



THROUGH CHILDREN'S EYES:

RETHINKING THE DESIGN OF PEDIATRIC HEALTHCARE ARRIVAL SPACES

Cincinnati Children's Hospital Medical Center Arrival Study | February, 2025

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RETHINKING THE DESIGN OF PEDIATRIC HEALTHCARE ARRIVAL SPACES

Cincinnati Children's Hospital Medical Center
A GBBN Research Report
February, 2025

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EXECUTIVE SUMMARY

The initial moments in a healthcare facility significantly shape the experiences of patients and visitors. For pediatric patients, arrival spaces are particularly crucial in influencing their perception of care quality and overall well-being. Research has shown that feelings of fear and helplessness can lead to increased stress and reduced satisfaction among young patients. To mitigate these effects, the literature emphasizes the importance of incorporating positive distractions through a child-centered design approach.

Addressing a gap in existing studies, our research explores vehicle and pedestrian movement patterns within the primary circulation zones of a pediatric hospital, focusing on the wayfinding experiences of children and their parents. Guided by a systematic literature review, we developed design recommendations and conducted a Post-Occupancy Evaluation (POE) to assess spatial navigation and behavioral patterns at Cincinnati Children's Hospital Medical Center (Burnet Campus). The hospital's main concourse and entrances were recently renovated to integrate positive distractions and respite spaces through a collaborative effort between GBBN Architects and Kolar Design. Our study followed an established POE protocol on hospital arrival zones, co-developed by academic researchers and experts in the professional practice [1].

The POE collected data on behaviors and events occurring in the main concourse, Location A entrance lobby, and Location B elevator lobby. Using on-site observations and shadowing techniques, we evaluated users' arrival and wayfinding behaviors, with particular attention to child-parent interactions and the impact of positive distractions. By analyzing the behaviors of diverse user groups, this study provides insights into how design can enhance the experience of pediatric patients and their families.



HOSPITAL WAYFINDING

VEHICLE & PEDESTRIAN FLOWS

Hospital wayfinding has long been a key area of research in healthcare environmental design, focusing on patient and family experience, satisfaction, and the operational efficiency of healthcare facilities. However, several research gaps persist. First, there is a lack of studies that investigate both vehicular and pedestrian traffic in the hospital arrival zone and the indoor-outdoor transitional areas. Second, there is insufficient research examining hospital wayfinding and experiences in entrance lobbies from the perspective of children in pediatric care facilities [1].

The negative impacts of hospital arrival and wayfinding challenges include [2-4]:

- Compromised patient safety in the hospital arrival zone
- Increased environmental and acoustic pollution
- Disruptions to hospital operations
- Heightened patient stress and anxiety
- Delays or missed medical appointments
- Decreased patient satisfaction and perceived quality of care



POSITIVE DISTRACTION

PEDIATRIC PATIENT EXPERIENCE

Positive distractions are essential environmental elements that evoke positive emotions by redirecting focus away from stress or anxiety. Research highlights their significance, particularly in pediatric healthcare settings. Within these environments, positive distractions offer numerous health benefits, such as improved emotional and behavioral well-being, reduced stress and anxiety, enhanced patient experience and satisfaction, and support during medical procedures and recovery [5].

In pediatric healthcare public spaces, positive distractions can include [5]:

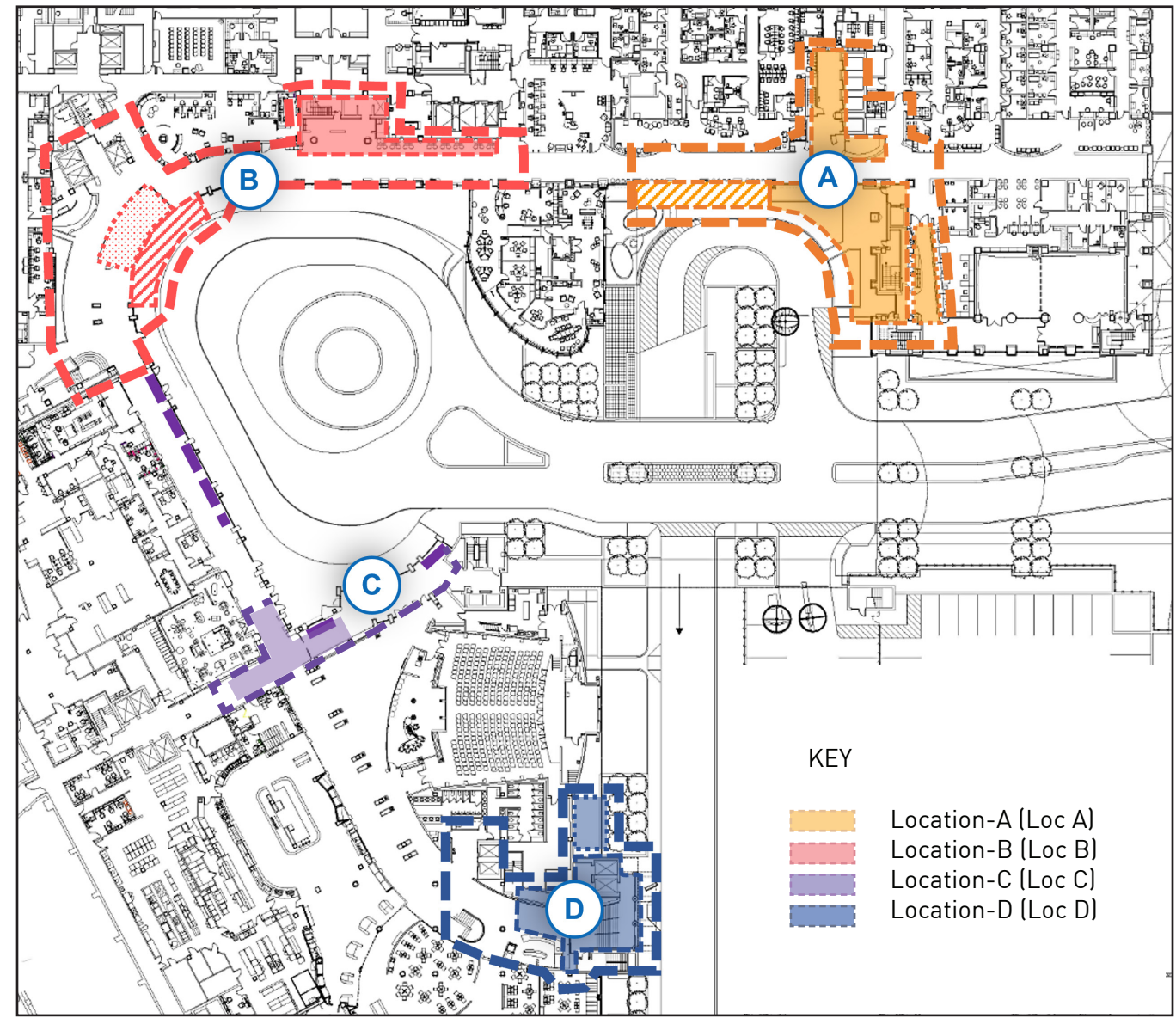
- Artistic and aesthetic design elements
- Thoughtful spatial arrangements and an atrium
- Design consideration of socialization patterns
- Play opportunities and interactive technologies
- Sound and lighting interventions
- Access to nature

SITE CONTEXT

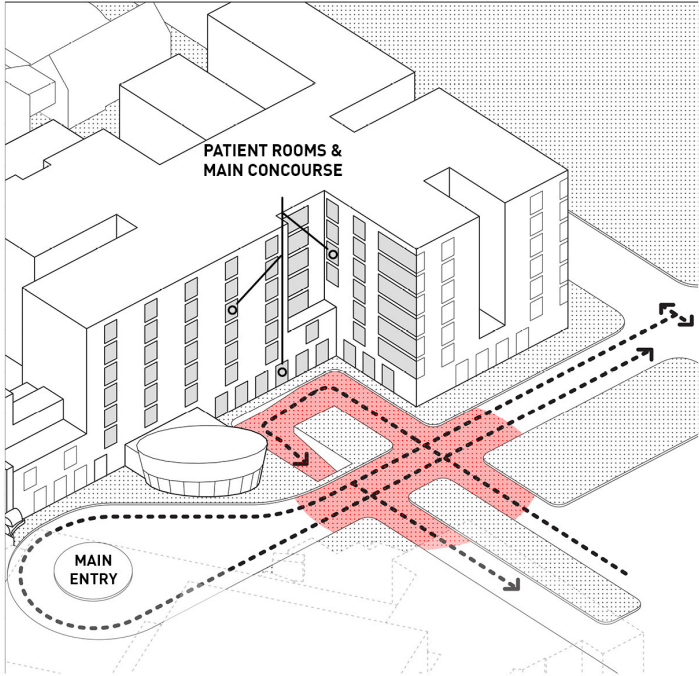
Cincinnati Children's Hospital Medical Center,
3333 Burnet Ave, Cincinnati, OH 45229, USA

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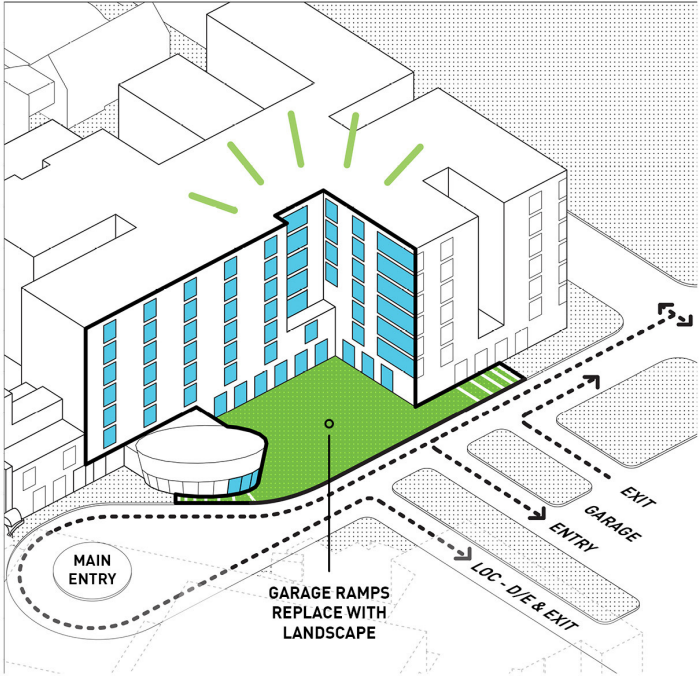
OLD ARRIVAL ZONE, CONCOURSE, AND ENTRANCES



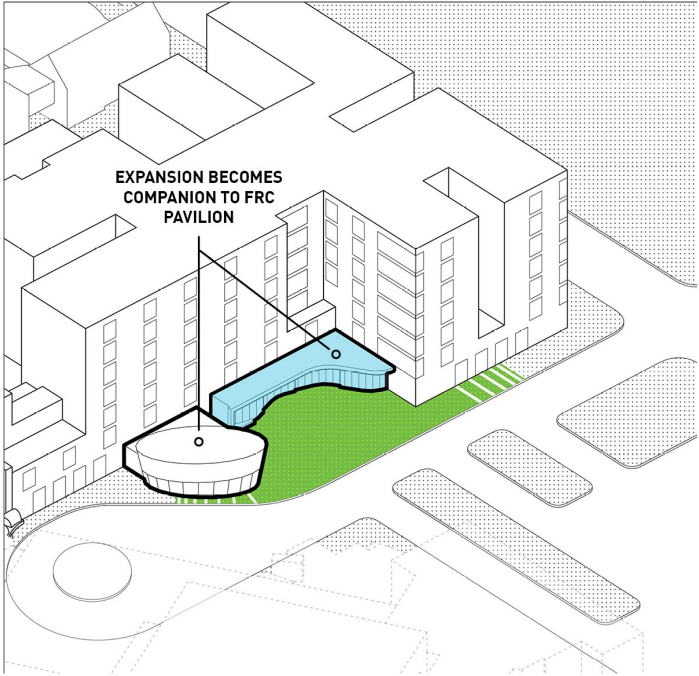
ARRIVAL FLOW & LOC A ENTRANCE EXPANSION



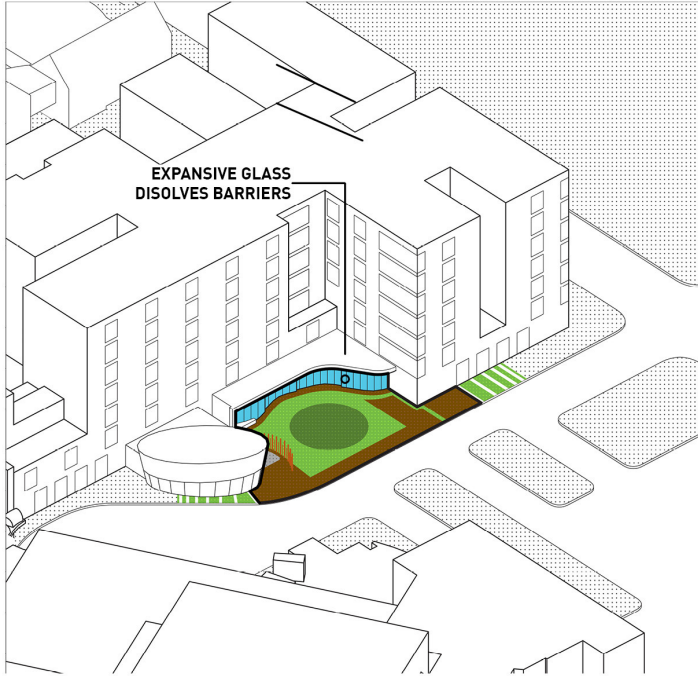
Stressful Circulation
/Patients & Visitors Lack Landscape



