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I, Francis D. D’Andrea, hereby submit this original work as part of the requirements for the degree of Master of Architecture in Architecture (Master of).

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Taking Back the Tarmac: Re-Use of Airport Infrastructure

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Taking Back the Tarmac: Re-Use of Airport Infrastructure

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ABSTRACT

Man has dedicated large amounts of time and resources to construct airports. Mountains have been moved, new islands made in the sea, and vast swaths of land have been cleared all to make the dream of flight possible. The large scale building of international airports and the efforts and investment to make them possible will continue for the foreseeable future as air passenger numbers continue to rise. But what happens when the airport is unused? The default answer seems to be to clear the site and redevelop on a tabula rasa. The history of the site is ignored and the building stock and infrastructure carelessly demolished to make way for new development. While designers like Peter Latz have explored the idea of reusing post-industrial landscapes like steel plants while preserving their infrastructure, not much thought has been given to the post-airport condition. The re-use of airports presents unique issues because of their economic importance, role as transportation and infrastructure hubs, enormous buildings, substantial infrastructure and vast spaces. The current pattern of completely wiping away the airport and starting over from scratch is broken. The airport requires special attention and consideration from designers in order to successfully deal with the aforementioned issues.

This thesis, then, intends to look at the potential re-use of airports in a critical manner, with an eye to the question: is there a better way to reuse the airport? Is there a way to re-use it that takes into account its former use as an airport and plays off these qualities to make new productive uses out of its buildings and infrastructure? Can the nature of an airport as both a “non-place” and “two-dimensional facsimiles of modern cities” be used to inform and enrich the reuse of the airport? With these questions in mind, Chicago’s Midway International Airport was chosen as a testing ground. While it is still in use, for the purposes of this thesis, it is presumed to be unused. The thesis will attempt to repurpose the entirety of the airport: master planning the entire site with a park and city and looking at the repurposing of a portion of the terminal by reusing it as an economic incubator.
This thesis is dedicated to my parents; without their tireless love and support it would not have been possible.

A special thanks to my classmates, who kept me going on the days I needed it most.

I would like to also extend a special thanks to John Hancock, Aarti Kanker, Micheal McInturf, Victoria Myers and Udo Greinacher for their feedback, helpful criticism and guidance.
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"Airports and air-fields have always held a special magic, gateways to the infinite possibilities that only the sky can offer." - J.G. Ballard
Why Airports?

Ever since I was a young boy, I have been fascinated by flight. My first flight was taken at two weeks of age...across the Atlantic Ocean. Thus began a lifelong infatuation with all things transport. However, flight held a special place in my love of transport. Just after I was born my father, who at the time worked for an airline catering company, was transferred to an overseas position in England. This meant that the first years of my life were spent shuttling back and forth across the Atlantic and around Europe with my parents. I was in and out of airports constantly. By the age of two I was adept at pointing out the various tail markings on jetliners on my frequent trips to the airport. This early introduction to the world of human flight set the foundation for my interest in flight and the act of traveling. To this day nothing is more exciting than pulling up to the terminal, watching the bustle of people hurrying to different locations, relishing the feeling that you are going somewhere, feeling the plane jolt upwards as it “[slips] the surly bonds of earth.”\footnote{From the poem \textit{High Flight} by John Gillespie Magee, Jr.} It is this interest that coaxed me into pursuing a thesis topic related to airports.

Setting the Stage

We have, as a civilization, poured enormous amounts of resources into the pursuit of air travel. As Paul
Andrea observes, “In order to build airports, mountains have been demolished, [and] islands created offshore...”

One has to look no further than the construction of Chep Lap Kok airport in Hong Kong to see this fact. Facing constraints at the existing Kai Tak airport, a new airport was needed. However, since Hong Kong had a shortage of flat land suitable for airport construction, it was decided that the airport should be built in the ocean just outside Hong Kong. The island of Chep Lap Kok was selected as the best site and promptly flattened, but not before it generously gave its name to the new airport. Or take the case of Dubai International Airport, which opened the largest airport terminal in the world and the second largest building in the world measured by floor space, coming in at 1,185,000 sq.mt or over 12,000,000 sq.ft. We are certainly willing to literally move mountains and devote massive amounts of resources in order to satisfy our desire to take flight.

With this willingness to build in mind, it should be noted that aircraft traffic is forecast to increase worldwide for the foreseeable future. This

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is especially true of the developing world where Boeing forecasts that markets in Asia and Latin America will each have growth rates of over 6%.\(^5\) This kind of investment in airport building and infrastructure will continue to keep up with the ever-growing numbers of passengers who will ply the sky. But nothing lasts forever. Just as Kai Tak became obsolete, other airports and airfields will come to the same fate whether through technical or economical obsolesce. This leaves us at an impasse. We have devoted massive resources to air travel, building some of the largest infrastructure complexes on earth, but not much thought has been put into what happens to them when they become unwanted. This concern is complicated by the fact that airports have become increasingly complex. Airports have regularly been abandoned since the dawn of flight. For example, the Pentagon is built on ground that used to be the main airport of Washington, D.C.: Hoover Field.\(^6\) But it has only been since the modern age, within the past 50 years or so, that airports have become small cities unto themselves, only to be completely forgotten when they are no longer needed. The fact that passenger numbers will increase in the future only makes the investigation into the re-use of airport

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\(^5\) Ibid.
infrastructure more urgent.

It is with this frame of mind that this thesis seeks to investigate the re-use of airport infrastructure, noting the parallels between re-using an airport and the re-use of an abandoned industrial site. They are both vast sites, with complex machinery and infrastructure. Both the airport and the industrial site seek to celebrate the domination of man over the natural environment and his ability to manipulate it to his will. This thesis takes a critical approach to the redevelopment of airports: seeking to make their re-use respond to the historical and spatial factors that were present when they were operational.

**A Brief Note on Structure**

This thesis is divided into three parts. The first part, Airports: Spaces and Places, examines the nature of the airport, the role it plays in society as well as in the physical tableau of the built environment. Drawing on theorists and writers such as Mark Augé and Pico Iyer, the chapter examines competing philosophies of the airport, its spaces and its relation to or embodiment of the city. The airport can be viewed as a “non-place” as Marc Augé observes. The airport can be viewed as a city unto itself, a combination of mall, hotel, transit center and industrial center all rolled into one. The airport can even be viewed, as

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Deyan Sudjic postulates, as the “town square” a fragment of the city in the fields.\(^8\)

The second part, Re-use: Taking It Back, examines concepts and precedents for re-use strategies, with a focus on landscape and building re-use strategies while also looking at the current examples of airport reuse. The current examples of airport are used to show the “tabula rasa” nature of current airport re-use as opposed to the method advocated by this thesis. The re-use will operate at several scales and can be generalized into two broad categories, the urban and building scale. At the urban scale, the methodologies of landscape architect Peter Latz are examined extensively for his history of taking on projects dealing with the re-use of large industrial areas while preserving their character and history. At the building scale, Stewart Brand’s *How Buildings Learn* is used as the basis to begin think about the reuse of the terminal buildings. Additionally, precedents such as Landschafts Park Duisburg-Nord, the Chopo Museum and SCI-Arc are examined to add to the discourse on re-use strategies.

The third part, The Project, explains the site and its history, the program and the conceptual ideas that are being applied to the design writ large, as well as some preliminary design ideas.

\(^8\) Deyan Sudjic, *The 100 Mile City* (San Diego: Harcourt Brace & Company, 1992), 144.
"As a boy, I had often found airports exciting because they were the closest thing around to the starship Enterprise, a cut-rate Adventureland, Tomorrowland, and Fantasyland combined, rich in flashing screens and exotic costumes; now you can see the same kind of activity on every other street corner in Paris, Sydney or Vancouver." - Pico Iyer
The airport is one of the most interesting and controversial spaces that modern man has developed. It is one of his newest too. The jet age ushered in the age of mass flight that initiated a commensurate boom in large modern airports. Jet airplanes require more than a grass field or gravel to land on. Their great weight mandates concrete and asphalt for landing strips, carefully engineered to carry their bulk and to deal with the stresses of a fully loaded 747 travelling down them at 200 miles per hour. Huge hangars, underground storage and networks for jet fuel, air bridges for boarding planes, entire fire and police departments and various other support activities have replaced simple maintenance facilities. What used to be a tent at the side of a grassy field has, because of soaring passenger numbers, morphed into a complex network of buildings, roads, hotels, parking lots, and other ancillary spaces. The airport today, is as Deyan Sudjic describes, “one of the most intricately interwoven spatial hierarchies to be found anywhere in the modern city...”¹ These developments happened in the past 50 years and along with this rapid development comes several issues that require attention with regard to the reuse of the airport. Airports serve as gateways for cities and as greeting places. They serve as a locus to shed a tear and say

goodbye. They have become the scenes of turmoil, political protests, and even pitched battles.

