



# FLY THRU SECURITY

Using design to improve user experience during the airport security process.



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during the airport security process.

CHELSEA BASS | LIBERTY UNIVERSITY | THESIS PROJECT

A thesis submitted to Liberty University  
for Master of Fine Arts in Studio and Digital Arts

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## PART 1/RESEARCH

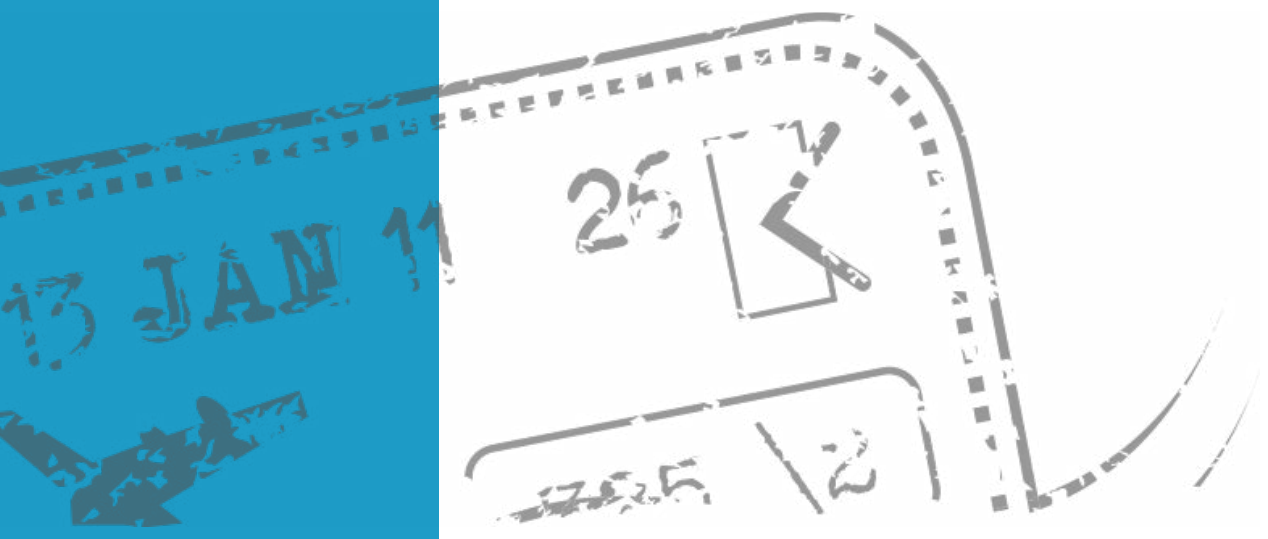
Due to the Transportation Security Act (TSA), which passed in November 2011, airport security has drastically changed. The new security checkpoint practices have caused security lines to be very long; on average, a traveler waits 90 minutes to get through security. Most airline travelers frequently describe feeling anxiety, frustration, stress, and annoyance while in airport security lines. Being overwhelmed with time, pressure to move quickly and the overall security check process are also problematic for them as well as for the TSA officers and airlines. However, these emotionally negative travel experiences can become positive ones with some design element intervention to the Transportation Security Act safety measures.



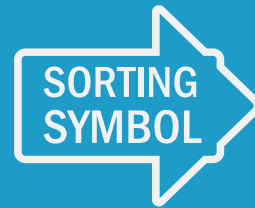
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# INTRODUCTION



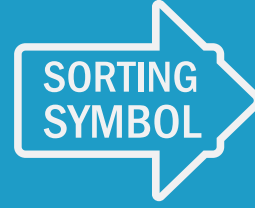
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In graphic design, wayfinding is a one-way form of communication, typically a sign, to direct, inform, control or identify a user's action within a building, road network or city. Designers need to clearly convey what a user needs to distinguish their directional, identification and reassurance wayfinding. Spatial orientation, cognitive mapping abilities, language, culture, gender, and environmental factors are variables that determine how well a designer's wayfinding elements are received. Any of these factors can cause a sign's meaning to change if a user speaks a different language and relies on a shape or color to better understand the meaning. Wayfinding conditions can alter environmental experiences. With regards to airport security lines, wayfinding becomes more than knowing one's current or desired location in a building but rather a design solution pathway for an ongoing problem.

Many advances in technology-based wayfinding and location-based applications are altering how individuals interact with their surroundings. As smartphones and tablets flourish the market, adults of all ages can implement mobile technologies to interact

with every environment appropriately. Location-based applications, like Foursquare, can be mobile games that people play while moving through a physical space, impacting their experience and mobility decisions. This gamification is becoming increasingly popular, allowing application design to turn a non-game context into an informative wayfinding game.

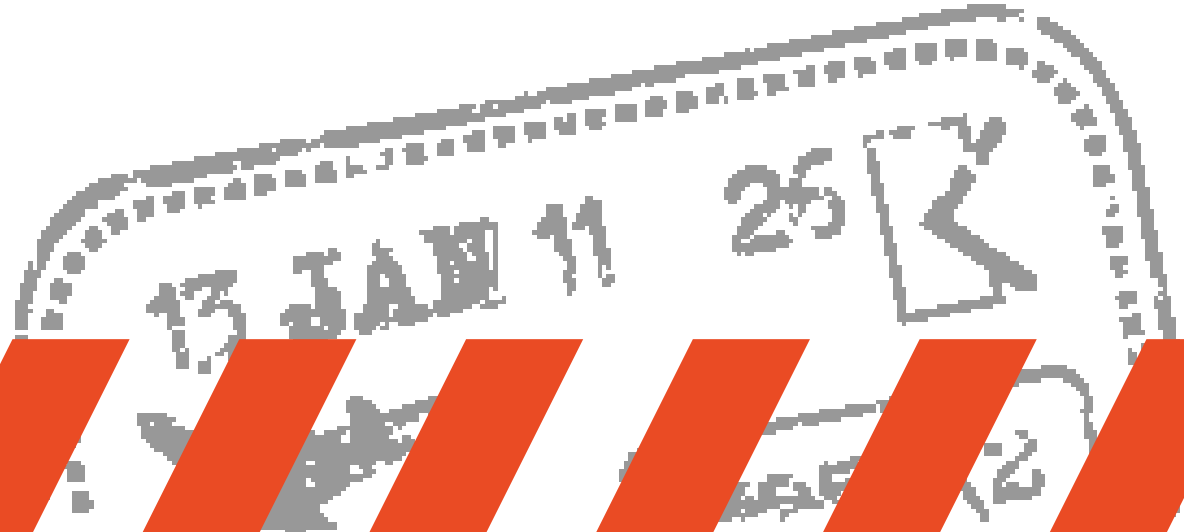
Current airport security lines provide few prohibited items signs with step-by-step instructions to travelers once they are in line, allowing no adjustment time or clear direction. Infrequent travelers attempt to improvise their way around the airport, while frequent travelers grew frustrated and annoyed with long lines and slow-moving individuals. Practical wayfinding and gamification in airport security lines can create a quick, efficient system to direct people during peak travel times with minimum confusion or disorientation. This effective wayfinding system can also decrease traveler frustration, increase traveler satisfaction, and improve traveler experiences. This thesis explores travelers' emotional airport security line concerns and various airports' wayfinding design solutions.



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# RESEARCH





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# WAYFINDING

Wayfinding is knowing where one is in a building or environment, knowing where one's desired location is, and how to get to one's desired location from one's present location (Fewings 178). The arrival process is made up of a string of decisions in response to where one desires to go, and environmental clues are given along the way. (Fewings 178). In other words, wayfinding is the result of an interplay between human factors, such as spatial orientation, cognitive mapping abilities, language, culture, gender, and biology, and environmental factors, such as paths, nodes, landmarks, layout complexity, and signs (Anna, 2014).

Depending on one's needs and preferences, two wayfinding techniques are used to find their desired locations — recreational wayfinding and resolute wayfinding (Fewings 179). Recreational wayfinding (Figure A) appeals to those who want a satisfying, enjoyable experience with opportunities to solve problems (Fewings 179). Similar to labyrinths and mazes that date all the way back to prehistoric times, recreational wayfinding motivates and strengthens user problem-solving (Fewings 179). For example, when someone is not in a hurry but walking or driving for pleasure with a destination in mind, their wayfinding experience takes priority over the function of getting from point A to point B.

Unlike recreation wayfinding, resolute wayfinding (Figure B) is for those who want the most efficient directions to get to their desired destination (Fewings 179). For example, a tourist may end the quaint narrow winding streets of a Cornish coastal town pleasurable to explore. However, a parcel express driver trying to end a delivery address in the same city


may find the way ending process frustrating — especially if he has time constraints." (Fewings 179). Resolute wayfinding can also depend on whether one is outdoors or indoors. Outdoor wayfinding uses landmarks, paths, nodes, edges, and districts (Fewings 180). However, indoor wayfinding uses clues and visual or three-dimensional uses environmental clues, visual or three-dimensional variables (Fewings 180).

Figure A



<https://segd.org/makara-peak-mountain-bike-park-wayfinding>

Figure B



<http://www.thesigncenter.biz/blog/types-of-way-finding-signs-for-space-planners>

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## AIRPORT WAYFINDING

A wayfinding system in an airport is necessary for several reasons. Having a system that directs the flow of people through a terminal quickly and efficiently during peak times can allow for minimal traveler confusion and disorientation. This will also decrease traveler frustration and increase traveler satisfaction which will improve traveler experience (De Barros, Somasundaraswaran and Wirasinghe 123).

Standard airport practice considers wayfinding an afterthought (Fewings, 178). Even then, for financial reasons, only basic layouts of directional and facility signs have been installed (Fewings 178). Redden's study of airports security lines notes that the security checkpoint signage does not include step-by-step security process instructions for travelers. Without this necessary wayfinding, infrequent travelers do not know which official documents to have ready, which line to choose, how many plastic bins to pick, or how to pack items (Redden 135). Some airports have prohibited item signs at checkpoints, but travelers are already in line with little time to make adjustments. Redden documented that in some security areas, TSA officials have shouted directives to travelers, increasing their anxiety, rather than communicating in a helpful tone (Redden 135). In the Luton airport, a color-based wayfinding system guides travelers in appropriate directions. Unfortunately, when the terminal was expanded, the color lines were no longer necessary but had to remain in place,



[http://www.lgd-inc.com/work/healthcare/Queens\\_Hospital\\_Center2.php](http://www.lgd-inc.com/work/healthcare/Queens_Hospital_Center2.php)

giving out-of-date directional information, until the floor tiles were replaced. (Fewings 180)

## ORIGINS OF DESIGN

When designing wayfinding solutions, color is often a powerful cue for situation context. For instance, mall mechanisms might not work for city street signs (Opara and Cantwell 122). While one red sign means stop, a

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different red sign means emergency. Color coding establishes hierarchy and can more clearly differentiate areas (Fewings 180). Wayfinding in buildings is not limited to hanging and standing signage but can include interior wall spaces, exterior wall spaces, zones and even applications on a smartphone (Figure C) (Fewings 180). Entryways, exits, and floors can use color coding to signify a zone change or more easily define a space (Opara and Cantwell 122).

Wayfinding signs should direct, inform, control and identify as well as distinguish between sign types (Fewings 181). People base sign perceptions on whether the individual is familiar with the overall shape, design, and placement (Fewings 181). Sign designs should be consistent in size, color, lettering, and symbols. Consistency allows users to notice them readily (Fewings 181). For example, the London Underground is well known for excellent wayfinding that can be picked out quickly from other local urban signage. Accurate sign color helps users recognize coordinated wayfinding.

## **GAMIFICATION DESIGN**

Over the last hundred years, much science and money has gone into figuring out ways to keep people engaged and entertained in a variety of recreational activities, e.g., TV, film, the World Wide Web, computers, video games, mobile devices, theme parks, and major league



<http://cartlidgelevene.co.uk/wp-content/uploads/2011/10/CartlidgeLevene-BarbicanArtsCentre-1-500x672.jpg>

**Figure C: Applied Wayfinding**

sports (Gamification). Traditional advertisement no longer holds our attention the way it once did because we have become used to so much engagement (Gamification). Typical daily activities, like work and school, need engagement strategies to keep employees and students connected to their respective assignments (Gamification). Gamification design provides real-world engagement solutions through video game generation principles (Gamification).

Gamification allows things like everyday tasks, learning or exercise to be fun (Kim 10). Companies now turn to compelling new tools to shape consumer behavior so it's mutually beneficial (Gamification). On paper, this sounds simple, like the key to solving all our problems with education, making the workplace more exciting, getting people to re-engage and



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make them more socially responsible. It is the idea of taking the concepts that get players to play world of wordcraft for 20 hours a week, instead, use them to make people learn another language (Gamification). Gamification allows things like everyday task, learning or exercise to be fun (Kim 10). Companies are beginning to realize we are no longer caught by traditional advertisement the way we once were. Media has bombarded us that we do not even look at billboards, we flip channels through commercials or fast-forward, we do not register banner ads anymore (Gamification). Now companies have turned to new tools to compel us to shape our consumption in a way that is beneficial to them or us (Gamification).