Improved Site Circulation
& Restored Connection to Landscape



Concourse at Main Level
Expands to Reduce Internal Stresses



Landscape Created as
Positive Distraction & Focal Point

DESIGN INTENTION

GOALS*



SUPPORT
INTUITIVE
WAYFINDING

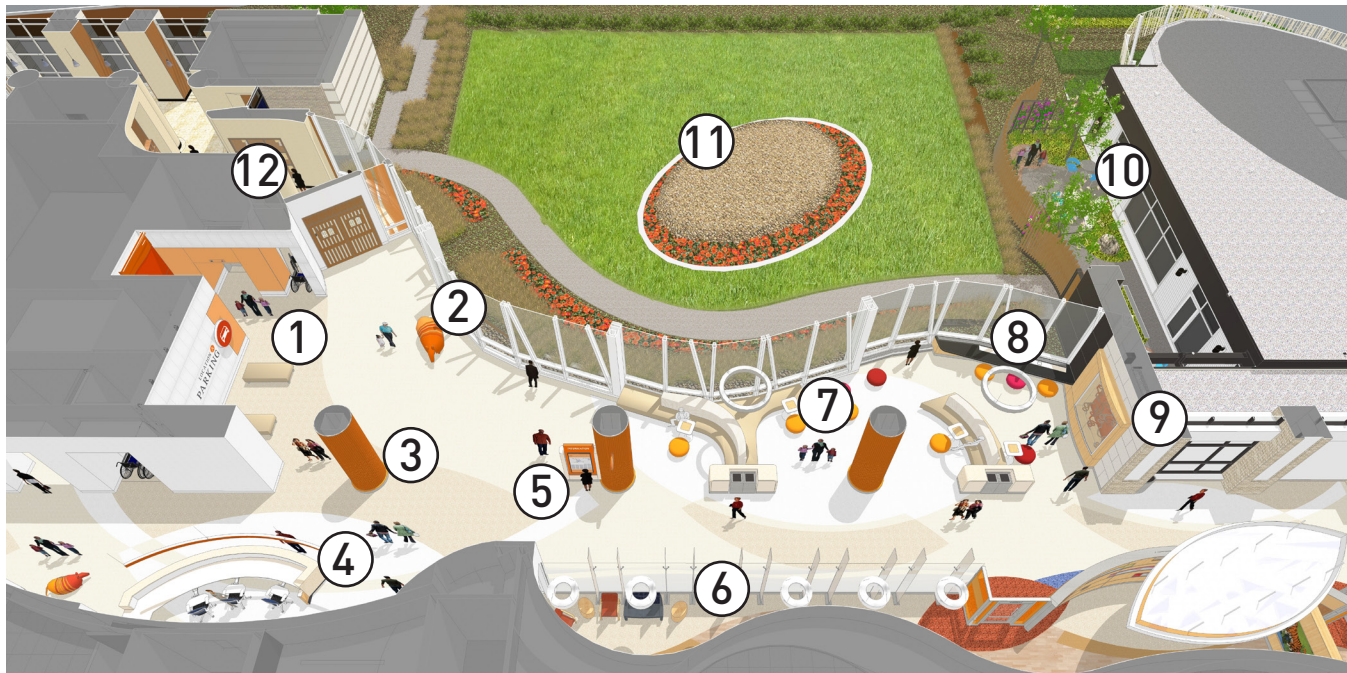


DESIGN PRINCIPLES

- **Create Hierarchy of Spaces:** Intuitive wayfinding requires highly controlled space with ease of recognition and clear prioritization given to specific elements of the experience.
- **Place Making at Key Locations:** Creates emotionally supportive experiences and provides memory making moments to aid in wayfinding
- **Neutralize & Simplify:** No hierarchy achieved if everything is all colored and treated with equal importance.

**The goals and design principles were collaboratively defined by Cincinnati Children's, Kolar Design, and GBBN Architects.*

LOC A ENTRANCE EXPANSION



1. Articulated landing space (or lobby)
2. Continuity of garage's animal alliteration
3. Beacon of color for lobby way-finding
4. Prioritize visibility of welcome desks
5. Pronounced digital directories
6. Simplify & neutralize to reinforce way-finding
7. Diverse hospitality options
8. Touchdown powered surfaces
9. Artistic, kinetic & interactive positive distraction
10. Reconstructed FRC garden
11. Expansive green-space at windows (future art opp.)
12. Reconstructed amenity entries for wayfinding



RESEARCH OBJECTIVES & QUESTIONS

RESEARCH OBJECTIVES

- Evaluate the vehicular and pedestrian behavior patterns in the hospital arrival zone, entrances, and the main concourse of the facility.
- Evaluate the performance of the expanded entrance lobby (Loc A), which offers spaces and features that support a variety of activities.
- Evaluate various positive distractions and the roles in providing “getting away” opportunities for patients, family, and staff members in the hospital.

RESEARCH QUESTIONS

- How do different types of vehicles behave in the hospital arrival zone?
- How do different user groups utilize the concourse space, and what are their behavior patterns? These user groups include ambulatory adults (family/visitors), ambulatory children (patients or visitors), disabled or sick children (patients), and staff members.
- How do people utilize the lobby spaces and seating areas at Loc A and Loc B entrances? What are the differences regarding space usage and human behavior patterns?
- What design features or positive distractions impact different user groups' behavior patterns at Loc A and Loc B entrance lobbies?

DATA COLLECTION PROCESS

TRIP 1

Date	Time frame	Researcher A (SJ)	Researcher B (SC)	Total Hours
09/26/2023 Scanning and Shadowing	9:10AM-10:00AM 10:00AM-10:50AM 11:00AM-11:50AM Noon-12:50PM	4 rounds of concourse scanning, about 25 minutes per round	3 sessions of vehicle tracking, 45 minutes per session	7
09/26/2023 Scanning and Shadowing	1:00PM-1:50PM 2:00PM-2:50PM 3:00PM-3:50PM 4:00PM-4:50PM	4 rounds of concourse scanning, about 25 minutes per round	3 sessions of vehicle tracking, 45 minutes per session	7
09/27/2023 Shadowing	11:00AM-Noon	NA	1 session of vehicle tracking	1
09/28/2023 Scanning and Shadowing	11:00AM-Noon 1:00PM-2:00PM	2 rounds of concourse scanning, about 25 minutes per round	1 session of vehicle tracking	3
Total		8 hours of on-site observation	8 hours of vehicle shadowing	18 hours

TRIP 2

Date	Time frame	Researcher A (SJ)	Researcher C (ZD)	Total Hours
11/15/2023 Scanning and Observation	3:00PM-3:55PM 4:00PM-4:25PM 4:30PM-4:55PM	3 rounds of concourse scanning, about 25 minutes per round	Loc A observation, 10 minutes per session	3
11/16/2023	9:00AM-9:55AM	Positive distractions data collection (photos and locations)		2
11/16/2023 Scanning and Observation	10:00AM-10:25AM 10:30AM-10:55AM 11:00AM-11:25AM 11:30AM-11:55AM 12:30PM-12:55PM	5 rounds of concourse scanning, about 25 minutes per round. Head counting at Loc A-D entrances, 5 minutes per entrance	Loc A observation, 10 minutes interval) and head counting at Loc A-D entrances, 5 minutes per entrance	5
Total		5 hours field work	5 hours field work	10 hours

TRIP 3

Date	Time frame	Researcher A (SJ)	Total Hours
05/16/2024 Observation and Timing	9:05AM-9:25AM 9:30AM-9:50AM 9:55AM-10:15AM 10:25AM-10:45AM 10:50AM-11:10AM 11:45AM-12:05PM 12:18PM-12:38PM 12:45PM-1:05PM 1:10PM-1:30PM 1:50PM-2:10PM 2:45PM-3:05PM	Loc A observation of behaviors and events, 20 minutes each observation interval	6 hours

* A total of 34 hours behavioral data (8 hours for vehicle shadowing and 24 hours pedestrian scanning) were systematically collected.

ON-SITE OBSERVATION: VEHICLE SHADOWING

- Scope (Exterior)
 - Building arrival zone
- Variables:
 - Route segment
 - Node
 - Route selection
 - Vehicle behavior
- Techniques:
 - GIS Cloud on iPad
 - Shadowing and mapping

ON-SITE OBSERVATION: PEDESTRIAN SCANNING

- Scope (Interior)
 - Concourse
 - A-D Entrances
 - Loc A and Loc B Lobbies
- Variables:
 - User group
 - Location
 - Behavior
 - Head counting
 - Event
 - Time factors
- Techniques:
 - Bluebeam-based mapping toolkit
 - Timer+ (App)
 - Counter (App)
 - iPad





Personal vehicles accounted for 91.3% of the total traffic volume in the exterior hospital arrival zone, making them the most common vehicle type. Public transportation comprised approximately 4.8% of the total traffic flow, while ambulances made up 0.6%. Among all personal vehicles, about 48.5% passed through the arrival zone, while approximately 41.4% proceeded to the parking garage, increasing traffic flow in and out of the parking area.

TRAFFIC VOLUME



Ambulance (0.6%)



Public Transportation (4.8%)



All Personal Vehicles (91.3%)



Passthrough (48.5% Personal Vehicles)



Parking (41.4% Personal Vehicles)

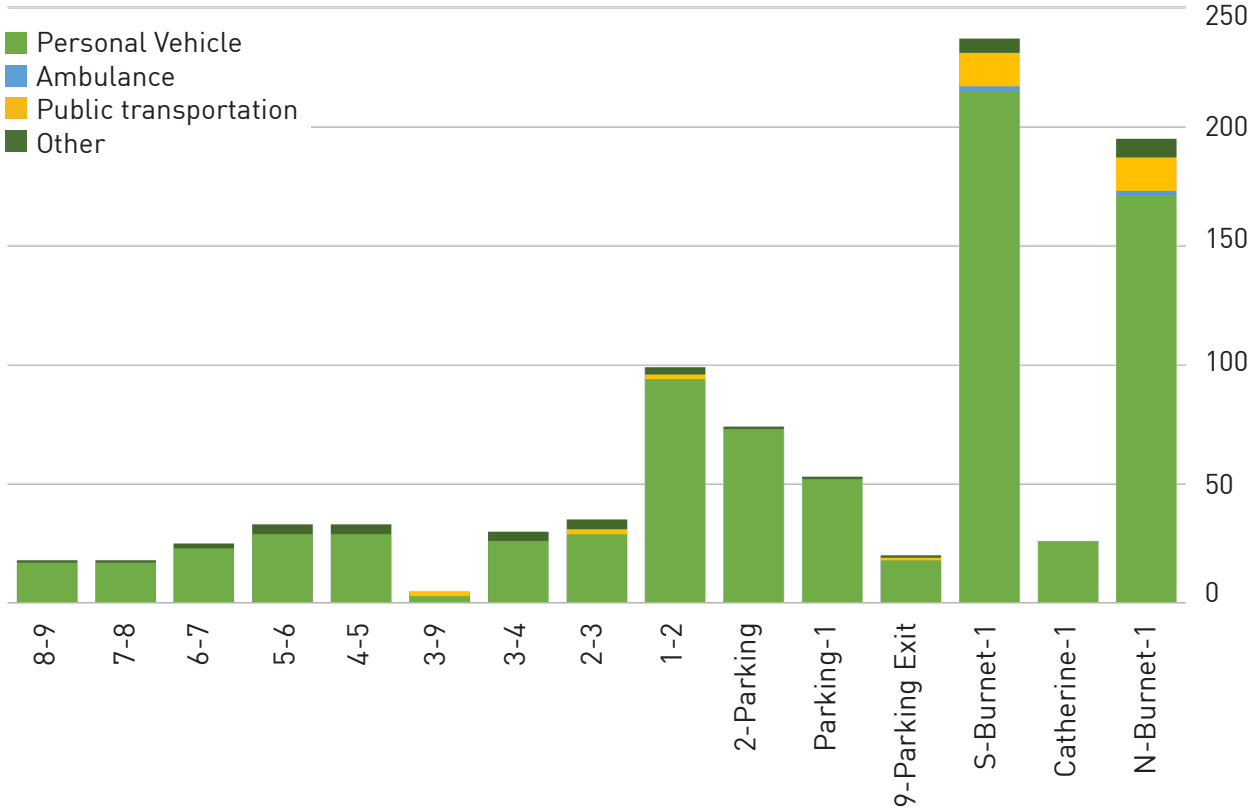


Inpatient Discharge (7.1% Personal Vehicles)

Other vehicles accounted for approximately 3.2% of the total traffic volume; out of all personal vehicles, about 2.9% took routes other than those illustrated.

