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Badge Office Process Analysis



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May 4, 2016

Cover Illustration:

Front Cover –Photograph of LANL Otowi Building Entrance

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TABLE OF CONTENTS

I. INTRODUCTION.....	1
II. BACKGROUND.....	1
A. Badge Office Structure	1
B. Types of Customers	3
C. Staffing.....	4
III. PROCESS DESCRIPTIONS	4
IV. SIMULATION MODEL DESCRIPTION (HIGH LEVEL)	11
V. MODEL ASSUMPTIONS.....	14
VI. SIMULATION RESULTS AND ANALYSIS.....	17
VII. ANALYSIS AND RECOMMENDATIONS	22
VIII. APPENDIX	24

LIST OF FIGURES

1. Current Layout of the Badge Office	2
2. High Level Process Flow Diagram of Badge Office Processes	5
3. Top Level ExtendSim® Model Image	12
4. Reception Desk Process ExtendSim® Blocks	13
5. ExtendSim® Database Tables	13
6. ExtendSim® Output Plots and Statistics.....	14
7. Customer Input and Station/Staff Availability Table used in the Model.....	16

LIST OF TABLES

1. Common Customer Types (or services rendered) at the Badge Office	11
2. Simulation Scenario and Results Summary	21

I. INTRODUCTION

All individuals beginning work at Los Alamos National Laboratory (LANL) experience their initial contact with the institution through the Badge Office. Visitors to the lab are also required to first visit the office in order to obtain appropriate credentials for entry to LANL property. Located inside the Otowi Building at TA-3, the Badge Office serves as a central location for a variety of badging needs. Along with important introductory functions, the office also provides services including, but not limited to: storing badges when a badge holder will not be on-site for an extended period of time, destroying returned badges when they are no longer required or valid, recording the status and related details of every issued badge, developing and coordinating requirements relating to badging activities, and issuing temporary and replacement badges. The Personnel Security group (SEC-PS) counts the Badge Office among its operations, and is focused on maintaining both an efficient service to customers and a process that protects security at LANL.

The Badge Office is an area that sees high demand at LANL, which often leads to periods of pronounced congestion with long lines and wait-times for customers. A number of factors that may impact these wait times are workflow logic and processing constraints, resource constraints (including personnel and equipment), space configuration and physical restraints, and regulatory and requirement restraints. These factors and the interactions between them can dramatically affect the timeliness of services rendered at the Badge Office. Due to the Badge Office's stature as a major point of contact for all lab employees, SEC-PS is constantly examining ways to improve the logistics of Badge Office activity.

The purpose of this process analysis was to analyze the Badge Offices' current processes from a systems perspective and consider ways of pursuing objectives set forth by SEC-PS, namely increased customer flow (throughput) and reduced customer wait times. Information for the analysis was gathered for the project primarily through Badge Office Subject Matter Experts (SMEs), and in-person observation of prevailing processes. Using the information gathered, a process simulation model was constructed to represent current operations and allow assessment of potential process changes relative to factors mentioned previously. The overall purpose of the analysis was to provide SEC-PS management with information and recommendations to serve as a basis for additional focused study and areas for potential process improvements in the future.

II. BACKGROUND

A. Current Badge Office Layout

The hallway to the LANL Badge Office is presently accessed through a set of double doors in the back right corner of the Otowi building lobby. Once the customer has entered through these double doors, the solitary single-wide customer entrance/exit to the badging area is to the left, and the remaining hallway is access-restricted by a secured door leading to other departments in the North end of the Otowi building. This restricted space is utilized by the LANL Office of Human Resources and other administrative functions of the Laboratory and can only be entered by badged individuals.

While the current base configuration of the Badge Office has been in place for quite some time, a few changes have been made in the recent past. The reception desk used to be by the entry door, but was moved inward to its current location in early 2015. The VIP badging and VIP waiting

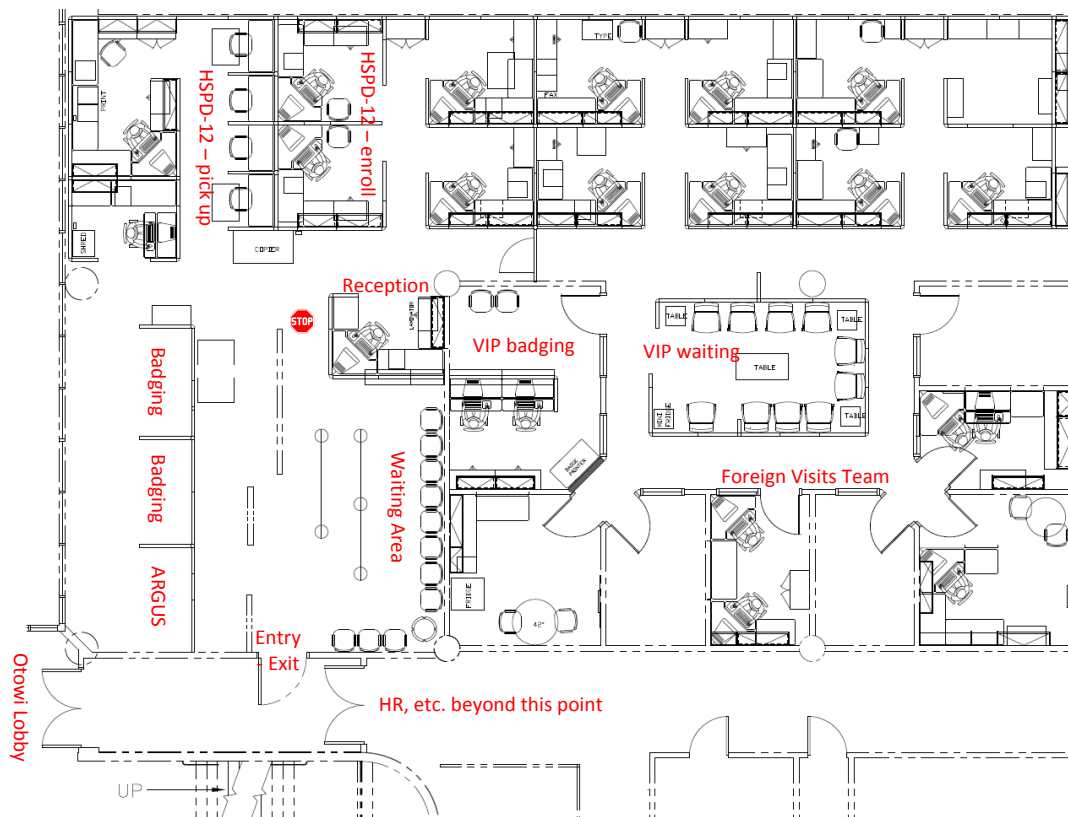


Figure 1 – Current Layout of Badge Office

areas were only put in place in recent months (though are currently not in use). Additionally, the waiting area was rearranged about six months ago in an attempt to create a better flow of customer traffic within the limited waiting area space. Figure 1 shows the current layout with appropriate labeling of essential areas. The reception desk, which acts as the initial contact/screening point in the Badge Office, was relocated from next to the front door to a position further back in the office early in 2015. This was identified as a means of keeping the initial line of customers from expanding too far into the main lobby area of the Otowi Building as customers can often get “jammed” at the front desk if they are not prepared when they arrive. Later in 2015, the waiting area was rearranged with a rope line to try and create a better flow of customer traffic to the reception desk and to further mitigate the number of people waiting in the hallway. Two Badging stations are located to the far left of the reception desk and these serve as the second area of activity for customers after the reception desk. There is normally a short wait at the “stop sign” marked to the immediate left of reception. These two Badging stations are consistently manned and focus on initial verification and set-up work for badging services. The ARGUS station is positioned in the front left corner of the office near the door. This station performs processing and finishing activities for most badging needs. All parts of basic badging services must be divided between a Badging Station and an ARGUS station as a security safeguard measure to prevent one worker from being able to produce badges without any

surveillance on their activity. The other notable feature of the main badging area is the waiting room, consisting of eleven chairs. This area quickly fills during early hours on Mondays and Tuesdays as the space is shared by customers in line for initial screening at the reception desk, by customers waiting for HSPD-12 services and Foreign Visits service, by customers waiting for badges to be printed, and by people who may be waiting for other reasons. The two ancillary portions of the Badge Office are the HSPD-12 stations in the top left corner of the office and the Foreign Visits Team Offices which are adjacent to main badging activities, but are not accessible to visitors. The VIP badging and VIP waiting areas are not currently in operation. However, we decided to include a VIP waiting area in the simulation model to create a more detailed Badge Office staffing scenario. All current VIP customers are given preferential treatment by being allowed to skip the Reception queue; however this line bypass is not shown in the model at this time. Instead, VIP customers wait in the Reception queue, talk to Reception staff and then proceed to a separate VIP waiting area.