This thesis is concerned with the re-use of airports, but its central idea is that the re-use of an airport should harness and play off of the essence of the airport in some way, rather than bulldozing, literally and figuratively, everything that was there before. In order to do this, the ideas surrounding airports in their current form need to be explored. There are several lines of thinking about and exploring the nature of the airport's spaces and places.

**The Airport as a Non-Place**

One of the most prominent theories of Airport and space is that of Marc Augé, who argues in *Non-Places: Introduction to an Anthropology of Supermodernity* that airports are a “non-place.” Augé explains, “If a place can be defined as relational, historical and concerned with identity, then a space which cannot be defined as relational, or historical, or concerned with identity will be a non-place.”2 The crux of his argument is that airports embody a globalization of space, which becomes common the world over. One need not be familiar with the space in order to operate within it, rather “alone, but one of many, the user of a non-place is in a contractual relations with it (or with the powers that govern it). He is reminded, when

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necessary, that the contract exists. One element in this is the way the non-place is to be used: the ticket he has bought...”\(^3\) Because of their global nature and need to appeal to the masses of people passing through them “non-places” abandon the normal method of the creation of place through “individual idiocies, through complicities of language, local references, [and] the unformulated rules of living know-how.”\(^4\) Instead, “non-place creates the shared identity of passengers, customers or Sunday drivers.”\(^5\) The non-place is best understood in opposition to what Augé calls “anthropological place” or place that is defined by the above characteristics such as individual customs or local references such as the historic town square. Commenting further on their opposition Augé comments, “Place and non-place are rather like opposed polarities: the first is never completely erased, the second never totally completed; they are like palimpsest on which the scrambled game of identity and relations is ceaselessly rewritten.”\(^6\)

We can see this “incompletion” in the space of airports in the fact that people do not inhabit the space. They are constantly coming and going, constantly in transit. What Augé implies is that there is simply no need for anything in the airport to have any sort

\(^3\) Ibid, 101.  
\(^4\) Ibid.  
\(^5\) Ibid.  
\(^6\) Augé, Non-Places: Introduction to an Anthropology of Supermodernity, 79.
of permanence to it because nobody, save for workers and infrastructure, is there for more than a few hours. The airport is an area constantly in flux, filled with all manner of people coming and going. This results in the need for the airport to be immediately readable and knowable by a stranger.

Because of their need to appeal to everyone that hurries through them in a succinct and universal way, airports, like other non-places, relegate their definition to the “texts that guide us through them.” In fact Augé notes that the quintessential “non-places” of our age (the highway, the supermarket, the hotel) all delegate their understanding to texts. We could not understand these spaces if it were not for these texts guiding us and pointing out their important features. One need look no further than the travel and way finding icons developed by the American Institute of Graphic Arts. Actions and social contact are boiled down to easy to parse information blocks in the form of graphical icons. A man with a suitcase represents where to pick up passengers, a plane lifting off the ground symbolizes where to go for departures, a question mark represents where one can get help and information: the part symbolizes the whole. These symbols are needed because people rush through the airport trying to get to their

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7 Ibid, 96.
destinations, to unburden themselves from their normal responsibilities and, for a short while, engage in the choreography and order of preparing to board a flight. Augé gives us an imagined account of a traveler arriving at an airport preparing for such a ritual:

He was enjoying the feeling of freedom imparted by having got rid of his luggage and at the same time, more intimately, by the certainty that, now that he was ‘sorted out’, his identity registered, his boarding pass in his pocket, he had nothing to do but wait for the sequence of events. ‘Roissy, just the two of us!’: these days, surely, it was in these crowded places where thousands of individual itineraries converged for a moment, unaware of one another, that there survived something of the uncertain charm of the waste lands, the yards and building sites, the station platforms and waiting rooms where travelers break step, of all the chance meeting places where fugitive feelings occur of the possibility of continuing adventure, the feeling that all there is to do is to ‘see what happens.’

We surrender ourselves in the airport to the security of knowing that our paths are set, that our other worries are taken care of, that all we need to do are follow the signs, look at the monitors and we will end up in the right place. All the while we can gaze at the other strangers engaging in the same choreography.

Author Pico Iyer, who “lived” at Los Angeles International airport for two weeks and chronicled

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8 Ibid, 2-3.
his time there in his book *The Global Soul*, echoes this theme of the airport as non-place. As he remarks:

> A modern airport is based on the assumption that everyone’s from somewhere else, and so in need of something he can recognize to make him feel at home; it becomes, therefore, an anthology of generic spaces - the shopping mall, the food court, the hotel lobby - which bear the same relationship to life, perhaps that Muzak does to music.⁹

The “anthology of generic spaces” that Iyer points out is similar to Augé’s concept of the non-place. These spaces are the Starbucks, Hudson News, Burger Kings and other similar mass consumption outlets that can be seen in every major airport around the world. Iyer, while not going into the depths of analysis that Augé does, makes many of the same observations. The airport for him is a mixing bowl of cultures and peoples all in transit, all in flux. It is a place that strives to make the masses that pass through it comfortable by making “all the comforts of home” impersonal and standardized for consumption.¹⁰ He also, like Augé, realizes that the airport is privileged space. Only those who have business there are allowed to stay, “The stranded ones peer through holes in the fence at the blessed ones able to be part of the global village.”¹¹ He notes that this

¹⁰ Ibid, 54.
¹¹ Ibid, 55.
also extends to the shops, where established chains and small newsstands compete with illegal hawkers for the business of the masses who shift through the airport. The airport is only open to those who can pay, to those who are identifiable and desirable. Even those who can talk to you are regulated, with only pre-approved groups allowed to distribute messages, pamphlets or other materials. This high control of human interaction relates back to Augé’s theory that the airport, in the end, has no permanence. It is not quite complete. It is the reason the airport cannot fully develop the connections, social depth and history that a place, like a town square, might accrue over the years.

As Mitchell Schwarzer points out, it is in the nature of airport design for this to be the case, “Just as a plane can fly across the land in a straight line, disregarding natural and cultural conventions, so, too, must buildings and infrastructure be designed to be ruthlessly functional, indifferent to physical and historical contexts.”12 This ruthless functionality is at the root of the essence of the non-place. Everything must be in order, undesirable people who would cause problems, for reasons of security or aesthetics, must be removed. All ambiguity about where to go and what to do must be removed. There can be no

room for the things that would allow the “completion” of a place, like lingering, talking or appreciating. These things by their very nature disrupt the careful flow of passengers through the airport.

But this same ruthless functionality allows us a sense of freedom. As noted above, there is a sense that once we enter into the bounds of the airport terminal, we are free from normal constraints, we become part of a systematic set of steps that, if we follow them, will get us into the air and away to far off places.

There are two recent movies that deal with airports and air travel that are helpful here in understanding these concepts as both of their main characters attempt, by choice or not, to live in an airport. The movies are instructive in that they shed light onto what happens when someone attempts to inhabit a place not meant for habitation.