An example of this is the Bottle Bank Arcade Machine.

“The Bottle Bank Arcade Machine is a green recycling box that collects used glass bottles. It has six holes for bottles, and each hole has a blinking light flickering in bright colors on top. It was fitted with a display panel, which records the scores. The Bottle Bank Arcade Machine invites people to not only simply deposit bottles but also to play an old-fashioned arcade game with those bottles. Once people press the Start button, one out of six lights up, thereby indicating where one should insert a bottle. If you put in a bottle in time, you score points. The video on the Fun Theory website shows people stopping, intrigued by sound and lights; depositing glass bottles with smiles on their faces; and even a kid jumping up and down in excitement. The Bottle Bank Arcade Machine was designed to encourage more people to recycle bottles by making it fun. According to the result mentioned in the video, it certainly seems

to achieve its goal. Almost a hundred people used it in just one evening while the nearby conventional recycle bottle bank was used only twice. The Bottle Bank Arcade Machine received the Fun Theory Award, which is an initiative by Volkswagen. According to the award website, “the fun theory” means that fun is the easiest way to change people’s behavior for the better, and the award is given to an idea or an invention that helps prove the fun theory. This is an interesting way to state the concept of gamification“(Kim 10).

Other gamification examples include Nike+ which engages people in their running activities and solves the problem of not exercising enough (Kim 11). Chore Wars motivate people to get their chores done, thereby solving the problem of people neglecting to do or putting off their chores (Kim 11). The Piano Stairs motivate people to stay fit by taking the stairs rather than the elevator (Kim 11). The World’s Deepest Bin was designed to produce sound whenever someone dropped garbage in, solving the problem of littering (Kim 11).

One result of gamification is people are engaged, and specific problems are solved. Fun is the easiest way to change people’s behavior for the better (Kim 10). Another aspect of gamification is the fun part. Nike+, Chore Wars, Piano Stairs, and the World’s Deepest Bin all demonstrate that by adding a bit of fun to everyday activity, people can be persuaded to act in a more socially responsible, safer, and healthier way (Kim 11).

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# LOCATION-BASED APPS

Wayfinding and gamification combine to become a location-based mobile application. Location-based applications can be games that people play while moving through physical spaces (Figure E) (Frith 248). Just like it was proven that fun is the easiest way to change people's behaviors, location-based applications can impact how individuals experience their surrounding spaces (Frith 251). Companies use location-based applications to alter how their customers interact with space, making the applications a suitable solution (Frith 251). Data indicates that companies use location-based applications to alter how their customers interact with their surrounding spaces (Frith 257).

Location-based applications enhance cultural experiences, like airport security lines, libraries, museums, and hospitals, because they can satisfy visitor needs through contextualized contents and services. Installed on portable devices with GPS, location-based applications can go into the field and provide context sensitivity for a specific location (Frith 248). Group participants share their experiences, fostering social interactivity and captivating, diverse audiences. Within the framework of location-based systems, it provides a promising approach to captivate the attention of many different audiences. It captivates the attention of teenagers, a hard to please target audience, with the gamification aspect of the application. It is appealing to elders, and young adults for the services and information it provides within the application (Frith 248).

There needs to be research done to understand how such properties like gamification and services play out.

Figure E

## Analysis of Game Play

### ■ Briefing

At the beginning of the game, the game gives participants a briefing on the application and how it works by the application designer. The briefing includes showing the directions to the first location.

### ■ Search and Orientation

During the search and guidance phase, a person or group moves towards an area. Having received and read the instructions, they carry out an initial orientation and walking. When they need to adjust their direction, they do so in several ways. One way is that the person carrying the phone reads out loud the repeated direction. A second way is when a group member verbally suggests that the team is moving in the wrong direction. A third way is markedly changing direction, sometimes together with a comment of some sort.

### ■ Arriving

In this phase, a person or the group establishes among themselves whether they have come to the intended location. Arriving at the site could mean that the GPS numbers turned green indicating that they are within the zone of the area allowing them to proceed in the game play process.

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## AIRPORT SECURITY

Since TSA security checkpoints have come about, fliers expect huge wait times at security lines across the United States (Kelly 62). Most airlines recommend passengers arrive at least two hours early or risk missing their flights. TSA saw the maddeningly long security lines and proposed a solution to speed up the process called PreCheck, which would give vetted passengers special screening (Long Island Business News 1).

Shoes, belts, and light jackets can stay on one's person and go through the x-ray machines (Precheck). Laptops and liquids can remain in bags to go through the x-ray machines. These fliers go through standard metal detectors rather than the explosive-detecting, full-body scanners. To be considered for PreCheck, one must apply online and schedule a ten-minute, in-person appointment, including a background check and fingerprinting. PreCheck membership is \$85 for five years (Precheck). PreCheck lanes can screen 300 passengers an hour, which is twice the number of normal lanes (Long Island Business News 1).

Four years after its launch, TSA PreCheck is far short of enough enrolled travelers to make any difference in security lines. Without enough members, PreCheck lanes are deserted, while the regular security lines snake throughout the terminal with wait times as high as 90 minutes in some cases (Long Island Business News 1). Long wait times affect many travelers who miss flights, like the 6,800 American Airline passengers

during a mid-March spring break. TSA began shifting resources around to tackle lines and wait times at the nation's biggest airports but said there are no easy solutions to the problems with a record number of fliers. Robert Isom, American Airlines Chief Operating Officer, states, "The TSA is more or less suggesting that we need to live with it" (Long Island Business News 1).

**CURRENTLY, THE TRAVEL  
INDUSTRY IS DRIVEN BY  
BABY BOOMERS, 53-71  
YEAR-OLDS.**

## DEMOGRAPHICS

According to Boston Consulting Group's research, millennials (18-34 year-olds) are the future of travel and tourism industries. Baby boomers (53-71 year-olds) currently drive the travel industry and their travel needs (U.S.



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Travel Association). However, in the next five to ten years the millennial generation will be entering their peak earning, spending and traveling years. Their business travel spending is expected to grow by 50% of the total by 2020 (Cederholm). It will remain high for the next 15 years after that. Currently, the millennials make up almost one-third of the individuals who fly according to the U.S. Travel Association (Cederholm).

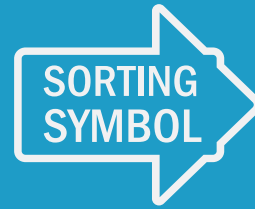
Age affects how people see security lines when traveling. Younger adults have adjusted more to the newer security protocols as they were not born or too young to remember 9/11. Older airline travelers are more aware of 9/11 events and, therefore, feel less safe and more frustrated with security lines (Bly).

## **EMOTIONS**

Nearly two million people use commercial air transportation in the United States every day (Redden 121). These travelers interact with hundreds of individuals including passengers and employees. They also stand in multiple lines. With the heightened levels of security since 9/11, line interactions are overtly examined and controlled, providing a proper context for investigating emotion management. Airports are emotion-laden environments, and travelers may experience a range of feelings before reaching the plane (Redden 121).

“Emotion is a multifaceted psychological construct” (Scherer, 2005). Emotions are generated almost automatically, for example, instant joy at finding lost money, or they may grow gradually after apprising an interaction, like feeling shameful (Redden 124). Either way, “emotions call forth a coordinated set of behavioral, experiential, and physiological response tendencies that together influence how we respond to perceived challenges and opportunities” (Gross 281). Active displays of emotion are highly circumstantial and ruled by social norms. For instance, it is appropriate to cry and not laugh at funerals, to make direct eye contact in America but not, perhaps in China. Being able to perform emotion appropriately is a matter of emotion management (Scherer, 2005). While this focuses on the social and cultural application of emotion, a type of emotion agreement is emotion regulation, which is a more internal process. Emotion regulation is “the process by which we influence which emotions we have, when we have them, and how we experience and express them” (Gross 282).

“For the citizen, the immigrant, the refugee . . . Airports are places of extreme interrogation of one’s identity and home—and one airport may represent oppression and another possible freedom” (Salter 52). The airport’s emotions are like the weather, one minute the room may be temperate and the next minute cold. The airport goes from the noise of voices, kids crying, bags rolling to a residue of lingering feelings as people catch planes, emotion imprinted on body and mind (Redden 130).



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# VISUAL RESEARCH



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<http://www.mcbride-design.co.uk/news/airport-ideas-take>

## AIRPORT IDEAS TAKE OFF

Fruitmedia : **Gatwick Airport**

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Fruitmedia created an information video for Skybreak, based at Gatwick Airport. The video features six different scenarios that travelers may face using the airport. Each scene is animated to show the action the traveler should take. This piece of artwork is great inspiration for a storyline to wayfinding brochure or storybook type application.

<http://www.fluorink.net/99u-conference-collateral-branding/>

## 99U CONFERENCE

Behance New York

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99U Conference materials reimaged and redesigned fro 2015. The single campaign is based on bold geometric shapes, squares, triangles, and circles as the main elements, which will be used in the different materials to generate spaces with subtle optical illusions and create action areas. This piece excellently exemplifies print collateral for wayfinding and information presented to a consumer.

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<http://appliedwayfinding.com/projects/heathrow/>

<http://appliedwayfinding.com/projects/heathrow/>

## HEATHROW MAPPING SYSTEM

Applied\_Wayfinding : **Heathrow Airport**

Heathrow Airport is one of the most complex airport environments Applied has come in contact. Applied delivered a 'Living Map' system, which maps the whole airport with geodatabase accuracy and yet captures the buildings routes and character. Phase one of the plan was launched with great success and appears throughout the website, as an interactive map for mobile devices and has signs in the terminals and printed magazines. The centralized geodatabase that drives all these maps are now managed coherently and up to date, alleviating not only some but all travelers' headaches.

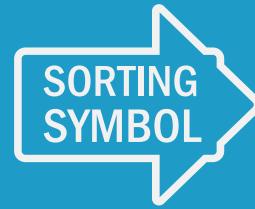
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<http://appliedwayfinding.com/projects/heathrow/>

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# CASE STUDIES



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## CASE SCENARIO/FOURSQUARE

In March 2009, a mobile application called Foursquare was released by Southwest festival (Frith 248). Foursquare is considered a location-based social network mobile application. It enables people to form social networks and share their location with friends. Unlike most location-based social network applications, Foursquare also features gaming elements, which makes it partly an example of a location-based mobile game(LBMG) (Frith 251). Location-based mobile games encourage people to do things like “fight” with nearby players or collect digital objects throughout the city (Frith 251). However Foursquare is different from most LBMGs because it encourages people to engage in non-gaming behaviors like going to bars and historical sites rather than hunt for objects or fight other players. One can categorize Foursquare as gamification. Foursquare added gaming elements to non-gaming context to encourage people to behave in a certain way. (Frith 252)

Foursquare was designed to turn life into a game by rewarding people with mayorships and badges for going to physical locations (Frith 253). People earn mayorships by being the Foursquare user who checked in the most times at a venue in the last 60 days (Frith253). Mayorships often switch hands frequently as more people check in to that venue since awards are given to whoever has the most check-ins. Most Foursquare users are competitive about earning and maintaining individual mayorships. Some Foursquare users took pride in being the mayor of their favorite restaurant, bar, or neighborhood. When Foursquare users

lose a mayorship, they often end up checking in more frequently to retake the mayorship. Although there is no actual reward for these mayorships besides prestige, the reward of winning the mayorship affects where Foursquare users chose to go and how frequently they check-in. Mayorships are a gaming element that Foursquare rewards repeat visits rather than novelty and exploration.


The pursuit of mayorships affects a user’s mobility choices by encouraging them to return to locations they had already been to, however, Foursquare badges have the different impact. Foursquare rewards badges for people’s first check-in, like the “Newbie” badge, then they earn badges celebrating their 10th check-in, 25th check-in, and their 50th check-in. Badges require people to go to particular location categories, like five different diner or check-in to five airports. Foursquare also created badges that are city-specific or event-specific and can only be earned at a specific event, like badges at SXSW. Like Mayorships, badges are incentives to encourage behavior and not real rewards.

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## CASE SCENARIO/ NARITA INTERNATIONAL AIRPORT

Narita International Airport in Tokyo took on an original approach to wayfinding in their Terminal 3 (Weiner). This project was completed well in advance of the 2020 Olympics in Tokyo. The terminal was given an appropriate makeover, combining a classic Olympic theme with an ingenious new wayfinding system (Hohenadel). Japanese creative lab, PARTY, collaborated with other teams to focus on creating low-cost airport terminal, regarding both architecture and design (Weiner). The budget for constructing this project was approximately half of the usual amount given (Weiner).