B. Types of Customers

The services that the Badge Office provides are multi-faceted in nature. First, three separate services occupy the same organizational space. Along with regular badging, HSPD activities and Foreign Services both utilize the same waiting area and the reception desk as their initial point of contact. These functions are somewhat distinctive from regular badging. HSPD-12 badging revolves around processing cleared individuals for enrollment or pick-up of HSPD-12 credentials, and is typically handled by appointment. Foreign Visits exclusively handles foreign nationals who are either visiting or working at LANL. This function is collocated with the Badge Office since the foreign visitors they process typically need badging services once they are processed.

Regular badging services alone constitute a wide array of unique activities. The Badge Office is recognized for providing badges to new employees, students, and contract employees. However, it is also a point of contact when badges are lost or no longer operational. Temporary badging and the replacement of badges that have either worn out or expired are notable sources of customers each week. PIN resets for both regular Badge-Readers and Personal Identity Verification (PIV) cards also require interactions with the Badge Office. In addition, the Badge Office sees a large influx of customers early in the week requiring cleared and uncleared visitor badges. Military personnel who are receiving training, Department of Energy staff, and employees from other laboratories around the country are examples of customers that frequently must go through badging services for access to LANL sites. Table 1 lists the most common reasons customers come to the Badge Office. While there may be other reasons (or types of customers) that require Badge Office services, this is the set that was considered and included in the process simulation model for the Badge Office process analysis.

Table 1
Common Customer Types (or services rendered) at the Badge Office

1	worn out badge
2	training expired
3	badge reader PIN reset
4	PIV PIN reset
5	get a T badge
6	return a T badge
7	badge expired
8	uncleared visitor badge
9	new badge (new employee)
10	new badge (contractor)
11	new badge (student)
12	pick up stored badge
13	pick up premade badge
14	foreign visitor badge
15	HSPD-12 enrollment
16	HSPD-12 pick up
17	VIP visitor
18	random question or phone call
19	found badge
20	cleared visitor badge

C. Staffing

The Badge Office currently employs eight full-time staff members. A rotation schedule is used by the Badge Office to properly staff the “front” workstations (Badging, ARGUS, and Reception). This schedule is created weekly to account for any staff absences (appointments, illness, vacations, etc.). There are a minimum of four individuals working the front office at all times with up to seven during peak hours (Monday and Tuesday mornings). Other SEC-PS office staff provides supplementary staffing help in the Badge Office for two hours per day. Some cross-training exists among the Badge Office staff; however, there are still notable single-point failures in which one staff member’s absence could hinder the throughput of a task area. Furthermore, with the exception of the front reception desk, all other badging functions must be performed by staff members who are cleared. Hiring uncleared workers for staffing purposes does not mitigate short-term staffing issues that may occur.

III. PROCESS DESCRIPTIONS

Figure 2 shows a high-level process flow diagram of Badge Office processes. The bullets below the figure include more details about each step or task area or type of customer.

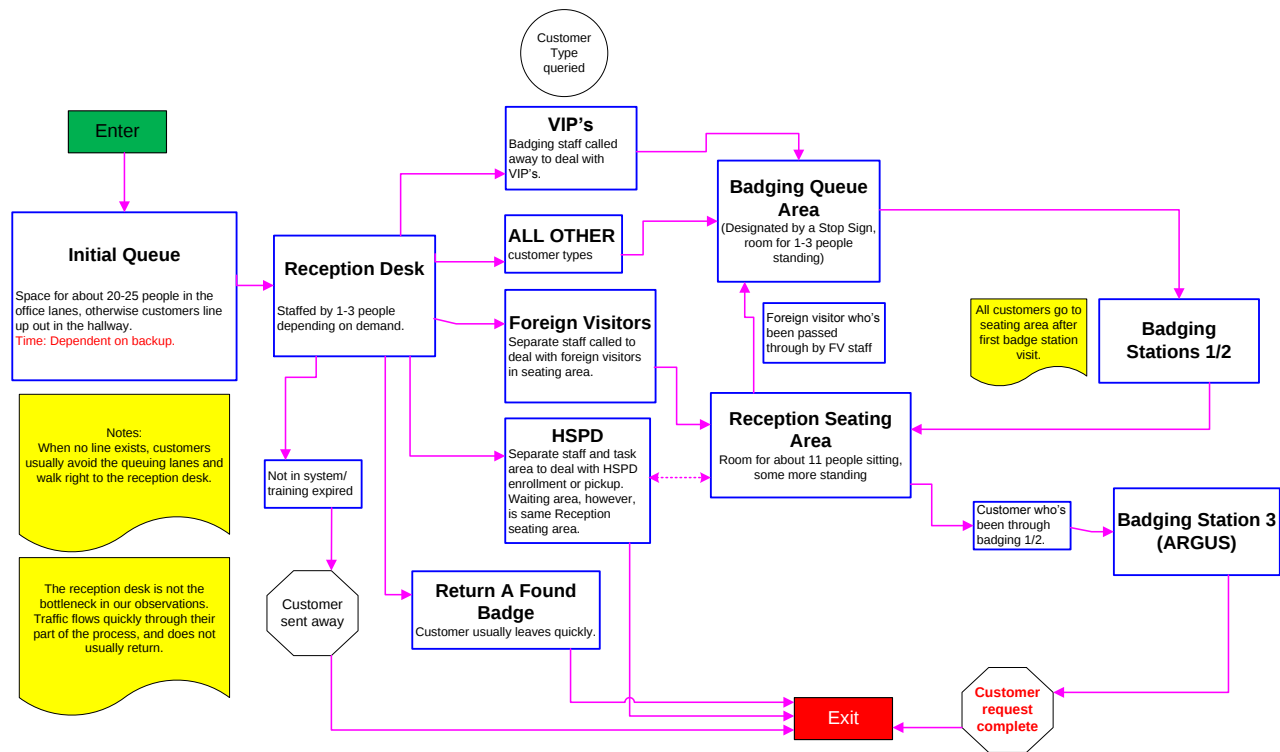


Figure 2 – High Level Process Flow Diagram of Badge Office Processes

- Initial Queue
 - Customers enter this preliminary line starting at the front of the reception desk and, depending on the number of customers currently in the queue, leading out into the adjacent hallway and into the Otowi Lobby.
 - There's space for about 20-25 people in this lane of activity in the actual office due to a rope line that helps utilize space.
 - This queue leads to the first point of contact: the Reception Desk.
- Reception Desk
 - During busy times (typically 7:30-8:30 on Monday and Tuesday, and sometimes other days like Wednesday during the summer when the student population grows), reception desk is staffed with 2 people.
 - Reception Desk workers inquire about the purpose of a customer's visit, screening their initial requests and checking to make sure necessary data has been provided to the badging office.
 - When 2 people are at reception desk, sometimes they process customers in parallel and sometimes serially (depending on needs). This can change wait times accordingly
 - Example of serial processing
 - Rec. 1 – Takes ID, checks for badge request, passes ID to Rec. 2
 - Rec. 2 – Fills out form and gives ID back to customer and direct to badging line.