The first is *Up in the Air*, starring George Clooney as Ryan Bingham, a lay-off specialist who flies around the country managing the firing of employees for firms and companies who are unwilling to do the task themselves. Pursuant to his position, he spends a massive amount of time on the road, about 270 days in his estimation.¹³ For all intents and purposes, he is a citizen of the world of the airport,

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constantly moving from city to city, Hilton-to-Hilton, check-in counter to check-in counter. As he states in a monologue set over a montage of him checking into a flight and then making his way through security to his gate:

To know me is to fly with me. This is where I live [the airport]. When I run my card [referring to his frequent flier miles card] the system automatically prompts the desk clerk to greet me with this exact statement, ‘Pleasure to see you again Mr. Bingham!’ It’s these kinds of systemized friendly touches that keep my world in orbit. All the things you probably hate about travelling, the recycled air, the artificial lighting, the digital juice dispensers, the cheap sushi, are warm reminders that I am home.14

Mr. Bingham is the embodiment of the non-place, it is a non-place transformed into a lifestyle. His life is a constant parade of “non-place” after “non-place”: airport, highway, and hotel over and over again. He lives for the order that the airport and flight entail. In the montage, the trek through security is treated as a thing of beauty, a carefully coordinated dance that, to Mr. Bingham, is second nature. The systemization and standardization of his life, to him, is essential; it is its basis. He counts on the kiosks, club lounges, security procedures, rental cars, hotels and all he comes into contact with everyday to be exactly the same: predictable, knowable, familiar. Whether it

14 Up in the Air.
is Dallas or Detroit does not matter. The process is all the same and "All the comforts of home, [are] made impersonal."\(^{15}\) Like the texts and standardization that guide people momentarily through non-spaces, the texts and systems that Ryan puts his faith in “keep his world in orbit.” But what comes of this lifestyle is isolation. In a particularity instructive scene Mr. Bingham, walking through a crowded airport terminal talking on the phone, is chided by his sister for his lack of concern about their sibling’s upcoming wedding. “You are awfully isolated the way you live,” she remarks to him. Ryan quips back, “Isolated? I’m surrounded!”\(^{16}\) But while surrounded by people, he is still utterly alone. He does not know any of them, nor does he care to. He is in his own world, on his own journey. Just as the others in the airport, he will not put down roots or spend meaningful time there; he is only there briefly, momentarily. By embracing the non-place lifestyle, Ryan has given up the conditions that makes human relationships possible, standing still and letting idiosyncratic specific conditions develop. The world he lives in is too sanitized and streamlined, like most non-places, to allow this to happen.

The same situation (although this time the person involved is not living in the world of the

\(^{15}\) Pico Iyer, *The Global Soul*, 44.

\(^{16}\) *Up in the Air.*
airport by choice) is dealt with in *The Terminal*. The movie stars Tom Hanks as Viktor Navorski, a man from the fictional country of Khrakoshia, who, upon his arrival to New York City finds himself stranded in John F. Kennedy International airport unable to enter the United States.\(^{17}\) This is because during his flight his home country’s government had been overthrown in a violent coup and, as such, does not technically exist anymore rendering his passport and other travel documents void. As the customs official at the airport tries to relate to him, “Mr. Navorski, you seemed to have slipped through a crack.”\(^{18}\) As such, he is not able to return home, since his country does not exist; yet he is also not able to enter the United States, since his passport is no longer valid. Subsequently, he is forced to wait in the airport’s international transit lounge until a solution can be reached.

What happens after this is an exploration of what it would be like to truly live in an airport. While Ryan Bingham in *Up in the Air* ultimately enjoys the freedom to move about as he pleases, he is kept in the world of the non-place voluntarily. Mr. Navorski on the other hand, is by cruel fate, thrust into this world and kept there indefinitely against his will. The story then revolves around his attempt to survive inside

\(^{17}\) *The Terminal*, DVD, Directed by Steven Spielberg (Universal City: DreamWorks Pictures, 2004).

\(^{18}\) Ibid.
the airport.19

The international transit zone is presented as the “generic anthology of spaces” mentioned above. From the food court to the bookstore, the area is filled with franchises of popular chains like Panda Express and Borders books. Mr. Navorski, not having a secure grasp on the English language and stuck in an unfamiliar place is forced to sleep in an area of the terminal that is under construction. In order to eat he tries to gain employment at one of the shops in the transit area. When this fails, he resorts to collecting the refunds from returned SmartCartes in order to buy fast food from the Burger King. Viktor tries to interact with those around him, but he is constantly shown instead to break the flow of the space. But he cannot make contact with others, even if he spoke English. People in the transit area come and go on their own schedules, off in their own world like Ryan Bingham. They are surrounded by isolation. Viktor’s breaking of the contract is both literal and figurative. He is shown literally breaking the flow of people and things through the airport by constantly running into things, slipping and generally disregarding the predetermined contract of behavior in the terminal area. He figuratively breaks this contract by simply remaining there; disrupting the fact that the contract

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19 Interestingly, *The Terminal* was inspired by the real life story of Mehran Karimi Nasseri who “lived” in Terminal 1 of Charles de Gaulle for almost 17 years after a diplomatic snafu.
of the airport space is to occupy it no longer than one
must in order to catch a flight. The head customs and
security agent, played by Stanley Tucci, is the author-
ity that enforces this contract and is constantly trying
to encourage Viktor to leave so that he will be “some-
one else’s problem.”

What is striking throughout the movie is that
Viktor is only a few feet from freedom and his des-
tination. For all intents and purposes he is in New
York; the only barrier keeping him from leaving is
the intangible diplomatic boundary that is not mani-
fested physically in the space of the airport and in
reality quite antithetical to it.

Augé points out that a space which otherwise
has no attachment to local customs or quirks can
be, in a way, governed by it. He observes this on a
flight that overflies Saudi Arabia where “the hostess
announces that during the over-flight the drinking of
alcohol will be forbidden in the aircraft. This signifies
the intrusion of territory into space. Land = society
= nation = culture = religion: the equation of anthro-
pological place, fleetingly inscribed in space.” The
political and diplomatic relationships that trap Viktor
are the antithesis to the space in which they trap him.
It is another complexity added to the space of the air-
port. As much as they are not bound by the quirks of

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20 *The Terminal.*
21 Augé, 116.
the locales they sit in, they still inextricably governed by them.

This line of investigation into the space of the airport sheds light on some of the complexities inherent in them, but also on their basic nature. In the end, airports from the “non-place” point of view are the result of the globalization of space. The quirks, connections and relations that define the majority of our world are absent, replaced instead by standardized interactions; commodities and a set of rules that allow them to operate. They are ubiquitous spaces that can be found the world over. They are filled with the same ubiquitous stuff impersonalized to appeal to the widest audience. They are spaces built to herd masses of disparate people into the same careful choreography in preparation for coming or going. They are spaces where freedom and constraint simultaneously co-exist. They are spaces of inclusion, so long as you have business being there and are entered into the contract of the space in some way shape or form. They are spaces bound by a common set of rules pertaining to their use, but they are also violated occasionally by incursions of place in the form of local customs. As Dyan Sudjic summarizes, “...the airport is a kind of hybrid space, one for which there are

Figure 11: The airport mall
next to no conceptual frameworks, just the pragmatic 
expediencies of keeping traffic moving.”

But while the airport may be considered a 
non-place, in that it never really lets the people who 
pass through it leave their mark or interact with it, on 
a larger scale the airport becomes a more interesting 
space and place. Here on this larger scale the airport 
is an analog to the city.

There are a few main strains of thought here, 
but all express the idea that the airport is intertwined 
with or is becoming more like the city.

**The Airport and the City**

Deyan Sudjic contends that airports have 
become increasingly like the modern era’s town 
square, serving as the center point of the city. This 
is in stark contrast to Augé’s contention of the airport 
as non-place. However, Sudjic acknowledges the fact 
that the airport possesses a territory of its own rules, 
a place where “normal rules of everyday caution and 
self-preservation do not apply. Just follow the signs 
and all will be well.” But while he acknowledges this 
ambiguity of the space inside the airport, he advo-
cates that it is much more touched by local conditions 
than Augé does and, also advocates for a hierarchy of 

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22 Sudjic, *The 100 Mile City*, 163.
23 Ibid.
24 Ibid, 158.
spaces that the airport contains.

This hierarchy consists of four spaces: The landside, the passenger area, the open spaces, and the aircraft space. The land-side space is the space devoted to the coming and going and all other ancillary functions located outside of the terminal that do not deal with aircraft movements. Space in the land-side would include parking garages, hotels, rental car faculties the approach roads to the terminal, the ticketing and pre-security terminal areas and so on. The passenger area consists of those spaces after security where passengers have been processed and wait for their flights; this could also be called gate-side, airside or the concourse. The open spaces are those spaces that are devoted to the operations supporting flight, such as baggage handling, the tarmac and other areas. These spaces can be seen as in the case of the tarmac, or unseen as in the case of the baggage handling areas. Finally, the aircraft space deals with the movement of the aircraft themselves, and the taxiways and runways where they operate.

