minimum internet bandwidth**	175 Mbps Upload/Download
Physical Equipment	**24G POE+ 400W Enterprise Managed Switch**	One switch
Physical Equipment	**Secure 19" Network Rack/Cabinet**	Use existing
Physical Equipment	**1500VA UPS/Battery Backup System**	One unit
Physical Equipment	**1G Firewall/Gateway**	Use existing

[4] All network cabling to cameras should meet or exceed the CAT5e standard. Camera locations have been selected with proximity to electricity. In addition to cabling, wireless cameras should be compared in relation to cost.

Reference Image[5]

[5] Reference images are captured under ideal conditions. Poor lighting, increased compression, or use of a lower quality lens will affect the quality of the images captured.

End of Report

Tactical Training Academy
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KING COUNTY HOUSING AUTHORITY

CAMERA IMPLIMENTATION PLAN

Valli Kee

Version: 1.0

COMPLETED BY: Tactical Training Academy

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CAMERA IMPLIMENTATION REPORT

INTRODUCTION:

A Camera Implementation Assessment[1] for the King County Housing Authority (KCHA) was conducted for the Valli Kee Property, starting in April, 2023. The scope of this assessment included an evaluation of current camera security systems, and recommendations necessary to implement an RFP to improve camera systems[2]. This proposal is design to assist in the solicitation process to select a camera installation vendor, which should include cameras, installation, cabling, and the IT specification requirements outlined in this report.

This report is specifically designed generically, to encourage bids from several camera installation vendors. Camera specifications could be met by several quality camera systems. The TTA has good experience using the Avigilon system, and considers it the top-tier of current holistic security camera systems. Therefore, specific camera models within the Avigilon system are noted as examples within this report. Again, other camera systems may meet the specifications included in this report and should be evaluated when proposals for installation are received, but each should meet the minimum specifications outlined in this report.

The data presented in this report assumes that recommend changes to CPTED and hardscapes outlined in prior TTA KCHA Site-Specific Reports have or will be implemented. This includes installing various fencing and gating systems, trimming trees and shrubbery, and improving vestibule spaces. Thus, the camera systems within these reports will be effective long-term, and not made superfluous by necessary hardscape changes already planned.

STAKEHOLDER INTERVIEWS:

The following feedback was collected from managers, IT staff, maintenance staff, facilities, and other stakeholders, regarding the success of this project.

Detail of Users:

- 20-30 end users
- 15 administrators
- Mostly site management and security staff

Self-hosted or Cloud solution:

- Cloud

Challenges:

- Space for network locations
- Environmental challenges

Measuring Success:

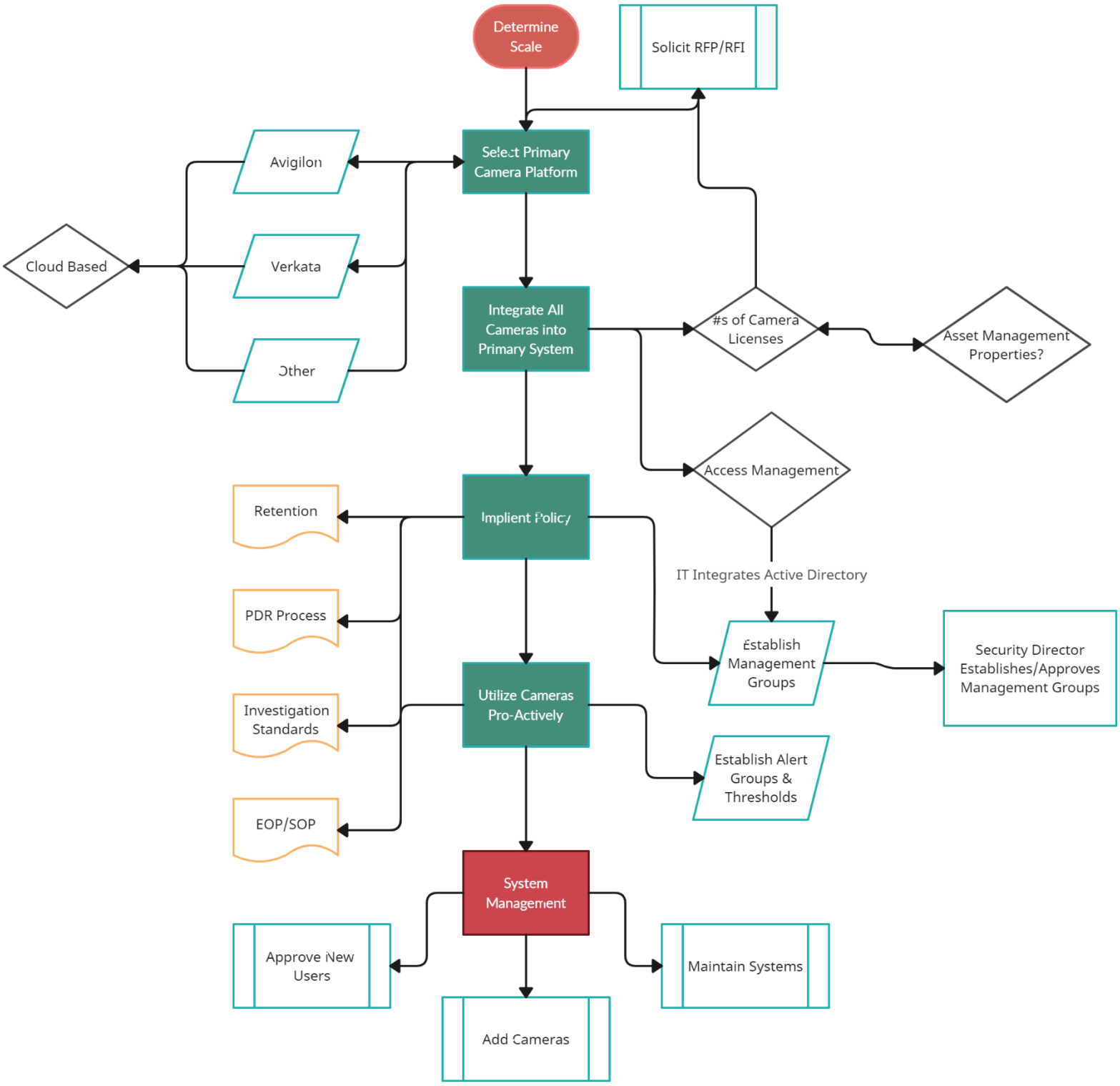
- A unified solution
- Ease of use
- Ease of maintenance
- Reliable system

[1] **Disclaimer:** The intent of this assessment is to improve the overall safety and security for KCHA. The information contained in this report is to be used solely by KCHA, law enforcement, fire service and other emergency response agencies. The disclosures of the information contained in this report to the general public is not recommended.

[2] Additional cameras may be added, at the discretion of KCHA staff. Layouts herein represent the most useful positioning of camera systems based on TTA evaluation, taking into account a layered approach to prevention.

Confusion was evident on what implementing an effective security system entailed. Thus, this report includes a flow-process chart for implementation and use of a comprehensive multi-tiered security system.

IMPLEMENTATION FLOW CHART:



CURRENT SYSTEMS AND CAMERA LAYOUTS:

Current Onsite Cameras

Name	Make	Model	Quality	Analytics
Existing 1	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 2	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 3	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 4	Digital Watchdog	DWC-MV82WiA	Low - Clean	No
Existing 5	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 6	Digital Watchdog	DWC-MV82WiA	Low - Shrubs	No
Existing 7	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 8	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 9	Digital Watchdog	DWC-MV82WiA	Low	No
Existing 10	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 11	Digital Watchdog	DWC-MV85WiATW	Low - Shrubs	No
Existing 12	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 13	Digital Watchdog	DWC-MV85WiATW	Moderate	No

Current Onsite Camera Layout

RECOMMENDED SYSTEMS AND CAMERA LAYOUTS:

Cameras for Retention[3]

Name	Make	Model	Quality	Analytics
Existing 3	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 5*[4]	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 8	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 10*	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 11	Digital Watchdog	DWC-MV85WiATW	Low - Shrubs	No
Existing 12	Digital Watchdog	DWC-MV85WiATW	Moderate	No
Existing 13	Digital Watchdog	DWC-MV85WiATW	Moderate	No

[3] New camera systems are numbered in priority order, not based on site orientation. The TTA recommends cameras be logically named based on location, similar to exterior doors into a facility. Reference the TTA Security Summary Report for further information on naming systems.
[4] Camera hardware with an * have been retained, but moved to other locations where classified object recognition may be less necessary.

