

VA



U.S. Department of Veterans Affairs

Office of Construction & Facilities Management

Office of Facilities Planning

Facilities Standards Service



Emergency Department

December 1, 2021

Site Visits **Report**

INTRODUCTION..... 1

1.0 ORLANDO VA MEDICAL CENTER, Orlando, Florida 2

 1.1 Exterior Images 2

 1.2 Campus Site Plan..... 4

 1.3 Overall Floor Plan..... 5

 1.4 Emergency Department Floor Plans 6

 1.4.1 Access Points..... 6

 1.4.2 Department Flow 7

 1.4.3 Functional Areas 8

 1.5 Photographs..... 9

 1.5.1 Exterior and Ambulance Entrances 9

 1.5.2 Waiting and Triage 10

 1.5.3 Central Communication Center 12

 1.5.4 Exam / Treatment Rooms 13

 1.5.5 Resuscitation Room 14

 1.5.6 Miscellaneous 15

 1.6 Metrics 16

 1.6.1 Questionnaire 16

 1.6.2 User Perceptions..... 16

 1.7 Tour Minutes..... 19

 1.7.1 Site Plan & Floor Plan Orientation 19

 1.7.2 Floor Plan – ED Unit A Detailed Review..... 19

 1.8 HVAC Lessons Learned..... 23

2.0 EAST ORANGE VA MEDICAL CENTER, East Orange, New Jersey 24

 2.1 Exterior Images 24

 2.2 Campus Site Plan..... 26

 2.3 Overall Floor Plan..... 27

 2.4 Emergency Department Floor Plans 28

 2.4.1 Access Points..... 28

 2.4.2 Department Flow 29

 2.4.3 Functional Areas 30

 2.5 Photographs..... 31

 2.5.1 Exterior and Ambulance Entrances 31

 2.5.2 Waiting and Triage 32

 2.5.3 Central Communication Center 34

 2.5.4 Exam / Treatment Rooms 34

 2.5.5 Miscellaneous 35

 2.6 Metrics 35

 2.6.1 Questionnaire 35

 2.6.2 User Perceptions..... 35

 2.7 Tour Minutes..... 36

 2.7.1 Site Plan & Floor Plan Orientation 36

 2.7.2 Floor Plan – ED Detailed Review..... 36



- 3.0 PROVIDENCE VA MEDICAL CENTER, Providence, Rhode Island..... 41
 - 3.1 Exterior Images 41
 - 3.2 Campus Site Plan..... 43
 - 3.3 Emergency Department Floor Plans 44
 - 3.3.1 Access Points..... 44
 - 3.3.2 Department Flow 45
 - 3.3.3 Functional Areas 46
 - 3.3.4 Observations 47
 - 3.4 Photographs..... 48
 - 3.4.1 Waiting and Triage..... 48
 - 3.4.2 Central Communication Center 48
 - 3.4.3 Exam / Treatment Rooms 49
 - 3.5 Metrics 50
 - 3.5.1 Questionnaire 50
 - 3.6 Tour Minutes..... 50
 - 3.6.1 Site Plan & Floor Plan Orientation 50
 - 3.6.2 Floor Plan – ED Detailed Review 50

- 4.0 LAHEY HOSPITAL & MEDICAL CENTER, Burlington, Massachusetts..... 52
 - 4.1 Introduction 52
 - 4.2 Metrics 53
 - 4.3 Campus Site Plan..... 53
 - 4.4 Access Points and Organization Floor Plan..... 54
 - 4.5 Large Scale Floor Plans with Photographs 55
 - 4.5.1 Public / Reception 55
 - 4.5.2 Discharge 58
 - 4.5.3 Medication Pick-Up..... 59
 - 4.5.4 Rapid Assessment 61
 - 4.5.5 Central Control..... 62
 - 4.5.6 Care Zones 64
 - 4.5.7 Exam / Treatment 65
 - 4.5.8 Behavioral Health..... 67
 - 4.5.9 In Department Imaging..... 70
 - 4.5.10 Trauma / Resuscitation..... 72
 - 4.5.11 Materials and Supplies 73
 - 4.5.12 Alcoves..... 75
 - 4.5.13 EMS and Decontamination 76
 - 4.5.14 Family Consultation and Body View 78
 - 4.5.15 Staff Support / Administration 78
 - 4.6 Tour Minutes..... 79
 - 4.6.1 Site Plan & Floor Plan Detailed Review..... 79

- 5.0 GRADY MEMORIAL HOSPITAL, Atlanta, Georgia..... 83
 - 5.1 Introduction 83



5.2	<u>Metrics</u>	83
5.3	<u>Campus Site Plan</u>	85
5.4	<u>Emergency Department Floor Plan and Access Points</u>	86
5.5	<u>Flow and Functional Areas</u>	89
5.6	<u>Large Scale Floor Plans with Photographs</u>	90
5.6.1	Forensics / Detention.....	90
5.6.2	Waiting, Reception, Triage and PACE.....	92
5.6.3	Stretcher Staging.....	93
5.6.4	Work Core.....	94
5.6.5	Exam / Treatment.....	97
5.6.6	Trauma / Resuscitation.....	98
5.6.7	Rapid Care.....	99
5.6.8	Mental Health.....	100
5.7	<u>Tour Minutes</u>	103
5.7.1	Site Plan & Floor Plan Detailed Review.....	103
	<u>CONCLUSION</u>	106



INTRODUCTION

The site visits occurred between September 8 and October 8, 2020. Representatives from VHA Emergency Medicine Program Office, VA-Construction & Facilities Management, CLH Architects, Huddy Healthcare Solutions, Leo A Daly, IMEG Corp. and HDR were in attendance. The purpose of the site visits was to perform on-site surveys of representative VA and non-VA sector facilities to establish a baseline of data on workload, staffing, facility layouts and operational requirements.

The information gathered at the site visits is being used to revise, update, and develop the next series of standards and guidelines that all VA healthcare facilities will follow to accomplish the VA mission. These guidelines will provide Space Planning Criteria, Equipment Guides and Design Guide Room Template Layouts for Emergency Departments.

As a result of the COVID 19 pandemic all site visits were conducted virtually. Materials were provided in advance including site plans, floor plans and photographs. Key clinical leadership from each site participated in the virtual visits, and provided metrics, observations, and lessons learned.

Site Visits

1.0	Orlando VA Medical Center, Orlando, FL	September 8, 2020
2.0	East Orange VA Medical Center, East Orange, NJ	September 21, 2020
3.0	Providence VA Medical Center, Providence, RI	September 28, 2020
4.0	Lahey Hospital & Medical Center, Burlington, MA	October 7, 2020
5.0	Grady Memorial Hospital, Atlanta, GA	October 8, 2020



**1.0 Orlando VA Medical Center,
Orlando, Florida**

1.1 Exterior Images



Orlando VAMC - Aerial Site Plan.





Orlando VAMC - Aerial View looking to the North at Walk-in Entrance.

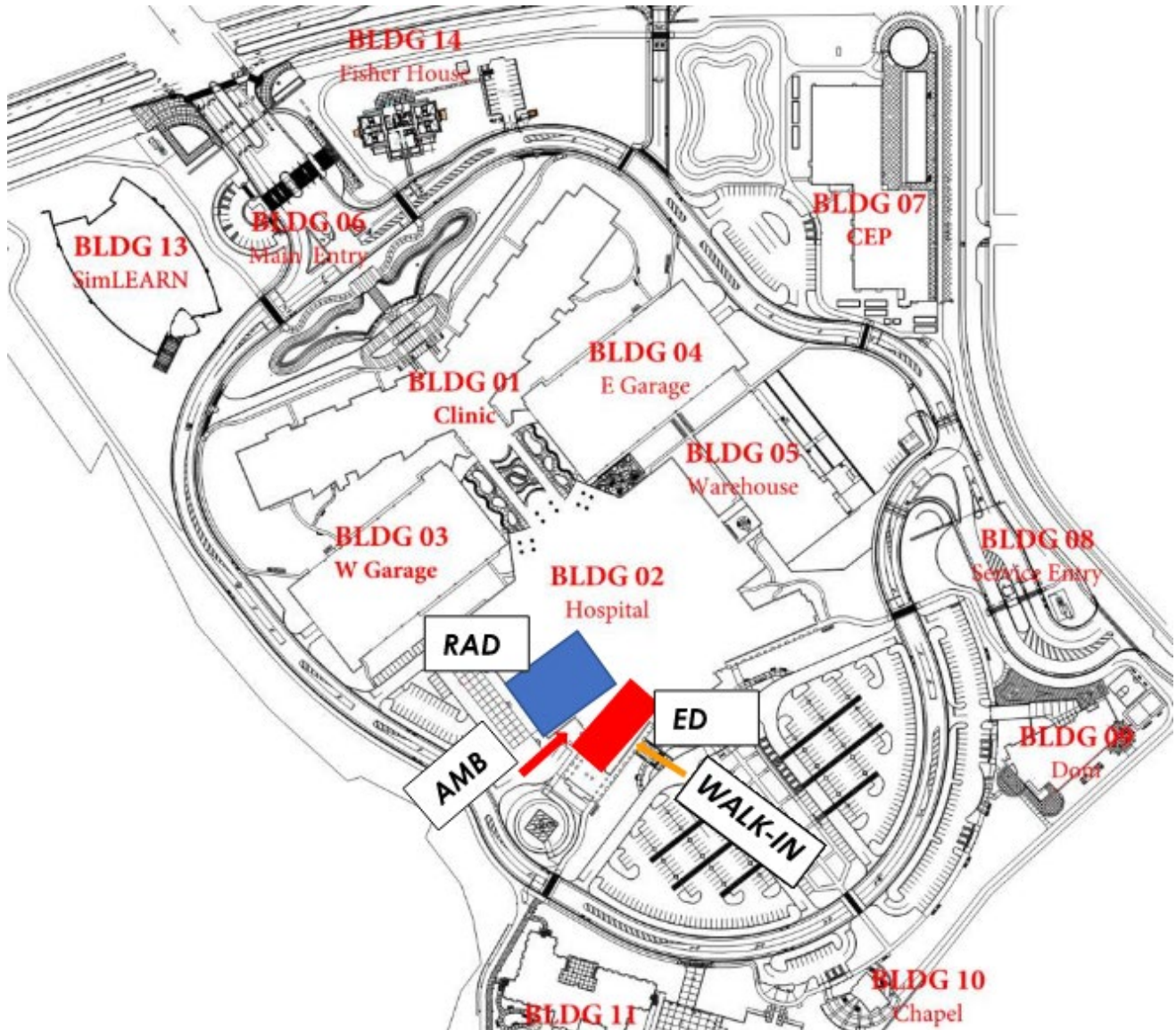


Orlando VAMC - Aerial View looking to the East at Ambulance Entrance.



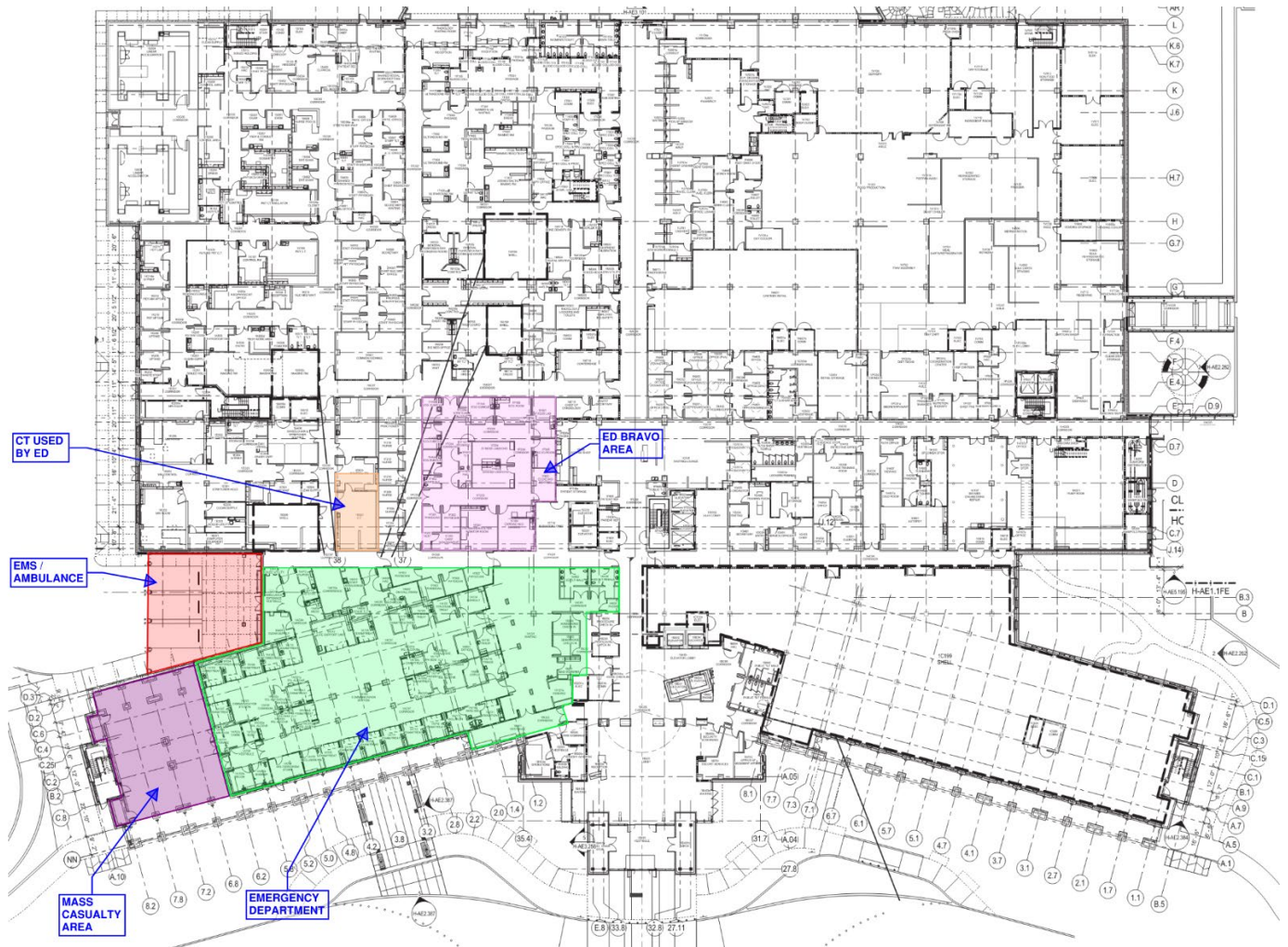
1.2 Campus Site Plan

The Emergency Department (ED) is in the southwest corner of Building 2 – Hospital.



1.3 Overall Floor Plan

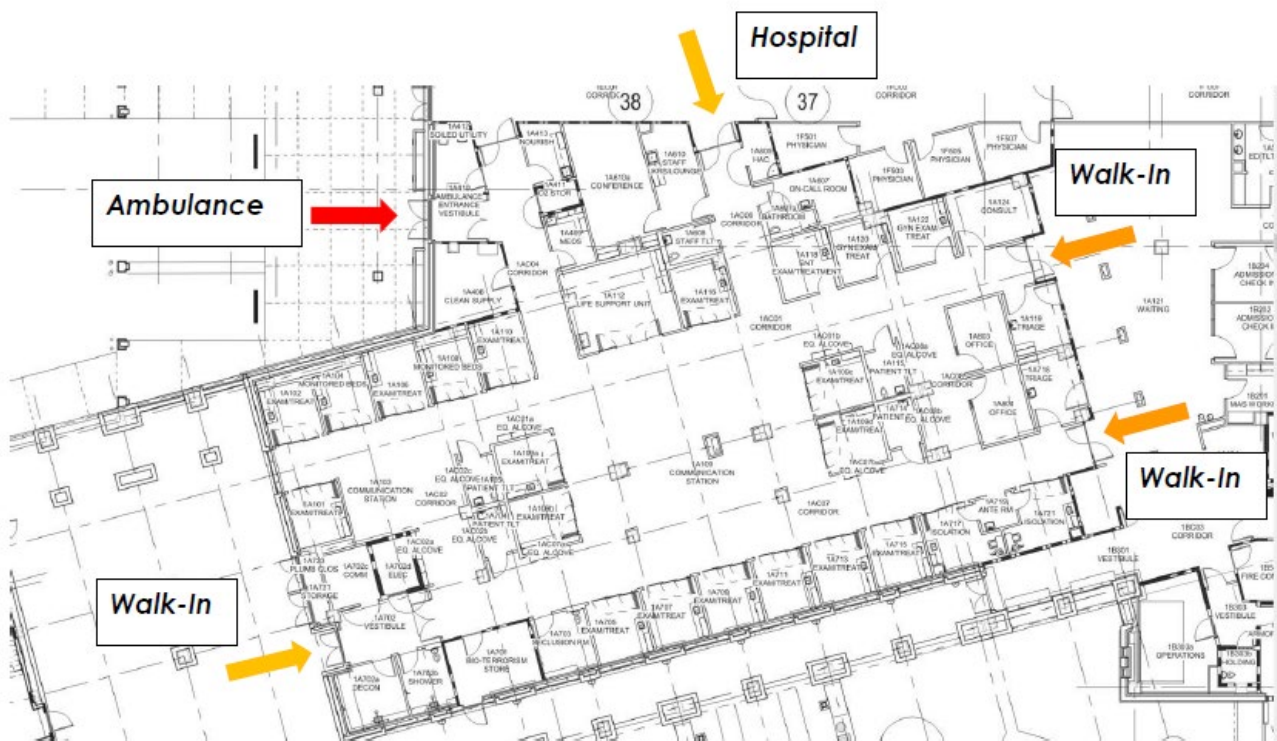
The image below is of the Building 02- Hospital First Floor Plan and highlights the location of the ED and temporary ED – B unit implemented since the COVID-19 pandemic. This plan also highlights the location of the CT scanner used by the ED, but in the adjacent Radiology Department.



1.4 Emergency Department Floor Plans

1.4.1 Access Points

The ED Floor Plan below shows the various entry points into the ED. The walk-in location in the southwest corner is virtually never used but was designed for entry from the adjacent mass casualty area to the west.

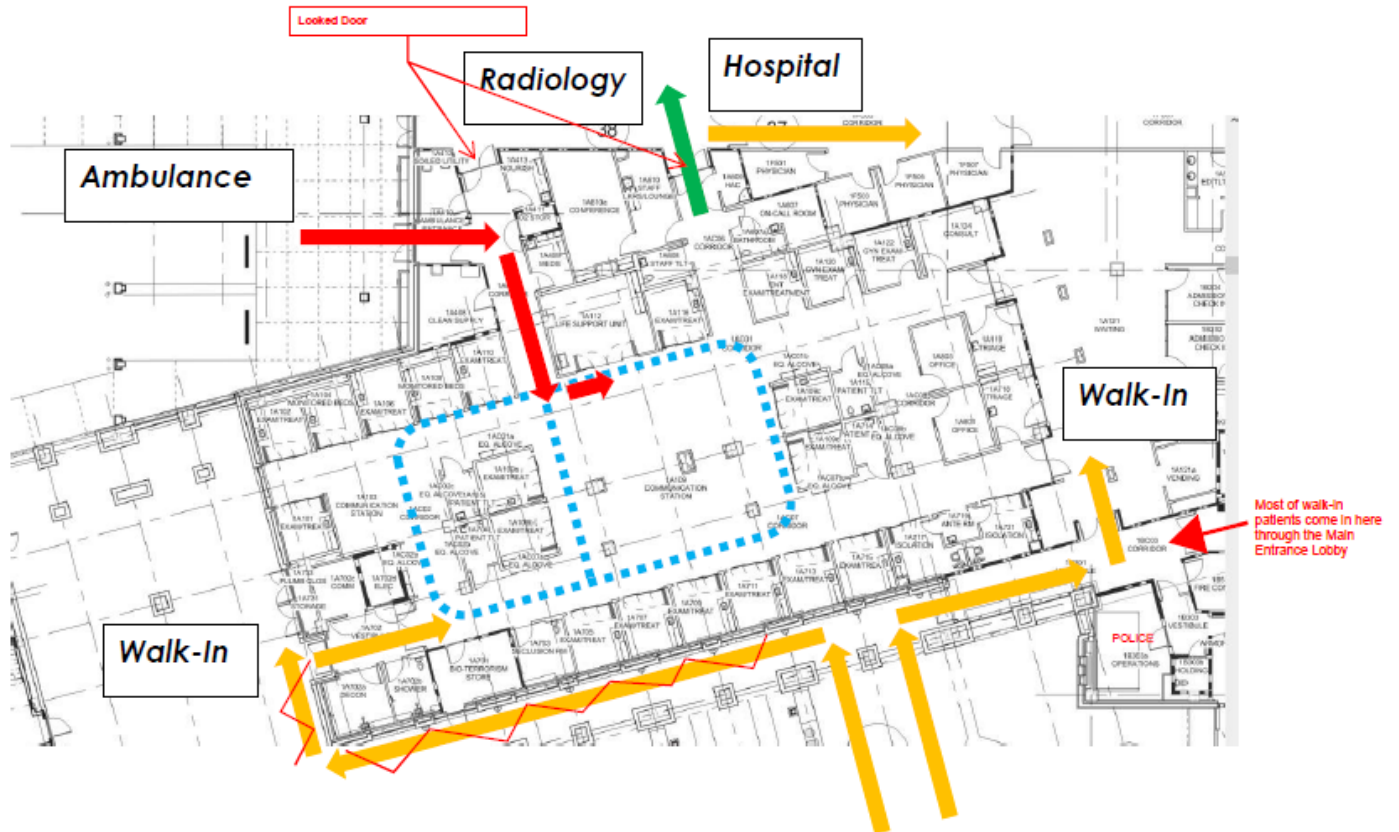


Entering the Emergency Department from Waiting Room.