What is interesting here is each area exists on a continuum of security and place. The landside is the least secure of the three. Anyone can come and go as they please and they are also more connected to a traditional sense of place or at least mark the transition.

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25 This paragraph is a short summation of a rather lengthy entry Sudjic has on p.158.
to more traditional place. Continuing up the scale, the passenger-area is more secure than the landside, but still open to the members of the public who have tickets for travel and is the quintessential example of a non-place: frequented by people only fleetingly. The open spaces are analogous to highly guarded factories, operating in the unseen areas of the airport. Only those security-cleared workers who perform the functions that keep the airport operating are allowed to see these spaces, and occupy them. Finally, the aircraft space is a no-man’s land entirely given over to the aircraft. It is possibly the most secure area in the airport. No one is allowed into it save for those in aircraft and the odd maintenance person. These spaces abut and intertwine with each other throughout the airport. They follow the outlines of building while also cutting through them, and each has a certain set of rules for conduct in them. This creates a complex overlap of spatial qualities. These spaces are present and co-exist in an airport that is increasingly becoming like the city, becoming the town square of the city.

Sudjic observes that while airports are aesthetically similar they often tend to appropriate the qualities of the local in which they reside.\(^{26}\) We can see that this is true by just looking at airports in the U.S. There is often a small nod to the locale of an

\(^{26}\) Ibid, 154.
airport, even if this is just in the merchandise that is available at the newsstands.\footnote{A more in depth discussion of merchandise and Airports is undertaken in Pico Iyer’s \textit{The Global Soul} where he relays the items found in gift shops in Los Angeles International such as fake Academy Awards, aviator sunglasses and key chains that read “Life’s a beach.”} A pertinent example is actually located at Midway Airport in Chicago, where a franchise of the sports bar owned by Chicago Cubs announcer, the late Harry Caray is featured prominently in the main food court area of the concourse. This type of generalized cultural quotation tries to give the otherwise uniform airport a sense of local flavor. However, even the mere fact that the restaurant is a chain dampens the effect. The restaurant could be at home in airports in San Diego or Omaha as it is in Midway.

Sudjic really extrapolates on this idea that the airport is “If not actually a city in its own right...a vital constituent of the city as a whole.”\footnote{Ibid, 145.} Airports, he argues, have always been tied to the city Even if there has been a period where airports have been separated from the city, the airport has evolved into someplace that due to its “…sheer number and variety of buildings [has] the potential to become a real part of the city.”\footnote{Ibid, 156.} For Sudjic the airport is an approximation of the city or as he puts it, “two-dimensional facsimiles of authentic cities.”\footnote{Ibid, 151.} It is an approximation because of the variety of the services packed into the
terminal and its surrounding areas comes close to being like the city, as he notes:

The terminal area is organized like a small city, with more than a hundred shops selling everything from mink coats to hi-fis, twenty-six restraints, three cinemas, a chapel which offers wedding ceremonies, a medical center with five doctors equipped to handle child birth and heart attacks, and a battery of resident social workers. 31

The terminal area is, indeed, packed with all these things, but it is only an approximation. It is a city with a constantly changing populace; people can enjoy the amenities while waiting for their next flight on an extended layover, but they do not dwell there, they consume and move on. What Sudjic notes in this is that there was a push to make airports decentralized and dispersed. This was not initially so. Visionary architects like Antonio Sant’Elia and Frank Lloyd Wright saw flight as something integrated with the city and airports were originally integrated into the city or very close to them; but as aircraft technology changed and passenger numbers soared the decentralization of airports began. 32 They became the “extra-territorial” spaces we know today. 33 Even during this period of decentralization from the city Paul

31 Ibid, 141.


Andreu points out the fact that airports were never really truly separated from the city. They carried the mantel of the ports and harbors and train stations of earlier years. Even today, he states, “Terminals remain transit areas, as doors, bridges and harbors used to be: places of strong emotions and desires, where the hope for remote, unknown destinations is still alive.” They carried this function even to this day.

Now airports all over the world are becoming denser and packed with amenities. He points out: “As the twentieth century comes to a close, the airport is becoming an ever more complex problem, one which it is not sufficient to consider simply as a building, no matter how elegant.” The airports now act as “chips of the fragmented cities, similar to the number of industries, shopping centers or university campuses.”

The Airport City

This increasing importance and densification of the airport has led some to declare the existence of an entity known as “airport city” or “aerotropolis.” The “airport city” or the “aerotropolis” asserts itself

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34 Andreu, “Higher than the Clouds,” 118.
35 Sudjic, The 100 Mile City, 159.
36 Andreu, “Higher than the Clouds,” 117.
at the center of the modern metropolitan world:

Airports are not just airports anymore. Forgoing their status as simple traffic machines in the periphery, airports have become the most decisive transport infrastructures in the transformation of the metropolitan area. Propelled by a series of strategic investments, the have assumed key positions in High Speed Train (HST), railway and light-rail networks which until recently were limited to central stations alone. Being undisputed as regional and global interfaces the regions...airports are changing into centers of activity within them, new regional development poles or simply 'airport cities.'

The airport, Güller and Güller assert, is not just a “traffic machine” but is, because of its global nature, a center of commerce. It is assuming a place in the transportation network and urban fabric of “polycentric metropolitan areas” like London, Barcelona and Frankfurt. Increasingly airports are using this as a way to generate revenue, taking on even more ancillary functions like conference centers and office space and using the “airport city” as a business strategy to turn otherwise underused (and non-revenue generating) land into a revenue stream; this can be seen at Frankfurt International Airport, where numerous hotels and conference centers have been jammed on top of railway stations and between parking garages. This development is taking place

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38 Güller and Güller, From Airport to Airport City, 11.
39 Ibid, 27.
40 Ibid, 72, 100.
for numerous reasons, but chiefly among them is the importance that airports have attained in our transport systems. This is not just in terms of air travel. Increasingly airports are becoming regional transport hubs, interfacing with high-speed rail lines, and other public transit options. They are starting to serve as regional transportation hubs hooked into local bus lines, subway and light rail lines. They are not only serving as a way for people to transfer from plane to plane or public transit to plane, but from public transit to public transit.

The “airport city” has mainly manifested itself in construction in the landside area near the main entrance to the terminal. Airports such as Schipol in Amsterdam and Vienna increasingly look like they have a small downtown right outside their front door. This is especially evident in plans for an “airport city” at Pulkovo International Airport in St. Petersburg, Russia. Designed by Grimshaw and Partners, the new area, expected to employ 20,000 people, is modeled after the nearby central area of St. Petersburg complete with wide boulevards, public squares and local art. The city here is quite clearly a city, however, like the Harry Caray’s in Midway, it is a theme park version of a city. It is built to emulate the real downtown in order to give the airport some

41 Güller and Güller, From Airport to Airport City, 125.
grounding in place. Outside of these new planned developments, the new airport cities take on the form of non-descript office buildings. In places like South Korea and China, whole cities are being built from the ground up to take advantage of close proximity to the airport’s connections.\textsuperscript{43}

The implications of this building trend are uncertain. Those who advocate for the idea of the airport city, such as economist John Kasarda, see them as the way of the future. Just as the harbor and the train station fueled and guided the urban growth of the past, he says, the airport will drive the growth of the 21\textsuperscript{st} century.\textsuperscript{44} This is a reasonable assumption given the fact that modern economies rely on air travel now more than ever; but what these new spaces entail is less certain. What will these new cities entail? Will these new “airport cities” act as heavy imprint of place on the airport, muting its “non-place” by interjecting a kind of permanence into them? Or are these “airport cities” a sign that our cities are moving ever closer to becoming non-places themselves? J.G. Ballard, in an essay for \textit{Blueprint}, supports the latter:

\begin{quote}
We are no longer citizens with civic obligations, but passengers for whom all des-
\end{quote}

\textsuperscript{43} For a prime example of this type of building, one need look no further than New Songdo City near Incheon Airport in Seoul, South Korea. The city is being built from the ground up in only a few years and will eventually have several thousand inhabitants.