- Example of parallel processing
 - Rec. 1 – Takes ID, checks for badge request, fills out form and directs customer to badging line.
 - Rec. 2 – (in parallel) Checks ID of a 2nd customer, has them fill out HSPD-12 log. Directs them to waiting area and notifies HSPD-12 staff.
 - Other Reception Desk tasks and details
 - If customer already has a DOE badge, then no badge request is necessary. Receptionist just verifies clearance while customer waits (in line or in waiting area) and direct customer to badging line to be enrolled in ARGUS.
 - Classified Foreign Visits
 - Receptionist takes IDs to copy and start the processes. Customers are then directed to badging line.
 - Occasionally a customer will have to be turned away because they do not have proper ID.
 - If customer does not have a badge request in the system and if receptionist has time (i.e. is not too busy), receptionist will call customer's host organization to ask for badge request, or they will help track down others to call.
 - If customer has an issue (such as Social Security Number discrepancy) between online info and real info, receptionist may need to call Human Resources (HR) to update records, etc. (The system takes about 5 minutes to update once HR enters corrected information.)
- VIP
 - There is a new VIP waiting area and badging room in the back part of the Badge Office. This area is still being completed and has not been used yet. This is only partially included in the current model, with VIP customers being initially processed in the new area and then passed on to the regular badging queue.
 - Badging services for VIP's currently require Badging staff to move away from other duties, or the VIP's are allowed to "skip" ahead of other individuals in the initial reception line and Badging Queue Area.
 - The VIP process step generally moves directly to the Badging Queue Area step.
 - Sometimes it may be faster to process people through the normal badging line, instead of through the VIP area since it requires special coordination of Badging staff.
- Foreign Visitors
 - After a foreign visitor is identified at reception, a separate foreign visits staff member is called over the intercom system while the visitor waits in the main reception seating area.
 - Foreign visits staff collects basic information and a passport from the visitor, taking these articles back to another area for processing while the visitor waits.

- The interactions in the waiting area contribute to additional congestion during busy times; however there is no other place to have the foreign visitors wait.
- After pre-processing, foreign visits staff returns items to the visitor in the waiting area and the customer moves to the badging queue line.
- HSPD-12
 - HSPD-12
 - Reasons for HSPD-12 services
 - New employee
 - Expiring badges
 - Lost badges
 - Damaged or worn out badges
 - Appearance changes
 - Enrollments (2 stations)
 - Finger prints, photos, etc.
 - Badge pickup (2 stations)
 - 2-3 week delivery time to receive new credentials after enrollment.
 - HSPD-12 appointments are made on-line at federal HSPD web site.
 - Appointments can be scheduled during busy times as well (since they dedicate one staff to that function). People do, however, wait in the long line during busy times even though they have an appointment.
 - It is apparently a rather involved process for requesting that certain times be excluded from the federal appointment calendar.
 - Walk-ins (no appointment) are accommodated daily from 1:00 – 3:00 pm. Sometimes walk-ins come at other times. If it is not a busy time, they will often be accommodated to avoid taking additional staff and customer time later.
 - Other computer/system issues
 - HSPD-12 systems often have trouble on Tuesdays (when updates are pushed at the Federal sites). The system crashes about 2 times per week. In such cases, instead of taking 15-20 minutes to process a customer, it may take double that time.
- Return a Found Badge
 - If a badge is found (that does not belong to the customer returning it), they do not need to process through the badging area. They can just return it to the Badge Office staff and leave.
- Other Customer Types (i.e. some other reasons people visit the Badge Office – not all inclusive)
 - Badge rehab
 - Badge not working in badge reader
 - Worn out magnetic strip

- Training expired
 - Although paper copies of training courses are sometimes provided to customers who then fill out a log, there is no available workstation for customers to update their training and get in the system. Messages are then sent to the training office in WR to update training records after log completed. The Badge Office isn't properly suited for these activities during busy times so customers are often sent away.
- In-field systems not updating properly
 - PIN reset
 - Badge-reader PINs
 - PIV PINs (this may require HSPD-12 stations to set)
 - These use the chip on the badge to log into computer systems. These are not very common yet.
 - Issue new Temp badge and order new HSPD-12 badge
 - Because old badge expired
 - Because old badge worn out
 - Temporary (T) Badges
 - When a "T" badge is issued, the employee's real badge is deactivated (only one active badge in the system at a time is allowed).
 - When a "T" badge is returned, it must be returned in person (most of the time) so that it can be deactivated and the customer's real badge reactivated.
 - This is still a 2-step process at the badging stations.
 - Station 1: Verify ID and that both badges in hand
 - Station 2: Re-activate real badge in ARGUS
 - NOTE: There is a sign describing what badges can be dropped in the drop box and what badges must be returned in person. This sign is on the wall by the Badge Office door (but is covered when the door is open – which is probably OK since drop box is mainly for when Badge Office is closed).
 - Issue new badge
 - From badge request
 - New employees
 - Contract employees
 - Students
 - Foreign visitors
 - Cleared vs. uncleared
 - Classified vs. unclassified visits
 - Other visitors
 - Cleared vs. uncleared

- Classified vs. unclassified visits
 - Classified visits
 - 90-95 % of incoming classified visits that need to be processed are for visitors from agencies outside of DOE (such as DoD, FBI, DHS, etc.)
 - There is a lot of back and forth between sending agency and Badge Office to coordinate proper forms, information, etc.
 - Sometimes these visitors can have badges pre-printed (if coordinated ahead of time)
 - Sometimes a photo badge is issued (for visitors longer than 10 days). These are processed through the normal badging line after pre-process done.
 - 60-65 classified visits processed per week (with a capacity to process about 200 per week if necessary).
 - Enter credentials in LANL system
 - For visitors who already have HSPD-12 badge
- Reception Seating Area
 - The waiting area accommodates people who are
 - waiting for badges to be printed,
 - waiting for the foreign visits staff,
 - waiting for ID's to be processed (classified and unclassified foreign visits),
 - waiting for badge request to be entered by host organization, which happens a couple of times per day, and
 - waiting to have other issues resolved.
 - This area is a major point of congestion. Customers for three different activities (badging, Foreign Visits, and HSPD-12) all congregate in this area.
 - After seating is filled, customers often stand in whatever space is still available in the reception area. This creates extra confusion/congestion in the area. Sometimes customer escorts will want to continue conversations in the reception area, leading to customers standing and blocking important routes when seating is still available.
- Badging Queue Area
 - The badging queue area is designated by a stop sign on the floor where people stand waiting to be helped at one of the badging stations.
 - There is not really room for many more than a few people to wait here without taking up space in the reception area toward the entry door (which sometimes happens).
- Badging Stations 1/2
 - These stations are typically for verifying badging services to be performed and for taking photos.

- After finishing verification activities, customers are asked to sit in the reception waiting area until they are called to the ARGUS station
- Badging Station 3 ARGUS
 - After a badge is printed (if necessary), ARGUS systems are used for getting people's hand geometry and PINs into the system.
 - There are 3 hand-geometry ARGUS systems at the counter (though not all are staffed at any given time).
 - If customer is unfamiliar with the systems, it may take more time for Badge Office staff to help the customer.
 - Sometimes the PIN setting does not work right (if PIN was not entered correctly, etc.) which may double the time at this workstation. Once ARGUS activities are completed, customers will have their service completed and leave the badge office.

The preceding bullets described many of the reasons people come to the badge office, and the process steps they go through. It is by no means intended to describe or capture every reason people come to the badge office or to describe many of the off-normal events and occurrences that cause services to take longer. Below are a few notes on such off-normal events.