As a result, the terminal is unusual as there are no moving walkways or illuminated signs. Instead, the wall signage is prominent and clear, using large icons with smart, subtle designs, and new running-track-inspired paths guide travelers (Hohenadel). These paths offer an exciting walking experience that is comfortable on the feet, leading travelers throughout the terminal (Hohenadel). The color-coded track features blue lanes “to express the color of the sky” as they indicate the way to Departure areas, while earthy red-brown lanes “show the sense of relief” and point the way to the Arrival areas (Hohenadel). Symbols and arrows to Baggage Claim, Transportation and all other essential airport locations are printed on the tracks (Weiner).



<http://www.archdaily.com/620345/narita-international-airport-terminal-3-nikken-sekkei-ryohin-keikaku-party>



<http://www.archdaily.com/620345/narita-international-airport-terminal-3-nikken-sekkei-ryohin-keikaku-party>

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## CASE SCENARIO/SHAWANA STUDY

Redden spent six months collecting data on the implications of airport emotional experiences. Taking 36 one-way flights and organizing ethnographic observations and interviews, his research found that participants most frequently feeling anxiety, frustration, stress, and annoyance (Redden 127). "Issac, an internet marketer, explained how his feelings are more negative in the airport, definitely more stress than normal. Either, I am herding my kids...alternatively, I am thinking about the business I have to do on the trip, or I am in line for security"(Redden 131). Redden observed that negative emotions were clearly communicated in complaining, yelling, and sarcasm and more subtly communicated via the nonverbal crossing of arms, absence of eye contact, eye-rolling, and huffing.

One of his field note pieces show a typical interaction with a TSA officer: The agent waving people through the metal detector yells through tight lips, brows furrowed, "YOU CAN'T PUT THAT THERE!" He shouts with startling abrasiveness at someone incorrectly packing gray bins. I notice the same woman receiving a pat-down later. A female agent runs her hands all over the woman's legs, practically, molesting her although she did not set off the metal detector. Bright red, the traveler looks utterly mortified. Later, I overhear her talking to a friend. "That guy was an IDIOT," she said of the angry agent. "Then I asked her [the screener] 'Why did you pick me?' She said, 'Because you were wearing a long flowy skirt.'" The woman rolled her eyes in mocking, "She gave me a full body

pat down . . . She touched EVERY part of me. I liked it. Just kidding!" Her voice dripped with sarcasm." (Redden 131-132)

In this picture, the negative instance that this lady felt rippled out to influence more than the individuals initially experiencing it. The metal detector agent brought anger and aggression and provoked anxiety and irritation for the traveler which resulted in frustration and mortification. These emotions did not stay within security, the traveler then shared them with her friend, allowing her to experience the negative feelings and extending the impact. (Redden 132)

Not only is there focus on the emotions felt at the end of the security line, but people seem to hate lines universally for causing emotions during the wait time (Redden). One passenger in Redden's study while winding through a slow security lane muttered, "I try to think Disney Land... however, it is more like the post office" (Redden 133). Another passenger offered, "No, the DMV." Lines at the airport do not just mean waiting, they mean stress from detailed security screenings, fear of invasive pat-downs, anxiety about getting through in time to catch a flight (Redden 133). These security lines cue intense emotions for travelers. The lines trigger negative emotions and concerns about fairness. They can also instigate negative reactions toward those in shorter lines or PreCheck lanes. Redden interviewed a weekly commuter, Carrie. She expressed irritation at routinely receiving dirty looks from waiting travelers as she



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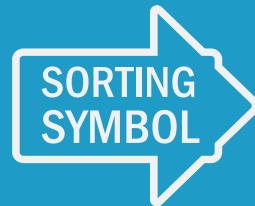
traversed the priority lane. She also noticed travelers in general boarding lanes demonstrating negative, nonverbal and verbal expressions, like eye-rolling, huffing, and snarky comments, toward priority travelers (Redden 134). When describing lines, participants from Redden's study overwhelmingly talked of time, pressure to move quickly and the overall process. Some of the pressure to act quickly comes from other travelers.

Daphne spoke of taking longer than others would like: "People want to get through security quickly. Alternatively, at least that has always been my impression . . . Nobody has ever said anything . . ." Jaycee, confirming the sentiment, states that she prefers to move hastily. Laughing, she said, "I do not like people who are slow . . . Take off your shoes, remove your overcoat, put your bag in the bin and let's go." Elle also noted there is "always" someone slow in line. In my observations, people sighed, rolled their eyes, and gave dirty looks when preceding passengers did not move fast enough. (Redden 135)

While airport security lines provoke emotion, they also highlight uncertainty, i.e., stress, anxiety, and confusion, especially for new or infrequent travelers. Traveler uncertainty factors from the lack of organization communication; missing signage with step-by-step security processes leaves infrequent travelers to improvise through airport protocol (Redden 134). One factor to why there is uncertainty is due to lack of organization communication. There is missing signage that

explains step-by-step the process of security, leaving infrequent travelers to improvise (Redden 135). They do not know what official documents to demonstrate readily, which line to choose, how many plastic bins to pick, or how to pack items (Redden 135). Prohibited item signs are posted throughout security areas; however, travelers may not be exposed to these messages before getting in line. Once in line, little to no time is available to make adjustments (Redden 135).

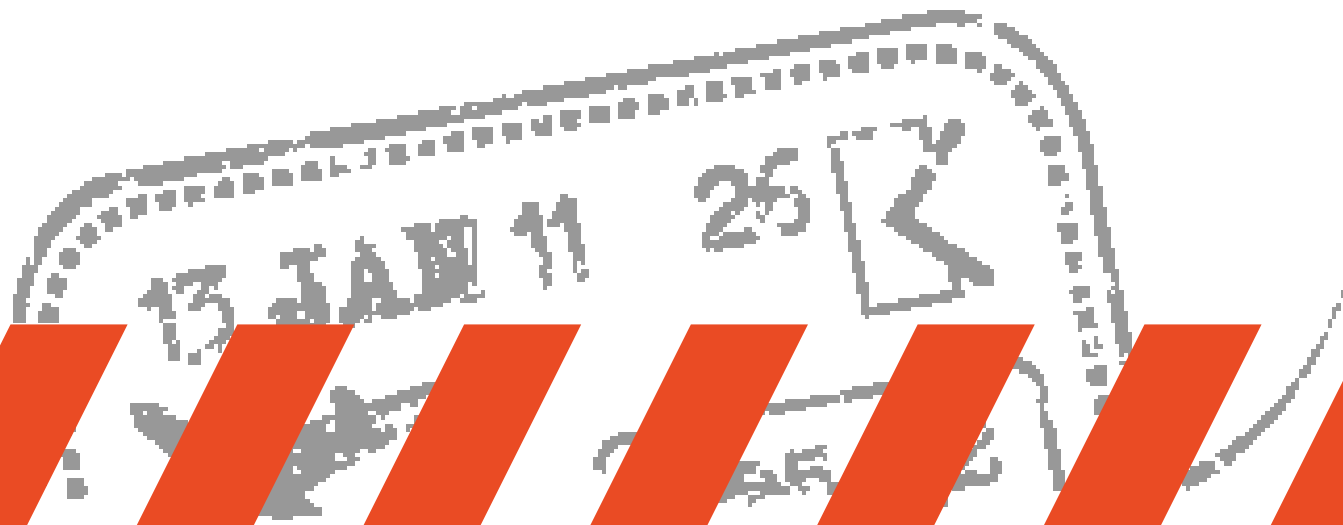
In security lines, travelers began to enter an awkward emotion management position (Redden 136). One must contain, inhibit, or mask feelings to avoid censure or additional scrutiny, while TSA officers display negative emotions without repercussions (Redden 136). While security line interactions are necessary, travelers move from authority, dominance, and "the customer is always right" to a low, "the customer is a suspect" status (Redden 136). This arrangement changes typical power dynamics for individuals, which alone sparks uncomfortable feelings (Redden 136). Redden's findings support the need to better understand the entire security line emotional experience to find intervention points in the negative emotional cycles (Redden 136).



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# CONCLUSION



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From the case studies, arguments and background content presented, designers and marketers can see how wayfinding and gamification can come together in the form of location-based applications. Wayfinding is not just hanging, and standing signage, but can include applications on smartphones. Wayfinding also includes smartphone applications along with hanging and standing signage. Wayfinding on smartphones allows game-like mechanics and elements to solve real-world problems. Applying gamification to mere concepts, like wayfinding, can improve travel experiences and strengthen the information provided to airport patrons. Imagine if all airport terminals resembled and provided the same

exciting and enjoyable experience as Narita International Airport Terminal 3. Designers and marketers can also see from the case studies that wayfinding is lacking altogether within airport security. The few signage that is in place now comes too late, leaving the passenger no time to adjust. If designers design a series of wayfinding signage that directs the flow of people through the security line quick and efficiently, it will boost the experience a passenger has in an airport security line; allowing for minimum confusion and disorientation. With both the location-based application and print pieces it will decrease passenger frustration and increase their satisfaction which will improve passengers experience.







TÉLÉCHARGEZ  
GRATUITEMENT  
L'APPLIYULI

Available on the  
App Store

Available on the  
Google play

15

POUR DES  
PRIVILÈGES  
EXCLUSIFS  
L'APPLI  
VOUS F

## PART 2/VISUAL SOLUTIONS

The visual solutions include an application design, brochure, and signage. The application design will help the passengers, find out wait times, locate security checkpoints, stay up to date on rules, and earn rewards for checking in and reporting wait times. The brochure will be a step-by-step guide to security; helping infrequent or occasional travelers to know what to expect at each stage of security, easing the stress and frustration of frequent fliers. Signage will contribute to guiding the flow of traffic, and inform the passengers of future steps.

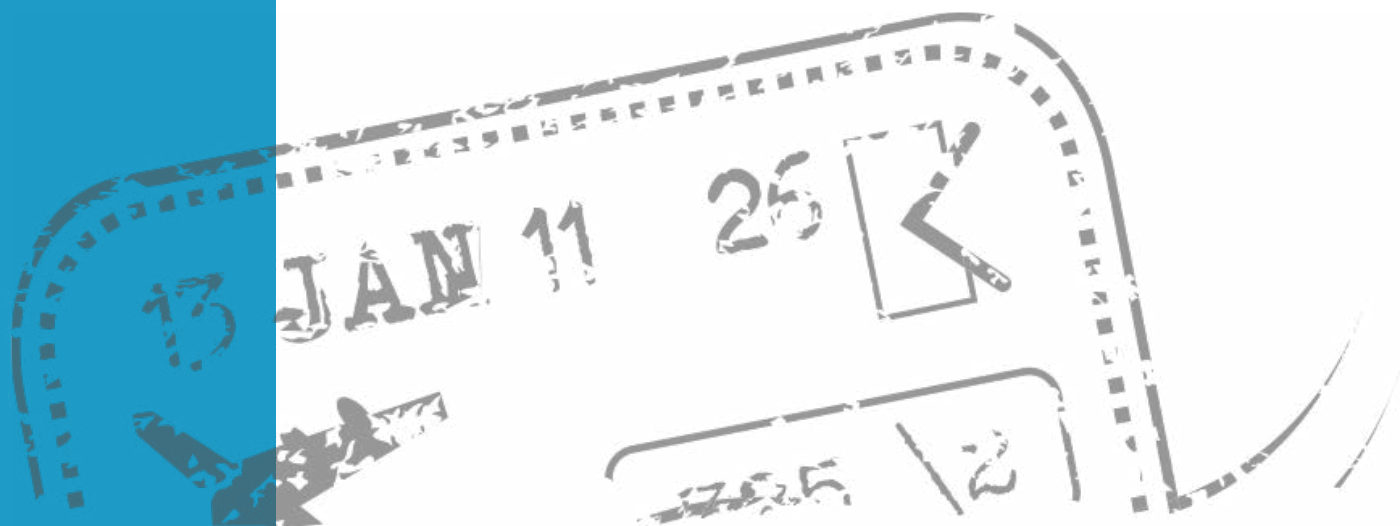


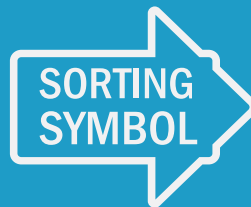




# PART 2 CONTENTS

34	Process
56	Final Solutions
78	Conclusion
80	Bibliography





B

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# PROCESS



# LOGO

I wanted the logo to combine the feel of safety with fun. It should show that it is related to the airport in some way whether that be with icon or words. I looked at pilot badges for some inspiration, as well as the old monitor boards displaying flight schedules. I wanted to use straight clean lines to communicate straightforwardness. As I began exploring different options, I realized that the pilot

badges get very busy, as well as the old monitor boards that display flight schedules. I liked the use of the airplane to show the association with airlines. The color of the logo, I felt should be interchangeable, to allow for it to be in a cooler color when needed or a bright fun color when needed.