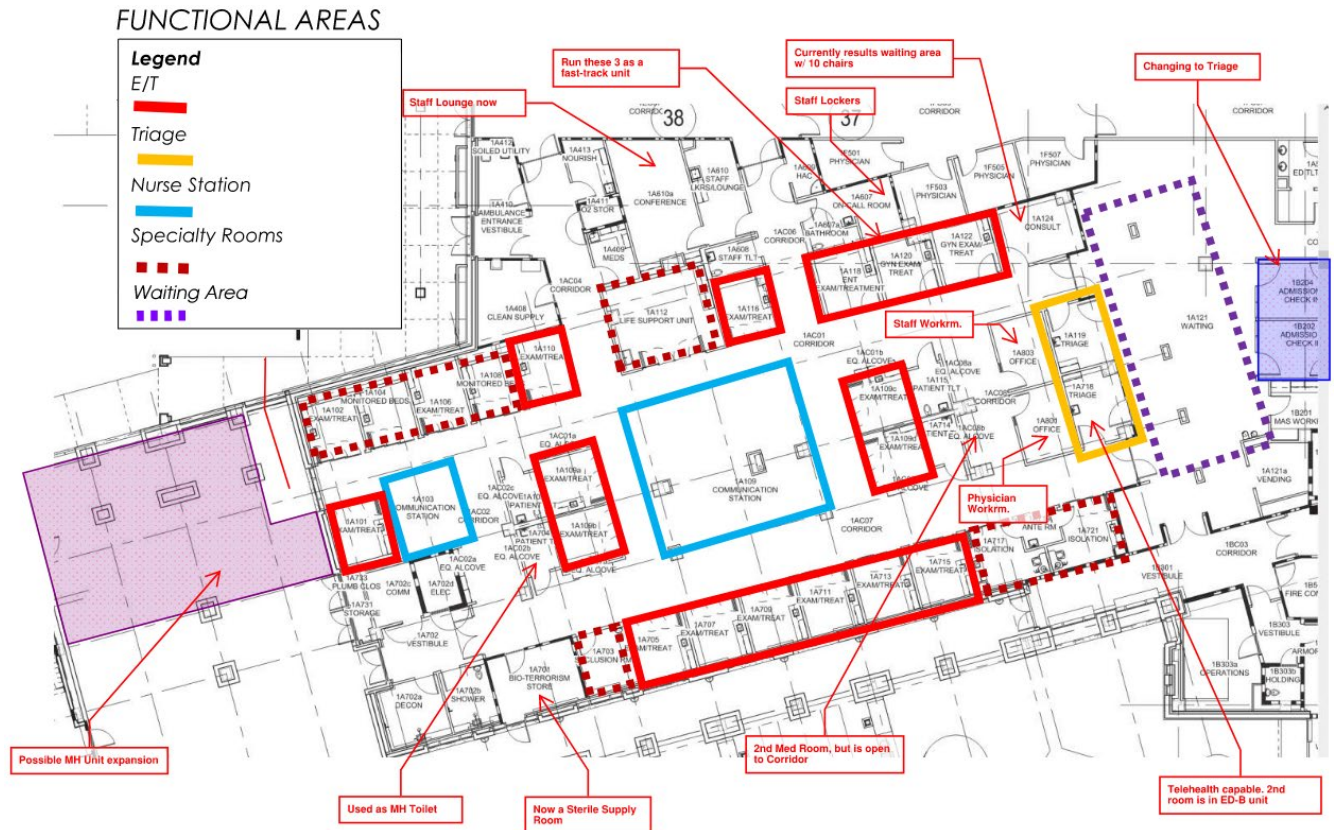
1.4.2 Department Flow

The ED Plan below indicates the department flow of patients through the ED.



1.4.3 Functional Areas

The below ED Floor Plan diagrams locations of the various Functional Areas within the ED.



1.5 Photographs

1.5.1 Exterior and Ambulance Entrances



Main walk-in patient entry point.



EMS / Ambulance covered entry point.



1.5.2 Waiting and Triage



Waiting Room looking towards 2 Registration Rooms – lack of spacing and separation concern during COVID 19 Pandemic.



Waiting Room looking towards 2 Triage Rooms – no visibility to the Waiting Room from inside the Triage Rooms.





Triage Room 2.

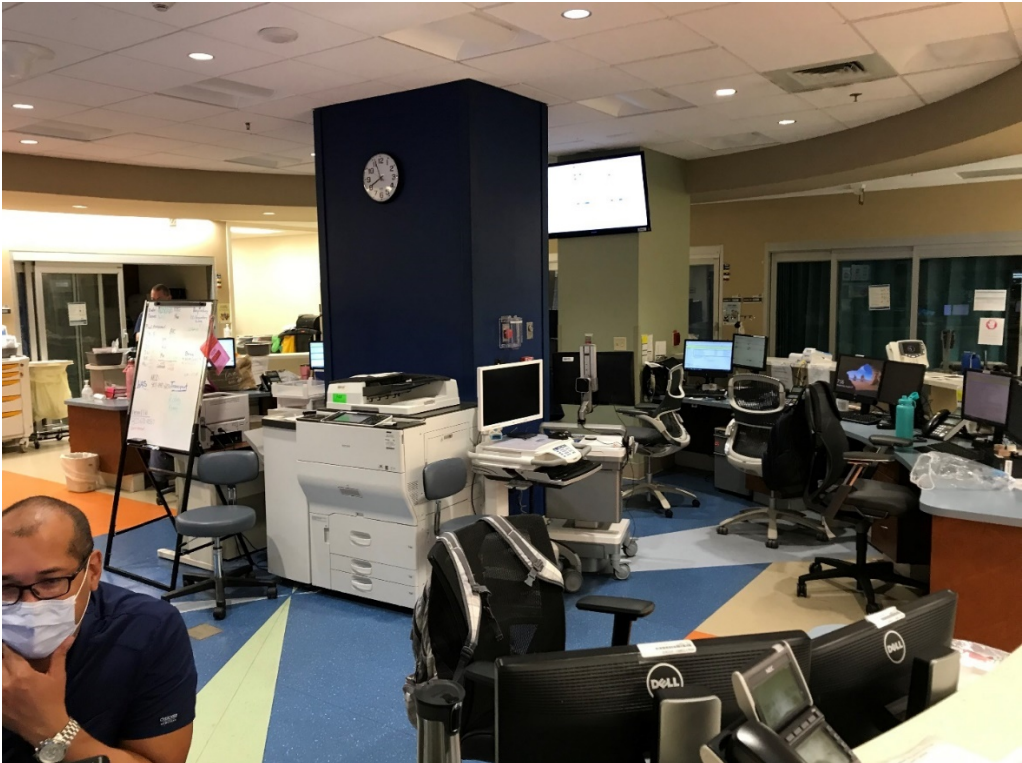
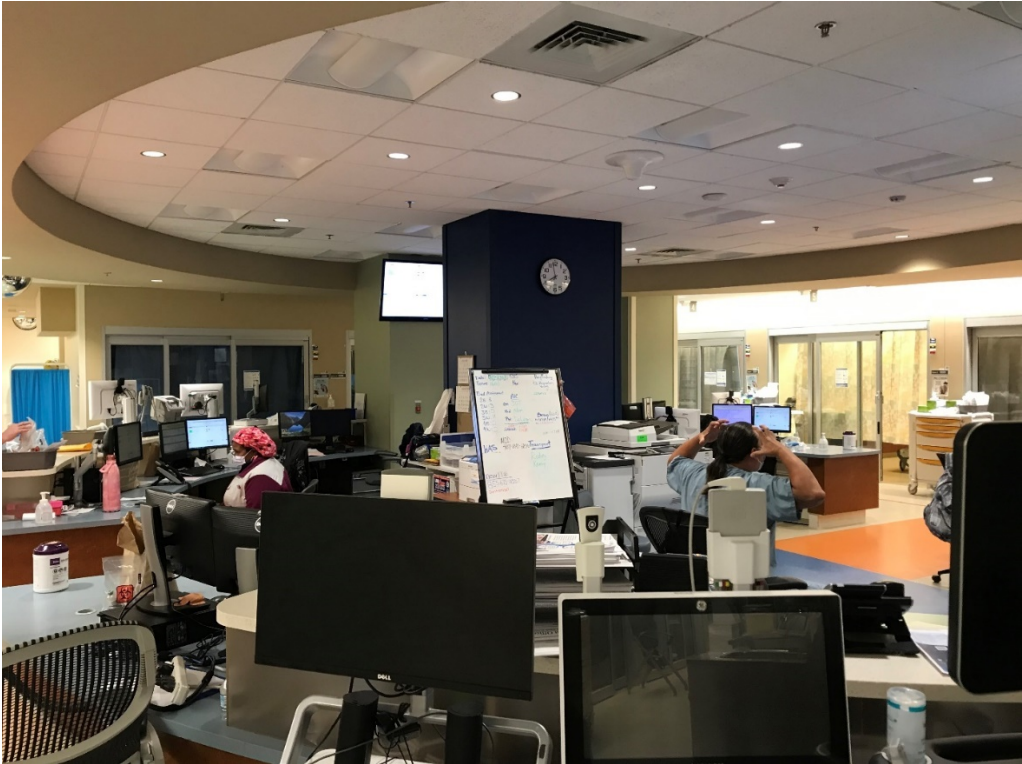


Triage Room 1.



1.5.3 Central Communication Center

Below are 2 pictures of the open but functional Communication Center.



1.5.4 Exam / Treatment Rooms

Photo below is a typical General Exam / Treatment Room.



1.5.5 Resuscitation Room

Photo below is the Resuscitation Room.



1.5.6 Miscellaneous



Photo above of their Med Room and Point of Care Testing.



Photo above of the Providers Workroom.



1.6 Metrics

A questionnaire was sent out in advance of our tour for the local ED Chief and staff to complete. Below is the data received back.

1.6.1 Questionnaire

1. % or quantity of sexual assault/SANE: - 3 encounters
2. # ED visits; trauma / resuscitation
 - a. Total ED visits: Feb 2019-Feb 2010; 39,908
 - b. Trauma and Resuscitation - TBD
3. Peak times: 10:00am – 5:00pm; then tapering in the evening into overnight
4. # of ambulance arrivals per day: 2-4/Day
5. Mental Health encounters per day: 5/Day
6. Staff counts by shifts
 - a. MD's: 7 per day: usually 2 in early am, 2 mid-morning, 2 afternoon, 1 night
 - b. APRN: 4 per day: usually 1 in early am, 1 mid afternoon, 1 night, with 1 usually working varying shifts
 - c. RNs: 7 at start of day, up to 12-14 during the day, tapering to 6 at night
7. Does your bed count (exam/treatment rooms) include any hallway or "chair" treatment spaces?
 - a. 24 Single Room beds total: includes
 - 1 resuscitation room
 - 2 negative pressure
 - 3 Fast Track Rooms
 - 1 Disruptive Patient room
 - b. All rooms do not have private bathrooms but with sinks/ counter and a place for a single chair.
 - c. 5 additional Hallway beds, but no ability to make private unless with a portable divider.
 - d. A small, enclosed visitor area is present, and 3 chairs can be used to evaluate if needed.
8. Do you consider part of your ED as observation, "extended stay," or admit holding patients or are they moved to a different location in the facility?
 - a. No area in the ED is considered observation, however during patient surges/ busy seasons, the patient room will be converted to a boarding patient room that is admitted but waiting for a hospital room, and therefore we then lose the room to this boarded patient

1.6.2 User Perceptions

1. Narrative of any specific existing concerns with your department?
 - a. Negative pressure rooms are located at the Entrance and would be better suited in areas with little traffic.



- b. At least 2 resuscitation rooms supplied with code carts and airway management devices, and these ideally should be connected with a sliding door to manage two critical patients simultaneously.
- c. Needing a quiet Psychiatric/ Mental Health area to provide patient comfort and protection for the patient and staff and also helps to limit the number of personal sitters needed in the department.
- d. Currently having small patient rooms that make treatment and examinations difficult especially if requiring specialized treatment or unexpected resuscitation. These small rooms eliminate any potential future need to expand to a two-person room or used as a boarding room due to the current size.
- e. Currently have low ceilings.
- f. Lack of privacy of currently open nursing and physician workstations, which also give little protection during a pandemic due to no barriers or walls.
- g. Some rooms should be considered as geriatric rooms with proper safety precautions installed and placed in quieter areas with reduced lighting which helps reduce stressors for the older patient.
- h. Placing a Fast-Track area in a separate section of the ED with close workstations to expedite care and patient flow.
- i. Workstations currently are occupied with computers and cables which give little room for any other needed activity. Also, small work areas with supplies, printers, medical supplies, and large chairs. Current stations are small, uncomfortable and provide no protection for staff during COVID-19.
- j. ED Staff includes providers, pharmacists, ED techs, nursing and social workers, and each member needs a separate work area with adequate spacing between stations but most important space on the desk area to perform the job.
- k. Inadequate storage of medical supplies and cabinets that then become obstacles in hallways.
- l. Poorly supplied and small patient nutritional area.
- m. The staff break room is small and gives no ability to distance during a pandemic with a narrow kitchen with little counter space and inability to socially distance effectively.
- n. Needing faucets that are not on timers but can be controlled by a foot/ leg pedal, but also having faucets that are easily accessible for washing hands rather than needing to go into patient rooms.
- o. Optimal storage areas for portable X-ray Machines.



- p. Patients have large, motorized scooters requiring placement in the room or place parking area.
 - q. Disruptive patient room needs adequate window for observing with also a single toilet with safety precautions installed
 - r. Female Pelvic Examination Room located in less traffic areas
 - s. Patients arriving by ambulance on a stretcher need to be triaged in a private area and placed in a location if no beds available
2. How has COVID-19 impacted your department - capacities, entrances, waiting, triage, etc.?
- a. COVID-19 has reduced capacities for short periods, but more critical patients arrived resulting in marked increase length of stays in the department.
 - b. Additionally, the cramped waiting room area need to have distancing markers placed and reduce capacity drastically.
 - c. The limited size of the provider and nursing workspaces resulted also in improper distancing and placed all healthcare workers at risk of COVID-19.
 - d. Also, single triage areas had to be used for multiple patient complaints therefore placing COVID-19 suspected patients in areas of non-COVID-19 patients.
3. Impact of virtual care; space & equipment?
- a. Beginning to establish a Virtual Telecare area, will need a large room with examination equipment and monitors.
 - b. If the area expands, will anticipate 2+ rooms to perform Virtual visits.
4. Is there a missing function, or space, you don't have?
- a. Not enough storage.
 - b. Hallways on the side entrances are wasted areas.
5. Need for General Radiology, or CT, if you do not have it now?
- a. CT scanner is near ED but would prefer own CT scanner with quick access.
 - b. Portable Xray equipment needs own storage bay, currently takes significant space in ED.
6. How are you using the space you have vs. need/want? (i.e., room sizes, layout, patient flow, staff flow, rooms / spaces that are missing, proximity to Imaging, vertical circulation)
- a. See above comments.
 - b. Short ceilings/ cramped spaces and small rooms are problematic.
 - c. Imaging is near but requires multiple doors to access.
 - d. Patients move in and out of rooms while crossing in front of critical bays and negative pressure rooms and are subject to hearing private information and visualizing other patients.



- e. Patients and families are essentially blending in with staff making security and safety problematic because of the tight workspaces and close patient rooms.

1.7 Tour Minutes

1.7.1 Site Plan & Floor Plan Orientation

1. There is a Mass Casualty/Decontamination walk-in entrance in the SW corner. It was indicated that this is virtually never used.
2. Many walk-in patients utilize the Hospital main entrance and lobby before coming into the ED walk-in entrance in the SE corner. This has been enabled because they have opened a second ED-Bravo area in what was part of the cardiology area, located north of the primary ED-A unit. Walk-in patients then can be routed to either ED unit.
3. Access to Radiology comes out of the center of the ED to the north and is very close by.
4. Exit to the Hospital, and elevators, is out of the same doors leading to Radiology and to the right.
5. Security is in the room labeled Operations, as is Police Operations, and is located directly across the hall from the walk-in entrance.

1.7.2 Floor Plan – ED Unit A Detailed Review

1. They are converting 2 Admission/Check-in rooms, on the right side of the ED Waiting Room, into 2 Triage Rooms.
2. Have 24 Exam/Treatment rooms in ED-A. There are 14 E/T rooms in ED-B.
3. Current waiting room in ED-A is an open plan. They try to separate people in north part of this room, if they are showing signs of Covid 19.
4. Incoming patients are being screened at the front gate, and if showing signs of COVID, are routed directly to an Exam/Treatment room, whenever possible.
5. Mental health patients can come into main waiting area, then if determined in Triage they are this type of patient, are taken directly to an E/T room. Don't really want a special waiting area for MH patients. Better to get them directly into a monitored room.
6. Current Triage rooms don't have any visibility into the Waiting room, and really should have this.
7. Consult Room is being converted into a Triage/Fast-Track room for low acuity patients.
8. Peak times were stated as starting from 9:00-11:00 am and full up through 9:00-11:00 pm.
9. Have 2 Isolation rooms capable of negative pressure, with a shared Ante room. There is not good visibility of these rooms from the central communication station. Staff does not see this as an issue because of all the computers on wheels.



10. PPE is being kept right outside of E/T rooms in mobile carts which is impeding the corridors at times.
11. Current sliding doors on the E/T room are difficult sometimes to get a wheelchair through them as the opening is too narrow.
12. They wish they had more equipment alcoves in the corridors.
13. Asked about general location of the ED in the hospital and overall relationship with other departments?
 - a. Location is good. Lab is a little far away. Internal workstations area seems too congested for number of staff.
 - b. No space for consultants when they come.
14. Asked about noise issues in this central area? Generally, it is not perceived to be an issue.
15. Not aware of any equipment needs that they don't have.
16. Wished they had a better mental health set up, and location than where their current Seclusion room is located.
17. Future designs should have a Fast-Track area for low acuity patients. Second, should have a Tele-health area, which has become very important with pandemic.
18. Not enough E/T rooms pre Covid 19, but since then they are only at about 75% of volume so now, they have enough rooms.
19. ED-Bravo(B) is designated for Covid patients. Is not ideal to have these 2 units divided but is essential to enable patient load. Providers are assigned to either unit A or unit B.
20. They have 'hallway' beds everywhere. For capacity calculation, every E/T room has a hallway bed/chair in their available treatment spaces count.
21. Nurses are assigned to rooms in a zone, 1:4 patients.
22. The central Communication Center (or Nurse's Station) is always very crowded. In addition to ED staff there is always a Pharmacist, SW, Utilization Manager, and other staff or consultants that come to the ED for shadowing and other responsibilities. Number of residents varies.
23. This ED is designated as a stroke center.
24. Current Exam rooms are a little small. They can take care of critically ill patients in them.
25. ED-B has one large room that has 4 stretchers in it. They try to use this room for either fast-track patients or to board patients waiting for an inpatient room.
26. This hospital will accept an ambulance from the community.
27. Distance to the CT Scanner is very close to the north.
28. Are 2 GYN rooms adequate? This is enough for this type of room. They are near the front of the unit and would prefer them near the back of the unit, or in a quieter space.
29. SANE patients are processed here. Sometimes they are medically cleared and sometimes transferred to another hospital.



30. They only have 1 Trauma room which is used every day and kept available for most acute patients. This room has glass along the south walls, which is sufficient.
31. The documentation station in the E/T rooms is an Ergotron unit that swings out and can be rotated. The picture just shows it parked against the wall. In the typical Exam room, the space is too tight and prefer to use COWs in these rooms.
32. During Ebola outbreak the Isolation room Ante room was not large enough. Would like more space in front of these 2 rooms. When they had this outbreak, they basically cordoned off the entire corridor in front of these 2 rooms. They could only do that because they have the alternative corridor to the north that can be used when this one is closed off.
33. Closest transfer hospital for Ebola patients is Emory in Atlanta. They could have to hold such a patient for up to 72 hours before they can be transferred.
34. Only 1 Med Room is located in the design. They have added a second location in an alcove across from the Isolation rooms, plus they have a 3rd one in ED-B unit.
35. No current Observation unit at this ED.
36. Clean Supplies come from the north corridor, near the ambulance entrance. They have converted the Bioterrorism Storeroom into a Clean Supply room because they did not have enough supply storage space. In general, there is not enough storage space for supplies and equipment.
37. There are 4 Patient Toilets, plus the Isolation Rooms have their own toilets. This is enough. The Seclusion Room utilizes the 1 Patient Toilet directly across the hall, but it is not exclusive to them.
38. They would love to add a 4-6 bed mental health area in the exterior mass-casualty area, which could also have direct access to the ambulance drop off to the north.
39. They utilize point of care testing, at the bedside, or in Triage.
40. Boarded patients wait in an E/T room, or in the Hallway. These are admitted patients but with no space for them to go yet. In current space criteria there is an Observation Unit called out for these types of patients.
41. ALOS is published in EDIS data and is thus available if we need it.
42. Working on setting up 2 Telehealth spaces. First one is Triage room 1 in ED-A. Then setting up the second one in ED-B unit.
43. In addition to lack of clean supply storage, they need more equipment storage space.
44. The Consult room is right now a results waiting/discharge area with 10 waiting chairs. Also use the 2 GYN rooms for Fast-Track.
45. The conference room is now their staff break room. They moved the staff lockers to the On-Call room. Thus, they have no On-call room.



46. 4 Physician's offices are: AO Office, CNL & ANM office, Chief of ED office. 2 internal offices are: a physician's workroom, and a workroom to run fast-track out of.
47. Have experimented with a virtual provider, but not really working that way.
48. A Data & Information Request form, that was sent out in advance, was returned just after this tour took place. It is attached with these minutes for everyone's information.



1.8 HVAC Lessons Learned

A separate meeting, on October 21, 2020, was set up with Mark Goeller, Dave Tash, and four individuals with Orlando VAMC. Below are points discussed at that meeting.