- Off-Normal Events
 - Network issues (affecting badging and badge system updates)
 - About once every 2 months the systems/network is down (min = minutes, max = 4 hours, most likely = 1 hour).
 - Other computer/system issues
 - HSPD-12 systems often have trouble on Tuesdays (when updates are pushed at the Federal sites). The system crashes about 2 times per week. In such cases, instead of taking 15-20 minutes to process a customer, it may take double that time.
 - Equipment malfunctions
 - Badge printers last about 2 years. Badge Office has had to send printers for maintenance recently.
 - Unusually large crowds
 - During periods of the summer, lots of students are processed every week.
 - Meetings with large numbers of off-site visitors occur regularly.
 - Staffing shortages
 - Current Badge Office team is 8. Life happens (appointments, illness, vacations, etc.).
 - Unusual or unusually difficult badging requests
 - Unique situations happen that require research, calls, scrambling, etc.
 - Off-normal work hours
 - Occasionally the Badge Office is required to open on the weekend to process large groups of people.

- During recent construction, task areas would be moved/taken down to accommodate construction at end of business on Friday, and staff would come in on Sunday to get things set back up for processing on Monday morning.

IV. SIMULATION MODEL DESCRIPTION (HIGH LEVEL)

Simulation models are used to evaluate and investigate the behavior of a system over time. They help capture system dynamics and variation and force one to think through the operational details of a system. Dedicated simulation software packages are typically used to facilitate the creation and execution of simulation models.

Process simulation modeling is used to help analyze the practices and procedures involved in a process and may include elements such as resources, controls, activities, and the interrelationships between them. It allows for exploring the behaviors of a system based on changes or variations in the elements and assumptions that make up the system. Simulation modeling is often used for process flow analysis, capacity/throughput analysis, and what-if analysis, among others. Metrics of interest that can be captured by a simulation model include waiting time, throughput, utilization, etc.

ExtendSim[®] modeling software was used to create a discrete-event simulation model of the Badge Office processes to help assess the effect of operating conditions on customer wait times and throughputs. A model was constructed to represent the current-state (baseline) process and then modified to represent additional scenarios focused primarily on mitigating the wait time experienced by customers.

Figure 3 shows the top level of the ExtendSim[®] simulation model of the Badge Office. The process model is laid out over an image of the current Badge Office configuration so that validation of current processing logic is easier to visualize.



Figure 3 – Top Level ExtendSim® Model Image

The Badge Office model is organized hierarchically, with different functional areas and details represented at lower hierarchical levels of the model. Figure 4 shows a lower level representing the reception process step.

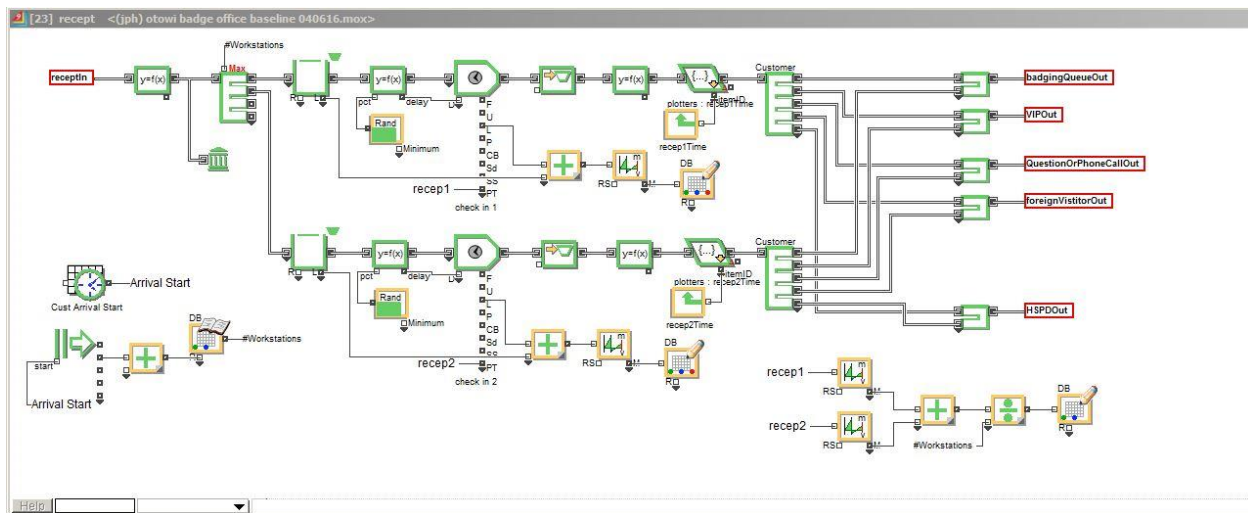


Figure 4 – Reception Desk Process ExtendSim® Blocks

Data from the processes are captured in functional blocks within the model as well as in an integrated database that contains assumptions and variables that the various functional blocks use to simulation the processes. Figure 5 shows a snapshot of the various tables in the database.

Customers [1] - Type [1] - long delay pct [2] - time at recep short [3] - time at recep long [4] - time in badging 1 short [5] - time in badging 1 long [6] - time in ARGUS short [7] - time in ARGUS long [8] - time in HSPD short [9] - time in HSPD long [10] - time waiting for Foreign Visits staff 1 short [11] - time waiting for Foreign Visits staff 1 long [12] - time waiting for Foreign Visits staff 2 short [13] - time waiting for Foreign Visits staff 2 long [14] - talk to FV 1 [15] - talk to FV 2 [16] - waiting for ARGUS short [17] - waiting for ARGUS long [18]	results [2] - customer type [1] - time into Badge Office [2] - time into reception line [3] - time upon reaching reception desk [4] - time into badging queue [5] - time into badging 1 or 2 [6] - time into seating waiting for ARGUS [7] - time into ARGUS badging [8] - time into HSPD [9] - time started waiting for foreign visits staff [10] - time exiting badge office [11] - total time [12] - time spent in reception queue [13] - time spent at reception desk [14] - time spent in badging queue [15] - time spent at badging 1 or 2 [16] - time spent waiting for ARGUS [17] - time spent in ARGUS badging [18] - time spent dealing with FV staff [19] - time spent in HSPD [20] - total customers served [21] - recep queue length [22] - recep queue 1 length [23] - recep queue 2 length [24] - badging queue length [25] - avg people in seating area [26] - avg people in HSPD queue [27]	InputSchedule01d [3] - Sched Start Time1 [1] - Total Cust Types in Row [2] - Total Customers [3] - Schedule Row Num [4] - Worn Out Badge [5] - Training Expired [6] - Badge Reader PIN Reset [7] - PIV PIN Reset [8] - Get a T Badge [9] - Return a T Badge [10] - Badge Expired [11] - Uncleared Visitor Badge [12] - New Badge (new employee) [13] - New Badge (contractor) [14] - New Badge (student) [15] - Pick Up Stored Badge [16] - Pick Up Pre-Made Badge [17] - Foreign Visitor Badge [18] - HSPD-12 Enrollment [19] - HSPD-12 Pick Up [20] - VIP-Related or Unusual Request [21] - Random Question or Ph Call [22] - Found Badge [23] - Cleared Visitor Badge [24] - Sched Start Time2 [25] - Reception Staff Available [26] - Badging Staff Available [27] - ARGUS Staff Available [28] - HSPD Staff Available [29] - Foreign Visit Staff Available [30] - Sched Start Time3 [31] - Reception Stations Available [32] - Badging Stations Available [33] - ARGUS Stations Available [34] - HSPD Enroll Stations Available [35] - HSPD Pick Up Stations Available [36] - BLANK3 [37]	StaffSched1 [4] - Sched Start Time [1] - Reception Staff [2] - Badging Staff [3] - ARGUS Staff [4] - HSPD Staff [5] - FV Staff [6]
		Station Sched1 [5] - Sched Start Time [1] - Reception Stations [2] - Badging Stations [3] - ARGUS Stations [4] - HSPD Enroll Stations [5] - HSPD Pickup Stations [6]	

Figure 5 – ExtendSim® Database Tables

Output metrics are included in the model to assess the performance and behavior of the system when the model is run. Various plots and numerical data are captured and used to characterize the process and compare results between simulation runs. Figure 6 shows some of the blocks used to capture output metrics.