---

# INSPIRATION

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<http://www.upworthy.com/guess-how-many-security-breaches-tsa-has-allowed-since-911>

<http://dziennikurystyczny.pl/wp-content/uploads/2012/03/poznan-logo-big-520x426.png>

<https://www.shutterstock.com/image-vector/vector-set-plane-aviation-badge-labels-119400211?src=PvM0gMCmuA5uOep0a7HpAg-1-21>

<https://graphicriver.net/item/airport-arrival/2802161?ref=sinzo>

<https://graphicriver.net/item/travel-agency-v1-logo/8405327?ref=damiomio>







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## ITERATIONS



# APP

When beginning the app, I had in mind that I wanted to provide the traveler with a fun experience (some gamification), provide them with lots of information, and give them a way to navigate through security, as well as find security checkpoints. I decided to divide the app into three parts, the gaming part, wayfinding, and information. I chose to prioritize the application's content giving primary emphasis to wayfinding, then information, and finally gamification. This order replicates the prioritizes of the travel. There are two distinct footers, one for the information sections like rules, checklist, be ready, and TSA Pre-check information. The other footer includes wait times, finding

security, check-in, and a step-by-step guide. The homepage includes a little of both the wayfinding and information items to allow a traveler to access which route they need quickly. Some traveler need help to navigate the security, due to the missing signage, others just need to know rules before going to the airport on what children items they can bring in a carry-on. While there is descriptive copy to provide detailed explanations, I have designed the app to feature various graphics allowing the traveler to understand what goes in each bin quickly at a glance. Using simple icons for shoes, medicine, and liquids quickly clarify the actions to be taken.

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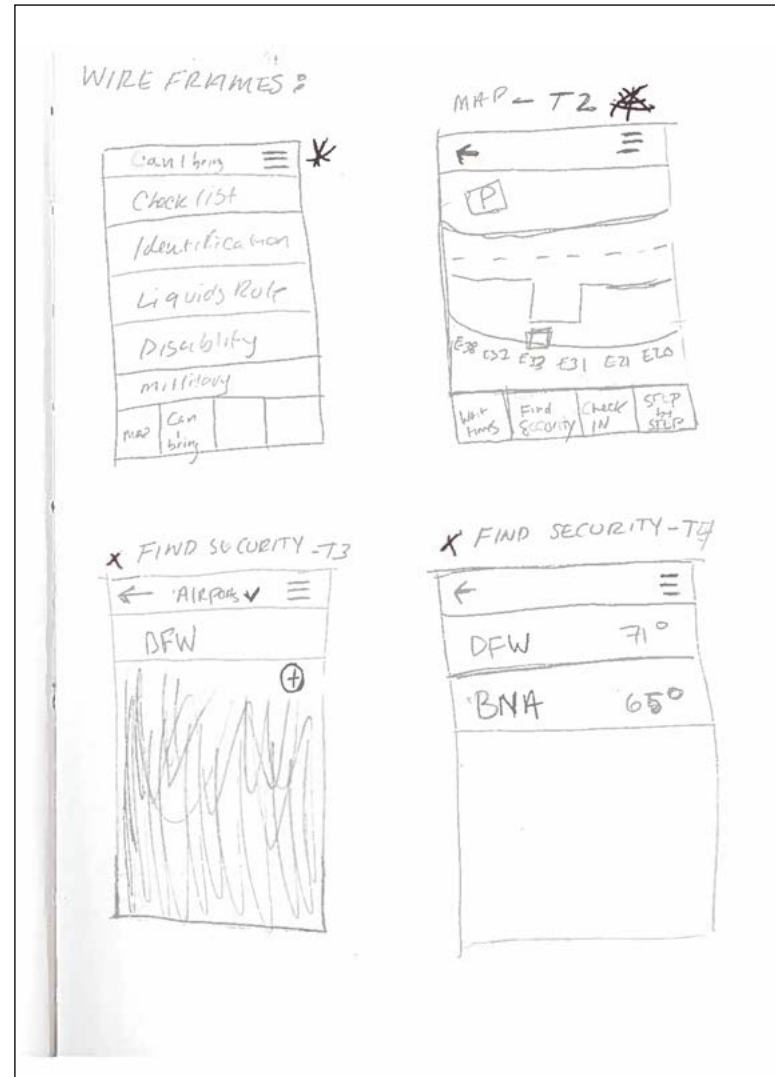
# INSPIRATION

[https://www.pinterest.com/  
pin/258253359865000017/](https://www.pinterest.com/pin/258253359865000017/)

[http://graphicdesignjunction.  
com/2014/01/innovative-ui-design-con-  
cepts-to-boost-user-experience/](http://graphicdesignjunction.com/2014/01/innovative-ui-design-concepts-to-boost-user-experience/)

[https://www.pinterest.com/  
pin/258253359864814116/](https://www.pinterest.com/pin/258253359864814116/)