\textsuperscript{44} John D. Kasarda, and Greg Lindsay. \textit{Aerotropolis: The Way We’ll Live Next} (New York: Farrar; Straus and Giroux, 2011).
tinations are theoretically open, our lightness of baggage mandated by the system. Airports have become a new kind of discontinuous city, whose vast populations, measured by annual passenger throughputs, are entirely transient, purposeful and, for the most part, happy.⁴⁵

This view is interesting as it embraces the position of the non-place as writ large across the network of airports. Ballard accepts the transience as a condition of modernity and finds it ultimately freeing. Airports in this line of thinking are a physical manifestation of the breakdown of place. They serve as scramblers: transporting, appropriating, quoting and generalizing urban spaces, practices and places in order to move and serve the masses that move through them.

This tug and pull will continue between the place that a city imparts and the functional ruthlessness of the terminal space. Only time will tell which will triumph in the end.

**Implications for Re-use**

Airports, as has been explored above, are increasingly complex places. They are the modern equivalent of the harbors and train stations of the past, serving as gateways and catalysts for development. But unlike ports and train stations, they grapple with the problem of being truly global, needing

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to appeal to masses of disparate peoples who pass through them. From this need they become, as Augé and others point out, spaces that are standardized and systematic, lacking the normal relations that make up our places. But they are also becoming more like the city and have many urban qualities. In some cases the city is coming to the airport. In the end, what this entails is that the airport is unlike any other space or place in the modern world. It is architecture, infrastructure and urban fabric all rolled into one package. It embodies freedom and control, inclusion and exclusion, place and non-place. It is everywhere and nowhere at once. In short, it provides a set of interesting spatial and social ideas that can be harnessed and used after it has gone to inform what replaces it.

What this examination of the space of the airport finds is that the re-use must comment on these issues in some way, either by exaggerating or turning them on their head. What seems to be the most interesting course of action however is doing a combination of both. The re-use can turn what was once a highly secured and ordered space into a park open to all. At the same time, a re-use could exaggerate the trend of airports becoming cities by turning part of the airport literally into a city. This takes advantage not only of the “airport city” trend but also
of the vast infrastructure that exists there. Finally, the re-use of airport buildings can harness their nature as “non-place” by populating them with programs that require transience and flexibility and can utilize the vast volumes of the terminal.
"Airports stretch architecture into infrastructure." - Mitchel Schwarzer
Stewart Brand in his book *How Buildings Learn* remarks, “All buildings are predictions. All predictions are wrong.”¹ This is an interesting statement, how could a house be a prediction? But at second glance (and with some thought), the idea makes sense. Everything from a house to a factory is a prediction about what people will need, what functions need to be accounted for, what the spaces need to be like in order to make the occupants happy.

This proposition means that buildings will change according to the shifting sands of the needs of their occupants. A house might only see one occupant in its useful lifespan and adapt gradually as their needs change. It might not change at all. Other buildings, like office towers, see occupants come and go constantly; sometimes this can be as quick as a month. These buildings are constantly being rearranged to suit their new occupants needs. How people deal with changing needs is of special concern when we are dealing with airport infrastructure, which is often demolished when it is no longer useful. What is key to this thesis, is using the ideas of space explored in the first section and combining them with strategies for re-use that have not been widely applied to the

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The Abandoned Airport

Airports, by their very nature, are constantly changing. As Mitchell Schwarzer points out, “Driven by technological and social change, the world’s most successful airports have been permanent building sites since they were first opened.” This had led to airports being almost continually under construction on a time scale that would be considered breakneck for most other construction projects. It is often the case that once a main terminal building is finished, it often needs to be expanded, or another satellite terminal needs to be constructed. This is often on the scale of years rather than decades. Dulles International Airport in Chantilly, Virginia was built with this expansion in mind. Only 20 years after it was first built, plans were already being drawn up to expand the terminal to its fully planned size. This also coincided with the construction of two midfield concourses that were not originally planned. This often leads to chaos. Dulles is the rare example of orderly expansion among airports. As Schwarzer observes, when it comes to airports “…with few exceptions, the big buildings and big infrastructure [seem] to lack coordination, at least as far as one could see from the aerial view. Like the roadway strip, cluttered

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2 Schwarzer, Zoomscape, 149.
with advertising and merchandising, the aerial view of urbanism revealed unsystematic and confusing patterns.” 3 These tend to be older airports like Chicago’s O’Hare and New York’s John F. Kennedy. They added buildings piecemeal as they were needed and often buildings were built solely for one airline’s use. London’s Heathrow is a perfect example of this, with modern buildings like Terminal 5 and Terminal 4 coexisting in the same cramped area as the original Terminal 1 that was built in the 1950’s. However this chaos does have an underlying order to it. While the terminal buildings may be haphazardly placed, the overall airport structure retains some legibility with the familiar access roads snaking though the complex as well as the recognizable passenger areas, with their concourses jutting out into the airfield, tacked on to older buildings to accommodate soaring passenger numbers.

But this constant changing, while leading to construction, can also lead to destruction. Change at the airport usually means dealing with increasing passenger numbers, which usually means adding on to existing construction. But change can also entail falling passenger numbers and obsolescence. Increasingly in the U.S. airports are seeing trends that are leaving what was once productive terminal space

3 Ibid, 143.
unoccupied.⁴ This is due in large part to “airlines [concentrating] more of their flights on bigger-city airports” as well as new terminal construction to accommodate more modern aircraft or to replace or expand obsolete buildings.⁵ However, this problem is mainly affecting those secondary hubs in smaller cities where airlines once operated large hubs, but have now downsized operations. One exemplary case is Cincinnati International Airport where “Officials... face many similar problems. Delta at one time operated a major hub there, flying 600 of the airport’s total of 650 daily departures in 2005.”⁶ Today Delta only operates 125 flights per day.⁷

This abandonment is happening with increasing frequency at airports across the country and the world and the manner in which it is being carried out has not been examined since it is a relatively recent phenomenon.

**Current Trends in Airport Re-Purposing**

While airport re-use has occurred on one level or another for quite sometime, the large-scale re-use of airport grounds is a recent phenomenon and there is an absence of critical thinking that goes

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⁵ Ibid.
⁶ Ibid.
⁷ Ibid.
into their redevelopment. Up to this point, the re-use of airports has been viewed as an opportunity for unmitigated re-development of the airport property, with no attention, or little attention, paid to the history of the airport, the existing buildings on the site or the nature of the spaces the airport engendered. In short, the re-use has been uncritical. To demonstrate this lack of thought about the airport’s history, three examples will be presented to show how airport re-use is conducted currently: Kai Tak in Hong Kong, Stapleton Airport in Denver and Meigs Field in Chicago. What can be found at each of these sites is a predictable pattern of obsolescence, followed by complete obliteration of what was there before, followed by greenfield redevelopment of the site.

Kai Tak, the former main airport of Hong Kong, was a constant source of operational problems until its replacement by Chep Lap Kok. Nestled between the mountains of Hong Kong and Kowloon Bay, the airport had only one runway that struggled to accommodate the numerous 747’s that would land there daily. Combined with the tricky approach between high mountains and over densely populated Hong Kong, the airport eventually had to be replaced. This led to one of the largest civil construction projects on earth, the construction of the new Chep Lap Kok airport. This left the city with the old,
now defunct airport on its hands and plans were drawn up for reuse of the site. These included demolishing the terminal, runway and most of the hangar space, leaving little idea of what was there before and wasting valuable infrastructure. One hanger was converted to office space resulting in HK$700 million saved in demolition and other costs. Perhaps further cost reductions could have been realized by thinking more critically about re-using what was already there.

Another example is that of Meigs Field in downtown Chicago. It is notable for the fact that it was also a small strip hemmed in by physical obstacles: in its case, the skyscrapers of Downtown Chicago and the waters of Lake Michigan. This airport befell a different fate than Kai Tak however, as development pressures not safety concerns (although there were some post 9/11) were the main reason the airport was demolished. In 1994 Mayor Richard Daley proposed replacing the airport with a park, but this was not without controversy among airplane enthusiasts who opposed the plans. In 2003 however, Mayor Dailey unceremoniously demolished the airport in the dead of night, causing a slight scandal.