HDSM Smart Cameras

New Camera Specifications

Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
NEW TTA 1	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 2	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 3	24C-H4A--3MH-180	-	1	Built-In Lens, 5.2mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					5.2	12	6	Quality 6		×		×
Head 2					5.2	12	6	Quality 6		×		×
Head 3					5.2	12	6	Quality 6		×		×
NEW TTA 4	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×

NEW TTA 5	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
Camera 6	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×		×
NEW TTA 7	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 8	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 9	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×

Scene Details

Name	Mounting Height (ft)	Target Height (ft)	Target Distance (ft)	Scene Width (ft)	Mounting Angle	Maximum Distance (ft)	px/ft
Existing 3	8.5	6	37.2	104.3	0	126.6	19.6
Existing 5	8.5	6	52.7	93.7	45.5	179	21.9
Existing 8	8.5	6	54.6	97.2	45.6	185.8	21.1
Existing 10	8.5	6	53.6	95.4	45.5	182.4	21.5
Existing 11	8.5	6	52.7	93.7	45.5	179.1	21.9
Existing 12	8.5	6	50.5	89.9	45.4	171.8	22.8
NEW TTA 1		0	0	0	NaN	NaN	0
Head 1	8.5	6	47.1	94.5	52.7	160	40.7
Head 2	8.5	6	46.7	93.8	52.6	158.9	40.9
Head 3	8.5	6	47	94.2	52.6	159.7	40.7
Existing 13	8.5	6	45.5	81	45.1	154.9	25.3
NEW TTA 2		0	0	0	NaN	NaN	0
Head 1	8.5	6	47.1	94.5	52.7	160	40.7
Head 2	8.5	6	46.7	93.8	52.6	158.9	40.9
Head 3	8.5	6	47	94.2	52.6	159.7	40.7
NEW TTA 3		0	0	0	NaN	NaN	0
Head 1	8.5	6	36.3	47.4	64.6	123.4	81
Head 2	8.5	6	36.7	47.9	64.6	124.7	80.2

Head 3	8.5	6	36.8	48	64.6	125	80
NEW TTA 4		0	0	0	NaN	NaN	0
Head 1	8.5	6	47.1	94.5	52.7	160	40.7
Head 2	8.5	6	46.7	93.8	52.6	158.9	40.9
Head 3	8.5	6	47	94.2	52.6	159.7	40.7
NEW TTA 5		0	0	0	NaN	NaN	0
Head 1	8.5	6	47.1	94.5	52.7	160	40.7
Head 2	8.5	6	46.7	93.8	52.6	158.9	40.9
Head 3	8.5	6	47	94.2	52.6	159.7	40.7
Camera 6	8.5	6	16.5	33	0	56.1	24.3
NEW TTA 7		0	0	0	NaN	NaN	0
Head 1	8.5	6	47.1	94.5	52.7	160	40.7
Head 2	8.5	6	46.7	93.8	52.6	158.9	40.9
Head 3	8.5	6	47	94.2	52.6	159.7	40.7
NEW TTA 8		0	0	0	NaN	NaN	0
Head 1	8.5	6	47.1	94.5	52.7	160	40.7
Head 2	8.5	6	46.7	93.8	52.6	158.9	40.9
Head 3	8.5	6	47	94.2	52.6	159.7	40.7
NEW TTA 9		0	0	0	NaN	NaN	0
Head 1	8.5	6	47.1	94.5	52.7	160	40.7
Head 2	8.5	6	46.7	93.8	52.6	158.9	40.9

Recommended Camera Layout

Network Infrastructure Recommendations:

Based on the TTA's assessment, a cloud-based implementation solution will benefit KCHA in the long-term. Cloud Services enables a modern cloud-connected user experience to view live and recorded video, as well as monitor and manage the health of systems, from anywhere with a connection, at any time – including via a connected mobile application.