# SKETCHES

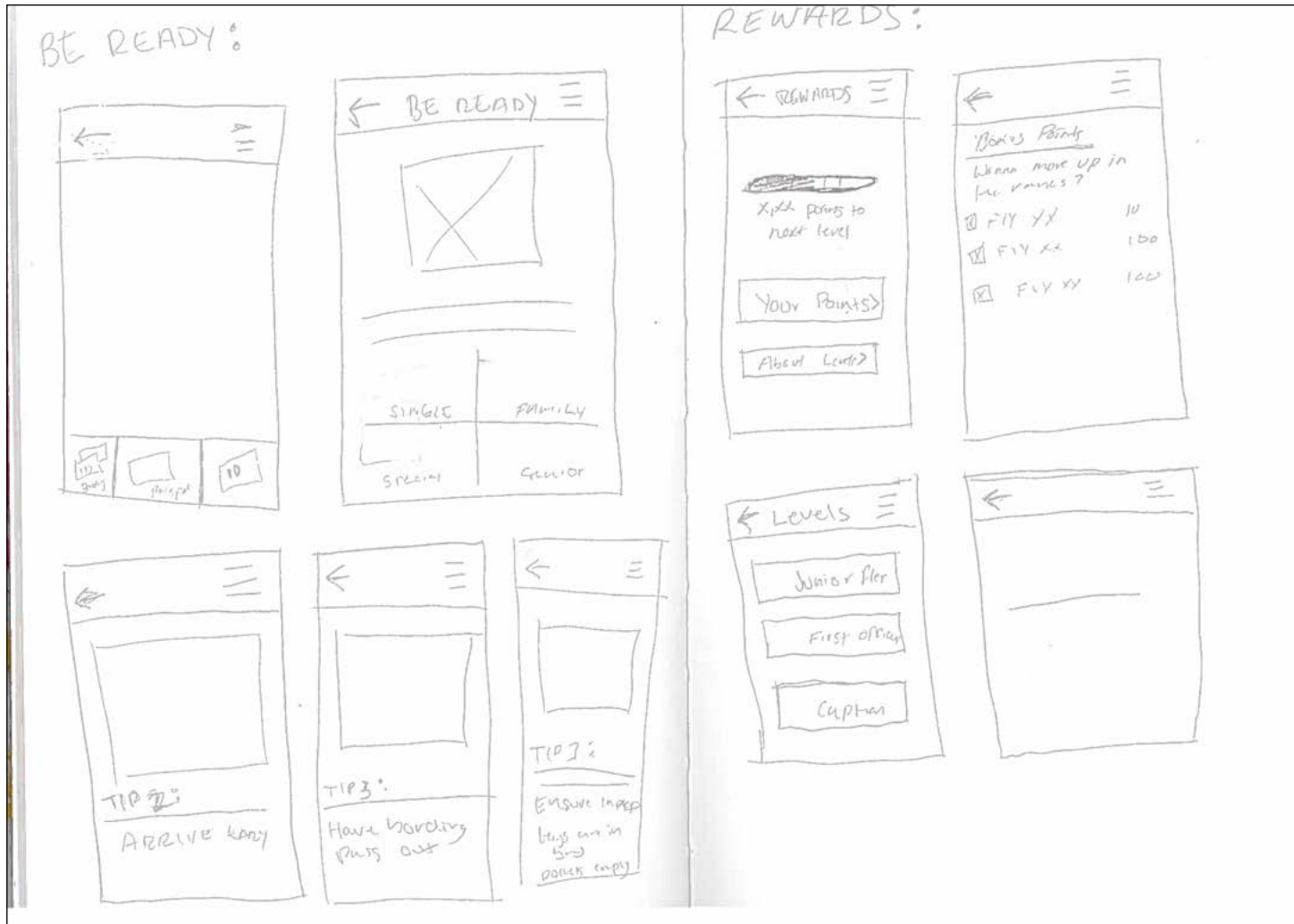


# SKETCHES

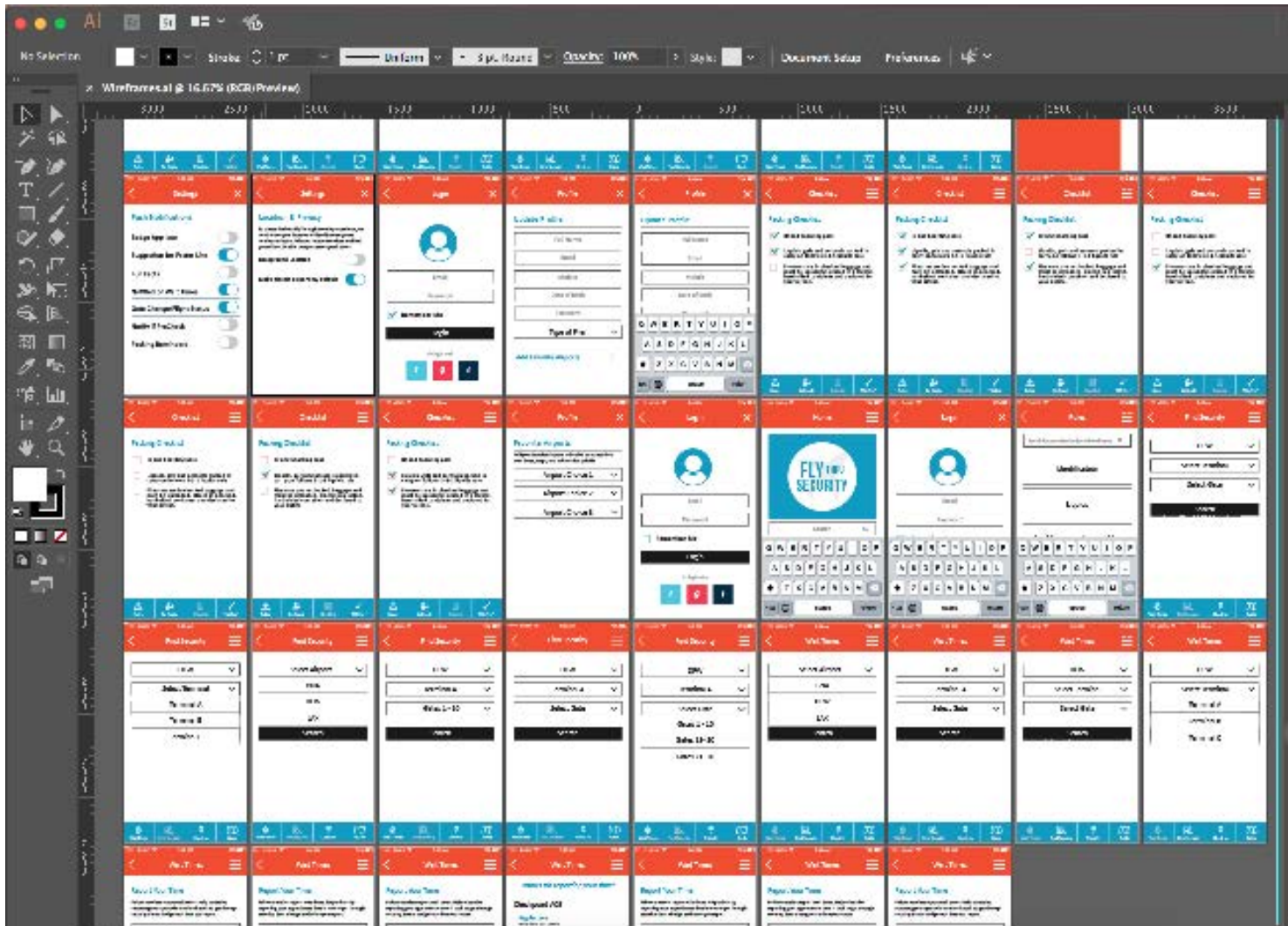




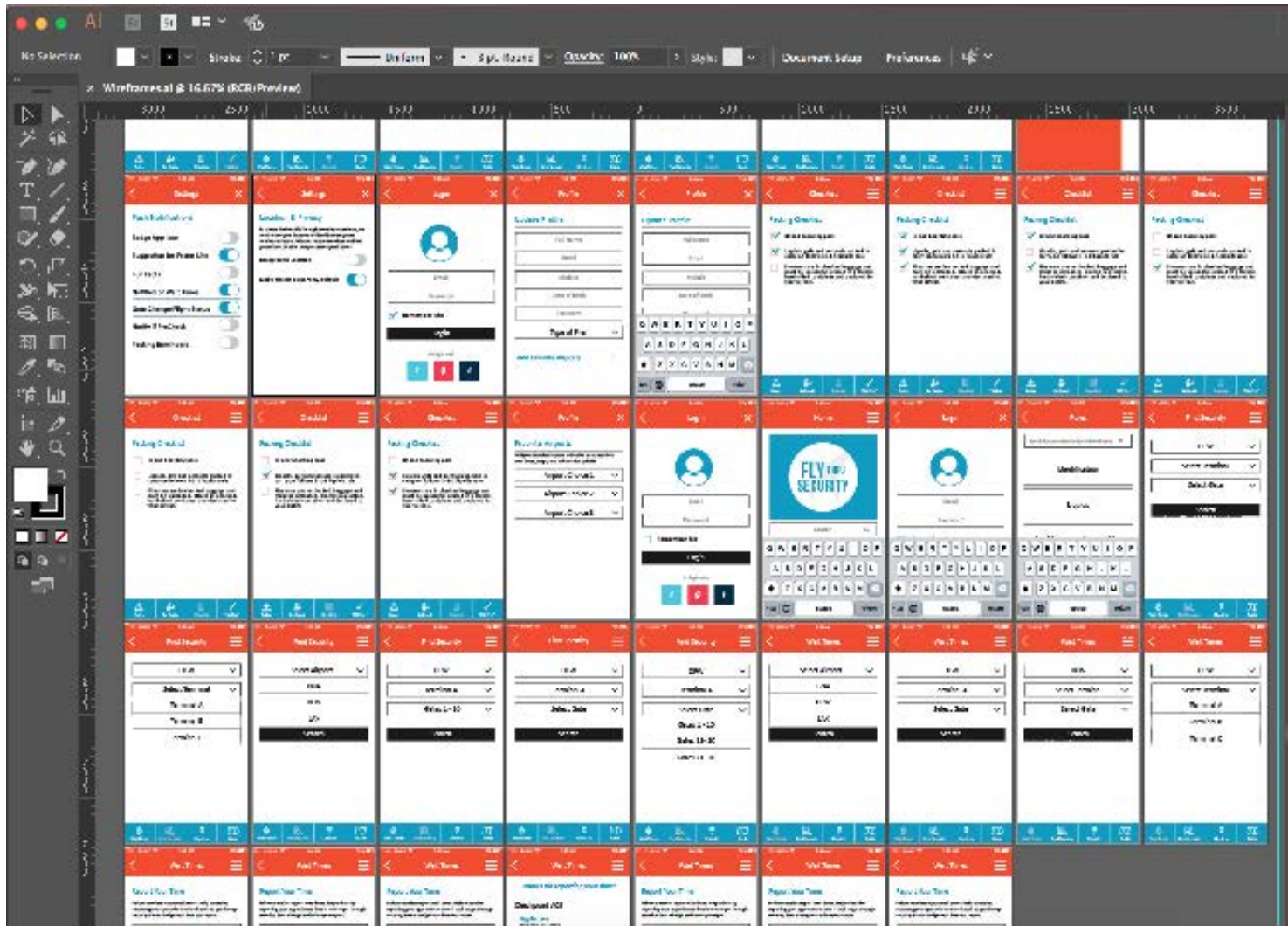
# SKETCHES



# ITERATIONS

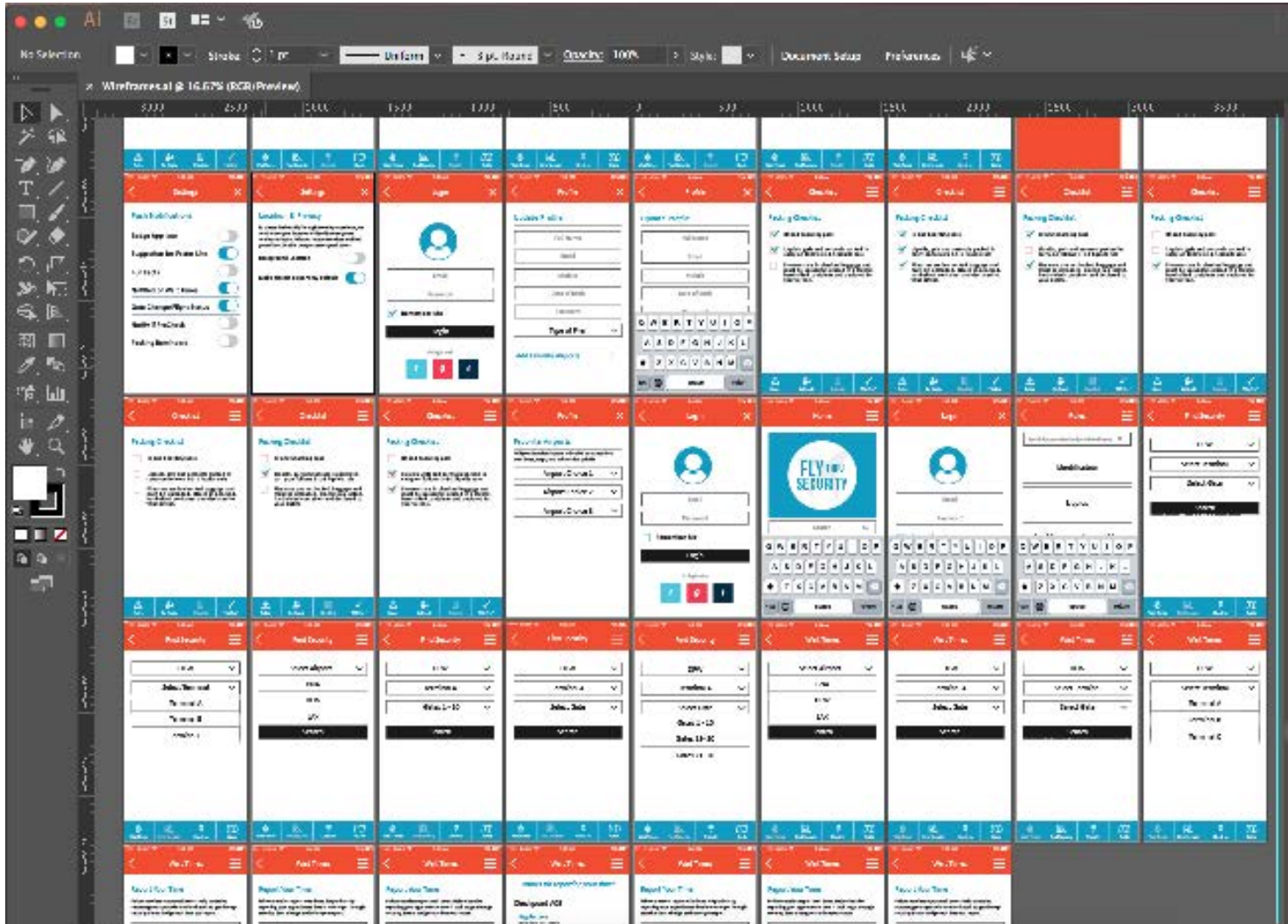


# ITERATIONS





# ITERATIONS



# SIGNAGE

For my signage piece, I wanted to improve the progression through the security lines; I wanted to portray vital information in a visual predominate way early in the experience. I want to include four things that they should do: have their boarding pass and ID ready, empty their pockets, have their laptop ready to place in the bin by itself, and have their liquids in the qualified bagging and size. Since liquids are where people usually have the hardest time, I want to blow this section out on the panel next to it, to show travelers what the 3-1-1 rule is.

I explored different ways to display signage, in front of the security line, on the panels where the bins are, or in a station by itself. I decided to do my

signage piece before they enter the security area, to allow them to have time to adjust. If travelers have incorrect liquids, they can grab a bag from the signage piece and place their liquids in them, or they have time to find a trash can to throw away liquids larger than 3.4 oz. By putting the signage front and center of the user experience, it reduces the chances of a traveler overlooking this essential information. If I were to design signage for a station, travelers could miss it, if they did not look to left or right. Also by having signage at the beginning of the ropes to security, it allows for flexibility and takes up limited space. Each airport is different, and each security checkpoint is different. This will allow TSA to adjust as needed.

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# INSPIRATION

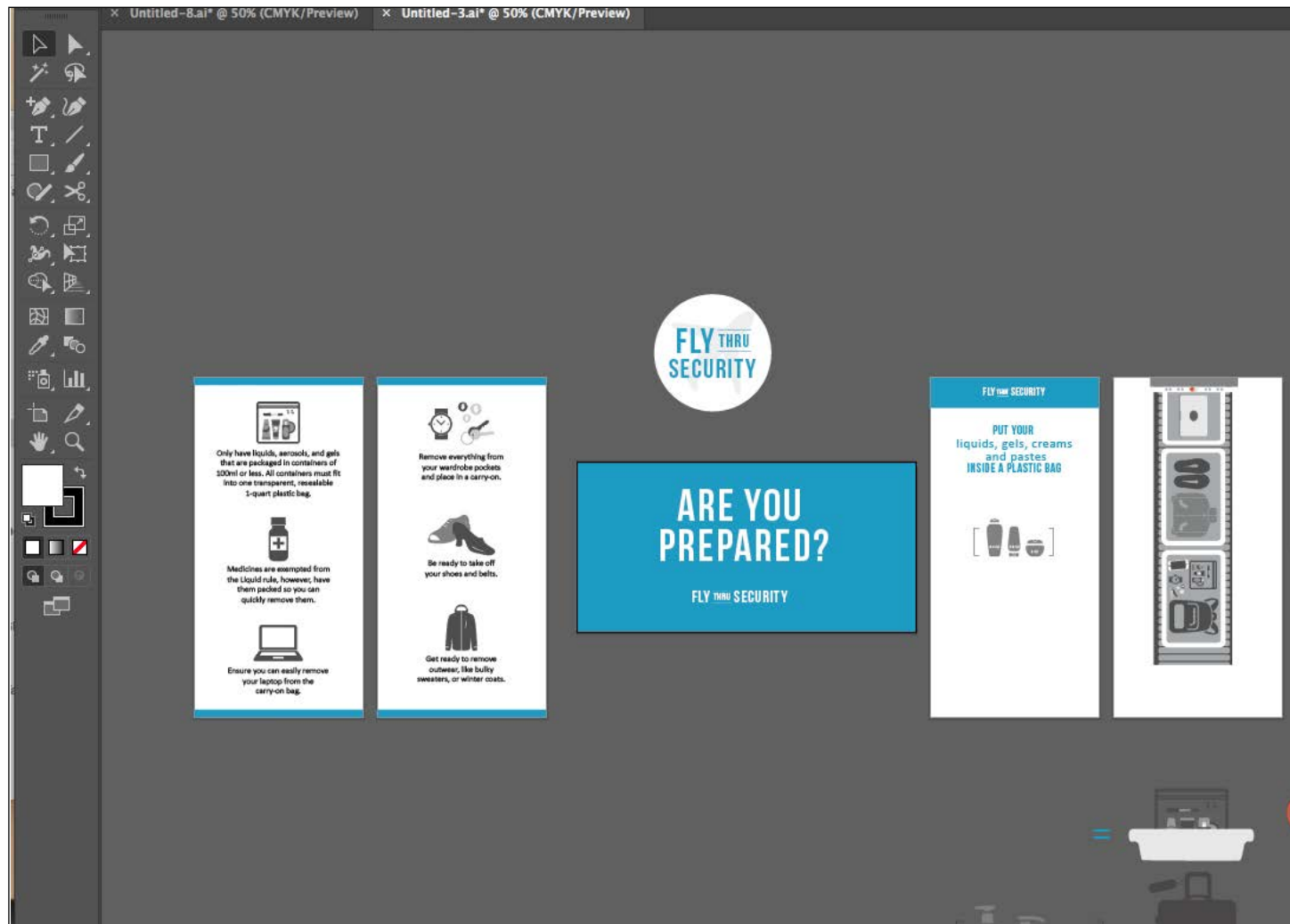
<https://graphicriver.net/item/corporate-rollup-banners/14843755?ref=pxcr>

<https://graphicriver.net/item/corporate-rollup-banner/18895997?ref=ksioks>

<https://graphicriver.net/item/corporate-business-roll-up-banner/15773507?ref=ksioks>



# ITERATIONS





# BROCHURE

When brainstorming for the brochure, I had lots of ideas of an accordion type booklet that would show in detail the steps and provide rules or information on each step. However, wanting this piece to provide a step-by-step guide to security to allow quicker flow and a stress-free environment I thought it would be better to keep the piece short and to the point. I created a large infographic on the inside of the brochure. This design emphasizes the use of icons allowing the information to be more universally understood, and quickly digested

by the viewer. I had thoughts of adding a map to the brochure. However, there are many different airports, and airport layouts change constantly making the brochure outdated fast. However, the traveler can view a map and wayfinding on their app if they desire to use one. My solution to the problem was divided up into giving the traveler more information and providing ways for them to figure out how to navigate the checkpoints. The brochure touches more on how to navigate through security, with a hint of information.