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for the rather authoritarian manner in which it was
done. The decision was decried as unilateral, but
the damage was done and the airport’s runway had
already been partially bulldozed. Similar to Kai Tak,
Meigs was completely razed with the exception of
the control tower and the old terminal building. In its
place now is an open grassy field, a blank, flat plane
devoid of history. The only hint that you are walking
in what once was an airport is a lone fire-hydrant and
some access covers to underground storage tanks.

Perhaps the most pertinent example to this
thesis is that of Stapleton International Airport in
Denver. Stapleton was a sprawling, major interna-
tional airport with multiple runways and major ter-
\minal infrastructure. When Stapleton began to face
pressures related to aircraft noise and constraints on
its growth, plans for a new airport were initiated and
eventually executed, leaving the old airport unused.
What replaced it was a far-reaching development,
the likes of which had not been seen in the United
States before. The entire airport has been tuned
into “8,000 single-family homes, 4,000 apartments,
12 million square feet of office and retail space and
1,100 acres of parks” where currently 13,000 people

10 “A Pre-emptive Strike on Meigs,” Chicago Tribune,
news/0304010283_1_meigs-field-mayor-richard-daley-soldier-field
11 Christine Negroni, “Idled City Airports Are Finding a Second
nytimes.com/2012/12/26/realestate/commercial/as-air-traffic-
wells-airports-get-a-second-life-as-housing.html
live. While the project is considered a success, it is worth examining the lack of attention given to the original infrastructure. In fact, none was preserved, save for the control tower, which now stands as a lone monument of what once was there.

**An Approach to Re-Use**

What can be seen in all of these projects is a lack of attention given to the history and uniqueness of the site. This stems from the fact that current society sees abandoned space as unproductive space. As Tim Edensor notes:

> In a conventional reading of the urban landscape, dereliction and ruin is a sign of waste and for local politicians and entrepreneurs, tends to provide stark evidence of an area’s lack, that simultaneously signifies a vanished prosperity and by contrast, and uncertain future. According to such a conception, formerly productive spaces become rubbish, are no longer of any use, or have been used up.¹³

This view of abandoned spaces as unproductive spaces influences why airports, once they are abandoned, are wiped clean. No thought about what was there before is applied to these developments, rather the history and nature of airports is routinely destroyed for new development that only has a token reference to the site’s past. This is the point of departure for the critical position of this thesis. While

¹² Ibid.
development of these sites is important because of the value of their land, this development can be done in a manner which provides maximum value, maximum reuse of existing terminal structures and pays tribute to the airport that was once there in a substantial and meaningful manner. Such development can also be done in way that preserves open and free space that is so lacking in our society.

The airport, as examined in the first part of this paper, has a strong spatial identity in the form of its terminals. This thesis’ position is that the airport has a strong physical diagram that is worthy of preservation. This physical infrastructure is interesting because of its immense size and spatial uniqueness. As Mitchell Schwarzer points out airports are able to make our perceptions of the world around us soar. “Our sight becomes global” he remarks, “Such large perceptions begin on the runway. Planes take off from the largest open spaces in metropolitan areas, spaces that offer greater viewing expanses than either railroads or highways.”

What then becomes apparent is that the immensity and history of the airport that was must be preserved. Combined with its unique terminal spaces and its relation to the city, there is a strong case to be made for the preservation of a substantial

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14 Schwarzer, 119.
part of the obsolete infrastructure in a redeveloped architecture. In order to successfully preserve the immense infrastructures of the airport two methodologies will be examined and utilized. The first is that of landscape architect Peter Latz, whose investigations into the re-use of massive abandoned industrial sites provides a framework by which to integrate the infrastructure of the airport into park and urban spaces. The second is Stewart Brand’s investigations into how buildings are (and can be) reused over time; his findings shed light on the methods by which buildings adapt to change over time.

Peter Latz, the noted German Landscape architect is of special importance to this thesis. His projects deal with large abandoned industrial sites, and he has developed a methodology of working with post-industrial landscapes that is intriguing and helpful to deal with the issue of what to do with all this space and the materials that lie within it. The answer Latz provides is clear, that a site should not be completely purged of its existing materials, structures and history but rather new interventions should reuse materials onsite and “[reinterpret] historical structures for contemporary uses…” and “integrate, shape, develop and interlink the existing patterns that were formed by it’s previous industrial

use, and suggests a new interpretation with a new syntax.”¹⁶ This desire to preserve what is already there stemmed largely from Latz’s upbringing in post-war Germany where resources were tight, which instilled in him a need to reuse “apparently useless builders’ rubble.”¹⁷ But Latz’s desire to reuse also has an ecological component to it. While discussing reuse as one of his central design tenets, he remarked:

I was not able to accept this experience with any ease, but it had something to do with arguments about ecology and an ongoing discussion about the fact that every material reprints energy processes, and that above all landfill refuse dumps are the worst thing we can do to our countryside.¹⁸

This is an important point. Latz abhors the amount of waste we carelessly dump into our landfills. If it can be reused, why not reuse it on site, or better yet, not demolish it at all? It is this idea that is attractive and has not been harnessed in the redevelopment of airports.

While Latz does not deal directly with airports regularly, the sites he does deal with are similar in many ways to airports:

What industrial landscapes have in common the world over, despite the enormous variety of cultural contexts, is the technology of heavy industry. This technology is

¹⁶ Ibid, 162.
needed everywhere in the same form for mining and in the iron and steel industries, creating similar landscape structures worldwide.\textsuperscript{19}

Like airports, industrial sites are vast spaces with lots of infrastructure. They are also a sort of ubiquitous “non-place”, albeit one which the public rarely visits. However, just like an airport has a fixed set of elements needed to be successful (runways, taxiways, terminals, etc.) so too do industrial sites. A steel plant in Illinois requires the same sort of infrastructure as a steel plant in the Rhine region of Germany. In this sense the industrial sites Latz deals with share the characteristics of sameness, ubiquity and worldwide reach as airports.

The other quality Latz deals with is size. Some of his sites verge on 230 Hectares or more, which is almost a square mile. Airports are often several times that size. Latz deals with this problem of size by taking a structural approach to design, letting existing structures and site forces dictate a system that sets up rules for design. As he notes, “size of the [sites] alone makes it impossible to design each square meter individually.”\textsuperscript{20} So, using existing systems Latz creates interactions between those systems that layer on top of each other to form new meaning and new design opportunities; “The park is not programmed

\textsuperscript{19} Ibid, 26.
\textsuperscript{20} Weilacher, 35.
to the hilt, it uses existing structures and infrastructures to order the park and let’s users proscribe it’s use.”

These strategies of preserving what is there and adding to it are interesting and vital to this thesis. They provide a starting point from which to tackle the dual problems of how to deal with the existing infrastructure and also inform attitudes about tackling the vast area of the airport. However, these are mainly large-scale site strategies. Latz is usually not concerned with concepts of re-use at the building level, unless they are being incorporated into his parks. For attitudes about reusing the terminal spaces we must turn elsewhere.

The re-use of abandoned airport terminals and concourses has been a tough subject. Airports are highly specialized buildings with highly specialized functions. In the past, old terminals were demolished because no uses were immediately apparent. But it can be argued that this lack of reusability is more perceived than real and is due more to a lack of imagination than the specificity of design of an airport terminal.

When one looks at modern day airport terminals they have several noticeable qualities. These are mainly in response to the enormous flows of people

\[21\] Kirkwood, 151.
that pass through them each day. They are usually wide-open spaces with a regular column grid. They are unfettered by many walls and have high ceilings and curtain walls and clerestories that let in lots of light. They are quite similar to warehouses and industrial buildings, however instead of housing goods or manufacturing equipment, they house travelers. They are as Stewart Brand puts it, “The Low Road” of re-use.\(^2\) Because of their flexibility, size and abandoned nature they provide enormous freedom. Brand observes:

> Low Road buildings are low-visibility, low-rent, no-style, high-turnover. Most of the world’s work is done in Low Road buildings, and even in rich societies the most inventive creativity, especially youthful creativity, will be found in Low Road buildings taking full advantage of license to try things.\(^2\)

> In other words, “Low Road” spaces are ones that induce freedom and innovation by providing a space that is easily and readily customizable.