Necessary Cloud-Based Features:

- Secure Cloud Based
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- Analytics, including Emergency Alerts
    - Smart Recognition of Firearms/Weapons
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    - Smart Recognition of License plates (Watch List)
- One-Stop Video Management Software
- License Integration for Current Cameras
- Integration with Access-Control Systems

Example systems that should be considered within current recommendations:

- Avigilon Control Center
- Verkada Centralized Command
- Cisco Meraki

IT Technical Recommendations[5]:

Type	Description	Recommendation
Internet related	**Cameral Qty**	16 cameras
Internet related	**Cameral Avg Bandwidth**	10 Mbps Upload
Internet related	**Camera Internet bandwidth**	160 Mbps Upload
Internet related	**Staff Qty**	Less than 5 staff
Internet related	**Staff Avg bandwidth**	5 Mbps Upload/Download
Internet related	**Staff Internet bandwidth**	25 Mbps Upload/Download
Internet related	**Total minimum internet bandwidth**	185 Mbps Upload/Download
Physical Equipment	**24G POE+ 400W Enterprise Managed Switch**	One switch
Physical Equipment	**Secure 19" Network Rack/Cabinet**	Use existing
Physical Equipment	**1500VA UPS/Battery Backup System**	One unit
Physical Equipment	**1G Firewall/Gateway**	Use existing

[5] All network cabling to cameras should meet or exceed the CAT5e standard. Camera locations have been selected with proximity to electricity. In addition to cabling, wireless cameras should be compared in relation to cost.

Reference Image[6]

[6] Reference images are captured under ideal conditions. Poor lighting, increased compression, or use of a lower quality lens will affect the quality of the images captured.

End of Report

Tactical Training Academy
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KING COUNTY HOUSING AUTHORITY

CAMERA IMPLIMENTATION PLAN

Aspen Ridge

Version: 1.0

COMPLETED BY: Tactical Training Academy

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CAMERA IMPLIMENTATION REPORT

INTRODUCTION:

A Camera Implementation Assessment[1] for the King County Housing Authority (KCHA) was conducted for the KCHA Aspen Ridge Asset Management Property, starting in April, 2023. The scope of this assessment included an evaluation of current camera security systems, and recommendations necessary to implement an RFP to improve camera systems[2]. This proposal is design to assist in the solicitation process to select a camera installation vendor, which should include cameras, installation, cabling, and the IT specification requirements outlined in this report.

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The data presented in this report assumes that recommend changes to CPTED and hardscapes outlined in prior TTA KCHA Site-Specific Reports have or will be implemented. This includes installing various fencing and gating systems, trimming trees and shrubbery, and improving vestibule spaces. Thus, the camera systems within these reports will be effective long-term, and not made superfluous by necessary hardscape changes already planned.

STAKEHOLDER INTERVIEWS:

The following feedback was collected from managers, IT staff, maintenance staff, facilities, and other stakeholders, regarding the success of this project.

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- 20-30 end users
- 15 administrators
- Mostly site management and security staff

Self-hosted or Cloud solution:

- Cloud

Challenges:

- Space for network locations
- Environmental challenges

Measuring Success:

- A unified solution
- Ease of use
- Ease of maintenance
- Reliable system

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Confusion was evident on what implementing an effective security system entailed. Thus, this report includes a flow-process chart for implementation and use of a comprehensive multi-tiered security system.