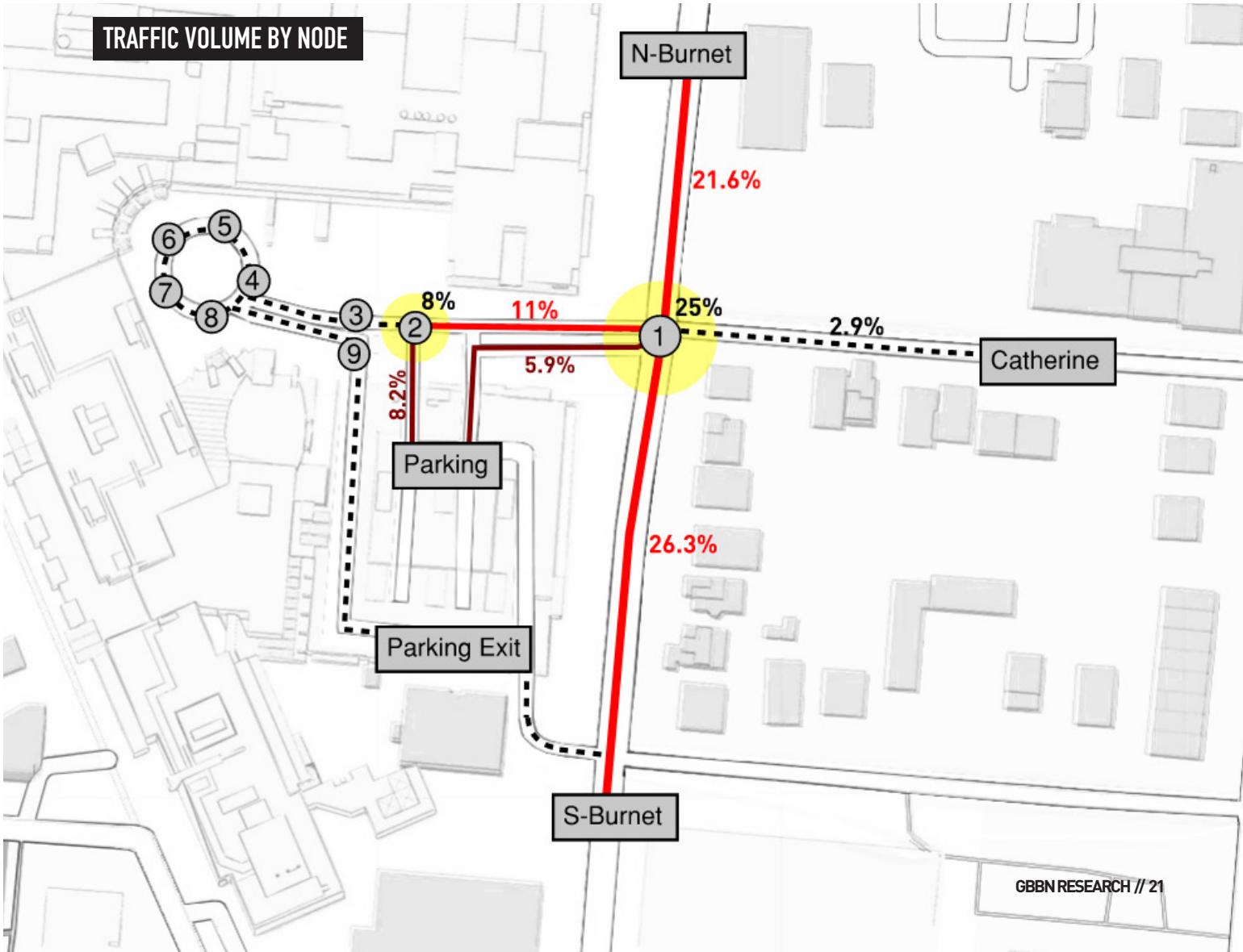
The traffic volume by route segment chart revealed that high traffic volumes occurred near the Burnet Ave entrance and the parking garage. For inbound traffic flow into the arrival zone, 4.7% more vehicles entered from the south side of Burnet Ave than from the north. The least traffic entered the arrival zone from Catherine St (2.9%). Regarding internal traffic flow, route segment 1-2 experienced the highest volume (11%), followed by the in and exit routes between Parking to Node 1.

TRAFFIC VOLUME BY ROUTE SEGMENT



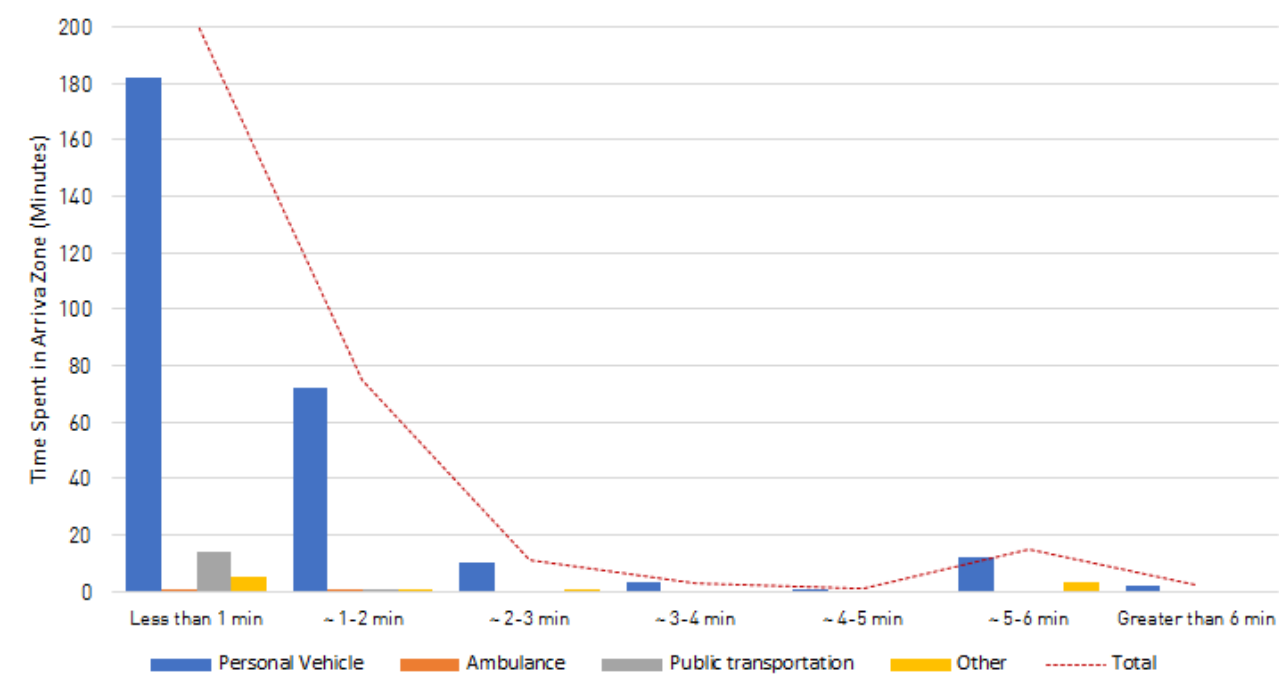
*Every 5th vehicle was shadowed for up to 6 minutes during each observational interval; each observational interval was 45 minutes.

Node 1 (the intersection of Burnet Ave. and Catherine St.) accounted for 25% of the total traffic volume, ranking the highest, followed by Node 2 (the parking lot entry), which experienced 8%. These two intersections serve as critical decision points and should be designed to prioritize smooth transitions, ensuring efficient traffic flow in and out of the parking areas.



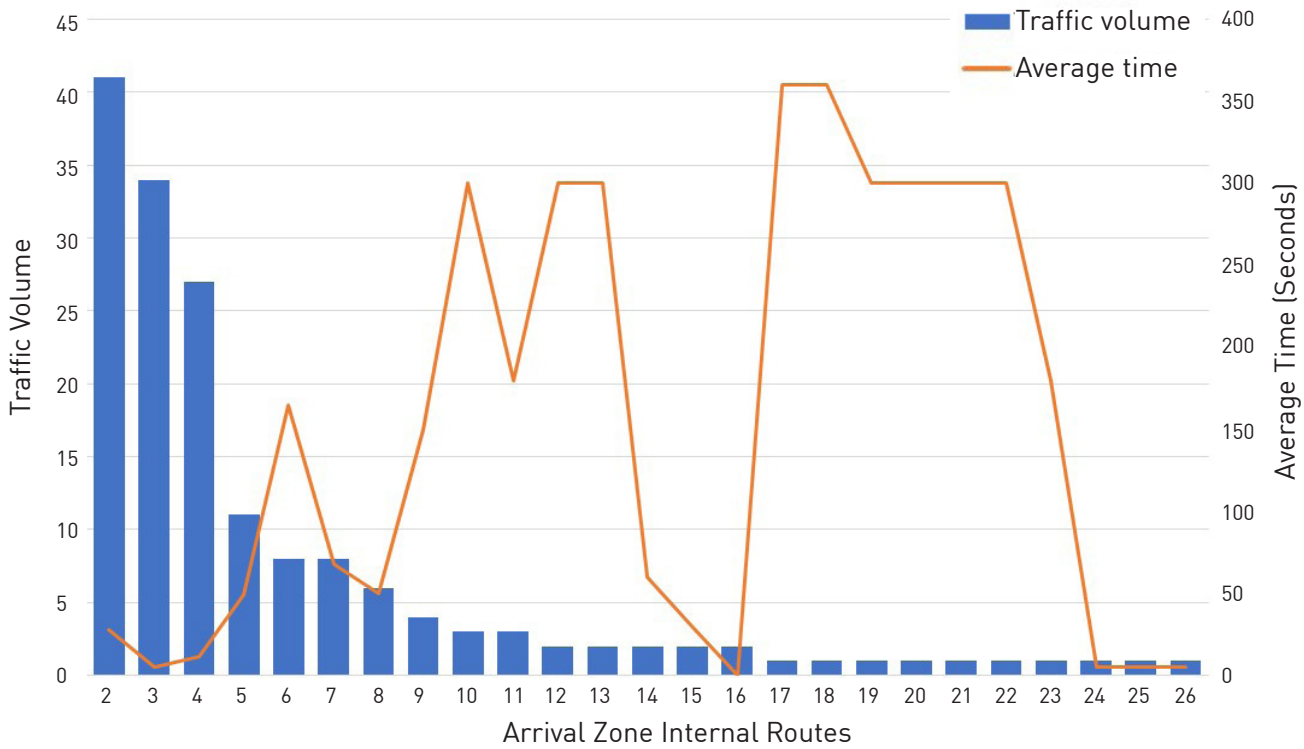
Time data indicates high efficiency in vehicle traffic flow, with 89.7% of all vehicles spending less than 2 minutes in the arrival zone. Specifically, 65.4% of vehicles took less than 1 minute to navigate through the arrival zone. Generally, personal vehicles are the type that spend the most time on site. Only 5.5% of vehicles spend more than 5 minutes in arrival zone. Waiting for patients to be picked up are the primary cause of prolonged stay.

TIME FACTORS BY VEHICLE TYPE

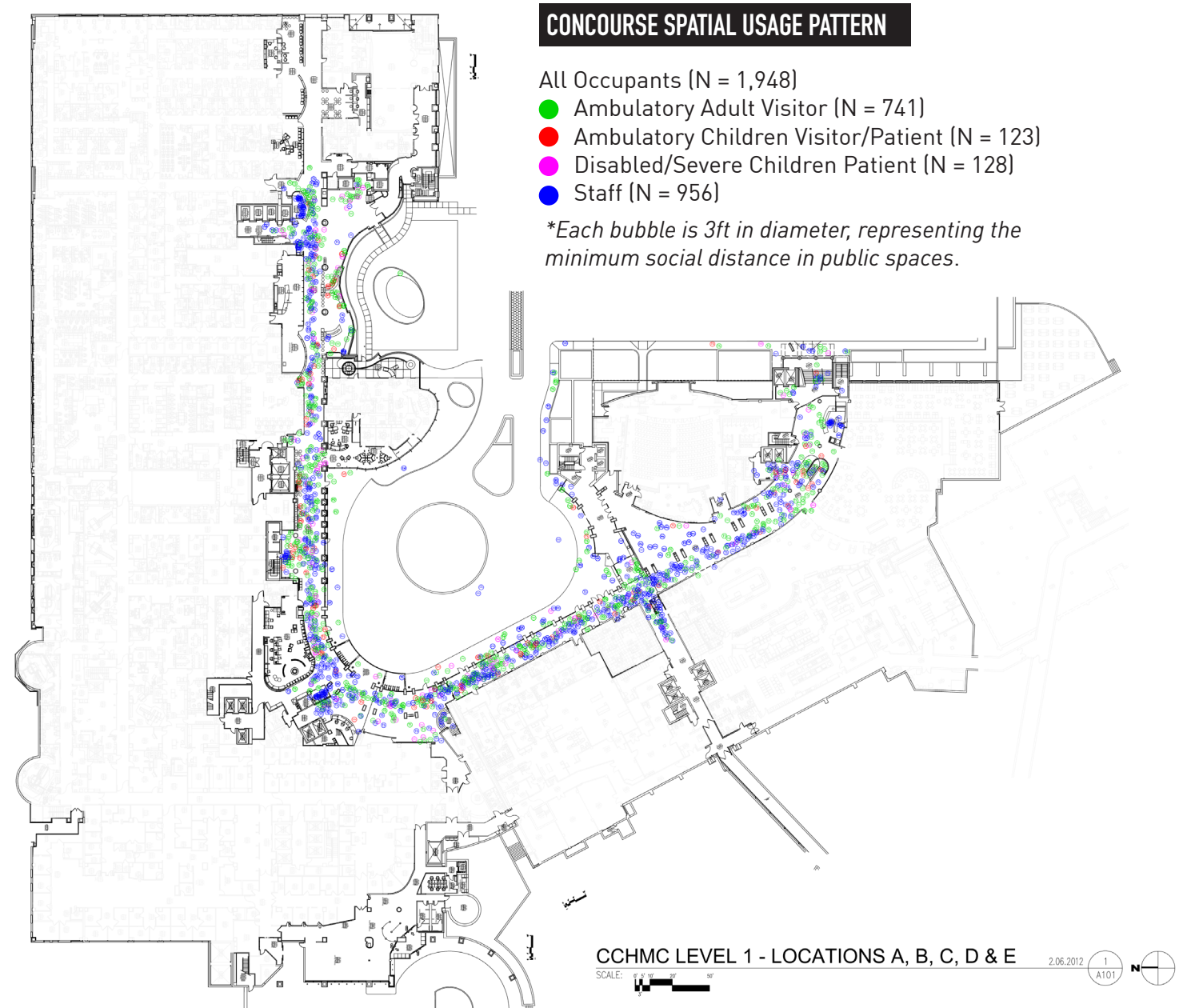


Among all internal routes selected by different vehicles, the average time spent per route ranged from 5 seconds to over 6 minutes. Routes with higher traffic volumes had lower average times, indicating efficient spatial navigation in the vehicle arrival zone.