An example Brand gives is Building 20 at MIT. Originally a leftover warehouse from WWII it was planned to be torn down to make way for a new building.\(^2\) Yet to this day, because of its flexibility, it is

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\(^{23}\) Ibid.

\(^{24}\) Ibid, 30. Brand mentions the amazing fact that Building 20 was designed in an afternoon and built in 6 months. It was made entirely out of heavy timber framing due to war-time steel shortages.
still in use by the university.

Re-use of “Low Road” buildings allows organizations to be flexible, experiment and not be concerned that they are in some way ruining a pristine environment. Walls can be moved, spaces shifted around at will and the building can otherwise be abused until the next tenant needs to completely revamp the space. “Low Road” buildings are often temporary and lack typical amenities like heating and nice floors. “Low Road” buildings are to put it another way, those buildings which no one cares about anymore, like the abandoned airport terminal. Yet what they lack in comforts they make up for in the opportunity for innovation. As Brand points out, “Economic activity follows Low Road activity.”

The innovations produced in “Low Road” buildings breeds other innovations. “Low Road” buildings demand a setting where one does not get attached to the space. People are in transit in these spaces, just like travelers in an airport, but for a longer duration of time. Instead of waiting to catch a flight

At places such as Kai Tak and Stapleton, while there was plentiful usable space in their terminals, people viewed them as useless and therefore destroyed them. Brand provides an antidote to the mentality that leads to the destruction of otherwise

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productive space. What was once a highly controlled highly specialized space, accessible only to the privileged few that had an airline ticket, becomes a place to innovate, open to all.

This re-use of the airport strives to re-purpose it in a way the preserves or critiques the modern airport in its reborn form. It recognizes the fact that an airport was there before it, but it turns the traditional concepts of airport space upside-down. What was once highly controlled, highly structured and highly segregated space, becomes free flowing and opens to the areas surrounding it. The isolation of the “non-place” of the airport is both celebrated and also rebuked. Its ubiquity is preserved in the vestiges of the terminals and infrastructures, but local culture and interactions are allowed to creep in through public access to the site. The ability for anyone to come and go and share common, understandable space is preserved in the “Low Road” re-use of the terminal buildings.
“What can I actually do with builders’ rubble, or must I hide it away in foundations? This is what actually happens to recycled materials. But I wanted these materials to make a cultural statement. So I didn’t just want them to be hidden in a roadbed, but to make people aware of the high value of these materials.” - Peter Latz
The Site

The airport chosen for this project is Midway International Airport in Chicago, IL. Located on the southwest side of the city just within the limits. It is the smaller of the two airports serving the Chicago area. It is currently located among post-war suburban development. It occupies a full square mile (840 acres) of land and is bounded on each side with primary roads.

The eastern side of the airport is where the terminal and concourses are located. In addition, this is also where the parking garage and CTA bus and “L” station are located. The site is close to Interstate 55 to the north, but it has no direct onramp to reach it, instead Midway is unique in that all roads leading to it are regular primary roads maintained by the City of Chicago. The areas surrounding Midway are mainly residential single family homes, although further afield there are industrial and commercial zones. The roads bordering the airport are mainly home to various service industries like tire shops and gas stations, although the southwest corner of the airport does have a small commercial area with bars, bakeries and

Figure 27: Midway Airport
other shops.

**Site History**

Midway has been described as the busiest square mile in the country, which is an apt description. It currently serves over 19 million passengers per year and is classified as a large hub by the FAA. It makes do with only five runways of which the longest is just over 6,000 feet. This is quite short for modern aircraft. The experience of landing at Midway is one that can be harrowing for the uninitiated. The approach is steep, and aircraft routinely come within hundreds of feet of buildings before they touch down and then use full brakes in order to stop on the short runway. Because of the dense development surrounding the airport, there is no room for expansion of runways or other significant airport infrastructure.

Midway began operations as a commercial airport in 1927 as Municipal Airport. The land for the airport was a square mile plot purchased from the Chicago Board of Education. The square mile boundaries would remain the same to the present day. After the initial construction passenger numbers grew quickly and by 1929 Midway held the title of the world’s busiest airport. Midway served as the main airport of Chicago until around the 1950’s when O’Hare airport opened. Traffic at Midway fluctuated

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1 Federal Aviation Administration, *CY 2011 Passenger Boarding and All-Cargo Data.*
Figure 30: Site Diagrams
EXISTING TERMINAL CONDITIONS

MIDWAY TIMELINE

“The Busiest Square Mile in the World”
but remained substantial at Midway for several years due to its small size and the immense level of investment at O'Hare. However, Midway would never again serve the volume of international flights it did before O'Hare opened. Due to its small size, the new jet aircraft of the day were unable to land at Midway. Passenger numbers continued to decline as travelers switched to jet aircraft and took a sharp downturn as the 70’s Oil Crisis worsened. Consequently, in 1973 the airport was virtually abandoned by commercial airlines and severed only private aviation. However, the decline would be short lived. In 1978 the airline industry was deregulated paving the way for the rise of low-cost carriers. With the Oil Shock of the 70’s largely over, passenger numbers rebounded. Combined with new jet aircraft like the Boeing 737, which could use Midway’s short runways, airlines showed a renewed interest in Midway and returned in droves. Passenger numbers steadily increased through the 80’s and into the 90’s. Eventually Southwest Airlines made Midway one of its central hubs, assuring its prosperity for the near future. In the 90’s, major investments such as the new terminal building and the CTA “L” line were made, bringing
Midway to its present form.²

**Precedents**

To facilitate the re-use of the airport several precedents will be examined looking at both site-level and building level strategies that could be employed in a design. For site level concepts, the Duisburg-Nord Landschaftspark and the re-development of Tempelhof Airport in Berlin are examined. For the building level, the SCI-Arc’s building in Los Angeles and the Chopo Museum in Mexico City are examined. Each Precedent has a certain set of ideas drawn out of it that can be applied to the re-use of the airport grounds and its terminals.

**Duisburg-Nord**

Duisburg Nord, an industrial park in the industrial heartland of Germany provides mainly general strategies at the site level. A former steel plant located there was part of a larger network of industrial plants, most of which were abandoned during the economic downturns of the 70’s and 80’s. What was left behind was conglomerated into the Emscher Landschaft Park in 1989.³ The Emscher park was massive and a plan to deal with it was presented to designers in the form of a competition in 1990. Latz +

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² This paragraph on the history of Midway is heavily indebted to two sources see [http://www.thetracon.com/MidwayHistory.htm](http://www.thetracon.com/MidwayHistory.htm) and Chicago Department of Aviation, *Midway International Airport History*, [http://www.flychicago.com/midway/en/AboutUs/History/History.aspx](http://www.flychicago.com/midway/en/AboutUs/History/History.aspx) See these sources for more in depth history of the airport.

³ Weilacher, 104.
Partners were awarded the assignment. The project however was not realized (and then only partially) until 1999.

With the site being over 230 Hectares (about .8 sq. mi.), Latz used the existing structures and features of the steel plant to order the park. Latz separated the park into several different layers and then used the interactions to allow the chaotic infrastructure of the plant to be comprehended by the visitor. This included using the embankment of the former rail lines to the site as pathways. Where these crossed with other pathways bright blue access stairs were made, connecting the ground system with the embankment system. Additionally, Latz integrated the smelting towers as observation decks, and turned old concrete storage chambers into mini gardens. Another interesting feature is that of the “water park.” It consists of old concrete cylinders used to store spare ash, which are now used by amateur divers for practice.

The strategy gleaned from Duisburg-Nord is that existing abandoned infrastructure can be used in

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4 Kirkwood, 159.
5 Ibid.
6 Kirkwood, 159.
creative ways that add additional layers of meaning to an existing site.