- 1.8.1 The existing AHU is dedicated to the ED and capable of delivering 100% OA during pandemics. The unit is currently operating at 100% OA capacity. The AHU is equipped with prefilters and MERV 14 after filters.
- 1.8.2 There are two negative pressure isolation rooms within the ED, with a common anteroom. There is a sliding door from each isolation room directly into the corridor. The rooms are equipped with pressure monitoring devices. There are dedicated exhaust fans with HEPA filters which serve the isolation rooms.
- 1.8.3 There are no positive pressure isolation rooms.
- 1.8.4 There is a desire to have some of the patient rooms setup so that they operate under negative pressure.
- 1.8.5 There are two low grilles outside to capture fumes from ambulances.
- 1.8.6 It was stated by Orlando VAMC that no zoning change for HVAC was required. They also stated the importance of proper sizing of the AHU coils for 100% OA operations, as well as the need for an economizer function.
- 1.8.7 No issues with accessing HVAC systems for maintenance.
- 1.8.8 Any need for Positive Pressure Isolation room(s) within the ED department? They do not have one in Orlando.
- 1.8.9 Is there a need to set up additional patient rooms to be under negative pressure during non-pandemic operation mode? If so, how many rooms? If the case, we need to provide dedicated exhaust fan(s) to ensure the air does not return to the AHU, these rooms would need pressurized differential monitoring devices, as well as a discussion to determine proper ACH rate.
- 1.8.10 Need to discuss exhaust fan for the fumes from the outside ambulances. Recommend CFD modeling to locate and calculate volume. In Orlando, they have two low grilles for exhaust.
- 1.8.11 Need to discuss sliding door issue at the isolation rooms. Apparently, the sliding door is being normally used for switching the room usage to a non-isolation room. The isolation rooms are expensive and should be used only for isolation purpose as they are costly to build and operate. This creates further opportunity for confusion by operation staff which could result in improper pressurization when the rooms are occupied by patients with infectious diseases.



**2.0 East Orange VA Medical Center,
East Orange, New Jersey**

2.1 Exterior Images



East Orange VAMC - Aerial Site Plan.





East Orange VAMC - Aerial View looking to the South.

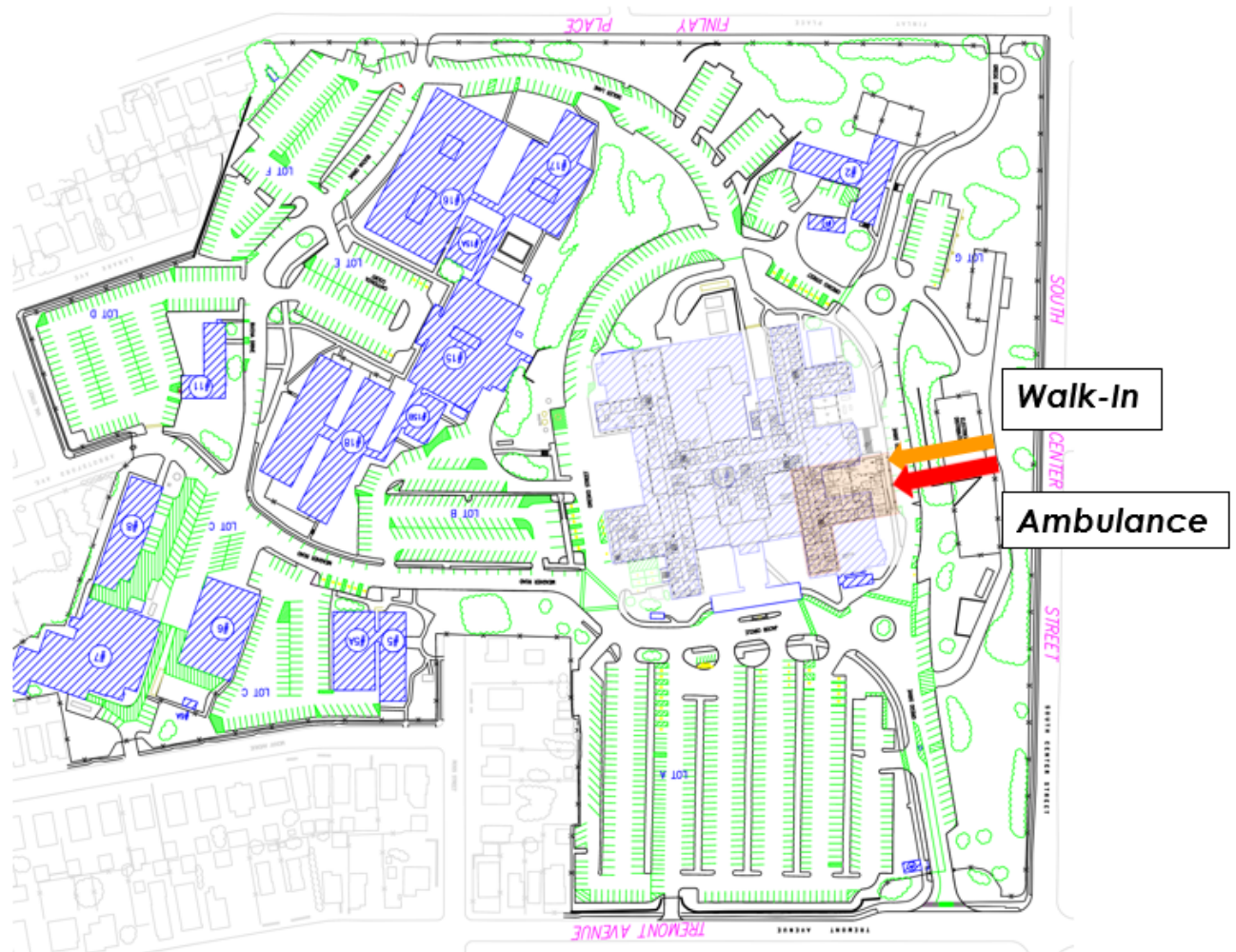


East Orange VAMC - Aerial View looking to the East.



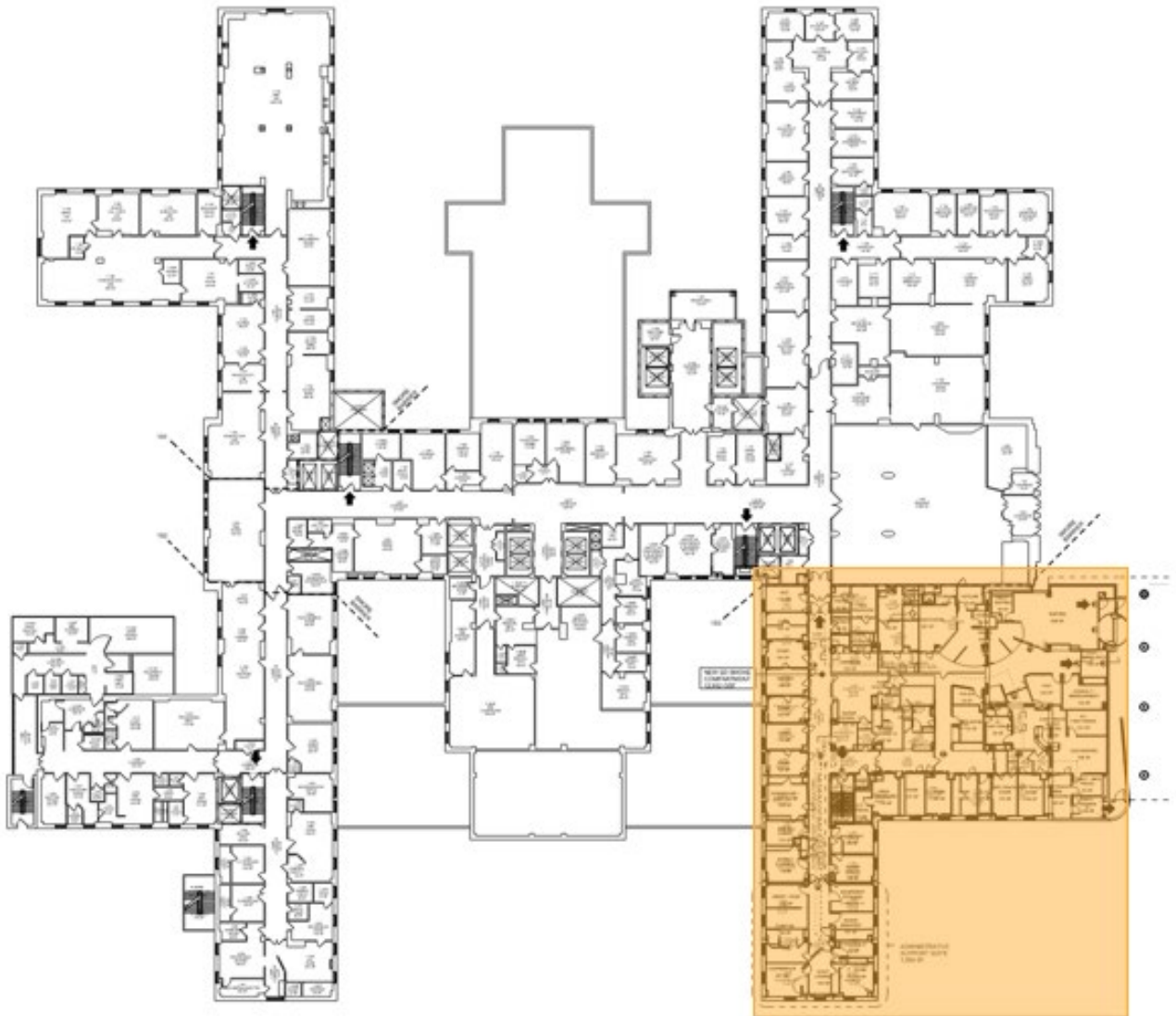
2.2 Campus Site Plan

The Emergency Department (ED) is located in the southeast corner of the Hospital. It was a recently completed small addition and renovation project. North is down in this plan.



2.3 Overall Floor Plan

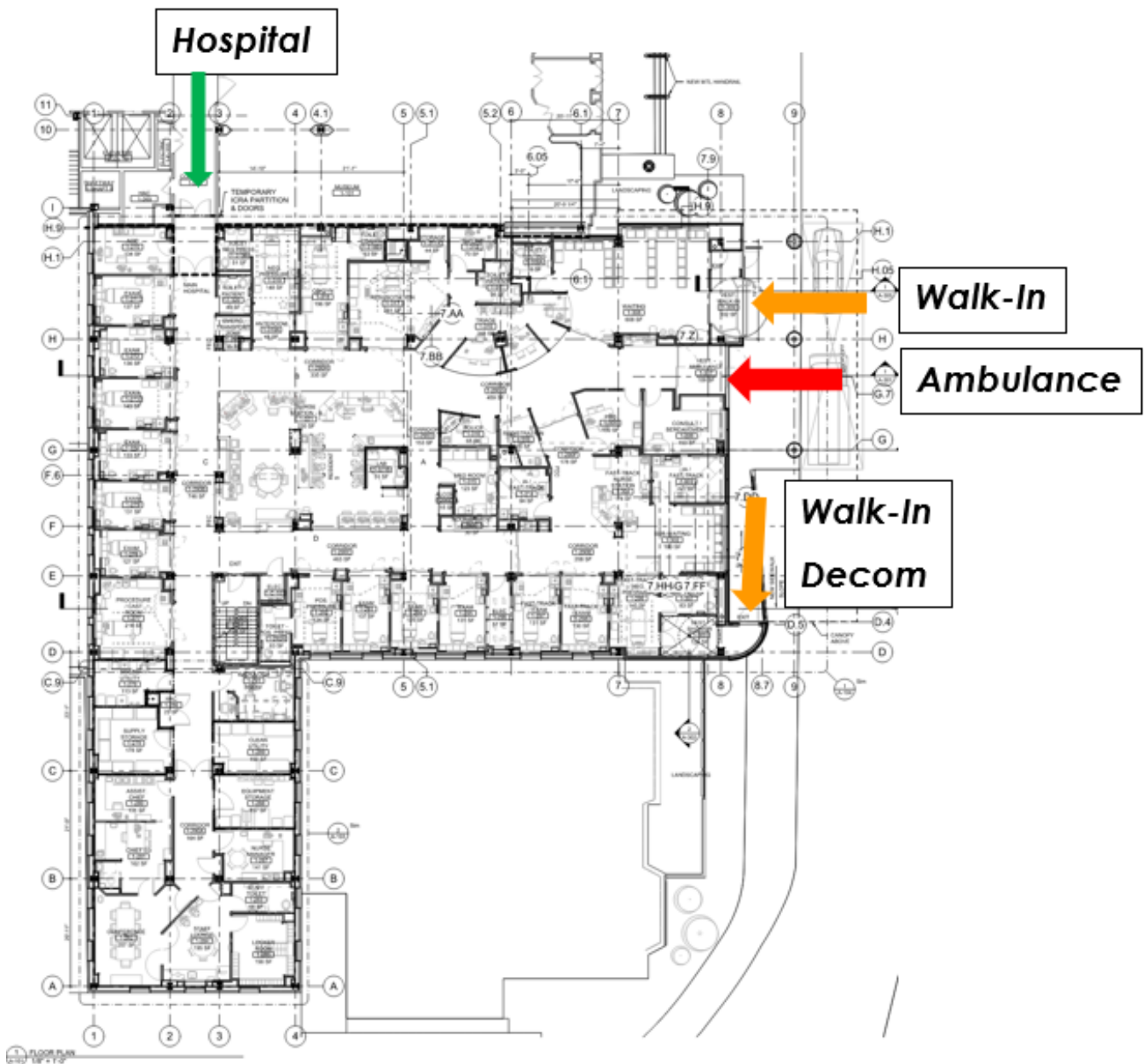
The image below is of the overall Hospital First Floor Plan and highlights the location of the ED in the northeast corner. North is down in this plan. The CT scanner used by the ED, but in the adjacent Radiology Department, is located at the southern tip of the opposite wing to the east.



2.4 Emergency Department Floor Plans

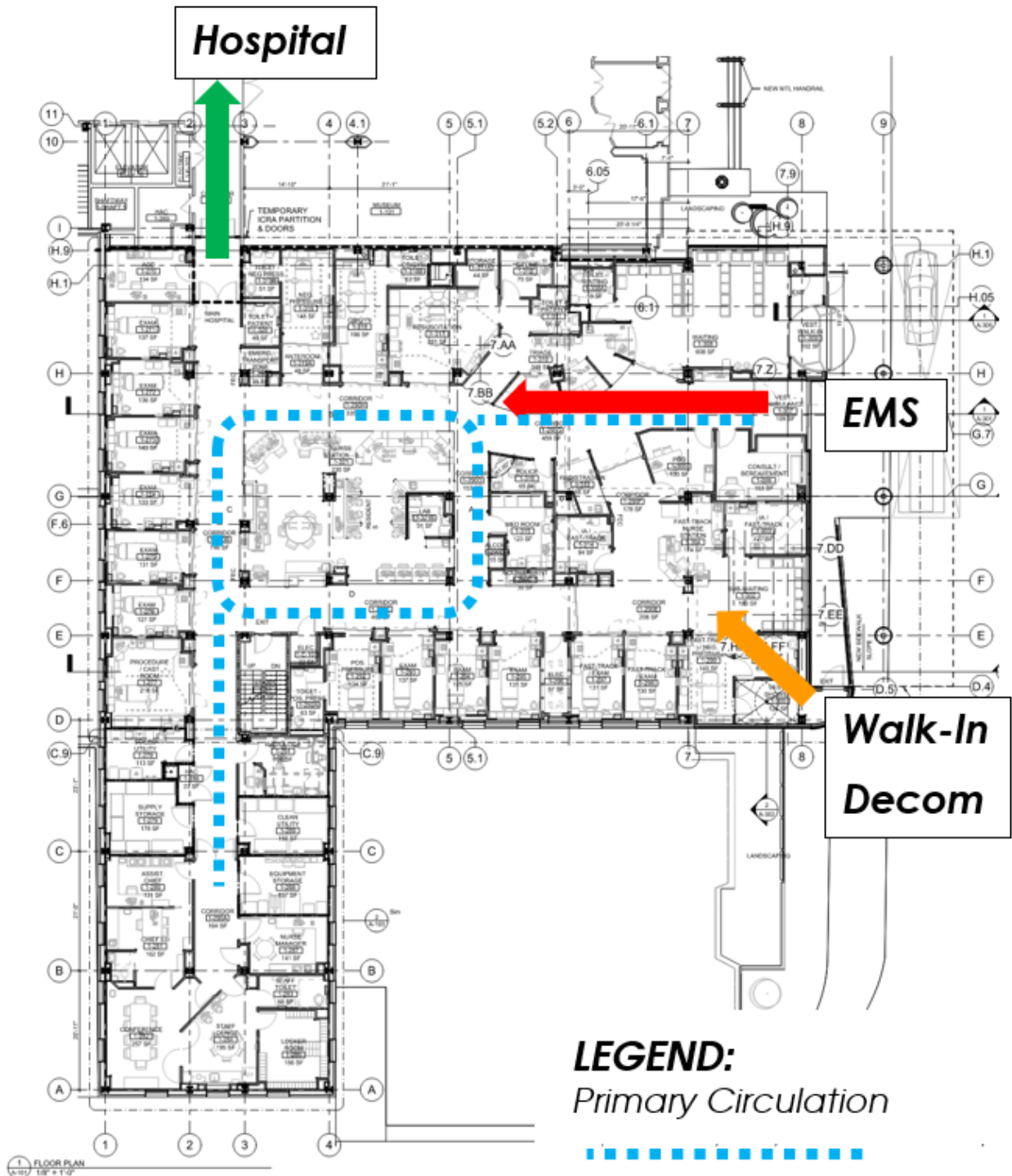
2.4.1 Access Points

The ED Floor Plan below shows the various entry points into the ED. The walk-in location and EMS / Ambulance entrance points are both on the west side and directly adjacent to each other.



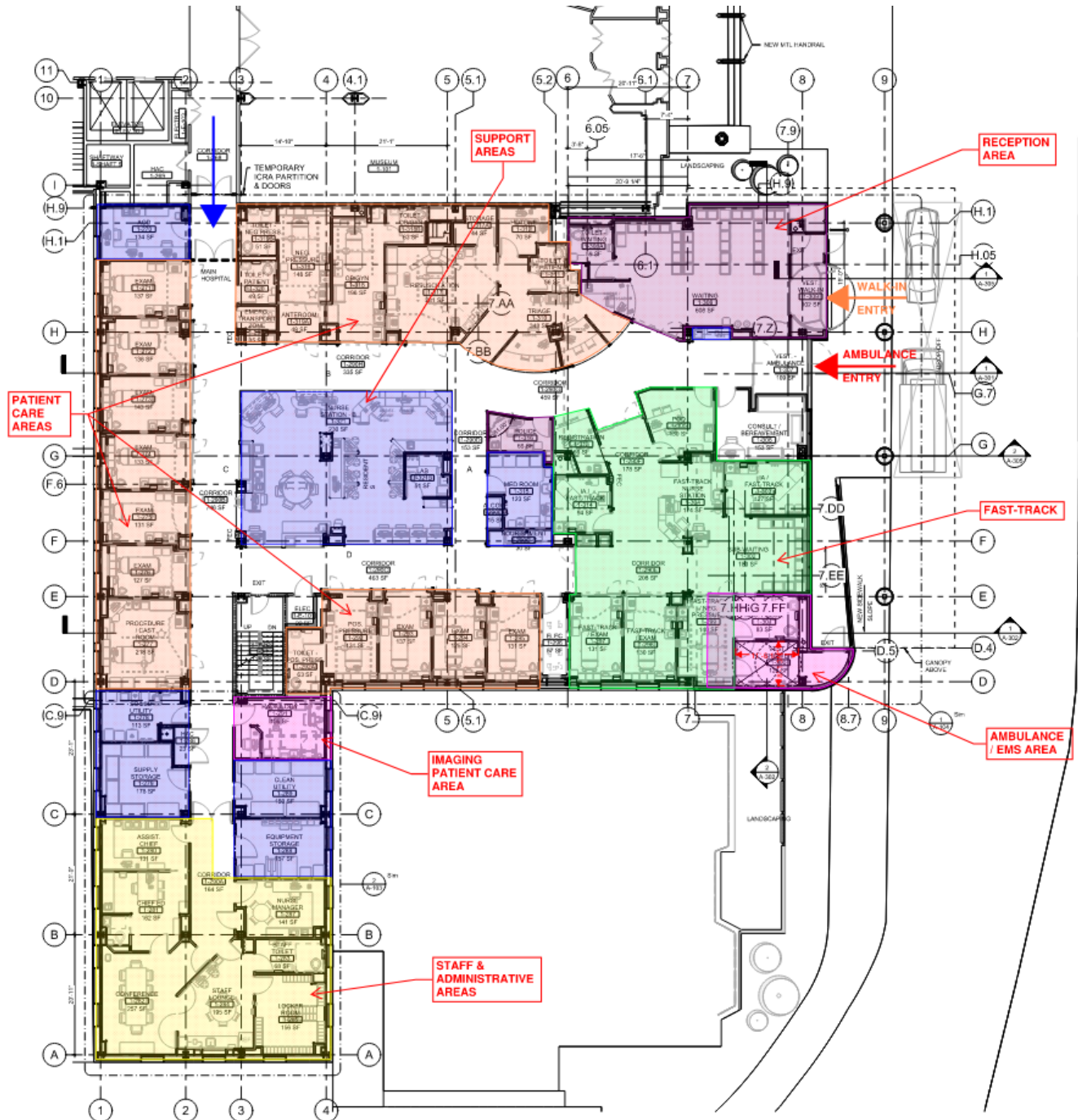
2.4.2 Department Flow

The ED Plan below indicates the department flow of patients through the ED.



2.4.3 Functional Areas

The below ED Floor Plan diagrams locations of the various Functional Areas within the ED.



2.5 Photographs

2.5.1 Exterior and Ambulance Entrances



Drive through entry canopy for both EMS / Ambulances and Walk-in patient drop offs.



Main walk-in patient entry point.



2.5.2 Waiting and Triage



Waiting Room - After

Waiting Room looking towards quick Registration desk.



Waiting Room looking towards First Look Nurse and quick Registration desk.





Sit down Triage area.



Sit down Triage area with adjacent stretcher.



2.5.3 Central Communication Center

Below is the well designed and open Central Communication Center.



2.5.4 Exam / Treatment Rooms



2.5.5 Miscellaneous

Below is the Break Room, which can open up into the adjacent Staff Conference Room.



A questionnaire was sent out in advance of our tour for the local ED Chief and staff to complete. Below is the data received back.

2.6.1 Questionnaire

- 1 % or quantity of sexual assault/SANE:
 - a. 0%
- 2 # ED visits; trauma / resuscitation
 - a. 0%
- 3 Peak times: 11:00am – 11:00pm
- 4 # of ambulance arrivals per day: 10-15/Day
- 5 Mental Health encounters per day: 5-7/Day
- 6 Staff counts by shifts
 - a. **Physicians** – 4 on weekdays; 3 on weekends
 - b. **Nurse Practitioner** – 1 on weekdays
 - c. **RN's** – 10/day

2.6.2 User Perceptions

1. Does your bed count (exam/treatment rooms) include any hallway or “chair” treatment spaces? -No.
2. Do you consider part of your ED as observation, “extended stay,” or admit holding patients or are they moved to a different location in the facility? –No.