TIME FACTORS BY ROUTE



PEDESTRIAN FLOW & BEHAVIORS



CONCOURSE TRAFFIC USER RATIO



Staff
Member



Adult
Visitor

1.3 : 1

Staff members were the top-ranked users of the concourse, about 1.3 times the number of adult visitors who utilized the concourse space.



Adult
Visitor



Children
Visitor

3 : 1

Ambulatory adult visitors are frequent users of the concourse space, about 3 times of total children visitors.



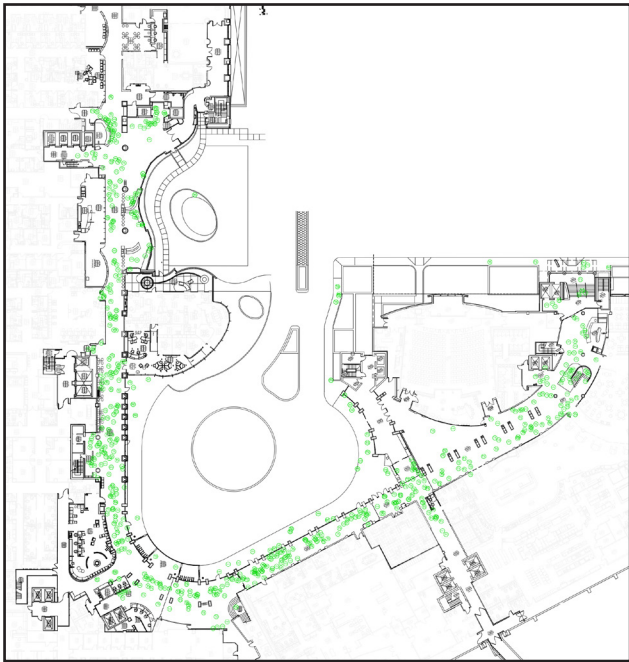
Ambulatory
Children



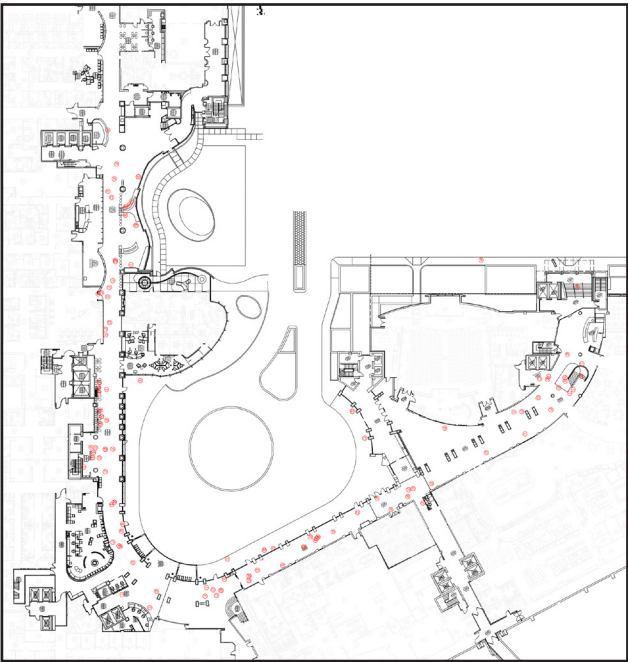
Disabled
Children

1 : 1

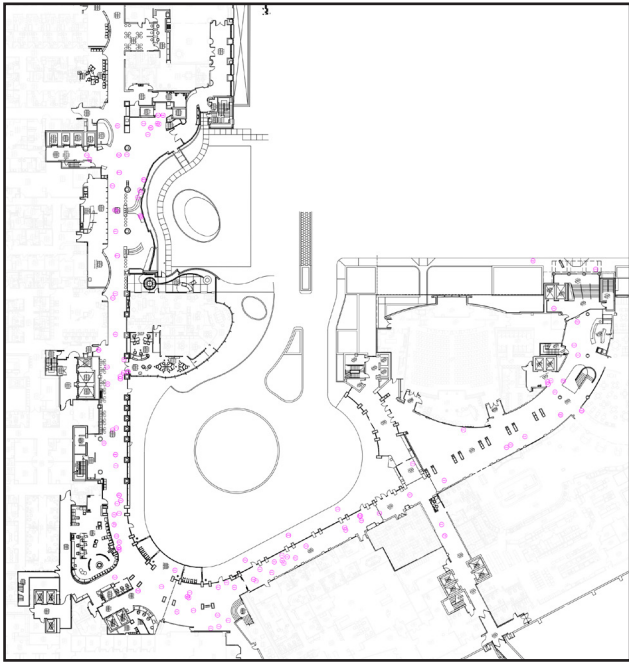
The proportion of disabled children to ambulatory children in the concourse is approximately equal.



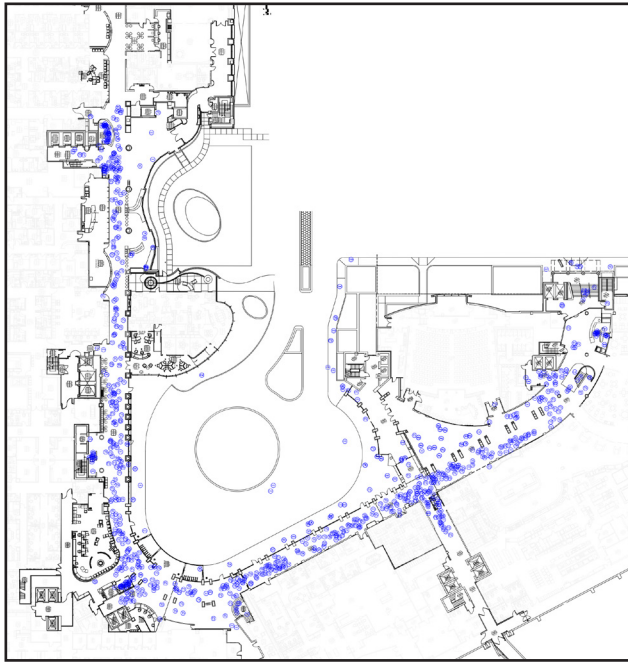
Ambulatory Adult (N = 741)



Ambulatory Children (N = 123)



Disabled Children (N = 128)



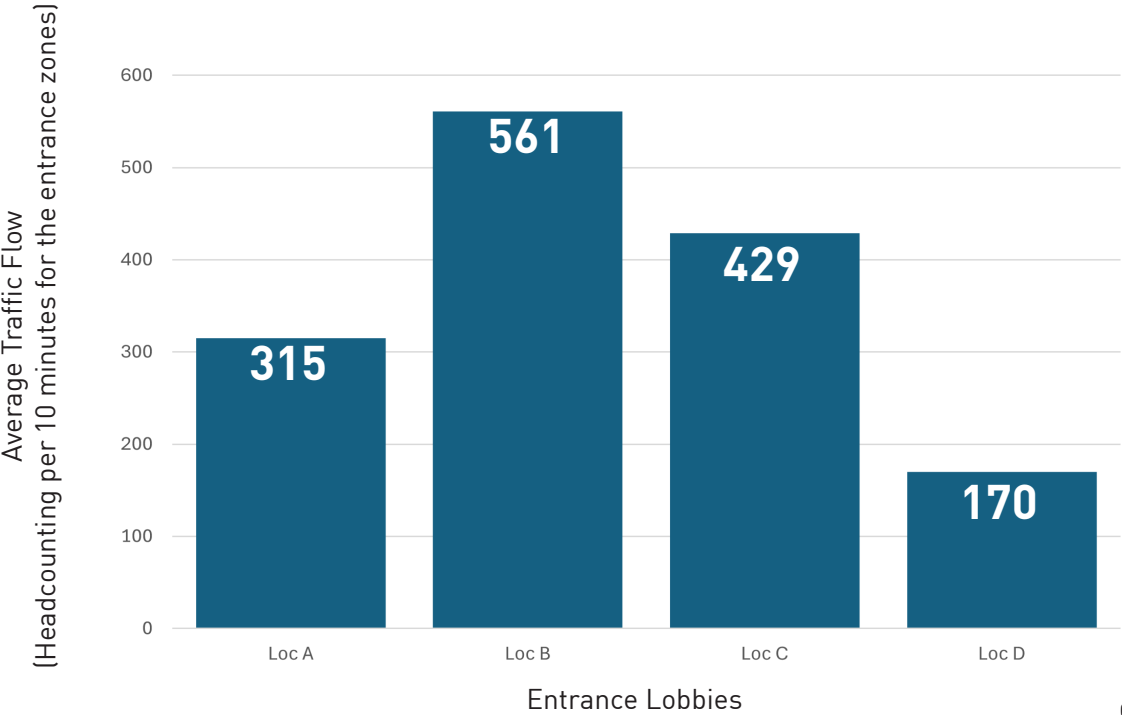
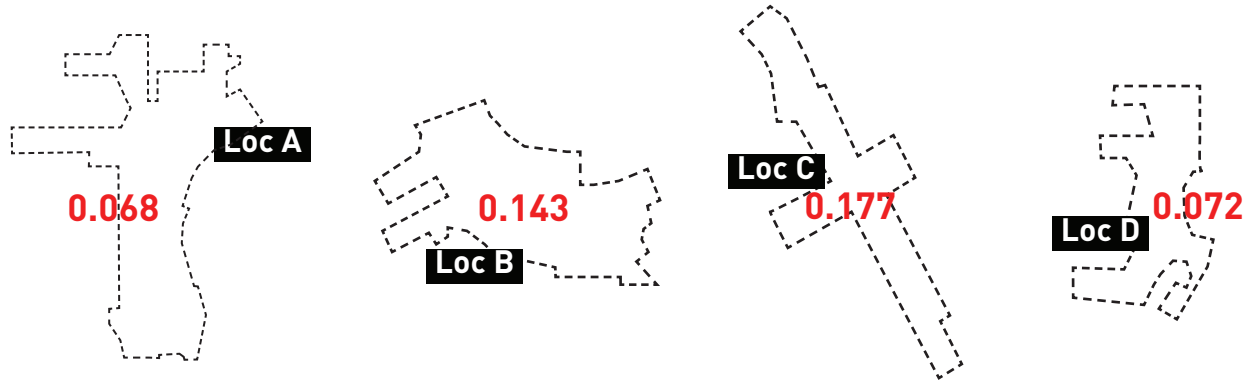
Staff (N = 956)

CONCOURSE TRAFFIC HEATMAP DATA POINTS



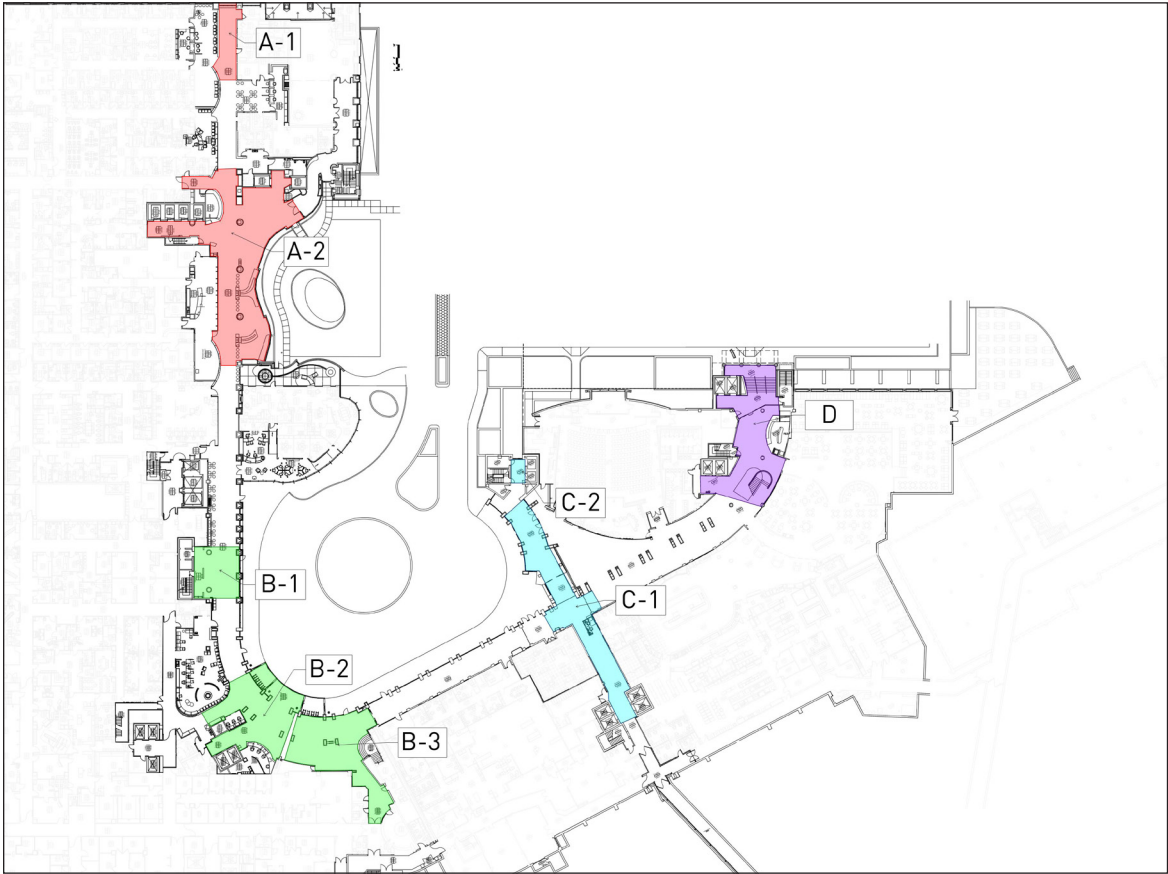
Concourse Traffic Heatmap

The Loc C entrance has the highest sense of crowdedness factor (0.177), while the Loc A entrance lobby has the lowest (0.068). To define the sense of crowdedness, we used the formula: Conceptual Density = (Average Traffic Flow within an Area) / (Area in Square Feet).