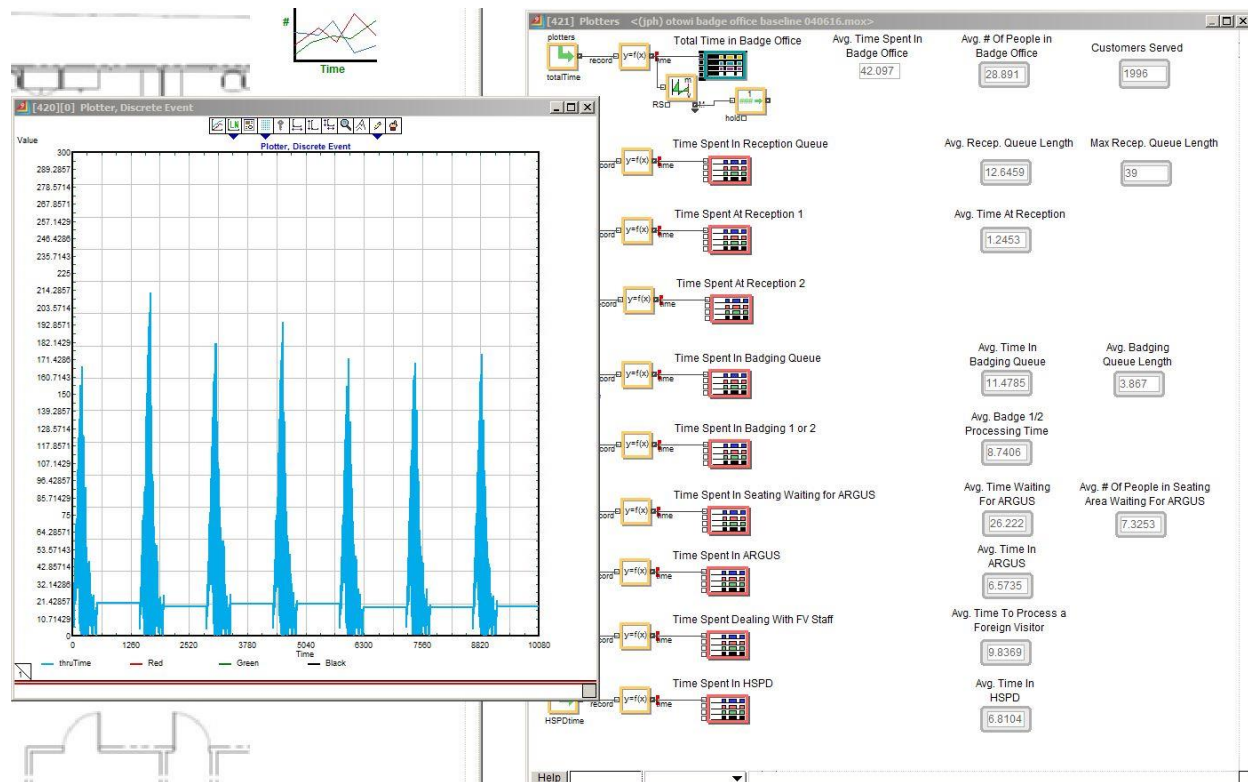


Figure 6 – ExtendSim® Output Plots and Statistics

Some of the key model assumptions are discussed in the next section.

V. MODEL ASSUMPTIONS

The ExtendSim® model takes into account many factors, but it is only as accurate as the data entered into it. For the present analysis, we are assuming generic timings (a few minutes – typically variable from 3 to 7 minutes) for each of the process steps, with a small (1%) chance of a “long delay” time at each process step. Further refinement of process step timing could be included in a future analysis if desired.

Customers in the Badge Office model are created based on quantities of different customer types. This is shown in an Excel spreadsheet (Figure 7) with various numbers of customers arriving every 15 minutes, from 7:15am to 4:00pm. The Badge Office is assumed to not open for business until 7:30am. This creates a backlog of customers lining up for service from 7:15 to 7:30, a condition often seen on Monday and Tuesday mornings. The door to the Badge Office closes at 4:00pm, but the staff in the model works until 4:30 to clear out any remaining customers. The number of Staff and Stations (Reception, Badging, ARGUS, HSPD, and Foreign Visits) in the model can also vary throughout the day.

The baseline data used for the simulation model runs in this analysis were based on numbers in the spreadsheet shown in Figure 7. The customer data in the table was derived from several observations made primarily during Monday and Tuesday mornings at the badge office. The data is actually an aggregation of multiple observations, taking the maximum number of customers of any given type observed on any of the observed days, extrapolating for the “slow” non-observed times, and combining them together to create a customer input profile that was larger than any single observation, but that has most of the customer types represented and mimicking the busy morning hours often experienced. This same customer input profile was used in all modeled scenarios to maintain consistency and allow the impact of other changes in the system to be more easily evaluated.