3. How has COVID-19 impacted your department - capacities, entrances, waiting, triage, etc.? -No impact.
4. Impact of virtual care; space & equipment? –Increase in virtual care equipment.
5. Is there a missing function, or space, you don't have? –Need for greater negative pressure rooms.
6. Need for General Radiology, or CT, if you do not have it now? -No.
7. How are you using the space you have vs. need/want? (i.e., room sizes, layout, patient flow, staff flow, rooms / spaces that are missing, proximity to Imaging, vertical circulation) –All appropriate with use.

2.7 Tour Minutes

2.7.1 Site Plan & Floor Plan Orientation

1. The current ED is an L-shape. It was recent expansion and renovation project and opened in 2018.
2. There is a Decontamination walk-in entrance in the NW corner. It was indicated that this is seldom used. They have also set up a mobile decontamination trailer in the parking lot directly across from the entrances when they mobilized for the current pandemic. They did not ever set up tents outside during the pandemic. Didn't ever feel they needed this extra capacity.
3. Access to Radiology comes out of the upper left side of the ED to the south and is close by. Previously the ED was on A level, which was one floor below this, and they had to travel up an elevator to get to Radiology.
4. They didn't have funding to get a CT when they renovated. Ideally, they would have had one inside their ED.
5. Exit to the Hospital, and elevators, is out of the same doors leading to Radiology.

2.7.2 Floor Plan – ED Detailed Review

1. On average they get 8-10 ambulances per day, and total see 65-75 patients per day.
2. At the Ambulance entrance, the inside vestibule doors are locked, and no one can get inside without being cleared from the Triage desk. The access requires key card or Police/Admin override.
3. The central nursing station has good visibility of all E/T rooms. The fast-track has a separate nurse station with visibility of those E/T rooms.
4. The doctor's work area at the central nursing station is at the round table in the middle area.
5. Most triage is done across a desk. The nurse gets up from their desk and comes around to do vitals. Gurneys are available for transport as required in an adjacent space.
6. They have a small POC Lab.
7. All E/T rooms are very flexible. They all have Swivette type toilets accessible inside the rooms.
8. They have 20-25 staff working during a typical shift.
9. There is no designated mental health room in this ED.



10. They are not a designated Trauma Center. They only have 1 Resuscitation room which is used every day and kept available for most acute patients.
11. Peak times were stated as starting from 11:00 am -11:00 pm, which was based on staff availability.
12. Annual volume is 17,000-18,000 visits. Can go up to 21,000 visits. Statistics showed that the total visits should decrease rather than increase. There are no other VA Urgent Care clinics planned in New Jersey. This is the only site in the state.
13. Get 5-7 mental health patient visits/day. Prior to COVID they had a direct admit unit inside this hospital. Since COVID they have to hold them for a short period then they are transferred to Lyons, their sister campus.
14. They have 'hallway' beds available. For surge situations, every E/T room has a hallway bed/chair that can be used.
15. Current waiting room is an open plan. They had about 27 chairs per design but now since Covid 19 they have reduced it to about 8-10 chairs. They have also done away with the sub-waiting area in Fast-Track. If visitors are showing signs of Covid 19 then they are taken immediately to an E/T room. If the waiting room and triage get backed up then they get the veterans cell number and they can wait in their car until they are called in.
16. Have 19 Exam/Treatment (E/T) rooms in ED. 2 negative pressure rooms and 1 positive pressure room. 5 of these E/T rooms are in fast track. 14 are in the main ED. Of those 14, 1 is a resuscitation room, 1 OB/GYN room, 1 procedure/cast room. The entire department can be changed to negative pressure with a push of a button.
17. In pre-pandemic situation they had enough waiting chairs for their number of E/T rooms. The floor plans show 29 chairs in the main waiting room and 11 more in the fast-track waiting area.
18. The number of provider workstations works well. They have different types, with some at sit-down height, some stand-up in various configurations. There is a total of 29 workstations available to 19 E/T rooms so a ratio of about 1.5:1.
19. Main supply and equipment storage rooms, located in the north wing, are very adequate for their needs.
20. No current Observation unit at this ED. They have never had an issue with getting patients admitted directly upstairs. They occasionally have certain types of patients, like an alcoholic, that they need to hold longer but they always just keep them in the E/T room that they first started in.
21. Wished he could have had 4-5 negative pressure rooms.
22. There is no satellite pharmacy in the ED. When a patient is being discharged, they can either send them to the main pharmacy, or they will have a nurse assistant go pick up their meds from the pharmacy and bring them back. This is working fine for them.
23. Security/Police operates 24/7.



24. POC Testing is done by nursing, no phlebotomists. Nurses are already trained on what blood draws to perform. Within the department they do finger sticks (glucose), urine dipsticks (pregnancies), and troponins. They perform all of these tests right in the E/T rooms.
25. There is no pneumatic tube system, so tests are hand walked to the lab. The lab is located diagonally across the hospital, on the same level.
26. Geriatric patients make up about 70% of their case load. Every E/T room is designed to be geriatric friendly.
27. E/T rooms vary in size from 127-143 SF. They overall work very well. All E/T rooms have a Swivvet style toilet within the room. They try not to tell every patient that they have these toilets inside the rooms because if used it would require terminal cleaning of the room every time. This would result in slower turn over time of the rooms. These do not have any grab bars, but effectively the doors when opened lock in place and become the grab bars. Not sure how this satisfies handicapped requirements?
28. Rooms have a nice segmentation to the patient exam area, charting area, pre space, and storage. All rooms have break away sliding doors.
29. Each E/T room has a separate patient and staff sinks.
30. In the future if they were able to have more E/T rooms have an Ante room at the entry it would really help in a pandemic situation.
31. The E/T rooms have a fixed computer workstation on the wall, outside the curtained area. They only have 1 COW in the entire department. There is small wall mounted, on swing arm, computer on the headwall that allows a patient to see something, or a nurse to do some charting. More frequently they utilize the large workstation outside the curtain area to do their charting. They also like this location to do informed consents with family members outside the rooms.
32. Asked about privacy of the patient in the OB/GYN room since the foot of the bed faces directly out to the entry. They have a curtain, which is felt to provide adequate privacy. Women's health is wanting such rooms to have beds/gurneys face in another direction. Dr. Kothari says this has not been a problem and they have performed GYN exams in almost every other E/T room also with no issues.
33. Resuscitation room is sized to hold residents and all care givers for teaching.
34. They have several providers trained to do telehealth. This is for patients calling in and has been especially beneficial with the pandemic. They just use I-pads at one of the workstations. They do not feel this has been a privacy issue for patients. Discussions can't be heard by others in the ED.
35. Top features of their ED design: Nurse's station, and decontamination area.
36. Communication between all staff works very well. Nurses are assigned to rooms in a zone, 1:4 patients. Doctors float between all rooms.
37. Residents in the department usually use the 4 stand-up workstations grouped together in the lower right corner. They really like this location.



38. They have some patients come with luggage. All this goes with them to their E/T room. Have not needed a space to store personal belongings. They have a cabinet in each E/T room to keep these items, which can be locked, and they can be itemized by staff.
39. There are 3 rooms that have showers, and they also use the decontamination shower to wash someone down for lice or similar issue.
40. There are no designated bariatric rooms. They do have patient lifts in 5 E/T rooms. They don't have too many of these patients.
41. The design process for this project was highly collaborative. Dr. Kothari said he wouldn't change anything about the final project. He was very engaged during design and construction. All staff was also engaged and required to sign off on design as they were going through each step.
42. The flow of patients from decontamination through fast-track was deliberate. When they have a situation, requiring more than 1 room, they would close off fast-track and operate that unit sealed off from the rest of the ED.
43. They have a museum space adjacent to the south. Because of this location they don't have direct access from their main waiting room directly back to the hospital. They would like to have this direct access. They are hoping to accomplish this with a future remodel project.
44. They were supposed to have 2 pairs of doors at the exit into the hospital to have an airlock. But during construction they found out they could not have both pairs for other fire code reason.
45. The Consult/Bereavement room is used for multiple purposes. It is used by a clinical pharmacist to do consults with patients before discharge. A social worker will use it to talk with some patients. It has also become their Lactation room for staff since there is no separate room for this.
46. The Procedure/Cast room was meant for orthopedic procedures, or when you need more space than the average E/T room. They have occasionally used it for 2 patients at times. When not used as a procedure room they also use it as a standard E/T room.
47. PPE is stored in the main supply room, and in the Med Room. It is also being kept right outside of E/T rooms in recessed cabinets located in between many of the E/T rooms. These cabinets were designed for clean linens but have been converted to just PPE storage.
48. Since the pandemic started the changes, they have had to make include:
 - a. Reducing seating in the waiting rooms.
 - b. Eliminated family/visitor seating inside the E/T rooms.
 - c. Eliminated the fast-track waiting room.
 - d. Other changes have been operational in nature, with proper distancing, decontaminating an area, etc.
 - e. Used I-pads with Covid patients so they could communicate with staff even from within their E/T room.



49. There is no room specifically for EMS/Ambulance personnel. They mainly drop-off and leave. There is a small alcove just inside their entry doors where they can resupply their vehicles with linens, blankets, sheets, pillow, etc.
50. The new standard for an Exclusion room came out after they completed design of their department. They are converting 1 E/T room within the fast-track area into a Seclusion room as a separate project. Med gases will be removed. Adding double sheet rock wall, but no padding. Mainly just removing everything. Visual observation from the nurse's station will be by glass in the door, and by a camera in the room.
51. There is 1 nourishment alcove which is adequate.
52. They do have some patients staying long enough that they require food service be brought to the ED. In another ED design, Tom is working on, they have provided an alcove to keep these carts. They do this but have not had to store the carts in their department.
53. By design no one is supposed to be standing and working on the outside of the nurse's station, or in the corridors. It is functioning that way, and working well, so they are looking at the E/T rooms. 2 small alcoves on the outside of the nurse's station; have a blanket warmer, and EKG, a COW, and carts for phlebotomy setups.
54. Each E/T room has a soiled linen cart in it.
55. There is 1 small radiology room inside the ED, it is currently not equipped and is being used to store a portable X-ray unit. Once the room is equipped, they do not see a need to have a portable unit any longer.
56. Their staff areas work very well. Like the open access between the Conference Room and the Break Room.
57. Supplies from Materials only stock the main Supply Room. Stocking to individual E/T rooms is done by ED staff. They utilize built-in full height cabinet inside the E/T rooms to store these supplies.
58. They only have a standard 2x4 light above the exam tables. They usually don't need any more portable exam lights.
59. Have not had any problems with the walk-in and ambulance entrances being so close together.
60. The Hotline room is for taking calls from potentially suicidal, or homicidal, patients either locally or from a national call-in line. There is also such a phone at the Assistant Nurse Managers (CNL) desk, who then funnels this call. This is a function of some, but not all, VA facilities.



**3.0 Providence VA Medical Center,
Providence, Rhode Island**

3.1 Exterior Images



Providence VAMC - Aerial Site Plan.





Providence VAMC - Aerial View looking to the Northwest with addition at left side the main hospital.

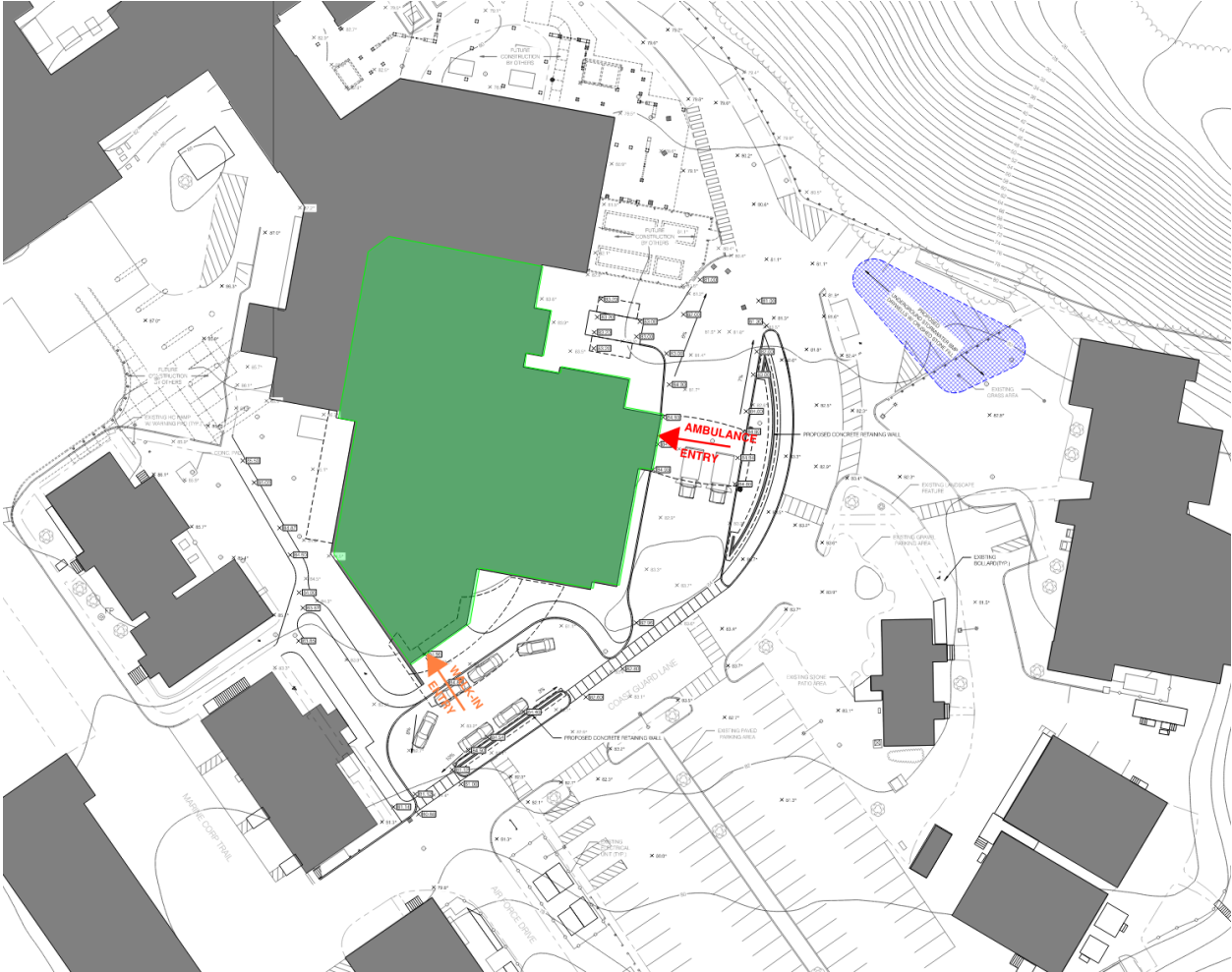


Providence VAMC - Aerial View looking to the Southeast, at location of new ED.



3.2 Campus Site Plan

The Emergency Department (ED) is located at the south end of the Hospital. It is a multi-story addition which is still in construction.



3.3 Emergency Department Floor Plans

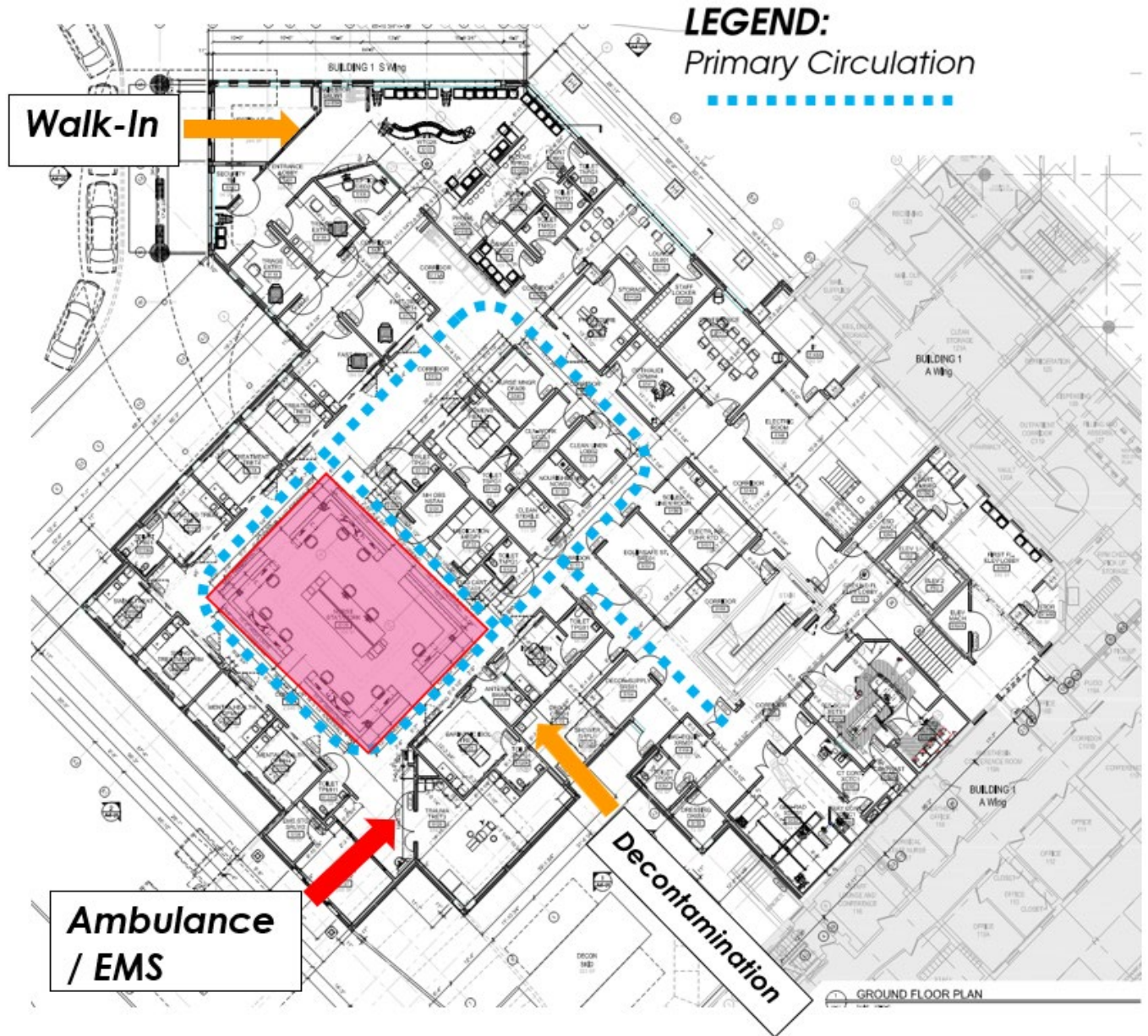
3.3.1 Access Points

The ED Floor Plan below shows the various entry points into the ED. These floor plans are oriented with north to the right. The walk-in location faces south, and EMS / Ambulance entrance faces mostly east. This design has separated entries like Orlando did which is better for exterior circulation patterns but more difficult for security to monitor both.



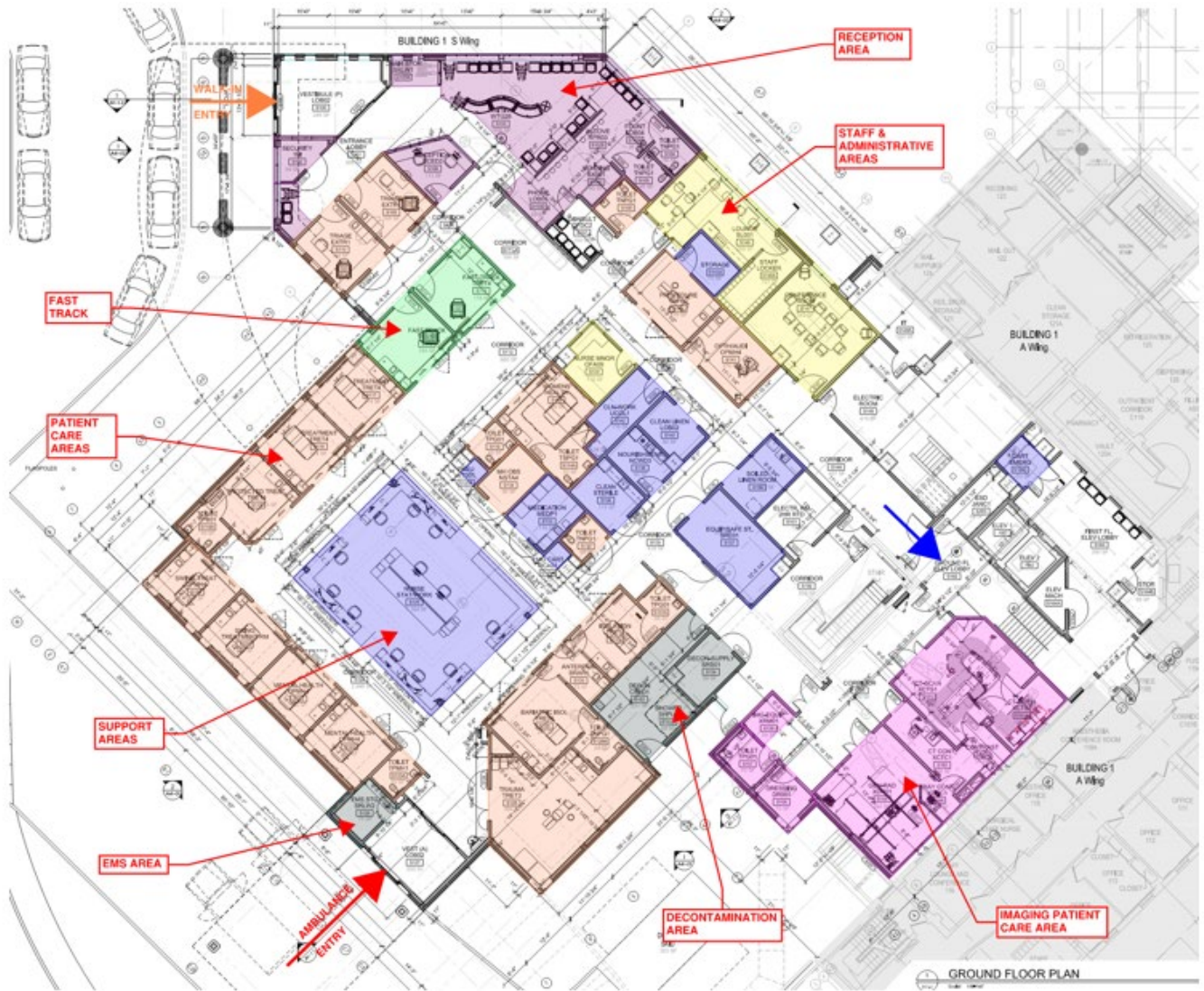
3.3.2 Department Flow

The ED Plan below indicates the department flow of patients through the ED.