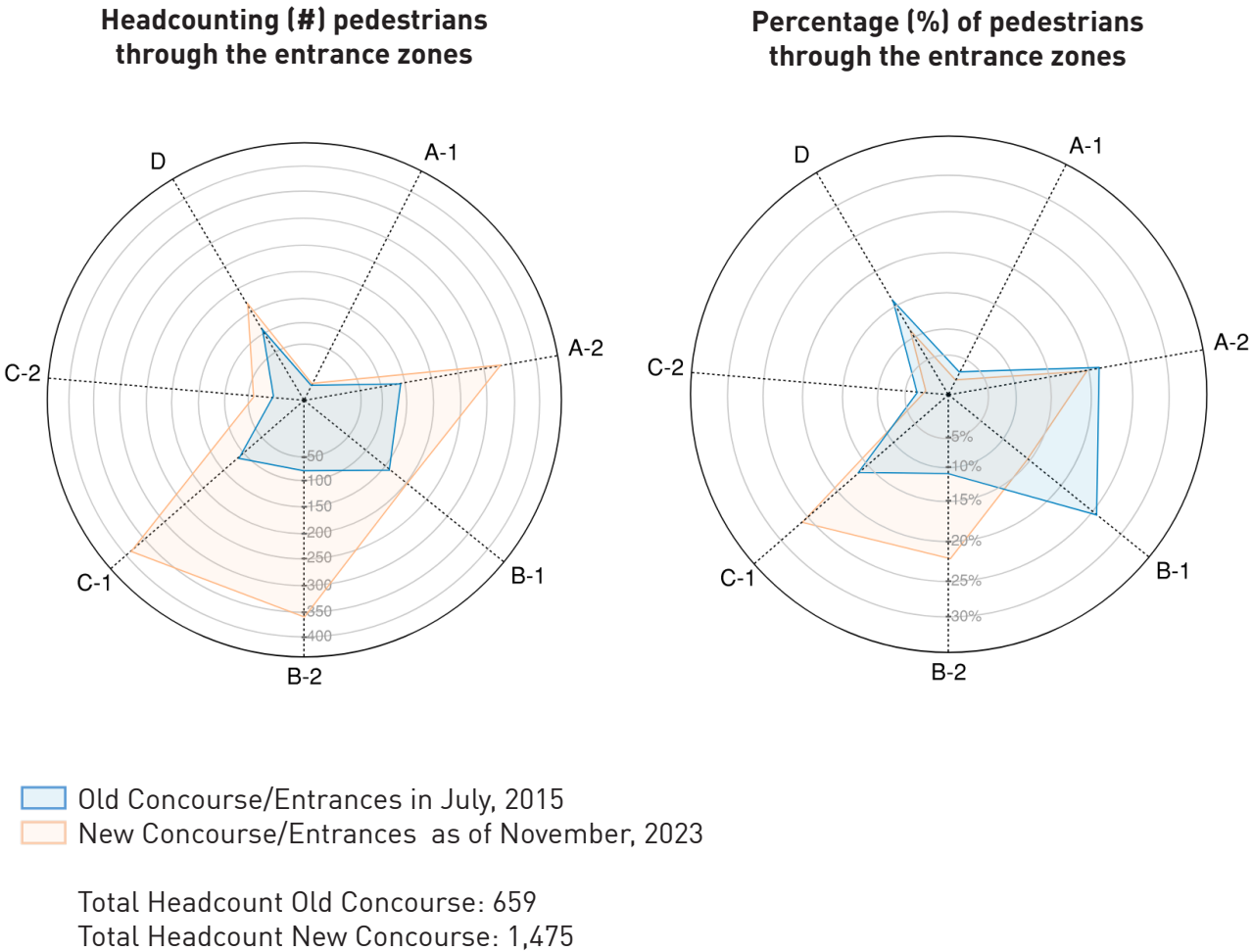
Compared to the old entrances, the percentage of visitors through the entrance zones A-2, B-2, and C-1 increased significantly. The expanded Loc A Entrance can host twice as many visitors as the old entrance during peak hours.

ENTRANCE TRAFFIC HEADCOUNTS



**Pre-occupancy headcount data focused on the elevator cores, staff stairs, and information desks; the POE data observed traffic flow within the defined entrance zones on the concourse.*

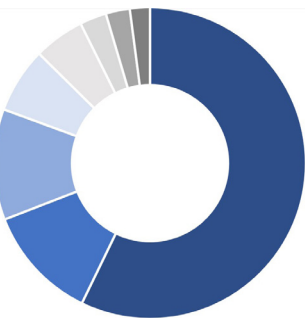
Overall pedestrian traffic flow increased by a factor of 2.24 from July 2015 to November 2023.



**Data were averaged for 10-minute intervals during weekday peak hours (11am-2pm)*

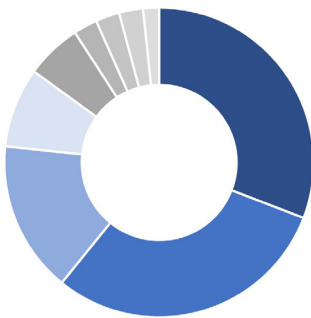
95% TOPMOST BEHAVIORS AT CONCOURSE

AMBULATORY ADULT



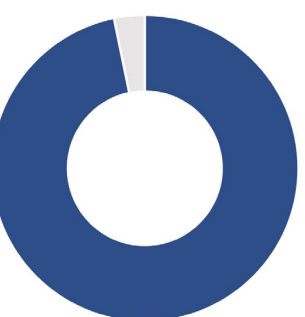
■ TS ■ SD ■ EST ■ SIT ■ TK ■ HOLD ■ PD ■ Cal

AMBULATORY CHILDREN



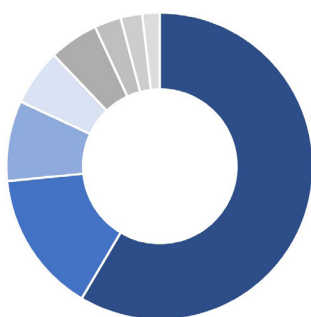
■ TS ■ Run ■ SIT ■ SD ■ PD ■ EST ■ OTH ■ PLY ■ RD

DISABLED CHILDREN



■ WHEL ■ TS

STAFF

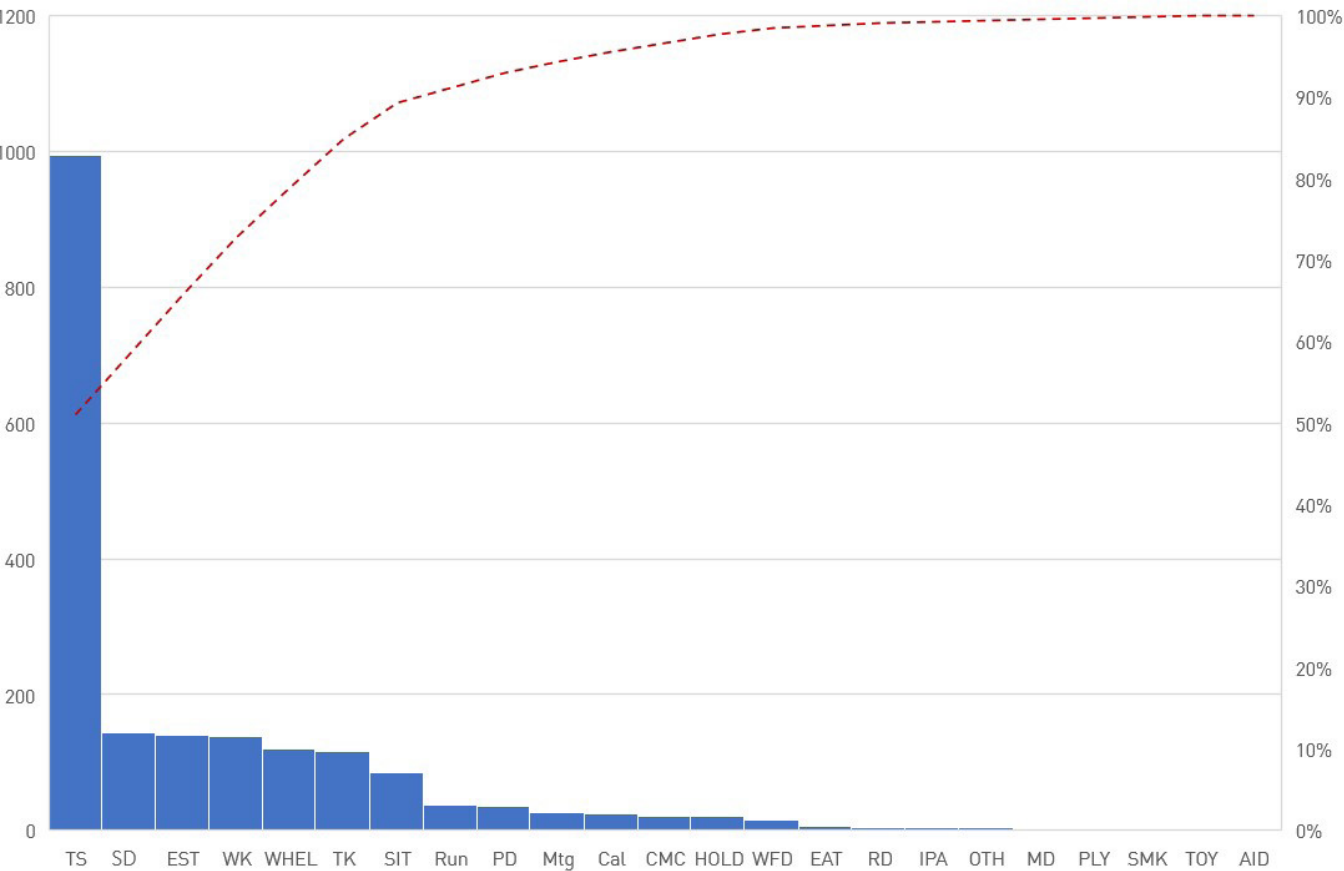


■ TS ■ WK ■ TK ■ EST ■ SD ■ Mtg ■ CMC ■ SIT

95% Topmost Behaviors by User Group (Concourse)

BEHAVIOR	COUNT	%
Transit (TS)	994	51.0
Stand (SD)	144	7.4
Escort (EST)	141	7.2
Staff at work (WK)	138	7.1
In wheelchair (WHEL)	120	6.2
Talk (TK)	117	6.0
Sit (SIT)	85	4.4
Run (Run)	37	1.9
Use digital device (PD)	35	1.8
Group meeting (Mtg)	26	1.3
Phone call (Cal)	24	1.2
Clean/Maintenance (CMC)	21	1.1
Hold a baby (HOLD)	20	1.0
Wayfinding (WFD)	15	0.8
Eat or have a meal (EAT)	7	0.4
Read hardcopies (RD)	5	0.3
Interaction with physical features (IPA)	4	0.2
Other activities (OTH)	4	0.2
Providing medical care (MD)	3	0.2
Play (PLY)	3	0.2
Smoke (SMK)	2	0.1
Play with own toy (TOY)	2	0.1
Use a walking aid (AID)	1	0.1
TOTAL	1,948	100

A wide range of behaviors occur within the concourse of the hospital building. Approximately 51% of behaviors were related to movement and transition, while 7.4% of occupants were standing, and 4.4% were sitting in the concourse. Around 7.2% of occupants required escorting, and 6.2% needed a wheelchair or stretcher during transitions. Conversations and socialization accounted for 6%, including in-person meetings (1.3%) and phone calls (1.2%). Additionally, about 1.9% of occupants were observed running in the concourse, with most of these behaviors being intuitive play activities by young children.