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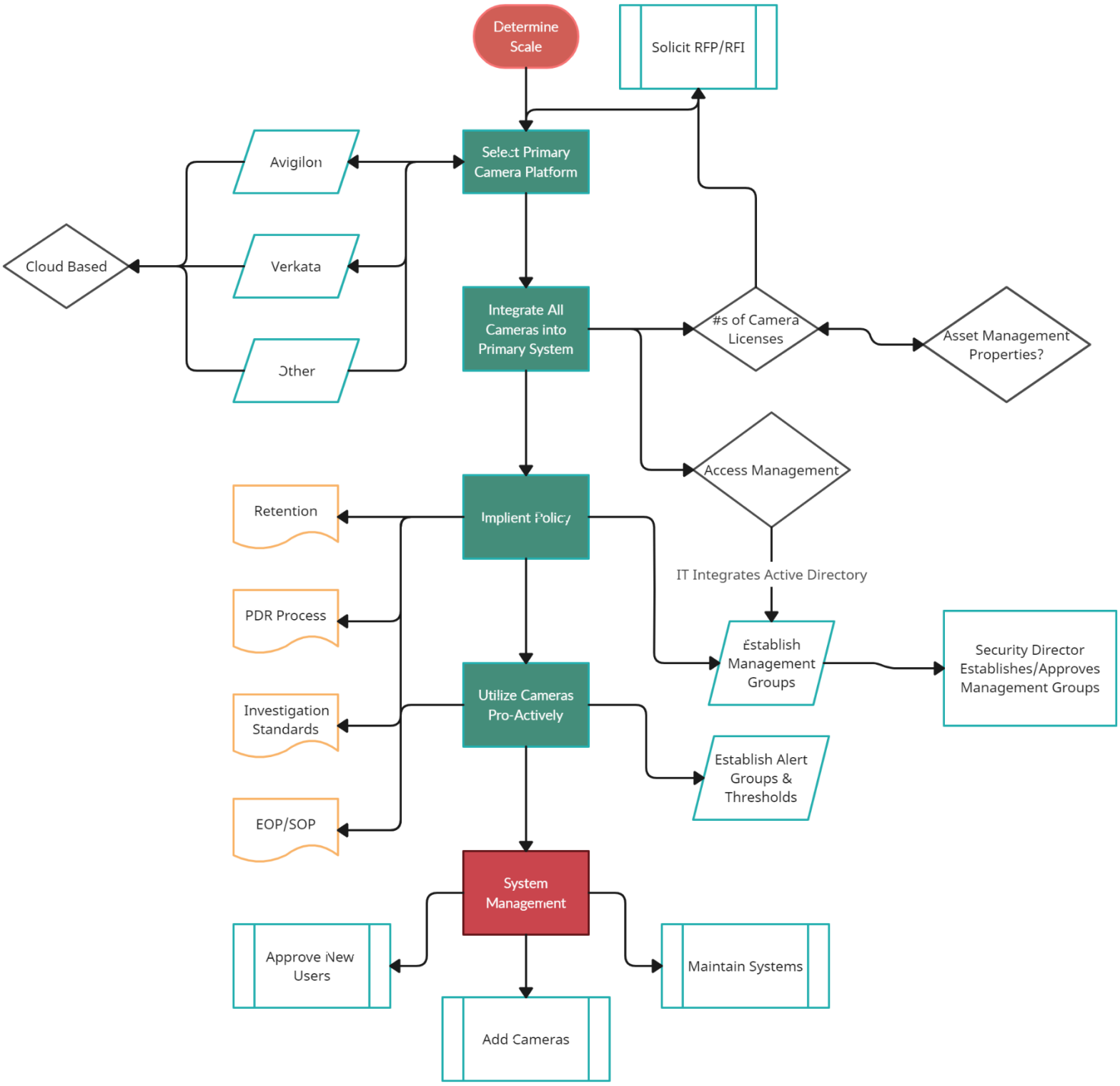


CURRENT SYSTEMS AND CAMERA LAYOUTS:

Current Onsite Cameras[3]

Name	Make	Model	Quality	Analytics
Office 1	Lorex	MC6041	N/A	No
Office 2	Lorex	MC6041	N/A	No

[3] Management staff could not demonstrate access to onsite cameras or layout maps of the site. Thus, current onsite cameras are considered non-working.

RECOMMENDED SYSTEMS AND CAMERA LAYOUTS:

HDSM Smart Cameras

New Interior & Exterior Camera Specifications

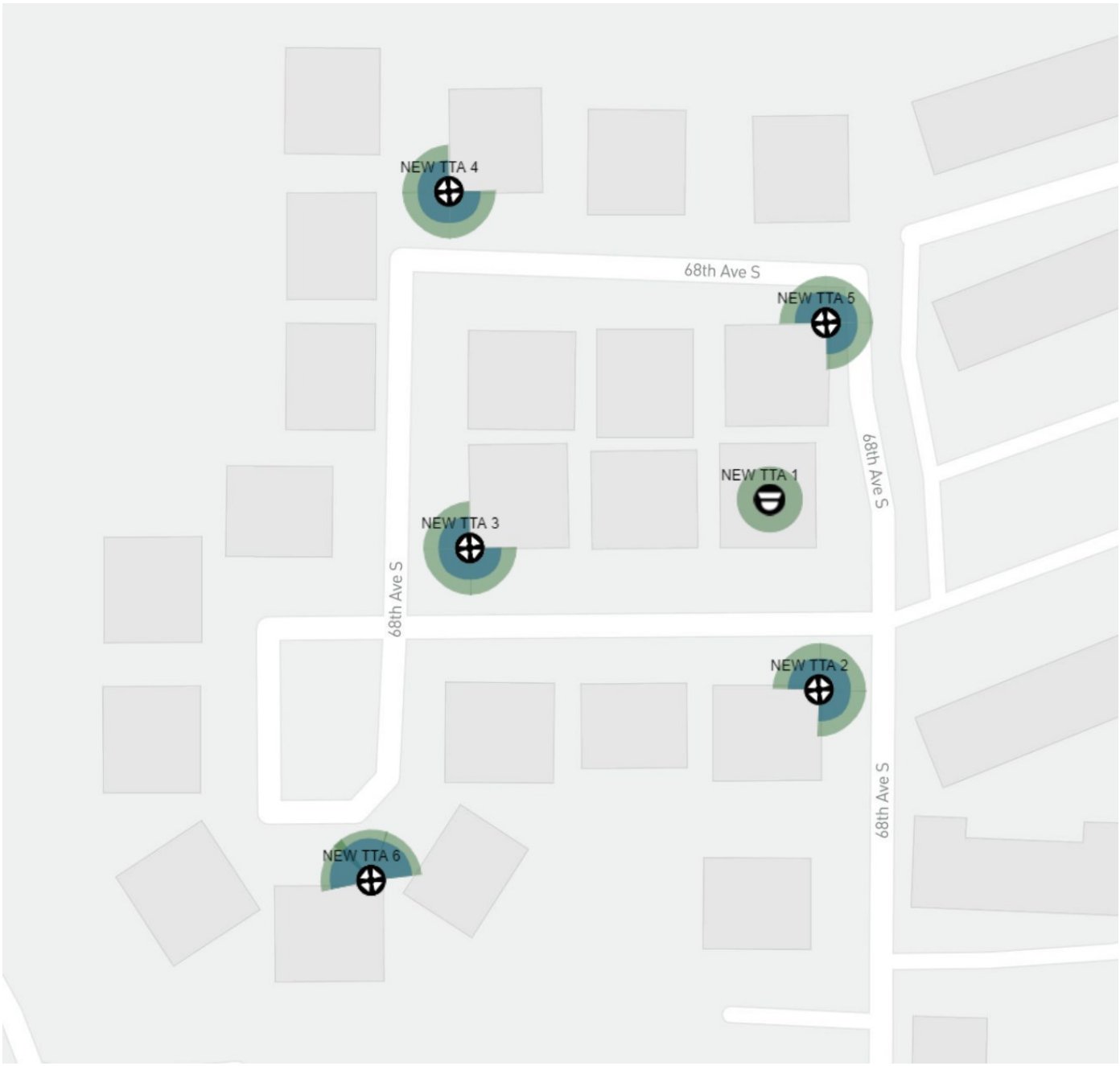
Name	Model	Storage	Qty	Lens	FL. (mm)	Image Rate	Daily Record-ing Cycle	Image Quality	Max Band-width	HDSM Smartcodec		
										Enabled	Strength	Min Image Rate
NEW TTA 1	8.0C-H5A--FE-DO1	-	1	Built-In Lens, 1.4mm, f/2.0, Fish Eye	1.4	30	6	Quality 6	8.86 Mbps	×		×
NEW TTA 2	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 3	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6		×		×
Head 3					4.0	12	6	Quality 6		×		×
NEW TTA 4	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×		×
Head 1					4.0	12	6	Quality 6		×		×
Head 2					4.0	12	6	Quality 6				