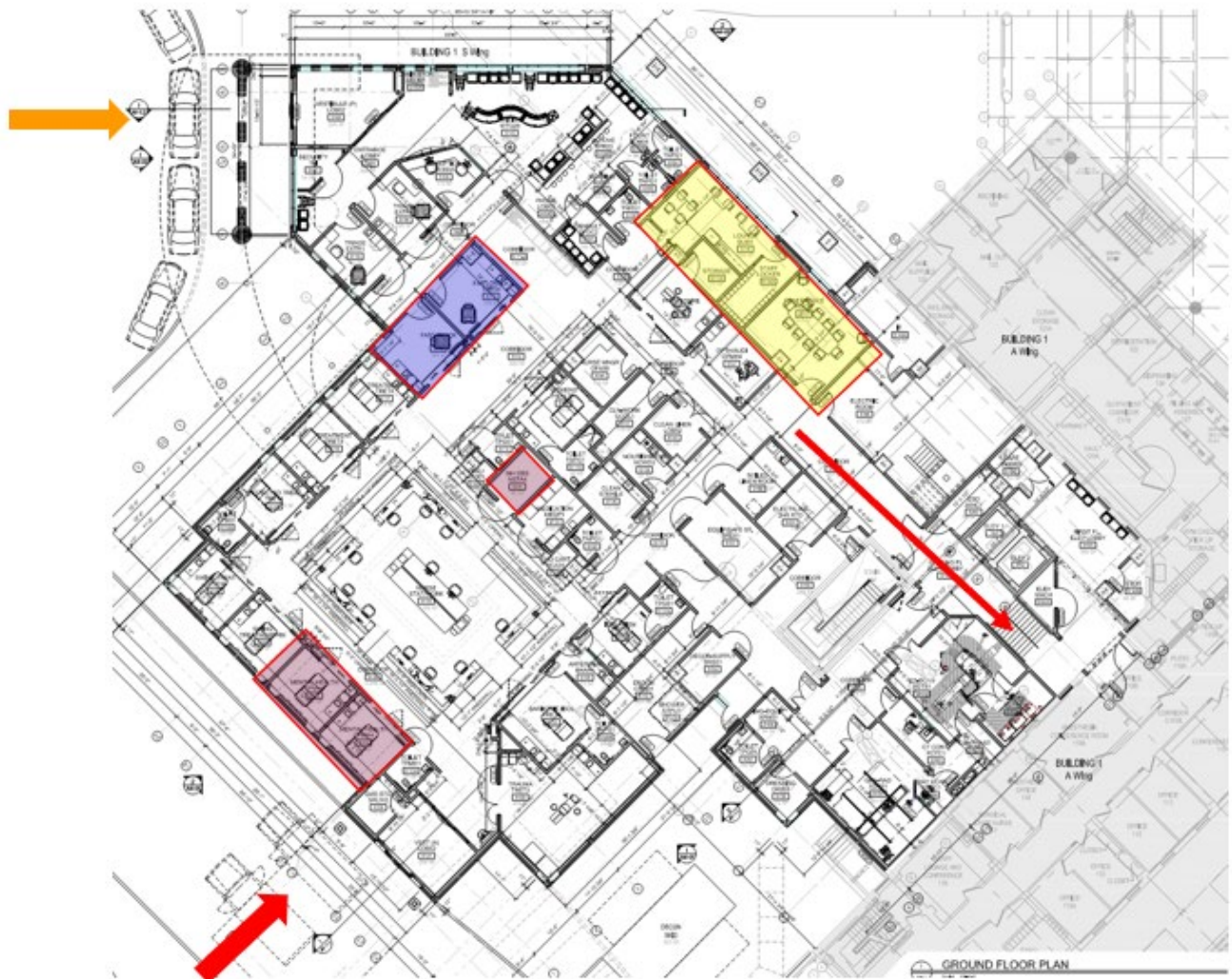
3.3.3 Functional Areas

The below ED Floor Plan diagrams locations of the various Functional Areas within the ED.



3.3.4 Observations

The below ED Floor Plan diagrams locates some key observation within the ED. A good 2-room pass through Fast Track E/T Rooms in blue. There are also 2 Mental Health E/T Rooms and a Seclusion Room, all with good observation from the Central Communication Center. The yellow area are Staff Break Room and Conference Room. All Staff Offices are located a floor above.



3.4 Photographs

3.4.1 Waiting and Triage

The photo below is of the existing ED Waiting Room and walk-in entrance.



3.4.2 Central Communication Center



3.4.3 Exam / Treatment Rooms

Below are photos of the existing open bay Exam / Treatment areas.



3.5 Metrics

A questionnaire was sent out in advance of our tour for the local ED Chief and staff to complete. Below is the data received back.

3.5.1 Questionnaire

1. % or quantity of sexual assault/SANE:
 - a. 17 assault-related chief complaints in CY2019, 2 are sexual assault indicated.
2. # ED visits; trauma / resuscitation
 - a. # of ED visits – 14,828
 - b. 42 trauma-related chief complaints.
 - c. resuscitations in facility; 1 in ED.
3. Peak times: 10:00am – 3:00pm
4. # of ambulance arrivals per day: 11/Day
5. Mental Health encounters per day: Between 15% and 30%
6. Staff counts by shifts
 - a. **Physicians** – 2 on days (10-12 hr shifts), 1 overnight (12 hr shift), 1 NP/MD on afternoon/eve bridge shift (8-10 hr shift).
 - b. **Nurses** – Day shift – 5-6 nurses, 2 ED techs; Eve shift – 4-5 Nurses, 2 ED techs; Night shift – 2-3 nurses, 1 Health Tech.

3.6 Tour Minutes

A questionnaire was sent out in advance of our tour for the local ED Chief and staff to complete. Below is the data received back.

3.6.1 Site Plan & Floor Plan Orientation

1. Different from our previous 2 virtual tours, Providence's new ED is still in design. It will be in Level 1 of a new addition and should start construction in 2021.
2. Access to Radiology and the rest of the hospital will be via elevators in the NE corner.
3. This ED will have the most robust Imaging suite of any of the ED's we have toured with both a CT and general Radiology rooms.
4. We displayed a few pictures of the existing 8-bay ED that they are functioning out of currently. They have 1 isolation room currently. It appears to be very overburdened and outdated.

3.6.2 Floor Plan – ED Detailed Review

1. Some of the staff offices are located on the floor above.
2. There is a total of 15 E/T rooms, including: 2 Fast Track, 1 Trauma, 1 Bariatric, 1 Women's Health, 1 OPTH/AUDI, 1 Procedure, 2 MH & 6 other typical rooms. 2 rooms have negative pressure, and 1 room has positive pressure.
3. The new ED will be 5 times larger than their existing ED.
4. Most E/T rooms surround a central nurse's station and are visible from it, except for 3 outlying rooms.



5. Have 1 mental health Seclusion Room. Also 2 E/T rooms are designated for mental health.
6. Waiting room does not allow for separation of people waiting. This is a change they are currently considering.
7. We reviewed some metrics which Providence had previously responded to.
8. They have very few SANE cases, and typically these patients would be transferred to their sister facility in Providence.
9. On average they get 11 ambulances per day.
10. Currently seeing about 15,000 patient visits per year. Expect the new ED to serve about 21,000 patient visits annually.
11. 15-30% of their encounters are with mental health patients.
12. Average about 8-10 staff per shift in their current ED.
13. Expect total annual visits to increase in the future.
14. Some of our typical questions didn't really apply since they are not yet operating in their new ED.
15. Fast Track rooms are outfitted with chairs rather than with gurneys. They pass-through directly from the 2 Triage rooms on one side then out into the rest of the ED on the other side.
16. E/T rooms are typically 160-170 SF each. These are a little larger than the rooms were at East Orange.
17. The Bariatric Room is about 260 SF, so 100 SF larger than the typical E/T rooms.
18. They intend to equip most of their E/T rooms with ceiling lifts, except for the MH rooms.
19. There is no Stat Lab in this ED. There will be a pneumatic tube station next to the nurse's station. This will be connected to the ICU above and to the Blood Draw, and Lab.
20. An On-call room and ED offices are located on Level 2 directly above the ED.
21. The footprint of this new ED is about 21,000 SF.
22. There is both an inpatient and outpatient mental health units at this facility.
23. The Women's Health room is being revised so it faces the opposite side in lieu of directly across from the Fast-Track rooms.
24. There are 12 workstations shown in the central nurse's station. Not currently considering plastic barriers to separate the workstations.
25. They don't plan to staff the Security station 24/7. The primary police station for the campus is located nearby.
26. No specific plans for Geriatric patients yet.
27. No specific plans for Telehealth yet.



4.0 Lahey Hospital & Medical Center, Burlington, Massachusetts

4.1 Introduction

The Lahey Hospital & Medical Center, formerly known as Lahey Clinic, is a 330-bed physician-led nonprofit teaching hospital of Tufts University School of Medicine based in Burlington, Massachusetts. LHMC operates the only Level II trauma center between Boston and Manchester, New Hampshire, providing time-sensitive, critical care for hundreds of thousands of people across its service area.

Burlington is now suburban industrial town at the junction of the Boston-Merrimack corridor. While the Burlington population is approximately 25,000 people, the ED services a wide range of people from the Boston area with a metropolitan population of 4.7 million.

This tour was led by Jon Huddy and Malcolm Creighton, MD, FACEP, Chair Department of Emergency Medicine, Chair Hospital Based Specialties Lahey Health. Dr. Creighton led the design for a \$55 million expansion project for the Emergency Department and future Cancer Center.



Photo of Main ED Walk-in Entrance at The Lahey Hospital.



4.2 Metrics

Patient Area		
a. Number of:		
a) Triage spaces	2	FastTrack is contiguous so flexible
b) E/T Rooms	43	
c) Resusc Rooms	4	included in the 43
d) Mental Health Spaces	3	included in the 44
e) Imaging spaces	4	2 Regular 2 CT (256 and 64)
Metrics		
a. Number of Total ED visits		
b. Does your bed count (exam/treatment rooms) include any hallway or "chair" treatment spaces?	46700	
c. How many patients (estimated) are treated in Trauma/Resusc Rooms	2-4%	
d. % or quantity of sexual assault/SANE patients?	100 per year	
e. Are your Peak times 11:00am – 11:00pm most days, or other time?	11a-8p	
f. % of ambulance arrivals vs. Walk-in patients	34% EMS	
g. Approximate Mental Health encounters per day? MH LOS time?	8%	LOS about 20 hours median
Approximate Staff counts by shifts?		
a) Physicians	+/- 66 hours per day	
b) Physician Extenders	32 hours per day ,	another 8 of EM resident another 8 of First Year Intern (not an add)
c) RN ratio to rooms/patients	4 or 5 room/rn	

4.3 Campus Site Plan

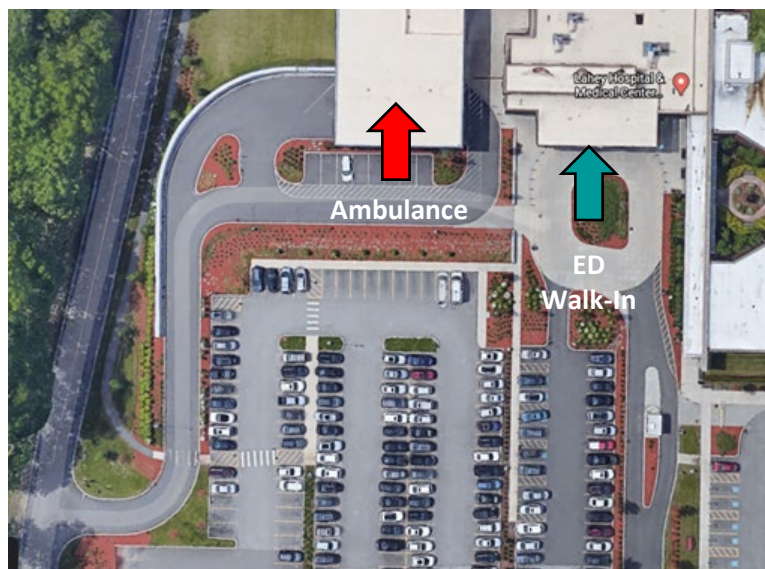
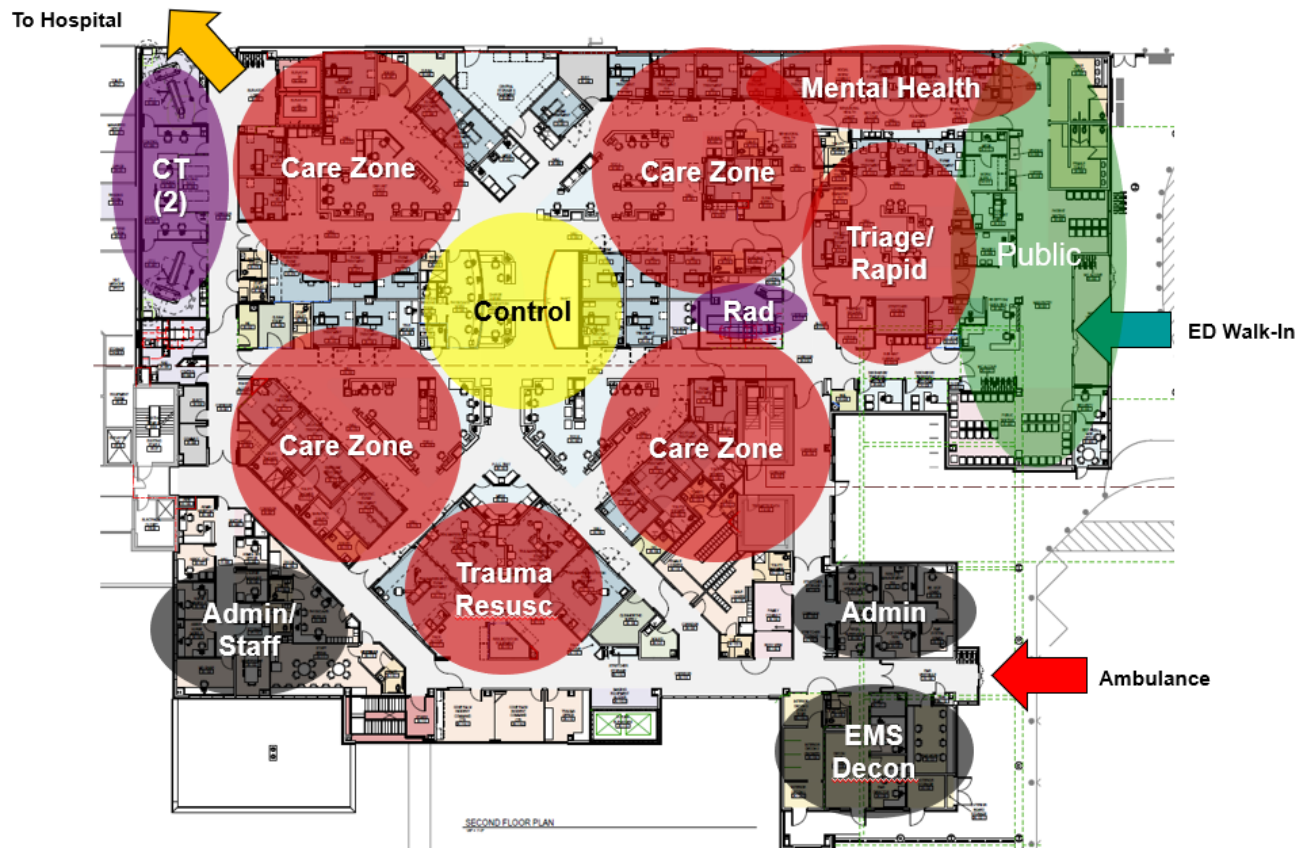


Lahey Hospital & Medical Center - Aerial Site Plan.



4.4 Access Points and Organizational Floor Plan

The ED Floor Plan below shows the various entry points into the ED. The walk-in entrance, and EMS / Ambulance entrance face the same direction but have good site circulation separation. This design also allows great visual observation by Security of both entrances at the same time.





Photos of Lahey Hospital & Medical Center – ED Walk-in Entrance, Reception, and Waiting area.





Photo above of ED Waiting area.



Photo above of wheelchair alcove.



4.5.2 Discharge



Photo above of Discharge Sub-waiting area.



Photo above of Discharge Office.



4.5.3 Medication Pick-Up

Below is a floor plan of the Medication Pick-Up room and Discharge areas of the ED.

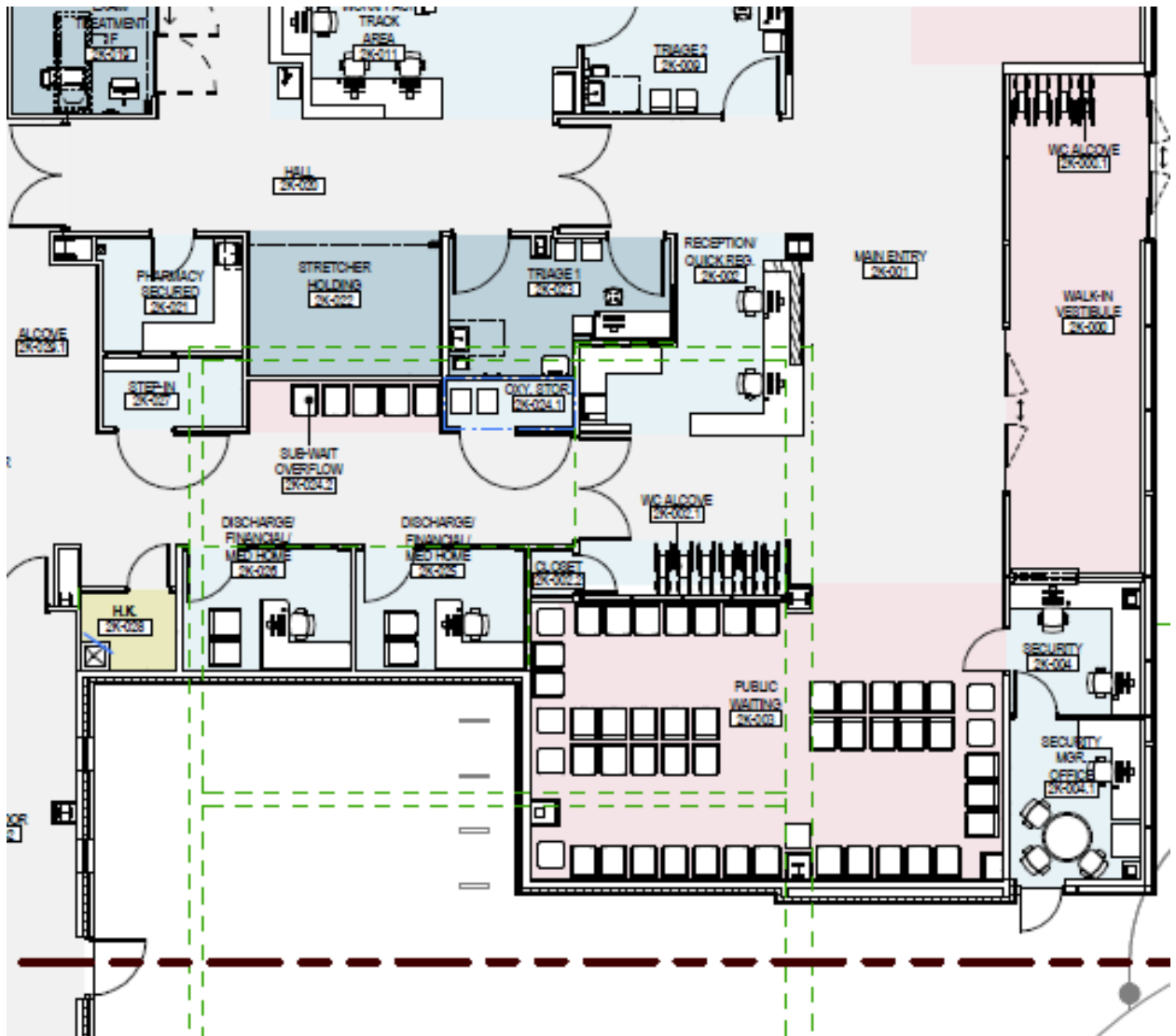




Photo above of Medication Pick-Up window.



Photo above of Medication Pick-Up Room.



4.5.4 Rapid Assessment

Below is a floor plan of the Rapid Assessment areas including Triage and Fast Track Rooms. Even a General Radiology Room is located for quick access to Fast Track.