Stations and staffing were modeled to be consistent with what is typically experienced today: there are generally more staff earlier in the day (until 9am or so) to clear out the pre-opening backlog. This customer data does not change from one day to the next in the model (again, to hold that variable constant). Future model runs could be made with additional variations on the number and types of customers if desired.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	
1	Clock Time	Sched Start Time	Total Cust. Types in Row	TOTAL CUSTOMERS	Schedule Row Num	worn out badge	training expired	badge reader PIN reset	PIV PIN reset	get a T badge	return a T badge	badge expired	undecleared visitor badge	new badge (new employee)	new badge (contractor)	new badge (student)	pick up stored badge	pick up premade badge	foreign visitor badge	HSPD-12 enrollment	HSPD-12 pick up	VIP related or unusual request	random question or phone call	found badge	cleared visitor badge	Sched Start Time	Reception Staff	Badging Staff	Argus Staff	HSPD Staff	Foreign Visits Staff	Sched Start Time	Reception Stations	Badging Stations	ARGUS Stations	HSPD Enroll Stations	HSPD Pickup Stations	
2	7:15	0	11	18	1	1	0	0	0	2	0	1	0	2	1	0	3	1	0	0	1	3	1	0	2	0	0	0	0	0	0	0	2	3	2	2	2	2
3	7:30	15	10	35	2	2	0	0	0	1	0	1	1	2	1	0	0	0	9	0	1	0	2	0	15	15	2	3	2	1	1	15	2	3	2	2	2	
4	7:45	30	8	27	3	0	0	0	0	0	0	0	6	0	2	0	1	0	5	1	1	0	2	0	9	30	2	3	2	1	1	30	2	3	2	2	2	
5	8:00	45	9	27	4	0	0	0	1	2	0	0	5	1	0	0	1	0	0	1	0	2	1	13	45	2	3	2	1	1	45	2	3	2	2	2		
6	8:15	60	4	16	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	13	60	2	3	2	1	1	60	2	3	2	2	2		
7	8:30	75	6	12	6	2	0	1	0	0	0	0	1	0	0	0	0	0	2	3	0	3	0	0	75	2	3	2	1	1	75	2	3	2	2	2		
8	8:45	90	3	4	7	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	90	2	3	2	1	1	90	2	3	2	2	2		
9	9:00	105	5	7	8	1	0	0	2	0	0	1	0	0	0	1	0	0	0	0	0	0	2	0	0	105	2	3	2	1	1	105	2	3	2	2	2	
10	9:15	120	6	8	9	0	0	0	0	0	2	0	0	0	2	0	0	0	1	0	1	1	0	0	1	120	2	3	2	1	1	120	2	3	2	2	2	
11	9:30	135	1	1	10	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	135	1	2	1	1	1	135	1	2	1	2	2		
12	9:45	150	6	8	11	1	1	0	0	0	0	0	0	1	0	0	0	2	0	0	1	0	0	2	150	1	2	1	1	1	150	1	2	1	2	2		
13	10:00	165	4	4	12	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	1	0	0	165	1	2	1	1	1	165	1	2	1	2	2		
14	10:15	180	4	4	13	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1	0	180	1	2	1	1	1	180	1	2	1	2	2		
15	10:30	195	6	8	14	1	0	0	1	0	0	0	0	0	2	0	0	0	0	1	1	0	0	2	195	1	2	1	1	1	195	1	2	1	2	2		
16	10:45	210	3	3	15	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	210	1	2	1	1	1	210	1	2	1	2	2		
17	11:00	225	4	4	16	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	225	1	2	1	1	1	225	1	2	1	2	2		
18	11:15	240	5	6	17	0	0	0	0	0	1	0	0	0	1	0	2	0	0	0	0	1	0	0	1	240	1	2	1	1	1	240	1	2	1	2	2	
19	11:30	255	6	7	18	1	0	0	0	0	0	0	1	0	1	0	0	0	1	2	0	1	0	0	255	1	2	1	1	1	255	1	2	1	2	2		
20	11:45	270	4	4	19	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	270	1	2	1	1	1	270	1	2	1	2	2		
21	12:00	285	6	7	20	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	2	285	1	2	1	1	1	285	1	2	1	2	2	
22	12:15	300	6	8	21	1	1	0	0	0	1	0	0	0	2	2	0	0	0	0	1	0	0	0	300	1	2	1	1	1	300	1	2	1	2	2		
23	12:30	315	6	8	22	0	0	0	1	0	0	0	0	0	1	0	1	0	0	1	0	1	0	3	315	1	2	1	1	1	315	1	2	1	2	2		
24	12:45	330	6	6	23	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	1	330	1	2	1	1	1	330	1	2	1	2	2		
25	13:00	345	4	4	24	1	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	345	1	2	1	1	1	345	1	2	1	2	2		
26	13:15	360	2	2	25	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	360	1	2	1	1	1	360	1	2	1	2	2		
27	13:30	375	3	3	26	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	375	1	2	1	1	1	375	1	2	1	2	2		
28	13:45	390	3	4	27	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	390	1	2	1	1	1	390	1	2	1	2	2		
29	14:00	405	4	5	28	1	0	0	1	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	405	1	2	1	1	1	405	1	2	1	2	2		
30	14:15	420	5	11	29	0	0	0	0	0	0	1	0	0	4	0	0	0	0	0	0	1	2	0	3	420	1	2	1	1	1	420	1	2	1	2	2	
31	14:30	435	3	4	30	0	0	0	0	0	0	0	0	0	1	0	0	0	2	1	0	0	0	0	435	1	2	1	1	1	435	1	2	1	2	2		
32	14:45	450	1	4	31	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	450	1	2	1	1	1	450	1	2	1	2	2		
33	15:00	465	2	2	32	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	465	1	2	1	1	1	465	1	2	1	2	2		
34	15:15	480	1	1	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	480	1	2	1	1	1	480	1	2	1	2	2		
35	15:30	495	5	5	34	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	495	1	2	1	1	1	495	1	2	1	2	2		
36	15:45	510	8	8	35	1	0	1	1	0	1	0	0	0	0	0	1	0	0	0	0	1	1	1	0	510	1	2	1	1	1	510	1	2	1	2	2	
37	16:00	525	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	525	1	2	1	1	1	525	1	2	1	2	2		
38	16:15	540	0	0	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	540	1	2	1	1	1	540	1	2	1	2	2		
39	16:30	555	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	555	0	0	0	0	0	555	1	2	1	2	2		
40	16:45	570	0	0	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	570	0	0	0	0	0	570	1	2	1	2	2		
41	17:00	585	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	585	0	0	0	0	0	585	1	2	1	2	2		
42	17:15	600	0	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	600	0	0	0	0	0	600	1	2	1	2	2		
43	17:30	615	0	0	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	615	0	0	0	0	0	615	1	2	1	2	2		
44	17:45	630	0	0	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	630	0	0	0	0	0	630	1	2	1	2	2		
45	18:00	645	0	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	645	0	0	0	0	0	645	1	2	1	2	2		
46	18:15	660	0	0	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	660	0	0	0	0	0	660	1	2	1	2	2		

Figure 7 – Customer input and station/staff availability table used in the simulation model

Stations or Task Areas in the model which are staffed (Reception, Badging, ARGUS, HSPD) can also be changed from their initial quantities during a business day to study the effects that task area availabilities have on throughput and utilization. The values in the spreadsheet for both staffing and number of stations were the values used as the basis for the current analysis, but could be changed in future runs if desired.

Foreign visitors are unique in the model in that they must be seen by Foreign Visits staff before they are allowed to enter the regular badging queue. As such, Foreign Visits staff members are called out separately in the spreadsheet data.

VIP customers are sent to a specific area in the model (VIP Waiting Area) and are dealt with by the Badging staff, which pulls a staff member from the regular Badging area. After this initial processing, the VIP customers then enter the normal Badging Queue like other customers.

VI. SIMULATION RESULTS AND ANALYSIS

A number of Badge Office operating scenarios were modeled for analysis and to explore the behavior of the simulated system under certain conditions. A baseline case was defined and then several variations to the baseline case were modeled for comparison. The high-level assumptions for each scenario, as well as the corresponding simulation results are outlined in the following sections. Table 2 (at the end of the scenario descriptions) summarizes the scenarios and results all together.

NOTE that although the results shown for the various scenarios below show average times and queue lengths, the values should not be assumed to be exactly representative of what the current experience is at the Badge Office (in terms of absolute values), as this is highly dependent on the mix and quantities of customer types, and the fidelity of the process time data was low. The benefit in the results comes from comparing scenarios and the trends that are observed due to the changes in the different scenario assumptions. That is, attention should be paid to how much a given result changes in response to a variable change rather than the actual value of the results. This is easier to see in Table 2 where the results are summarized together.

A. Scenario 1: Baseline

Baseline model assumptions:

- 2 reception stations/staff from 7:30 to 9:30am, then 1 for the rest of the day
- 2 badging stations/staff all day
- 1 ARGUS station/staff all day
- 1 HSPD staff all day
- 1 Foreign Visits staff all day
- 2 badging stations all day
- 1 ARGUS station all day
- 2 HSPD enrollment stations all day
- 2 HSPD pickup stations all day

Baseline results (for an abnormally heavy load of customers):

- Avg. time in Badge Office: 39-43 minutes
- Avg. number of customers in Badge Office at any given time: 26-30 people
- Avg. reception queue length: 11-14 people
- Max. reception queue length: 34-42 people
- Avg. time in reception queue: 8-11 minutes
- Avg. time in badging queue: 10-13 minutes
- Avg. badging processing time: 8-10 minutes
- Avg. time to process a Foreign Visitor: 8-12 minutes
- Avg. number of people in seating area waiting for ARGUS: 5-8 people

- Avg. time waiting for ARGUS to call a customer up: 23-27 minutes
- Avg. time to get through HSPD process: 5-8 minutes

B. Scenario 2: Additional ARGUS Staff During Peak Hours

Scenario 2 assumptions (changes from baseline model):

- 2 ARGUS staff from 7:30 to 9:30am, then 1 for the rest of the day
- 2 ARGUS stations from 7:30 to 9:30am, then 1 for the rest of the day

Scenario 2 results:

- Avg. time in Badge Office: 30-34 minutes
- Avg. number of customers in Badge Office at any given time: 20-24
- Avg. reception queue length: 11-14 people
- Max. reception queue length: 34-42 people
- Avg. time in reception queue: 8-11 minutes
- Avg. time in badging queue: 10-13 minutes
- Avg. badging processing time: 8-10 minutes
- Avg. time to process a Foreign Visitor: 8-12 minutes
- Avg. number of people in seating area waiting for ARGUS: 1-3 people
- Avg. time waiting for ARGUS to call a customer up: 4-7 minutes
- Avg. time to get through HSPD process: 5-8 minutes

C. Scenario 3: Additional Badging Staff During Peak Hours

Scenario 3 assumptions (changes from baseline model):

- 3 badging staff from 7:30 to 9:30am, then 2 for the rest of the day
- 3 badging stations from 7:30 to 9:30am, then 2 for the rest of the day