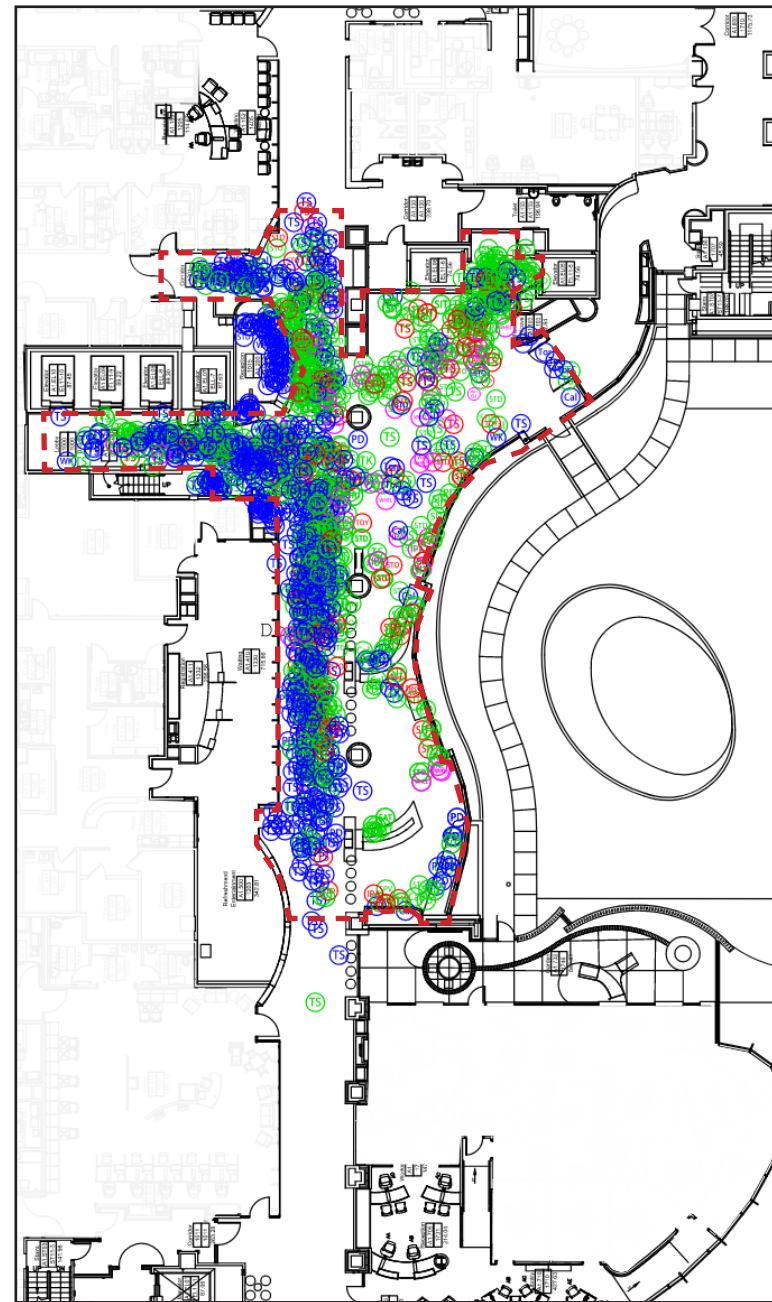
LOC A ENTRANCE LOBBY USAGE PATTERN

Occupant Profiles

All Occupants (N = 1,523)

- Ambulatory Adult Visitor (N = 715)
- Ambulatory Children Visitor/Patient (N = 68)
- Disabled/Severe Children Patient (N = 70)
- Staff (N = 670)
- Data collection boundary

**Each bubble is 3ft in diameter, representing the minimum social distance in public spaces.*



Loc A Expanded Entrance

LOC A ENTRANCE LOBBY USER RATIO



Staff
Member



Adult
Visitor

1 : 1

Staff members frequently use the corridor space for intra-hospital transitions, and their numbers are about the same as those of adult visitors.



Adult
Visitor



Children
Visitor

5 : 1

Ambulatory adult visitors are the primary users of the space, about 5 times of all children visitors.



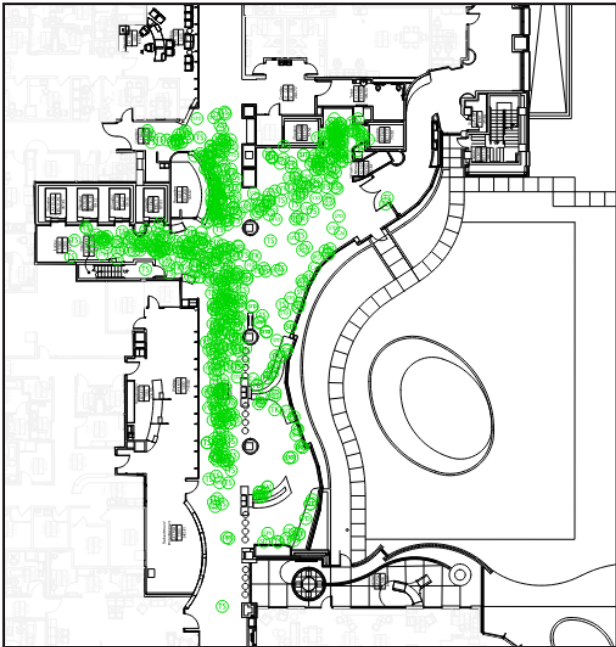
Ambulatory
Children



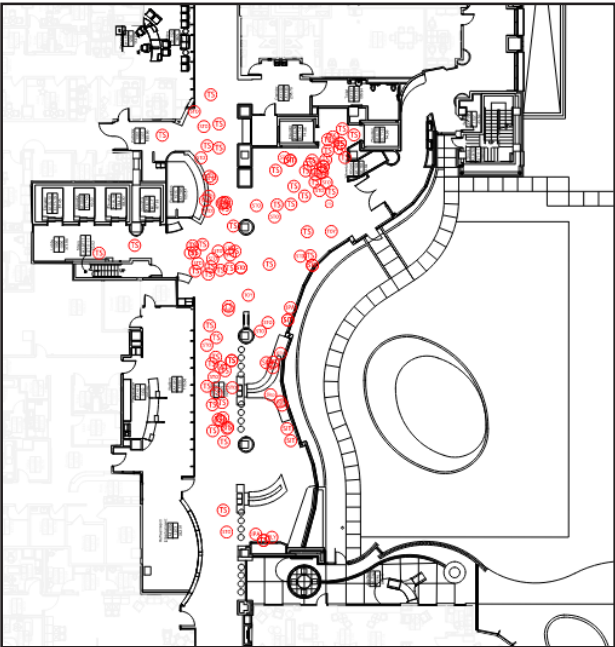
Disabled
Children

1 : 1

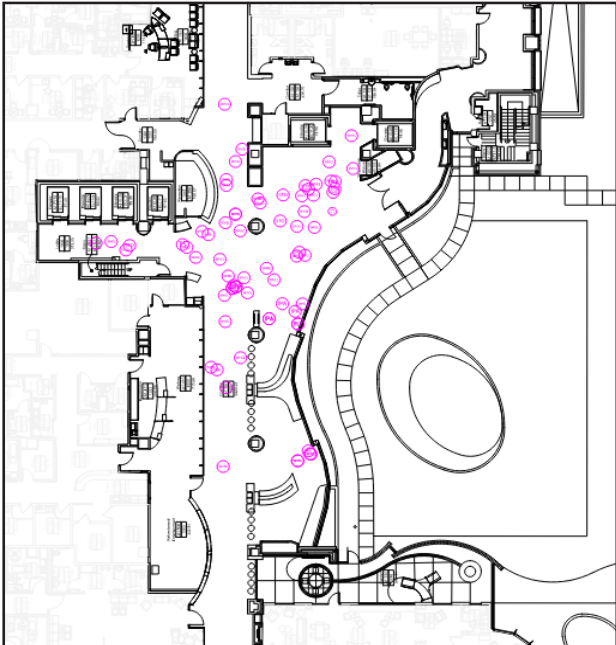
The ratio between disabled children and ambulatory children in the Loc A entrance lobby is about 1:1.



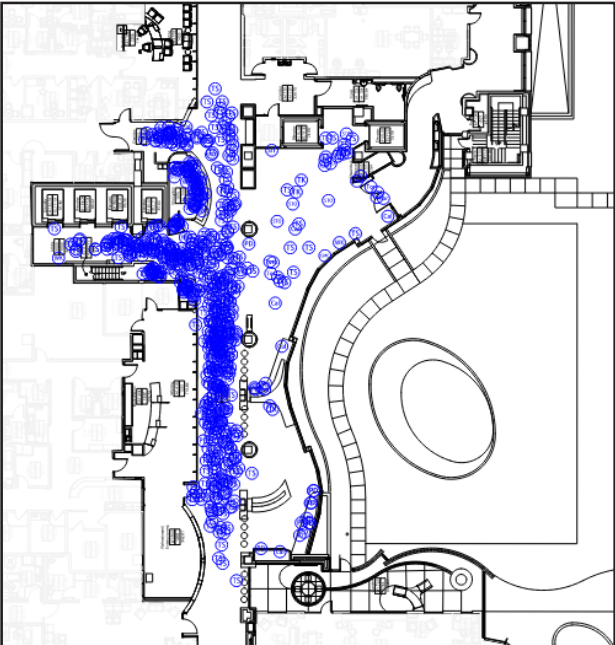
Ambulatory Adult (N = 715)



Ambulatory Children (N = 68)



Disabled Children (N = 70)

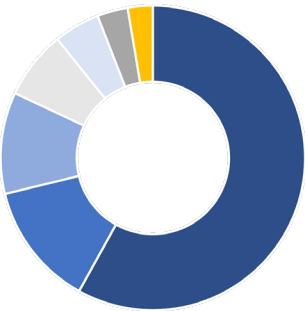


Staff (N = 670)

Total Occupants (N=1,523)

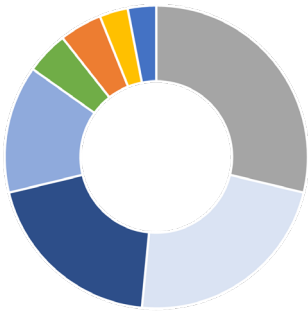
95% TOPMOST BEHAVIORS AT LOC A ENTRANCE

AMBULATORY ADULT



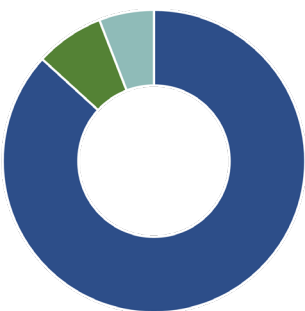
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AMBULATORY CHILDREN



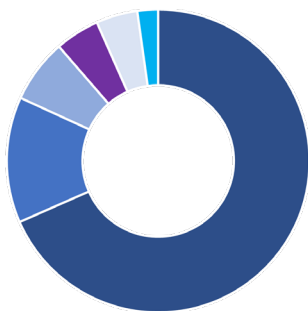
■ EST ■ SD ■ TS ■ SIT ■ Slep ■ TOY ■ IPA ■ Run

DISABLED CHILDREN



■ WHEL ■ EST ■ IPA

STAFF

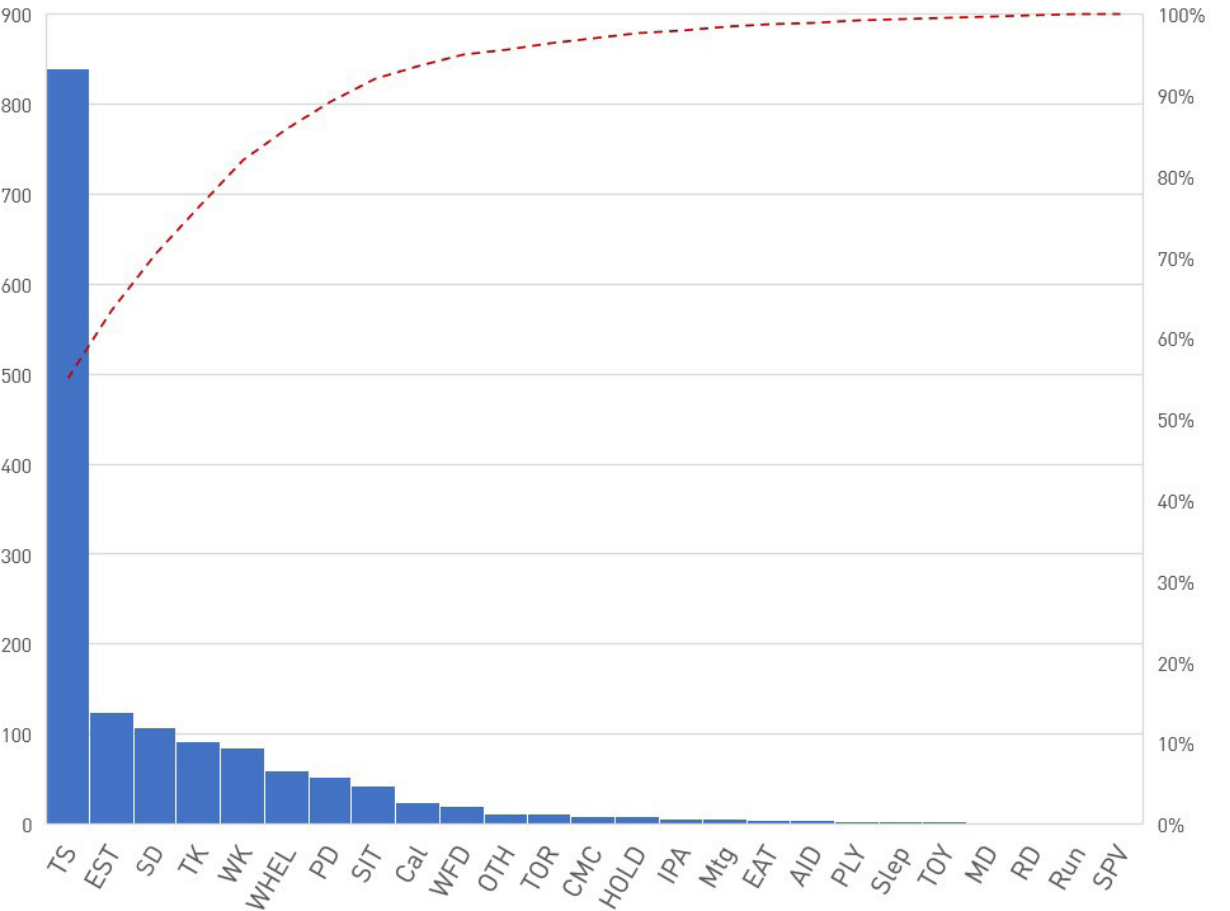


■ TS ■ WK ■ TK ■ PD ■ EST ■ Cal

95% Topmost Behaviors by User Group (Loc A)