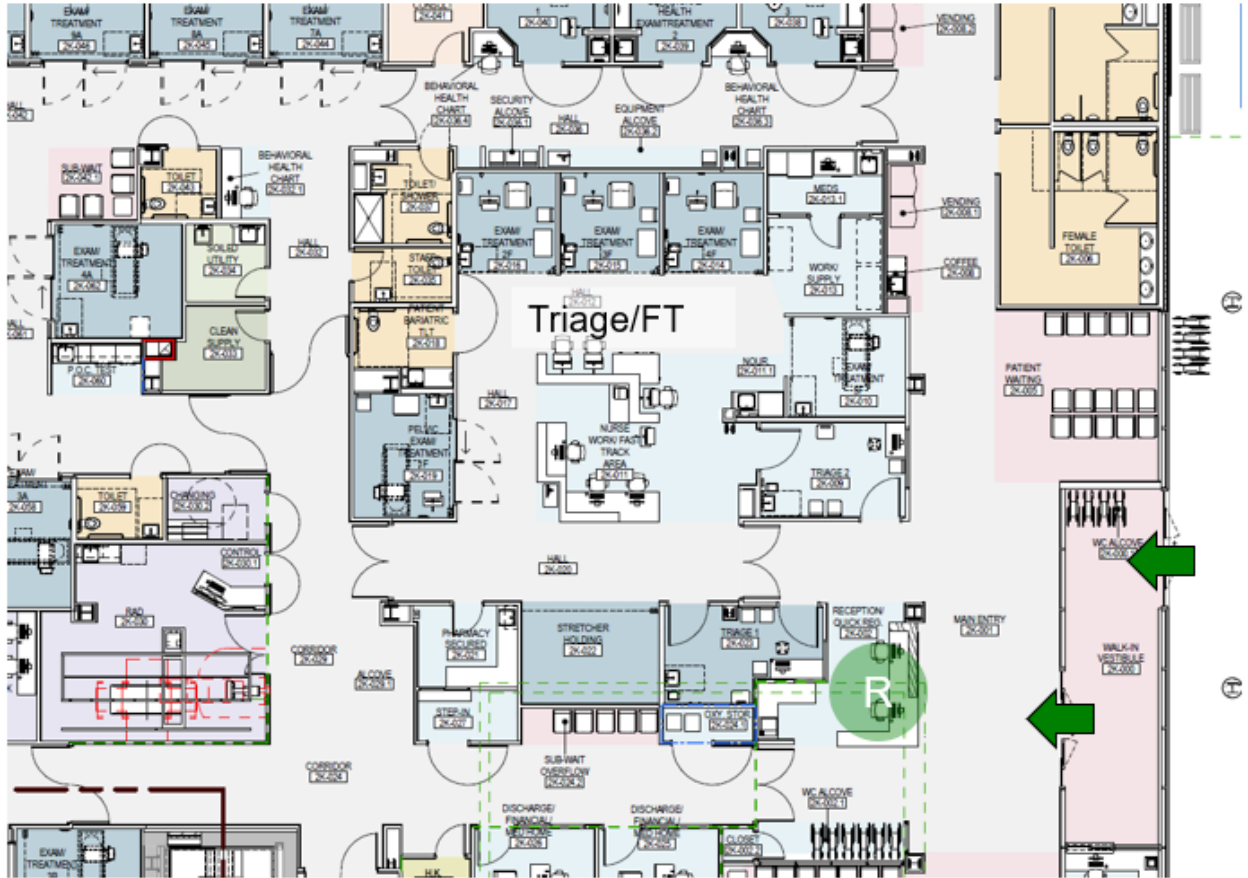


Photo above of Fast Track Nurse Station.

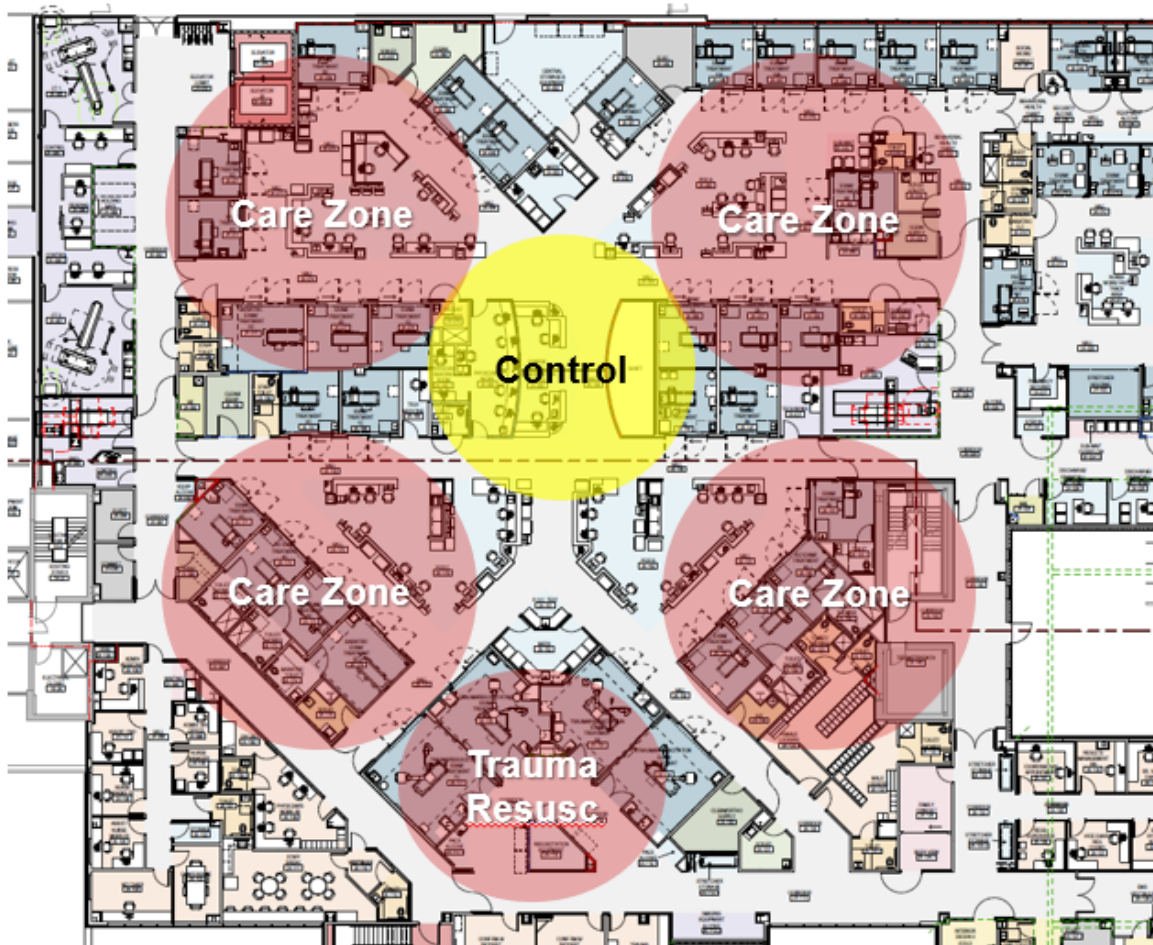


Photo below of Procedure Room.



Photo above of the Central Control area. From here staff and providers can visually observe into all 4 Care Zones.





Floor Plan above highlighting the strategic location of the Central Control area.



Photo above of the enclosed Provider Workarea at the Central Control area.



4.5.6 Care Zones

Floor Plan below showcases 1 of the 4 Care Zones.

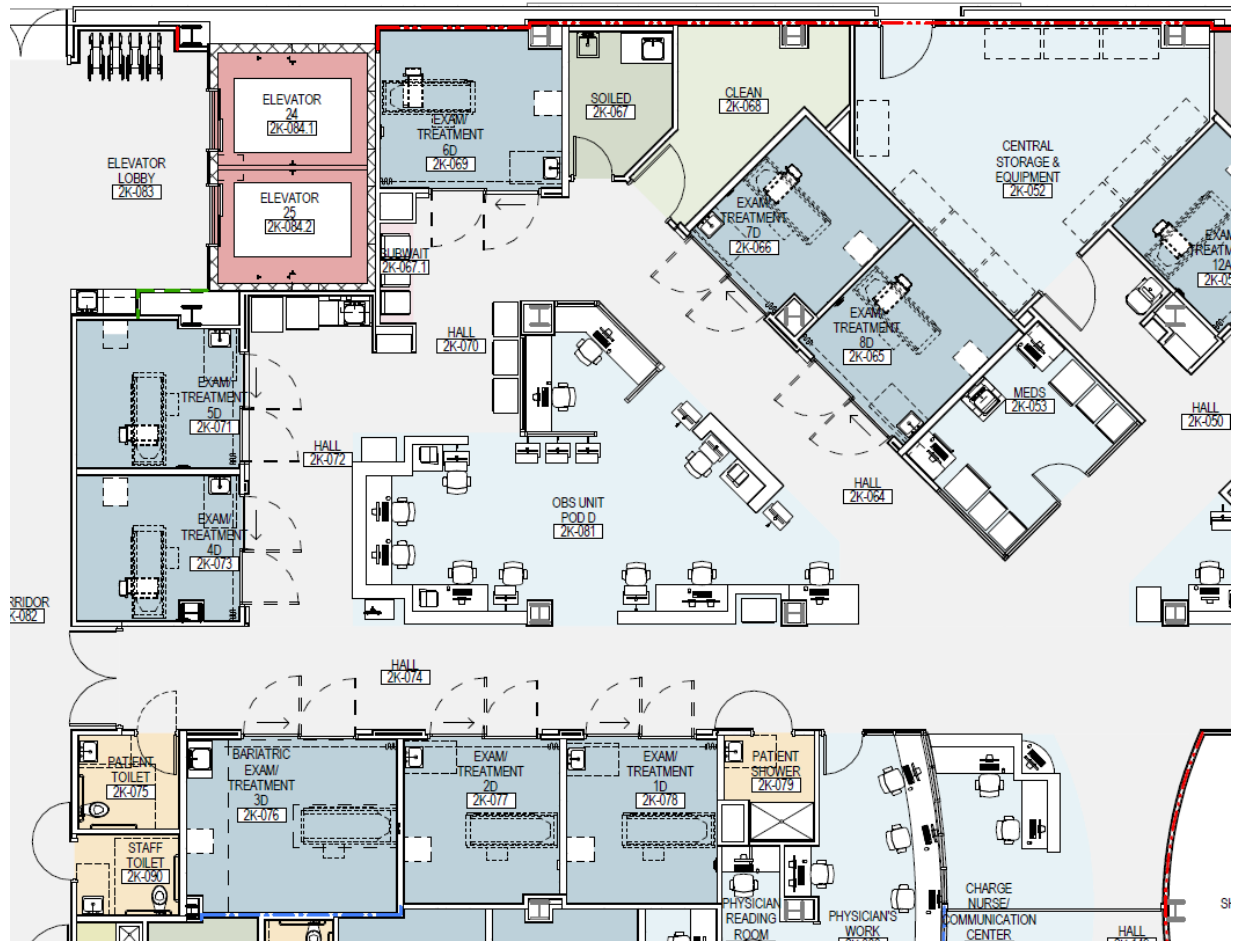
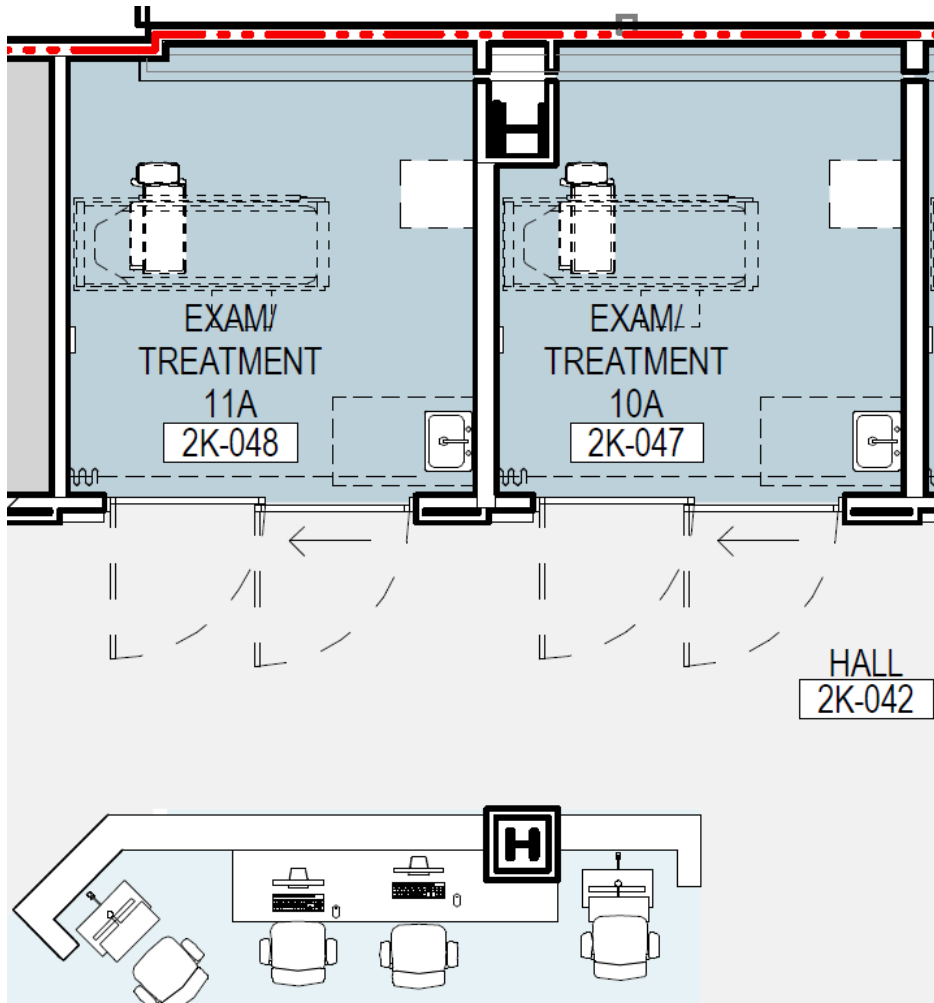


Photo above of the Nurse Station in the heart of a Care Zone.



4.5.7 Exam / Treatment



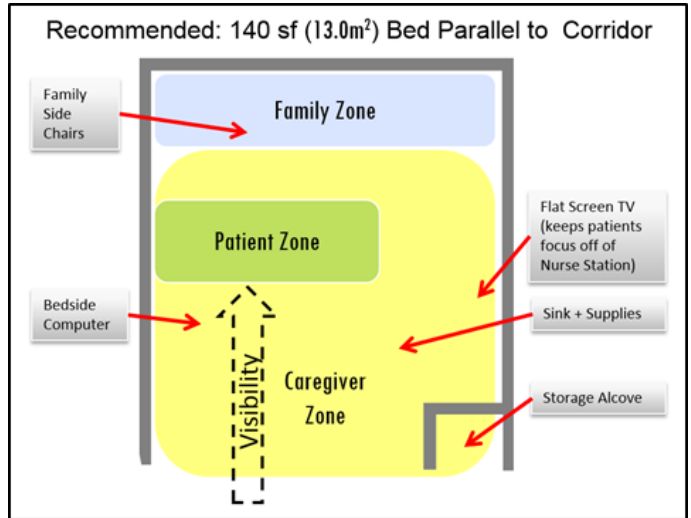


Photo and Diagram above of an Exam / Treatment Room.



Photo above of an Exam / Treatment Room, showing that everything is movable and flexible.



4.5.8 Behavioral Health

Floor Plan below of the typical Behavioral Health Exam / Treatment Rooms.

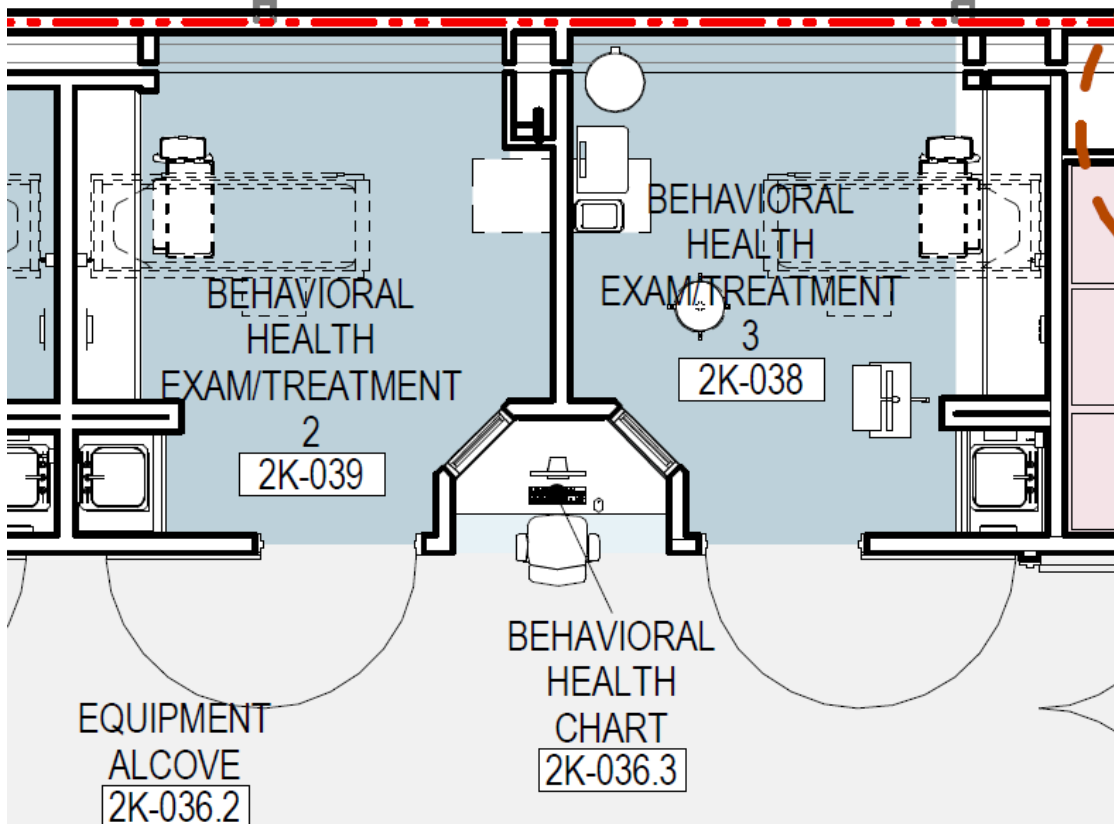


Photo above of a Behavioral Health Exam / Treatment Room.





Photo above of a Behavioral Health Exam / Treatment Room.

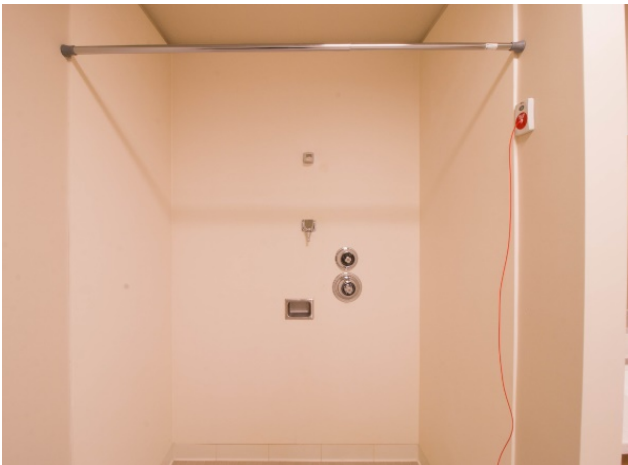


Photo above of a Behavioral Health Exam / Treatment Room with coiling door down for a more secluded environment when needed.





Photo above of Behavioral Health observation desk and windows.

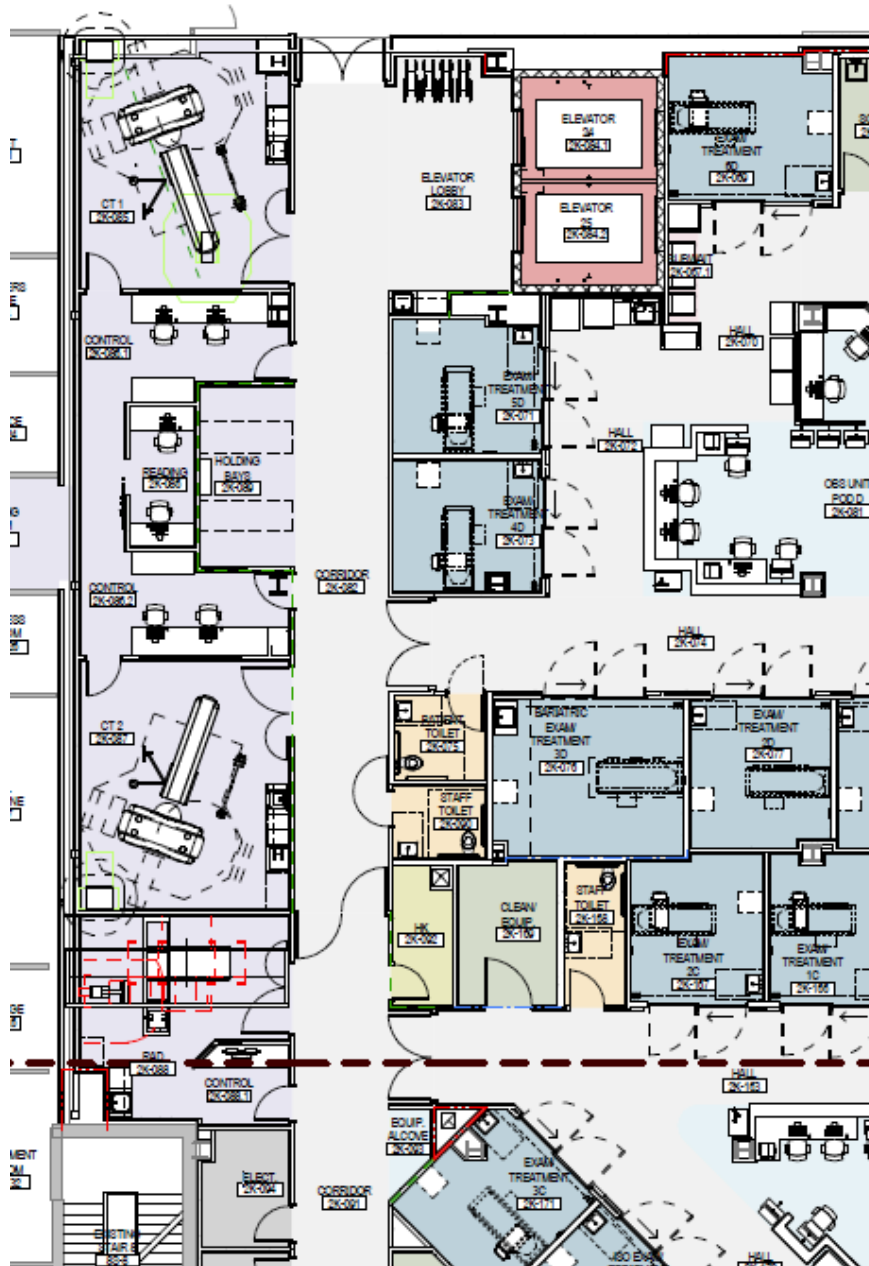


Photos of Behavioral Health rooms with anti-ligature fixtures and accessories.