Scenario 3 results:

- Avg. time in Badge Office: 34-40 minutes
- Avg. number of customers in Badge Office at any given time: 28-32
- Avg. reception queue length: 11-14 people
- Max. reception queue length: 34-42 people
- Avg. time in reception queue: 6-8 minutes
- Avg. time in badging queue: 0.5-2 minutes
- Avg. badging processing time: 6-9 minutes
- Avg. time to process a Foreign Visitor: 8-12 minutes
- Avg. number of people in seating area waiting for ARGUS: 10-13 people
- Avg. time waiting for ARGUS to call a customer up: 38-42 minutes
- Avg. time to get through HSPD process: 5-8 minutes

D. Scenario 4: Additional Badging and ARGUS Staff During Peak Hours

Scenario 4 assumptions (changes from baseline model):

- 3 badging staff from 7:30 to 9:30am, then 2 for the rest of the day
- 3 badging stations from 7:30 to 9:30am, then 2 for the rest of the day
- 2 ARGUS staff from 7:30 to 9:30am, then 1 for the rest of the day
- 2 ARGUS stations from 7:30 to 9:30am, then 1 for the rest of the day

Scenario 4 results:

- Avg. time in Badge Office: 20-23 minutes
- Avg. number of customers in Badge Office at any given time: 18-22
- Avg. reception queue length: 9-12 people
- Max. reception queue length: 32-36 people
- Avg. time in reception queue: 6-8 minutes
- Avg. time in badging queue: 0.5-1.5 minutes
- Avg. badging processing time: 6-9 minutes
- Avg. time to process a Foreign Visitor: 8-12 minutes
- Avg. number of people in seating area waiting for ARGUS: 1-3 people
- Avg. time waiting for ARGUS to call a customer up: 3-5 minutes
- Avg. time to get through HSPD process: 5-8 minutes

E. Scenario 5: Separate Reception Line and Reception Desk For VIP's, Foreign Visitors and HSPD Customers

Scenario 5 assumptions (changes from baseline model):

- Separate reception queue for VIP's, Foreign Visitors and HSPD Customers
- Separate reception staff and station for VIP's, Foreign Visitors and HSPD Customers
- Separate reception station is staffed by Foreign Visits Staff

Scenario 5 results:

- Avg. time in Badge Office: 40-44 minutes
- Avg. number of customers in Badge Office at any given time: 23-25 people
- Avg. reception queue "A" length: 7-10 people
- Max. reception queue "A" length: 34-36 people
- Avg. reception queue "B" length: 0.5-2 people
- Max reception queue "B" length: 12-15 people
- Avg. time in reception queue A: 8-11 minutes
- Avg. time in reception queue B: 9-13 minutes
- Avg. time in badging queue: 10-13 minutes
- Avg. badging processing time: 8-10 minutes

- Avg. time to process a Foreign Visitor: 8-12 minutes
- Avg. number of people in seating area waiting for ARGUS: 7-10 people
- Avg. time waiting for ARGUS to call a customer up: 25-30 minutes
- Avg. time to get through HSPD process: 7-10 minutes

F. Scenario 6: 4 Badging, 3 ARGUS Staff During Peak Hours

Scenario 6 assumptions (changes from baseline model):

- 4 badging staff from 7:30 to 9:30am, then 2 for the rest of the day
- 4 badging stations from 7:30 to 9:30am, then 2 for the rest of the day
- 3 ARGUS staff from 7:30 to 9:30am, then 1 for the rest of the day
- 3 ARGUS stations from 7:30 to 9:30am, then 1 for the rest of the day

Scenario 6 results:

- Avg. time in Badge Office: 18-22 minutes
- Avg. number of customers in Badge Office at any given time: 17-21
- Avg. reception queue length: 9-12 people
- Max. reception queue length: 32-36 people
- Avg. time in reception queue: 6-8 minutes
- Avg. time in badging queue: 0.25-1 minute
- Avg. badging processing time: 6-9 minutes
- Avg. time to process a Foreign Visitor: 8-12 minutes
- Avg. number of people in seating area waiting for ARGUS: 0.5-2.5 people
- Avg. time waiting for ARGUS to call a customer up: 2.5-4.5 minutes
- Avg. time to get through HSPD process: 5-8 minutes

Table 2
Simulation Scenario and Results Summary

SCENARIOS	Baseline Model (Scenario 1)	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
	-	Increased ARGUS stations/staff only	Increased Badging stations/staff only	Increased both Badging and ARGUS stations/staff	Separate Reception queues, no staffing changes	4 Badging stations/staff, 3 ARGUS stations/staff
# Reception stations/staff	2 from 7:30-9:30am, then 1 for the rest of the day	Same as baseline	Same as baseline	Same as baseline	Same as baseline, except for separate VIP, FV and HSPD queue staffed by FV staff	Same as baseline
# Badging stations/staff	2 all day	Same as baseline	3 from 7:30-9:30am, then 2 for the rest of the day	3 from 7:30-9:30am, then 2 for the rest of the day	Same as baseline	4 from 7:30-9:30am, then 2 for the rest of the day
# ARGUS stations/staff	1 all day	2 from 7:30-9:30am, then 1 for the rest of the day	Same as baseline	2 from 7:30-9:30am, then 1 for the rest of the day	Same as baseline	3 from 7:30-9:30am, then 2 for the rest of the day
# HSPD staff	1 all day	Same as baseline	Same as baseline	Same as baseline	Same as baseline	Same as baseline
# Foreign Visits staff	1 all day	Same as baseline	Same as baseline	Same as baseline	Same as baseline	Same as baseline
RESULTS						
Avg. time in Badge Office (minutes)	39-43	30-34	34-40	20-23	40-44	18-22
Avg. num of customers in Badge Office	26-30	20-24	28-32	18-22	23-25	17-21
Avg. recep. queue length	11-14	11-14	11-14	9-12	A: 7-10, B: 0.5-2	9-12
Max. recep. queue length	34-42	34-42	34-42	32-36	A: 34-36, B: 12-15	32-36
Avg. time in recep. queue (minutes)	8-11	8-11	6-8	6-8	A: 8-11, B: 9-13	6-8
Avg. time in badging queue (minutes)	10-13	10-13	0.5-2	0.5-1.5	10-13	0.25-1
Avg. # of people in seating waiting for ARGUS	5-8	1-3	10-13	1-3	7-10	0.5-2.5
Avg. time waiting to be called by ARGUS (minutes)	23-27	4-7	38-42	3-5	25-30	2.5-4.5

VII. ANALYSIS AND RECOMMENDATIONS

The optimal situation seems to be Scenario 4, which added one Badging and one ARGUS staff (and one Badging and ARGUS station) during peak hours (7:30-9:30am). This had the largest effect on reducing processing times and number of customers waiting in queues.

Alternately, increasing just the ARGUS staff and stations by one during peak hours (Scenario 3) significantly decreased time waiting to be called up by ARGUS, as well time spent in the Badge Office overall.

There was a limit to the process improvement as a result of adding more staff. Scenario 6 added two Badging and two ARGUS staff and stations during peak hours. This scenario showed that at a certain point, adding more staff will not make much of a difference.

Increasing Badging staff but not ARGUS staff (Scenario 2) had some effect on wait times, but there was still a bottleneck when customers arrived at the seating area and waited to be called up to ARGUS. In fact, this wait time was considerably worse than the baseline scenario. This could be due to the fact that ARGUS simply cannot go any faster when a large bunch of customers reaches their queue. This is similar to the “restaurant effect” in which front of house staff seats too many people at a time, and wait staff passes their orders to the kitchen all at the same time. Without increasing kitchen staff, large delays can happen and customer experience is negative. This effect can be seen during busy times at the Badge Office, since customer arrival rates are nonlinear.

Adding an additional reception line and station for certain customers staffed by Foreign Visits Staff (Scenario 5) only had an effect on the reception area. Once customers arrived in the badging queue, the results were not much different than in the baseline model.