**Templehof Airport Park**

The Templehof Airport Park by GrossMax Landscape architects has not been realized yet. It is planned for completion in 2017. However, the plans for their winning entry shed valuable light on how to preserve the infrastructure of the airport while turning the airport over to the public. In GrossMax’s design, the runways are kept as an artifact of the airport that once was. The rest of the site is turned over to fields, allowing the runways to be used for biking, running, picnicking and other endeavors. The fields provide wide-open vistas not usually seen this close to the dense Berlin City center. The design implication for this thesis is to preserve the runways as unifying elements, but to also preserve the vistas and large open spaces that characterize “aircraft space” as described by Sudjic. In addition, while runways and open spaces will be preserved, new geometries can be weaved into the airport in the form of...
The SCI-Arc building is located in Los Angeles California and is home to the facilities of the Southern California Institute of Architecture. Designed by Gary Paige, a longtime faculty member of the Institute, the building occupies a disused rail freight shed near Los Angeles’ rail yards. It is a thin narrow building almost a quarter-mile in length. This is actually quite similar to the airport concourses at Midway. The building, while spacious, needed additional space to accommodate administrative facilities, classrooms and other ancillary spaces. The approach Paige took responded to both the historical nature of the building and the structural system inside. Rather than tack on additional space that protruded or clung to the building (which was prohibited by the Historical Review Board anyway) Paige inserted steel bracing and structure in-between the robust concrete beams in the ceiling and the concrete floor. This created a series of mezzanines or interstitial spaces into which program was inserted. The approach to detail Paige utilized emphasizes this with the structure hanging and grasping onto the concrete beams and existing park elements and urban fabric.

**SCI-Arc**

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9 Ibid.
structure where needed.

The implications for this thesis are that similar approaches can be taken to insert extra interstitial spaces into the terminal concourses. The concourses are similar in size and shape to the SCI-Arc building. Since the concourse has a robust existing steel structure self-supporting platforms of program could begin to inhabit the building, while preserving its façade.

**Chopo Museum**

The Chopo Museum in Mexico City by Ten Arquitectos was completed in 2010 and is dedicated to the display of experimental performance art. The building was originally an exhibition hall in Germany before being dismantled in 1902 and sent to Mexico City. As was the case with SCI-Arc, new structures to accommodate program had to be inserted within the existing structure, a Crystal Palace like cast iron framework with glass panels. The design featured a concept that is quite the opposite of that used in the SCI-Arc building. Instead of grasping the existing structure a

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11 Ibid.
totally independent structure, a “building within a building,” was created. This structure was inserted within the cavernous hall and does not touch the outer structure, which acts as a giant shell. The volume is a cantilevered box truss that houses the café, gallery spaces and theatre of the building. It is supported on one end by steel columns and at the midpoint by the concrete elevator shaft and core. The volume then cantilevers and violates the structure of the building by penetrating the exterior cast iron shell. The details compliment the streamlined aesthetic of the volume. Rather than express intricate detail on the volume, the architects chose to cover the volume in white reflective plastic with a high sheen. This plays off of and reflects the more intricate ironwork in the outer structure.

The implications for this thesis are that it provides an alternative and possibly complementary way to think about inserting extra space into the volumes of the concourse being re-used at Midway. While the concourse does not have as much volume as the Chopo Museum, its structural system is similar in that it is highly articulated. The detail strategy as well as the volumetric and structural strategy could be used in contrast to the strategies borrowed from

\[12\] Ibid.
Program

The programs proposed for the Midway site are varied. They consist of four main parts. First is an expanded transit/high speed rail station that connects the re-developed airport to larger urban networks after flight operations cease. The second part is a park that preserves the hangers and other airport service buildings that line the edge of the airport property. This park also preserves some of the runways and tarmacs and open spaces in between the runways and allows for wide ranging vistas of downtown Chicago and the new development. The third part is the new city portion of the re-development. This consists of a new urban grid that invades the site partially and abuts the parts of the airport that have been preserved in the park. It includes residential and commercial buildings that feed off access to the infrastructure and transit center already present at the airport. Fourth is the economic incubator that occupies one of the concourse arms, specifically Concourse B. This fourth part will be examined in depth and will call out individual spaces. The first three parts will be examined broadly at the master planning level.

The client for the economic incubator is a collaborative effort between the Illinois Institute of
Technology and the City of Chicago. IIT has been on the forefront of cutting edge research and technology. However, they decided to start the IIT Institute for Technological Entrepreneurship and Research or ITT TER. This institute is dedicated to the collaboration between academics and entrepreneurs seeking to develop the best new products. In addition the center also holds vocational job training for up and coming technology sectors for the local Chicago community. The list of spaces needed is as follows:

**Reception Lobby (1 @ 1000 sq.ft.)**

*Public, Open, Tall Space*

This is the welcoming part of the institute; it is designed to be a light, airy, open space with a reception desk, seating and other amenities for visitors.

**Café/Lounge (1 @ 600 sq.ft.)**

*Public, Open, Low, Intimate*

Café for use by the people visiting or working at ITT TER.

**Restrooms (2 @ 200 sq. ft.)**

There will be two new public restrooms in the lobby area; the other restrooms and will utilize the existing restrooms.

**Meeting/Conference Room (2 @ 500 sq. ft. each)**

*Semi-Private, Shared, Secluded*

The design includes shared conference and meet-
ing space that can be used by the various tenants to have meetings and host visitors. These rooms will be mostly dark to facilitate presentation, but they will also need access to natural lighting when not used for presentations.

**Auditorium (1 @ 800 sq. ft.)**
Auditorium space used for major presentations.

**Testing Areas (1 @ 5000 sq. ft.)**
*Private, Bare, Outside/Inside*
This is flexible space for testing of products and ideas, it is highly open spaces that can be shifted and changed according to the needs of the testing. It provides both inside and outside space, free of constraints so that ideas can be tested freely.

**Prototyping Lab (1 @ 5000 sq. ft.)**
*Private, Loud, Highly Ordered*
This space includes state of the art equipment for use by students and entrepreneurs. It includes milling, printing and other fabrication techniques for the prototyping of new products.

**Administrative Offices (1 @ 1000 sq. ft.)**
This area includes office for the staff and teachers of both the entrepreneur space and the school component.

**Work Trays (4 @ 1000 sq. ft.)**
These work trays are interstitial spaces that are flexible. This is where entrepreneurial outfits of various sizes can set up shop to work. They include breakout spaces, IT services, desks and other items for use by people working in the space.

**Small Classrooms (4 @ 300 sq. ft.)**
Small classrooms used for vocational training. They are also used for small private meetings.

**Large Classrooms (1 @ 600 sq. ft.)**
Larger Classroom for public classes.

**Net Total:** 20,600 sq.ft.

**Circulation + Mechanical (10% of net):** 2060 sq.ft.

**Gross Total:** 22,600 sq.ft.
"Even more strikingly than the rail or automotive view, the aerial view embodies extremes of artistic subjectivity and scientific objectivity. Through it we see architecture configured toward both mind and universe." - Michael Schwartzer
Airports are some of the most dynamic and interesting spaces and contain some of the most interesting infrastructure that modern man has made. It has been the contention of this thesis that these spaces and their infrastructure are worthy of preservation, not only because they are an embodiment of physical resources that should not be carelessly thrown away, but also because there is enormous opportunity to harness the unique combination of spaces and interactions housed within the boundaries of the airport. The airport is open to all, yet highly controlled. It is isolating yet at the same time freeing. It is someplace and everyplace all wrapped into one.

The questions raised in this thesis will become ever more important in the future when traditional methods of powering aircraft, or in fact travel itself, are exhausted. The question of what to do with the vast amounts of aviation spaces and infrastructure will then be of paramount importance. Until that point, man will certainly continue to expand his ability to fly as well as the infrastructures pursuant to that endeavor. The project to re-use the airport as city, park and economic incubator was an attempt to take the spatial qualities of the airport and integrate them into re-use in a thoughtful manner. Hopefully what is contained here is a starting point for questions about some of the largest, most complicated spaces and buildings we make in the modern world and how we will re-use them when the time comes.


Bender, Julie. “Denver’s Emerging ‘Aeropolitan’: Not Only the Airports Themselves, but also the Cities Surrounding them, must be Planned as Dynamic International Destinations.” Urban Land 64, no. 11 (2005): 118-122.


07 - APPENDIX A - DESIGN
Figure 40: Building Volume Diagram

Figure 41: Urban site plan
**Figure 42:** Overview of the urban proposal

**Figure 43:** Views of the Old Control Tower
**Figure 44:** Site Plan

**Figure 45:** Main Floor plan

**Figure 46:** Upper Level plan
Figure 47: Section through concourse

Figure 48: Section perspective through terminal