4.5.9 In Department Imaging

Floor Plan below shows 3/4th of the Imaging Department. It has 2 CT Rooms and 1 General Radiology Room with a central Radiology Reading area





Photos above of the CT Scanner.



Photos above of the General Radiology Room .





Photo above of a Trauma / Resuscitation Room.

4.5.11 Materials and Supplies

Photos below of central Clean Supply Room where all carts are restocked.





Photos of various supply cart with color coding and assigned parking spots.



4.5.12 Alcoves

Photos below of various equipment alcoves including a clean linen dispensing machine.



4.5.13 EMS and Decontamination

Floor Plan below of the EMS and Decontamination zone.



Photos below of the mass decontamination area, and adjacent viewing area.



4.5.14 Family Consultation and Body View

Photo below of a unique Family Consultation Room with a Body View Room for mourning families.



Floor Plan below of the Staff Support / Administration zone.





Photo above of the Staff Break Room.



Photo above of the Staff Conference Room.



4.6 Tour Minutes

4.6.1 Site Plan & Floor Plan Detailed Review

1. The ED has 40,000 SF total for their department.
2. The ED is designed in 4 pods.
3. E/T rooms all have the gurney perpendicular to the hallway, with family zone behind it so they are separated from clinical zone. No fixed casework in these rooms. Everything is equipment and mobile, except for the wall hung sink. Tried to orient all rooms in the same way so the headwall was always on the left when entering the room so the doctor, or nurse, is always standing on the patient's right side. They don't need to hold patient belongings. They wanted to be able to pull everything out of the rooms to do a quick deep clean and turnover of a room. They also wanted the mobile carts so they can be resupplied outside in a central supply room. The average size of these rooms is about 138 SF, or 12'x12' center to center.
4. They were not able to put PPE storage alcove's in place, located just outside each room. They were value engineered out in their project and he wishes they had them now.
5. Mental health rooms are about 125 SF, which are too tight. Some area was lost for a shared observation desk that looks into 2 rooms.
6. Have 1 center control workstation for a charge nurse, and doctors that can see out into 75% of the 4 pods.
7. Have a robust imaging area with 2 CT's and 2 general radiology rooms. They have 4 emergency radiologists on staff. One of the radiology rooms is located away from the other three, near the fast-track pod.
8. They also have a centralized reading area between the 2 CT's.
9. Do they have any challenges with recruiting rad techs? Some, but have fixed most of that with some rate increases.
10. Have all private E/T rooms.
11. Mental Health E/T rooms have pull down coiling garage doors to separate gases and supplies, if they need to close these off with a patient who needs more seclusion.
12. Have a 36% admitting rate which is very high. Have an older population surrounding this hospital which attributes to this.
13. Designed for 56,000-60,000 annual visits, in the future.
14. Have a small triage / fast-track area.
15. Security room is all glass and has great visibility of both walk-in and EMS entries, as well as the main lobby/waiting room.
16. One triage room has a window so they can observe the waiting rooms.
17. They have a quick triage nurse, then do full triage back in E/T rooms. Integral fast-track area helps to support the triage function.
18. Do a quick registration up front, then full registration is done prior to discharge.



19. Use consult room and discharge room for some of this final registration, and/or payment before someone leaves. Using a lot of WOW's now also to do registrations.
20. Have a small pharmacy room near discharge so they could give meds to patients before they are discharged. Use a pneumatic tube station to get meds from the primary pharmacy down to this ED pharmacy.
21. Layout of the pods really helped to make a quieter ED experience.
22. Their D pod is an 8-bed observation unit and has a full-time advanced physician assistant working in it. Have a small centralized, and enclosed, case manager space for 2 people that help manage placement of patients into community nursing and rehab facilities for continued care.
23. Each pod has its own nourishment station and pneumatic tube station.
24. They also have an additional inpatient unit in the hospital that they utilize for observation.
25. They have good wi-fi and use a lot of small tablets, and virtual scribes.
26. The 4 trauma rooms are set up, so EMS enters from the back and rest of staff from the front, which helps to keep everyone calm in this environment. They are set up so 2 rooms have a connecting sliding door so they can be opened up for 2 patients. They are not negative pressure. During pandemic they have tried to reserve one room for COVID patients. They wished they had 1 negative pressure room with an anteroom.
27. They have a centralized resuscitation equipment storage room off the back of the trauma rooms that allows them to store all their mobile equipment that is shared between the rooms. They really love this, and it helps to declutter the trauma rooms.
28. They have a trauma office, for a trauma coordinator and trauma registry within the trauma zone.
29. Their materials and supplies are robust and systematic. It is stocked from central supply. The carts from E/T rooms are stocked here. They have a dedicated stocking clerk.
30. Have specialty carts located right in front of the charge nurse. They are color codes and labeled with a sign on the wall, so you know which one is always missing.
31. They have a linen measuring device which requires a card to get fresh linens out, located in an alcove.
32. They thought about after life care. So, they provided family consultation and body view rooms with a sliding door and curtain in between. Very successful program.
33. Their design is a great recruiting tool for staff.
34. They are pursuing a geriatrics certification.
35. Each zone has an E/T room with an adjacent toilet that they use for SANE patient. They do not have a specifically designated SANE room.



36. If they could start over:
 - a. mental health too far from central control,
 - b. their department is broken into 2 smoke zones, but the HVAC system is not separated so they can't isolate them into 2 zones.
37. Impact of the COVID 19 pandemic:
 - a. they did set up a tent in the parking lot for initial triage when the pandemic started,
 - b. needed more storage and control of PPE products,
 - c. need better separation of entrances and exits, so positive patients exiting are not crossing with patients that are not positive,
 - d. provide ability of staff to take showers before they go home,
 - e. first people to disappear were the psychiatrists, they all wanted to work remotely. They really do very little telemedicine because of their location and density of population.



5.0 Grady Memorial Hospital, Atlanta Georgia

5.1 Introduction

Grady Memorial Hospital, frequently referred to as Grady, is the largest hospital in the state of Georgia and the public hospital for the city of Atlanta. It is the fifth-largest public hospital in the United States, as well as one of the busiest Level I trauma centers in the country. It is a general medical and surgical hospital with 971 beds. It is now the flagship of the Grady Health System.

Grady is a Teaching Hospital. Emory University School of Medicine and Morehouse School of Medicine provide all the physicians at Grady Memorial Hospital in Atlanta. Atlanta is the capital of the U.S. state of Georgia, with an estimated 2016 population of 472,522. Atlanta is the cultural and economic center of the Atlanta metropolitan area, home to 5,710,795 people and the ninth-largest metropolitan area in the United States.

This tour was led by Jon Huddy and Hany Y. Atallah, MD, Chief and Medical Director for Emergency Medicine of the Grady Health System. Dr. Atallah is the Vice Chair of Clinical Operations and Associate Professor in the Department of Emergency Medicine at Emory University School of Medicine. His primary responsibility is for clinical service performance in the ED at Grady — inclusive of clinical outcomes, physician performance and professionalism.

5.2 Metrics

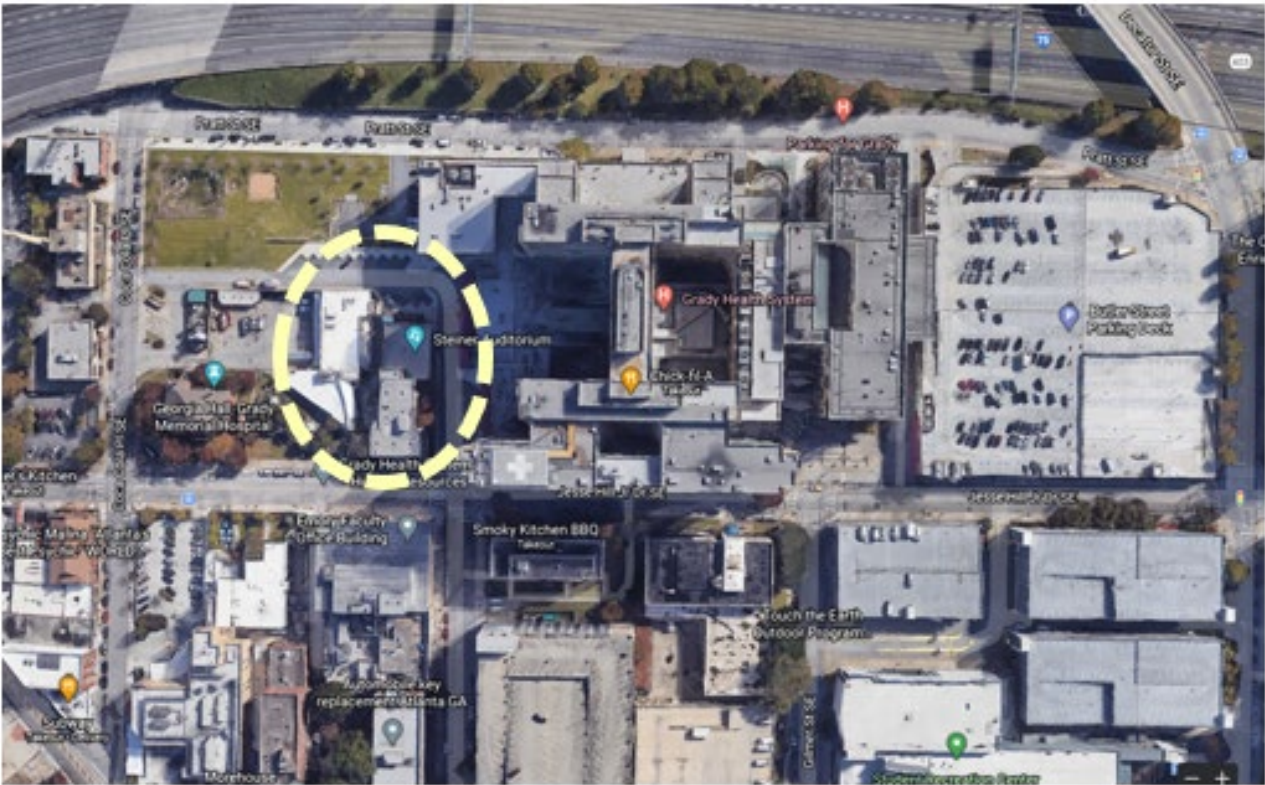
1. Number of Total ED visits – 155,000 in 2019
2. How many patients (estimated) are treated in Trauma/Resuscitation Rooms – 25,000
3. % or quantity of sexual assault/SANE patients? About 400/year
4. Are your Peak times 11:00am – 11:00pm most days, or other time? Yes
5. % of ambulance arrivals vs. Walk-in patients. About 35% ambulance/65% walk-in
6. Approximate Mental Health encounters per day? MH LOS time? 25/day. 6 hours for admitted/4.5 hours for discharged. 4-hour median/5 hours mean
7. Approximate Staff counts by shifts?
 - a. Physicians –
 - i. faculty at a minimum during night shift and early morning. 6 faculty at 9A, 7 faculty from 5P-1A
 - ii. Residents – 7-9 residents during peak hours. 6 during night shift
 - b. Physician Extenders – 8 during peak hours/day, 4 during off hours/night
 - c. RN ratio to rooms/patients – 1 RN per 4 rooms/patients
8. Number of Patient Areas:
 - a. Triage spaces – 3 ambulatory/ 2 ambulance (but we have 10 total for ambulance that we use for other things like patients awaiting transport home or as overflow spots when we're busy)
 - b. E/T Rooms – 87 rooms/30 hall spots/ 20 observation beds



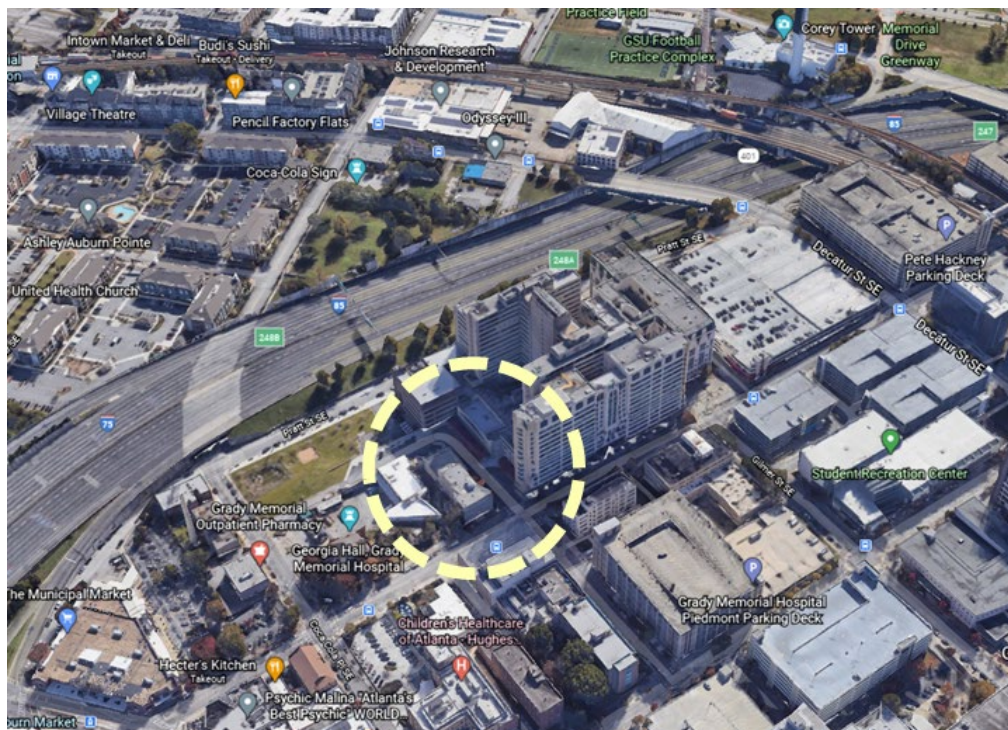
- c. Resuscitation Rooms – 4 medical (not included in the 87 above), 7 for trauma (included in the 87 above)
- d. Mental Health Spaces – 12 beds (included in the 87)
- e. Imaging spaces – 4 Xray and 2 CT in the department



5.3 Campus Site Plan

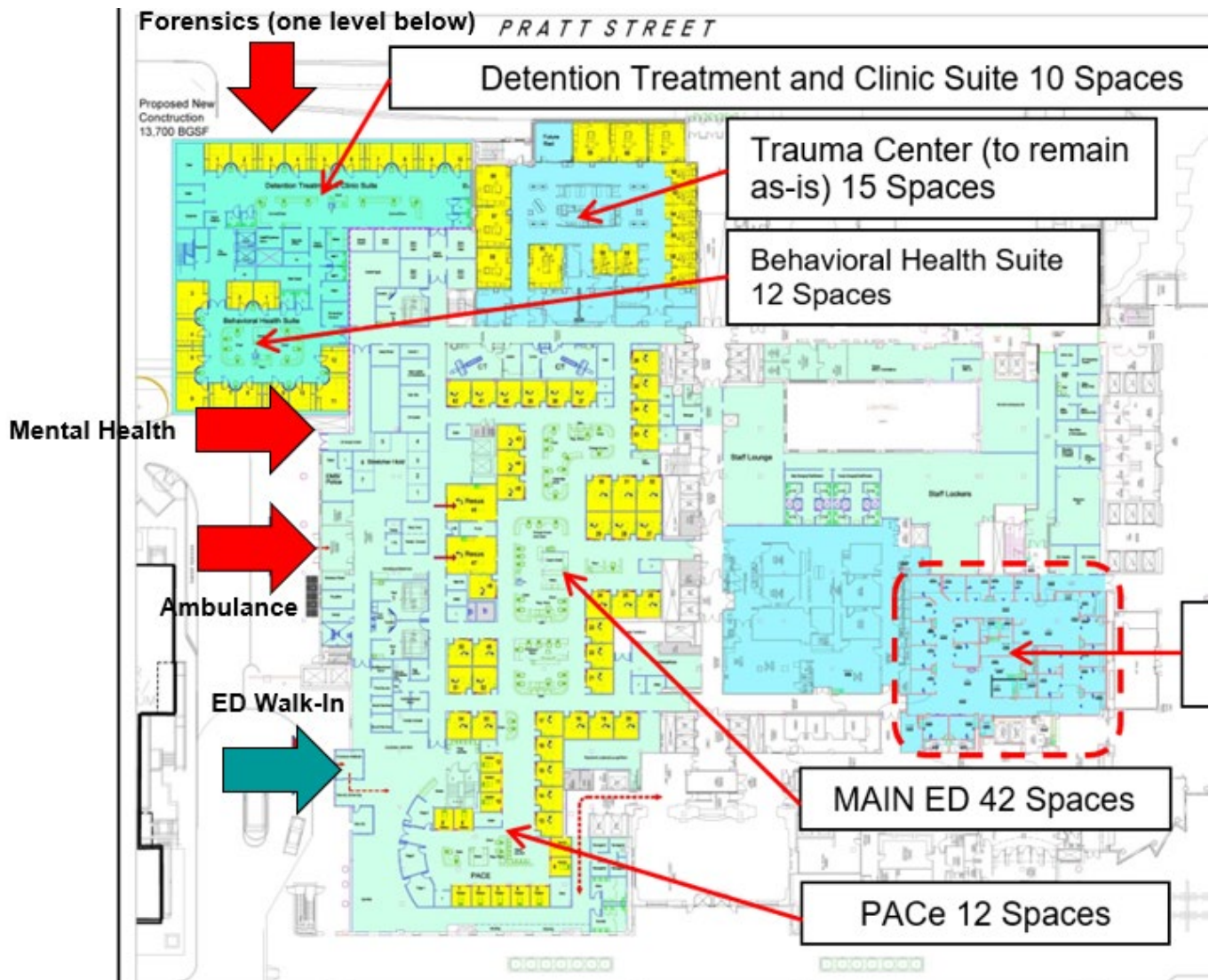


Grady Memorial Hospital - Aerial Site Plans above and below.



5.4 Emergency Department Floor Plan and Access Points

Floor Plan below shows the overall ED layout with multiple access points. The Forensics entry, which serves the Detention and Treatment, and Clinic Suite is a floor below and enter into a secure Sally Port.





Grady Memorial Hospital – Aerial Large Scale Site Plan above, with photo below of all entry points.





Photo of covered EMS / Ambulance drop of area above.

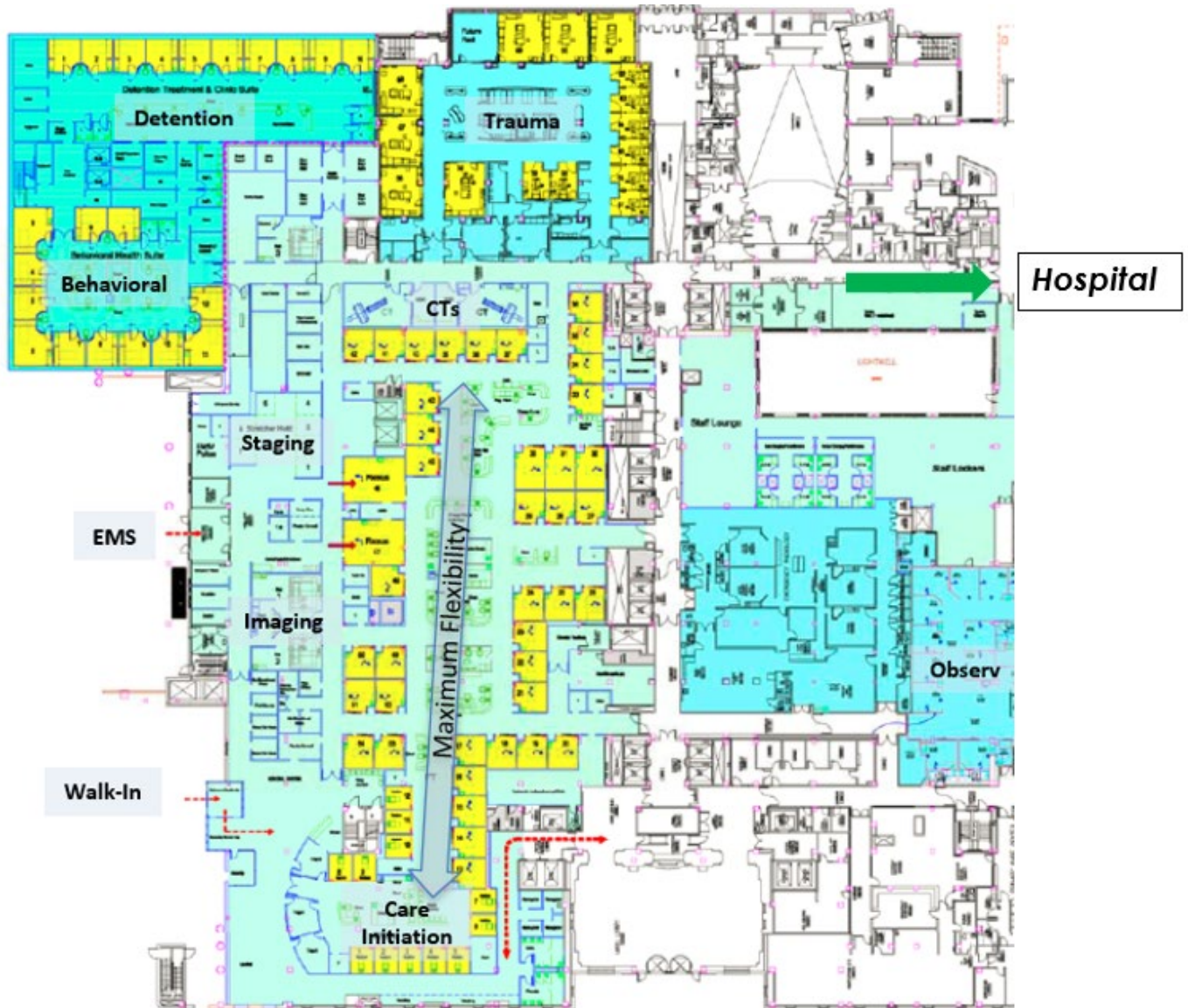


Photo of covered EMS / Ambulance drop off area above.