Within the scenarios modeled to date, adding one Badging and one ARGUS staff during peak hours will have the largest effect on process improvement. Alternately, adding just one ARGUS staff during peak hours will have some effect.

With the limited input data set and customer timing information available at the time of this study, only first-cut level results were obtained. In the future, with additional data and involvement, many different scenarios could be explored, such as different operating logic or layout options.

An educational campaign with information focused on when certain badging services are scheduled (for example, PIN resets from 1-3pm daily, HSPD walk-ins only during certain times, recommended times when NOT to come to the Badge Office (if it can be avoided), etc.) may be beneficial to customer experience and have some effect on wait times due to customer load leveling.

Consider setting Monday and Tuesday mornings aside for visitor badging only (and employees requiring badging to get into work). Could on-site employees avoid the Badge Office at certain times of the day/week?

Changing the mode of operation such that any workstation can do any of the tasks (multi-mode task areas) may allow for better employee utilization as they will not need to leave their workstations as often.

VIII. APPENDIX

Below are additional observations and notes and suggestions and anecdotal comments that were collected during over the course of the analysis period.

- General Comments
 - Badge Office wait times really are a matter of high and low volumes.
 - Since a large number of people are there during high-volume times, those are the times that make an impression on many people.
 - On one morning, 3 visitors walked into the Badge Office looking for a restroom (they had just arrived from off-site to be badged).
 - Location of restrooms for visitors not obvious upon entering Otowi.
 - Restrooms in unrestricted areas are upstairs.
 - Elevator not always operating.
 - Sometimes a customer will walk right up to a badging station since they don't read the sign that says to go to the reception desk first. Limited space with many things going on in close proximity lead to confusion.
- External to Badge Office
 - Parking is always an issue around the Otowi building and in that area of TA-3 in general.
 - The Badge Office is located in the inward parts of the Otowi building (North wing).
 - Hosts sometimes accompany customers to the Badge Office to help them find the office and navigate the badging process.
 - During observations, perhaps 10% of the customers came in with another person who was there merely to assist (but did not need badging services themselves). These extra people did not take up more time in the badging process, but they did take up more space.
 - The SAFE-2 group office (along with clearance processing and other functions of SAFE-2) is located in the South wing of the Otowi building (behind an access-restricted door).
 - Occasionally, customers at the Badge Office are sent to clearance processing if there is an issue that must be resolved prior to badging (such as a clearance that was not transferred, etc.)
- Entrance
 - The Badge Office is located on the North side of the main floor of the Otowi building. The entrance is through a single wide door in a short hallway vestibule just off the main entry lobby.
 - The sign by the entrance door to Badge Office says: "Badge Office, Foreign Visits, Immigration"

- The space is shared by the foreign visits/immigration office. This office is independent of the Badge Office (team leader: Lori Hinojosa). Foreign visitors often need badging services after they are taken care of by these other functions.
 - The Badge Office sign outside the entrance door gets covered up when the door is open. When there is a line to go into the Badge Office, people tend to just get in line or ask others if the line is for the Badge Office. When there is no line and the hall is empty, perhaps 20% of the people arriving don't know that the open door is the Badge Office (even when they look inside) since there is no sign indicating such. A sign on the open door would help solve this confusion.
- Entrance and exit from the Badge Office is through the same single-wide door. There is a back door to the office area at the back of the Badge Office, but it has restricted access.
- The entrance/exit door is in a short hallway vestibule that is in the same path for access to primary HR groups in the building.
- Only about 5-6 people can line up in the short hallway outside the Badge Office door. If the line extends beyond that, people typically line up through the Otowi Building entrance lobby.
- Julian noted that once this past summer, he had to close the Badge Office because there were about 80 people in the Badge Office, which presented a safety hazard.
 - I estimate that with a full waiting area, full lines, standing-room space (which there really is not much of), and people in-process, capacity probably tops out at about 50. So 80 would have been significantly over capacity just from an occupancy perspective. (There are no fire-code restrictions regarding occupancy of the Badge Office area.)
- On busy days, the line for the Badge Office goes out into the lobby of the Otowi building, and usually wraps around that lobby. At times, the line will be routed through the lobby and out the back door up the stairs outside (to keep the lobby less congested).
- In-person vs. phone vs. online requests
 - Phone calls to the Badge Office get routed via their phone tree system. The call gets taken by someone in the tree if others cannot answer. If all are busy, voice mail gets the call. Phone calls are returned during less busy times.
 - Online badge requests are confirmed when they arrive in the system (usually at the reception desk). Once the receipt confirmation is done, it takes about 15 minutes for the badging system to see the request and allow badging. These 15 minutes are usually transparent to the customer who has a badge request entered into the system before they come to the Badge

Office. Those that come to the Badge Office and have to wait for a badge request to be entered for them have to wait for the system update as well. (About 2 people per day come in without badge requests in the system and have to wait. A typical wait might be 30 to 90 minutes before they can be badged. Occasionally a much longer wait is required or the customer has to come back another day.)

- For some visits, hard-copy forms are required to be brought in (instead of online badge requests).
- Comments from Jenni Martinez (Badge Office Team Leader)
 - Single point failures are still a major issue.
 - Only four employees on Friday which is the bare minimum for Badge Office function. Jenni has to come out and help manage a station
 - She would like an Internal IT staff. Having someone who can grow with applications, help with the consistent problems.
 - Webpage for badge requests that doesn't need oracle.
 - Sandia has 12 develops using their own access control systems.
 - When people have expired training, there is no place to set up online so they have to go to the Badge Office, request, then its faxed down to white rock where it will be a one to six hour wait.
- Comments and suggestions from Barbara Mayson (Badge Office customer) in response to an experience where she was told to report to the Badge Office for HSPD support, had to get rescheduled due to circumstances, then needed to wait for time between already-scheduled appointments the next day. Note that she acknowledged that the Badge Office staff did the best they could and praised them for their help.
 - Request the person's cell phone number, ask them to stay in the building and let them know they can sit in the Badge Office or go upstairs to the cafeteria and they will be called when there's availability. (This is in cases where a customer may have to wait for an undetermined amount of time.)
 - The Badge Office could have a backup person and the front desk could be responsible for noting how long a person has been there and notify the backup that their assistance is needed.
- Comments and suggestions from Joe Jackson (Badge Office customer) in response to his experience trying to get his badge PIN reset and working. He also praised the Badge Office staff for their efforts and professionalism.
 - The Badge Office should have badge/PIN readers available where individuals can test their badges before leaving. It was a pain (literally!) for me to make three trips over to the NSSB in order to test my badge and discover that the system

couldn't recognize my PIN. Keep in mind that I'm currently wearing a protective boot as I await surgery to repair problems in my feet. I'm under doctor's orders to restrict the number of steps I take in a day and as such, I currently have a handicap-parking placard.

- The PIN system is currently set up so that a certain number of unsuccessful attempts invalidates the employee's badge and PIN and thus requires a visit to the Badge Office to get the badge and PIN reinitialized. Invalid attempts can even be caused by badge readers that are out of calibration. The badge reader at Sigma building got replaced while I was at the Badge Office because so many problems had been reported.

In talking to my co-workers I discovered other individuals who had to have their badges reinitialized so mine is not the only occurrence of this problem. In fact the frequency of these re-encoding operations will only increase as the new badge/PIN readers are rolled out throughout the lab. Badge PIN re-initializations represent an unnecessary workload for the Badge Office, which is currently overloaded. They also represent lost work hours and increased frustrations for lab employees.

- The ultimate cause of my badge/PIN reader access problems was found to be that the system had gotten confused and thought my PIN had more digits than were actually present. This confusion was apparently caused by reinitializing my badge with the same PIN as previously used. If this error was caused because there is an unwritten policy against reinitializing with the same PIN, then this requirement needs to be publicized. If this confusion was the result of a system software problem then that code needs to be fixed.

Forcing employees to change PINs every time they get their badge re-initialized represents an unnecessary burden.

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