										×	×
Head 3					4.0	12	6	Quality 6		×	×
NEW TTA 5	24C-H4A--3MH-270	-	1	Built-In Lens, 4mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					4.0	12	6	Quality 6		×	×
Head 2					4.0	12	6	Quality 6		×	×
Head 3					4.0	12	6	Quality 6		×	×
NEW TTA 6	24C-H4A--3MH-180	-	1	Built-In Lens, 5.2mm, f/1.8				Quality 6	18.84 Mbps	×	×
Head 1					5.2	12	6	Quality 6		×	×
Head 2					5.2	12	6	Quality 6		×	×
Head 3					5.2	12	6	Quality 6		×	×

Scene Details

Name	Mounting Height (ft)	Target Height (ft)	Target Distance (ft)	Scene Width (ft)	Mounting Angle	Maximum Distance (ft)	px/ft
NEW TTA 1	8.5	6	16.5	33	0	56.1	24.3
NEW TTA 2		6	16.5	0	NaN	NaN	0
Head 1	8	6	16.5	33.3	48.8	56.1	115.3
Head 2	8	6	16.5	33.3	48.8	56.1	115.3
Head 3	8	6	16.5	33.3	48.8	56.1	115.3
NEW TTA 3		6	16.5	0	NaN	NaN	0
Head 1	8	6	16.5	33.3	48.8	56.1	115.3
Head 2	8	6	16.5	33.3	48.8	56.1	115.3
Head 3	8	6	16.5	33.3	48.8	56.1	115.3
NEW TTA 4		6	16.5	0	NaN	NaN	0
Head 1	8	6	16.5	33.3	48.8	56.1	115.3
Head 2	8	6	16.5	33.3	48.8	56.1	115.3
Head 3	8	6	16.5	33.3	48.8	56.1	115.3
NEW TTA 5		6	16.5	0	NaN	NaN	0
Head 1	8	6	16.5	33.3	48.8	56.1	115.3
Head 2	8	6	16.5	33.3	48.8	56.1	115.3
Head 3	8	6	16.5	33.3	48.8	56.1	115.3

Recommended Camera Layout



Network Infrastructure Recommendations:

Based on the TTA's assessment, a cloud-based implementation solution will benefit KCHA in the long-term. Cloud Services enables a modern cloud-connected user experience to view live and recorded video, as well as monitor and manage the health of systems, from anywhere with a connection, at any time – including via a connected mobile application.

Necessary Cloud-Based Features:

- Secure Cloud Based
- Mobile Access
- Analytics, including Emergency Alerts
    - Smart Recognition of Firearms/Weapons
    - Smart Recognition of Persons (Watch List)
    - Smart Recognition of License plates (Watch List)
- One-Stop Video Management Software
- License Integration for Current Cameras
- Integration with Access-Control Systems

Example systems that should be considered within current recommendations:

- Avigilon Control Center
- Verkada Centralized Command
- Cisco Meraki

IT Technical Recommendations[4]:

Type	Description	Recommendation
Internet related	**Cameral Qty**	6 cameras
Internet related	**Cameral Avg Bandwidth**	10 Mbps Upload
Internet related	**Camera Internet bandwidth**	60 Mbps Upload
Internet related	**Staff Qty**	Less than 5 staff
Internet related	**Staff Avg bandwidth**	5 Mbps Upload/Download
Internet related	**Staff Internet bandwidth**	25 Mbps Upload/Download
Internet related	**Total minimum internet bandwidth**	85 Mbps Upload/Download
Physical Equipment	**24G POE+ 400W Enterprise Managed Switch**	One switch
Physical Equipment	**Secure 19" Network Rack/Cabinet**	Use existing
Physical Equipment	**1500VA UPS/Battery Backup System**	One unit
Physical Equipment	**1G Firewall/Gateway**	Use existing

[4] All network cabling to cameras should meet or exceed the CAT5e standard. Camera locations have been selected with proximity to electricity. In addition to cabling, wireless cameras should be compared in relation to cost.

Reference Image[5]

[5] Reference images are captured under ideal conditions. Poor lighting, increased compression, or use of a lower quality lens will affect the quality of the images captured.

End of Report

END OF ADDENDUM