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# INSPIRATION

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<https://www.pinterest.com/pin/258253359865525413/>

<https://www.behance.net/gallery/28602589/Minimal-Multipurpose-Trifold-Brochure->


<http://design.tutsplus.stfi.re/tutorials/design-a-fold-out-city-guide-in-adobe-indesign--cms-23745?sf=zpxdevg#ab>

# SKETCHES

Brochure:

Travelling with kids What goes in bins  Screening	Travelling by self	Senior citizens What goes in bins
---	--------------------	--------------------------------------

 Be prepared download app arrive early have boarding pass	Screening	Liquids
---	-----------	---------

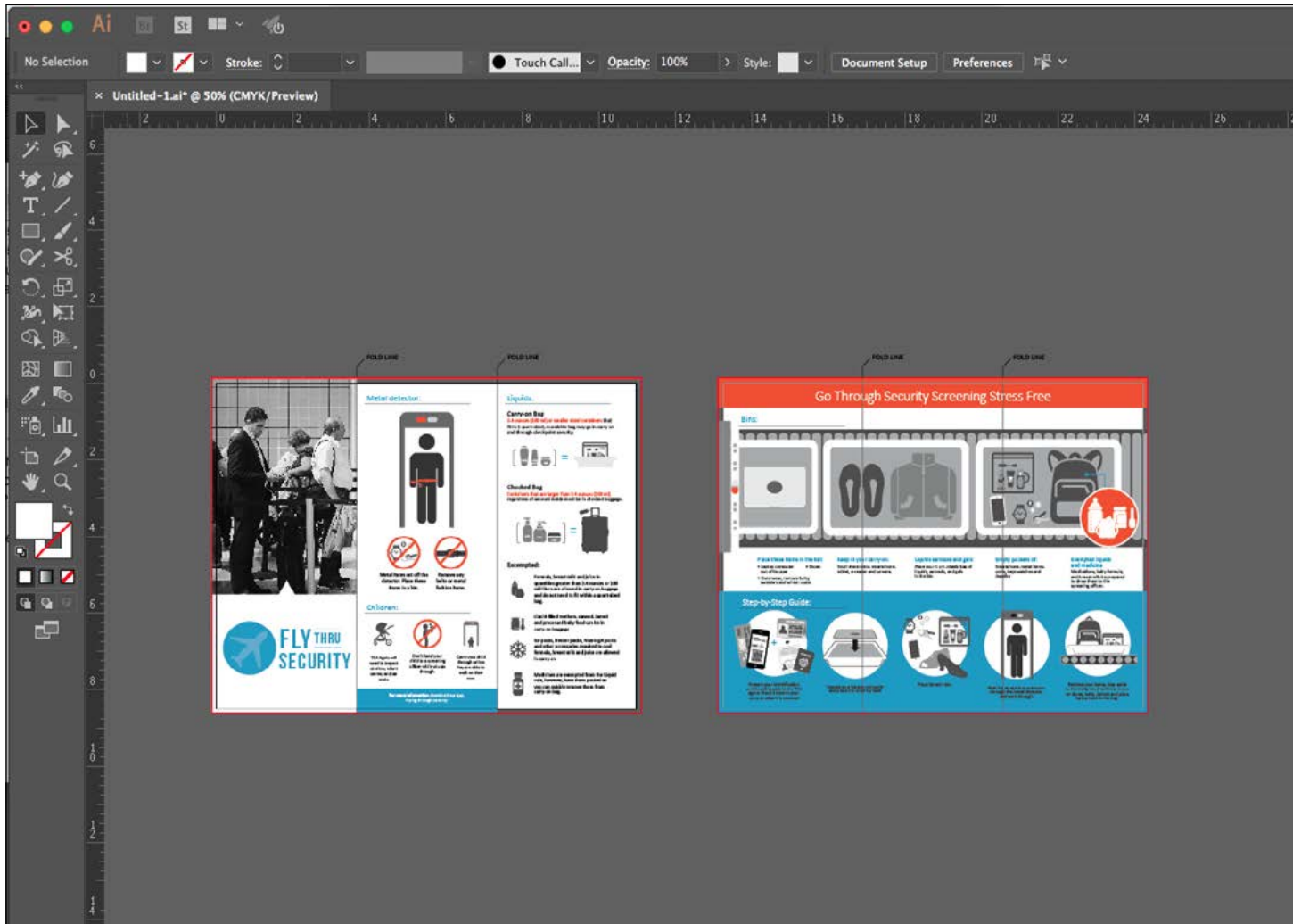
Boarding Pass Slip:

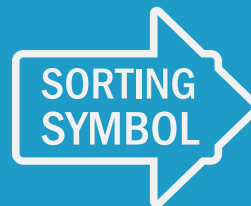

  

Fun signs along way - keep them

Will come Keep it with you 	It's all in bag 	Keep them within Reach	Contact Loss Solution
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# ITERATIONS

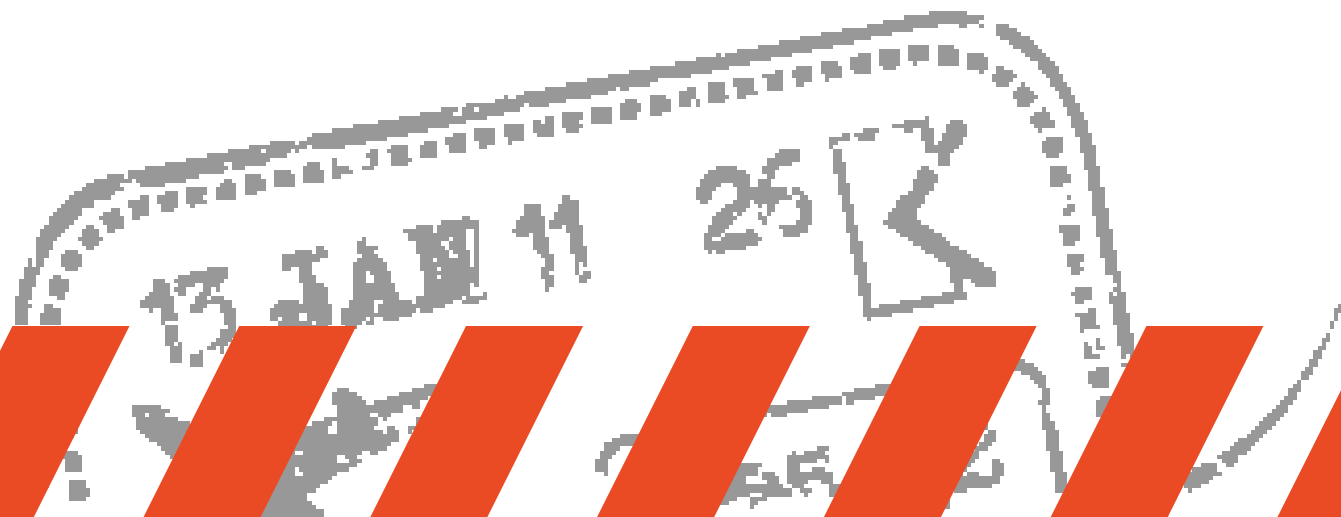




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# FINAL SOLUTIONS



# BRAND ELEMENTS

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The brand elements include typography treatments, fonts, colors, logos, UI kit. The elements all have a clean, straightforward aesthetic. The typography choices are very simple, clean and to the point. They are not screaming at you or in your face to allow the user to read and look at materials from Flying Thru Security calmly. The colors give off the feeling of safety, fun environment/program, and calming atmosphere. The logo provides a

combination of flying with a hint of fun. Travelers recognize the airplane as something to do with airports. The UI Kit uses lots of icons to represent different categories such as rules, checklist, be ready, check-in, wait times, find security, and maps. Each of the buttons and drop down menus have cornered edges to provide straightforwardness.

---

# TYPOGRAPHY

The type selections were based on fonts that can be easily seen in large format and used properly for web, print, and signage. Calibri has subtle round corner stems that allow it to be visible in larger sizes. Bebas Neue has clean lines and elegant shapes that blend technical straightforwardness. Bebas is a great font for headlines that can be used for web and print collateral.

## PRIMARY FONT

# Calibri

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

1234567890!@#\$<>?

## HEADLINE EXAMPLE

# BE READY

for airport security

## SECONDARY FONT

# BEBAS NUE

ABCDEFGHIJKLMNOPQRSTUVWXYZ

ABCDEFGHIJKLMNOPQRSTUVWXYZ

1234567890!@#\$<>?

## SUB-HEADER EXAMPLE

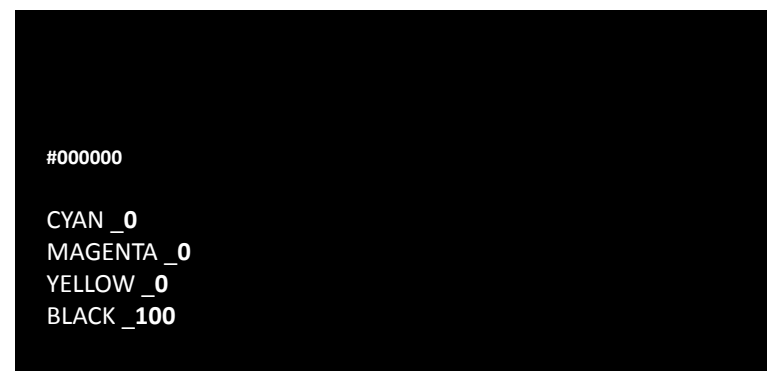
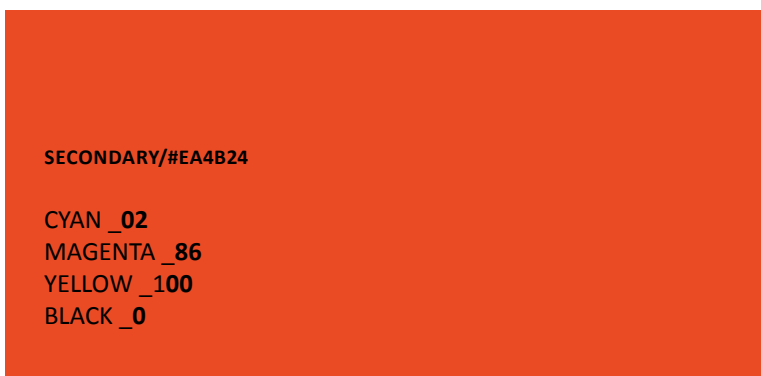
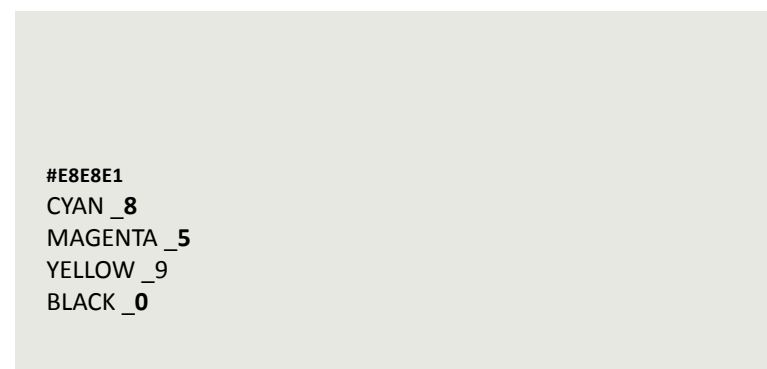
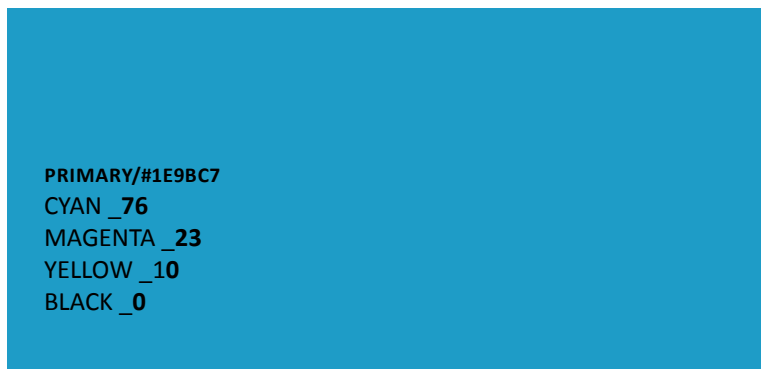
Lor eum Ipsum

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# COLORS

The color selections are based on the colors' meanings. The primary color is blue, which is the color of the sky. It symbolizes trust, loyalty, and confidence and produces a calming effect. The secondary color is orange, which represents happiness and creativity. It is associated with safety, warning, security, joy, and sunshine. Fly Thru Security portrays how airport security lines can now be easier, quicker and more efficient while bringing safety. The use of blue and orange helps represent a calmer airport security space with a pop of fun.