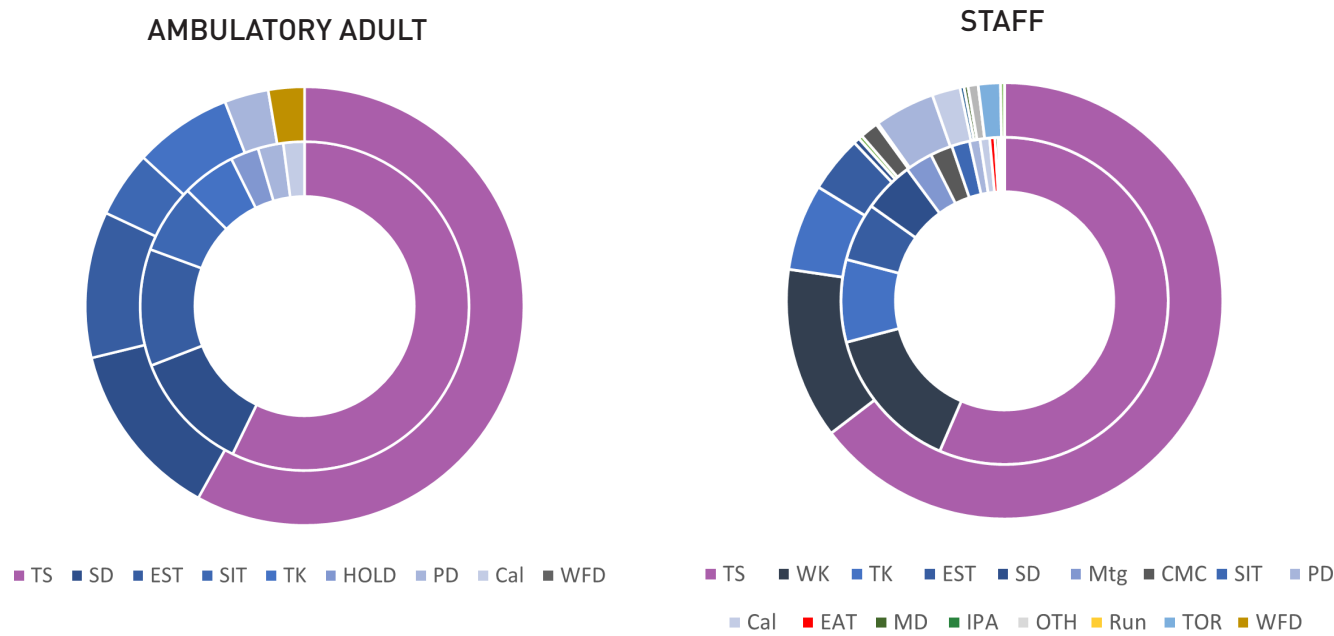
BEHAVIOR	COUNT	%
Transit (TS)	839	55.1
Escort (EST)	125	8.2
Stand (SD)	107	7.0
Talk (TK)	92	6.0
Staff at work (WK)	85	5.6
In wheelchair (WHEL)	59	3.9
Use digital device (PD)	52	3.4
Sit (SIT)	43	2.8
Phone call (Cal)	24	1.6
Wayfinding (WFD)	20	1.3
Other activities (OTH)	11	0.7
Have a tour (TOR)	11	0.7
Clean/Maintenance (CMC)	9	0.6
Hold a baby (HOLD)	9	0.6
Interaction with physical features (IPA)	6	0.4
Group meeting (Mtg)	6	0.4
Eat or have a meal (EAT)	5	0.3
Use a walking aid (AID)	4	0.3
Play (PLY)	3	0.2
Sleep (slep)	3	0.2
Play with own toy (TOY)	3	0.1
Providing medical care (MD)	2	0.1
Read hardcopies (RD)	2	0.1
Run (Run)	2	0.1
Parent watch kids (SPV)	1	0.1
TOTAL	1,523	100

A wide range of behaviors happen within the Loc A Entrance. About 55% of behaviors were related to movement and transition; approximately 8.2% of occupants needed to be escorted by others. Conversations and socialization (6%) happened within the Loc A Entrance. Digital device usage at Loc A Entrance was much higher than in the concourse in general. Staff were found using Loc A Entrance as a quiet place for work, which took up about 5.6% of all activities.



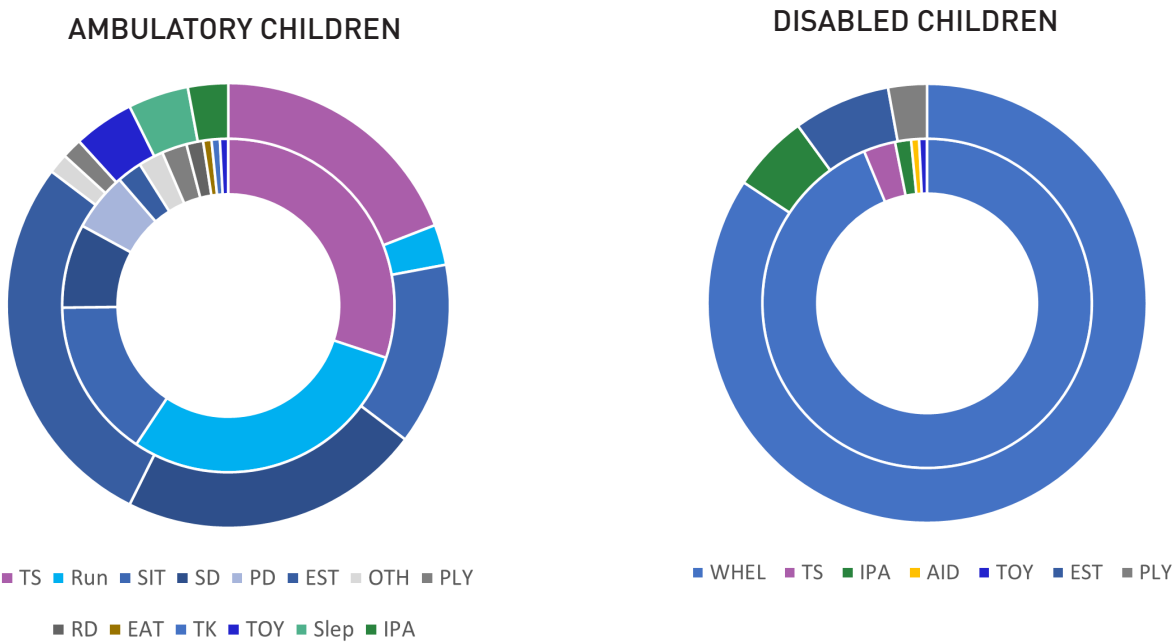
The following charts illustrate top 95% behaviors happened in the concourse and Loc A entrance lobby. The concourse is primarily used for circulation and movement of ambulatory adults and staff members.

CONCOURSE VS LOC A BEHAVIOR COMPARISON (Top 95% Behaviors)



NOTE: The outer ring data represents Location A entrance lobby. The inner ring data represents Concourse data.

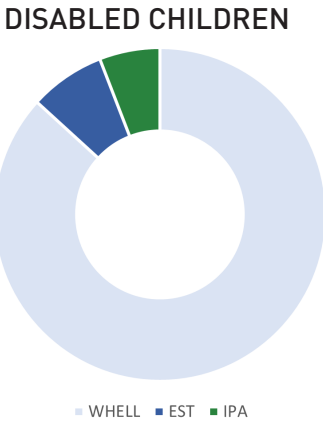
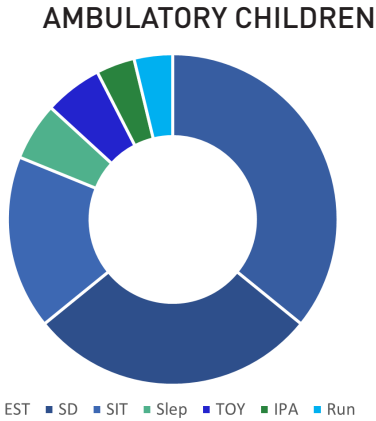
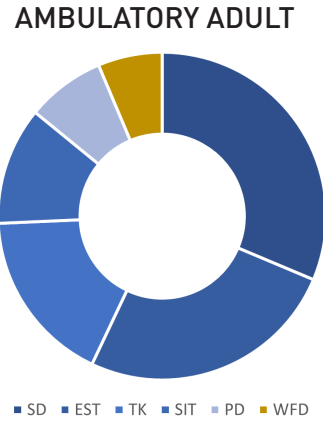
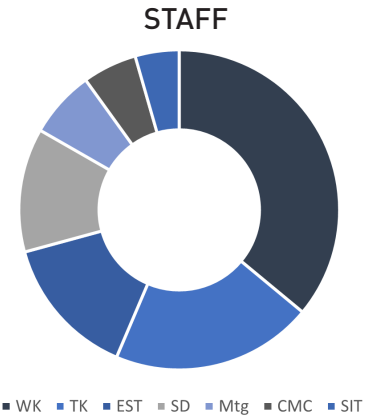
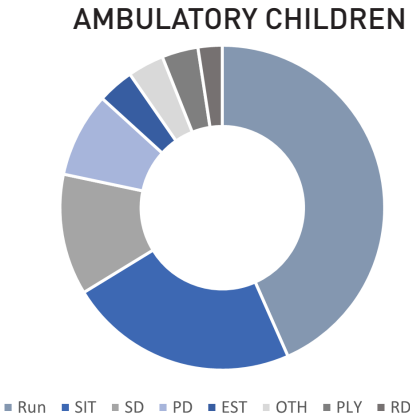
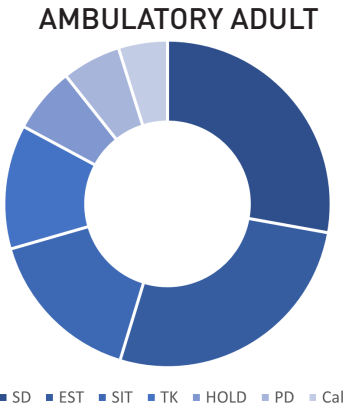
Children exhibited a wide range of behaviors within Loc A entrance lobby. The Loc A entrance positively distracts young children, including reduced running, increased play behaviors, and increased interactions with physical features among disabled children. Loc A entrance lobby is also used as a respite space for staff members to work, take a break, or have a phone call.



NOTE: The outer ring data represents Location A entrance lobby. The inner ring data represents Concourse data.

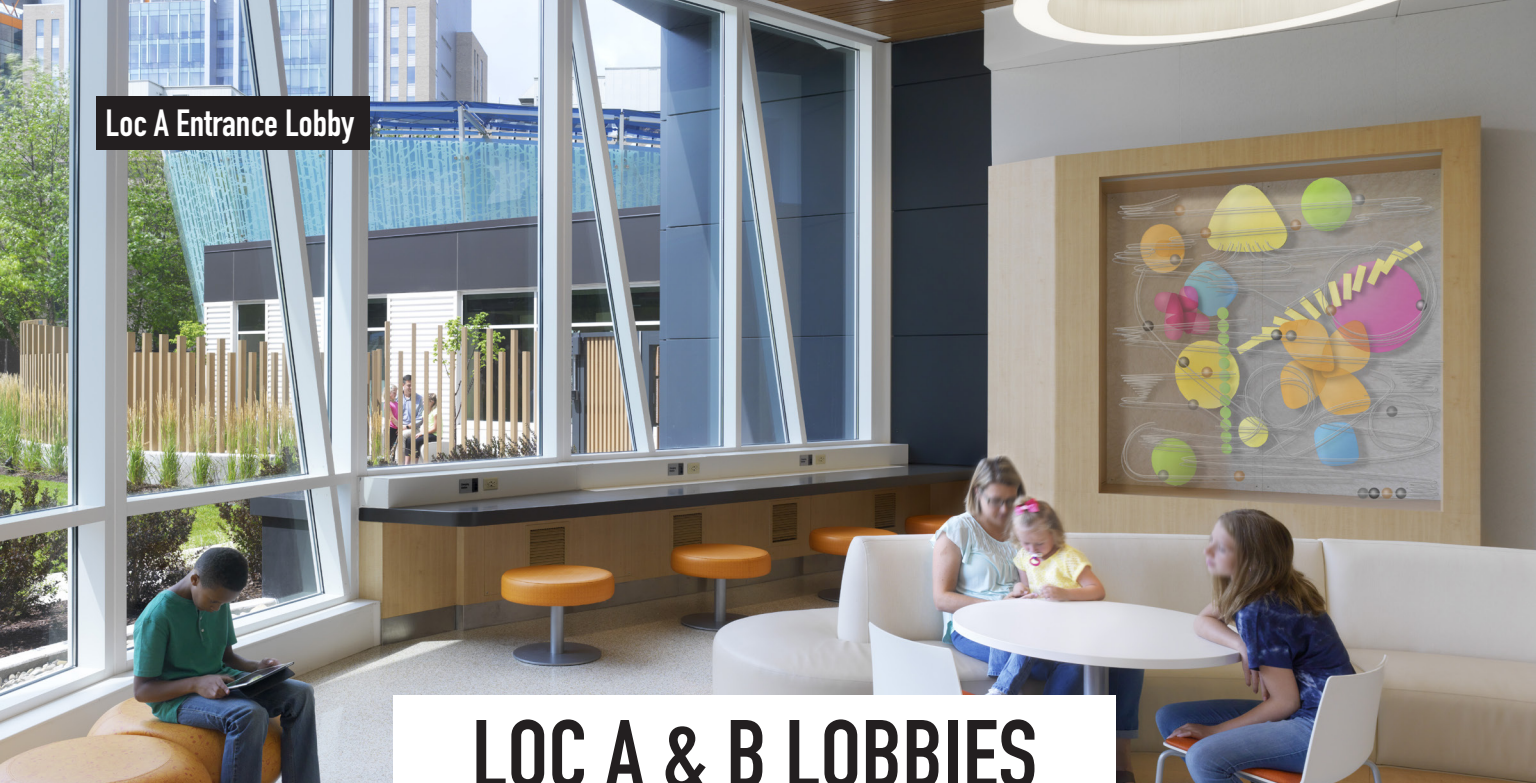
CONCOURSE VS LOC A BEHAVIOR COMPARISON (Top 95% Behaviors Excluding Transition)

CONCOURS BEHAVIORS



LOC A ENTRANCE BEHAVIORS

Loc A Entrance Lobby



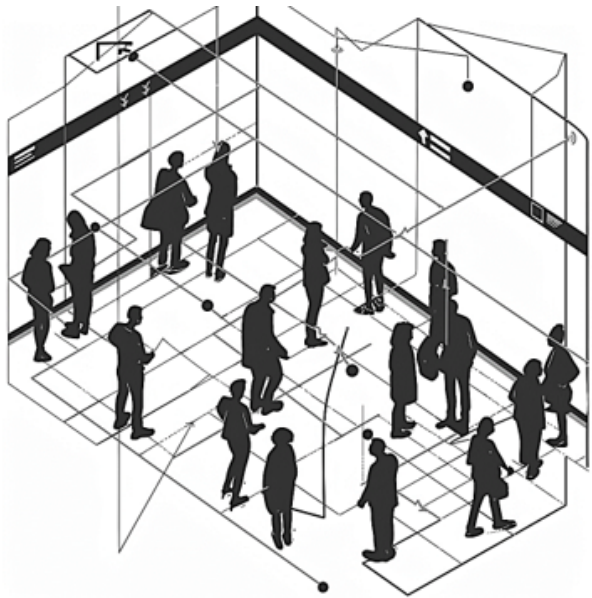
LOC A & B LOBBIES BEHAVIORS

Loc B Elevator Lobby



EVENTS

An event is defined as a single person or a group of people staying in the space for longer than 10 seconds and exhibiting behaviors other than merely transiting.