5.5 Flow and Functional Areas

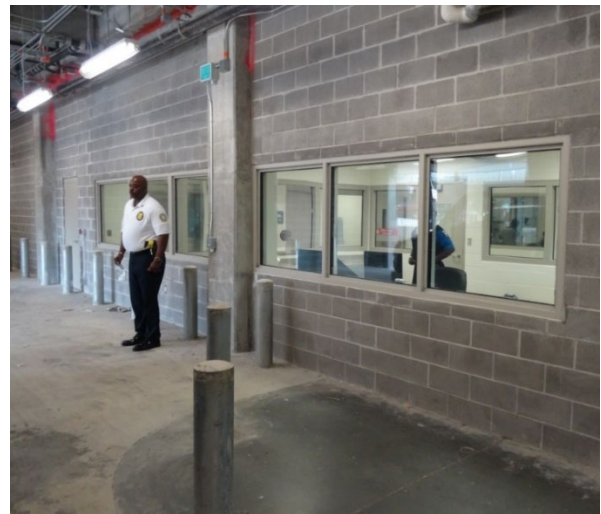
The below ED Floor Plan diagrams locations of the various Functional Areas within the ED.



5.6 Large Scale Floor Plans with Photographs

5.6.1 Forensics / Detention

Floor Plan below shows the layout of the Forensic / Detention zone of the ED.



Photos above of enclosed Sally Port drop off area for police and prisoner unloading.





Photos above of security station and above and below of holding rooms for prisoners.



5.6.2 Waiting, Reception, Triage and PACe

Floor Plan below of the Waiting, Reception, Triage and PACe (Fast Track) zones.

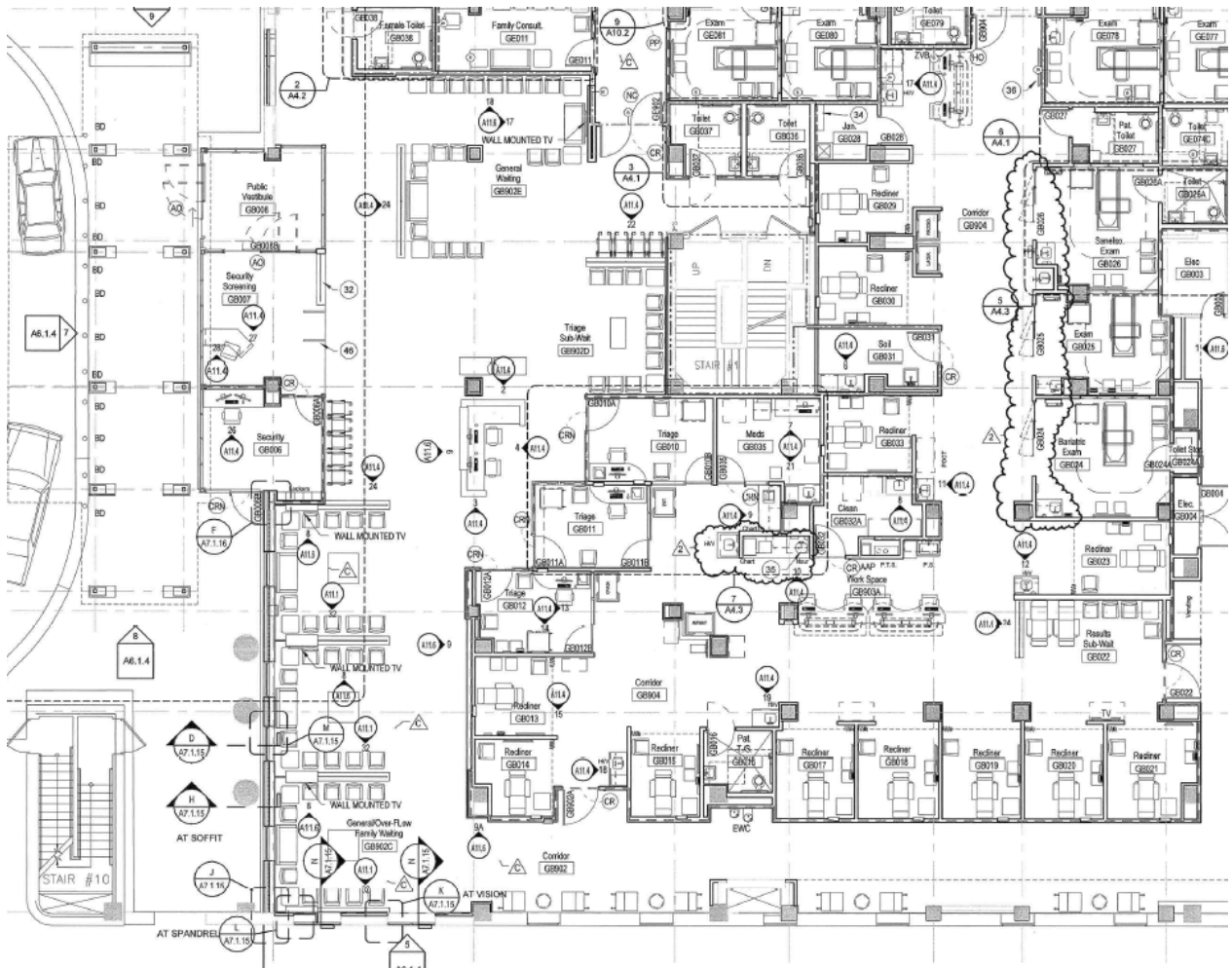


Photo below of recliner treatment & observation bays



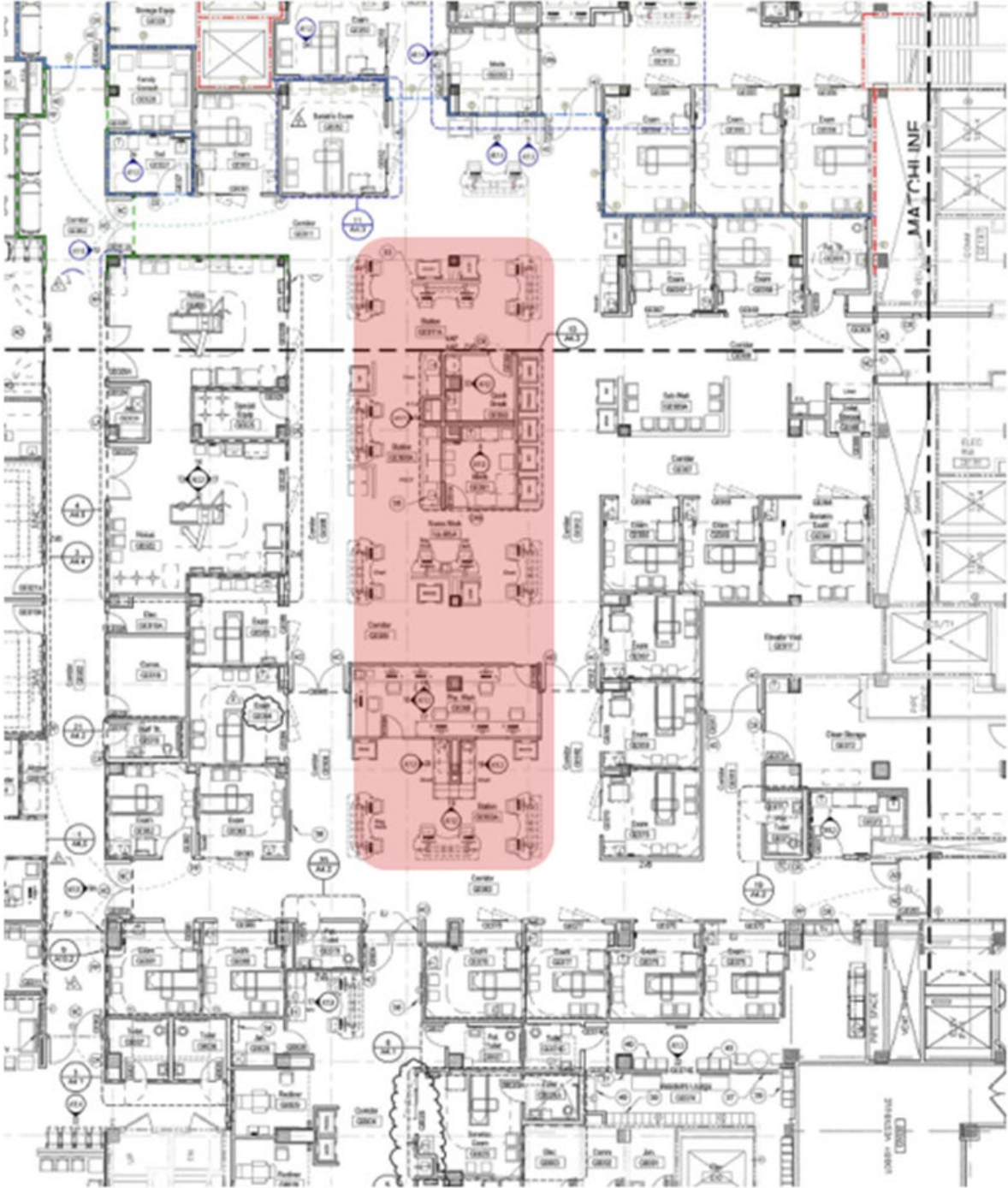
5.6.3 Stretcher Staging

Floor Plan below of Stretcher Staging area utilized for observation.



5.6.4 Work Core

Floor Plan below of the primary central Work Core.





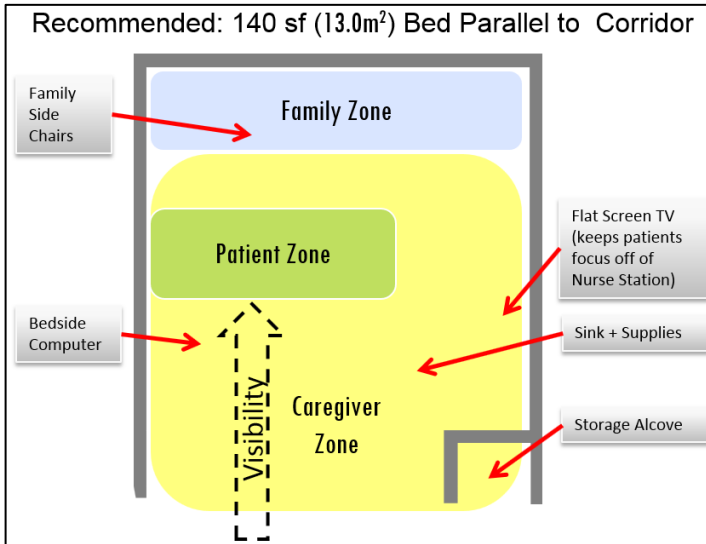
Photos above and below of central Work Core.





5.6.5 Exam / Treatment

Diagram below shows modular Exam / Treatment Room design. Every room is same-handed, and the only built-in element is the wall hung sink.



Photos above and below of typical General Exam / Treatment Rooms.



5.6.6 Trauma / Resuscitation

Floor Plan below of Trauma zone.

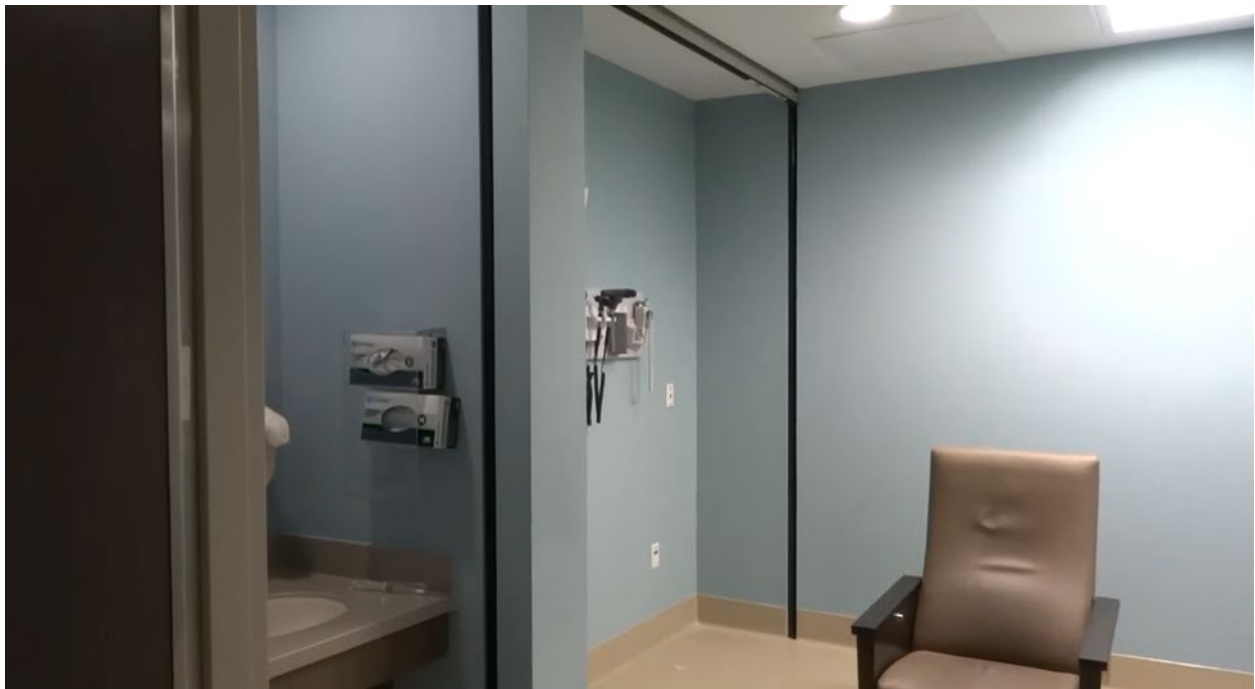
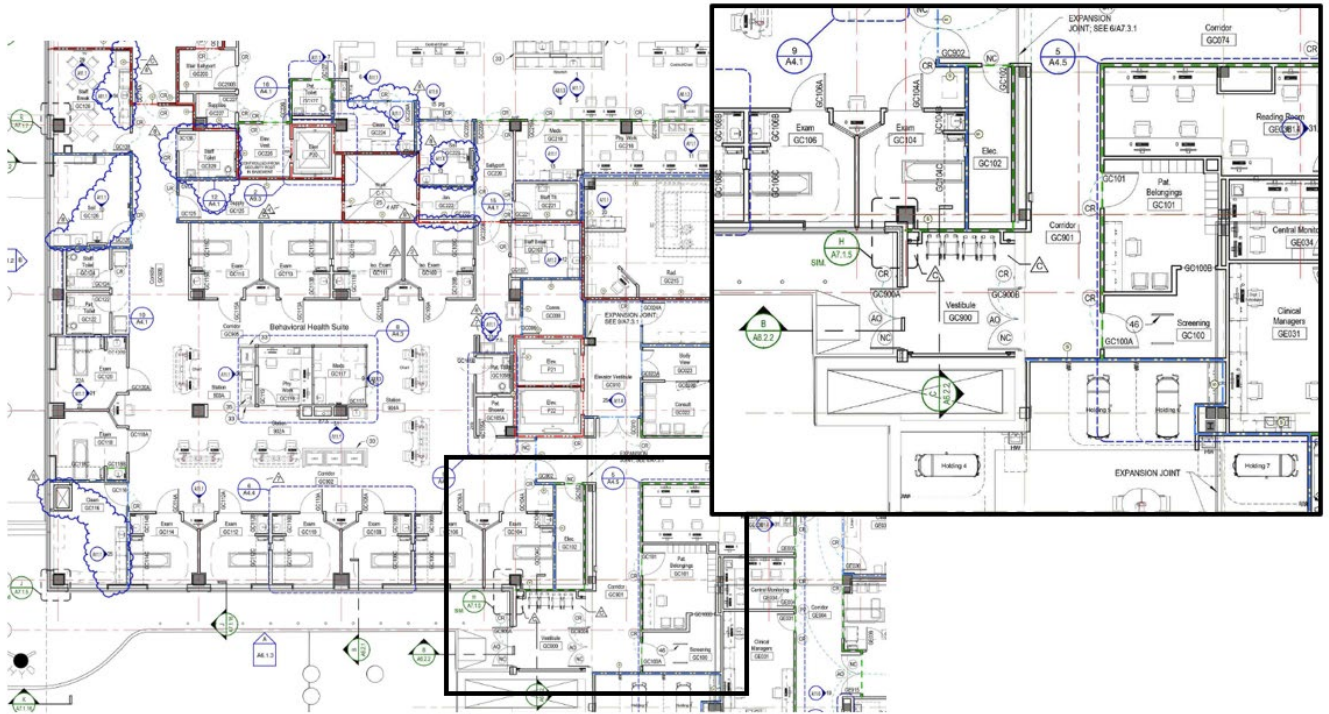


5.6.7 Rapid Care



5.6.8 Mental Health

Floor Plan below of the Mental Health unit which is separated from the rest of the ED.









5.7 Tour Minutes

5.7.1 Site Plan & Floor Plan Detailed Review

1. The ED has 97,000 SF total for their department.
2. They have slow turn over times for mental health patients because they have an observation area for them, plus another area upstairs.
3. Have a large, 12-bed, mental health unit.
4. Have a large trauma unit, and robust imaging service.
5. They have a fast-track area right behind triage, with 15 bays.
6. They have a separate detention treatment and clinic suite, with a drive-up sally port style entrance below it to transfer prisoners coming and going.
7. Mental health was designed with a separate outside entrance next to the EMS entrance, but they are not using it anymore because it takes more staff and separate triage area.
8. They have a metal detector, and bag scan, at the walk-in entrance which is essential for their location and types of patients.
9. Have 3 pass through triage rooms.



10. The EMS entrance has a stretcher staging area for 10 open bays, which they use for flexible purposes.
11. Doctors have a glass enclosed workspace in the center of the department. Don't have consulting physicians in here. Nurses will step in here to visit with a doctor. They were initially intimidated by the enclosure but get over that quickly. He would prefer to have the glass enclosure for some sound separation.
12. E/T rooms are designed very similarly to those at Lahey ED. 140-145 SF each.
13. Likes same handed E/T rooms and Trauma rooms.
14. Put a different colored floor material surrounding the bed in the trauma rooms to define that everyone inside that floor zone needs to be in PPE and it has worked very well.
15. Like having all ceiling hung equipment, lights, and gases in the trauma room.
16. Have a dedicated SANE room in the fast-track area. They have locked cabinets inside the SANE room for evidence to be stored.
17. Have 2-level nurse stations. At the stand-up nurse stations, they have a bar for a footrest which they have really liked.
18. Rapid care bays/rooms are about 120 SF. They used powered stretcher chairs in these rooms rather than gurneys.
19. Now using iPads, a lot more than WOW's for clinical purposes. They still use some WOW's for registration purposes.
20. At the entrance to the mental health unit, they have a patient belongings room. It is important for them to get these patients undressed and store their belongings in locked lockers. They also have a shower if needed to wash down these patients.
21. Mental health exam rooms are also designed just like Lahey with a rolling garage door and an observation desk outside to monitor 2 rooms. These doors do get damaged/dented at times, but they are typically able to fix them quickly. They have all drywall ceilings inside these MH E/T rooms.
22. Staff areas in the middle of the mental health unit are all glass enclosed which has been key for safety.
23. Only use cameras for observation in the mental health exam rooms. All the anti-ligature details are critical in this unit.
24. In 4 of the MH E/T rooms they bolted down the beds so violent types of patients couldn't tip them over or use them as weapons of some kind. They can attach restraints to these beds also.
25. MH patients if they walk-in are sent back to MH area if they know they need that attention. If this type of patient comes in via ambulance or police, they may start in the medical part of the ED, then once they are taken care of there they would get moved to the MH unit.
26. Of their MH patients, 50% come via ambulance, about 40% are walk-in, and about 10% come by police.



27. They have a 20-bed observation unit downstairs. They also board a lot of patients before they can be admitted.
28. Overall, their space works great. Love the open line of sight throughout the medical unit.
29. During COVID 19 pandemic they:
 - a. created hot and cold areas, which they continually needed to adjust the number of rooms for each,
 - b. they moved psychiatry into the detention area, so they shared that space,
 - c. then used the mental health area as a low acuity area for patients where there was a concern of COVID,
 - d. added a lot of PPE supplies in the corridors,
 - e. placed a screening function right inside of security, where they took temps and asked questions, then they broke up their waiting areas into 2 zones.
30. What design changes would they make now in the wake of the pandemic:
 - a. would like to spread out the negative pressure rooms, and have more of them,
 - b. would have added more dialysis hookups in E/T rooms,
 - c. none of their isolation rooms have ante rooms but would certainly like to have them. Don't feel everyone needs it but at least 2 need to have ante rooms.
31. Would like to have self-registration kiosks in the waiting room.
32. Looking to develop a telemedicine hub.



CONCLUSION

The information collected at the site visits will be applied to the updated PG 18-9 VA Emergency Department Planning and Space Criteria and the new PG 18-12 VA Emergency Department Design Guide. Important information, and lessons learned, was gathered from each of these five visits. The COVID-19 pandemic of 2020 had made everyone rethink how healthcare is delivered. It impacts criteria and design standards for waiting rooms, for Airborne Infection Isolation rooms, for arrangement of staff work areas, of HVAC systems and finish materials.

VA hospitals generally have an older population they are serving, and no children. The number of women veterans is rapidly increasing. Setting standards that will appropriately serve all veterans, in healing environments is essential. These visits pointed out the need for flexible treatment spaces rather than specialized spaces. Ones that are designed to meet the needs of Geriatric patients, of Women veterans and of Bariatric patients.

Mental health has long been a big component of VA healthcare and is only growing larger. More consideration must be given to standards that will focus on these veterans with mental health concerns and for the staff and providers that serve them in emergency situations. Proper visual observation, and sometimes separate mental health units will be important in locations serving large populations.

Site visits with the providers and staff who serve our veterans every day, 24/7, is very compelling and humbling. Providing essential administrative spaces, work areas, break rooms, locker rooms and training/classrooms within the emergency department are critical to keeping, and recruiting, these individuals to continue this excellent service.

Lastly, considering all the support spaces that are essential to efficient delivery of emergency healthcare services. It was said repeatedly we don't have enough storage, for supplies, for PPE, for equipment. We can do better.