---

## **LOGOS**

The logo combines elements of clean lines and elegant shapes to communicate the campaign's straightforwardness. In the logo, the airplane breaking through the square creates a sense of urgency and speed emphasizing "Fly Thru Security." The airplane also associates the campaign with airports. The word "thru" is spelled in a variation of "through" to allow for a quick read and design ease.



# UI KIT

The UI Kit includes assets from the application. The buttons, form fields, and drop-down menus all are rectangular to provide the clean lines and elegant shapes that blend technical straightforwardness. The icons were kept to be more universal, and be quickly digested by the viewer. Some buttons are in black and some in orange, the orange buttons are to signify immediate action.

## TOGGLE SWITCHES



## CHECK BOXES

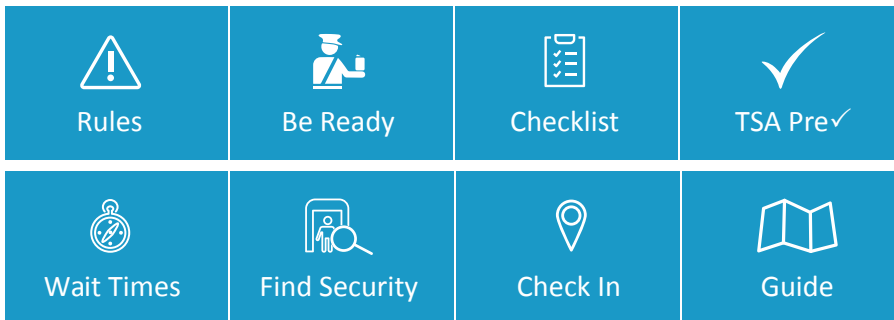


## FORM FIELDS

## BUTTONS



## ICONS



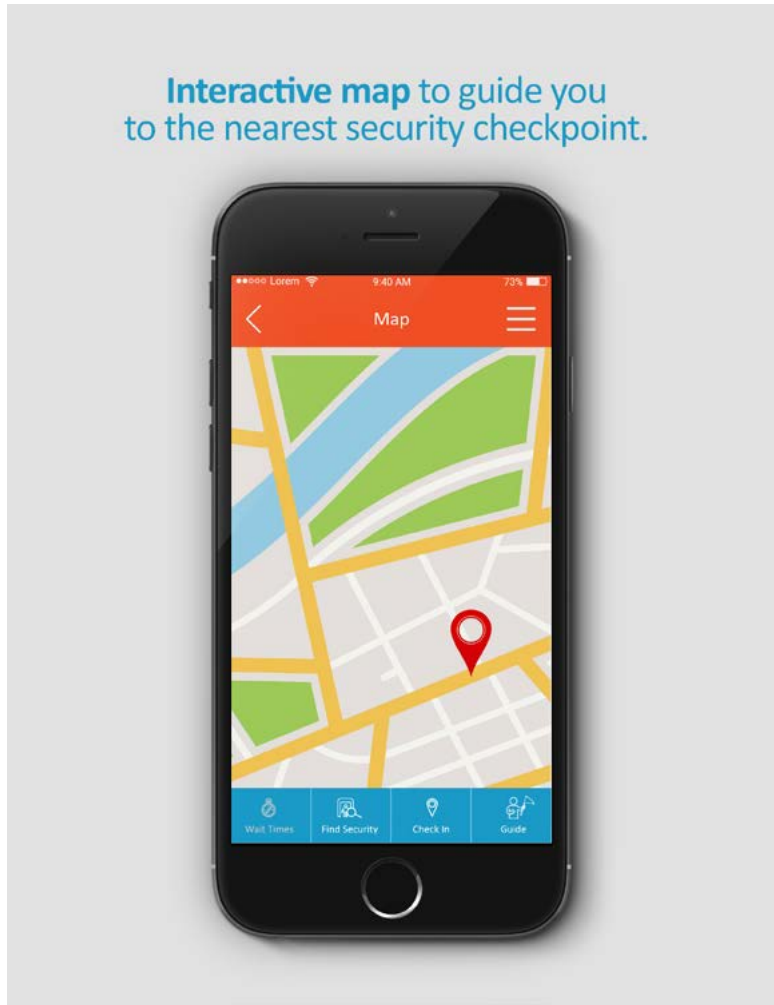
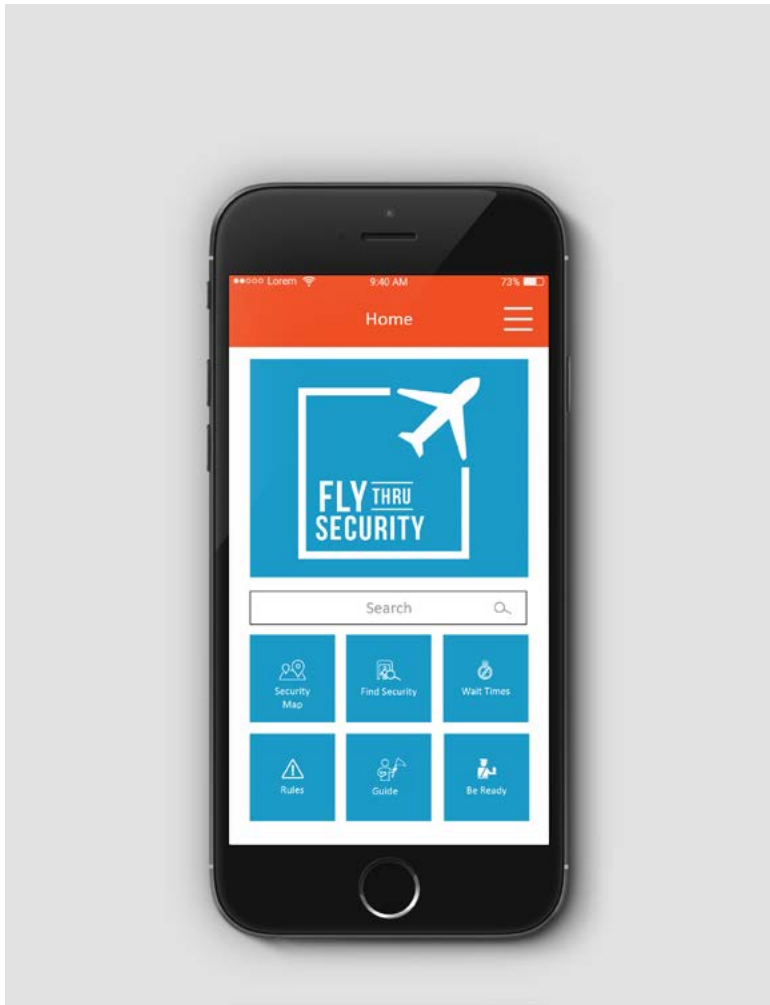
## DROP DOWN MENUS

Select Gate	▼
Gate 2	
Gate 5	
Gate 9	

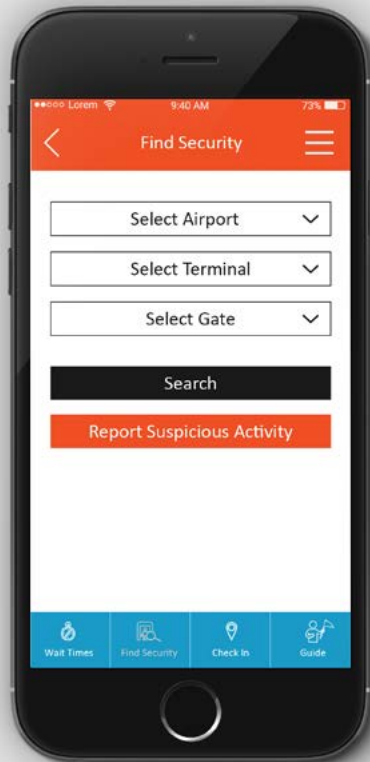
# APP

The purpose of the application is to allow passengers to find out wait times, locate security checkpoints, stay up to date on rules, and earn rewards for checking in and reporting wait times. Having the application installed on portable devices, allows travelers to take it to the airport, and with GPS the map is tied to specific airports and provides context sensitive. Travelers can locate other checkpoints from where their location is. It prevents them from having to find the directory or an attendant for help. The travelers in the application share their experience by reviewing security areas as well as reporting their wait times;

through their joint efforts give way for social interactivity. The application provides a step-by-step guide through the process of security, notifying travelers of the next steps when heading through security; preventing travelers from having to improvise. It also provides a “Be ready” guide that allows an infrequent traveler, get a walkthrough or idea of how security will go, what they need to put in bins or on the conveyor belt. It allows them to choose how they are traveling, with children, as a senior citizen, or with medical disabilities honing in on how it will go for the specific category.



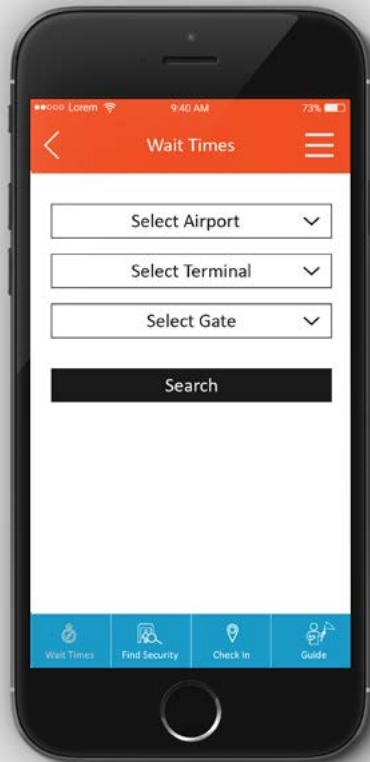
**Outsmart** lines with finding security lines that are the shortest.



**Know** what to expect before arriving.



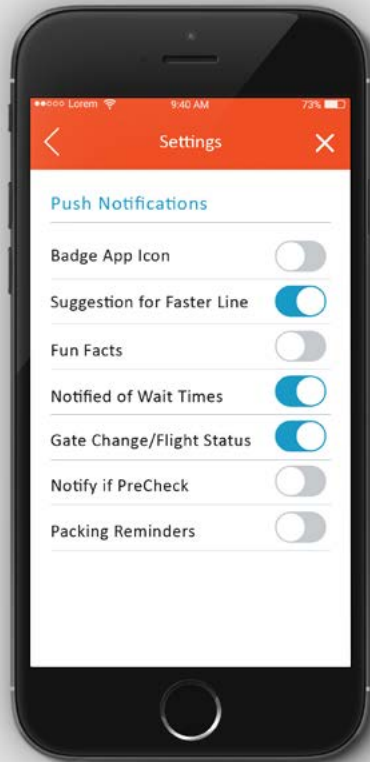
Know how long you will be stuck in airport security.



Step-by-Step guide through airport security.



Get alerts to keep you updated.

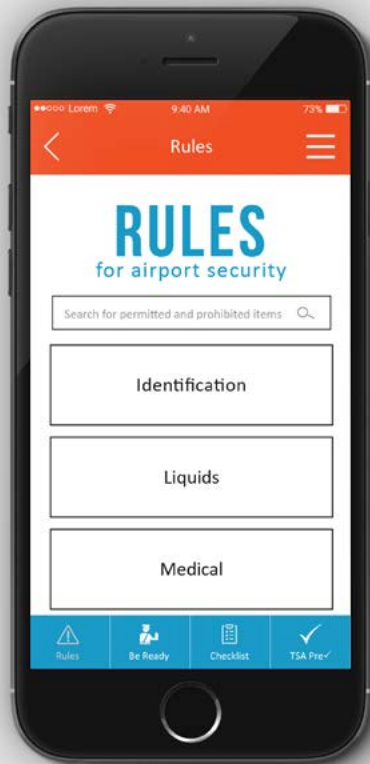


Earn Rewards by checking in and reporting your time.