Variables	Loc A	Loc B
Observation interval (20 min each)	7	5
Total number of events	54	26
Average number of events	8	5
Total number of people	104	55
Average number of people per interval	15	11
Average number of people per event	2	2

- A total of 80 events, involving 159 people were tracked and compared between Loc A and Loc B entrance lobbies.
- Random selection (Loc A or B) for behavior observation; 12 observational interviews within 6 hours in a day.
- The total duration of the event was timed during each observation interval (20 min.).

LOC A VS B EVENTS COMPARISON

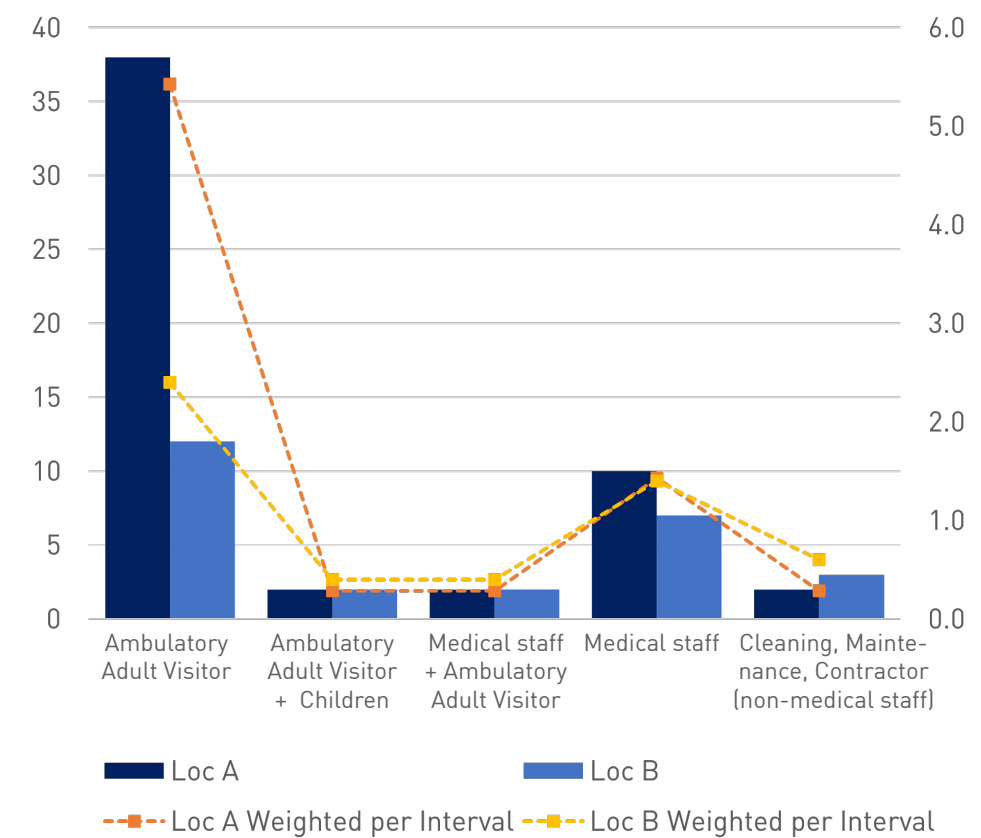
Average Headcount per Observation Interval*	Loc A	Loc B
Total number of people	15	11
Total number of adults	11	9
Total number of children	4	3
Adult-child ratio	2.8	3

Average Group/Solitary Event Count per Observation Interval*	Loc A	Loc B
Total number of group events	5	3.2
Total number of solitary events	2.6	2.2
Group-solitary ratio	1.9	1.5

Total Headcount by User Profile (Average per Observation Interval*)	Loc A	Loc B
Adult visitors only	38 (5.4)	12 (2.4)
Adult visitors + children	2 (0.3)	2 (0.4)
Medical staff + adult visitors	2 (0.3)	2 (0.4)
Medical staff only	10 (1.4)	7 (1.4)
Non-medical staff	2 (0.3)	3 (0.6)

*Each observation interval was 20 minutes.

Generally, more users use Loc A entrance lobby for behaviors/activities other than movement and transition. While the rate of children visitors are comparable, there were more group events happened at Loc A entrance lobby than Loc B.

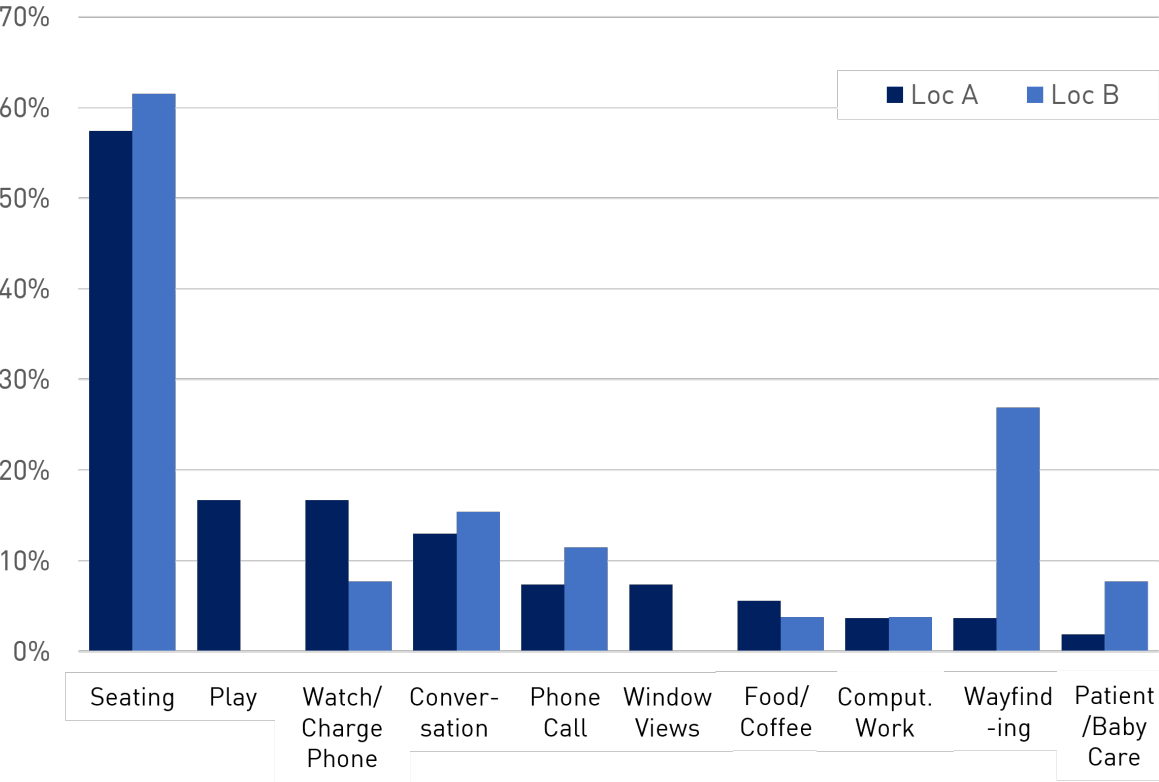


DOMINANT BEHAVIORS IN EVENTS

- Users used Loc A and B entrance lobbies primarily for sitting, rest, and conversations.
- Children were found to be more relaxed and playful in the Loc A lobby due to the child-friendly design features.
- Window views to the outdoor greenery at Loc A lobby were a positive distraction.
- The technology support at the seating areas increased usage occupancy.
- More wayfinding behaviors happened at the Loc B entrance than at Loc A.
- The benches near the elevators at the Loc B entrance provided convenient spaces for quick patient/baby care activities.

Dominant Behavior in Event	Loc A	Loc B
Seating	57.4%	61.5%
In person conversation	13.0%	15.4%
Children play	16.7%	0%
Phone call	7.4%	11.5%
Work on computer	3.7%	3.8%
Watch/Charge phone	16.7%	7.7%
Wayfinding	3.7%	26.9%
Window views	7.4%	0%
Patient/Baby care	1.9%	7.7%
Food/Coffee	5.6%	3.8%

Seating opportunities serve as the primary positive distractions in both the Loc A entrance lobby and the Loc B elevator lobby. Play, nature viewing, and phone charging occurred more frequently in the Loc A entrance lobby, while wayfinding, staff conversations, and rapid baby care were more common in the Loc B elevator lobby.



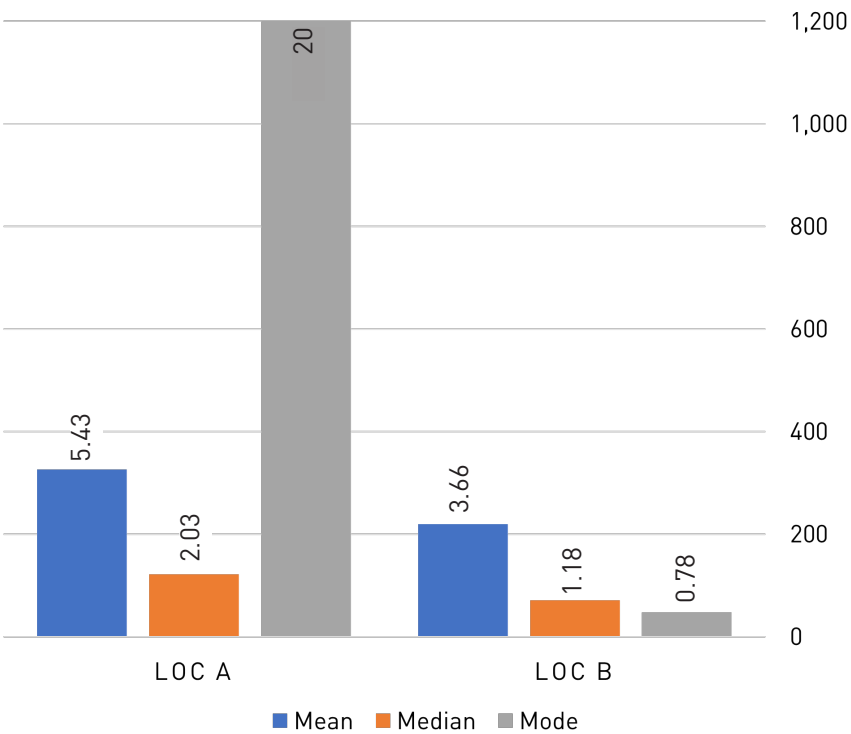
Users spend significantly more time engaging in events and non-transit behaviors in the Loc A entrance lobby compared to the Loc B elevator lobby.

LOC A VS LOC B EVENT TIME FACTORS



A Mann-Whitney U test was performed to evaluate whether the rank of time duration of the events differed by locations (i.e., Loc A vs Loc B Entrance Lobbies). The results indicated that there was marginally significant difference between the event time duration of Loc A and Loc B, $U=535$, $Z= -1.715$, $p= .086$ (significant at .1 level).

NOTE: Kolar Design was the lead designer for the play features and information boards.



Event Time Duration	Loc A	Loc B
Mode	20	0.78
Mean	5.43	3.66
Median	2.03	1.18
Range (Max, Min)	19.83 (20, 0.17)	15.63 (15.8, 0.17)

*Each observation interval was 20 minutes, therefore, the maximum time for each observed event was 20 minutes; Time unit: minute.

KEY TAKEAWAYS

The research findings indicate that vehicles have a smooth navigational experience in the hospital arrival zone: 89.7% of vehicles spend less than 2 minutes parking or moving through the arrival zone. The in/out entrances of the parking garage along the primary entrance path experience higher traffic volumes, indicating the intersections near the parking lot as a key decision-making node.

The main concourse is a busy circulation zone for staff, patients, and visitors. The renovated Loc A entrance lobby accommodated twice the previous pedestrian flow, reducing the sense of crowdedness. Particularly, the Location A entrance provides “getting away” opportunities for staff respite and patient relaxation.

At the Loc A entrance lobby, adult visitors and staff members generally spend longer time for calming activities, and children were found to be more relaxed and playful. The playful features, designed in collaboration with Kolar Design, serve as effective positive distractions and spatial anchors for young patients.

KEY REFERENCES

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[4] Stokols, D., Novaco, R. W., Stokols, J., & Campbell, J. (1978). Traffic congestion, type A behavior, and stress. Journal of Applied Psychology, 63(4), 4.

[5] Jiang, S. (2020). Positive distractions and play in the public spaces of pediatric healthcare environments: A literature review. Health Environments Research & Design Journal, 13 (3), 171–197. 67.