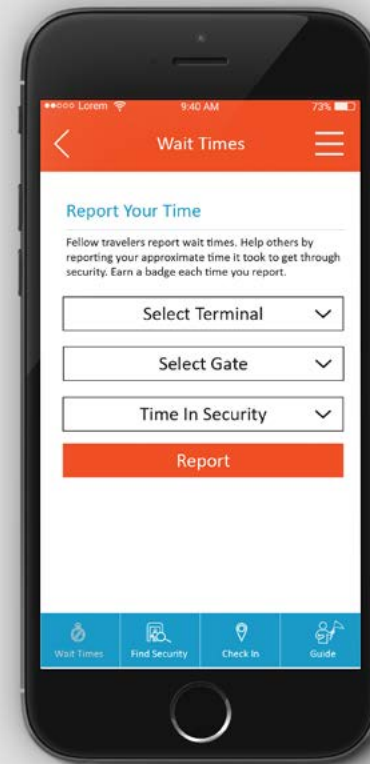




TSA Rules at your finger tips.



Report approximate times to improve others anxiety.



# SIGNAGE

Due to the missing signage that explains step-by-step the process of security, leaving infrequent travelers to improvise. They do not know what to have prepared, official documents to demonstrate readily, which line to choose, how many plastic bins to pick, or how to pack items. The signage pieces offer, a quick overview of what is expected of them when they enter security. They should be ready to present ID and boarding pass, their laptops should

be easily removable, pockets empty, and liquids within reach. The signage piece goes in depth on the liquid rules, allowing travelers to adjust before entering security. It will provide bags, as well as have a trash can nearby. The signage will help guide the flow of traffic and inform passengers of their future steps. The icons from the app are repeated on the signage pieces to allow it to be consistent with the application.

# PREPARE FOR SECURITY



Follow these tips for a quicker, stress-free security experience.



**Have in hand.**  
Have your identification (passport, drivers license, ID card) and boarding pass in hand ready to give to the TSA agent.



**Easily removable.**  
Ensure you can easily remove your laptop from your carry-on bag and place in a bin by itself. All small electronics (tablets, iPads, smartphones) can stay in your carry-on.



**3-1-1 liquids.**  
Only have liquids, aerosols, and gels that are packaged in containers of 100ml or less, all containers must fit into one transparent, resealable 1-quart plastic bag.



**Empty pockets.**  
Remove everything from your wardrobe pockets (keys, coins, smartphones and small metal items). Place them in your carry-on.

For more information and tips, download our app or visit [tsa.org](http://tsa.org).



## 3-1-1 LIQUIDS

Put your liquids, gels, creams aerosols and pastes **inside a plastic bag.**



**Only 5.4 ounces or smaller.**  
3.4 ounces (100 ml) or smaller sized containers may go in carry-on and through checkpoint security.



**1 quart bag.**  
1 quart size, clear plastic, the zip-top bag holding 3 ounces or fewer containers.



**1 bag per traveler.**  
1 bag per traveler placed in the security bin.



Be Ready for airport security.

## PREPARE FOR SECURITY





**FLY THRU SECURITY**

**Follow these tips for a quicker, stress-free security experience.**

- 

**Have in hand.**  
Have your identification (passport, drivers license, ID card) and boarding pass in hand ready to give to the TSA agent.
- 

**Easily removable.**  
Ensure you can easily remove your laptop from your carry-on bag and place in a bin by itself. All small electronics (tablet, laptop, smartphones) can stay in your carry-on.
- 

**3-1-1 liquids.**  
Only have liquids, aerosols, and gels that are packaged in containers of 3.4oz or less. All containers must fit into one transparent, resealable 1-quart plastic bag.
- 

**Empty pockets.**  
Remove everything from your wardrobe pockets (keys, coins, smartphones and small metal items). Place them in your carry-on.

For more information and tips, download our app or visit [tsa.org](http://tsa.org).



## 3-1-1 LIQUIDS

**Put your liquids, gels, creams aerosols and pastes inside a plastic bag.**

- 

**Only 3.4 ounces or smaller.**  
3.4 ounces (100 ml) or smaller sized containers may go in carry-on and through checkpoint security.
- 

**1 quart bag.**  
1 quart-size, clear plastic, zip-top bag holding 5 ounces or fewer containers.
- 

**1 bag per traveler.**  
1 bag per traveler placed in the security bin.



**Be Ready for airport security.**

# SIGNAGE PART II

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This set of signage will help travelers know how to pack items in their carry-on for future travels. The second set of signage pieces, help travelers know information for their next travels which over time will contribute to easing questions travelers may have and allow travelers to be more knowledgeable in the rules. The signs are placed along the roped area, allowing entertainment for the travelers as they wait in line for security. They are branded as

“Did You Know?” facts. Simple things like shavers, contact solution, some travelers do not know the rule about these for carry-ons. These signs can switch out per season, for example, have signs talking about presents during or right before Christmas time, or have signs saying things about bug spray and sunscreen during summer and spring break.

---

**DID YOU KNOW?**

**CONTACT SOLUTION**

Contact lens solution is considered essential non-prescription medication. You are allowed to carry volumes greater than 100 ml in your carry-on bag. Be prepared to show the screening officer.



For more information download our app, Flying through Security

**DID YOU KNOW?**

**COUGH SYRUP**

Cough syrup is considered essential non-prescription medication. You are allowed to carry volumes greater than 100ml in your carry-on bag. Be prepared to show the screening officer.



For more information download our app, Flying through Security

**DID YOU KNOW?**

**SHAVERS**

Disposable razors and razor blade cartridges can go in your carry-on or checked bag.



For more information download our app, Flying through Security

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**DID YOU KNOW?**

**BUG SPRAY**  
Pack insect repellent of 100ml or less in a 1-quart Clear plastic bag. Quantities larger than 100 ml must be packed in your checked bag.



For more information download our app, Flying through Security



**DID YOU KNOW?**

**GIFTS**  
Keep presents unwrapped in your carry-on as the contents may need to be inspected.



For more information download our app, Flying through Security



# BROCHURE

The brochure is a step-by-step guide through security, as well as provides a little bit of information to the traveler. In one part of the brochure, it walks them through each step, mimicking how the app walks the traveler through security in the Guide. The other part is an infographic, showing travelers, what is expected of them when putting their things on the conveyer belt. The step-by-step guide mentions what goes into the bins. However, this section goes into more detail and shows some of the exemptions that are

common. The other two panels go over bigger rules, like going through the metal detector and the 3-1-1 liquids rule. Infrequent travelers do not know what to expect when going through the metal detector or understand the importance thereof this panel helps provide them information and ease their anxiety. The 3-1-1 rule is a rule that is heavily missed, TSA find lots of disqualifying liquids in carry-ons. The brochure stresses the rule and gives information to some exemptions.



### Liquids:

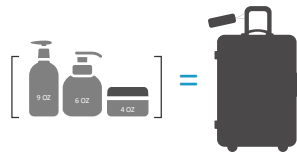
#### Carry-on Baggage

3.4 ounces (100 ml) or smaller sized containers that fit in 1 quart-sized, resealable bag may go in carry-on baggage and through checkpoint security.



#### Checked Baggage

Containers that are larger than 3.4 ounces (100 ml) regardless of amount inside must be in checked baggage.



#### Exempted:



Formula, breast milk and juice in quantities greater than 3.4 ounces or 100 milliliters are allowed in carry-on baggage and do not need to fit within a quart-sized bag.



Liquid-filled teething, canned, jarred and processed baby food can be in carry-on baggage.



Ice packs, freezer packs, frozen gel packs and other accessories required to cool formula, breast milk and juice are allowed in carry-on baggage.



Medicines are exempted from the liquid rule, however, have them packed so you can quickly remove them from carry-on baggage.

### Metal detector:



Metal items set off the detector. Place these items in a bin.



Remove any belts or metal fashion items.

### Children:



TSA Agents will need to inspect strollers, infant carrier, and car seats.



Don't hand your child to a screening officer while you go through.



Carry your child through unless they are able to walk on their own.

For more information download our app, Flying Thru Security

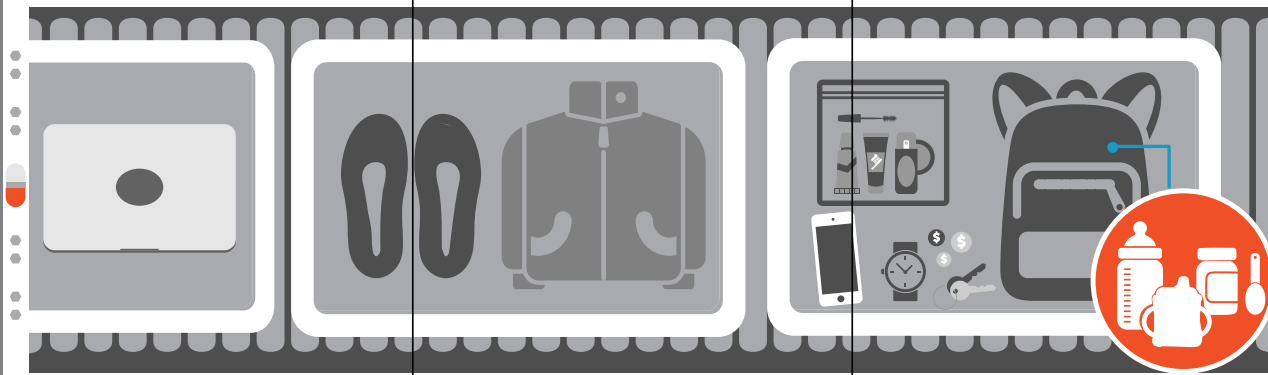
## PREPARE FOR SECURITY



Follow these tips for a quicker, stress-free security experience.

# Go Through Security Screening Stress Free

## Bins:



### Place these items in the bin:

- Laptop computer out of its case
- Shoes
- Outerwear, remove bulky sweaters and winter coats

### Keep in your carry-on:

Small electronics, smartphone, tablet, e-reader and camera.

### Liquids aerosols and gels:

Place your 1 qt. plastic bag of liquids, aerosols, and gels in the bin.

### Empty pockets of:

Smartphone, metal items, coins, keys watches and Jewelry.

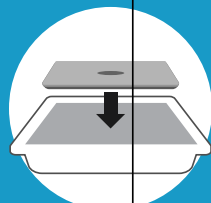
### Exempted liquids and medicine

Medications, baby formula, and breast milk be prepared to show them to the screening officer.

## Step-by-Step Guide:



Present your identification and boarding pass to the TSA agent. Place it back in your carry on after it is scanned.



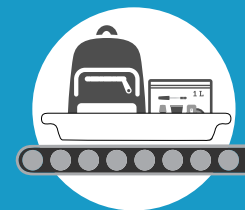
Unpack your laptop computer and place it in a bin by itself.



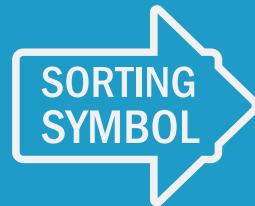
Place items in bin.



Wait for an agent to wave you through the metal detector, and walk through.



Retrieve your items. Step aside to the designated stations, to put on shoes, belts, jackets and place laptop back in the bag.



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# CONCLUSION



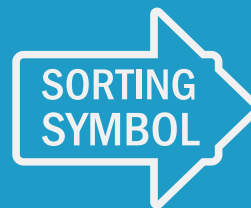
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Airport security leaves travelers feeling anxiety, frustration, stress, and annoyance due to the lack of communication. There is missing signage that explains step-by-step the process of security, leaving infrequent travelers to improvise. They do not know what official documents to demonstrate, which line to choose, how many plastic bins to pick, or how to pack items. In researching, the solution to make airport security less of a hassle and a stress-free environment is by adding material that communicates effectively to travelers of what they are required to do.

Flying Thru Security accomplished this by the visual solutions which include an application design, brochure, and signage pieces. Flying Thru Security provides three different ways of helping infrequent travelers navigate their way through airport security. As smartphones and tablets flourish the market, one way of helping travelers is through the app which allows passengers to find out security checkpoint wait times, locate security checkpoints, stay up to date on rules, and earn rewards. Having the application installed on portable devices, allows travelers to take it to the airport, and with GPS the map is tied to specific airports and provides context sensitive. Travelers can locate other checkpoints from where their location is. It prevents them from having to find the directory or an

attendant for help. The travelers in the application share their experience by reviewing security areas as well as reporting their wait times; through their joint efforts give way for social interactivity. Another way to help travelers is by adding signage to the security process, to communicate what they are required to do. Flying Thru Security, added signage pieces to the beginning of security. The signage pieces offer, a quick overview of what is expected of them when they enter security. They should be ready to present ID and boarding pass, their laptops should be easily removable, pockets empty, and liquids within reach. The last way to help travelers is by adding a brochure that they can carry with them, save for future times, or reference during their trip through security. The brochure is a step-by-step guide through security, which also provides a little bit of information to the traveler.

Through this design, the infrequent traveler is better prepared and has a deeper understand of what is required of them at the airport. By helping the occasional traveler avoid mistakes, the frequent traveler will be greeted by quicker lines and fewer interruptions. With more informed guest, fewer procedural errors, and greater peace of mind; this design hopes to help everyone Fly Thru Security.



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